



**REGIONAL SPECIALISED METEOROLOGICAL CENTRE-TROPICAL CYCLONES, NEW DELHI
SPECIAL TROPICAL WEATHER OUTLOOK**

DEMS-RSMC TROPICAL CYCLONES NEW DELHI DATED 24.10.2019

SPECIAL TROPICAL WEATHER OUTLOOK FOR NORTH INDIAN OCEAN (THE BAY OF BENGAL AND ARABIAN SEA) VALID FOR NEXT 120 HOURS ISSUED AT 0700 UTC OF 24.10.2019 BASED ON 0300 UTC OF 24.10.2019.

DEPRESSION OVER EASTCENTRAL ARABIAN SEA

LATEST SATELLITE IMAGERIES AND SHIP AND BUOY OBSERVATIONS INDICATE THAT A DEPRESSION HAS FORMED OVER EASTCENTRAL ARABIAN SEA AND LAY CENTRED AT 0300 UTC OF TODAY, THE 24TH OCTOBER, 2019 NEAR LATITUDE 15.4°N AND LONGITUDE 70.4°E, ABOUT 360 KM WEST SOUTHWEST OF RATNAGIRI (43110), 490 KM SOUTHWEST OF MUMBAI (43003) AND 1750 KM EAST SOUTHEAST OF SALALAH (41316). IT IS VERY LIKELY TO INTENSIFY INTO A DEEP DEPRESSION DURING NEXT 12 HOURS AND INTO A CYCLONIC STORM DURING SUBSEQUENT 12 HOURS. IT IS VERY LIKELY TO MOVE EAST NORTHEASTWARDS TILL 25TH OCTOBER EVENING. THEN IT IS VERY LIKELY TO RECURVE AND MOVE NEARLY WESTWARDS TOWARDS SOUTH OMAN AND ADJOINING YEMEN COASTS WITH GRADUAL INTENSIFICATION DURING SUBSEQUENT 72 HOURS.

REMARKS:

SATELLITE IMAGES INDICATE INCREASE IN CONVECTION AND INCREASED ORGANISATION OF CLOUDS AROUND THE SYSTEM CENTRE DURING PAST SIX HRS. AS PER THE SATELLITE IMAGERY OF 0300 UTC ON 24TH OCTOBER, 2019, THE CURRENT INTENSITY OF THE SYSTEM IS T1.5. THE CLOUD SHOWS SHEAR PATTERN AND THE CONVECTIVE CLOUD IS ORIENTED FROM SOUTHWEST TO NORTHEAST DIRECTION. ASSOCIATED BROKEN LOW TO MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION LIES OVER EASTCENTRAL AND ADJOINING SOUTHEAST ARABIAN SEA BETWEEN LAT 11.0 °N TO 18.0 °N LONG 66.5 °E TO 74.0 °E. MINIMUM CLOUD TOP TEMPERATURE IS MINUS 93 DEG C.

THE ESTIMATED MAXIMUM SUSTAINED WIND SPEED IS 25 KNOTS GUSTING TO 35 KNOTS. THE ESTIMATED CENTRAL PRESSURE IS 1000 HPA. AT 0300 UTC OF 24TH OCTOBER, A BOUY(23451) LOCATED AT 15.0°N/68.5°E REPORTED A MEAN SEA LEVEL PRESSURE OF 1002 HPA AND MEAN SURFACE WIND SPEED OF NORTH-NORTHEASTERLY/20 KNOTS. THE SEA CONDITION IS VERY ROUGH AROUND THE SYSTEM CENTRE.

THE MJO LIES IN THE PHASE 2 WITH AMPLITUDE GREATER THAN 1. IT WILL REMAIN IN THE SAME PHASE DURING NEXT 4 DAYS. CONSIDERING THE ENVIRONMENTAL CONDITIONS, TOTAL PRECIPITABLE WATER IMAGERIES INDICATE WARM AIR ADVECTION TO THE SYSTEM CENTRE. THE LOW LEVEL RELATIVE VORTICITY INCREASED IN PAST 24 HOURS AND IS $150 \times 10^{-5} \text{SEC}^{-1}$ AROUND THE SYSTEM CENTRE. POSITIVE VORTICITY IS EXTENDING UPTO 200 HPA LEVEL. THE LOWER LEVEL CONVERGENCE IS ABOUT $20 \times 10^{-5} \text{S}^{-1}$ SOUTH OF THE SYSTEM CENTER. THE UPPER LEVEL DIVERGENCE IS ABOUT $30 \times 10^{-5} \text{S}^{-1}$ TO THE SOUTHWEST OF THE SYSTEM CENTER. THE VERTICAL WIND SHEAR IS MODERATE (15-20 KNOTS) OVER THE SYSTEM. THE UPPER TROPOSPHERIC RIDGE RUNS ALONG 18° N. SEA SURFACE TEMPERATURE OVER MOST PARTS OF EASTCENTRAL ARABIAN SEA IS 29-30°C AND TROPICAL CYCLONE HEAT POTENTIAL IS 80 KJ/CM² OVER THE REGION THEREBY FAVORING FURTHER INTENSIFICATION.

AS THE SYSTEM LIES TO THE SOUTH OF UPPER TROPOSPHERIC RIDGE AND IS BEING STEERED BY MIDDLE AND UPPER TROPOSPHERIC WINDS, IT IS VERY LIKELY TO MOVE EAST-NORTHEASTWARDS TILL 25TH EVENING UNDER THE INFLUENCE OF MID-LATITUDE WETTERLY TROUGH AT MIDDLE AND UPPER-TROPOSPHERIC LEVELS. FROM 25TH EVENING THE STEERING FLOW IS EXPECTED TO CHANGE WITH THE ABOVE TROUGH BECOMING INSIGNIFICANT. MAJORITY OF NUMERICAL MODELS INCLUDING ECMWF, NCMRWF UNIFIED MODELS (NCUM), NCMRWF ENSEMBLE PREDICTION SYSTEM (NEPS), IMD GLOBAL FORECAST SYSTEM (GFS), NCEP GFS, GLOBAL ENSEMBLE FORECASTING SYSTEM (GEFS) AGREE WITH THE ABOVE ANALYSIS.

**(SUNITHA DEVI)
SCIENTIST-E, RSMC, NEW DELHI**

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

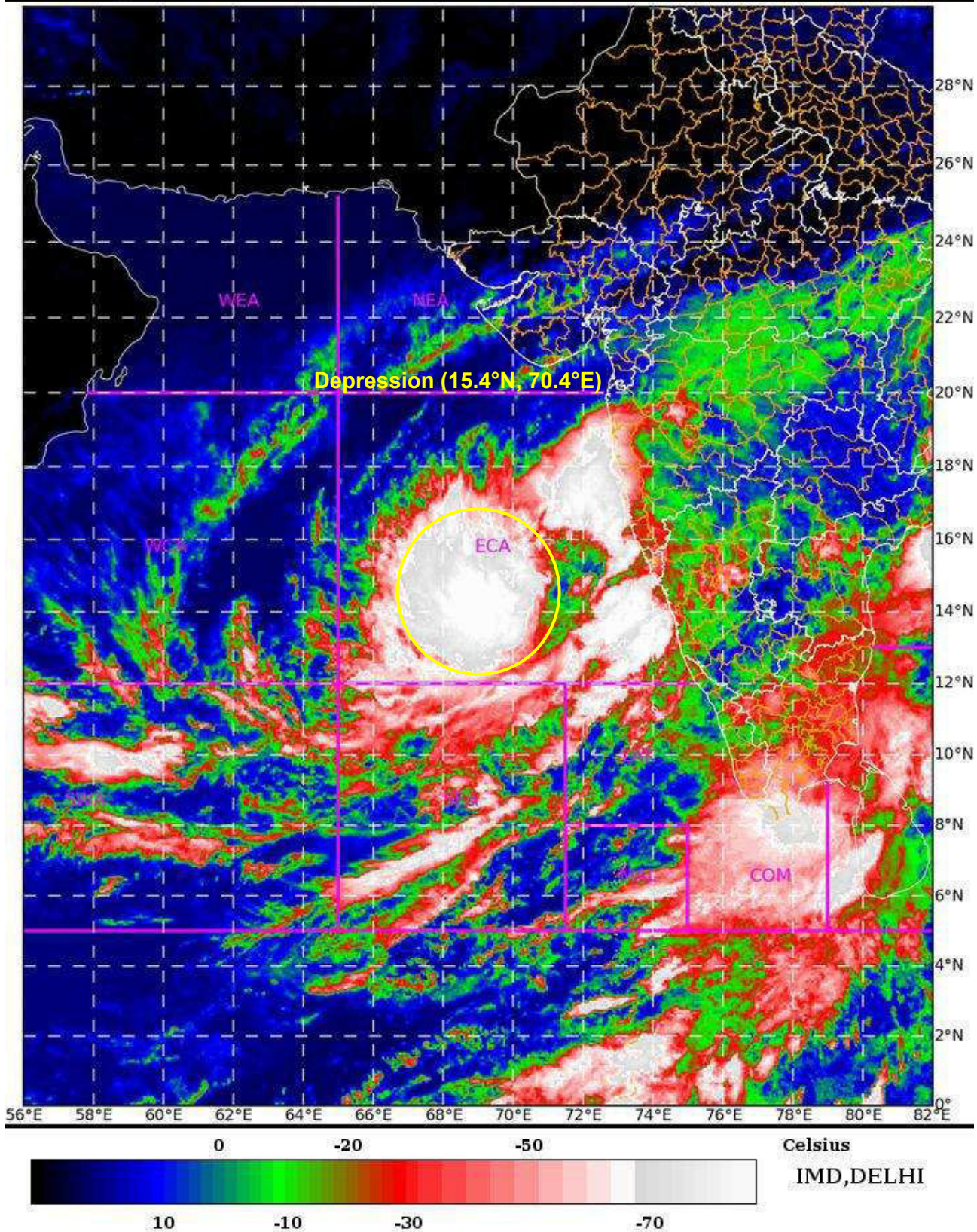
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24-10-2019/(0600 to 0627) GMT

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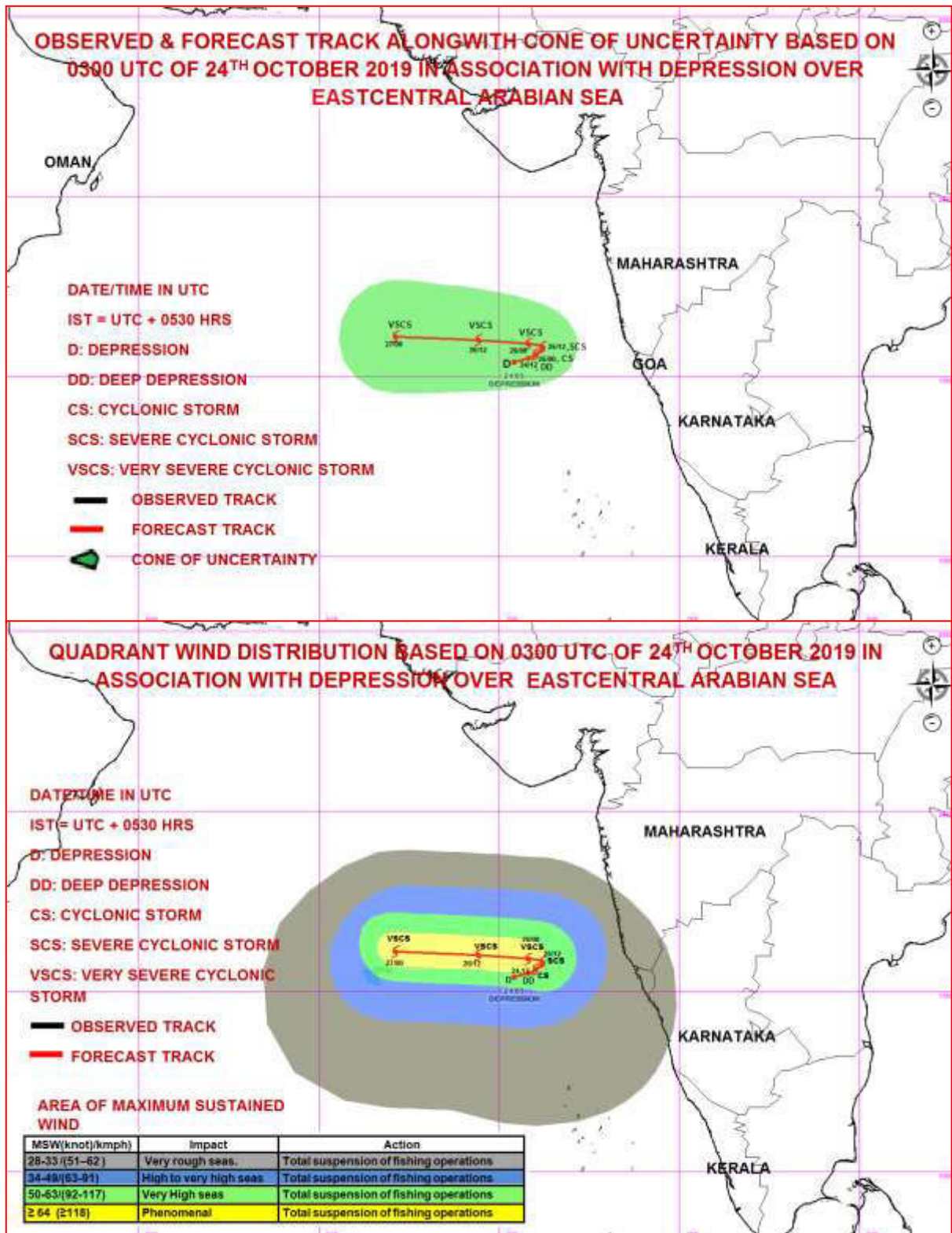
24-10-2019/(1130 to 1157) IST

ARABIAN_SEA



PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%



PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%



**REGIONAL SPECIALISED METEOROLOGICAL CENTRE-TROPICAL CYCLONES, NEW DELHI
SPECIAL TROPICAL WEATHER OUTLOOK**

DEMS-RSMC TROPICAL CYCLONES NEW DELHI DATED 24.10.2019

SPECIAL TROPICAL WEATHER OUTLOOK FOR NORTH INDIAN OCEAN (THE BAY OF BENGAL AND ARABIAN SEA) VALID FOR NEXT 120 HOURS ISSUED AT 1500 UTC OF 24.10.2019 BASED ON 1200 UTC OF 24.10.2019.

DEPRESSION OVER EASTCENTRAL ARABIAN SEA INTENSIFIED INTO A DEEP DEPRESSION

THE DEPRESSION OVER EASTCENTRAL ARABIAN SEA MOVED EASTNORTHEASTWARDS WITH A SPEED OF 7KMPH DURING THE PAST 6-HOURS AND INTENSIFIED INTO A DEEP DEPRESSION OVER EASTCENTRAL ARABIAN SEA AND LAY CENTRED AT 1200 UTC OF TODAY, THE 24TH OCTOBER, 2019 NEAR LATITUDE 15.5°N AND LONGITUDE 70.8°E, ABOUT 310 KM WEST SOUTHWEST OF RATNAGIRI (43110), 450 KM SOUTHWEST OF MUMBAI (43003) AND 1790 KM EAST SOUTHEAST OF SALALAH (41316). IT IS VERY LIKELY TO INTENSIFY INTO A CYCLONIC STORM DURING NEXT 12 HOURS. IT IS VERY LIKELY TO MOVE EAST NORTHEASTWARDS TILL AROUND 1200UTC OF 25TH OCTOBER. THEN IT IS VERY LIKELY TO RECURVE AND MOVE NEARLY WESTWARDS TOWARDS SOUTH OMAN AND ADJOINING YEMEN COASTS WITH GRADUAL INTENSIFICATION DURING SUBSEQUENT 72 HOURS.

REMARKS:

SATELLITE IMAGES INDICATE FURTHER ORGANISATION OF CLOUDS AROUND THE SYSTEM CENTRE DURING PAST SIX HOURS HAVING CDO PATTERN. AS PER THE SATELLITE IMAGERY OF 1200 UTC ON 24TH OCTOBER, 2019, THE CURRENT INTENSITY OF THE SYSTEM IS T1.5. ASSOCIATED BROKEN LOW TO MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION LIES OVER EAST CENTRAL AND ADJOINING SOUTHEAST ARABIAN SEA BETWEEN LAT 11.0°N TO 18.0°N LONG 66.5°E TO 73.0°E. THE MINIMUM CTT IS MINUS 93 DEG C.

THE ESTIMATED MAXIMUM SUSTAINED WIND SPEED IS 30 KNOTS GUSTING TO 40 KNOTS. THE ESTIMATED CENTRAL PRESSURE IS 998 HPA. AT 1200 UTC OF 24TH OCTOBER, A BOUY(23451) LOCATED AT 14.5°N/68.5°E REPORTED A MEAN SEA LEVEL PRESSURE OF 1001 HPA AND MEAN SURFACE WIND SPEED OF NORTH-NORTHEASTERLY/15 KNOTS. THE SEA CONDITION IS VERY ROUGH AROUND THE SYSTEM CENTRE.

THE MJO LIES IN THE PHASE 2 WITH AMPLITUDE GREATER THAN 1. IT WILL REMAIN IN THE SAME PHASE DURING NEXT 4 DAYS. CONSIDERING THE ENVIRONMENTAL CONDITIONS, TOTAL PRECIPITABLE WATER IMAGERIES INDICATE WARM AIR ADVECTION TO THE SYSTEM CENTRE. THE LOW LEVEL RELATIVE VORTICITY IS $200 \times 10^{-5} \text{SEC}^{-1}$ AROUND THE SYSTEM CENTRE. POSITIVE VORTICITY IS EXTENDING UPTO 200 HPA LEVEL. THE LOWER LEVEL CONVERGENCE IS ABOUT $10 \times 10^{-5} \text{S}^{-1}$ SOUTH OF THE SYSTEM CENTER. THE UPPER LEVEL DIVERGENCE IS ABOUT $20 \times 10^{-5} \text{S}^{-1}$ TO THE SOUTH OF THE SYSTEM CENTER. THE VERTICAL WIND SHEAR IS MODERATE (15-25 KNOTS) OVER THE SYSTEM. THE UPPER TROPOSPHERIC RIDGE RUNS ALONG 16° N. SEA SURFACE TEMPERATURE OVER MOST PARTS OF EASTCENTRAL ARABIAN SEA IS 29-30°C AND TROPICAL CYCLONE HEAT POTENTIAL IS 80 KJ/CM² OVER THE REGION THEREBY FAVORING FURTHER INTENSIFICATION.

AS THE SYSTEM LIES TO THE SOUTH OF UPPER TROPOSPHERIC RIDGE AND IS BEING STEERED BY MIDDLE AND UPPER TROPOSPHERIC WINDS, IT IS VERY LIKELY TO MOVE EAST-NORTHEASTWARDS TILL 1200UTC OF 25TH OCTOBER UNDER THE INFLUENCE OF MID-LATITUDE WESTERLY TROUGH AT MIDDLE AND UPPER-TROPOSPHERIC LEVELS. FROM 1200UTC OF 25TH OCTOBER, THE STEERING FLOW IS EXPECTED TO CHANGE WITH THE ABOVE TROUGH BECOMING INSIGNIFICANT. MAJORITY OF NUMERICAL MODELS INCLUDING ECMWF, NCMRWF UNIFIED MODELS (NCUM), NCMRWF ENSEMBLE PREDICTION SYSTEM (NEPS), IMD GLOBAL FORECAST SYSTEM (GFS), NCEP GFS, GLOBAL ENSEMBLE FORECASTING SYSTEM (GEFS) AGREE WITH THE ABOVE ANALYSIS.

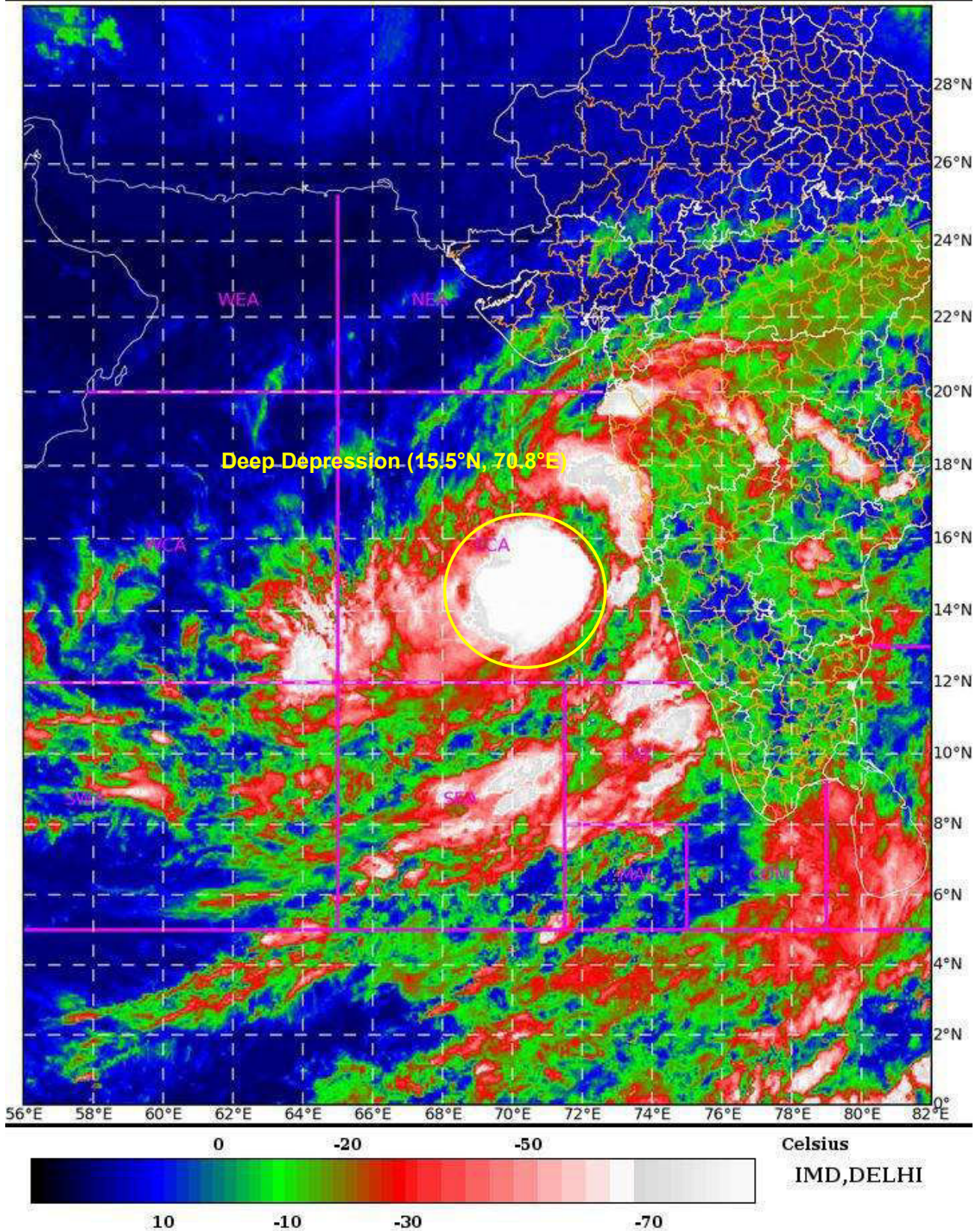
**(R. K. JENAMANI)
SCIENTIST-F, RSMC, NEW DELHI**

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

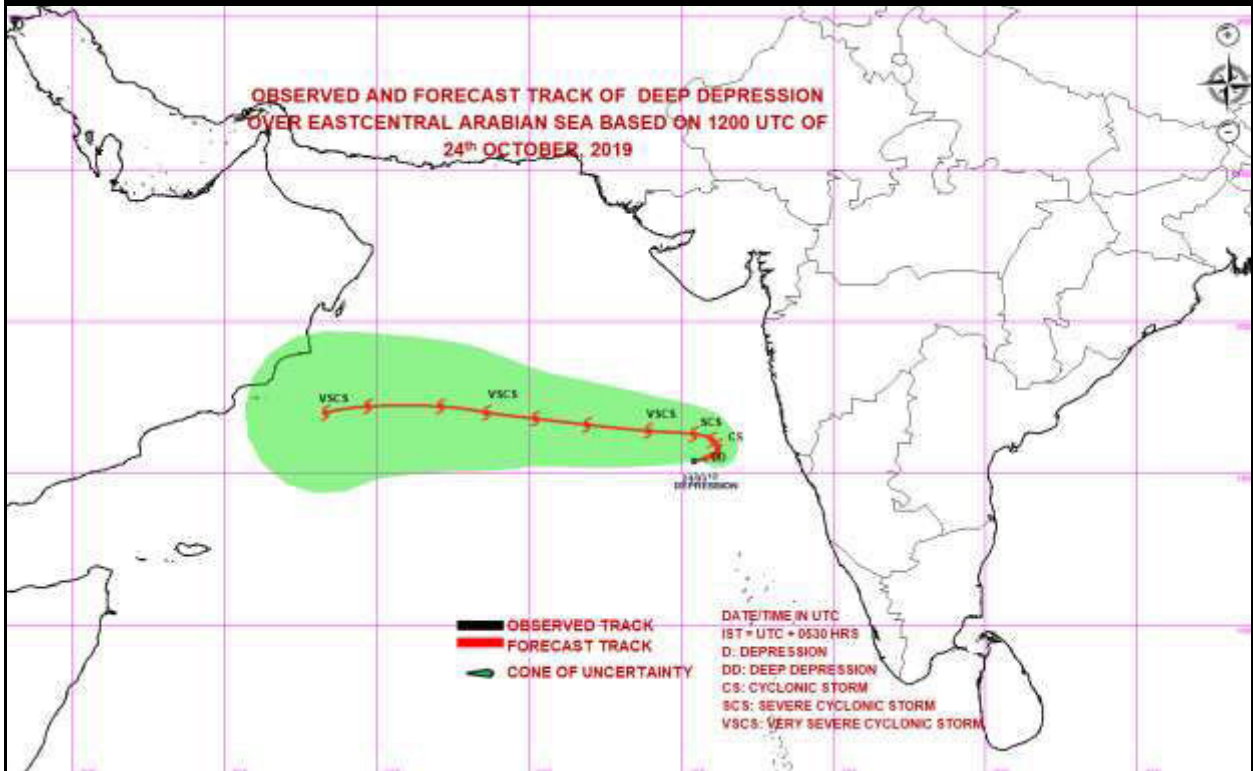
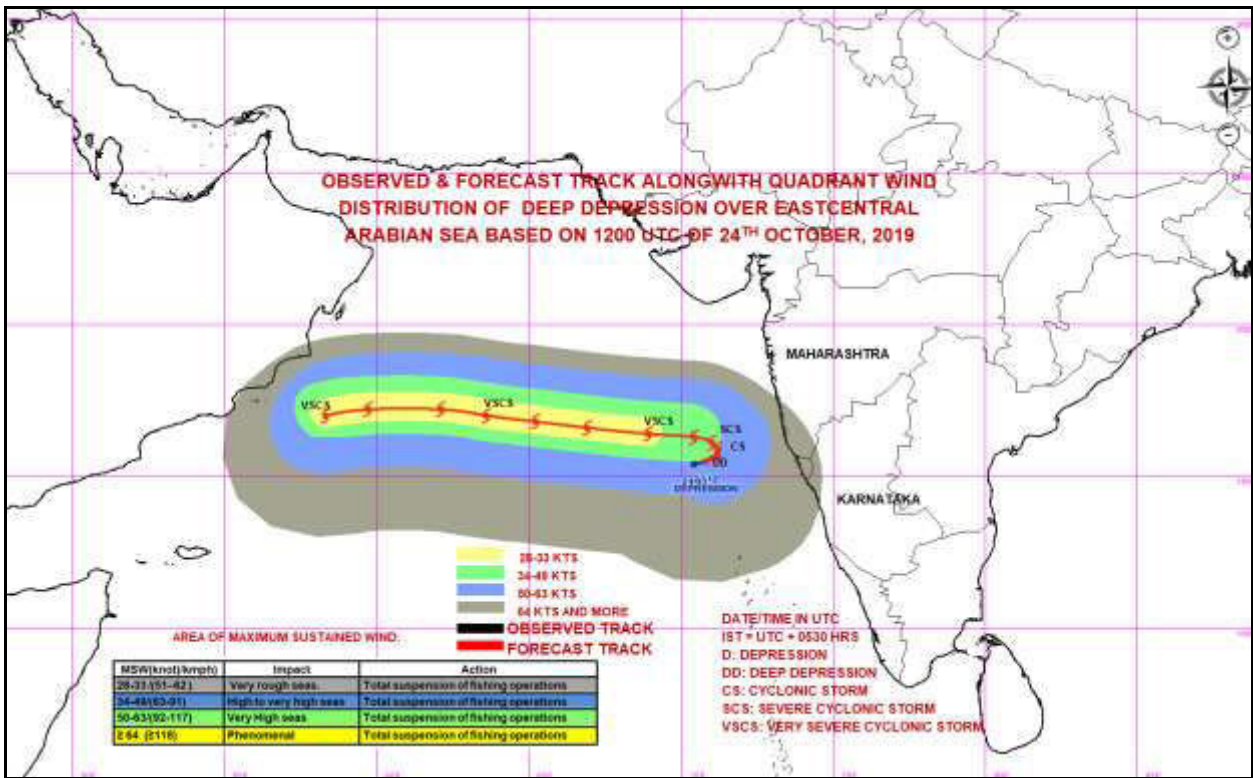


ARABIAN SEA



PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%



PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%



**REGIONAL SPECIALISED METEOROLOGICAL CENTRE-TROPICAL CYCLONES, NEW DELHI
TROPICAL CYCLONE ADVISORY BULLETIN NO. 1**

DEMS-RSMC TROPICAL CYCLONES NEW DELHI DATED 24.10.2019

SPECIAL TROPICAL WEATHER OUTLOOK FOR NORTH INDIAN OCEAN (THE BAY OF BENGAL AND ARABIAN SEA) VALID FOR NEXT 120 HOURS ISSUED AT 2100 UTC OF 24.10.2019 BASED ON 1800 UTC OF 24.10.2019.

DEEP DEPRESSION OVER EASTCENTRAL ARABIAN SEA

THE DEEP DEPRESSION OVER EASTCENTRAL ARABIAN SEA MOVED EAST-NORTHEASTWARDS WITH A SPEED OF 10 KMPH DURING THE PAST 6-HOURS AND LAY CENTRED AT 1800 UTC OF TODAY, THE 24TH OCTOBER, 2019 NEAR LATITUDE 15.7°N AND LONGITUDE 71.3°E OVER EASTCENTRAL ARABIAN SEA, ABOUT 260 KM WEST-SOUTHWEST OF RATNAGIRI (43110), 410 KM SOUTH-SOUTHWEST OF MUMBAI (43003) AND 1860 KM EAST OF SALALAH (41316). IT IS VERY LIKELY TO INTENSIFY INTO A CYCLONIC STORM DURING NEXT 06 HOURS. IT IS VERY LIKELY TO MOVE EAST-NORTHEASTWARDS TILL AROUND 1200 UTC OF 25TH OCTOBER. THEN IT IS VERY LIKELY TO RECURVE AND MOVE NEARLY WESTWARDS TOWARDS SOUTH OMAN AND ADJOINING YEMEN COASTS WITH GRADUAL INTENSIFICATION DURING SUBSEQUENT 72 HOURS.

Forecast track and intensity are given in the following table:

Date/Time(UTC)	Position (Lat. °N/ long. °E)	Maximum sustained surface wind speed (Kmph)	Category of cyclonic disturbance
24.10.19/1800	15.7/71.3	55-65 gusting to 75	Deep Depression
25.10.19/0000	15.8/71.5	65-75 gusting to 85	Cyclonic Storm
25.10.19/0600	16.0/71.7	70-80 gusting to 90	Cyclonic Storm
25.10.19/1200	16.2/71.7	80-90 gusting to 100	Cyclonic Storm
25.10.19/1800	16.3/71.4	90-100 gusting to 110	Severe Cyclonic Storm
26.10.19/0600	16.4/70.7	110-120 gusting to 130	Severe Cyclonic Storm
26.10.19/1800	16.5/69.1	125-135 gusting to 150	Very Severe Cyclonic Storm
27.10.19/0600	16.7/67.4	140-150 gusting to 165	Very Severe Cyclonic Storm
27.10.19/1800	16.9/65.7	155-165 gusting to 185	Very Severe Cyclonic Storm
28.10.19/0600	17.1/64.0	140-150 gusting to 165	Very Severe Cyclonic Storm
28.10.19/1800	17.1/62.3	130-140 gusting to 155	Very Severe Cyclonic Storm
29.10.19/0600	17.0/60.6	125-135 gusting to 150	Very Severe Cyclonic Storm
29.10.19/1800	16.9/58.9	120-130 gusting to 145	Very Severe Cyclonic Storm

REMARKS:

SATELLITE IMAGES INDICATE FURTHER ORGANISATION OF CLOUDS AROUND THE SYSTEM CENTRE DURING PAST SIX HOURS HAVING CDO PATTERN. AS PER THE SATELLITE IMAGERY OF 1700 UTC ON 24TH OCTOBER, 2019, THE CURRENT INTENSITY OF THE SYSTEM IS T2.0. ASSOCIATED BROKEN LOW TO MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION LIES OVER EAST CENTRAL ARABIAN SEA BETWEEN LAT 12.0°N TO 17.0°N LONG 67.5°E TO 73.0°E. THE MINIMUM CTT IS MINUS 93 DEG C.

THE ESTIMATED MAXIMUM SUSTAINED WIND SPEED IS 30 KNOTS GUSTING TO 40 KNOTS. THE ESTIMATED CENTRAL PRESSURE IS 998 HPA. AT 1800 UTC OF 24TH OCTOBER, A BOUY(23451) LOCATED AT 14.9°N/69.0°E REPORTED A MEAN SEA LEVEL PRESSURE OF 1004.3 HPA, ANOTHER BOUY(23456) LOCATED AT 18.5°N/67.5°E REPORTED A MEAN SEA LEVEL PRESSURE OF 1008 HPA AND SOUTH-SOUTHWESTERLY WIND WITH SPEED 12 KNOTS AND A SHIP(MAOR5) LOCATED AT 15.6°N/67.9°E REPORTED A MEAN SEA LEVEL PRESSURE OF 1006 HPA, NORTH-NORTHWESTERLY WIND WITH SPEED 27 KNOTS AND SST 28.9°C. THE SEA CONDITION IS VERY ROUGH AROUND THE SYSTEM CENTRE.

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

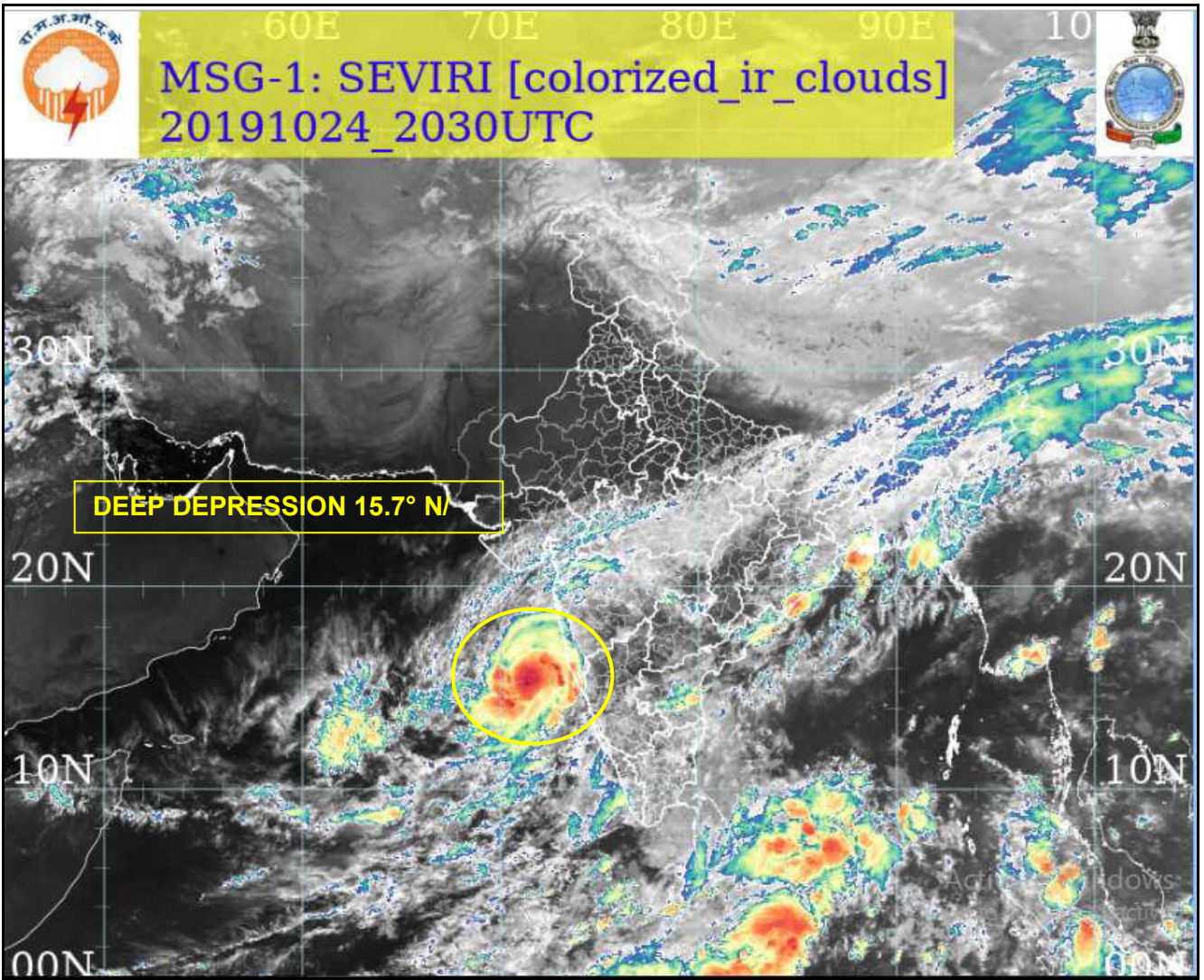
THE MJO LIES IN THE PHASE 2 WITH AMPLITUDE GREATER THAN 1. IT WILL REMAIN IN THE SAME PHASE DURING NEXT 4 DAYS. CONSIDERING THE ENVIRONMENTAL CONDITIONS, TOTAL PRECIPITABLE WATER IMAGERIES INDICATE WARM AIR ADVECTION TO THE SYSTEM CENTRE. THE LOW LEVEL RELATIVE VORTICITY IS $200 \times 10^{-5} \text{SEC}^{-1}$ AROUND THE SYSTEM CENTRE. POSITIVE VORTICITY IS EXTENDING UPTO 200 HPA LEVEL. THE LOWER LEVEL CONVERGENCE IS ABOUT $10 \times 10^{-5} \text{S}^{-1}$ TO THE SOUTHEAST OF THE SYSTEM CENTER. THE UPPER LEVEL DIVERGENCE IS ABOUT $30 \times 10^{-5} \text{S}^{-1}$ TO THE SOUTH OF THE SYSTEM CENTER. THE VERTICAL WIND SHEAR IS MODERATE TO HIGH (20-25 KNOTS) OVER THE SYSTEM. THE UPPER TROPOSPHERIC RIDGE RUNS ALONG 16° N. SEA SURFACE TEMPERATURE OVER MOST PARTS OF EASTCENTRAL ARABIAN SEA IS $29-30^{\circ}\text{C}$ AND TROPICAL CYCLONE HEAT POTENTIAL IS 80 KJ/CM^2 OVER THE REGION THEREBY FAVORING FURTHER INTENSIFICATION.

AS THE SYSTEM LIES TO THE SOUTH OF UPPER TROPOSPHERIC RIDGE AND IS BEING STEERED BY MIDDLE AND UPPER TROPOSPHERIC WINDS, IT IS VERY LIKELY TO MOVE EAST-NORTHEASTWARDS TILL 1200 UTC OF 25TH OCTOBER UNDER THE INFLUENCE OF MID-LATITUDE WESTERLY TROUGH AT MIDDLE AND UPPER-TROPOSPHERIC LEVELS. FROM 1200 UTC OF 25TH OCTOBER, THE STEERING FLOW IS EXPECTED TO CHANGE WITH THE ABOVE TROUGH BECOMING INSIGNIFICANT. MAJORITY OF NUMERICAL MODELS INCLUDING ECMWF, NCMRWF UNIFIED MODELS (NCUM), NCMRWF ENSEMBLE PREDICTION SYSTEM (NEPS), IMD GLOBAL FORECAST SYSTEM (GFS), NCEP GFS, GLOBAL ENSEMBLE FORECASTING SYSTEM (GEFS) AGREE WITH THE ABOVE ANALYSIS.

(VR DURAI)
SCIENTIST-E, RSMC, NEW DELHI

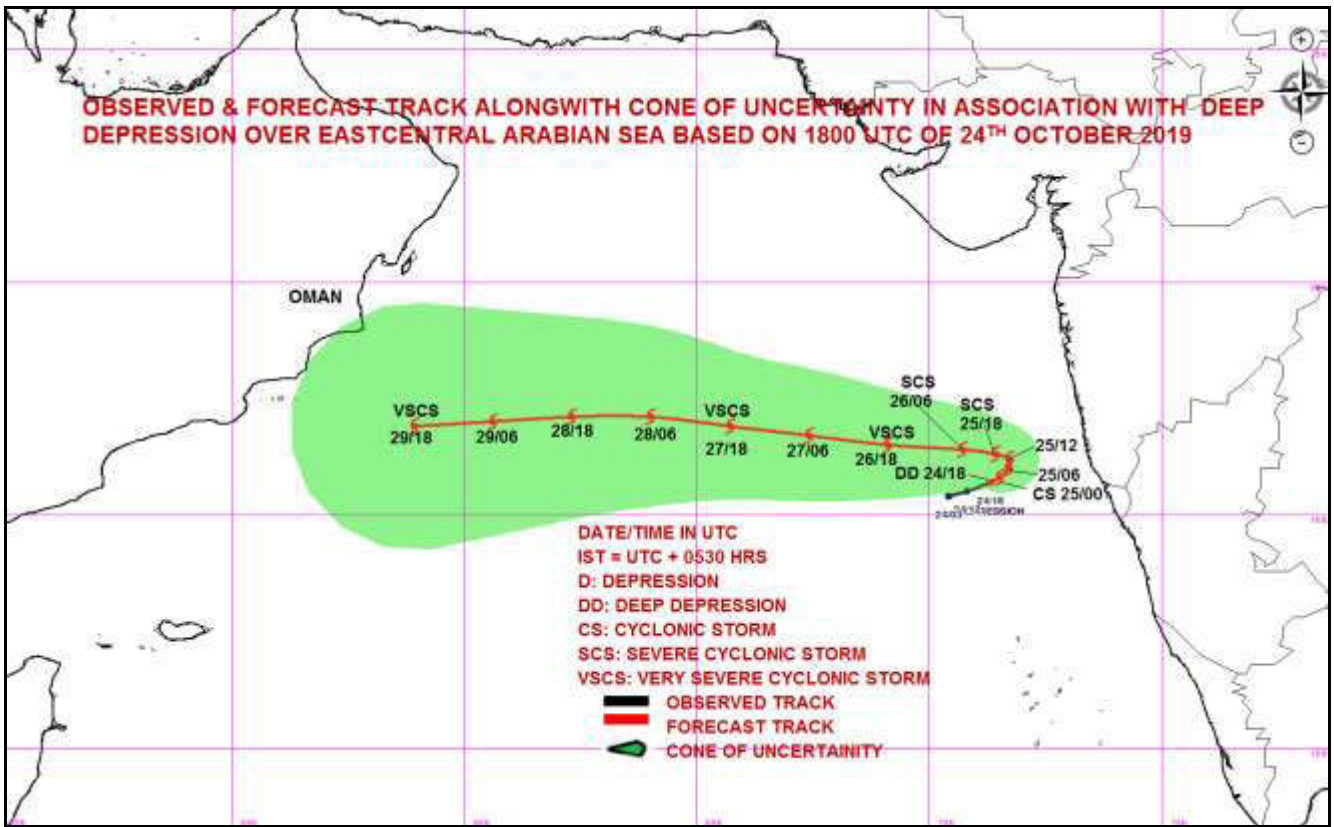
PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

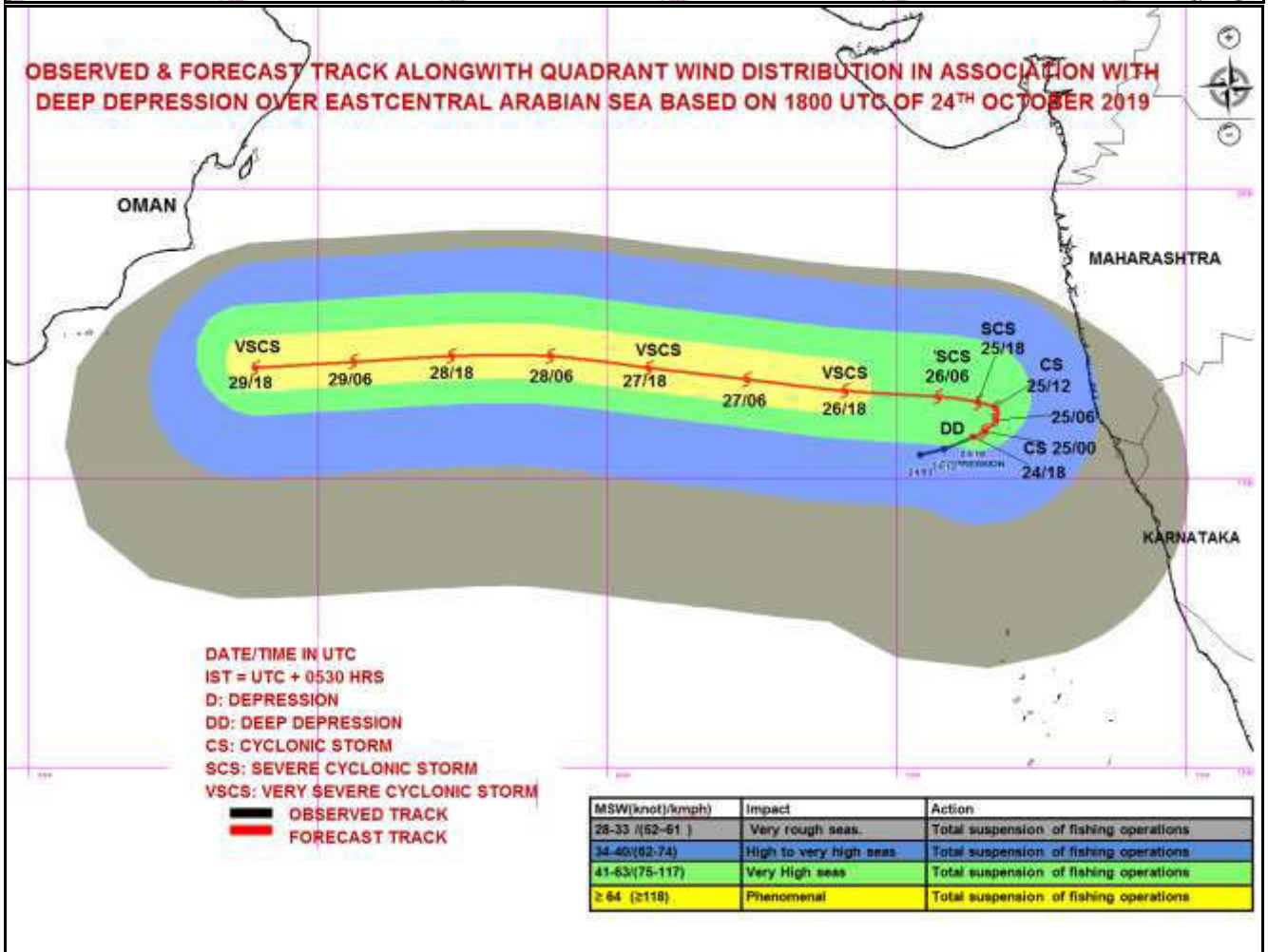


PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)
NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

OBSERVED & FORECAST TRACK ALONGWITH CONE OF UNCERTAINTY IN ASSOCIATION WITH DEEP DEPRESSION OVER EASTCENTRAL ARABIAN SEA BASED ON 1800 UTC OF 24TH OCTOBER 2019



OBSERVED & FORECAST TRACK ALONGWITH QUADRANT WIND DISTRIBUTION IN ASSOCIATION WITH DEEP DEPRESSION OVER EASTCENTRAL ARABIAN SEA BASED ON 1800 UTC OF 24TH OCTOBER 2019



PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%



**REGIONAL SPECIALISED METEOROLOGICAL CENTRE-TROPICAL CYCLONES, NEW DELHI
TROPICAL CYCLONE ADVISORY BULLETIN NO. 1**

FROM: RSMC –TROPICAL CYCLONES, NEW DELHI

**TO: STORM WARNING CENTRE, NAYPYI TAW (MYANMAR)
STORM WARNING CENTRE, BANGKOK (THAILAND)
STORM WARNING CENTRE, COLOMBO (SRILANKA)
STORM WARNING CENTRE, DHAKA (BANGLADESH)
STORM WARNING CENTRE, KARACHI (PAKISTAN)
METEOROLOGICAL OFFICE, MALE (MALDIVES)
OMAN METEOROLOGICAL DEPARTMENT, MUSCAT (THROUGH RTH JEDDAH)
YEMEN METEOROLOGICAL SERVICES, REPUBLIC OF YEMEN (THROUGH RTH JEDDAH)
NATIONAL CENTRE FOR METEOROLOGY, UAE (THROUGH RTH JEDDAH)
PRESIDENCY OF METEOROLOGY AND ENVIRONMENT, SAUDI ARABIA (THROUGH RTH JEDDAH)
IRAN METEOROLOGICAL ORGANISATION, (THROUGH RTH JEDDAH)
QATAR METEOROLOGICAL DEPARTMENT (THROUGH RTH JEDDAH)**

TROPICAL CYCLONE ADVISORY No. 1 FOR NORTH INDIAN OCEAN (THE BAY OF BENGAL AND ARABIAN SEA) VALID FOR NEXT 120 HOURS ISSUED AT 0300 UTC OF 25.10.2019 BASED ON 0000 UTC OF 25.10.2019.

SUB: CYCLONIC STORM 'KYARR' (PRONOUNCED AS KYARR) OVER EASTCENTRAL ARABIAN SEA

THE DEEP DEPRESSION OVER EASTCENTRAL ARABIAN SEA MOVED NORTHWARDS WITH A SPEED OF 05 KMPH DURING THE PAST 6-HOURS, INTENSIFIED INTO A CYCLONIC STORM '**KYARR**' (**PRONOUNCED AS KYARR**) AND LAY CENTRED AT 0000 UTC OF TODAY, THE 25TH OCTOBER, 2019 NEAR LATITUDE 16.0°N AND LONGITUDE 71.3°E OVER EASTCENTRAL ARABIAN SEA, ABOUT 240 KM WEST-SOUTHWEST OF RATNAGIRI (43110), 380 KM SOUTH-SOUTHWEST OF MUMBAI (43003) AND 1850 KM EAST-SOUTHEAST OF SALALAH (41316). IT IS VERY LIKELY TO MOVE WEST-NORTHWESTWARDS TOWARDS OMAN COAST DURING NEXT 5 DAYS. IT IS VERY LIKELY TO INTENSIFY INTO A SEVERE CYCLONIC STORM DURING NEXT 24 HOURS AND INTO A VERY SEVERE CYCLONIC STORM DURING SUBSEQUENT 12 HOURS.

Forecast track and intensity are given in the following table:

Date/Time(UTC)	Position (Lat. °N/ long. °E)	Maximum sustained surface wind speed (Kmph)	Category of cyclonic disturbance
25.10.19/0000	16.0/71.3	65-75 gusting to 85	Cyclonic Storm
25.10.19/0600	16.1/71.2	70-80 gusting to 90	Cyclonic Storm
25.10.19/1200	16.2/71.1	80-90 gusting to 100	Cyclonic Storm
25.10.19/1800	16.4/70.7	90-100 gusting to 110	Severe Cyclonic Storm
26.10.19/0000	16.6/70.2	100-110 gusting to 120	Severe Cyclonic Storm
26.10.19/1200	16.9/69.2	125-135 gusting to 150	Very Severe Cyclonic Storm
27.10.19/0000	17.3/68.0	150-160 gusting to 175	Very Severe Cyclonic Storm
27.10.19/1200	17.8/66.5	170-180 gusting to 200	Very Severe Cyclonic Storm
28.10.19/0000	18.3/65.1	170-180 gusting to 200	Very Severe Cyclonic Storm
28.10.19/1200	18.8/64.0	160-170 gusting to 190	Very Severe Cyclonic Storm
29.10.19/0000	19.2/62.9	150-160 gusting to 175	Very Severe Cyclonic Storm
29.10.19/1200	19.6/62.1	140-150 gusting to 165	Very Severe Cyclonic Storm
30.10.19/0000	20.0/61.4	125-135 gusting to 150	Very Severe Cyclonic Storm

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

REMARKS:

SATELLITE IMAGES INDICATE FURTHER ORGANISATION OF CLOUDS AROUND THE SYSTEM CENTRE DURING PAST SIX HOURS HAVING CDO PATTERN. AS PER THE SATELLITE IMAGERY OF 0000 UTC ON 25TH OCTOBER, 2019, THE CURRENT INTENSITY OF THE SYSTEM IS T2.5. ASSOCIATED BROKEN LOW TO MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION LIES OVER EAST CENTRAL ARABIAN SEA BETWEEN LAT 14.0⁰N TO 18.5⁰N LONG 69.5⁰E TO 73.5⁰E. THE MINIMUM CTT IS MINUS 93 DEG C.

THE ESTIMATED MAXIMUM SUSTAINED WIND SPEED IS 40 KNOTS GUSTING TO 50 KNOTS. THE ESTIMATED CENTRAL PRESSURE IS 996 HPA. AT 0000 UTC OF 25TH OCTOBER, A BOUY(23451) LOCATED AT 14.8°N/68.9°E REPORTED A MEAN SEA LEVEL PRESSURE OF 1002.4 HPA, ANOTHER BOUY(23452) LOCATED AT 12°N/68.6°E REPORTED A MEAN SEA LEVEL PRESSURE OF 1006.2 HPA AND SOUTH-SOUTHWESTERLY WIND WITH SPEED 18 KNOTS AND RATNAGIRI (43110) REPORTED A MEAN SEA LEVEL PRESSURE OF 999 HPA AND SOUTH-SOUTHEASTERLY WIND WITH SPEED 10 KNOTS . THE SEA CONDITION IS VERY ROUGH AROUND THE SYSTEM CENTRE.

THE MJO LIES IN THE PHASE 2 WITH AMPLITUDE GREATER THAN 1. IT WILL REMAIN IN THE SAME PHASE DURING NEXT 4 DAYS. CONSIDERING THE ENVIRONMENTAL CONDITIONS, TOTAL PRECIPITABLE WATER IMAGERIES INDICATE WARM AIR ADVECTION TO THE SYSTEM CENTRE. THE LOW LEVEL RELATIVE VORTICITY IS $200 \times 10^{-5} \text{SEC}^{-1}$ AROUND THE SYSTEM CENTRE. POSITIVE VORTICITY IS EXTENDING UPTO 200 HPA LEVEL. THE LOWER LEVEL CONVERGENCE IS ABOUT $10 \times 10^{-5} \text{S}^{-1}$ TO THE SOUTHEAST OF THE SYSTEM CENTER. THE UPPER LEVEL DIVERGENCE IS ABOUT $20 \times 10^{-5} \text{S}^{-1}$ TO THE SOUTH OF THE SYSTEM CENTER. THE VERTICAL WIND SHEAR IS LIGHT TO MODERATE (05-10 KNOTS) OVER THE SYSTEM. THE UPPER TROPOSPHERIC RIDGE RUNS ALONG 17° N. SEA SURFACE TEMPERATURE OVER MOST PARTS OF EASTCENTRAL ARABIAN SEA IS 29-30°C AND TROPICAL CYCLONE HEAT POTENTIAL IS 80 KJ/CM2 OVER THE REGION THEREBY FAVORING FURTHER INTENSIFICATION.

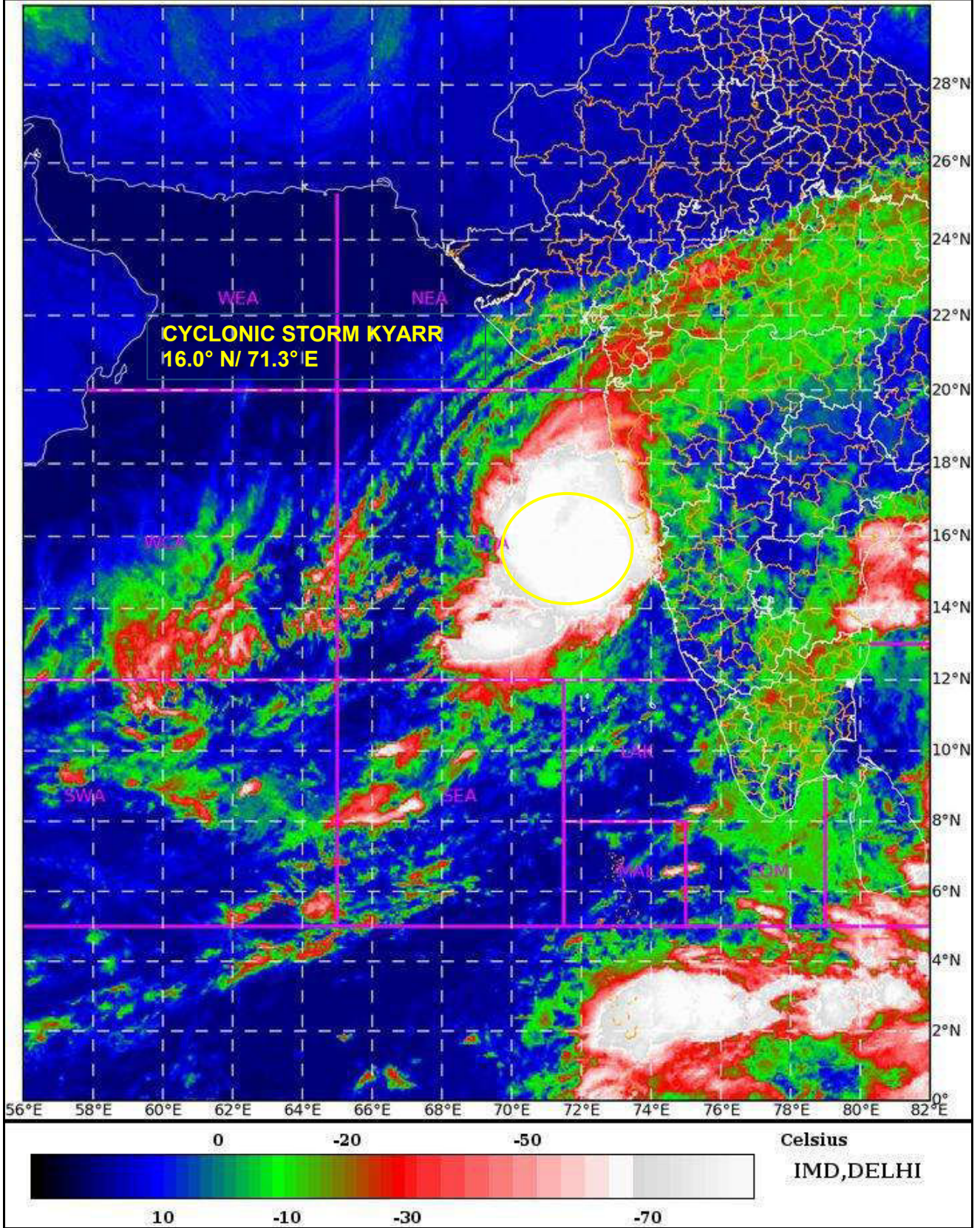
AS THE SYSTEM LIES TO THE SOUTH OF UPPER TROPOSPHERIC RIDGE AND IS BEING STEERED BY MIDDLE AND UPPER TROPOSPHERIC WINDS, IT IS VERY LIKELY TO MOVE EAST-NORTHEASTWARDS TILL 1200 UTC OF 25TH OCTOBER UNDER THE INFLUENCE OF MID-LATITUDE WESTERLY TROUGH AT MIDDLE AND UPPER-TROPOSPHERIC LEVELS. FROM 1200 UTC OF 25TH OCTOBER, THE STEERING FLOW IS EXPECTED TO CHANGE WITH THE ABOVE TROUGH BECOMING INSIGNIFICANT. MAJORITY OF NUMERICAL MODELS INCLUDING ECMWF, NCMRWF UNIFIED MODELS (NCUM), NCMRWF ENSEMBLE PREDICTION SYSTEM (NEPS), IMD GLOBAL FORECAST SYSTEM (GFS), NCEP GFS, GLOBAL ENSEMBLE FORECASTING SYSTEM (GEFS) AGREE WITH THE ABOVE ANALYSIS.

(VR DURAI)
SCIENTIST-E, RSMC, NEW DELHI

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

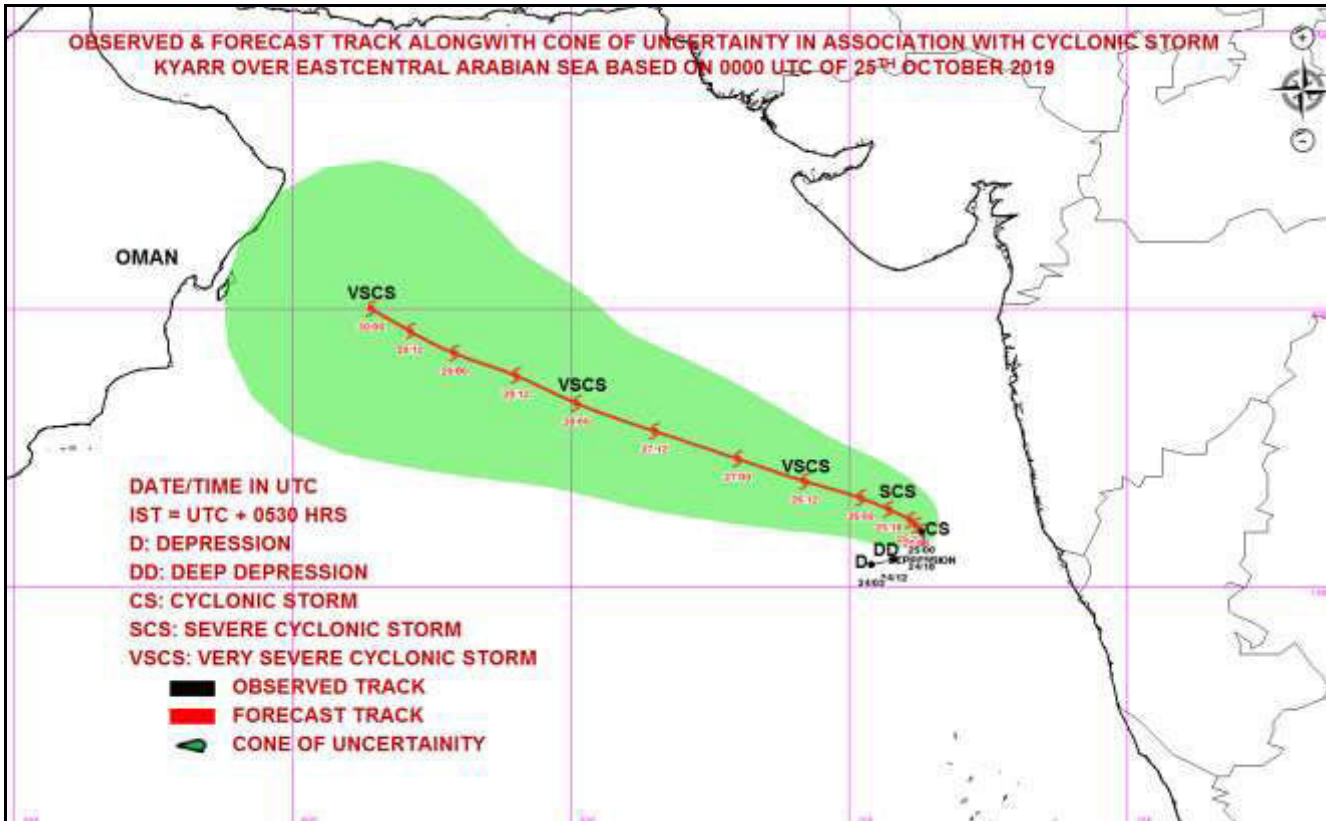
NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

SAT : INSAT-3D IMG 25-10-2019/(0230 to 0257) GMT
IMG_TIR1_TEMP 10.8 um 25-10-2019/(0800 to 0827) IST
ARABIAN_SEA

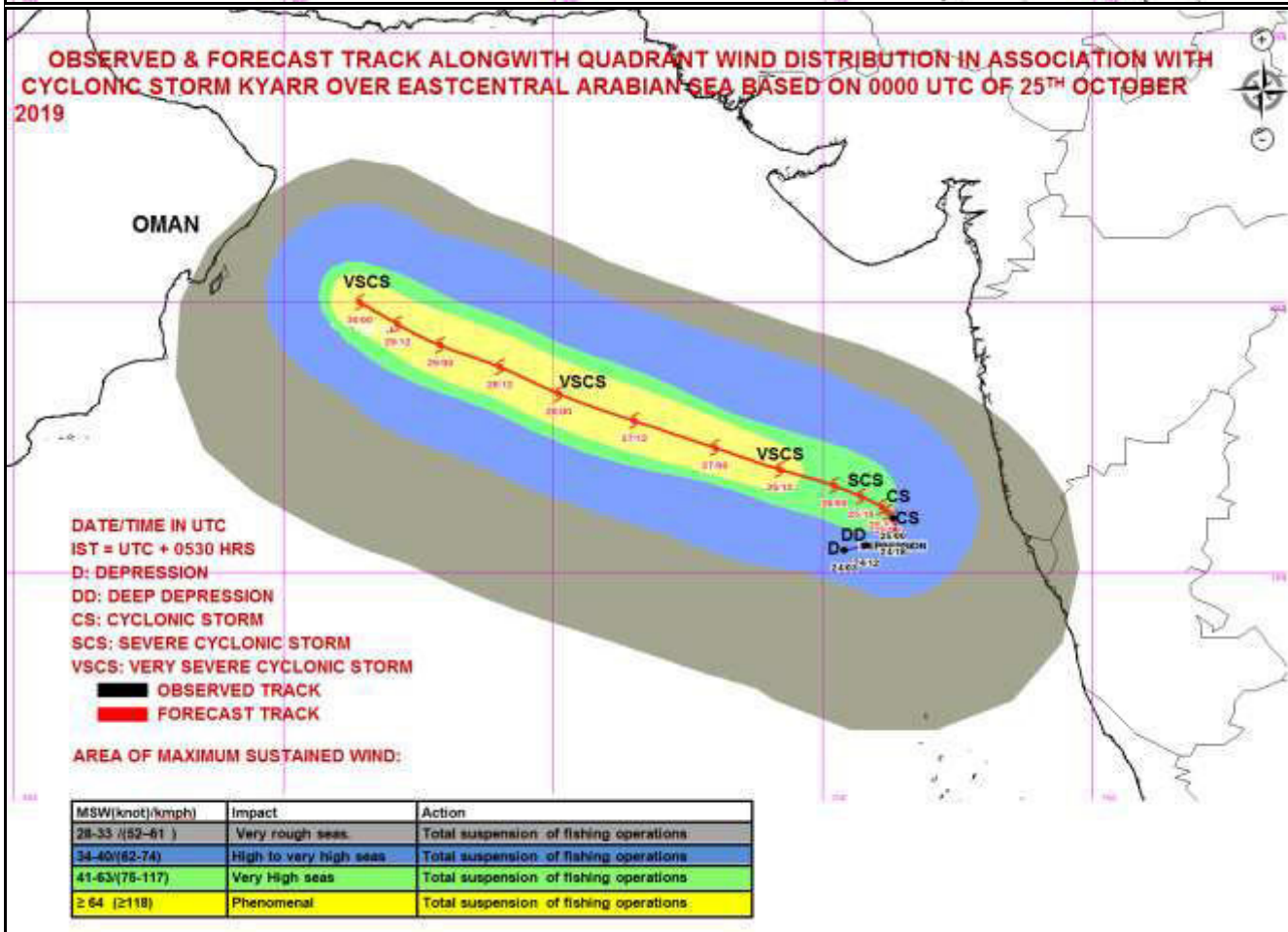


PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)
NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

OBSERVED & FORECAST TRACK ALONGWITH CONE OF UNCERTAINTY IN ASSOCIATION WITH CYCLONIC STORM KYARR OVER EASTCENTRAL ARABIAN SEA BASED ON 0000 UTC OF 25TH OCTOBER 2019



OBSERVED & FORECAST TRACK ALONGWITH QUADRANT WIND DISTRIBUTION IN ASSOCIATION WITH CYCLONIC STORM KYARR OVER EASTCENTRAL ARABIAN SEA BASED ON 0000 UTC OF 25TH OCTOBER 2019



PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%



**REGIONAL SPECIALISED METEOROLOGICAL CENTRE-TROPICAL CYCLONES, NEW DELHI
TROPICAL CYCLONE ADVISORY BULLETIN NO. 2**

FROM: RSMC –TROPICAL CYCLONES, NEW DELHI

**TO: STORM WARNING CENTRE, NAYPYI TAW (MYANMAR)
STORM WARNING CENTRE, BANGKOK (THAILAND)
STORM WARNING CENTRE, COLOMBO (SRILANKA)
STORM WARNING CENTRE, DHAKA (BANGLADESH)
STORM WARNING CENTRE, KARACHI (PAKISTAN)
METEOROLOGICAL OFFICE, MALE (MALDIVES)
OMAN METEOROLOGICAL DEPARTMENT, MUSCAT (THROUGH RTH JEDDAH)
YEMEN METEOROLOGICAL SERVICES, REPUBLIC OF YEMEN (THROUGH RTH JEDDAH)
NATIONAL CENTRE FOR METEOROLOGY, UAE (THROUGH RTH JEDDAH)
PRESIDENCY OF METEOROLOGY AND ENVIRONMENT, SAUDI ARABIA (THROUGH RTH JEDDAH)
IRAN METEOROLOGICAL ORGANISATION, (THROUGH RTH JEDDAH)
QATAR METEOROLOGICAL DEPARTMENT (THROUGH RTH JEDDAH)**

TROPICAL CYCLONE ADVISORY No. 2 FOR NORTH INDIAN OCEAN (THE BAY OF BENGAL AND ARABIAN SEA) VALID FOR NEXT 120 HOURS ISSUED AT 0530 UTC OF 25.10.2019 BASED ON 0300 UTC OF 25.10.2019.

SUB: CYCLONIC STORM 'KYARR' (PRONOUNCED AS KYARR) OVER EASTCENTRAL ARABIAN SEA

THE CYCLONIC STORM 'KYARR' (PRONOUNCED AS KYARR) OVER EASTCENTRAL ARABIAN SEA MOVED NORTH-NORTHEASTWARDS WITH A SPEED OF 07 KMPH DURING THE PAST 06-HOURS AND LAY CENTRED AT 0300 UTC OF TODAY, THE 25TH OCTOBER, 2019 NEAR LATITUDE 16.0°N AND LONGITUDE 71.6°E OVER EASTCENTRAL ARABIAN SEA, ABOUT 210 KM WEST-SOUTHWEST OF RATNAGIRI (43110), 370 KM SOUTH-SOUTHWEST OF MUMBAI (43003) AND 1870 KM EAST-SOUTHEAST OF SALALAH (41316). IT IS VERY LIKELY TO MOVE NEARLY NORTHWARDS DURING NEXT 12 HOURS AND THEN MOVE WEST-NORTHWESTWARDS TOWARDS OMAN COAST DURING SUBSEQUENT 5 DAYS. IT IS VERY LIKELY TO INTENSIFY INTO A SEVERE CYCLONIC STORM DURING NEXT 12 HOURS AND INTO A VERY SEVERE CYCLONIC STORM DURING SUBSEQUENT 24 HOURS.

FORECAST TRACK AND INTENSITY ARE GIVEN IN THE FOLLOWING TABLE:

DATE/TIME(UTC)	POSITION (LAT. °N/ LONG. °E)	MAXIMUM SUSTAINED SURFACE WIND SPEED (KMPH)	CATEGORY OF CYCLONIC DISTURBANCE
25.10.19/0300	16.0/71.6	70-80 GUSTING TO 90	CYCLONIC STORM
25.10.19/0600	16.1/71.8	80-90 GUSTING TO 100	CYCLONIC STORM
25.10.19/1200	16.2/72.0	90-100 GUSTING TO 110	SEVERE CYCLONIC STORM
25.10.19/1800	16.4/71.8	100-110 GUSTING TO 120	SEVERE CYCLONIC STORM
26.10.19/0000	16.6/70.6	125-135 GUSTING TO 150	VERY SEVERE CYCLONIC STORM
26.10.19/1200	16.9/69.2	150-160 GUSTING TO 175	VERY SEVERE CYCLONIC STORM
27.10.19/0000	17.3/68.0	170-180 GUSTING TO 200	EXTREMELY SEVERE CYCLONIC STORM
27.10.19/1200	17.8/66.5	170-180 GUSTING TO 200	EXTREMELY SEVERE CYCLONIC STORM
28.10.19/0000	18.3/65.1	165-175 GUSTING TO 195	EXTREMELY SEVERE CYCLONIC STORM
28.10.19/1200	18.8/64.0	160-170 GUSTING TO 190	EXTREMELY SEVERE CYCLONIC STORM
29.10.19/0000	19.2/62.9	150-160 GUSTING TO 180	VERY SEVERE CYCLONIC STORM
29.10.19/1200	19.4/61.9	140-150 GUSTING TO 165	VERY SEVERE CYCLONIC STORM
30.10.19/0000	19.6/60.8	130-140 GUSTING TO 155	VERY SEVERE CYCLONIC STORM

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

REMARKS:

SATELLITE IMAGES INDICATE FURTHER ORGANISATION AND STEADILY INCREASING CONVECTION AROUND THE SYSTEM CENTRE DURING PAST SIX HOURS HAVING CDO PATTERN. AS PER THE SATELLITE IMAGERY OF 0300 UTC ON 25TH OCTOBER, 2019, THE CURRENT INTENSITY OF THE SYSTEM IS T2.5. ASSOCIATED BROKEN LOW TO MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION LIES OVER EAST CENTRAL ARABIAN SEA BETWEEN LAT 14.0⁰N TO 19.5⁰N EAST OF LONG 69.5⁰E. THE MINIMUM CTT IS MINUS 93 DEG C.

THE ESTIMATED MAXIMUM SUSTAINED WIND SPEED IS 40 KNOTS GUSTING TO 50 KNOTS. THE ESTIMATED CENTRAL PRESSURE IS 996 HPA. AT 0300 UTC OF 25TH OCTOBER, A BOUY(23451) LOCATED AT 14.9°N/69.0°E REPORTED A MEAN SEA LEVEL PRESSURE OF 1004.6 HPA AND NORTH-NORTHEASTERLY WIND WITH SPEED 18 KNOTS, RATNAGIRI (43110) REPORTED A MEAN SEA LEVEL PRESSURE OF 1000.6 HPA AND EAST-SOUTHEASTERLY WIND WITH SPEED 10 KNOTS AND GOA (43192) REPORTED A MEAN SEA LEVEL PRESSURE OF 1004.6 HPA AND SOUTH-SOUTHWESTERLY WIND WITH SPEED 16 KNOTS. THE SEA CONDITION IS VERY ROUGH AROUND THE SYSTEM CENTRE.

THE MJO LIES IN THE PHASE 2 WITH AMPLITUDE GREATER THAN 1. IT WILL REMAIN IN THE SAME PHASE DURING NEXT 4 DAYS. CONSIDERING THE ENVIRONMENTAL CONDITIONS, TOTAL PRECIPITABLE WATER IMAGERIES INDICATE WARM AIR ADVECTION TO THE SYSTEM CENTRE. THE LOW LEVEL RELATIVE VORTICITY IS $200 \times 10^{-5} \text{SEC}^{-1}$ TO THE SOUTH OF THE SYSTEM CENTRE. POSITIVE VORTICITY IS EXTENDING UPTO 200 HPA LEVEL. THE LOWER LEVEL CONVERGENCE IS ABOUT $20 \times 10^{-5} \text{S}^{-1}$ TO THE SOUTH-SOUTHEAST OF THE SYSTEM CENTER. THE UPPER LEVEL DIVERGENCE IS ABOUT $20 \times 10^{-5} \text{S}^{-1}$ TO THE SOUTH OF THE SYSTEM CENTER. THE VERTICAL WIND SHEAR IS MODERATE (15 KNOTS) OVER THE SYSTEM CENTER THE UPPER TROPOSPHERIC RIDGE RUNS ALONG 17° N. SEA SURFACE TEMPERATURE OVER MOST PARTS OF EASTCENTRAL ARABIAN SEA IS 29-30°C AND TROPICAL CYCLONE HEAT POTENTIAL IS 80 KJ/CM2 OVER THE REGION THEREBY FAVORING FURTHER INTENSIFICATION.

AS THE SYSTEM LIES CLOSE TO AND TO THE SOUTH OF UPPER TROPOSPHERIC RIDGE AND IS BEING STEERED BY MIDDLE AND UPPER TROPOSPHERIC WINDS, IT IS VERY LIKELY TO MOVE NEARLY NORTHWARDS FOR SOME MORE TIME AND RE-CURVE WEST-NORTHWESTWARDS FROM AROUND 1800 UTC OF 25TH OCTOBER UNDER THE INFLUENCE OF UPPER-TROPOSPHERIC RIDGE. MAJORITY OF NUMERICAL MODELS INCLUDING ECMWF, NCMRWF UNIFIED MODELS (NCUM), NCMRWF ENSEMBLE PREDICTION SYSTEM (NEPS), IMD GLOBAL FORECAST SYSTEM (GFS), NCEP GFS, GLOBAL ENSEMBLE FORECATING SYSTEM (GEFS) AGREE WITH THE ABOVE INFERENCE.

(SUNITHA DEVI.S)
SCIENTIST-E, RSMC, NEW DELHI

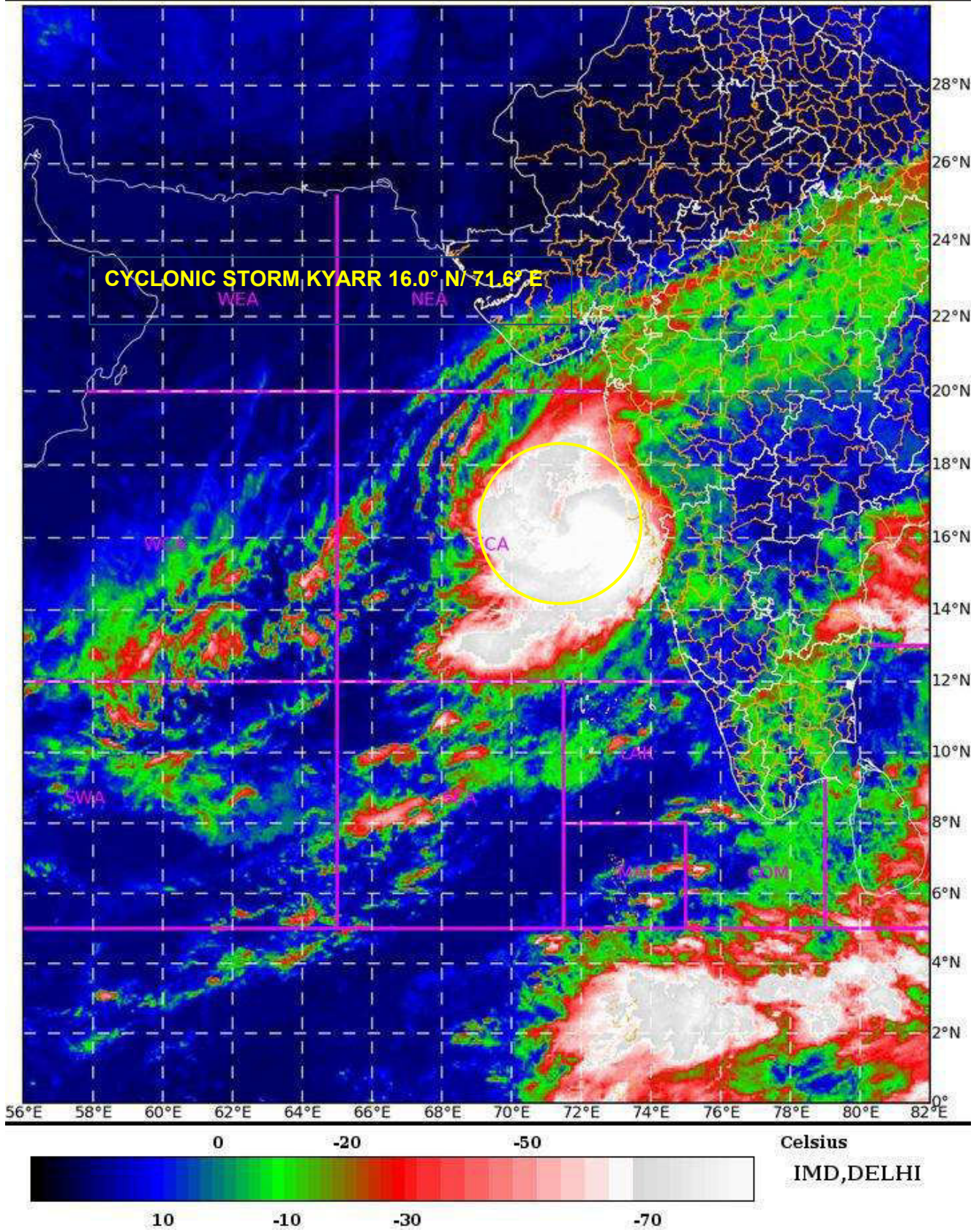
PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

SAT : INSAT-3D IMG 25-10-2019/(0400 to 0427) GMT

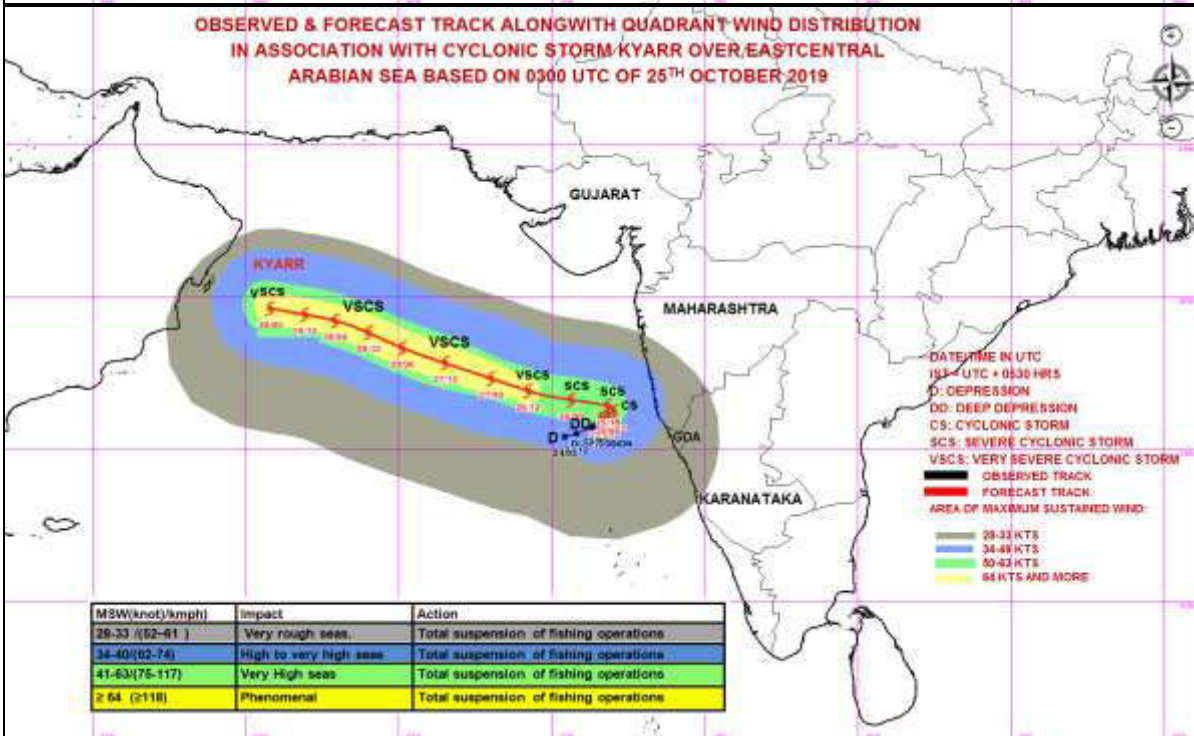
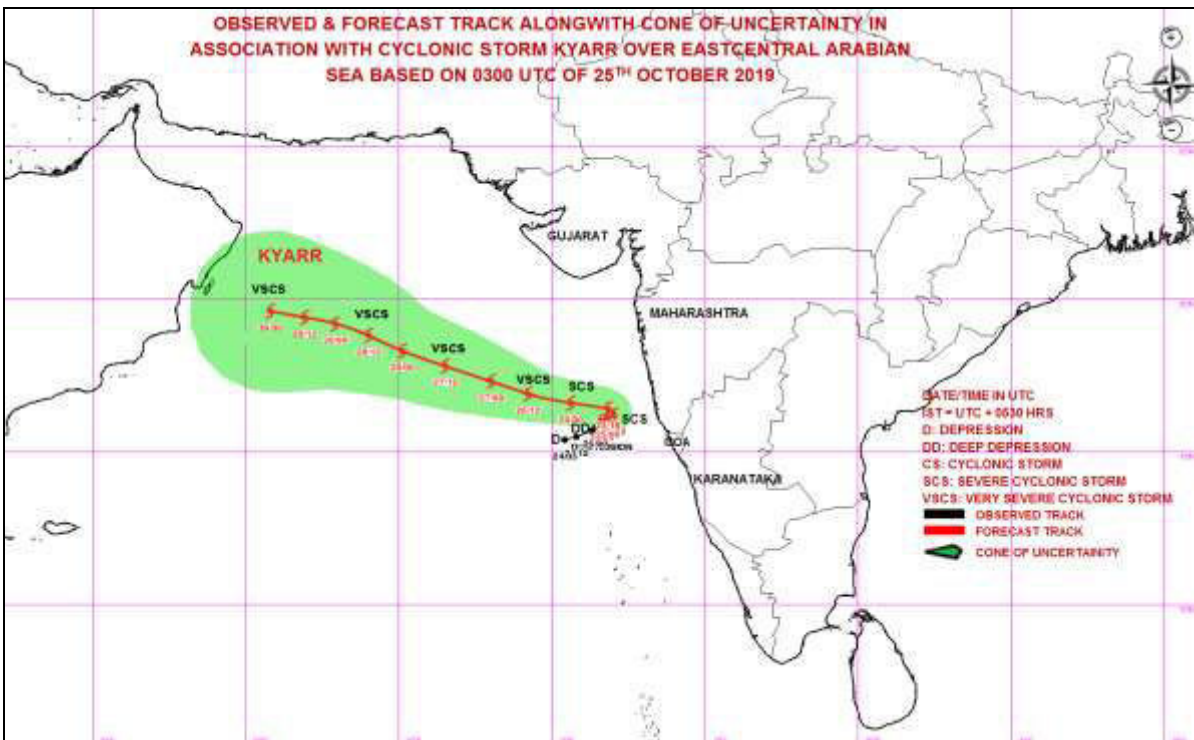
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ARABIAN_SEA



PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%



PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%



**REGIONAL SPECIALISED METEOROLOGICAL CENTRE-TROPICAL CYCLONES, NEW DELHI
TROPICAL CYCLONE ADVISORY BULLETIN NO.3**

FROM: RSMC –TROPICAL CYCLONES, NEW DELHI

**TO: STORM WARNING CENTRE, NAYPYI TAW (MYANMAR)
STORM WARNING CENTRE, BANGKOK (THAILAND)
STORM WARNING CENTRE, COLOMBO (SRILANKA)
STORM WARNING CENTRE, DHAKA (BANGLADESH)
STORM WARNING CENTRE, KARACHI (PAKISTAN)
METEOROLOGICAL OFFICE, MALE (MALDIVES)
OMAN METEOROLOGICAL DEPARTMENT, MUSCAT (THROUGH RTH JEDDAH)
YEMEN METEOROLOGICAL SERVICES, REPUBLIC OF YEMEN (THROUGH RTH JEDDAH)
NATIONAL CENTRE FOR METEOROLOGY, UAE (THROUGH RTH JEDDAH)
PRESIDENCY OF METEOROLOGY AND ENVIRONMENT, SAUDI ARABIA (THROUGH RTH JEDDAH)
IRAN METEOROLOGICAL ORGANISATION, (THROUGH RTH JEDDAH)
QATAR METEOROLOGICAL DEPARTMENT (THROUGH RTH JEDDAH)**

TROPICAL CYCLONE ADVISORY No. 3 FOR NORTH INDIAN OCEAN (THE BAY OF BENGAL AND ARABIAN SEA) VALID FOR NEXT 120 HOURS ISSUED AT 0900 UTC OF 25.10.2019 BASED ON 0600 UTC OF 25.10.2019.

SUB: CYCLONIC STORM 'KYARR' (PRONOUNCED AS KYARR) OVER EASTCENTRAL ARABIAN SEA

THE CYCLONIC STORM 'KYARR' (PRONOUNCED AS KYARR) OVER EASTCENTRAL ARABIAN SEA MOVED NORTH-NORTHEASTWARDS WITH A SPEED OF 09 KMPH DURING THE PAST 06-HOURS AND LAY CENTRED AT 0600 UTC OF TODAY, THE 25TH OCTOBER, 2019 NEAR LATITUDE 16.1°N AND LONGITUDE 71.8°E OVER EASTCENTRAL ARABIAN SEA, ABOUT 190 KM NEARLY TO THE WEST OF RATNAGIRI (43110), 350 KM SOUTH-SOUTHWEST OF MUMBAI (43003) AND 1890 KM EAST-SOUTHEAST OF SALALAH (41316). IT IS VERY LIKELY TO MOVE NEARLY NORTHWARDS DURING NEXT 6 HOURS AND THEN MOVE WEST-NORTHWESTWARDS TOWARDS OMAN COAST DURING SUBSEQUENT 5 DAYS. IT IS VERY LIKELY TO INTENSIFY INTO A SEVERE CYCLONIC STORM DURING NEXT 12 HOURS AND INTO A VERY SEVERE CYCLONIC STORM DURING SUBSEQUENT 12 HOURS.

FORECAST TRACK AND INTENSITY ARE GIVEN IN THE FOLLOWING TABLE:

DATE/TIME(UTC)	POSITION (LAT. °N/ LONG. °E)	MAXIMUM SUSTAINED SURFACE WIND SPEED (KMPH)	CATEGORY OF CYCLONIC DISTURBANCE
25.10.19/0600	16.1/71.8	80-90 GUSTING TO 100	CYCLONIC STORM
25.10.19/1200	16.2/71.8	90-100 GUSTING TO 110	SEVERE CYCLONIC STORM
25.10.19/1800	16.4/71.5	100-110 GUSTING TO 120	SEVERE CYCLONIC STORM
26.10.19/0000	16.6/70.6	125-135 GUSTING TO 150	VERY SEVERE CYCLONIC STORM
26.10.19/0600	16.7/69.9	135-145 GUSTING TO 160	VERY SEVERE CYCLONIC STORM
26.10.19/1800	17.1/68.6	150-160 GUSTING TO 175	VERY SEVERE CYCLONIC STORM
27.10.19/0600	17.6/67.3	170-180 GUSTING TO 200	EXTREMELY SEVERE CYCLONIC STORM
27.10.19/1800	18.1/65.8	170-180 GUSTING TO 200	EXTREMELY SEVERE CYCLONIC STORM
28.10.19/0600	18.6/64.5	160-170 GUSTING TO 190	EXTREMELY SEVERE CYCLONIC STORM
28.10.19/1800	19.0/63.5	150-160 GUSTING TO 180	VERY SEVERE CYCLONIC STORM
29.10.19/0600	19.3/62.4	140-150 GUSTING TO 165	VERY SEVERE CYCLONIC STORM
29.10.19/1800	19.5/61.3	135-145 GUSTING TO 160	VERY SEVERE CYCLONIC STORM
30.10.19/0600	19.7/60.3	125-135 GUSTING TO 150	VERY SEVERE CYCLONIC STORM

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

REMARKS:

SATELLITE IMAGES INDICATE FURTHER ORGANISATION AND STEADILY INCREASING CONVECTION AROUND THE SYSTEM CENTRE DURING PAST SIX HOURS HAVING CURVED BAND PATTERN. AS PER THE SATELLITE IMAGERY OF 0600 UTC ON 25TH OCTOBER, 2019, THE CURRENT INTENSITY OF THE SYSTEM IS T3.0. ASSOCIATED BROKEN LOW TO MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION LIES OVER EAST CENTRAL ARABIAN SEA BETWEEN LAT 14.0°N TO 19.5°N EAST OF LONG 69.5°E. THE MINIMUM CTT IS MINUS 93 DEG C.

THE ESTIMATED MAXIMUM SUSTAINED WIND SPEED IS 45 KNOTS GUSTING TO 55 KNOTS. THE ESTIMATED CENTRAL PRESSURE IS 994 HPA. AT 0600 UTC OF 25TH OCTOBER, RATNAGIRI (43110) REPORTED A MEAN SEA LEVEL PRESSURE OF 1000.1 HPA AND EAST-SOUTHEASTERLY WIND WITH SPEED 12 KNOTS AND GOA (43192) REPORTED A MEAN SEA LEVEL PRESSURE OF 1004.6 HPA AND SOUTHERLY WIND WITH SPEED 10 KNOTS. THE SEA CONDITION IS VERY ROUGH AROUND THE SYSTEM CENTRE.

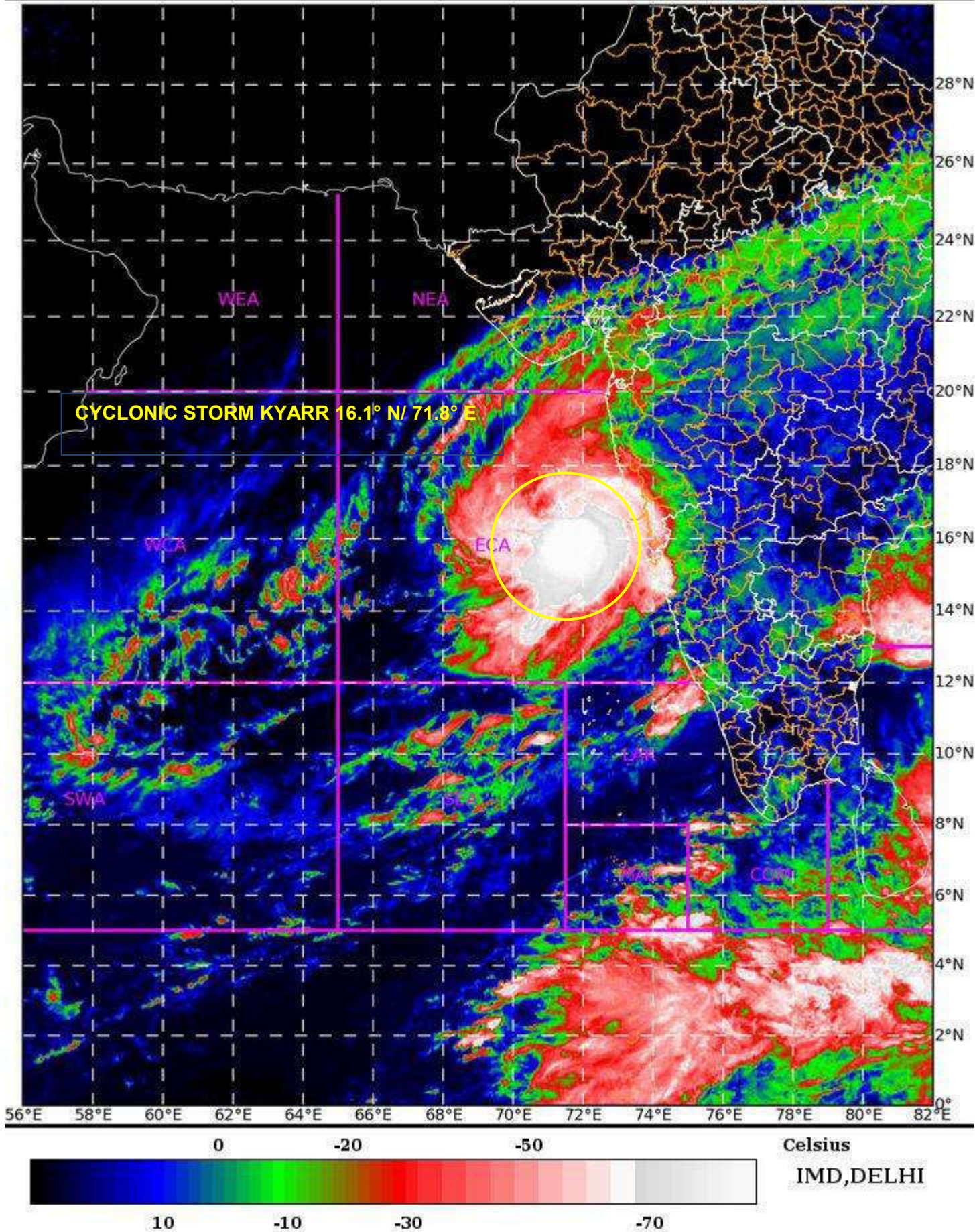
THE MJO LIES IN THE PHASE 2 WITH AMPLITUDE GREATER THAN 1. IT WILL REMAIN IN THE SAME PHASE DURING NEXT 4 DAYS. CONSIDERING THE ENVIRONMENTAL CONDITIONS, TOTAL PRECIPITABLE WATER IMAGERIES INDICATE WARM AIR ADVECTION TO THE SYSTEM CENTRE. THE LOW LEVEL RELATIVE VORTICITY IS $200 \times 10^{-5} \text{SEC}^{-1}$ TO THE SOUTH OF THE SYSTEM CENTRE. POSITIVE VORTICITY IS EXTENDING UPTO 200 HPA LEVEL. THE LOWER LEVEL CONVERGENCE IS ABOUT $20 \times 10^{-5} \text{S}^{-1}$ AROUND THE STEM CENTER. THE UPPER LEVEL DIVERGENCE IS ABOUT $20 \times 10^{-5} \text{S}^{-1}$ AROUND THE SYSTEM CENTER. THE VERTICAL WIND SHEAR IS MODERATE (15 KNOTS) OVER THE SYSTEM CENTER THE UPPER TROPOSPHERIC RIDGE RUNS ALONG 17° N. SEA SURFACE TEMPERATURE OVER MOST PARTS OF EASTCENTRAL ARABIAN SEA IS 29-30°C AND TROPICAL CYCLONE HEAT POTENTIAL IS 80 KJ/CM2 OVER THE REGION THEREBY FAVORING FURTHER INTENSIFICATION.

AS THE SYSTEM LIES CLOSE TO AND TO THE SOUTH OF UPPER TROPOSPHERIC RIDGE AND IS BEING STEERED BY MIDDLE AND UPPER TROPOSPHERIC WINDS, IT IS VERY LIKELY TO MOVE NEARLY NORTHWARDS FOR SOME MORE TIME AND RE-CURVE WEST-NORTHWESTWARDS FROM AROUND 1800 UTC OF 25TH OCTOBER UNDER THE INFLUENCE OF UPPER-TROPOSPHERIC RIDGE. MAJORITY OF NUMERICAL MODELS INCLUDING ECMWF, NCMRWF UNIFIED MODELS (NCUM), NCMRWF ENSEMBLE PREDICTION SYSTEM (NEPS), IMD GLOBAL FORECAST SYSTEM (GFS), NCEP GFS, GLOBAL ENSEMBLE FORECATING SYSTEM (GEFS) AGREE WITH THE ABOVE INFERENCE.

(RK JENAMANI)
SCIENTIST-F, RSMC, NEW DELHI

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

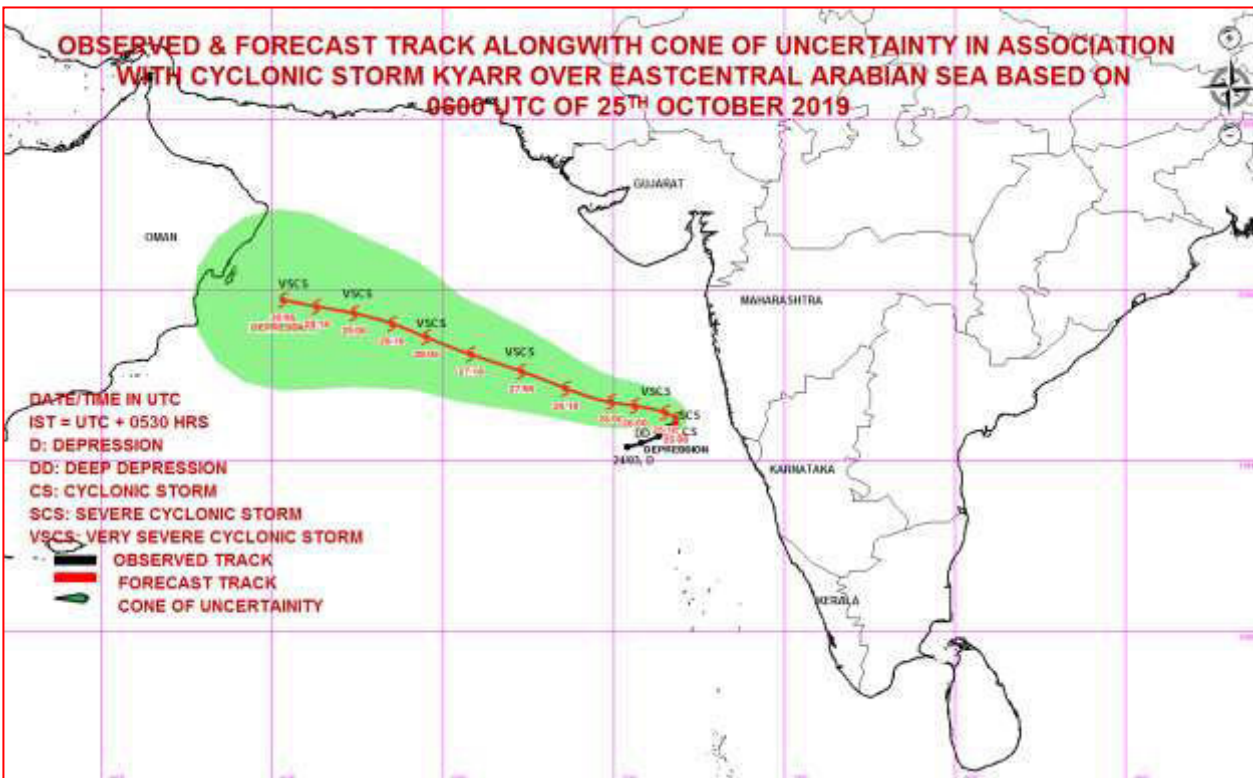
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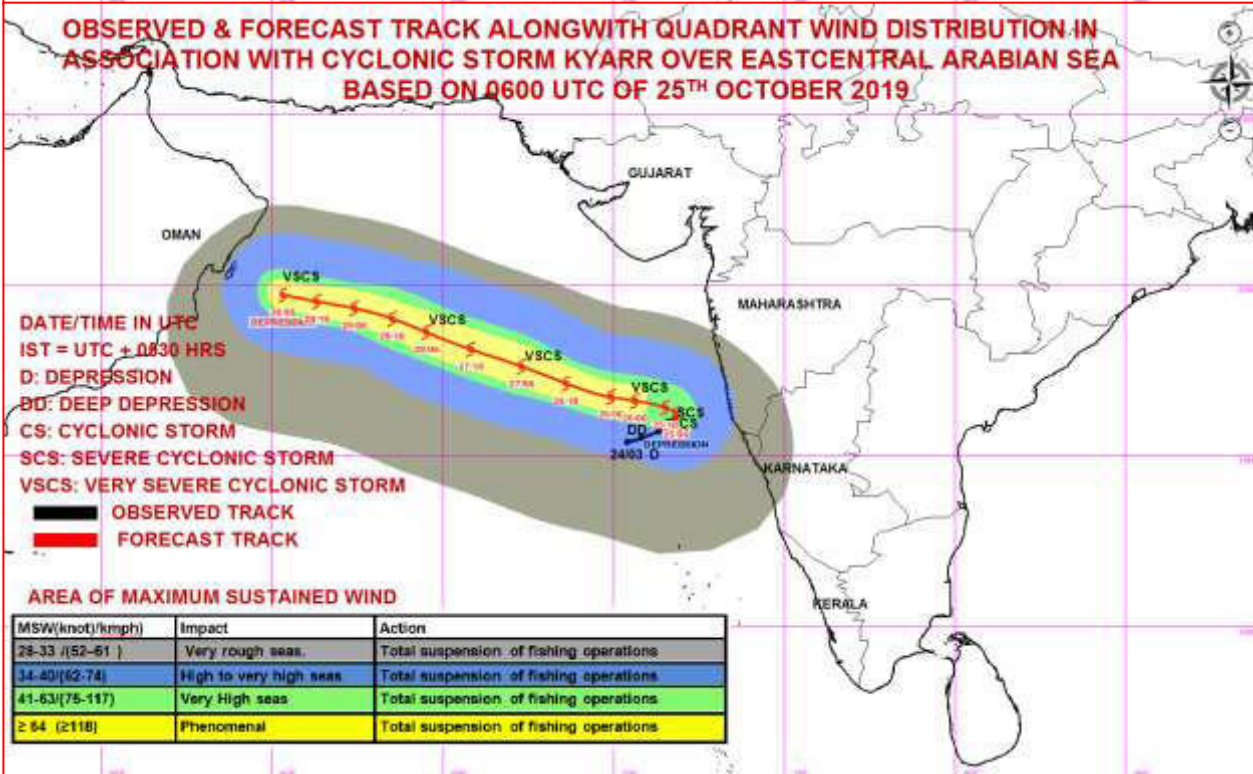
PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

OBSERVED & FORECAST TRACK ALONGWITH CONE OF UNCERTAINTY IN ASSOCIATION WITH CYCLONIC STORM KYARR OVER EASTCENTRAL ARABIAN SEA BASED ON 0600 UTC OF 25TH OCTOBER 2019



OBSERVED & FORECAST TRACK ALONGWITH QUADRANT WIND DISTRIBUTION IN ASSOCIATION WITH CYCLONIC STORM KYARR OVER EASTCENTRAL ARABIAN SEA BASED ON 0600 UTC OF 25TH OCTOBER 2019



PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%



**REGIONAL SPECIALISED METEOROLOGICAL CENTRE-TROPICAL CYCLONES, NEW DELHI
TROPICAL CYCLONE ADVISORY BULLETIN NO.4**

FROM: RSMC –TROPICAL CYCLONES, NEW DELHI

**TO: STORM WARNING CENTRE, NAYPYI TAW (MYANMAR)
STORM WARNING CENTRE, BANGKOK (THAILAND)
STORM WARNING CENTRE, COLOMBO (SRILANKA)
STORM WARNING CENTRE, DHAKA (BANGLADESH)
STORM WARNING CENTRE, KARACHI (PAKISTAN)
METEOROLOGICAL OFFICE, MALE (MALDIVES)
OMAN METEOROLOGICAL DEPARTMENT, MUSCAT (THROUGH RTH JEDDAH)
YEMEN METEOROLOGICAL SERVICES, REPUBLIC OF YEMEN (THROUGH RTH JEDDAH)
NATIONAL CENTRE FOR METEOROLOGY, UAE (THROUGH RTH JEDDAH)
PRESIDENCY OF METEOROLOGY AND ENVIRONMENT, SAUDI ARABIA (THROUGH RTH JEDDAH)
IRAN METEOROLOGICAL ORGANISATION, (THROUGH RTH JEDDAH)
QATAR METEOROLOGICAL DEPARTMENT (THROUGH RTH JEDDAH)**

TROPICAL CYCLONE ADVISORY No. 4 FOR NORTH INDIAN OCEAN (THE BAY OF BENGAL AND ARABIAN SEA) VALID FOR NEXT 120 HOURS ISSUED AT 1130 UTC OF 25.10.2019 BASED ON 0900 UTC OF 25.10.2019.

SUB: CYCLONIC STORM 'KYARR' (PRONOUNCED AS KYARR) OVER EASTCENTRAL ARABIAN SEA

THE CYCLONIC STORM 'KYARR' (PRONOUNCED AS KYARR) OVER EASTCENTRAL ARABIAN SEA MOVED NORTH-NORTHEASTWARDS WITH A SPEED OF 04 KMPH DURING THE PAST 06-HOURS AND LAY CENTRED AT 0900 UTC OF TODAY, THE 25TH OCTOBER, 2019 NEAR LATITUDE 16.2°N AND LONGITUDE 71.7°E OVER EASTCENTRAL ARABIAN SEA, ABOUT 190 KM NEARLY TO THE WEST OF RATNAGIRI (43110), 340 KM SOUTH-SOUTHWEST OF MUMBAI (43003) AND 1880 KM EAST-SOUTHEAST OF SALALAH (41316). IT IS VERY LIKELY TO MOVE WEST-NORTHWESTWARDS TOWARDS OMAN COAST DURING NEXT 5 DAYS. IT IS VERY LIKELY TO INTENSIFY INTO A SEVERE CYCLONIC STORM DURING NEXT 06 HOURS AND INTO A VERY SEVERE CYCLONIC STORM DURING SUBSEQUENT 12 HOURS.

FORECAST TRACK AND INTENSITY ARE GIVEN IN THE FOLLOWING TABLE:

DATE/TIME(UTC)	POSITION (LAT. °N/ LONG. °E)	MAXIMUM SUSTAINED SURFACE WIND SPEED (KMPH)	CATEGORY OF CYCLONIC DISTURBANCE
25.10.19/0900	16.2/71.7	80-90 GUSTING TO 100	CYCLONIC STORM
25.10.19/1200	16.3/71.6	90-100 GUSTING TO 110	SEVERE CYCLONIC STORM
25.10.19/1800	16.4/71.5	100-110 GUSTING TO 120	SEVERE CYCLONIC STORM
26.10.19/0000	16.6/70.6	125-135 GUSTING TO 150	VERY SEVERE CYCLONIC STORM
26.10.19/0600	16.7/69.9	135-145 GUSTING TO 160	VERY SEVERE CYCLONIC STORM
26.10.19/1800	17.1/68.6	150-160 GUSTING TO 175	VERY SEVERE CYCLONIC STORM
27.10.19/0600	17.6/67.3	170-180 GUSTING TO 200	EXTREMELY SEVERE CYCLONIC STORM
27.10.19/1800	18.1/65.8	170-180 GUSTING TO 200	EXTREMELY SEVERE CYCLONIC STORM
28.10.19/0600	18.6/64.5	160-170 GUSTING TO 190	EXTREMELY SEVERE CYCLONIC STORM
28.10.19/1800	19.0/63.5	150-160 GUSTING TO 180	VERY SEVERE CYCLONIC STORM
29.10.19/0600	19.3/62.4	140-150 GUSTING TO 165	VERY SEVERE CYCLONIC STORM
29.10.19/1800	19.5/61.3	135-145 GUSTING TO 160	VERY SEVERE CYCLONIC STORM
30.10.19/0600	19.7/60.3	125-135 GUSTING TO 150	VERY SEVERE CYCLONIC STORM

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

REMARKS:

SATELLITE IMAGES INDICATE FURTHER ORGANISATION AND STEADILY INCREASING CONVECTION AROUND THE SYSTEM CENTRE DURING PAST SIX HOURS HAVING CURVED BAND PATTERN. AS PER THE SATELLITE IMAGERY OF 0900 UTC ON 25TH OCTOBER, 2019, THE CURRENT INTENSITY OF THE SYSTEM IS T3.0. ASSOCIATED BROKEN LOW TO MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION LIES OVER EAST CENTRAL ARABIAN SEA BETWEEN LAT 14.0⁰N TO 17.5⁰N EAST OF LONG 70.5⁰E TO 73.5⁰E. THE MINIMUM CTT IS MINUS 93 DEG C.

THE ESTIMATED MAXIMUM SUSTAINED WIND SPEED IS 45 KNOTS GUSTING TO 55 KNOTS. THE ESTIMATED CENTRAL PRESSURE IS 994 HPA. AT 0900 UTC OF 25TH OCTOBER, RATNAGIRI (43110) REPORTED A MEAN SEA LEVEL PRESSURE OF 997.2 HPA AND EAST-SOUTHEASTERLY WIND WITH SPEED 12 KNOTS AND GOA (43192) REPORTED A MEAN SEA LEVEL PRESSURE OF 1003.2 HPA AND EAST-SOUTHEASTERLY WIND WITH SPEED 08 KNOTS. THE SEA CONDITION IS VERY ROUGH AROUND THE SYSTEM CENTRE.

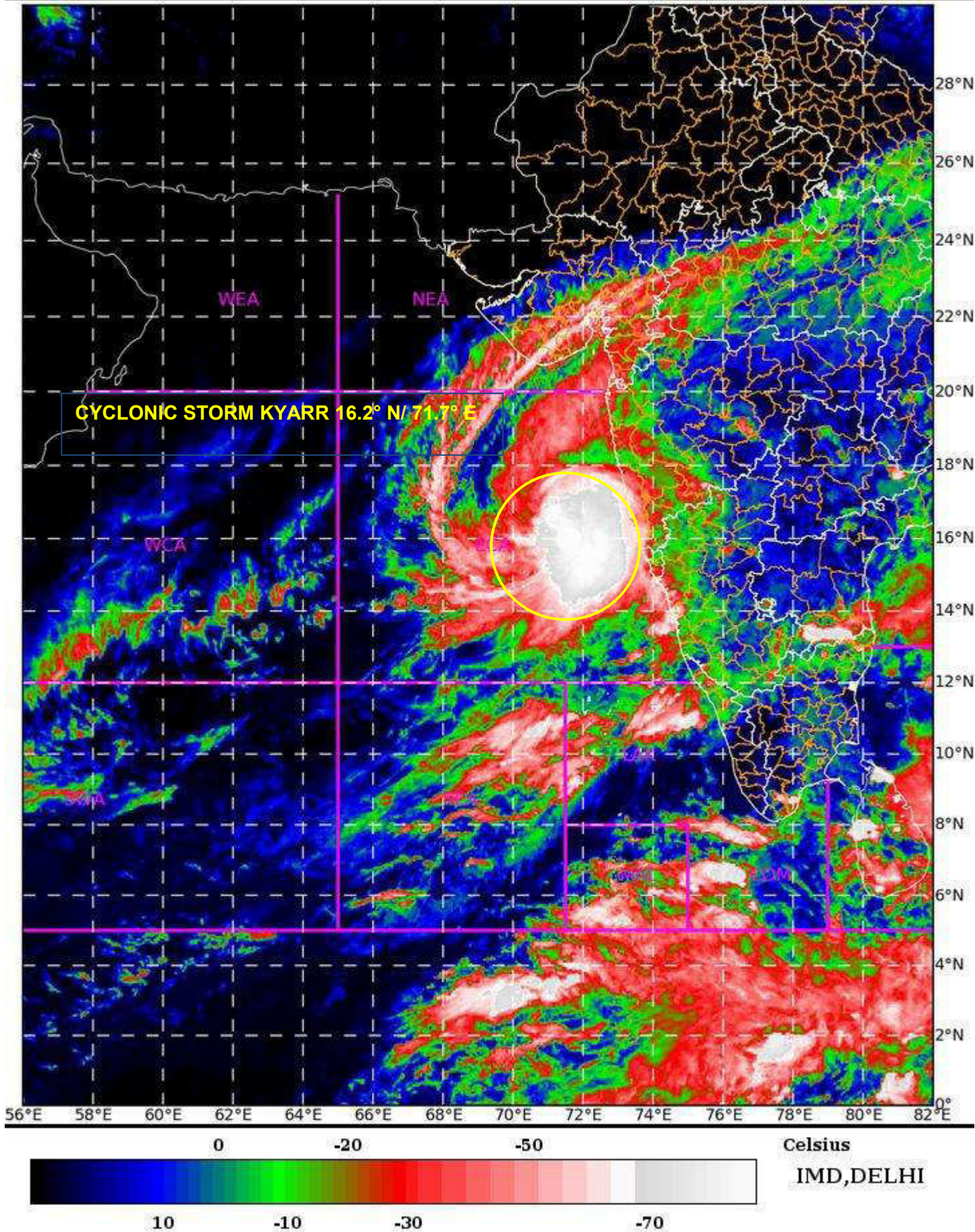
THE MJO LIES IN THE PHASE 2 WITH AMPLITUDE GREATER THAN 1. IT WILL REMAIN IN THE SAME PHASE DURING NEXT 4 DAYS. CONSIDERING THE ENVIRONMENTAL CONDITIONS, TOTAL PRECIPITABLE WATER IMAGERIES INDICATE WARM AIR ADVECTION TO THE SYSTEM CENTRE. THE LOW LEVEL RELATIVE VORTICITY IS $200 \times 10^{-5} \text{SEC}^{-1}$ TO THE SOUTH OF THE SYSTEM CENTRE. POSITIVE VORTICITY IS EXTENDING UPTO 200 HPA LEVEL. THE LOWER LEVEL CONVERGENCE IS ABOUT $20 \times 10^{-5} \text{S}^{-1}$ AROUND THE STEM CENTER. THE UPPER LEVEL DIVERGENCE IS ABOUT $20 \times 10^{-5} \text{S}^{-1}$ AROUND THE SYSTEM CENTER. THE VERTICAL WIND SHEAR IS MODERATE (15 KNOTS) OVER THE SYSTEM CENTER THE UPPER TROPOSPHERIC RIDGE RUNS ALONG 17° N. SEA SURFACE TEMPERATURE OVER MOST PARTS OF EASTCENTRAL ARABIAN SEA IS 29-30°C AND TROPICAL CYCLONE HEAT POTENTIAL IS 80 KJ/CM2 OVER THE REGION THEREBY FAVORING FURTHER INTENSIFICATION.

THE SYSTEM NOW LIES CLOSE TO THE UPPER TROPOSPHERIC RIDGE AND ALREADY STARTED STEERED TOWARDS NORTHNORTHWESTERLY BY MIDDLE AND UPPER TROPOSPHERIC WINDS. IT IS VERY LIKELY TO MOVE WEST-NORTHWESTWARDS TOWARDS OMAN COAST DURING NEXT 5 DAYS. MAJORITY OF NUMERICAL MODELS INCLUDING ECMWF, NCMRWF UNIFIED MODELS (NCUM), NCMRWF ENSEMBLE PREDICTION SYSTEM (NEPS), IMD GLOBAL FORECAST SYSTEM (GFS), NCEP GFS, GLOBAL ENSEMBLE FORECATING SYSTEM (GEFS) AGREE WITH THE ABOVE INFERENCE.

(RK JENAMANI)
SCIENTIST-F, RSMC, NEW DELHI

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

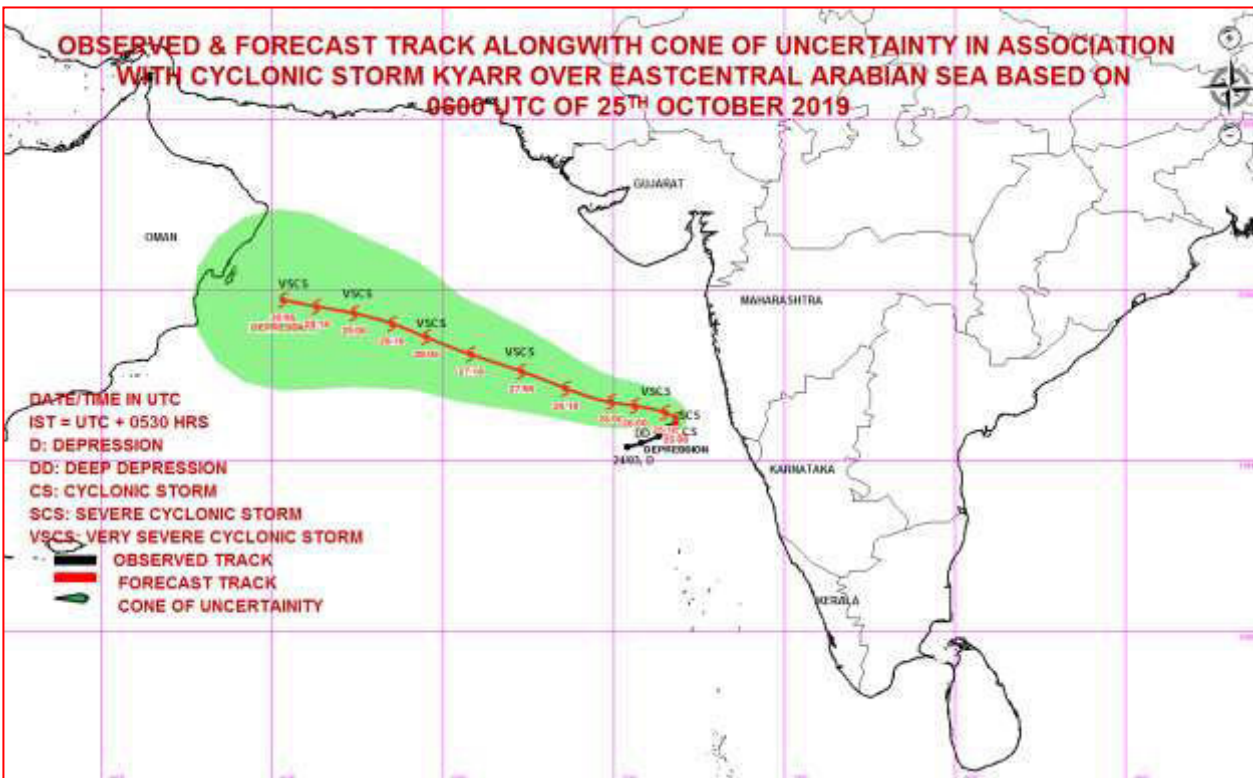
NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%



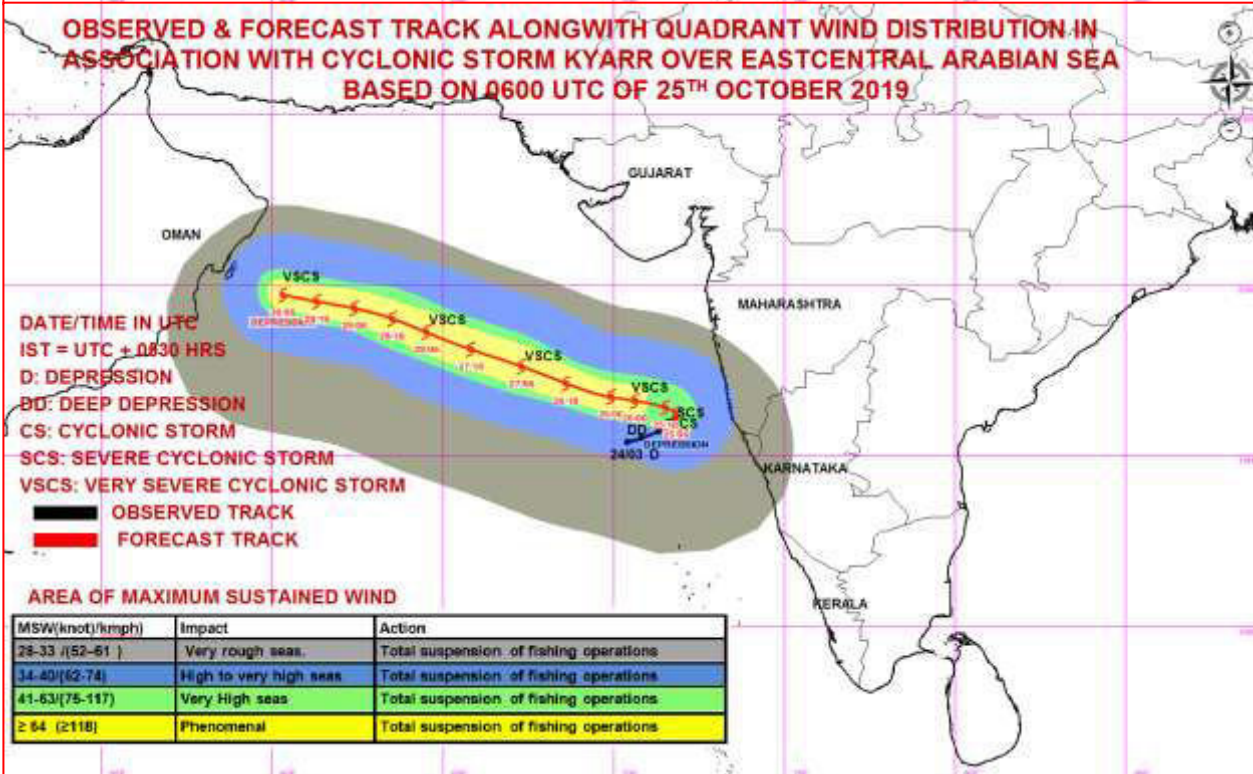
PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

OBSERVED & FORECAST TRACK ALONGWITH CONE OF UNCERTAINTY IN ASSOCIATION WITH CYCLONIC STORM KYARR OVER EASTCENTRAL ARABIAN SEA BASED ON 0600 UTC OF 25TH OCTOBER 2019



OBSERVED & FORECAST TRACK ALONGWITH QUADRANT WIND DISTRIBUTION IN ASSOCIATION WITH CYCLONIC STORM KYARR OVER EASTCENTRAL ARABIAN SEA BASED ON 0600 UTC OF 25TH OCTOBER 2019



PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%



**REGIONAL SPECIALISED METEOROLOGICAL CENTRE-TROPICAL CYCLONES, NEW DELHI
TROPICAL CYCLONE ADVISORY BULLETIN NO.5**

FROM: RSMC –TROPICAL CYCLONES, NEW DELHI

**TO: STORM WARNING CENTRE, NAYPYI TAW (MYANMAR)
STORM WARNING CENTRE, BANGKOK (THAILAND)
STORM WARNING CENTRE, COLOMBO (SRILANKA)
STORM WARNING CENTRE, DHAKA (BANGLADESH)
STORM WARNING CENTRE, KARACHI (PAKISTAN)
METEOROLOGICAL OFFICE, MALE (MALDIVES)
OMAN METEOROLOGICAL DEPARTMENT, MUSCAT (THROUGH RTH JEDDAH)
YEMEN METEOROLOGICAL SERVICES, REPUBLIC OF YEMEN (THROUGH RTH JEDDAH)
NATIONAL CENTRE FOR METEOROLOGY, UAE (THROUGH RTH JEDDAH)
PRESIDENCY OF METEOROLOGY AND ENVIRONMENT, SAUDI ARABIA (THROUGH RTH JEDDAH)
IRAN METEOROLOGICAL ORGANISATION, (THROUGH RTH JEDDAH)
QATAR METEOROLOGICAL DEPARTMENT (THROUGH RTH JEDDAH)**

TROPICAL CYCLONE ADVISORY No. 5 FOR NORTH INDIAN OCEAN (THE BAY OF BENGAL AND ARABIAN SEA) VALID FOR NEXT 120 HOURS ISSUED AT 1500 UTC OF 25.10.2019 BASED ON 1200 UTC OF 25.10.2019.

SUB: CYCLONIC STORM 'KYARR' (PRONOUNCED AS KYARR) INTENSIFIED INTO A SEVERE CYCLONIC STORM OVER EASTCENTRAL ARABIAN SEA

THE CYCLONIC STORM 'KYARR' (PRONOUNCED AS KYARR) OVER EASTCENTRAL ARABIAN SEA MOVED NORTH-NORTHWESTWARDS WITH A SPEED OF 04 KMPH DURING THE PAST 06-HOURS, INTENSIFIED INTO A SEVERE CYCLONIC STORM AND LAY CENTRED AT 1200 UTC OF TODAY, THE 25TH OCTOBER, 2019 NEAR LATITUDE 16.3°N AND LONGITUDE 71.7°E OVER EASTCENTRAL ARABIAN SEA, ABOUT 190 KM NEARLY TO THE WEST OF RATNAGIRI (43110), 330 KM SOUTH-SOUTHWEST OF MUMBAI (43003) AND 1870 KM EAST-SOUTHEAST OF SALALAH (41316). IT IS VERY LIKELY TO MOVE WEST-NORTHWESTWARDS TOWARDS OMAN COAST DURING NEXT 5 DAYS. IT IS VERY LIKELY TO INTENSIFY INTO A VERY SEVERE CYCLONIC STORM DURING NEXT 12 HOURS AND FURTHER INTENSIFY INTO AN EXTREMELY SEVERE CYCLONIC STORM DURING THE SUBSEQUENT 36 HOURS.

FORECAST TRACK AND INTENSITY ARE GIVEN IN THE FOLLOWING TABLE:

DATE/TIME(UTC)	POSITION (LAT. °N/ LONG. °E)	MAXIMUM SUSTAINED SURFACE WIND SPEED (KMPH)	CATEGORY OF CYCLONIC DISTURBANCE
25.10.19/1200	16.3/71.7	90-100 gusting to 110	Severe Cyclonic Storm
25.10.19/1800	16.4/71.5	100-110 gusting to 120	Severe Cyclonic Storm
26.10.19/0000	16.6/70.6	120-130 gusting to 145	Very Severe Cyclonic Storm
26.10.19/0600	16.7/69.9	135-145 gusting to 160	Very Severe Cyclonic Storm
26.10.19/1200	16.9/69.3	155-165 gusting to 180	Very Severe Cyclonic Storm
27.10.19/0000	17.3/68.0	170-180 gusting to 200	Extremely Severe Cyclonic Storm
27.10.19/1200	17.8/66.6	170-180 gusting to 200	Extremely Severe Cyclonic Storm
28.10.19/0000	18.3/65.1	160-170 gusting to 190	Extremely Severe Cyclonic Storm
28.10.19/1200	18.8/64.0	155-165 gusting to 180	Very Severe Cyclonic Storm
29.10.19/0000	19.1/63.0	145-155 gusting to 170	Very Severe Cyclonic Storm
29.10.19/1200	19.4/61.8	135-145 gusting to 160	Very Severe Cyclonic Storm
30.10.19/0000	19.6/60.8	125-135 gusting to 150	Very Severe Cyclonic Storm

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

REMARKS:

SATELLITE IMAGES INDICATE FURTHER ORGANISATION AND STEADILY INCREASING CONVECTION AROUND THE SYSTEM CENTRE DURING PAST SIX HOURS HAVING CENTRAL DENSE OVERCAST(CDO) PATTERN. AS PER THE SATELLITE IMAGERY AT 1200 UTC OF 25TH OCTOBER, 2019, THE CURRENT INTENSITY OF THE SYSTEM IS T3.0. ASSOCIATED BROKEN LOW TO MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION LIES OVER EAST CENTRAL ARABIAN SEA BETWEEN LAT 14.5⁰N TO 17.5⁰N EAST OF LONG 70.0⁰E TO 73.0⁰E. THE MINIMUM CTT IS MINUS 93 DEG C.

THE ESTIMATED MAXIMUM SUSTAINED WIND SPEED IS 50 KNOTS GUSTING TO 60 KNOTS. THE ESTIMATED CENTRAL PRESSURE IS 992 HPA. AT 1200 UTC OF 25TH OCTOBER, RATNAGIRI (43110) REPORTED A MEAN SEA LEVEL PRESSURE OF 996.5 HPA AND EAST-SOUTHEASTERLY WIND WITH SPEED 08 KNOTS AND GOA (43192) REPORTED A MEAN SEA LEVEL PRESSURE OF 1001.9 HPA AND SOUTHERLY WIND WITH SPEED 11 KNOTS. THE SEA CONDITION IS VERY ROUGH AROUND THE SYSTEM CENTRE.

THE MJO LIES IN THE PHASE 2 WITH AMPLITUDE GREATER THAN 1. IT WILL REMAIN IN THE SAME PHASE DURING NEXT 2 DAYS AND THEN ENTER INTO PHASE 3 WITH AMPLITUDE ABOUT 1. CONSIDERING THE ENVIRONMENTAL CONDITIONS, TOTAL PRECIPITABLE WATER IMAGERIES INDICATE WARM AIR ADVECTION TO THE SYSTEM CENTRE. THE LOW LEVEL RELATIVE VORTICITY IS $200 \times 10^{-5} \text{ SEC}^{-1}$ TO THE SOUTH OF THE SYSTEM CENTRE. THE LOWER LEVEL CONVERGENCE IS ABOUT $20 \times 10^{-5} \text{ S}^{-1}$ AROUND THE SYSTEM CENTER. THE UPPER LEVEL DIVERGENCE IS ABOUT $20 \times 10^{-5} \text{ S}^{-1}$ AROUND THE SYSTEM CENTER. THE VERTICAL WIND SHEAR IS MODERATE (10-15 KNOTS) OVER THE SYSTEM CENTER. SEA SURFACE TEMPERATURE OVER MOST PARTS OF EASTCENTRAL ARABIAN SEA IS 29-30°C AND TROPICAL CYCLONE HEAT POTENTIAL IS 80 KJ/CM² OVER THE REGION THEREBY FAVORING FURTHER INTENSIFICATION. WITH THE ABOVE FAVOURABLE CONDITIONS, SYSTEM INTENSIFIED INTO A SEVERE CYCLONIC STORM AT 1200UTC OF 25 OCTOBER. DURING NEXT 24 HOURS, IN ADDITION TO ABOVE FAVOURABLE CONDITIONS, THE SYSTEM IS LIKELY TO EXPERIENCES FURTHER LOWER WIND SHEAR RESULTING IN RAPID INTENSIFICATION.

THE UPPER TROPOSPHERIC RIDGE RUNS ALONG 18°N IN ASSOCIATION WITH AN ANTICYCLONIC CIRCULATION OVER INDIA. HENCE THE SYSTEM LIES IN THE OUTER PERIPHERY OF THE ANTICYCLONE BUT CLOSED TO THE RIDGE LEADING TO NORTHWARD MOVEMENT DURING PAST 12 HOURS. IT IS LIKELY TO MOVE WESTNORTHWESTWARDS SLOWLY WITH THE WEAKENING OF THE ABOVE RIDGE DURING NEXT 12 HOURS. THEREAFTER, IT IS EXPECTED TO MOVE WESTNORTHWESTWORDS WITH INCREASING SPEED TOWARDS OMAN COAST UNDER THE INFLUNCE OF WESTNORTHWESTWARDS STEERING WINDS DURING NEXT 5 DAYS. MAJORITY OF NUMERICAL MODELS INCLUDING ECMWF, NCMRWF UNIFIED MODELS (NCUM), NCMRWF ENSEMBLE PREDICTION SYSTEM (NEPS), IMD GLOBAL FORECAST SYSTEM (GFS), NCEP GFS, GLOBAL ENSEMBLE FORECATING SYSTEM (GEFS) AGREE WITH THE ABOVE INFERENCE.

(RK JENAMANI)
SCIENTIST-F, RSMC, NEW DELHI

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

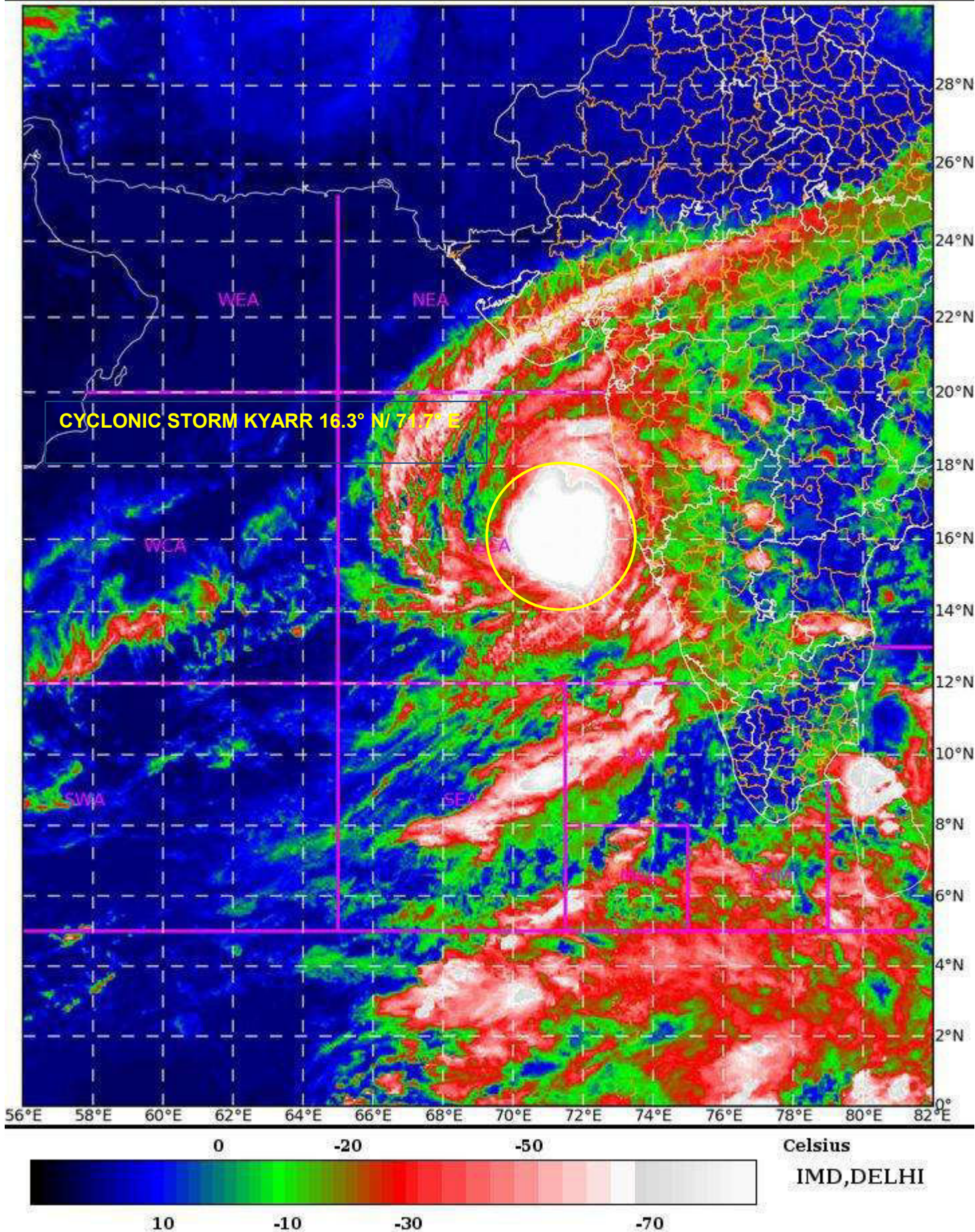
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25-10-2019/(1330 to 1356) GMT

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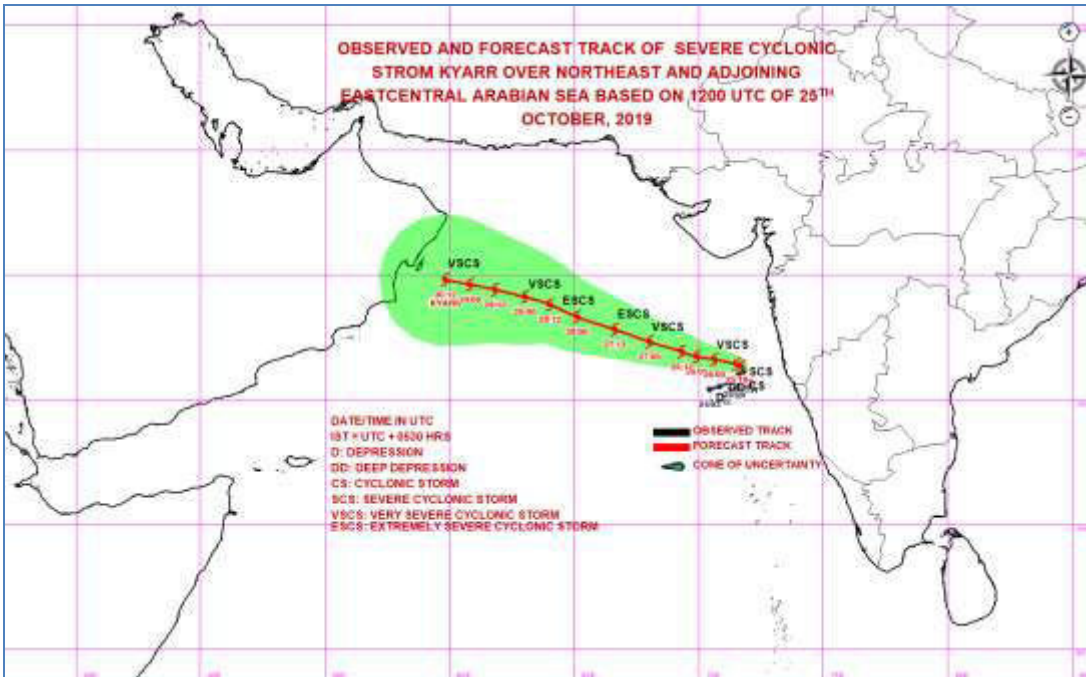
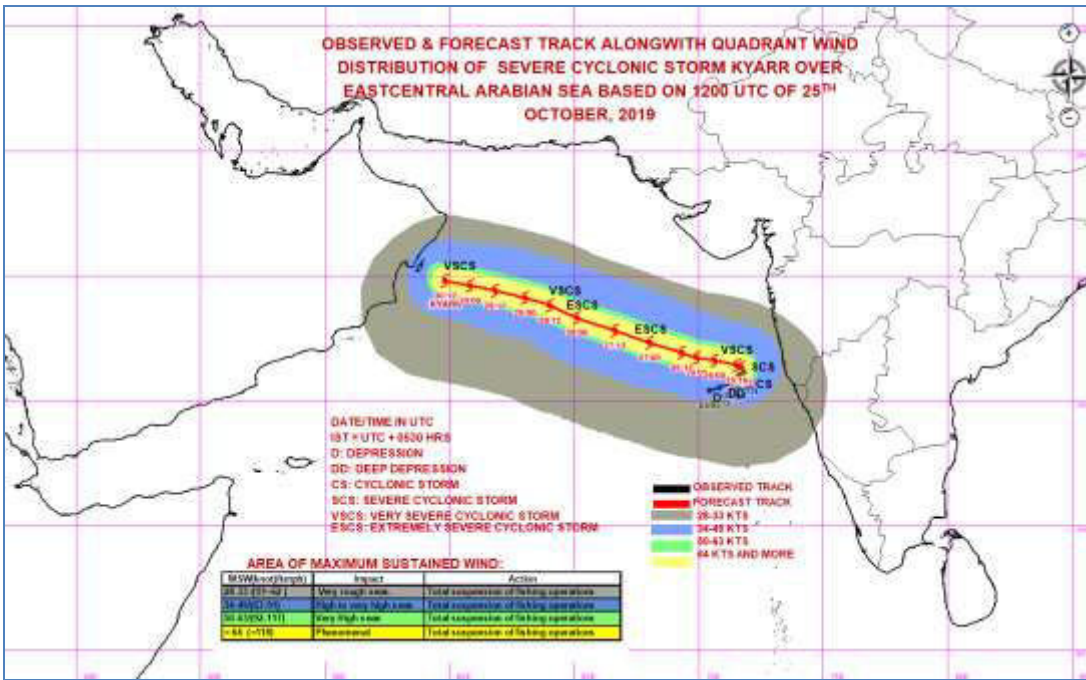
25-10-2019/(1900 to 1926) IST

ARABIAN_SEA



PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%



PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%



**REGIONAL SPECIALISED METEOROLOGICAL CENTRE-TROPICAL CYCLONES, NEW DELHI
TROPICAL CYCLONE ADVISORY BULLETIN NO.6**

FROM: RSMC –TROPICAL CYCLONES, NEW DELHI

**TO: STORM WARNING CENTRE, NAYPYI TAW (MYANMAR)
STORM WARNING CENTRE, BANGKOK (THAILAND)
STORM WARNING CENTRE, COLOMBO (SRILANKA)
STORM WARNING CENTRE, DHAKA (BANGLADESH)
STORM WARNING CENTRE, KARACHI (PAKISTAN)
METEOROLOGICAL OFFICE, MALE (MALDIVES)
OMAN METEOROLOGICAL DEPARTMENT, MUSCAT (THROUGH RTH JEDDAH)
YEMEN METEOROLOGICAL SERVICES, REPUBLIC OF YEMEN (THROUGH RTH JEDDAH)
NATIONAL CENTRE FOR METEOROLOGY, UAE (THROUGH RTH JEDDAH)
PRESIDENCY OF METEOROLOGY AND ENVIRONMENT, SAUDI ARABIA (THROUGH RTH JEDDAH)
IRAN METEOROLOGICAL ORGANISATION, (THROUGH RTH JEDDAH)
QATAR METEOROLOGICAL DEPARTMENT (THROUGH RTH JEDDAH)**

TROPICAL CYCLONE ADVISORY No. 6 FOR NORTH INDIAN OCEAN (THE BAY OF BENGAL AND ARABIAN SEA) VALID FOR NEXT 120 HOURS ISSUED AT 1700 UTC OF 25.10.2019 BASED ON 1500 UTC OF 25.10.2019.

SUB: SEVERE CYCLONIC STORM 'KYARR' (PRONOUNCED AS KYARR) OVER EASTCENTRAL ARABIAN SEA

THE SEVERE CYCLONIC STORM 'KYARR' (PRONOUNCED AS KYARR) OVER EASTCENTRAL ARABIAN SEA MOVED SLOWLY NORTHWARDS WITH A SPEED OF 02 KMPH DURING THE PAST 06-HOURS AND LAY CENTRED AT 1500 UTC OF TODAY, THE 25TH OCTOBER, 2019 NEAR LATITUDE 16.3°N AND LONGITUDE 71.7°E OVER EASTCENTRAL ARABIAN SEA, ABOUT 190 KM NEARLY TO THE WEST OF RATNAGIRI (43110), 330 KM SOUTH-SOUTHWEST OF MUMBAI (43003) AND 1870 KM EAST-SOUTHEAST OF SALALAH (41316). IT IS VERY LIKELY TO MOVE WEST-NORTHWESTWARDS TOWARDS OMAN COAST DURING NEXT 5 DAYS. IT IS VERY LIKELY TO INTENSIFY INTO A VERY SEVERE CYCLONIC STORM DURING NEXT 12 HOURS AND FURTHER INTENSIFY INTO AN EXTREMELY SEVERE CYCLONIC STORM DURING THE SUBSEQUENT 36 HOURS.

FORECAST TRACK AND INTENSITY ARE GIVEN IN THE FOLLOWING TABLE:

DATE/TIME(UTC)	POSITION (LAT. °N/ LONG. °E)	MAXIMUM SUSTAINED SURFACE WIND SPEED (KMPH)	CATEGORY OF CYCLONIC DISTURBANCE
25.10.19/1500	16.3/71.7	95-105 gusting to 115	Severe Cyclonic Storm
25.10.19/1800	16.4/71.5	100-110 gusting to 120	Severe Cyclonic Storm
26.10.19/0000	16.6/70.6	120-130 gusting to 145	Very Severe Cyclonic Storm
26.10.19/0600	16.7/69.9	135-145 gusting to 160	Very Severe Cyclonic Storm
26.10.19/1200	16.9/69.3	155-165 gusting to 180	Very Severe Cyclonic Storm
27.10.19/0000	17.3/68.0	170-180 gusting to 200	Extremely Severe Cyclonic Storm
27.10.19/1200	17.8/66.6	170-180 gusting to 200	Extremely Severe Cyclonic Storm
28.10.19/0000	18.3/65.1	160-170 gusting to 190	Extremely Severe Cyclonic Storm
28.10.19/1200	18.8/64.0	155-165 gusting to 180	Very Severe Cyclonic Storm
29.10.19/0000	19.1/63.0	145-155 gusting to 170	Very Severe Cyclonic Storm
29.10.19/1200	19.4/61.8	135-145 gusting to 160	Very Severe Cyclonic Storm
30.10.19/0000	19.6/60.8	125-135 gusting to 150	Very Severe Cyclonic Storm

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

REMARKS:

SATELLITE IMAGES INDICATE FURTHER ORGANISATION AND STEADILY INCREASING CONVECTION AROUND THE SYSTEM CENTRE DURING PAST SIX HOURS HAVING CENTRAL DENSE OVERCAST(CDO) PATTERN. AS PER THE SATELLITE IMAGERY AT 1500 UTC OF 25TH OCTOBER, 2019, THE CURRENT INTENSITY OF THE SYSTEM IS T3.5. ASSOCIATED BROKEN LOW TO MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION LIES OVER EAST CENTRAL ARABIAN SEA BETWEEN LAT 14.5⁰N TO 18.0⁰N EAST OF LONG 69.5⁰E TO 73.0⁰E. THE MINIMUM CTT IS MINUS 93 DEG C.

THE ESTIMATED MAXIMUM SUSTAINED WIND SPEED IS 55 KNOTS GUSTING TO 65 KNOTS. THE ESTIMATED CENTRAL PRESSURE IS 992 HPA. AT 1500 UTC OF 25TH OCTOBER, RATNAGIRI (43110) REPORTED A MEAN SEA LEVEL PRESSURE OF 998.5 HPA AND SOUTHEASTERLY WIND WITH SPEED 05 KNOTS AND GOA (43192) REPORTED A MEAN SEA LEVEL PRESSURE OF 1003.7 HPA AND SOUTHERLY WIND WITH SPEED 10 KNOTS. THE SEA CONDITION IS VERY ROUGH AROUND THE SYSTEM CENTRE.

THE MJO LIES IN THE PHASE 2 WITH AMPLITUDE GREATER THAN 1. IT WILL REMAIN IN THE SAME PHASE DURING NEXT 2 DAYS AND THEN ENTER INTO PHASE 3 WITH AMPLITUDE ABOUT 1. CONSIDERING THE ENVIRONMENTAL CONDITIONS, TOTAL PRECIPITABLE WATER IMAGERIES INDICATE WARM AIR ADVECTION TO THE SYSTEM CENTRE. THE LOW LEVEL RELATIVE VORTICITY IS $200 \times 10^{-5} \text{ SEC}^{-1}$ TO THE SOUTH OF THE SYSTEM CENTRE. THE LOWER LEVEL CONVERGENCE IS ABOUT $30 \times 10^{-5} \text{ S}^{-1}$ AROUND THE SYSTEM CENTER. THE UPPER LEVEL DIVERGENCE IS ABOUT $20 \times 10^{-5} \text{ S}^{-1}$ AROUND THE SYSTEM CENTER. THE VERTICAL WIND SHEAR IS MODERATE (10-15 KNOTS) OVER THE SYSTEM CENTER. SEA SURFACE TEMPERATURE OVER MOST PARTS OF EASTCENTRAL ARABIAN SEA IS 29-30°C AND TROPICAL CYCLONE HEAT POTENTIAL IS 80 KJ/CM² OVER THE REGION THEREBY FAVORING FURTHER INTENSIFICATION. DURING NEXT 24 HOURS, IN ADDITION TO ABOVE FAVOURABLE CONDITIONS, THE SYSTEM IS LIKELY TO EXPERIENCES FURTHER LOWER WIND SHEAR RESULTING IN RAPID INTENSIFICATION.

THE UPPER TROPOSPHERIC RIDGE RUNS ALONG 18°N. HENCE THE SYSTEM LIES CLOSED TO THE RIDGE LEADING TO NEARLY NORTHWARD MOVEMENT DURING PAST 12 HOURS. IT IS LIKELY TO MOVE WESTNORTHWESTWARDS SLOWLY WITH THE WEAKENING OF THE ABOVE RIDGE DURING NEXT 12 HOURS. THEREAFTER, IT IS EXPECTED TO MOVE WESTNORTHWESTWARDS WITH INCREASING SPEED TOWARDS OMAN COAST UNDER THE INFLUENCE OF WESTNORTHWESTWARDS STEERING WINDS DURING NEXT 5 DAYS. MAJORITY OF NUMERICAL MODELS INCLUDING ECMWF, NCMRWF UNIFIED MODELS (NCUM), NCMRWF ENSEMBLE PREDICTION SYSTEM (NEPS), IMD GLOBAL FORECAST SYSTEM (GFS), NCEP GFS, GLOBAL ENSEMBLE FORECASTING SYSTEM (GEFS) AGREE WITH THE ABOVE INFERENCE.

(ANANDA KUMAR DAS)
SCIENTIST-E, RSMC, NEW DELHI

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

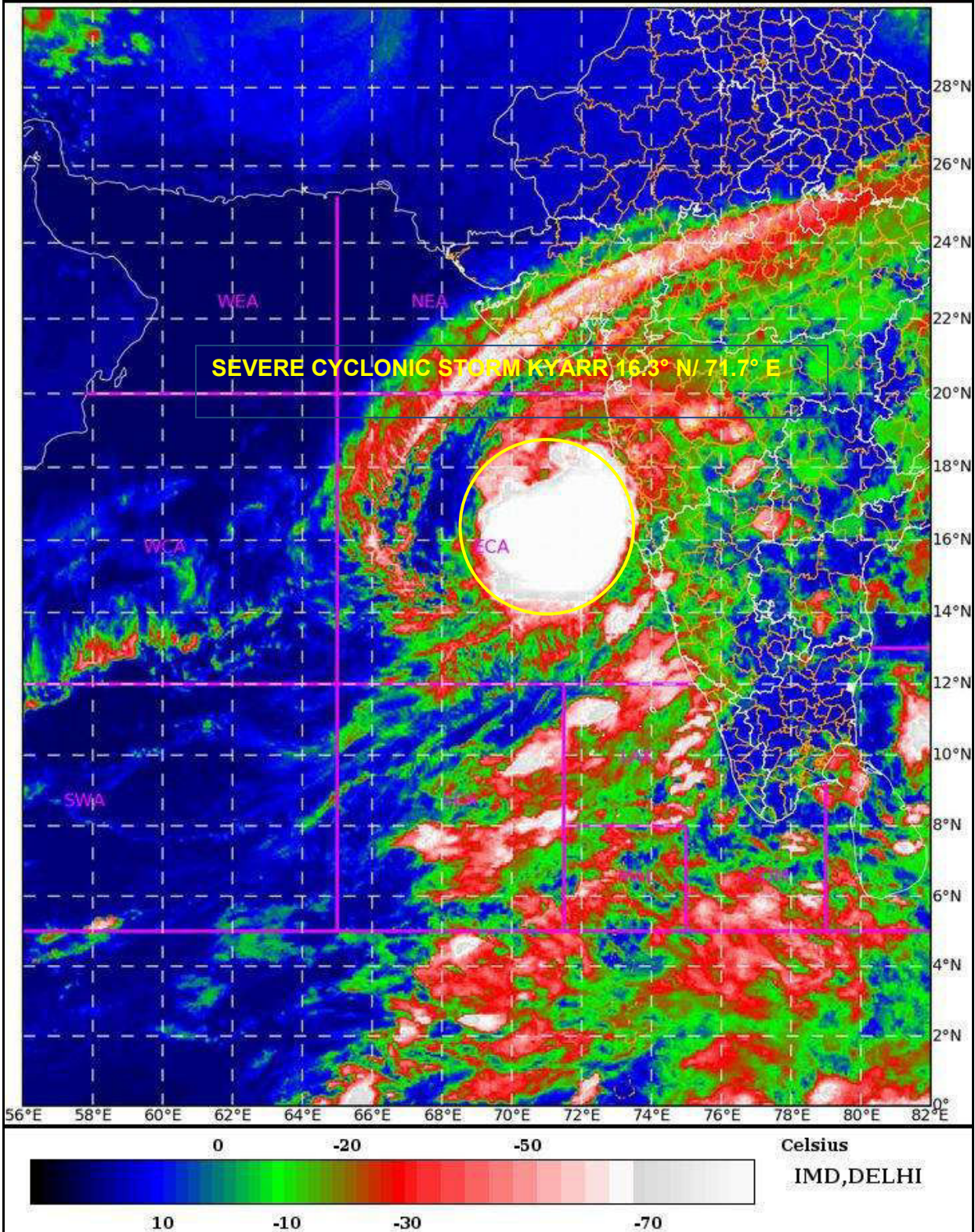
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SAT : INSAT-3D IMG 25-10-2019/(1630 to 1656) GMT

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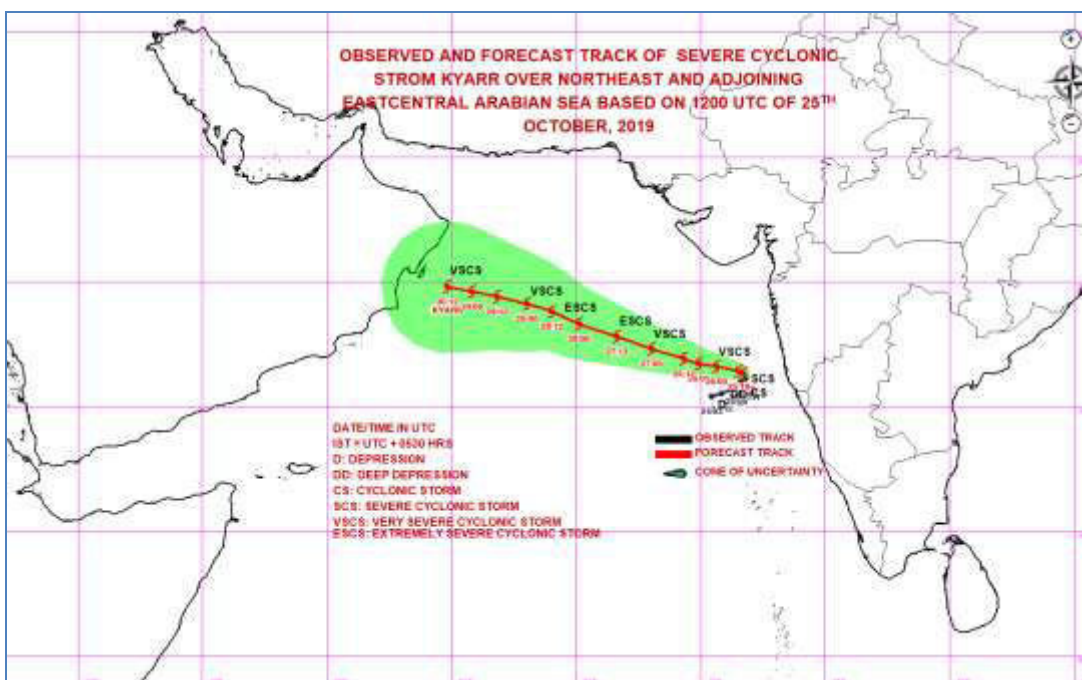
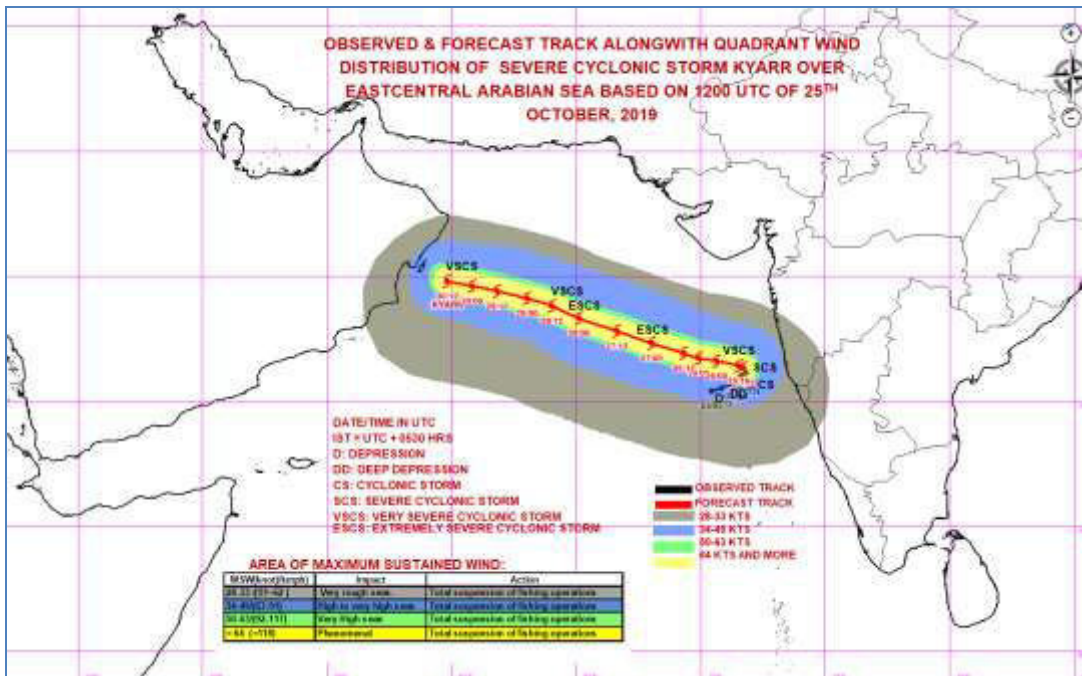


ARABIAN_SEA



PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%



PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%



**REGIONAL SPECIALISED METEOROLOGICAL CENTRE-TROPICAL CYCLONES, NEW DELHI
TROPICAL CYCLONE ADVISORY BULLETIN NO.7**

FROM: RSMC –TROPICAL CYCLONES, NEW DELHI

**TO: STORM WARNING CENTRE, NAYPYI TAW (MYANMAR)
STORM WARNING CENTRE, BANGKOK (THAILAND)
STORM WARNING CENTRE, COLOMBO (SRILANKA)
STORM WARNING CENTRE, DHAKA (BANGLADESH)
STORM WARNING CENTRE, KARACHI (PAKISTAN)
METEOROLOGICAL OFFICE, MALE (MALDIVES)
OMAN METEOROLOGICAL DEPARTMENT, MUSCAT (THROUGH RTH JEDDAH)
YEMEN METEOROLOGICAL SERVICES, REPUBLIC OF YEMEN (THROUGH RTH JEDDAH)
NATIONAL CENTRE FOR METEOROLOGY, UAE (THROUGH RTH JEDDAH)
PRESIDENCY OF METEOROLOGY AND ENVIRONMENT, SAUDI ARABIA (THROUGH RTH JEDDAH)
IRAN METEOROLOGICAL ORGANISATION, (THROUGH RTH JEDDAH)
QATAR METEOROLOGICAL DEPARTMENT (THROUGH RTH JEDDAH)**

TROPICAL CYCLONE ADVISORY No. 7 FOR NORTH INDIAN OCEAN (THE BAY OF BENGAL AND ARABIAN SEA) VALID FOR NEXT 120 HOURS ISSUED AT 2030 UTC OF 25.10.2019 BASED ON 1800 UTC OF 25.10.2019.

SUB: SEVERE CYCLONIC STORM 'KYARR' (PRONOUNCED AS KYARR) OVER EASTCENTRAL ARABIAN SEA

THE **SEVERE CYCLONIC STORM 'KYARR'** OVER EASTCENTRAL ARABIAN SEA MOVED WEST-NORTHWESTWARDS WITH A SPEED OF 04 KMPH DURING THE PAST 06 HRS AND LAY CENTRED AT 1800 UTC OF 25TH OCTOBER, 2019 NEAR LATITUDE 16.4°N AND LONGITUDE 71.5°E OVER EASTCENTRAL ARABIAN SEA, ABOUT 200 KM NEARLY TO THE WEST OF RATNAGIRI (43110), 310 KM SOUTH-SOUTHWEST OF MUMBAI (43003) AND 1870 KM EAST-SOUTHEAST OF SALALAH (41316). IT IS VERY LIKELY TO MOVE WEST-NORTHWESTWARDS TOWARDS OMAN COAST DURING NEXT 5 DAYS. IT IS VERY LIKELY TO INTENSIFY INTO A VERY SEVERE CYCLONIC STORM DURING NEXT 06 HOURS AND FURTHER INTENSIFY INTO AN EXTREMELY SEVERE CYCLONIC STORM DURING THE SUBSEQUENT 24 HOURS.

FORECAST TRACK AND INTENSITY ARE GIVEN IN THE FOLLOWING TABLE:

DATE/TIME(UTC)	POSITION (LAT. °N/ LONG. °E)	MAXIMUM SUSTAINED SURFACE WIND SPEED (KMPH)	CATEGORY OF CYCLONIC DISTURBANCE
25.10.19/1800	16.4/71.5	100-110 GUSTING TO 120	SEVERE CYCLONIC STORM
26.10.19/0000	16.6/70.6	120-130 GUSTING TO 145	VERY SEVERE CYCLONIC STORM
26.10.19/0600	16.7/69.9	135-145 GUSTING TO 160	VERY SEVERE CYCLONIC STORM
26.10.19/1200	16.9/69.3	155-165 GUSTING TO 180	VERY SEVERE CYCLONIC STORM
26.10.19/1800	17.1/68.6	170-180 GUSTING TO 200	EXTREMELY SEVERE CYCLONIC STORM
27.10.19/0600	17.5/67.4	170-180 GUSTING TO 200	EXTREMELY SEVERE CYCLONIC STORM
27.10.19/1800	18.0/66.0	160-170 GUSTING TO 190	EXTREMELY SEVERE CYCLONIC STORM
28.10.19/0600	18.5/64.8	155-165 GUSTING TO 180	VERY SEVERE CYCLONIC STORM
28.10.19/1800	18.9/63.8	145-155 GUSTING TO 170	VERY SEVERE CYCLONIC STORM
29.10.19/0600	19.2/62.7	135-145 GUSTING TO 160	VERY SEVERE CYCLONIC STORM
29.10.19/1800	19.4/61.8	125-135 GUSTING TO 150	VERY SEVERE CYCLONIC STORM
30.10.19/0600	19.6/60.9	120-130 GUSTING TO 145	VERY SEVERE CYCLONIC STORM
30.10.19/1800	19.7/60.1	100-110 GUSTING TO 120	SEVERE CYCLONIC STORM

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

REMARKS:

SATELLITE IMAGES INDICATE FURTHER ORGANISATION AND STEADILY INCREASING CONVECTION AROUND THE SYSTEM CENTRE DURING PAST SIX HOURS HAVING CENTRAL DENSE OVERCAST(CDO) PATTERN. AS PER THE SATELLITE IMAGERY AT 1800 UTC OF 25TH OCTOBER, 2019, THE CURRENT INTENSITY OF THE SYSTEM IS T3.5. ASSOCIATED BROKEN LOW TO MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION LIES OVER EAST CENTRAL ARABIAN SEA BETWEEN LAT 14.5⁰N TO 18.5⁰N EAST OF LONG 69.50E TO 73.0⁰E. THE MINIMUM CTT IS MINUS 93 DEG C.

THE ESTIMATED MAXIMUM SUSTAINED WIND SPEED IS 55 KNOTS GUSTING TO 65 KNOTS. THE ESTIMATED CENTRAL PRESSURE IS 992 HPA. AT 1800 UTC OF 25TH OCTOBER, RATNAGIRI (43110) REPORTED A MEAN SEA LEVEL PRESSURE OF 999.7. HPA AND SOUTHEASTERLY WIND WITH SPEED 10 KNOTS AND GOA (43192) REPORTED A MEAN SEA LEVEL PRESSURE OF 1004.8 HPA AND SOUTHEASTERLY WIND WITH SPEED 10 KNOTS. THE SEA CONDITION IS VERY ROUGH AROUND THE SYSTEM CENTRE.

THE MJO LIES IN THE PHASE 2 WITH AMPLITUDE GREATER THAN 1. IT WILL REMAIN IN THE SAME PHASE DURING NEXT 2 DAYS AND THEN ENTER INTO PHASE 3 WITH AMPLITUDE ABOUT 1. CONSIDERING THE ENVIRONMENTAL CONDITIONS, TOTAL PRECIPITABLE WATER IMAGERIES INDICATE WARM AIR ADVECTION TO THE SYSTEM CENTRE. THE LOW LEVEL RELATIVE VORTICITY IS $200 \times 10^{-5} \text{ SEC}^{-1}$ TO THE SOUTH OF THE SYSTEM CENTRE. THE LOWER LEVEL CONVERGENCE IS ABOUT $30 \times 10^{-5} \text{ S}^{-1}$ AROUND THE SYSTEM CENTER. THE UPPER LEVEL DIVERGENCE IS ABOUT $20 \times 10^{-5} \text{ S}^{-1}$ AROUND THE SYSTEM CENTER. THE VERTICAL WIND SHEAR IS MODERATE (10-15 KNOTS) OVER THE SYSTEM CENTER. SEA SURFACE TEMPERATURE OVER MOST PARTS OF EASTCENTRAL ARABIAN SEA IS 29-30°C AND TROPICAL CYCLONE HEAT POTENTIAL IS 80 KJ/CM² OVER THE REGION THEREBY FAVORING FURTHER INTENSIFICATION. DURING NEXT 24 HOURS, IN ADDITION TO ABOVE FAVOURABLE CONDITIONS, THE SYSTEM IS LIKELY TO EXPERIENCE FURTHER LOWER WIND SHEAR RESULTING IN RAPID INTENSIFICATION.

THE UPPER TROPOSPHERIC RIDGE RUNS ALONG 18°N. HENCE THE SYSTEM LIES CLOSED TO THE RIDGE LEADING TO NEARLY NORTHWARD MOVEMENT DURING PAST 12 HOURS. IT IS LIKELY TO MOVE WESTNORTHWESTWARDS SLOWLY WITH THE WEAKENING OF THE ABOVE RIDGE DURING NEXT 12 HOURS. THEREAFTER, IT IS EXPECTED TO MOVE WESTNORTHWESTWARDS WITH INCREASING SPEED TOWARDS OMAN COAST UNDER THE INFLUENCE OF WESTNORTHWESTWARDS STEERING WINDS DURING NEXT 5 DAYS. MAJORITY OF NUMERICAL MODELS INCLUDING ECMWF, NCMRWF UNIFIED MODELS (NCUM), NCMRWF ENSEMBLE PREDICTION SYSTEM (NEPS), IMD GLOBAL FORECAST SYSTEM (GFS), NCEP GFS, GLOBAL ENSEMBLE FORECASTING SYSTEM (GEFS) AGREE WITH THE ABOVE INFERENCE.

(ANANDA KUMAR DAS)
SCIENTIST-E, RSMC, NEW DELHI

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

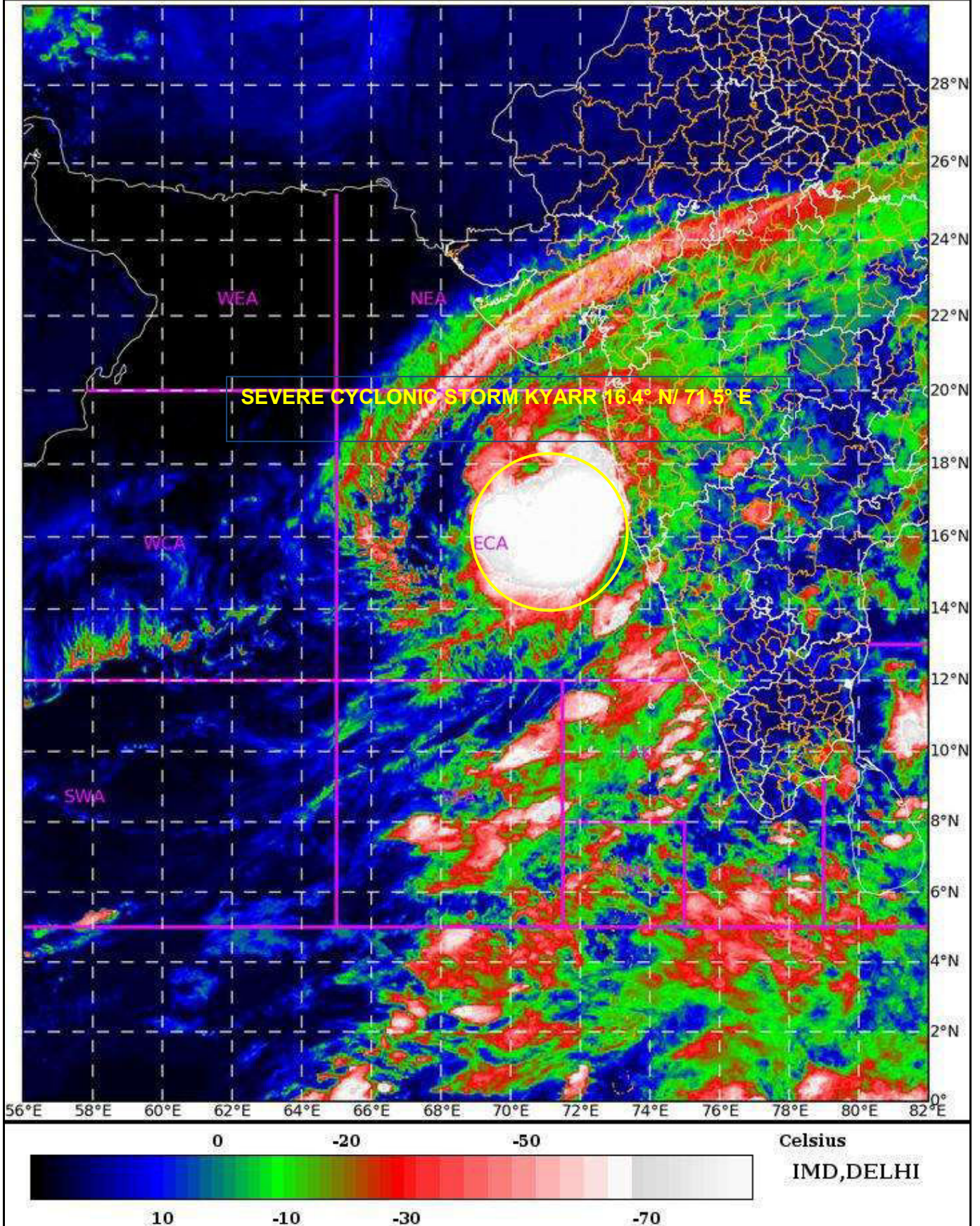
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25-10-2019/(1645 to 1711) GMT

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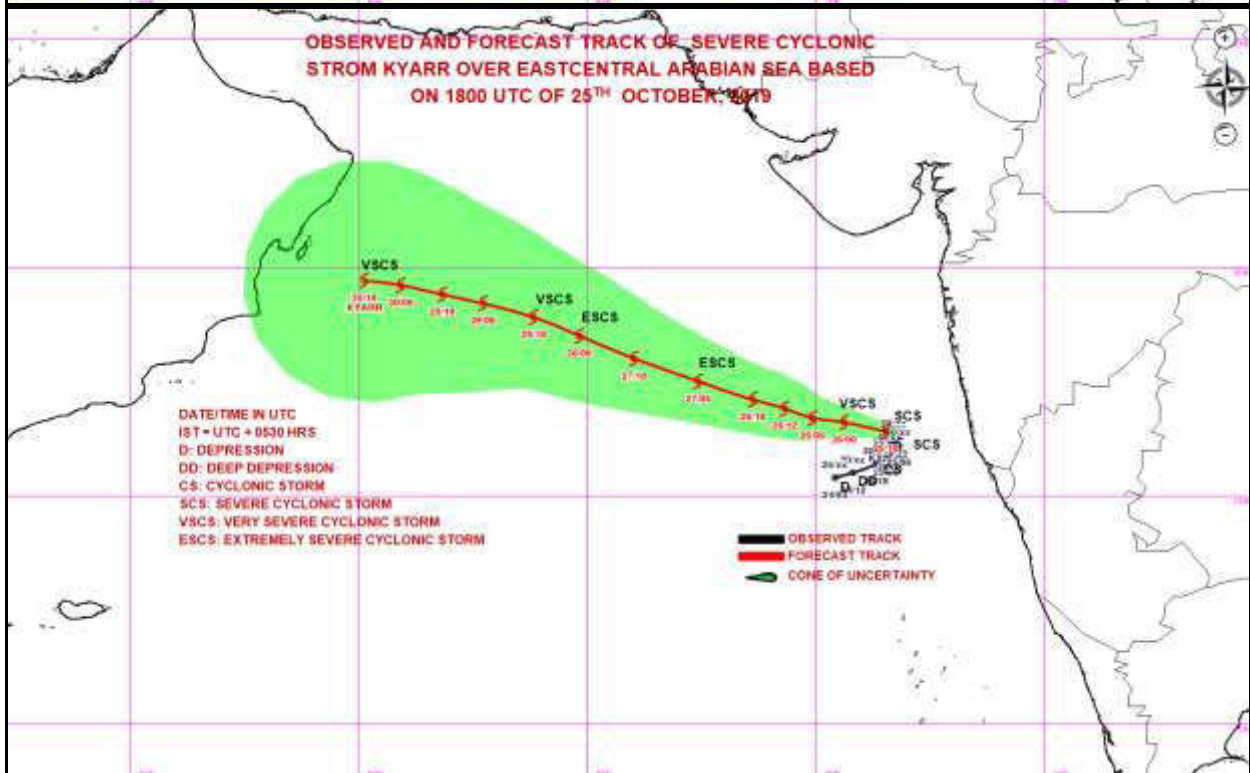
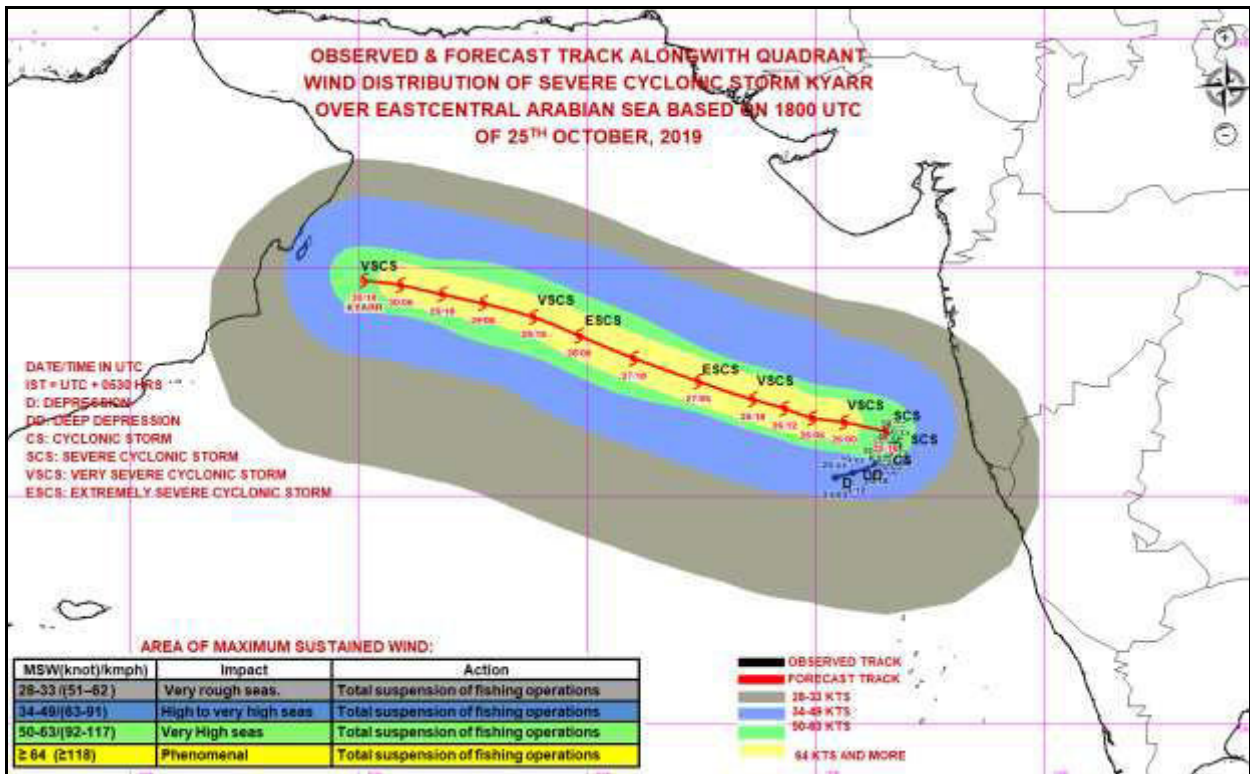
25-10-2019/(2215 to 2241) IST

ARABIAN SEA



PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%



PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%



**REGIONAL SPECIALISED METEOROLOGICAL CENTRE-TROPICAL CYCLONES, NEW DELHI
TROPICAL CYCLONE ADVISORY BULLETIN NO.8**

FROM: RSMC –TROPICAL CYCLONES, NEW DELHI

**TO: STORM WARNING CENTRE, NAYPYI TAW (MYANMAR)
STORM WARNING CENTRE, BANGKOK (THAILAND)
STORM WARNING CENTRE, COLOMBO (SRILANKA)
STORM WARNING CENTRE, DHAKA (BANGLADESH)
STORM WARNING CENTRE, KARACHI (PAKISTAN)
METEOROLOGICAL OFFICE, MALE (MALDIVES)
OMAN METEOROLOGICAL DEPARTMENT, MUSCAT (THROUGH RTH JEDDAH)
YEMEN METEOROLOGICAL SERVICES, REPUBLIC OF YEMEN (THROUGH RTH JEDDAH)
NATIONAL CENTRE FOR METEOROLOGY, UAE (THROUGH RTH JEDDAH)
PRESIDENCY OF METEOROLOGY AND ENVIRONMENT, SAUDI ARABIA (THROUGH RTH JEDDAH)
IRAN METEOROLOGICAL ORGANISATION, (THROUGH RTH JEDDAH)
QATAR METEOROLOGICAL DEPARTMENT (THROUGH RTH JEDDAH)**

TROPICAL CYCLONE ADVISORY No. 8 FOR NORTH INDIAN OCEAN (THE BAY OF BENGAL AND ARABIAN SEA) VALID FOR NEXT 120 HOURS ISSUED AT 0000 UTC OF 26.10.2019 BASED ON 2100 UTC OF 25.10.2019.

SUB: SEVERE CYCLONIC STORM 'KYARR' (PRONOUNCED AS KYARR) OVER EASTCENTRAL ARABIAN SEA

THE **SEVERE CYCLONIC STORM 'KYARR'** OVER EASTCENTRAL ARABIAN SEA MOVED WEST-NORTHWESTWARDS WITH A SPEED OF 09 KMPH DURING THE PAST 06 HRS AND LAY CENTRED AT 2100 UTC OF 25TH OCTOBER, 2019 NEAR LATITUDE 16.5°N AND LONGITUDE 71.2°E OVER EASTCENTRAL ARABIAN SEA, ABOUT 230 KM NEARLY TO THE WEST OF RATNAGIRI (43110), 320 KM SOUTH-SOUTHWEST OF MUMBAI (43003) AND 1840 KM EAST-SOUTHEAST OF SALALAH (41316). IT IS VERY LIKELY TO MOVE WEST-NORTHWESTWARDS TOWARDS OMAN COAST DURING NEXT 5 DAYS. IT IS VERY LIKELY TO INTENSIFY INTO A VERY SEVERE CYCLONIC STORM DURING NEXT 03 HOURS AND FURTHER INTENSIFY INTO AN EXTREMELY SEVERE CYCLONIC STORM DURING THE SUBSEQUENT 24 HOURS.

FORECAST TRACK AND INTENSITY ARE GIVEN IN THE FOLLOWING TABLE:

DATE/TIME(UTC)	POSITION (LAT. °N/ LONG. °E)	MAXIMUM SUSTAINED SURFACE WIND SPEED (KMPH)	CATEGORY OF CYCLONIC DISTURBANCE
25.10.19/2100	16.5/71.2	100-110 GUSTING TO 120	SEVERE CYCLONIC STORM
26.10.19/0000	16.6/70.6	120-130 GUSTING TO 145	VERY SEVERE CYCLONIC STORM
26.10.19/0600	16.7/69.9	135-145 GUSTING TO 160	VERY SEVERE CYCLONIC STORM
26.10.19/1200	16.9/69.3	155-165 GUSTING TO 180	VERY SEVERE CYCLONIC STORM
26.10.19/1800	17.1/68.6	170-180 GUSTING TO 200	EXTREMELY SEVERE CYCLONIC STORM
27.10.19/0600	17.5/67.4	170-180 GUSTING TO 200	EXTREMELY SEVERE CYCLONIC STORM
27.10.19/1800	18.0/66.0	160-170 GUSTING TO 190	EXTREMELY SEVERE CYCLONIC STORM
28.10.19/0600	18.5/64.8	155-165 GUSTING TO 180	VERY SEVERE CYCLONIC STORM
28.10.19/1800	18.9/63.8	145-155 GUSTING TO 170	VERY SEVERE CYCLONIC STORM
29.10.19/0600	19.2/62.7	135-145 GUSTING TO 160	VERY SEVERE CYCLONIC STORM
29.10.19/1800	19.4/61.8	125-135 GUSTING TO 150	VERY SEVERE CYCLONIC STORM
30.10.19/0600	19.6/60.9	120-130 GUSTING TO 145	VERY SEVERE CYCLONIC STORM
30.10.19/1800	19.7/60.1	100-110 GUSTING TO 120	SEVERE CYCLONIC STORM

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

REMARKS:

SATELLITE IMAGES INDICATE CENTRAL DENSE OVERCAST(CDO) PATTERN. AS PER THE SATELLITE IMAGERY AT 2100 UTC OF 25TH OCTOBER, 2019, THE CURRENT INTENSITY OF THE SYSTEM IS T3.5. ASSOCIATED BROKEN LOW TO MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION LIES OVER EAST CENTRAL ARABIAN SEA BETWEEN LAT 14.0⁰N TO 18.0⁰N EAST OF LONG 68.0⁰E TO 73.5⁰E. THE MINIMUM CTT IS MINUS 93 DEG C.

THE ESTIMATED MAXIMUM SUSTAINED WIND SPEED IS 55 KNOTS GUSTING TO 65 KNOTS. THE ESTIMATED CENTRAL PRESSURE IS 992 HPA. AT 2100 UTC OF 25TH OCTOBER, RATNAGIRI (43110) REPORTED A MEAN SEA LEVEL PRESSURE OF 999.4. HPA AND NEARLY SOUTHEASTERLY WIND WITH SPEED 06 KNOTS AND GOA (43192) REPORTED A MEAN SEA LEVEL PRESSURE OF 1003.8 HPA AND SOUTH-SOUTHEASTERLY WIND WITH SPEED 09 KNOTS. THE SEA CONDITION IS VERY ROUGH AROUND THE SYSTEM CENTRE.

THE MJO LIES IN THE PHASE 2 WITH AMPLITUDE GREATER THAN 1. IT WILL REMAIN IN THE SAME PHASE DURING NEXT 2 DAYS AND THEN ENTER INTO PHASE 3 WITH AMPLITUDE ABOUT 1. CONSIDERING THE ENVIRONMENTAL CONDITIONS, TOTAL PRECIPITABLE WATER IMAGERIES INDICATE WARM AIR ADVECTION TO THE SYSTEM CENTRE. THE LOW LEVEL RELATIVE VORTICITY IS $200 \times 10^{-5} \text{ SEC}^{-1}$ TO THE SOUTH OF THE SYSTEM CENTRE. THE LOWER LEVEL CONVERGENCE IS ABOUT $30 \times 10^{-5} \text{ S}^{-1}$ TO THE WEST OF THE SYSTEM CENTER. THE UPPER LEVEL DIVERGENCE IS ABOUT $30 \times 10^{-5} \text{ S}^{-1}$ AROUND THE SYSTEM CENTER. THE VERTICAL WIND SHEAR IS MODERATE (10-15 KNOTS) AROUND THE SYSTEM CENTER. SEA SURFACE TEMPERATURE OVER MOST PARTS OF EASTCENTRAL ARABIAN SEA IS 29-30°C AND TROPICAL CYCLONE HEAT POTENTIAL IS 80 KJ/CM² OVER THE REGION THEREBY FAVORING FURTHER INTENSIFICATION. DURING NEXT 24 HOURS, IN ADDITION TO ABOVE FAVOURABLE CONDITIONS, THE SYSTEM IS LIKELY TO EXPERINCES LOWER WIND SHEAR RESULTING IN RAPID INTENSIFICATION.

THE UPPER TROPOSPHERIC RIDGE RUNS ALONG 18°N. HENCE THE SYSTEM LIES CLOSED TO THE RIDGE LEADING TO NEARLY NORTHWARD MOVEMENT DURING PAST 12 HOURS. IT IS LIKELY TO MOVE WESTNORTHWESTWARDS WITH INCREASING SPEED TOWARDS OMAN COAST UNDER THE INFLUNCE OF WESTNORTHWESTWARDS STEERING WINDS DURING NEXT 5 DAYS. MAJORITY OF NUMERICAL MODELS INCLUDING ECMWF, NCMRWF UNIFIED MODELS (NCUM), NCMRWF ENSEMBLE PREDICTION SYSTEM (NEPS), IMD GLOBAL FORECAST SYSTEM (GFS), NCEP GFS, GLOBAL ENSEMBLE FORECATING SYSTEM (GEFS) AGREE WITH THE ABOVE INFERENCE.

(ANANDA KUMAR DAS)
SCIENTIST-E, RSMC, NEW DELHI

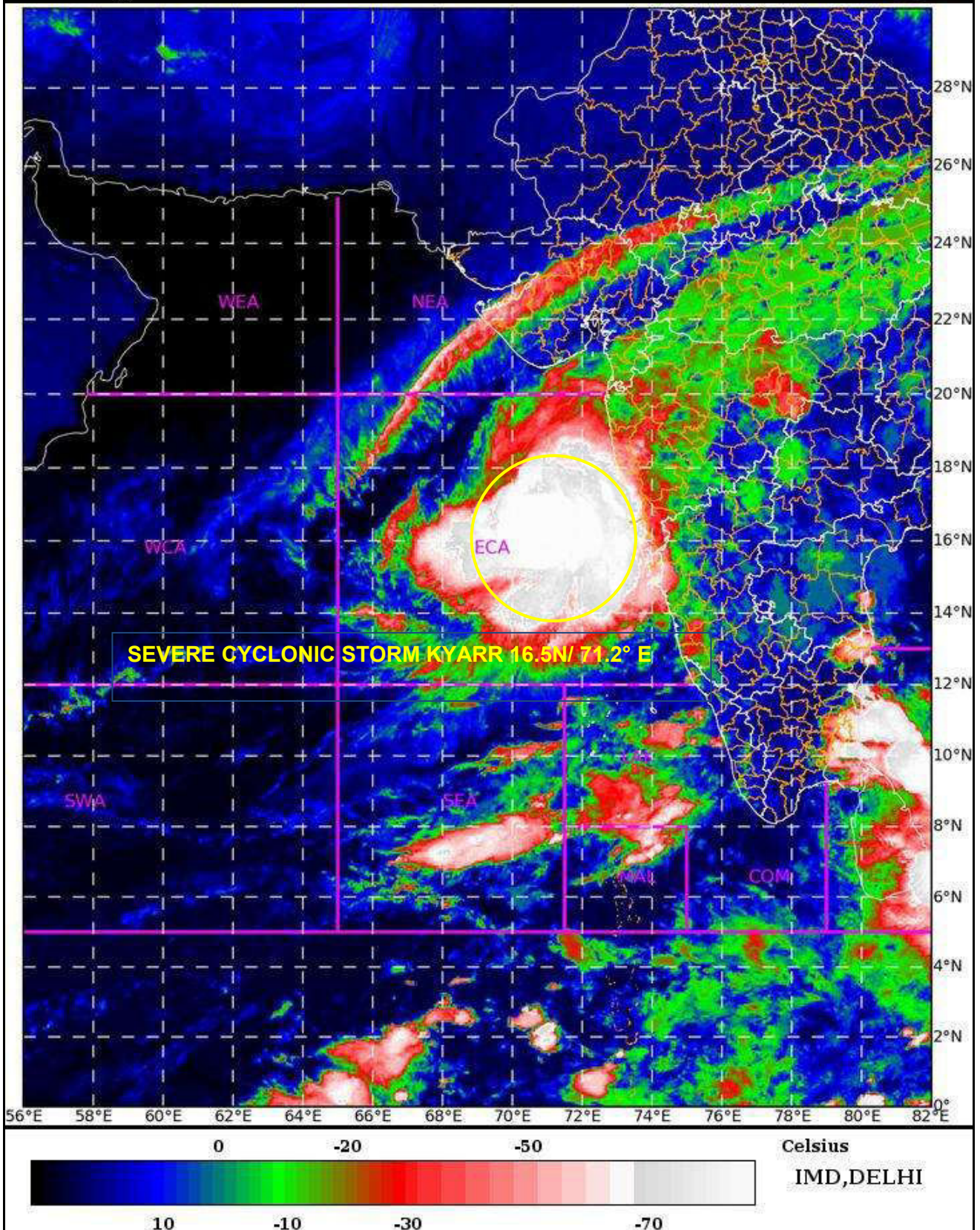
PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

SAT : INSAT-3DR IMG 25-10-2019/(2315 to 2341) GMT

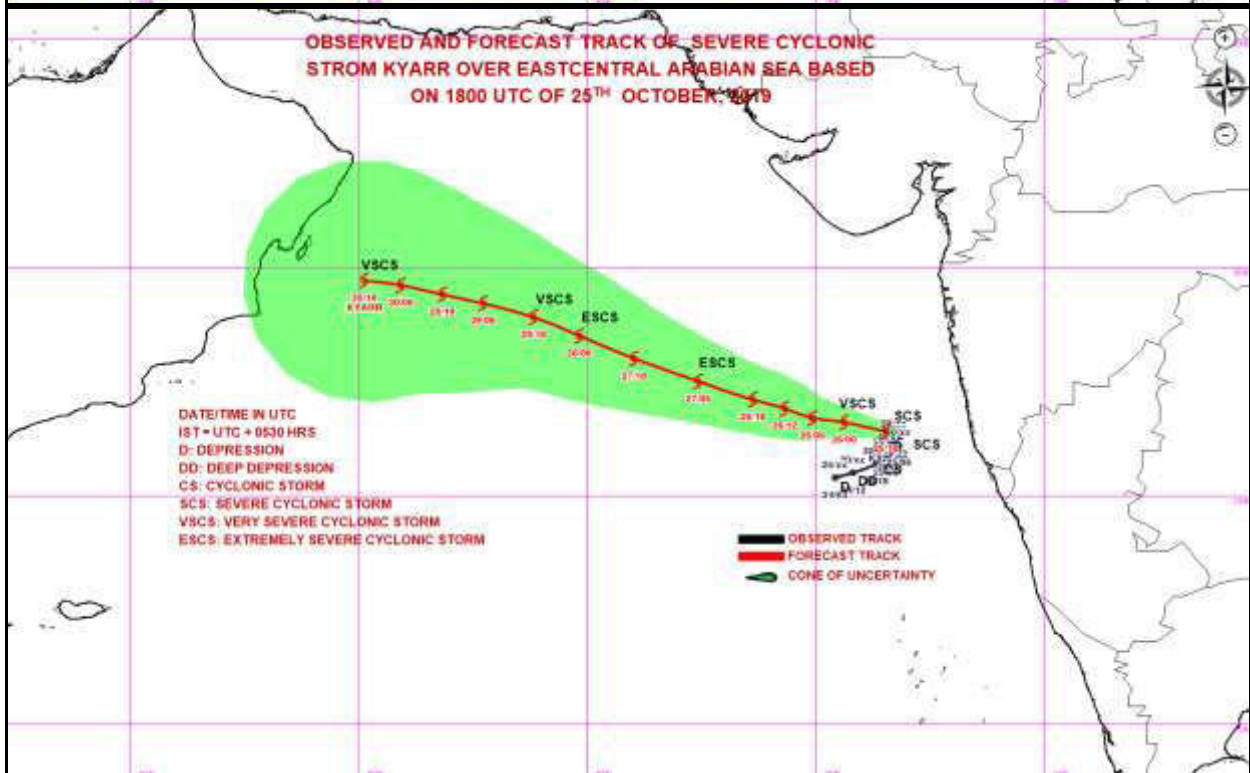
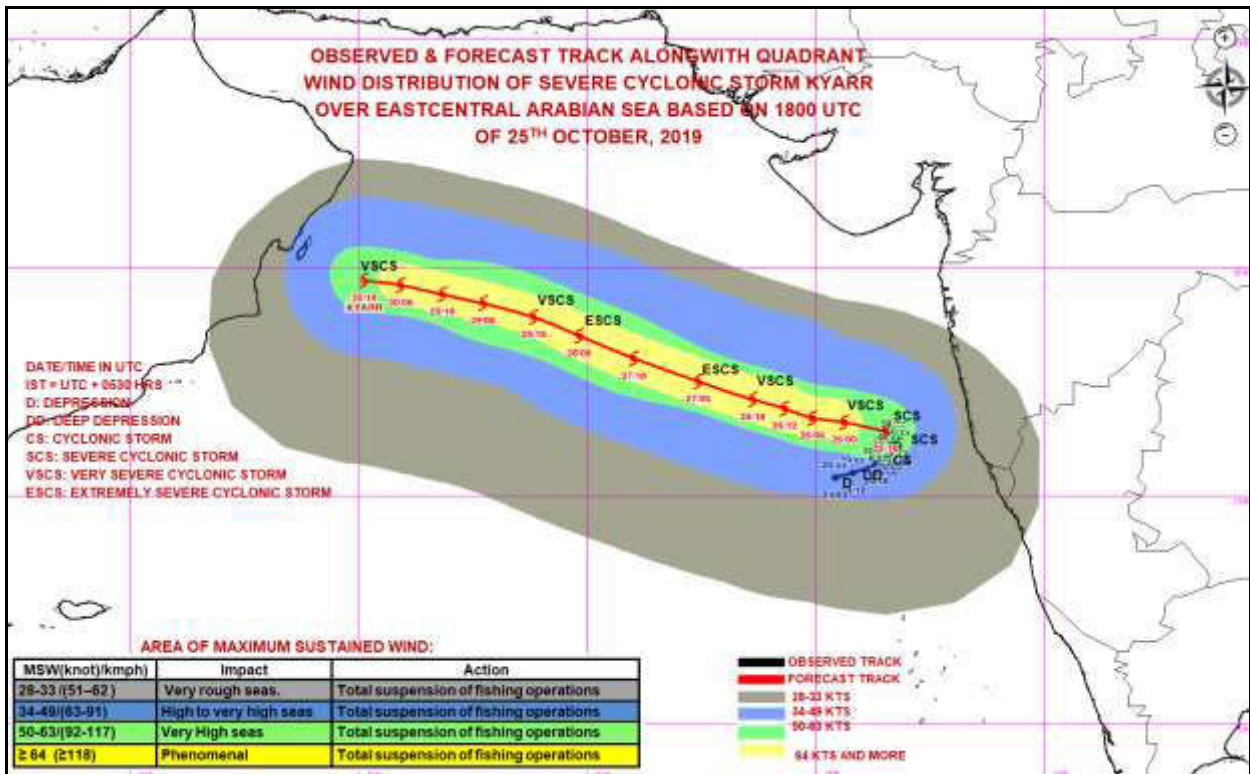
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ARABIAN_SEA



PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%



PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%



**REGIONAL SPECIALISED METEOROLOGICAL CENTRE-TROPICAL CYCLONES, NEW DELHI
TROPICAL CYCLONE ADVISORY BULLETIN NO.9**

FROM: RSMC –TROPICAL CYCLONES, NEW DELHI

**TO: STORM WARNING CENTRE, NAYPYI TAW (MYANMAR)
STORM WARNING CENTRE, BANGKOK (THAILAND)
STORM WARNING CENTRE, COLOMBO (SRILANKA)
STORM WARNING CENTRE, DHAKA (BANGLADESH)
STORM WARNING CENTRE, KARACHI (PAKISTAN)
METEOROLOGICAL OFFICE, MALE (MALDIVES)
OMAN METEOROLOGICAL DEPARTMENT, MUSCAT (THROUGH RTH JEDDAH)
YEMEN METEOROLOGICAL SERVICES, REPUBLIC OF YEMEN (THROUGH RTH JEDDAH)
NATIONAL CENTRE FOR METEOROLOGY, UAE (THROUGH RTH JEDDAH)
PRESIDENCY OF METEOROLOGY AND ENVIRONMENT, SAUDI ARABIA (THROUGH RTH JEDDAH)
IRAN METEOROLOGICAL ORGANISATION, (THROUGH RTH JEDDAH)
QATAR METEOROLOGICAL DEPARTMENT (THROUGH RTH JEDDAH)**

TROPICAL CYCLONE ADVISORY No. 9 FOR NORTH INDIAN OCEAN (THE BAY OF BENGAL AND ARABIAN SEA) VALID FOR NEXT 120 HOURS ISSUED AT 0300 UTC OF 26.10.2019 BASED ON 0000 UTC OF 26.10.2019.

SUB: SEVERE CYCLONIC STORM 'KYARR' (PRONOUNCED AS KYARR) FURTHER INTENSIFIED INTO VERY SEVERE CYCLONIC STORM OVER EASTCENTRAL ARABIAN SEA

THE **SEVERE CYCLONIC STORM 'KYARR'** OVER EASTCENTRAL ARABIAN SEA MOVED WEST-NORTHWESTWARDS WITH A SPEED OF 12 KMPH DURING THE PAST 06 HRS, INTENSIFIED INTO A VERY SEVERE CYCLONIC STORM AND LAY CENTRED AT 0000 UTC OF OF 26TH OCTOBER, 2019 NEAR LATITUDE 16.5°N AND LONGITUDE 70.8°E OVER EASTCENTRAL ARABIAN SEA, ABOUT 270 KM NEARLY TO THE WEST-SOUTHWEST OF RATNAGIRI (43110), 360 KM SOUTH-SOUTHWEST OF MUMBAI (43003) AND 1780 KM EAST-SOUTHEAST OF SALALAH (41316). IT IS VERY LIKELY TO MOVE WEST-NORTHWESTWARDS TOWARDS OMAN COAST DURING NEXT 5 DAYS. IT IS VERY LIKELY TO INTENSIFY INTO AN EXTREMELY SEVERE CYCLONIC STORM DURING NEXT 24 HOURS.

FORECAST TRACK AND INTENSITY ARE GIVEN IN THE FOLLOWING TABLE:

DATE/TIME(IST)	POSITION (LAT. °N/ LONG. °E)	MAXIMUM SUSTAINED SURFACE WIND SPEED (KMPH)	CATEGORY OF CYCLONIC DISTURBANCE
26.10.19/0000	16.5/70.8	120-130 GUSTING TO 145	VERY SEVERE CYCLONIC STORM
26.10.19/0600	16.7/69.9	135-145 GUSTING TO 160	VERY SEVERE CYCLONIC STORM
26.10.19/1200	16.9/69.3	155-165 GUSTING TO 180	VERY SEVERE CYCLONIC STORM
26.10.19/1800	17.1/68.6	170-180 GUSTING TO 200	EXTREMELY SEVERE CYCLONIC STORM
27.10.19/0000	17.3/68.0	170-180 GUSTING TO 200	EXTREMELY SEVERE CYCLONIC STORM
27.10.19/1200	17.7/66.7	170-180 GUSTING TO 200	EXTREMELY SEVERE CYCLONIC STORM
28.10.19/0000	18.2/65.4	155-165 GUSTING TO 180	VERY SEVERE CYCLONIC STORM
28.10.19/1200	18.6/64.3	145-155 GUSTING TO 170	VERY SEVERE CYCLONIC STORM
29.10.19/0000	19.0/63.3	135-145 GUSTING TO 160	VERY SEVERE CYCLONIC STORM
29.10.19/1200	19.3/62.3	125-135 GUSTING TO 150	VERY SEVERE CYCLONIC STORM
30.10.19/0000	19.6/61.4	120-130 GUSTING TO 145	VERY SEVERE CYCLONIC STORM
30.10.19/1200	19.8/60.5	110-120 GUSTING TO 135	SEVERE CYCLONIC STORM
31.10.19/0000	20.1/59.6	100-110 GUSTING TO 125	SEVERE CYCLONIC STORM

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

REMARKS:

SATELLITE IMAGES INDICATE CENTRAL DENSE OVERCAST(CDO) PATTERN. AS PER THE SATELLITE IMAGERY AT 0000 UTC OF 26TH OCTOBER, 2019, THE CURRENT INTENSITY OF THE SYSTEM IS T4.0. ASSOCIATED BROKEN LOW TO MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION LIES OVER EAST CENTRAL ARABIAN SEA BETWEEN LAT 14.0⁰N TO 18.0⁰N EAST OF LONG 68.5⁰E TO 73.5⁰E. THE MINIMUM CTT IS MINUS 93 DEG C.

THE ESTIMATED MAXIMUM SUSTAINED WIND SPEED IS 65 KNOTS GUSTING TO 75 KNOTS. THE ESTIMATED CENTRAL PRESSURE IS 984 HPA. AT 0000 UTC OF 26TH OCTOBER, RATNAGIRI (43110) REPORTED A MEAN SEA LEVEL PRESSURE OF 1000.3 HPA AND SOUTHEASTERLY WIND WITH SPEED 12 KNOTS AND GOA (43192) REPORTED A MEAN SEA LEVEL PRESSURE OF 1005.1 HPA AND SOUTHEASTERLY WIND WITH SPEED 10 KNOTS. A SHIP LOCATED NEAR LAT. 19.3°N / LONG. 71.4°E REPORTED MEAN SEA LEVEL PRESSURE OF 1004.0 HPA AND EAST-NORTHEASTERLY WIND WITH SPEED 23 KNOTS. THE SEA CONDITION IS PHENOMENAL AROUND THE SYSTEM CENTRE.

THE MJO LIES IN THE PHASE 2 WITH AMPLITUDE GREATER THAN 1. IT WILL REMAIN IN THE SAME PHASE DURING NEXT 2 DAYS AND THEN ENTER INTO PHASE 3 WITH AMPLITUDE LESS THAN 1. CONSIDERING THE ENVIRONMENTAL CONDITIONS, TOTAL PRECIPITABLE WATER IMAGERIES INDICATE WARM AIR ADVECTION TO THE SYSTEM CENTRE. THE LOW LEVEL RELATIVE VORTICITY IS $200 \times 10^{-5} \text{ SEC}^{-1}$ TO THE SOUTH OF THE SYSTEM CENTRE. THE LOWER LEVEL CONVERGENCE IS ABOUT $40 \times 10^{-5} \text{ S}^{-1}$ TO THE WEST OF THE SYSTEM CENTER. THE UPPER LEVEL DIVERGENCE IS ABOUT $20 \times 10^{-5} \text{ S}^{-1}$ AROUND THE SYSTEM CENTER. THE VERTICAL WIND SHEAR IS MODERATE (5-10 KNOTS) AROUND THE SYSTEM CENTER. SEA SURFACE TEMPERATURE OVER MOST PARTS OF EASTCENTRAL ARABIAN SEA IS 29-30°C AND TROPICAL CYCLONE HEAT POTENTIAL IS 80 KJ/CM² OVER THE REGION THEREBY FAVORING FURTHER INTENSIFICATION. DURING NEXT 24 HOURS, IN ADDITION TO ABOVE THE SYSTEM IS EXPERINCING FAVOURABLE LOWER WIND SHEAR CONDITION RESULTING IN RAPID INTENSIFICATION.

THE UPPER TROPOSPHERIC RIDGE RUNS ALONG 18°N. HENCE THE SYSTEM LIES CLOSE TO THE RIDGE LEADING TO NEARLY WEST-NORTHWESTWARD MOVEMENT DURING PAST 06 HOURS. IT IS LIKELY TO MOVE WESTNORTHWESTWARDS WITH INCREASING SPEED TOWARDS OMAN COAST UNDER THE INFLUENCE OF WESTNORTHWESTWARDS STEERING WINDS DURING NEXT 5 DAYS. MAJORITY OF NUMERICAL MODELS INCLUDING ECMWF, NCMRWF UNIFIED MODELS (NCUM), NCMRWF ENSEMBLE PREDICTION SYSTEM (NEPS), IMD GLOBAL FORECAST SYSTEM (GFS), NCEP GFS, GLOBAL ENSEMBLE FORECASTING SYSTEM (GEFS) AGREE WITH THE ABOVE INFERENCE.

(ANANDA KUMAR DAS)
SCIENTIST-E, RSMC, NEW DELHI

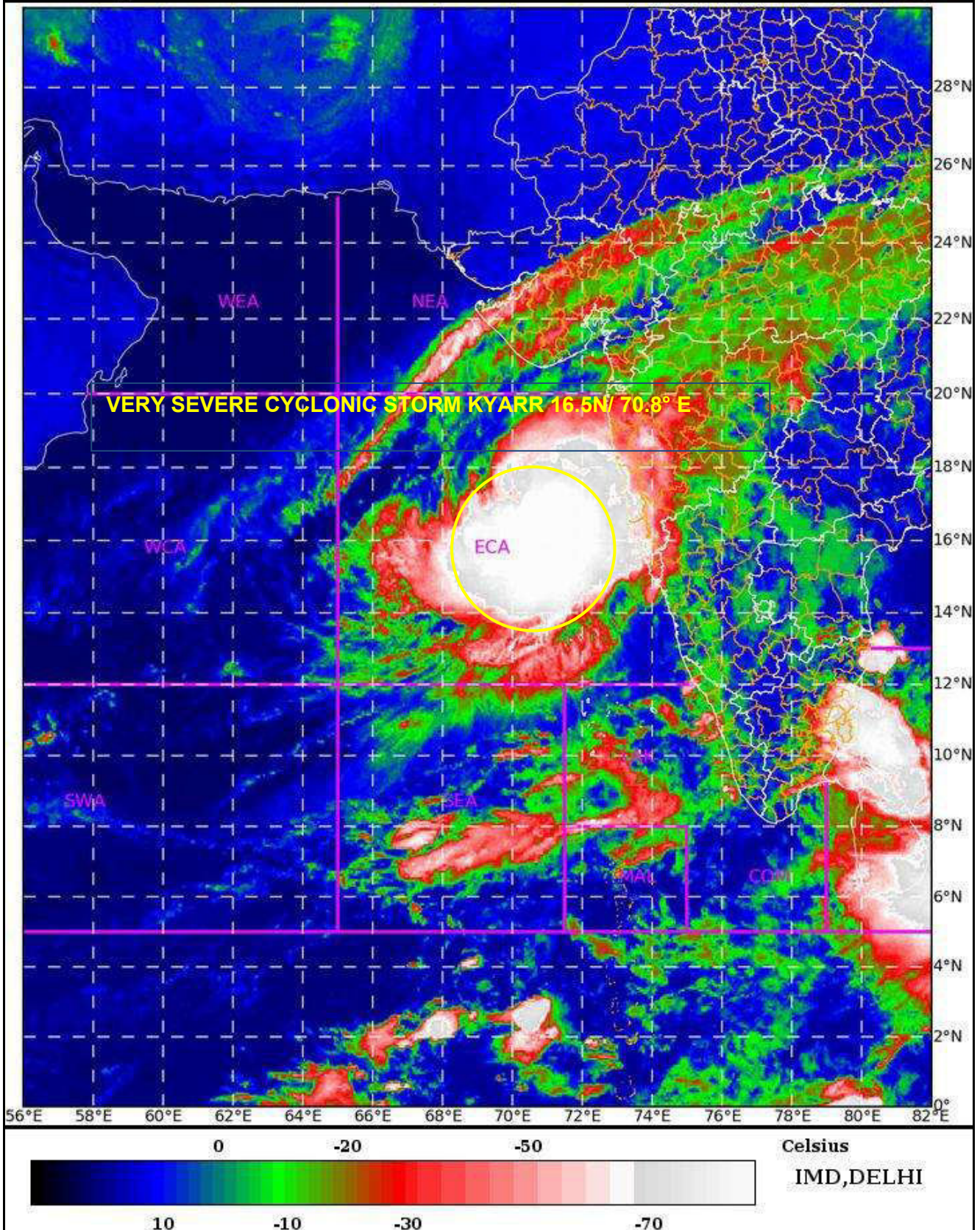
PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

SAT : INSAT-3D IMG 26-10-2019/(0130 to 0157) GMT

IMG_TIR1_TEMP 10.8 um 26-10-2019/(0700 to 0727) IST

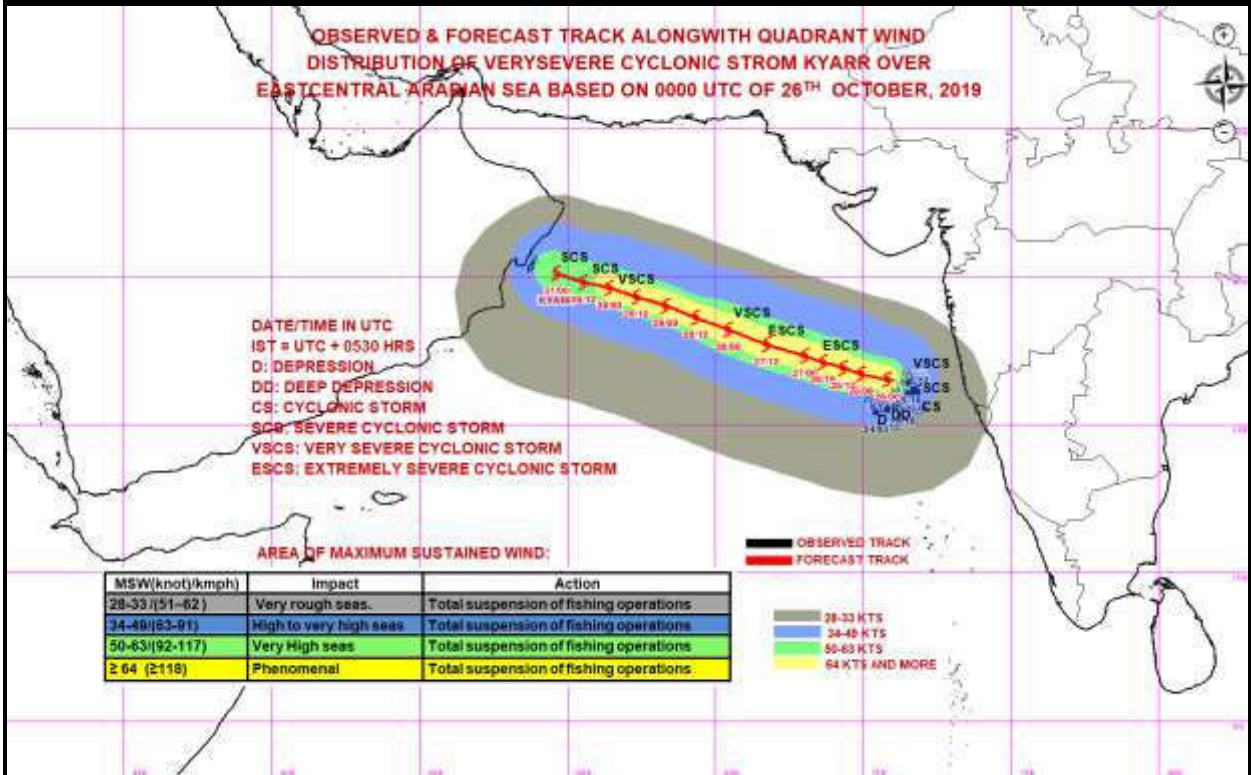
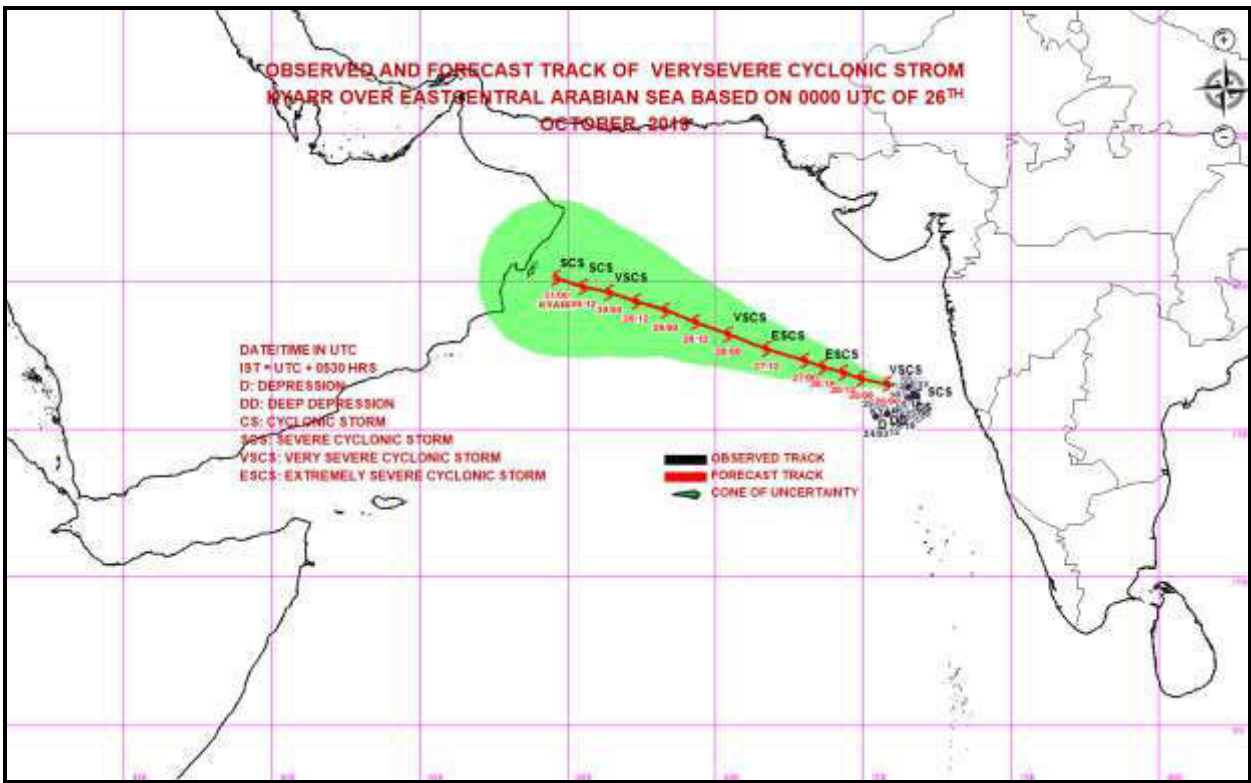
ARABIAN_SEA



ECA=> EAST CENTRAL ARABIAN SEA

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%



PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%



**REGIONAL SPECIALISED METEOROLOGICAL CENTRE-TROPICAL CYCLONES, NEW DELHI
TROPICAL CYCLONE ADVISORY BULLETIN NO.10**

FROM: RSMC –TROPICAL CYCLONES, NEW DELHI

**TO: STORM WARNING CENTRE, NAYPYI TAW (MYANMAR)
STORM WARNING CENTRE, BANGKOK (THAILAND)
STORM WARNING CENTRE, COLOMBO (SRILANKA)
STORM WARNING CENTRE, DHAKA (BANGLADESH)
STORM WARNING CENTRE, KARACHI (PAKISTAN)
METEOROLOGICAL OFFICE, MALE (MALDIVES)
OMAN METEOROLOGICAL DEPARTMENT, MUSCAT (THROUGH RTH JEDDAH)
YEMEN METEOROLOGICAL SERVICES, REPUBLIC OF YEMEN (THROUGH RTH JEDDAH)
NATIONAL CENTRE FOR METEOROLOGY, UAE (THROUGH RTH JEDDAH)
PRESIDENCY OF METEOROLOGY AND ENVIRONMENT, SAUDI ARABIA (THROUGH RTH JEDDAH)
IRAN METEOROLOGICAL ORGANISATION, (THROUGH RTH JEDDAH)
QATAR METEOROLOGICAL DEPARTMENT (THROUGH RTH JEDDAH)**

TROPICAL CYCLONE ADVISORY No. 10 FOR NORTH INDIAN OCEAN (THE BAY OF BENGAL AND ARABIAN SEA) VALID FOR NEXT 120 HOURS ISSUED AT 0600 UTC OF 26.10.2019 BASED ON 0300 UTC OF 26.10.2019.

SUB: VERY SEVERE CYCLONIC STORM 'KYARR' (PRONOUNCED AS KYARR) OVER EASTCENTRAL ARABIAN SEA

THE **VERY SEVERE CYCLONIC STORM 'KYARR'** OVER EASTCENTRAL ARABIAN SEA MOVED WEST-NORTHWESTWARDS WITH A SPEED OF 12 KMPH DURING THE PAST 06 HRS, AND LAY CENTRED AT 0300 UTC OF 26TH OCTOBER, 2019 NEAR LATITUDE 16.6°N AND LONGITUDE 70.5°E OVER EASTCENTRAL ARABIAN SEA, ABOUT 300 KM WEST-SOUTHWEST OF RATNAGIRI (43110), 370 KM SOUTH-SOUTHWEST OF MUMBAI (43003) AND 1740 KM EAST-SOUTHEAST OF SALALAH (41316). IT IS VERY LIKELY TO MOVE WEST-NORTHWESTWARDS TOWARDS OMAN COAST DURING NEXT 5 DAYS. IT IS VERY LIKELY TO INTENSIFY FURTHER INTO AN EXTREMELY SEVERE CYCLONIC STORM DURING NEXT 24 HOURS.

FORECAST TRACK AND INTENSITY ARE GIVEN IN THE FOLLOWING TABLE:

DATE/TIME(UTC)	POSITION (LAT. °N/ LONG. °E)	MAXIMUM SUSTAINED SURFACE WIND SPEED (KMPH)	CATEGORY OF CYCLONIC DISTURBANCE
26.10.19/0300	16.6/70.5	125-135 GUSTING TO 150	VERY SEVERE CYCLONIC STORM
26.10.19/0600	16.7/69.9	135-145 GUSTING TO 160	VERY SEVERE CYCLONIC STORM
26.10.19/1200	16.9/69.3	155-165 GUSTING TO 180	VERY SEVERE CYCLONIC STORM
26.10.19/1800	17.1/68.6	170-180 GUSTING TO 200	EXTREMELY SEVERE CYCLONIC STORM
27.10.19/0000	17.3/68.0	170-180 GUSTING TO 200	EXTREMELY SEVERE CYCLONIC STORM
27.10.19/1200	17.7/66.7	170-180 GUSTING TO 200	EXTREMELY SEVERE CYCLONIC STORM
28.10.19/0000	18.2/65.4	155-165 GUSTING TO 180	VERY SEVERE CYCLONIC STORM
28.10.19/1200	18.6/64.3	145-155 GUSTING TO 170	VERY SEVERE CYCLONIC STORM
29.10.19/0000	19.0/63.3	135-145 GUSTING TO 160	VERY SEVERE CYCLONIC STORM
29.10.19/1200	19.4/62.3	125-135 GUSTING TO 150	VERY SEVERE CYCLONIC STORM
30.10.19/0000	19.6/61.4	120-130 GUSTING TO 145	VERY SEVERE CYCLONIC STORM
30.10.19/1200	19.5/60.7	110-120 GUSTING TO 135	SEVERE CYCLONIC STORM
31.10.19/0000	19.3/60.0	100-110 GUSTING TO 125	SEVERE CYCLONIC STORM

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

REMARKS:

SATELLITE IMAGES INDICATE CENTRAL DENSE OVERCAST(CDO) PATTERN. AS PER THE SATELLITE IMAGERY AT 0300 UTC OF 26TH OCTOBER, 2019, THE CURRENT INTENSITY OF THE SYSTEM IS T4.0. ASSOCIATED BROKEN LOW TO MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION LIES OVER EAST CENTRAL ARABIAN SEA BETWEEN LAT 13.5⁰N TO 18.0⁰N EAST OF LONG 68.0⁰E TO 72.5⁰E. THE MINIMUM CTT IS MINUS 93 DEG C. SSMI MICROWAVE IMAGERIES (37 & 91 GHZ) INDICATES 'EYE' SUGGESTING FURTHER INTENSIFICATION.

THE ESTIMATED MAXIMUM SUSTAINED WIND SPEED IS 65 KNOTS GUSTING TO 75 KNOTS. THE ESTIMATED CENTRAL PRESSURE IS 984 HPA. AT 0300 UTC OF 26TH OCTOBER, RATNAGIRI (43110) REPORTED A MEAN SEA LEVEL PRESSURE OF 1004.2. HPA AND 160⁰ WIND WITH SPEED 06 KNOTS AND GOA (43192) REPORTED A MEAN SEA LEVEL PRESSURE OF 1007.4 HPA AND 180⁰ WIND WITH SPEED 02 KNOTS. A BUOY LOCATED NEAR LAT. 18.5°N / LONG. 67.4°E REPORTED MEAN SEA LEVEL PRESSURE OF 1005.3 HPA AND 220⁰ WIND WITH SPEED 20 KNOTS. THE SEA CONDITION IS PHENOMENAL AROUND THE SYSTEM CENTRE.

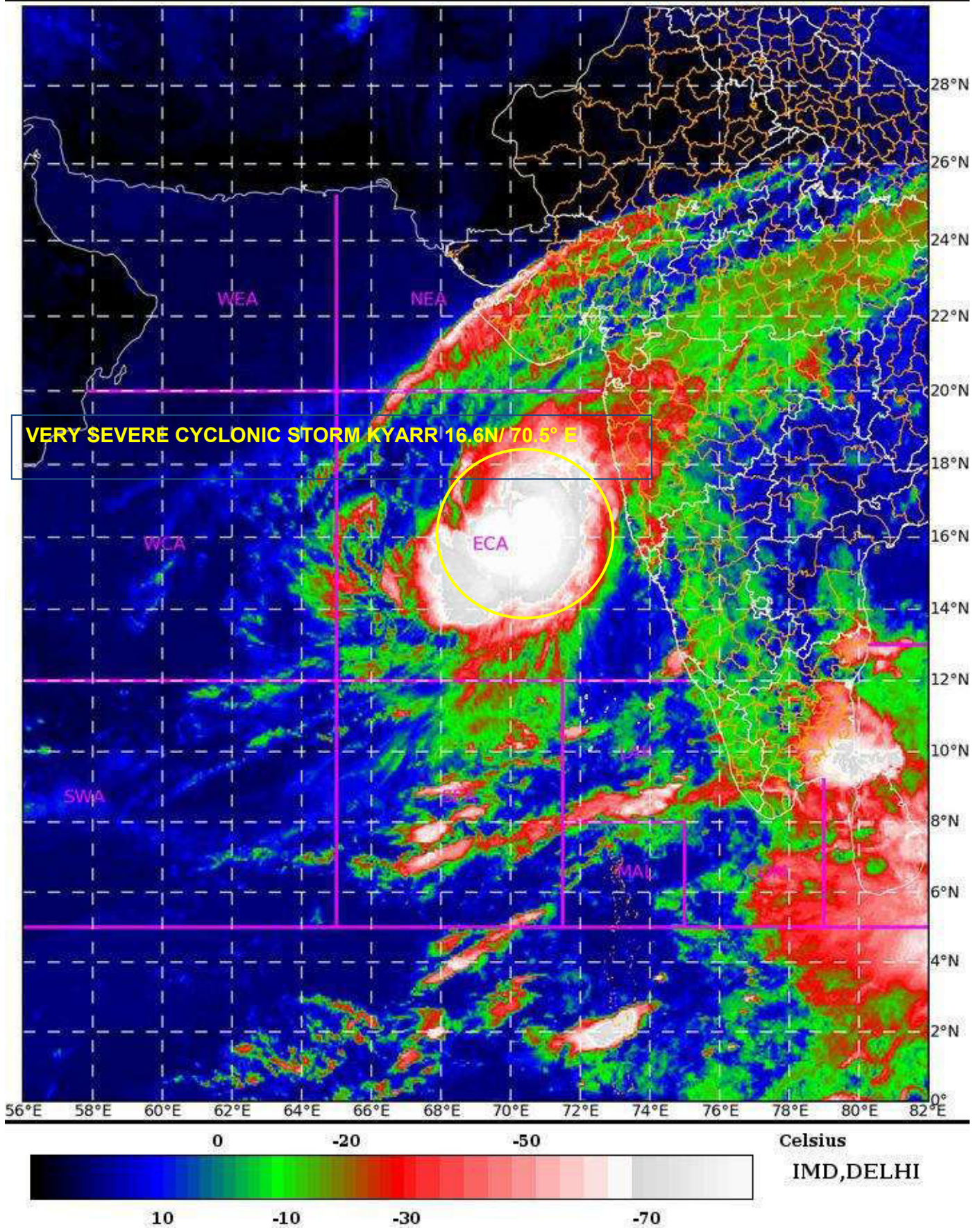
THE MJO LIES IN THE PHASE 2 WITH AMPLITUDE GREATER THAN 1. IT WILL REMAIN IN THE SAME PHASE DURING NEXT 2 DAYS AND THEN ENTER INTO PHASE 3 WITH AMPLITUDE LESS THAN 1. CONSIDERING THE ENVIRONMENTAL CONDITIONS, TOTAL PRECIPITABLE WATER IMAGERIES INDICATE WARM AIR ADVECTION TO THE SYSTEM CENTRE. THE LOW LEVEL RELATIVE VORTICITY IS $250 \times 10^{-5} \text{ SEC}^{-1}$ TO THE SOUTH OF THE SYSTEM CENTRE. THE LOWER LEVEL CONVERGENCE IS ABOUT $20 \times 10^{-5} \text{ S}^{-1}$ AROUND THE SYSTEM CENTRE. THE UPPER LEVEL DIVERGENCE IS ABOUT $30 \times 10^{-5} \text{ S}^{-1}$ TO THE SOUTH OF THE SYSTEM CENTRE. THE VERTICAL WIND SHEAR IS MODERATE (5-10 KNOTS) AROUND THE SYSTEM CENTER. SEA SURFACE TEMPERATURE OVER MOST PARTS OF EASTCENTRAL ARABIAN SEA IS 29-30°C AND TROPICAL CYCLONE HEAT POTENTIAL IS 80 KJ/CM² OVER THE REGION THEREBY FAVORING FURTHER INTENSIFICATION. BOTH POLEWARD AND EQUATORWARD OUTFLOW IS TAKING PLACE IN THE UPPER TROPOSPHERIC LEVELS ALL THESE DYNAMIC AND THERMODYNAMIC CONDITIONS FAVOUR FURTHER RAPID INTENSIFICATION. HOWEVER, AS THE SYSTEM WILL TRACK WEST-NORTHWESTWARDS AND ENTER WEST-CENTRAL ARABIAN SEA, IT IS LIKELY TO EXPERIENCE COLDER SEA SURFACE TEMPERATURES, LOWER UPPER OCEAN HEAT CONTENT AND COLD AND DRY AIR INTRUSION INTO THE SYSTEM CENTRE, CAUSING GRADUAL WEAKENING OF THE SYSTEM FROM 1200 UTC OF 30TH OCTOBER.

THE UPPER TROPOSPHERIC RIDGE RUNS ALONG 18°N. HENCE THE SYSTEM LIES CLOSE TO THE RIDGE LEADING TO NEARLY WEST-NORTHWESTWARD MOVEMENT DURING PAST 06 HOURS. IT IS LIKELY TO MOVE WEST-NORTHWESTWARDS TOWARDS OMAN COAST UNDER THE INFLUENCE OF WEST- NORTHWESTWARDS STEERING WINDS DURING NEXT 5 DAYS. MAJORITY OF NUMERICAL MODELS INCLUDING ECMWF, NCMRWF UNIFIED MODELS (NCUM), NCMRWF ENSEMBLE PREDICTION SYSTEM (NEPS), IMD GLOBAL FORECAST SYSTEM (GFS), NCEP GFS, GLOBAL ENSEMBLE FORECASTING SYSTEM (GEFS) AGREE WITH THE ABOVE INFERENCE DURING NEXT 3 DAYS.THERE IS DIVERGENCE AMONG THE TRACK FOR DAY-4 & DAY-5 FORECASTS. A FEW MODELS INDICATING MOVEMENT TOWARDS WEST-SOUTHWEST AND A FEW TOWARDS NORTH. THE CURRENT FORECAST IS BASED ON THE CONSENSUS DERIVED FROM MULTI MODEL ENSEMBLE.

(SUNITHA DEVI)
SCIENTIST-E, RSMC, NEW DELHI

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

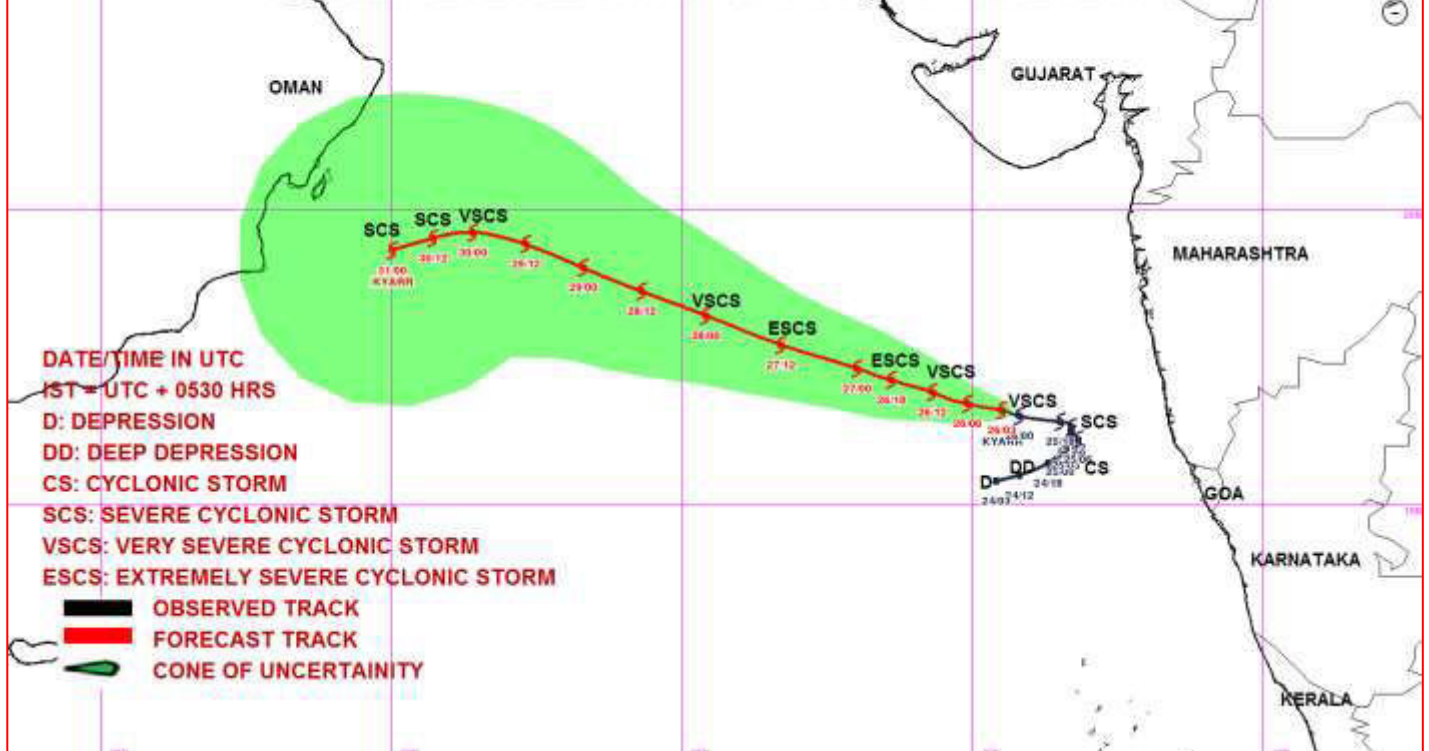


ECA=> EAST CENTRAL ARABIAN SEA

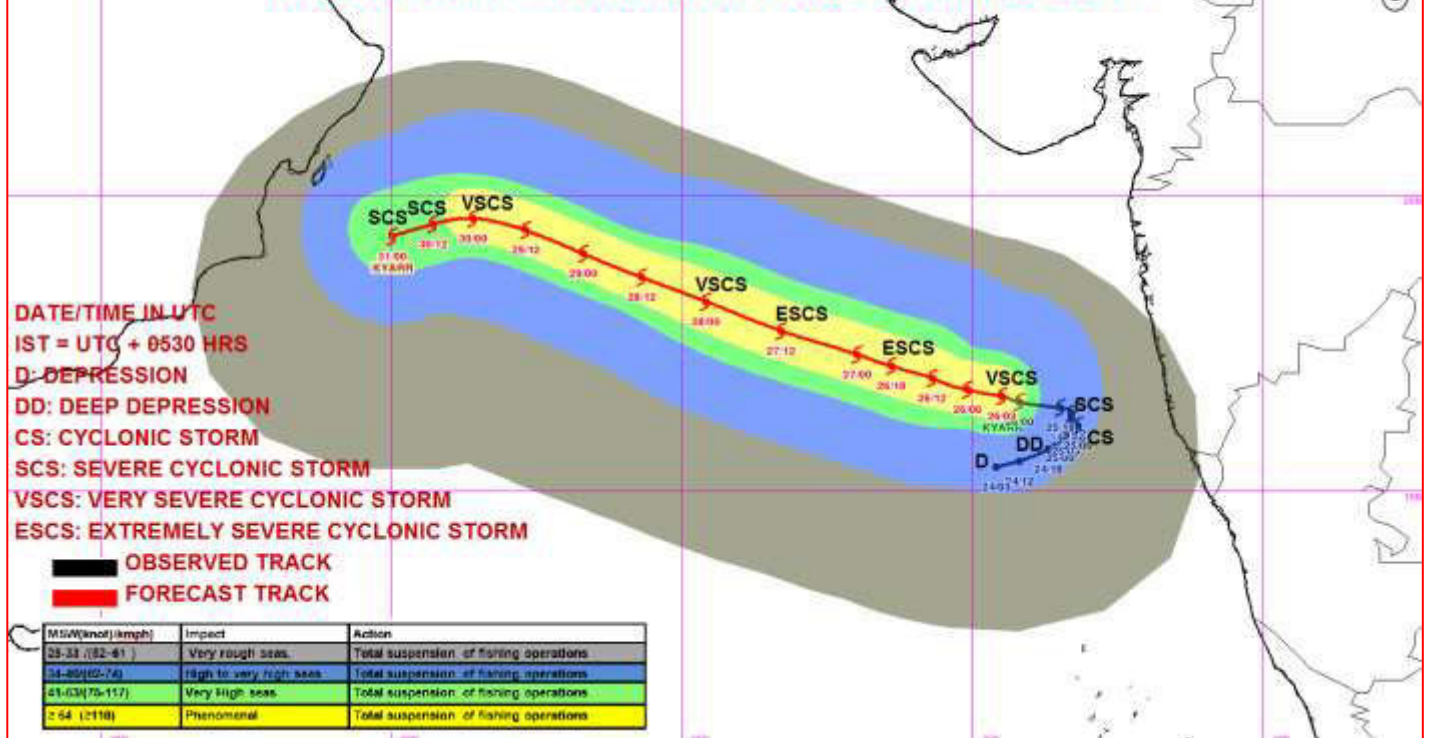
PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

OBSERVED & FORECAST TRACK ALONG WITH CONE OF UNCERTAINTY IN ASSOCIATION WITH VERY SEVERE CYCLONIC STORM KYARR OVER EASTCENTRAL ARABIAN SEA BASED ON 0300 UTC OF 26TH OCTOBER 2019



OBSERVED & FORECAST TRACK ALONG WITH QUADRANT WIND DISTRIBUTION IN ASSOCIATION WITH VERY SEVERE CYCLONIC STORM KYARR OVER EASTCENTRAL ARABIAN SEA BASED ON 0300 UTC OF 26TH OCTOBER 2019



PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%



**REGIONAL SPECIALISED METEOROLOGICAL CENTRE-TROPICAL CYCLONES, NEW DELHI
TROPICAL CYCLONE ADVISORY BULLETIN NO.11**

FROM: RSMC –TROPICAL CYCLONES, NEW DELHI

**TO: STORM WARNING CENTRE, NAYPYI TAW (MYANMAR)
STORM WARNING CENTRE, BANGKOK (THAILAND)
STORM WARNING CENTRE, COLOMBO (SRILANKA)
STORM WARNING CENTRE, DHAKA (BANGLADESH)
STORM WARNING CENTRE, KARACHI (PAKISTAN)
METEOROLOGICAL OFFICE, MALE (MALDIVES)
OMAN METEOROLOGICAL DEPARTMENT, MUSCAT (THROUGH RTH JEDDAH)
YEMEN METEOROLOGICAL SERVICES, REPUBLIC OF YEMEN (THROUGH RTH JEDDAH)
NATIONAL CENTRE FOR METEOROLOGY, UAE (THROUGH RTH JEDDAH)
PRESIDENCY OF METEOROLOGY AND ENVIRONMENT, SAUDI ARABIA (THROUGH RTH JEDDAH)
IRAN METEOROLOGICAL ORGANISATION, (THROUGH RTH JEDDAH)
QATAR METEOROLOGICAL DEPARTMENT (THROUGH RTH JEDDAH)**

TROPICAL CYCLONE ADVISORY No. 11 FOR NORTH INDIAN OCEAN (THE BAY OF BENGAL AND ARABIAN SEA) VALID FOR NEXT 120 HOURS ISSUED AT 0900 UTC OF 26.10.2019 BASED ON 0600 UTC OF 26.10.2019.

SUB: VERY SEVERE CYCLONIC STORM 'KYARR' (PRONOUNCED AS KYARR) OVER EASTCENTRAL ARABIAN SEA

THE **VERY SEVERE CYCLONIC STORM 'KYARR'** OVER EASTCENTRAL ARABIAN SEA MOVED WEST-NORTHWESTWARDS WITH A SPEED OF 14 KMPH DURING THE PAST 06 HRS, AND LAY CENTRED AT 0600 UTC OF 26TH OCTOBER, 2019 NEAR LATITUDE 16.6°N AND LONGITUDE 70.0°E OVER EASTCENTRAL ARABIAN SEA, ABOUT 350 KM WEST-SOUTHWEST OF RATNAGIRI (43110), 410 KM SOUTH-SOUTHWEST OF MUMBAI (43003) AND 1690 KM EAST-SOUTHEAST OF SALALAH (41316). IT IS VERY LIKELY TO MOVE WEST-NORTHWESTWARDS TOWARDS OMAN COAST DURING NEXT 5 DAYS. IT IS VERY LIKELY TO INTENSIFY FURTHER INTO AN EXTREMELY SEVERE CYCLONIC STORM DURING NEXT 24 HOURS.

FORECAST TRACK AND INTENSITY ARE GIVEN IN THE FOLLOWING TABLE:

Date/Time(UTC)	Position (Lat. °N/ long. °E)	Maximum sustained surface wind speed (Kmph)	Category of cyclonic disturbance
26.10.19/0600	16.6/70.0	135-145 gusting to 160	Very Severe Cyclonic Storm
26.10.19/1200	16.7/69.4	155-165 gusting to 180	Very Severe Cyclonic Storm
26.10.19/1800	16.8/68.6	165-175 gusting to 195	Extremely Severe Cyclonic Storm
27.10.19/0000	16.9/68.0	170-180 gusting to 200	Extremely Severe Cyclonic Storm
27.10.19/0600	17.2/67.1	170-180 gusting to 200	Extremely Severe Cyclonic Storm
27.10.19/1800	17.6/66.0	170-180 gusting to 200	Extremely Severe Cyclonic Storm
28.10.19/0600	18.2/64.9	165-175 gusting to 195	Extremely Severe Cyclonic Storm
28.10.19/1800	18.8/63.8	165-175 gusting to 195	Extremely Severe Cyclonic Storm
29.10.19/0600	19.2/63.0	155-165 gusting to 180	Very Severe Cyclonic Storm
29.10.19/1800	19.5/62.5	145-155 gusting to 170	Very Severe Cyclonic Storm
30.10.19/0600	19.6/62.0	130-140 gusting to 150	Very Severe Cyclonic Storm
30.10.19/1800	19.4/61.5	115-125 gusting to 135	Severe Cyclonic Storm
31.10.19/0600	19.2/61.0	100-110 gusting to 120	Severe Cyclonic Storm

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

REMARKS:

SATELLITE IMAGES INDICATE CENTRAL DENSE OVERCAST(CDO) PATTERN. AS PER THE SATELLITE IMAGERY AT 0600 UTC OF 26TH OCTOBER, 2019, THE CURRENT INTENSITY OF THE SYSTEM IS T4.0. ASSOCIATED BROKEN LOW TO MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION LIES OVER EAST CENTRAL ARABIAN SEA BETWEEN LAT 13.5⁰N TO 18.0⁰N EAST OF LONG 68.0⁰E TO 72.5⁰E. THE MINIMUM CTT IS MINUS 93 DEG C.

THE ESTIMATED MAXIMUM SUSTAINED WIND SPEED IS 75 KNOTS GUSTING TO 85 KNOTS. THE ESTIMATED CENTRAL PRESSURE IS 976 HPA. AT 0600 UTC OF 26TH OCTOBER, RATNAGIRI (43110) REPORTED A MEAN SEA LEVEL PRESSURE OF 1003.2. HPA AND 110⁰ WIND WITH SPEED 08 KNOTS AND GOA (43192) REPORTED A MEAN SEA LEVEL PRESSURE OF 1008.2 HPA AND 180⁰ WIND WITH SPEED 04 KNOTS. A BUOY LOCATED NEAR LAT. 14.9⁰N / LONG. 69.0⁰E REPORTED MEAN SEA LEVEL PRESSURE OF 1004.0 HPA AND 320⁰ WIND WITH SPEED 20 KNOTS. THE SEA CONDITION IS PHENOMENAL AROUND THE SYSTEM CENTRE.

THE MJO LIES IN THE PHASE 2 WITH AMPLITUDE GREATER THAN 1. IT WILL REMAIN IN THE SAME PHASE DURING NEXT 2 DAYS AND THEN ENTER INTO PHASE 3 WITH AMPLITUDE LESS THAN 1. CONSIDERING THE ENVIRONMENTAL CONDITIONS, TOTAL PRECIPITABLE WATER IMAGERIES INDICATE WARM AIR ADVECTION TO THE SYSTEM CENTRE. THE LOW LEVEL RELATIVE VORTICITY IS $250 \times 10^{-5} \text{ SEC}^{-1}$ TO THE SOUTH OF THE SYSTEM CENTRE. THE LOWER LEVEL CONVERGENCE IS ABOUT $15 \times 10^{-5} \text{ S}^{-1}$ AROUND THE SYSTEM CENTRE. THE UPPER LEVEL DIVERGENCE IS ABOUT $30 \times 10^{-5} \text{ S}^{-1}$ AROUND TO THE SYSTEM CENTRE. THE VERTICAL WIND SHEAR IS MODERATE (5-10 KNOTS) AROUND THE SYSTEM CENTER. SEA SURFACE TEMPERATURE OVER MOST PARTS OF EASTCENTRAL ARABIAN SEA IS 29-30°C AND TROPICAL CYCLONE HEAT POTENTIAL IS 80 KJ/CM² OVER THE REGION THEREBY FAVORING FURTHER INTENSIFICATION. BOTH POLEWARD AND EQUATORWARD OUTFLOW IS TAKING PLACE IN THE UPPER TROPOSPHERIC LEVELS ALL THESE DYNAMIC AND THERMODYNAMIC CONDITIONS FAVOUR FURTHER RAPID INTENSIFICATION. HOWEVER, AS THE SYSTEM WILL TRACK WEST-NORTHWESTWARDS AND ENTER WEST-CENTRAL ARABIAN SEA, IT IS LIKELY TO EXPERIENCE COLDER SEA SURFACE TEMPERATURES, LOWER UPPER OCEAN HEAT CONTENT AND COLD AND DRY AIR INTRUSION INTO THE SYSTEM CENTRE, CAUSING GRADUAL WEAKENING OF THE SYSTEM FROM 1200 UTC OF 30TH OCTOBER.

THE UPPER TROPOSPHERIC RIDGE RUNS ALONG 18°N. HENCE THE SYSTEM LIES CLOSE TO THE RIDGE LEADING TO NEARLY WEST-NORTHWESTWARD MOVEMENT DURING PAST 06 HOURS. IT IS LIKELY TO MOVE WEST-NORTHWESTWARDS TOWARDS OMAN COAST UNDER THE INFLUENCE OF WEST- NORTHWESTWARDS STEERING WINDS DURING NEXT 5 DAYS. MAJORITY OF NUMERICAL MODELS INCLUDING ECMWF, NCMRWF UNIFIED MODELS (NCUM), NCMRWF ENSEMBLE PREDICTION SYSTEM (NEPS), IMD GLOBAL FORECAST SYSTEM (GFS), NCEP GFS, GLOBAL ENSEMBLE FORECASTING SYSTEM (GEFS) AGREE WITH THE ABOVE INFERENCE DURING NEXT 3 DAYS.THERE IS DIVERGENCE AMONG THE TRACK FOR DAY-4 & DAY-5 FORECASTS. A FEW MODELS INDICATING MOVEMENT TOWARDS WEST-SOUTHWEST AND A FEW TOWARDS NORTH. THE CURRENT FORECAST IS BASED ON THE CONSENSUS DERIVED FROM MULTI MODEL ENSEMBLE.

(SUNITHA DEVI)
SCIENTIST-E, RSMC, NEW DELHI

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

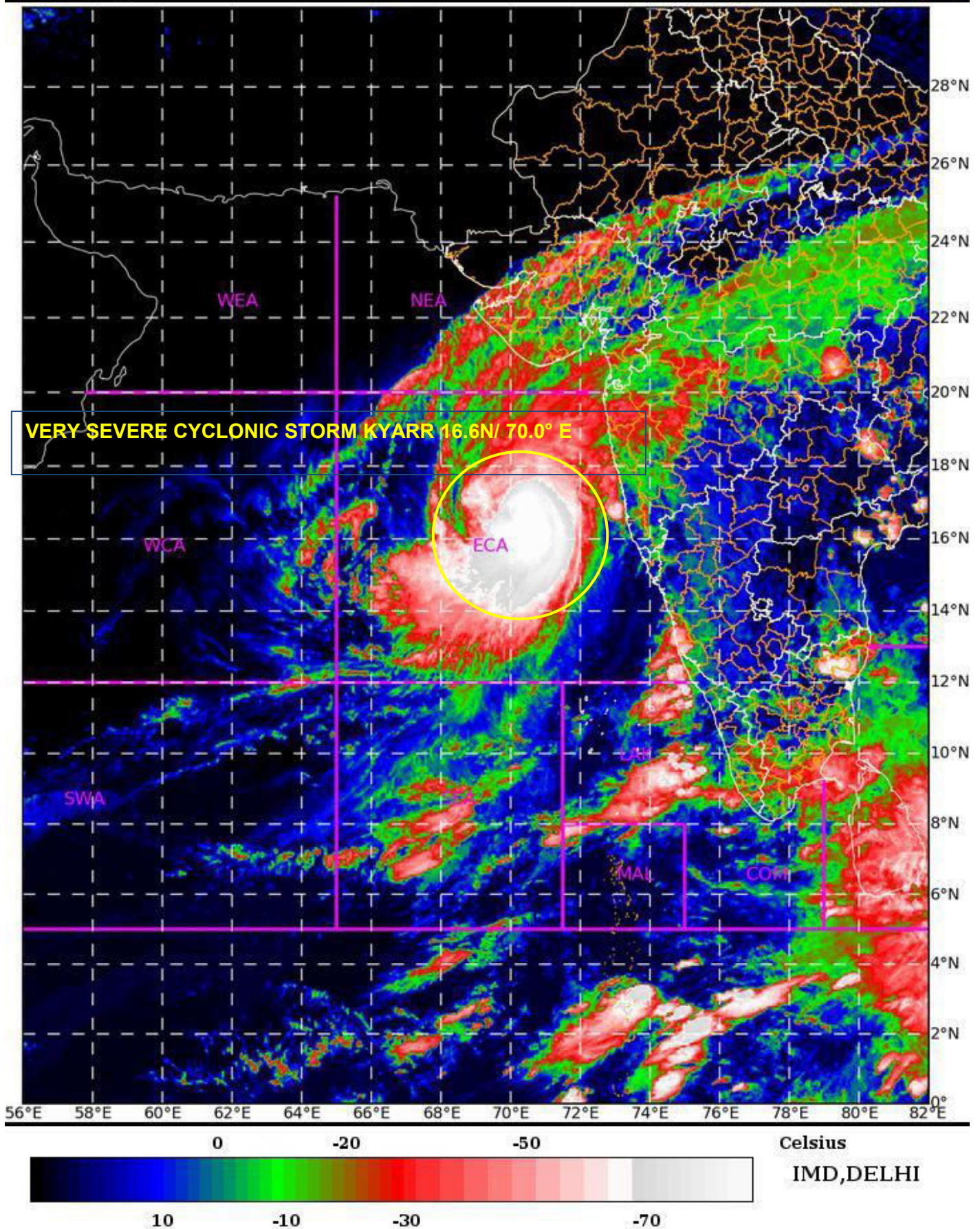
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26-10-2019/(0745 to 0811) GMT

IMG_TIR1_TEMP 10.8 um

26-10-2019/(1315 to 1341) IST

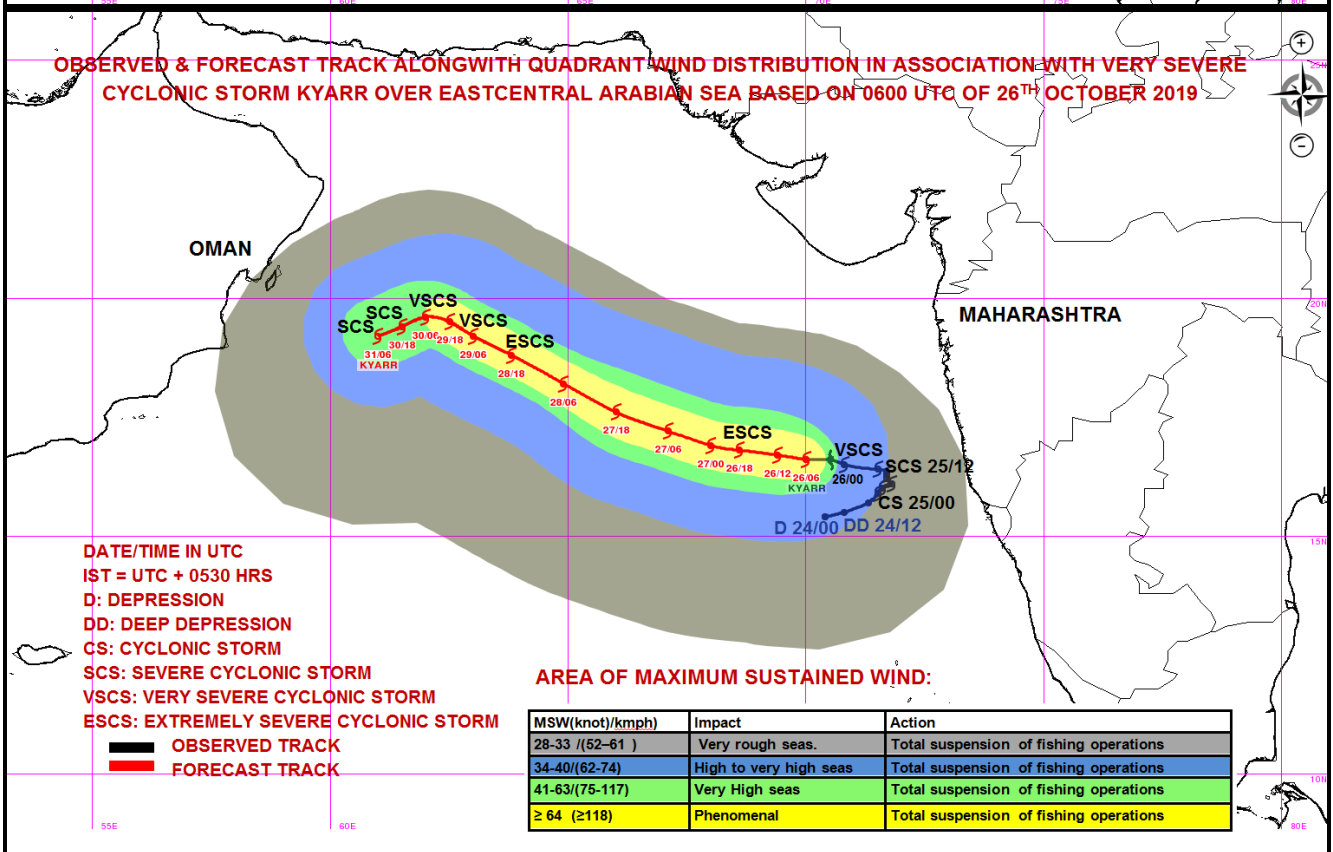
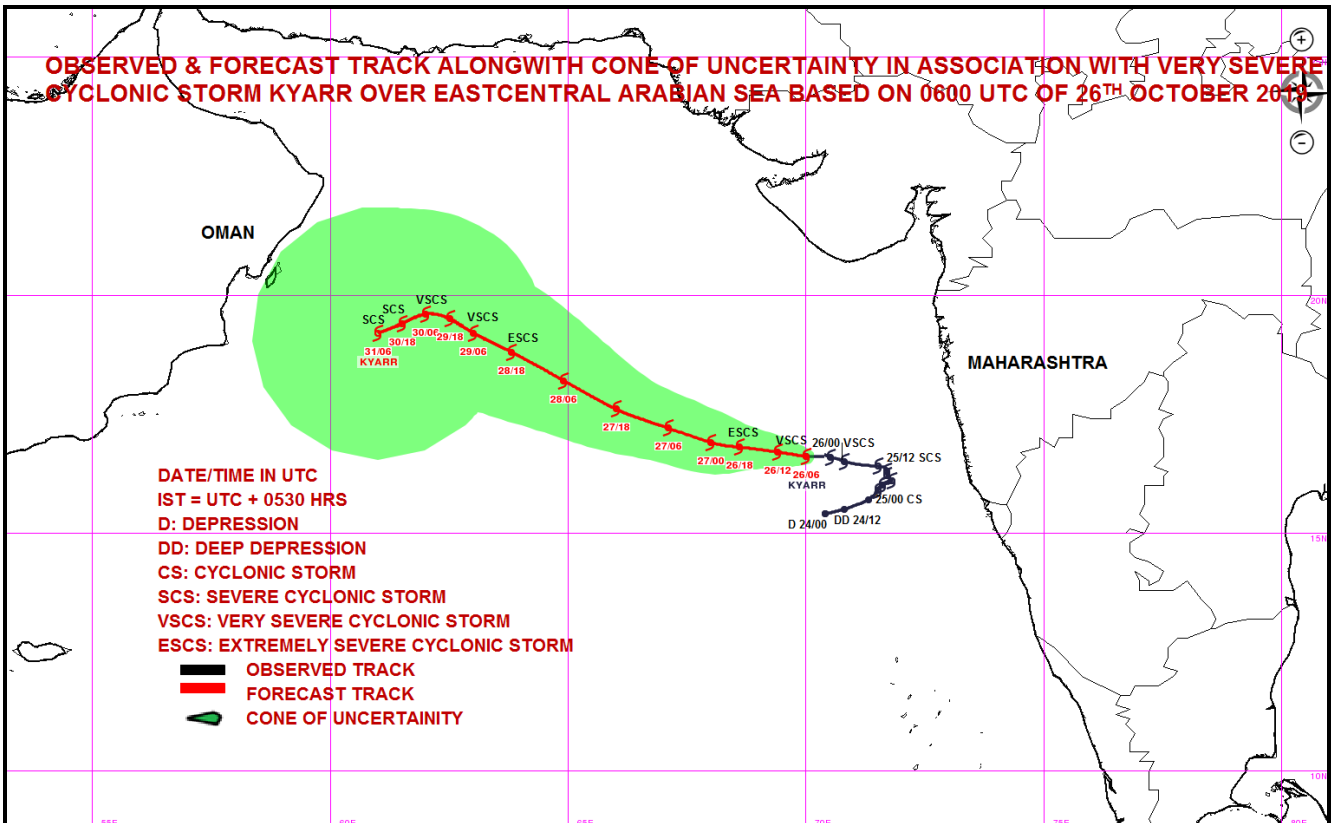
ARABIAN_SEA



ECA=> EAST CENTRAL ARABIAN SEA

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%



PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%



**REGIONAL SPECIALISED METEOROLOGICAL CENTRE-TROPICAL CYCLONES, NEW DELHI
TROPICAL CYCLONE ADVISORY BULLETIN NO.12**

FROM: RSMC –TROPICAL CYCLONES, NEW DELHI

**TO: STORM WARNING CENTRE, NAYPYI TAW (MYANMAR)
STORM WARNING CENTRE, BANGKOK (THAILAND)
STORM WARNING CENTRE, COLOMBO (SRILANKA)
STORM WARNING CENTRE, DHAKA (BANGLADESH)
STORM WARNING CENTRE, KARACHI (PAKISTAN)
METEOROLOGICAL OFFICE, MALE (MALDIVES)
OMAN METEOROLOGICAL DEPARTMENT, MUSCAT (THROUGH RTH JEDDAH)
YEMEN METEOROLOGICAL SERVICES, REPUBLIC OF YEMEN (THROUGH RTH JEDDAH)
NATIONAL CENTRE FOR METEOROLOGY, UAE (THROUGH RTH JEDDAH)
PRESIDENCY OF METEOROLOGY AND ENVIRONMENT, SAUDI ARABIA (THROUGH RTH JEDDAH)
IRAN METEOROLOGICAL ORGANISATION, (THROUGH RTH JEDDAH)
QATAR METEOROLOGICAL DEPARTMENT (THROUGH RTH JEDDAH)**

TROPICAL CYCLONE ADVISORY No. 12 FOR NORTH INDIAN OCEAN (THE BAY OF BENGAL AND ARABIAN SEA) VALID FOR NEXT 120 HOURS ISSUED AT 1130 UTC OF 26.10.2019 BASED ON 0900 UTC OF 26.10.2019.

SUB: VERY SEVERE CYCLONIC STORM 'KYARR' (PRONOUNCED AS KYARR) OVER EASTCENTRAL ARABIAN SEA

THE **VERY SEVERE CYCLONIC STORM 'KYARR'** OVER EASTCENTRAL ARABIAN SEA MOVED WESTWARDS WITH A SPEED OF 12 KMPH DURING PAST 06 HRS AND LAY CENTRED AT 0900 UTC OF 26TH OCTOBER, 2019 NEAR LATITUDE 16.6°N AND LONGITUDE 69.8°E OVER EASTCENTRAL ARABIAN SEA, ABOUT 380 KM WEST-SOUTHWEST OF RATNAGIRI (43110), 425 KM SOUTHWEST OF MUMBAI (43003) AND 1670 KM EAST-SOUTHEAST OF SALALAH (41316). IT IS VERY LIKELY TO MOVE WEST-NORTHWESTWARDS TOWARDS OMAN COAST DURING NEXT 5 DAYS. IT IS VERY LIKELY TO INTENSIFY FURTHER INTO AN EXTREMELY SEVERE CYCLONIC STORM DURING NEXT 12 HOURS.

FORECAST TRACK AND INTENSITY ARE GIVEN IN THE FOLLOWING TABLE:

Date/Time(UTC)	Position (Lat. °N/ long. °E)	Maximum sustained surface wind speed (Kmph)	Category of cyclonic disturbance
26.10.19/0900	16.6/69.8	140-150 gusting to 165	Very Severe Cyclonic Storm
26.10.19/1200	16.7/69.4	155-165 gusting to 180	Very Severe Cyclonic Storm
26.10.19/1800	16.8/68.6	165-175 gusting to 195	Extremely Severe Cyclonic Storm
27.10.19/0000	16.9/68.0	170-180 gusting to 200	Extremely Severe Cyclonic Storm
27.10.19/0600	17.2/67.1	170-180 gusting to 200	Extremely Severe Cyclonic Storm
27.10.19/1800	17.6/66.0	170-180 gusting to 200	Extremely Severe Cyclonic Storm
28.10.19/0600	18.2/64.9	165-175 gusting to 195	Extremely Severe Cyclonic Storm
28.10.19/1800	18.8/63.8	165-175 gusting to 195	Extremely Severe Cyclonic Storm
29.10.19/0600	19.2/63.0	155-165 gusting to 180	Very Severe Cyclonic Storm
29.10.19/1800	19.5/62.5	145-155 gusting to 170	Very Severe Cyclonic Storm
30.10.19/0600	19.6/62.0	130-140 gusting to 150	Very Severe Cyclonic Storm
30.10.19/1800	19.4/61.5	115-125 gusting to 135	Severe Cyclonic Storm
31.10.19/0600	19.2/61.0	100-110 gusting to 120	Severe Cyclonic Storm

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

REMARKS:

SATELLITE IMAGES INDICATE CENTRAL DENSE OVERCAST(CDO) PATTERN. AS PER THE SATELLITE IMAGERY AT 0900 UTC OF 26TH OCTOBER, 2019, THE CURRENT INTENSITY OF THE SYSTEM IS T4.0. ASSOCIATED BROKEN LOW TO MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION LIES OVER EAST CENTRAL ARABIAN SEA BETWEEN LAT 13.5⁰N TO 18.0⁰N EAST OF LONG 68.0⁰E TO 72.5⁰E. THE MINIMUM CTT IS MINUS 93 DEG C.

THE ESTIMATED MAXIMUM SUSTAINED WIND SPEED IS 75 KNOTS GUSTING TO 85 KNOTS. THE ESTIMATED CENTRAL PRESSURE IS 974 HPA. AT 0900 UTC OF 26TH OCTOBER, A BUOY LOCATED NEAR LAT. 18.5°N / LONG. 67.5°E REPORTED A MEAN SEA LEVEL PRESSURE OF 1002.9. HPA AND 210⁰ WIND WITH SPEED 19 KNOTS, ANOTHER A BUOY LOCATED NEAR LAT. 14.9°N / LONG. 69.0°E REPORTED A MEAN SEA LEVEL PRESSURE OF 1000.2 HPA AND 290⁰ WIND WITH SPEED 23 KNOTS. A SHIP LOCATED NEAR LAT. 19.4°N / LONG. 71.4°E REPORTED MEAN SEA LEVEL PRESSURE OF 1005.9 HPA AND 090⁰ WIND WITH SPEED 12 KNOTS. THE SEA CONDITION IS PHENOMENAL AROUND THE SYSTEM CENTRE.

THE MJO LIES IN THE PHASE 2 WITH AMPLITUDE GREATER THAN 1. IT WILL REMAIN IN THE SAME PHASE DURING NEXT 2 DAYS AND THEN ENTER INTO PHASE 3 WITH AMPLITUDE LESS THAN 1. CONSIDERING THE ENVIRONMENTAL CONDITIONS, TOTAL PRECIPITABLE WATER IMAGERIES INDICATE WARM AIR ADVECTION TO THE SYSTEM CENTRE. THE LOW LEVEL RELATIVE VORTICITY IS $250 \times 10^{-5} \text{ SEC}^{-1}$ TO THE SOUTH OF THE SYSTEM CENTRE. THE LOWER LEVEL CONVERGENCE IS ABOUT $15 \times 10^{-5} \text{ S}^{-1}$ AROUND THE SYSTEM CENTRE. THE UPPER LEVEL DIVERGENCE IS ABOUT $30 \times 10^{-5} \text{ S}^{-1}$ AROUND TO THE SYSTEM CENTRE. THE VERTICAL WIND SHEAR IS MODERATE (5-10 KNOTS) AROUND THE SYSTEM CENTER. SEA SURFACE TEMPERATURE OVER MOST PARTS OF EASTCENTRAL ARABIAN SEA IS 29-30°C AND TROPICAL CYCLONE HEAT POTENTIAL IS 80 KJ/CM² OVER THE REGION THEREBY FAVORING FURTHER INTENSIFICATION. BOTH POLEWARD AND EQUATORWARD OUTFLOW IS TAKING PLACE IN THE UPPER TROPOSPHERIC LEVELS ALL THESE DYNAMIC AND THERMODYNAMIC CONDITIONS FAVOUR FURTHER RAPID INTENSIFICATION. HOWEVER, AS THE SYSTEM WILL TRACK WEST-NORTHWESTWARDS AND ENTER WEST-CENTRAL ARABIAN SEA, IT IS LIKELY TO EXPERIENCE COLDER SEA SURFACE TEMPERATURES, LOWER UPPER OCEAN HEAT CONTENT AND COLD AND DRY AIR INTRUSION INTO THE SYSTEM CENTRE, CAUSING GRADUAL WEAKENING OF THE SYSTEM FROM 1200 UTC OF 30TH OCTOBER.

THE UPPER TROPOSPHERIC RIDGE RUNS ALONG 18°N. HENCE THE SYSTEM LIES CLOSE TO THE RIDGE LEADING TO NEARLY WEST-NORTHWESTWARD MOVEMENT DURING PAST 06 HOURS. IT IS LIKELY TO MOVE WEST-NORTHWESTWARDS TOWARDS OMAN COAST UNDER THE INFLUENCE OF WEST- NORTHWESTWARDS STEERING WINDS DURING NEXT 5 DAYS. MAJORITY OF NUMERICAL MODELS INCLUDING ECMWF, NCMRWF UNIFIED MODELS (NCUM), NCMRWF ENSEMBLE PREDICTION SYSTEM (NEPS), IMD GLOBAL FORECAST SYSTEM (GFS), NCEP GFS, GLOBAL ENSEMBLE FORECASTING SYSTEM (GEFS) AGREE WITH THE ABOVE INFERENCE DURING NEXT 3 DAYS.THERE IS DIVERGENCE AMONG THE TRACK FOR DAY-4 & DAY-5 FORECASTS. A FEW MODELS INDICATING MOVEMENT TOWARDS WEST-SOUTHWEST AND A FEW TOWARDS NORTH. THE CURRENT FORECAST IS BASED ON THE CONSENSUS DERIVED FROM MULTI MODEL ENSEMBLE.

(SUNITHA DEVI)
SCIENTIST-E, RSMC, NEW DELHI

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

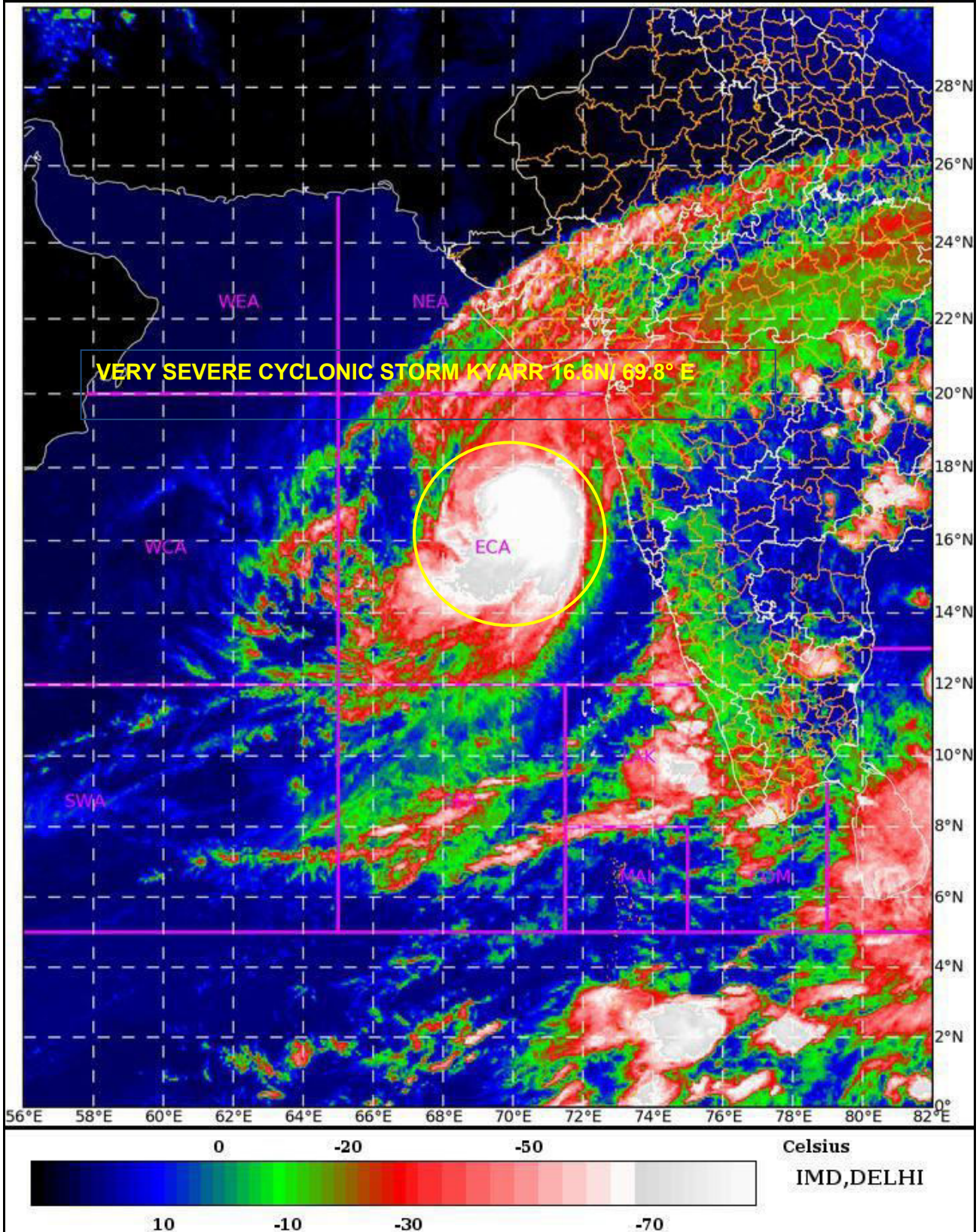
NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

SAT : INSAT-3D IMG 26-10-2019/(1000 to 1026) GMT

IMG_TIR1_TEMP 10.8 um 26-10-2019/(1530 to 1556) IST



ARABIAN_SEA

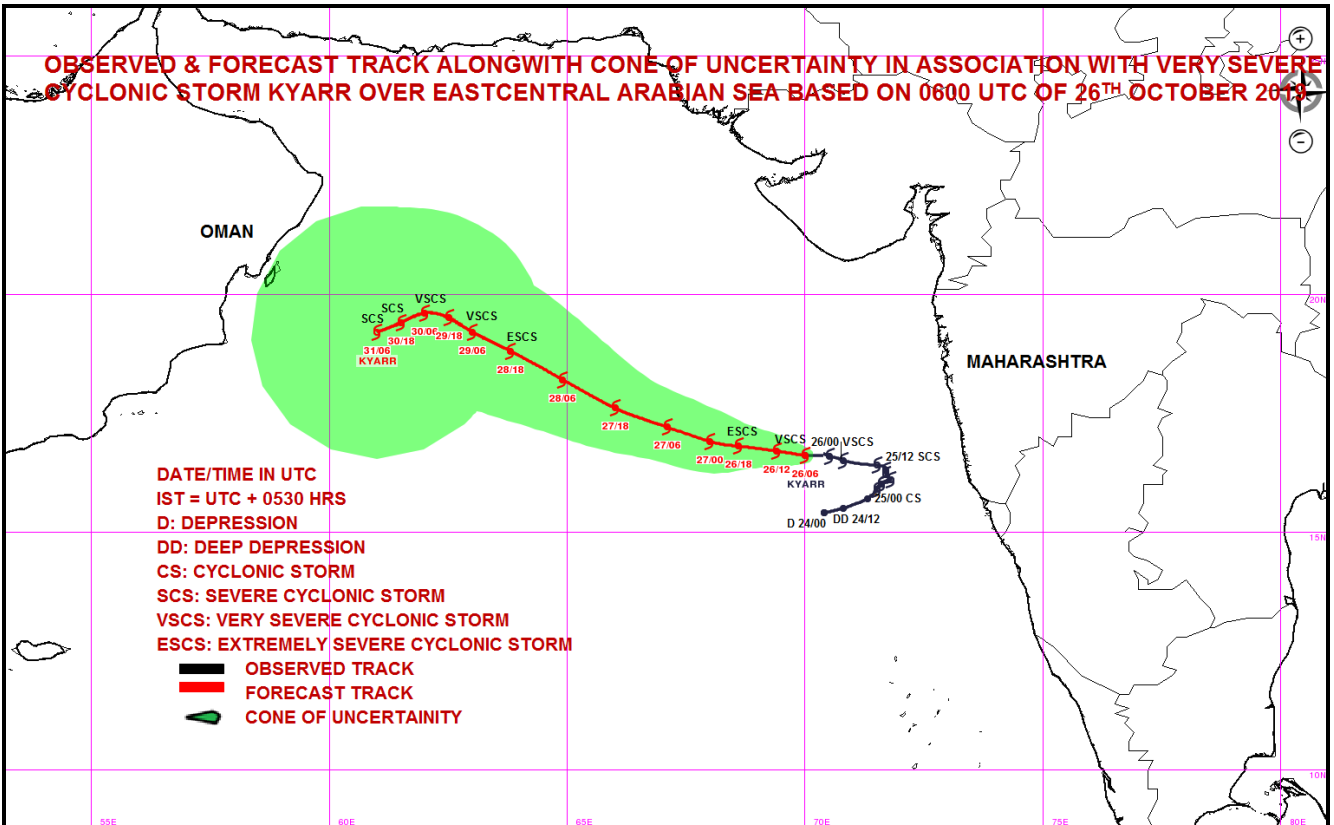


ECA=> EAST CENTRAL ARABIAN SEA

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

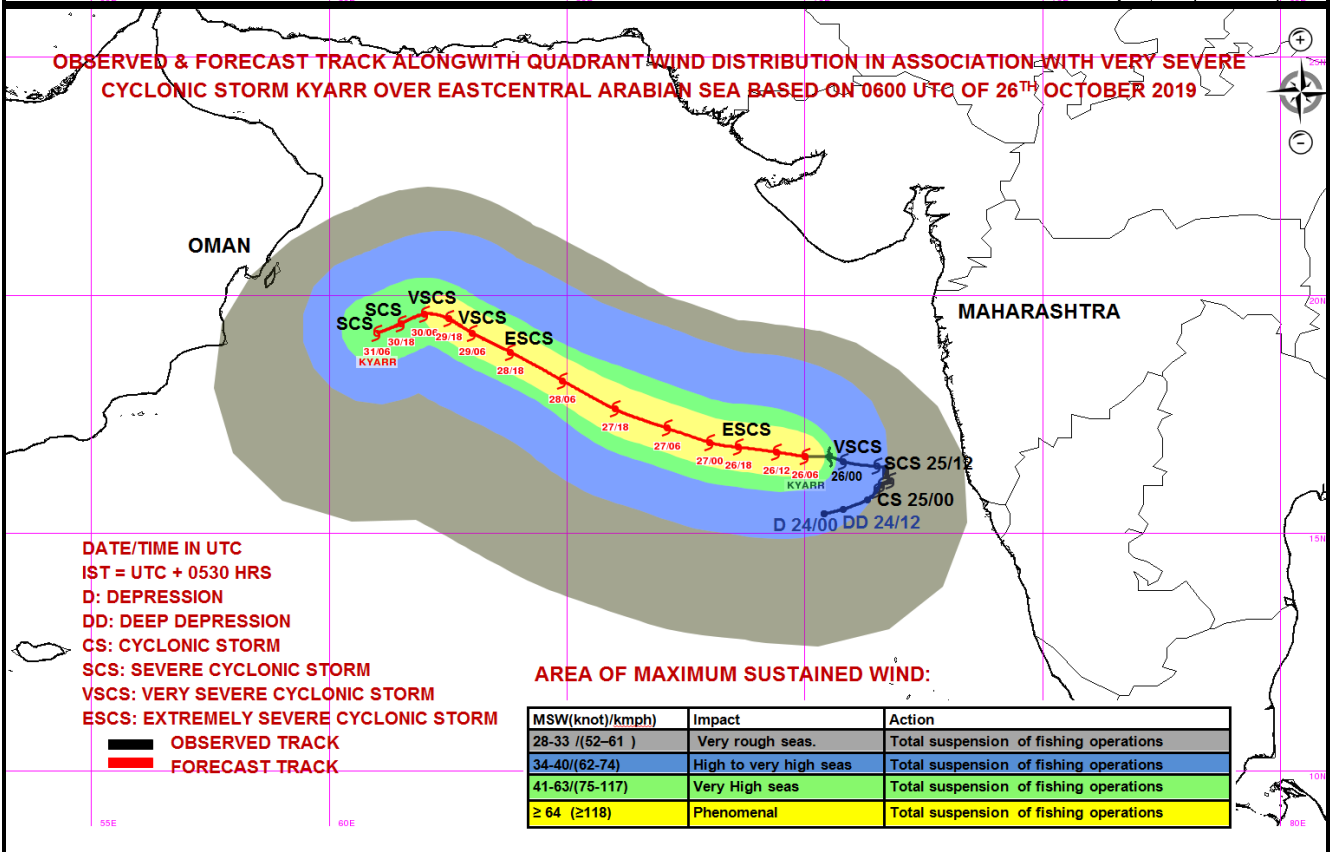
NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

OBSERVED & FORECAST TRACK ALONGWITH CONE OF UNCERTAINTY IN ASSOCIATION WITH VERY SEVERE CYCLONIC STORM KYARR OVER EASTCENTRAL ARABIAN SEA BASED ON 0600 UTC OF 26TH OCTOBER 2019



DATE/TIME IN UTC
 IST = UTC + 0530 HRS
 D: DEPRESSION
 DD: DEEP DEPRESSION
 CS: CYCLONIC STORM
 SCS: SEVERE CYCLONIC STORM
 VSCS: VERY SEVERE CYCLONIC STORM
 ESCS: EXTREMELY SEVERE CYCLONIC STORM
 — OBSERVED TRACK
 — FORECAST TRACK
 — CONE OF UNCERTAINTY

OBSERVED & FORECAST TRACK ALONGWITH QUADRANT WIND DISTRIBUTION IN ASSOCIATION WITH VERY SEVERE CYCLONIC STORM KYARR OVER EASTCENTRAL ARABIAN SEA BASED ON 0600 UTC OF 26TH OCTOBER 2019



DATE/TIME IN UTC
 IST = UTC + 0530 HRS
 D: DEPRESSION
 DD: DEEP DEPRESSION
 CS: CYCLONIC STORM
 SCS: SEVERE CYCLONIC STORM
 VSCS: VERY SEVERE CYCLONIC STORM
 ESCS: EXTREMELY SEVERE CYCLONIC STORM
 — OBSERVED TRACK
 — FORECAST TRACK

AREA OF MAXIMUM SUSTAINED WIND:

MSW(knot)/kmph	Impact	Action
28-33 (52-61)	Very rough seas.	Total suspension of fishing operations
34-40 (62-74)	High to very high seas	Total suspension of fishing operations
41-63 (75-117)	Very High seas	Total suspension of fishing operations
≥ 64 (≥118)	Phenomenal	Total suspension of fishing operations

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%



**REGIONAL SPECIALISED METEOROLOGICAL CENTRE-TROPICAL CYCLONES, NEW DELHI
TROPICAL CYCLONE ADVISORY BULLETIN NO.13**

FROM: RSMC –TROPICAL CYCLONES, NEW DELHI

**TO: STORM WARNING CENTRE, NAYPYI TAW (MYANMAR)
STORM WARNING CENTRE, BANGKOK (THAILAND)
STORM WARNING CENTRE, COLOMBO (SRILANKA)
STORM WARNING CENTRE, DHAKA (BANGLADESH)
STORM WARNING CENTRE, KARACHI (PAKISTAN)
METEOROLOGICAL OFFICE, MALE (MALDIVES)
OMAN METEOROLOGICAL DEPARTMENT, MUSCAT (THROUGH RTH JEDDAH)
YEMEN METEOROLOGICAL SERVICES, REPUBLIC OF YEMEN (THROUGH RTH JEDDAH)
NATIONAL CENTRE FOR METEOROLOGY, UAE (THROUGH RTH JEDDAH)
PRESIDENCY OF METEOROLOGY AND ENVIRONMENT, SAUDI ARABIA (THROUGH RTH JEDDAH)
IRAN METEOROLOGICAL ORGANISATION, (THROUGH RTH JEDDAH)
QATAR METEOROLOGICAL DEPARTMENT (THROUGH RTH JEDDAH)**

TROPICAL CYCLONE ADVISORY No. 13 FOR NORTH INDIAN OCEAN (THE BAY OF BENGAL AND ARABIAN SEA) VALID FOR NEXT 120 HOURS ISSUED AT 1430 UTC OF 26.10.2019 BASED ON 1200 UTC OF 26.10.2019.

SUB: VERY SEVERE CYCLONIC STORM ‘KYARR’ (PRONOUNCED AS KYARR) OVER EASTCENTRAL ARABIAN SEA

THE **VERY SEVERE CYCLONIC STORM ‘KYARR’** OVER EASTCENTRAL ARABIAN SEA MOVED WEST-NORTHWAERWARDS WITH A SPEED OF 11 KMPH DURING PAST 06 HRS AND LAY CENTRED AT 1200 UTC OF 26TH OCTOBER, 2019 NEAR LATITUDE 16.7°N AND LONGITUDE 69.4°E OVER EASTCENTRAL ARABIAN SEA, ABOUT 420 KM WEST-SOUTHWEST OF RATNAGIRI (43110), 450 KM WEST-SOUTHWEST OF MUMBAI (43003) AND 1630 KM EAST-SOUTHEAST OF SALALAH (41316). IT IS VERY LIKELY TO MOVE WEST-NORTHWESTWARDS TOWARDS OMAN COAST DURING NEXT 5 DAYS. IT IS VERY LIKELY TO INTENSIFY FURTHER INTO AN EXTREMELY SEVERE CYCLONIC STORM DURING NEXT 06 HOURS.

FORECAST TRACK AND INTENSITY ARE GIVEN IN THE FOLLOWING TABLE:

Date/Time(UTC)	Position (Lat. °N/ long. °E)	Maximum sustained surface wind speed (Kmph)	Category of cyclonic disturbance
26.10.19/1200	16.7/69.4	155-165 gusting to 180	Very Severe Cyclonic Storm
26.10.19/1800	16.8/68.6	165-175 gusting to 195	Extremely Severe Cyclonic Storm
27.10.19/0000	16.9/68.0	170-180 gusting to 200	Extremely Severe Cyclonic Storm
27.10.19/0600	17.2/67.1	170-180 gusting to 200	Extremely Severe Cyclonic Storm
27.10.19/1200	17.4/66.5	170-180 gusting to 200	Extremely Severe Cyclonic Storm
28.10.19/0000	17.9/65.5	165-175 gusting to 195	Extremely Severe Cyclonic Storm
28.10.19/1200	18.5/64.3	165-175 gusting to 195	Extremely Severe Cyclonic Storm
29.10.19/0000	19.0/63.4	155-165 gusting to 180	Very Severe Cyclonic Storm
29.10.19/1200	19.3/62.7	145-155 gusting to 170	Very Severe Cyclonic Storm
30.10.19/0000	19.5/62.2	130-140 gusting to 150	Very Severe Cyclonic Storm
30.10.19/1200	19.5/61.7	115-125 gusting to 135	Severe Cyclonic Storm
31.10.19/0000	19.3/61.2	100-110 gusting to 120	Severe Cyclonic Storm
31.10.19/1200	19.1/60.8	100-110 gusting to 120	Severe Cyclonic Storm

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

REMARKS:

SATELLITE IMAGES INDICATE BANDING EYE PATTERN WITH TIGHTLY WRAPPED CURVED BANDS VISIBLE. CENTRE CLEARLY EXPOSED IN MICROWAVE IMAGERY. AS PER THE SATELLITE IMAGERY AT 1200 UTC OF 26TH OCTOBER, 2019, THE CURRENT INTENSITY OF THE SYSTEM IS T4.5. ASSOCIATED BROKEN LOW TO MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION LIES OVER EAST CENTRAL ARABIAN SEA BETWEEN LAT 13.5°N TO 18.0°N EAST OF LONG 68.0°E TO 72.5°E. THE MINIMUM CTT IS MINUS 93 DEG C.

THE ESTIMATED MAXIMUM SUSTAINED WIND SPEED IS 85 KNOTS GUSTING TO 95 KNOTS. THE ESTIMATED CENTRAL PRESSURE IS 974 HPA. AT 1200 UTC OF 26TH OCTOBER, A BUOY LOCATED NEAR LAT. 18.5°N / LONG. 67.5°E REPORTED A MEAN SEA LEVEL PRESSURE OF 1001.9 HPA AND 230⁰ WIND WITH SPEED 21 KNOTS, ANOTHER BUOY LOCATED NEAR LAT. 14.9°N / LONG. 69.0°E REPORTED A MEAN SEA LEVEL PRESSURE OF 999.2 HPA AND 320⁰ WIND WITH SPEED 25 KNOTS. THE SEA CONDITION IS PHENOMENAL AROUND THE SYSTEM CENTRE.

THE MJO LIES IN THE PHASE 2 WITH AMPLITUDE GREATER THAN 1. IT WILL REMAIN IN THE SAME PHASE DURING NEXT ONE MORE DAY AND THEN ENTER INTO PHASE 3 WITH AMPLITUDE LESS THAN 1. CONSIDERING THE ENVIRONMENTAL CONDITIONS, TOTAL PRECIPITABLE WATER IMAGERIES INDICATE WARM AIR ADVECTION TO THE SYSTEM CENTRE. THE LOW LEVEL RELATIVE VORTICITY HAS INCREASED AND NOW IS $300 \times 10^{-5} \text{ SEC}^{-1}$ OVER THE SYSTEM CENTRE. THE LOWER LEVEL CONVERGENCE HAS ALSO INCREASED AND NOW IS ABOUT $20 \times 10^{-5} \text{ S}^{-1}$ TO THE SOUTHEAST OF THE SYSTEM CENTRE. THE UPPER LEVEL DIVERGENCE HAS DECREASED AND NOW IS ABOUT $20 \times 10^{-5} \text{ S}^{-1}$ TO THE NORTHEAST OF SYSTEM CENTRE. THE VERTICAL WIND SHEAR IS LOW (5-10 KNOTS) AROUND THE SYSTEM CENTER. SEA SURFACE TEMPERATURE OVER MOST PARTS OF EASTCENTRAL ARABIAN SEA IS 29-30°C AND TROPICAL CYCLONE HEAT POTENTIAL IS 80 KJ/CM² OVER THE REGION THEREBY FAVORING FURTHER INTENSIFICATION. BOTH POLEWARD AND EQUATORWARD OUTFLOW IS TAKING PLACE IN THE UPPER TROPOSPHERIC LEVELS ALL THESE DYNAMIC AND THERMODYNAMIC CONDITIONS FAVOUR FURTHER RAPID INTENSIFICATION. HOWEVER, AS THE SYSTEM WILL TRACK WEST-NORTHWESTWARDS AND ENTER WEST-CENTRAL ARABIAN SEA, IT IS LIKELY TO EXPERIENCE COLDER SEA SURFACE TEMPERATURES, LOWER UPPER OCEAN HEAT CONTENT AND COLD AND DRY AIR INTRUSION INTO THE SYSTEM CENTRE, CAUSING GRADUAL WEAKENING OF THE SYSTEM FROM 1200 UTC OF 30TH OCTOBER.

THE UPPER TROPOSPHERIC RIDGE RUNS ALONG 20°N. HENCE THE SYSTEM LIES TO THE SOUTH OF THE RIDGE LEADING TO NEARLY WEST-NORTHWESTWARD MOVEMENT DURING PAST 06 HOURS. IT IS LIKELY TO CONTINUE TO MOVE WEST-NORTHWESTWARDS TOWARDS OMAN COAST UNDER THE INFLUENCE OF WEST-NORTHWESTWARDS STEERING WINDS DURING NEXT 5 DAYS. MAJORITY OF NUMERICAL MODELS INCLUDING ECMWF, NCMRWF UNIFIED MODELS (NCUM), NCMRWF ENSEMBLE PREDICTION SYSTEM (NEPS), IMD GLOBAL FORECAST SYSTEM (GFS), NCEP GFS, GLOBAL ENSEMBLE FORECASTING SYSTEM (GEFS) AGREE WITH THE ABOVE INFERENCE DURING NEXT 3 DAYS. THERE IS DIVERGENCE AMONG THE TRACK FOR DAY-4 & DAY-5 FORECASTS. A FEW MODELS INDICATING MOVEMENT TOWARDS WEST-SOUTHWEST AND A FEW TOWARDS NORTH. THE CURRENT FORECAST IS BASED ON THE CONSENSUS DERIVED FROM MULTI MODEL ENSEMBLE.

(SUNITHA DEVI)
SCIENTIST-E, RSMC, NEW DELHI

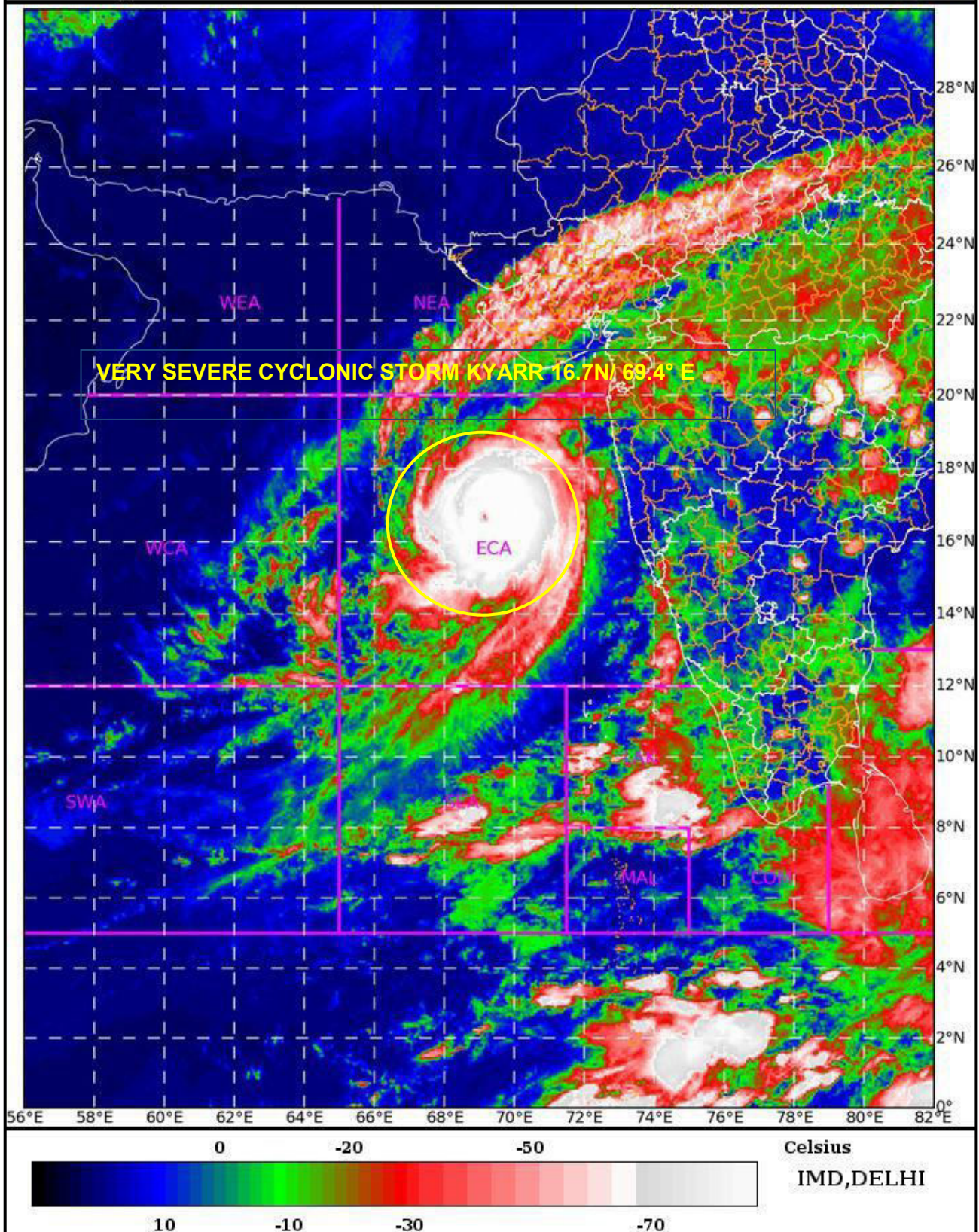
PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

SAT : INSAT-3D IMG 26-10-2019/(1330 to 1356) GMT

IMG_TIR1_TEMP 10.8 um 26-10-2019/(1900 to 1926) IST

ARABIAN_SEA

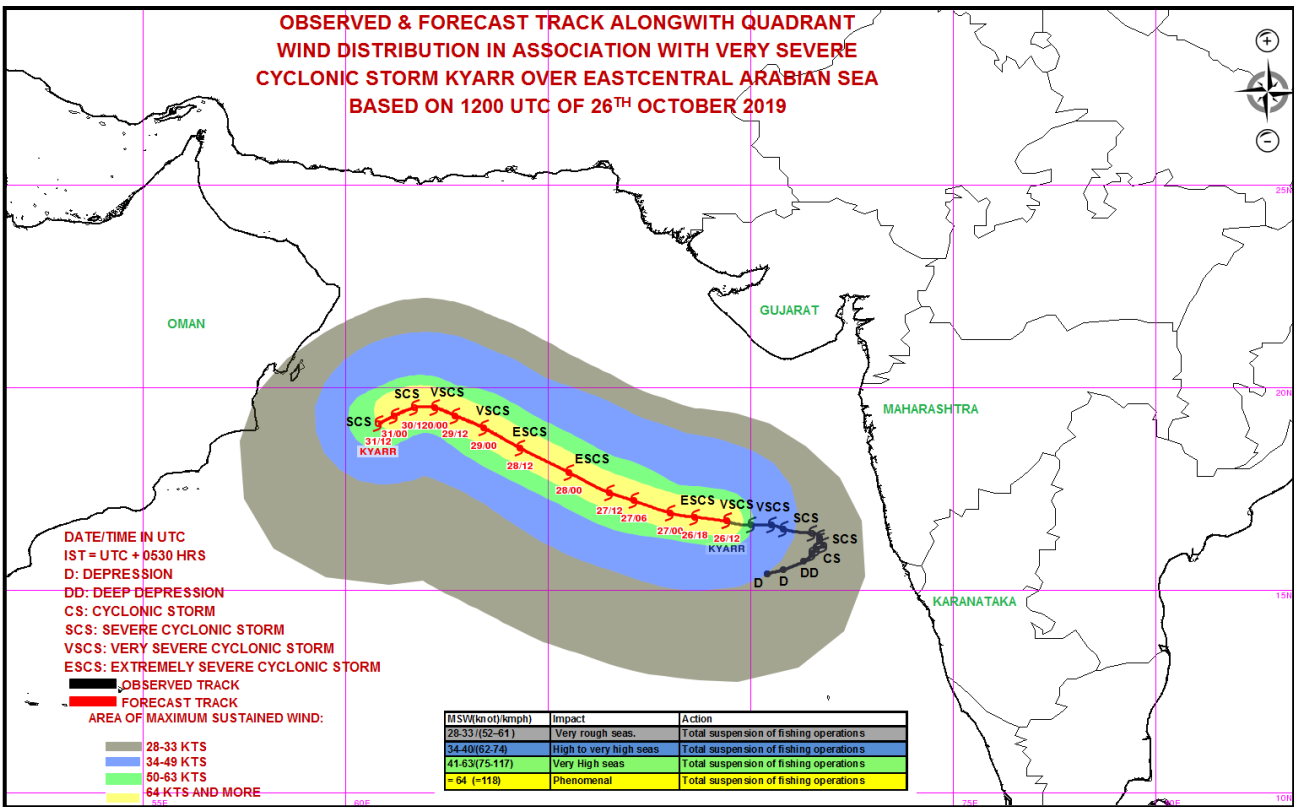


ECA=> EAST CENTRAL ARABIAN SEA

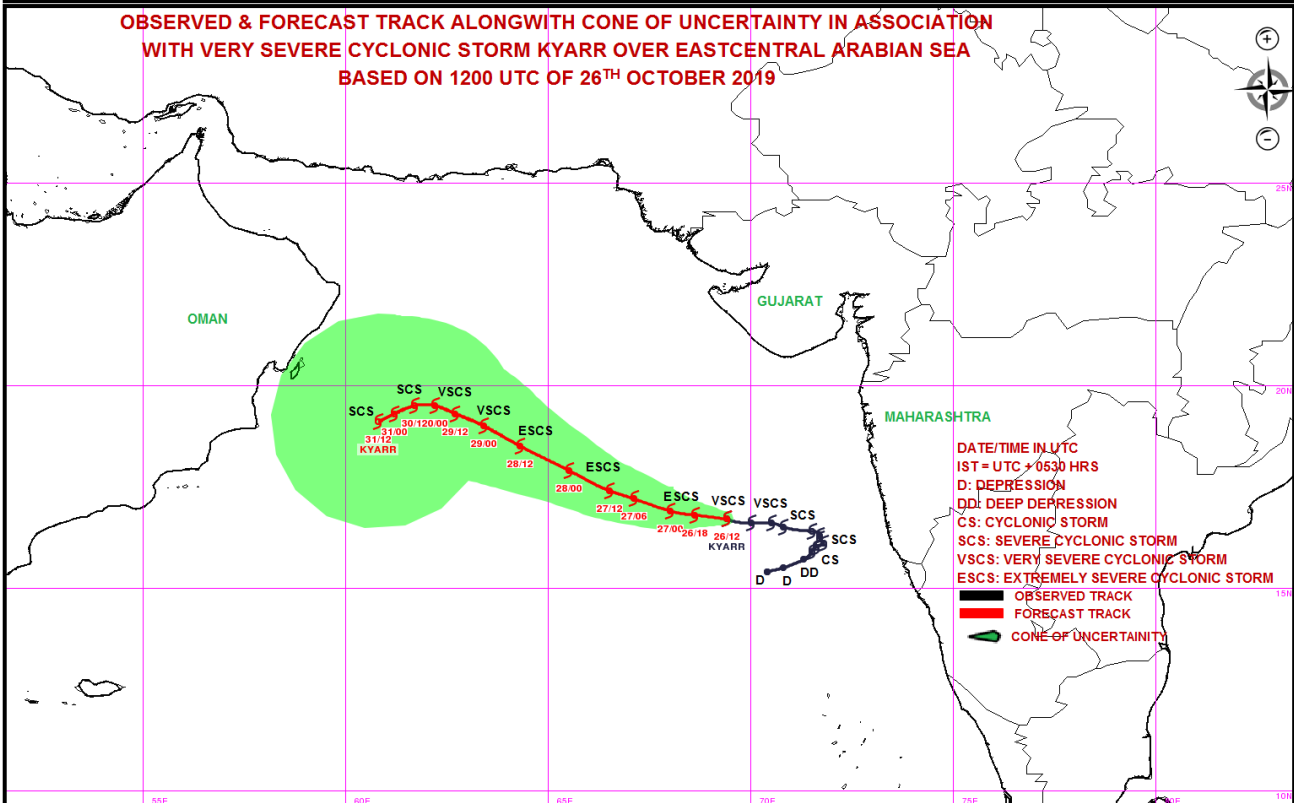
PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

**OBSERVED & FORECAST TRACK ALONGWITH QUADRANT WIND DISTRIBUTION IN ASSOCIATION WITH VERY SEVERE CYCLONIC STORM KYARR OVER EASTCENTRAL ARABIAN SEA
BASED ON 1200 UTC OF 26TH OCTOBER 2019**



**OBSERVED & FORECAST TRACK ALONGWITH CONE OF UNCERTAINTY IN ASSOCIATION WITH VERY SEVERE CYCLONIC STORM KYARR OVER EASTCENTRAL ARABIAN SEA
BASED ON 1200 UTC OF 26TH OCTOBER 2019**



PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%



**REGIONAL SPECIALISED METEOROLOGICAL CENTRE-TROPICAL CYCLONES, NEW DELHI
TROPICAL CYCLONE ADVISORY BULLETIN NO.14**

FROM: RSMC –TROPICAL CYCLONES, NEW DELHI

**TO: STORM WARNING CENTRE, NAYPYI TAW (MYANMAR)
STORM WARNING CENTRE, BANGKOK (THAILAND)
STORM WARNING CENTRE, COLOMBO (SRILANKA)
STORM WARNING CENTRE, DHAKA (BANGLADESH)
STORM WARNING CENTRE, KARACHI (PAKISTAN)
METEOROLOGICAL OFFICE, MALE (MALDIVES)
OMAN METEOROLOGICAL DEPARTMENT, MUSCAT (THROUGH RTH JEDDAH)
YEMEN METEOROLOGICAL SERVICES, REPUBLIC OF YEMEN (THROUGH RTH JEDDAH)
NATIONAL CENTRE FOR METEOROLOGY, UAE (THROUGH RTH JEDDAH)
PRESIDENCY OF METEOROLOGY AND ENVIRONMENT, SAUDI ARABIA (THROUGH RTH JEDDAH)
IRAN METEOROLOGICAL ORGANISATION, (THROUGH RTH JEDDAH)
QATAR METEOROLOGICAL DEPARTMENT (THROUGH RTH JEDDAH)**

TROPICAL CYCLONE ADVISORY No. 14 FOR NORTH INDIAN OCEAN (THE BAY OF BENGAL AND ARABIAN SEA) VALID FOR NEXT 120 HOURS ISSUED AT 1700 UTC OF 26.10.2019 BASED ON 1500 UTC OF 26.10.2019.

SUB: VERY SEVERE CYCLONIC STORM 'KYARR' (PRONOUNCED AS KYARR) INTENSIFIED INTO AN EXTREMELY SEVERE CYCLONIC STORM OVER EASTCENTRAL ARABIAN SEA

THE **VERY SEVERE CYCLONIC STORM 'KYARR'** OVER EASTCENTRAL ARABIAN SEA MOVED WEST-NORTHWESTWARDS WITH A SPEED OF 12 KMPH DURING PAST 06 HRS, INTENSIFIED INTO AN EXTREMELY SEVERE CYCLONIC STORM AND LAY CENTRED AT 1500 UTC OF 26TH OCTOBER, 2019 NEAR LATITUDE 16.7°N AND LONGITUDE 69.1°E OVER EASTCENTRAL ARABIAN SEA, ABOUT 450 KM WEST-SOUTHWEST OF RATNAGIRI (43110), 480 KM WEST-SOUTHWEST OF MUMBAI (43003) AND 1600 KM EAST-SOUTHEAST OF SALALAH (41316). IT IS VERY LIKELY TO MOVE WEST-NORTHWESTWARDS TOWARDS OMAN COAST DURING NEXT 5 DAYS.

FORECAST TRACK AND INTENSITY ARE GIVEN IN THE FOLLOWING TABLE:

DATE/TIME(UTC)	POSITION (LAT. °N/ LONG. °E)	MAXIMUM SUSTAINED SURFACE WIND SPEED (KMPH)	CATEGORY OF CYCLONIC DISTURBANCE
26.10.19/1500	16.7/69.1	165-175 GUSTING TO 195	EXTREMELY SEVERE CYCLONIC STORM
26.10.19/1800	16.8/68.6	180-190 GUSTING TO 210	EXTREMELY SEVERE CYCLONIC STORM
27.10.19/0000	16.9/68.0	185-195 GUSTING TO 215	EXTREMELY SEVERE CYCLONIC STORM
27.10.19/0600	17.2/67.1	195-205 GUSTING TO 225	EXTREMELY SEVERE CYCLONIC STORM
27.10.19/1200	17.4/66.5	205-215 GUSTING TO 235	EXTREMELY SEVERE CYCLONIC STORM
28.10.19/0000	17.9/65.5	195-205 GUSTING TO 225	EXTREMELY SEVERE CYCLONIC STORM
28.10.19/1200	18.5/64.3	185-195 GUSTING TO 215	EXTREMELY SEVERE CYCLONIC STORM
29.10.19/0000	19.0/63.4	165-175 GUSTING TO 195	EXTREMELY SEVERE CYCLONIC STORM
29.10.19/1200	19.3/62.7	145-155 GUSTING TO 170	VERY SEVERE CYCLONIC STORM
30.10.19/0000	19.5/62.2	130-140 GUSTING TO 150	VERY SEVERE CYCLONIC STORM
30.10.19/1200	19.5/61.7	115-125 GUSTING TO 135	SEVERE CYCLONIC STORM
31.10.19/0000	19.3/61.2	100-110 GUSTING TO 120	SEVERE CYCLONIC STORM
31.10.19/1200	19.1/60.8	100-110 GUSTING TO 120	SEVERE CYCLONIC STORM

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

REMARKS:

SATELLITE IMAGES INDICATE BANDING EYE PATTERN WITH TIGHTLY WRAPPED CURVED BANDS VISIBLE. CENTRE CLEARLY EXPOSED IN MICROWAVE IMAGERY. AS PER THE SATELLITE IMAGERY AT 1500 UTC OF 26TH OCTOBER, 2019, THE CURRENT INTENSITY OF THE SYSTEM IS T5.0. ASSOCIATED BROKEN LOW TO MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION LIES OVER EAST CENTRAL ARABIAN SEA BETWEEN LAT 14.5⁰N TO 18.0⁰N AND LONG 67.5⁰E TO 71.5⁰E. THE MINIMUM CTT IS MINUS 93 DEG C.

THE ESTIMATED MAXIMUM SUSTAINED WIND SPEED IS 90 KNOTS GUSTING TO 100 KNOTS. THE ESTIMATED CENTRAL PRESSURE IS 966 HPA. AT 1500 UTC OF 26TH OCTOBER, A BUOY LOCATED NEAR LAT. 18.5°N / LONG. 67.4°E REPORTED A MEAN SEA LEVEL PRESSURE OF 1003.1 HPA AND 230⁰ WIND WITH SPEED 24 KNOTS. ANOTHER BUOY LOCATED NEAR LAT. 14.8°N / LONG. 69.1°E REPORTED A MEAN SEA LEVEL PRESSURE OF 1001.3 HPA AND 310⁰ WIND WITH SPEED 24 KNOTS. THE SEA CONDITION IS PHENOMENAL AROUND THE SYSTEM CENTRE.

THE MJO LIES IN THE PHASE 2 WITH AMPLITUDE GREATER THAN 1. IT WILL REMAIN IN THE SAME PHASE DURING NEXT ONE MORE DAY AND THEN ENTER INTO PHASE 3 WITH AMPLITUDE LESS THAN 1. CONSIDERING THE ENVIRONMENTAL CONDITIONS, TOTAL PRECIPITABLE WATER IMAGERIES INDICATE WARM AIR ADVECTION TO THE SYSTEM CENTRE. THE LOW LEVEL RELATIVE VORTICITY HAS INCREASED AND NOW IS $300 \times 10^{-5} \text{ SEC}^{-1}$ OVER THE SYSTEM CENTRE. THE LOWER LEVEL CONVERGENCE HAS ALSO INCREASED AND NOW IS ABOUT $20 \times 10^{-5} \text{ S}^{-1}$ TO THE SOUTHEAST OF THE SYSTEM CENTRE. THE UPPER LEVEL DIVERGENCE HAS DECREASED AND NOW IS ABOUT $20 \times 10^{-5} \text{ S}^{-1}$ TO THE NORTHEAST OF SYSTEM CENTRE. THE VERTICAL WIND SHEAR IS LOW (5-10 KNOTS) AROUND THE SYSTEM CENTER. SEA SURFACE TEMPERATURE OVER MOST PARTS OF EASTCENTRAL ARABIAN SEA IS 29-30°C AND TROPICAL CYCLONE HEAT POTENTIAL IS 80 KJ/CM2 OVER THE REGION THEREBY FAVORING FURTHER INTENSIFICATION. BOTH POLEWARD AND EQUATORWARD OUTFLOW IS TAKING PLACE IN THE UPPER TROPOSPHERIC LEVELS ALL THESE DYNAMIC AND THERMODYNAMIC CONDITIONS FAVOUR FURTHER RAPID INTENSIFICATION. HOWEVER, AS THE SYSTEM WILL TRACK WEST-NORTHWESTWARDS AND ENTER WEST-CENTRAL ARABIAN SEA, IT IS LIKELY TO EXPERIENCE COLDER SEA SURFACE TEMPERATURES, LOWER UPPER OCEAN HEAT CONTENT AND COLD AND DRY AIR INTRUSION INTO THE SYSTEM CENTRE, CAUSING GRADUAL WEAKENING OF THE SYSTEM FROM 1200 UTC OF 30TH OCTOBER.

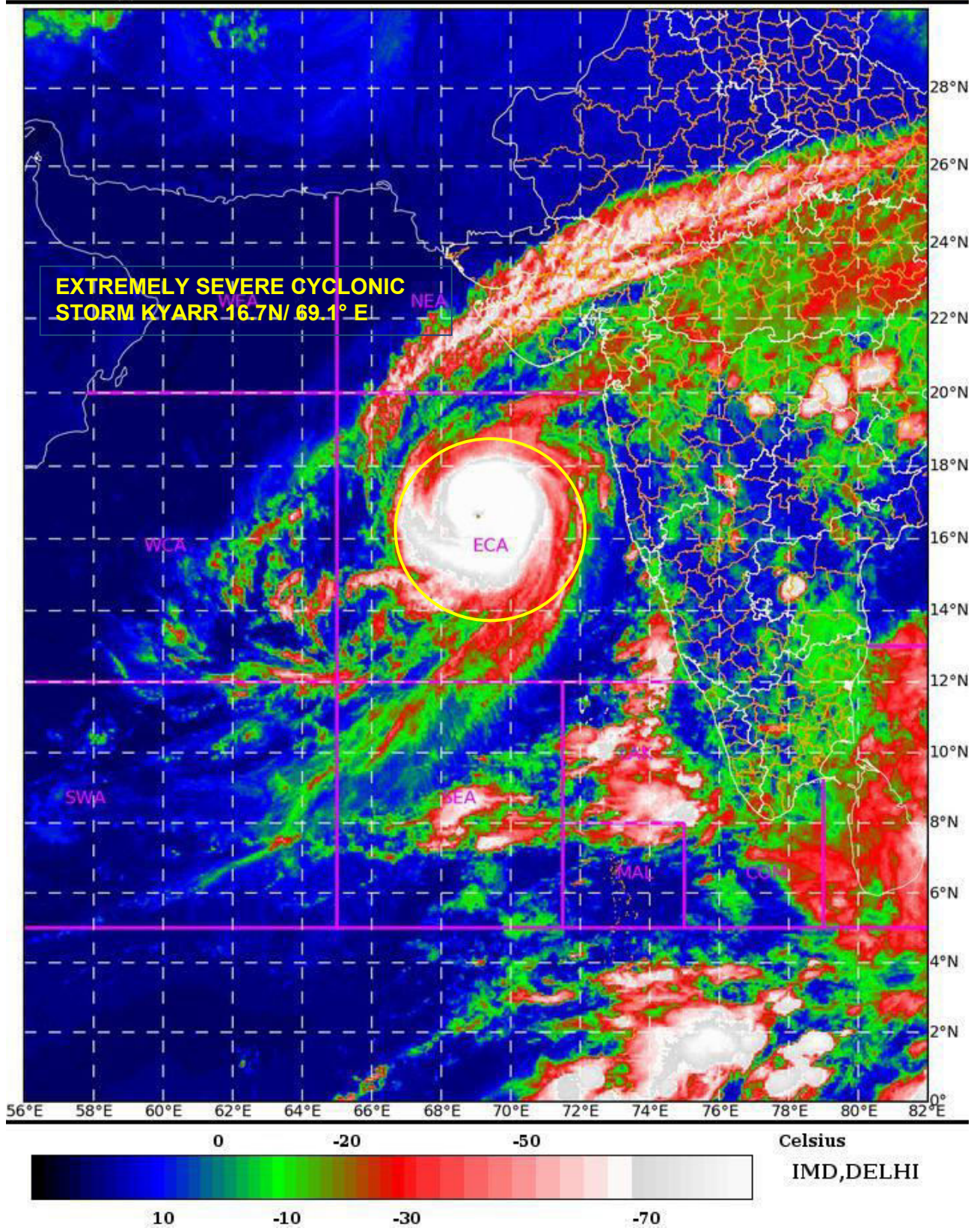
THE UPPER TROPOSPHERIC RIDGE RUNS ALONG 20°N. HENCE THE SYSTEM LIES TO THE SOUTH OF THE RIDGE LEADING TO NEARLY WEST-NORTHWESTWARD MOVEMENT DURING PAST 06 HOURS. IT IS LIKELY TO CONTINUE TO MOVE WEST-NORTHWESTWARDS TOWARDS OMAN COAST UNDER THE INFLUENCE OF WEST-NORTHWESTWARDS STEERING WINDS DURING NEXT 5 DAYS. MAJORITY OF NUMERICAL MODELS INCLUDING ECMWF, NCMRWF UNIFIED MODELS (NCUM), NCMRWF ENSEMBLE PREDICTION SYSTEM (NEPS), IMD GLOBAL FORECAST SYSTEM (GFS), NCEP GFS, GLOBAL ENSEMBLE FORECASTING SYSTEM (GEFS) AGREE WITH THE ABOVE INFERENCE DURING NEXT 3 DAYS. THERE IS DIVERGENCE AMONG THE TRACK FOR DAY-4 & DAY-5 FORECASTS. A FEW MODELS INDICATING MOVEMENT TOWARDS WEST-SOUTHWEST AND A FEW TOWARDS NORTH. THE CURRENT FORECAST IS BASED ON THE CONSENSUS DERIVED FROM MULTI MODEL ENSEMBLE.

(D R PATTANAİK)
SCIENTIST-E, RSMC, NEW DELHI

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

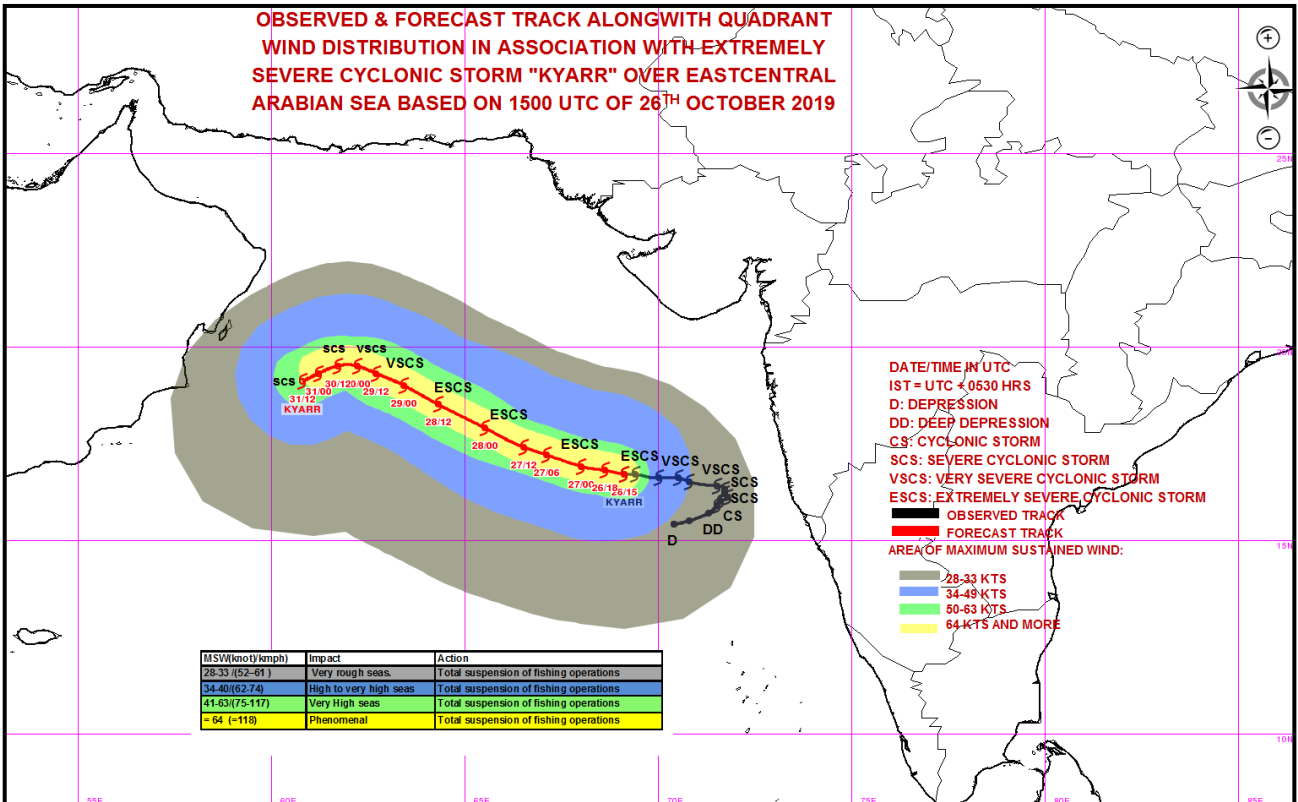
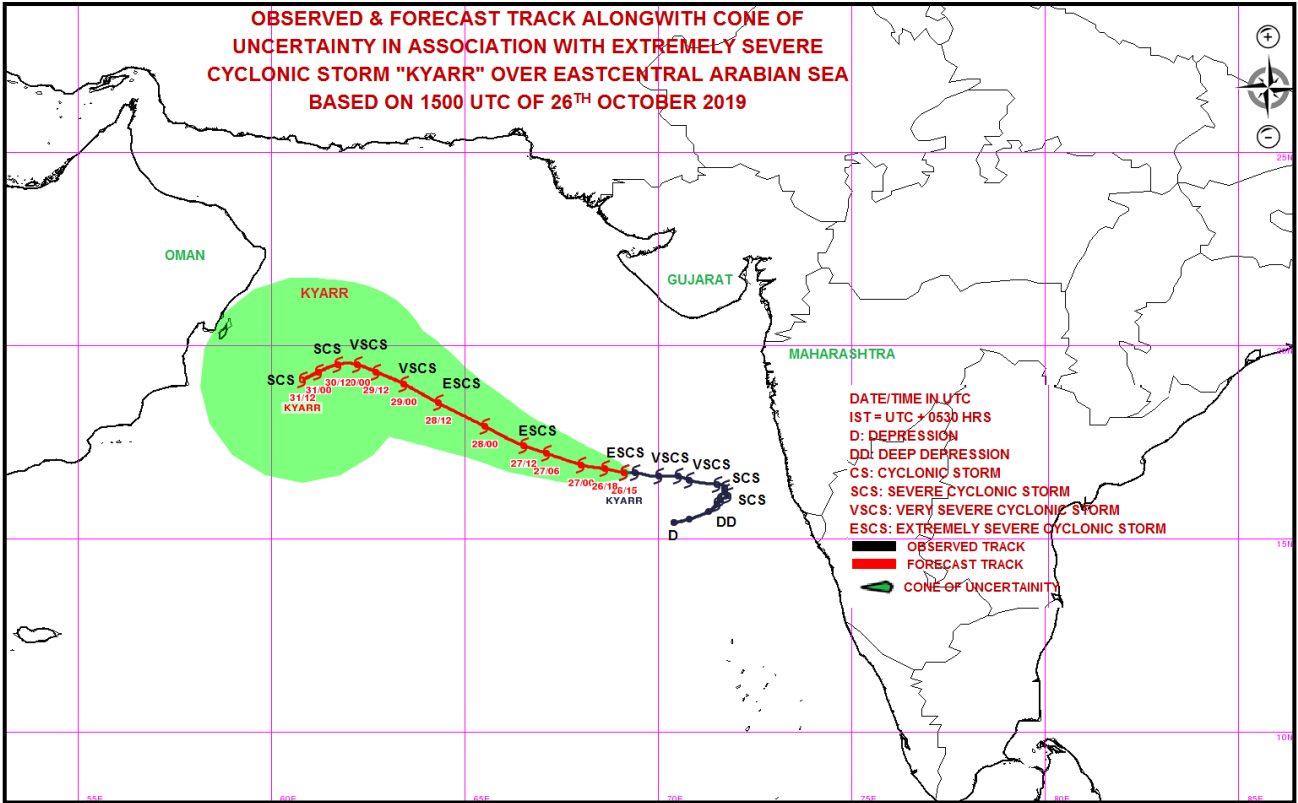
NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

SAT : INSAT-3D IMG 26-10-2019/(1500 to 1526) GMT
IMG_TIR1_TEMP 10.8 um 26-10-2019/(2030 to 2056) IST
ARABIAN_SEA



ECA=> EAST CENTRAL ARABIAN SEA

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)
NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%



PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%



**REGIONAL SPECIALISED METEOROLOGICAL CENTRE-TROPICAL CYCLONES, NEW DELHI
TROPICAL CYCLONE ADVISORY BULLETIN NO.15**

FROM: RSMC –TROPICAL CYCLONES, NEW DELHI

**TO: STORM WARNING CENTRE, NAYPYI TAW (MYANMAR)
STORM WARNING CENTRE, BANGKOK (THAILAND)
STORM WARNING CENTRE, COLOMBO (SRILANKA)
STORM WARNING CENTRE, DHAKA (BANGLADESH)
STORM WARNING CENTRE, KARACHI (PAKISTAN)
METEOROLOGICAL OFFICE, MALE (MALDIVES)
OMAN METEOROLOGICAL DEPARTMENT, MUSCAT (THROUGH RTH JEDDAH)
YEMEN METEOROLOGICAL SERVICES, REPUBLIC OF YEMEN (THROUGH RTH JEDDAH)
NATIONAL CENTRE FOR METEOROLOGY, UAE (THROUGH RTH JEDDAH)
PRESIDENCY OF METEOROLOGY AND ENVIRONMENT, SAUDI ARABIA (THROUGH RTH JEDDAH)
IRAN METEOROLOGICAL ORGANISATION, (THROUGH RTH JEDDAH)
QATAR METEOROLOGICAL DEPARTMENT (THROUGH RTH JEDDAH)**

TROPICAL CYCLONE ADVISORY No. 15 FOR NORTH INDIAN OCEAN (THE BAY OF BENGAL AND ARABIAN SEA) VALID FOR NEXT 120 HOURS ISSUED AT 2000 UTC OF 26.10.2019 BASED ON 1800 UTC OF 26.10.2019.

SUB: EXTREMELY SEVERE CYCLONIC STORM 'KYARR' (PRONOUNCED AS KYARR) OVER EASTCENTRAL ARABIAN SEA

THE **EXTREMELY SEVERE CYCLONIC STORM 'KYARR'** OVER EASTCENTRAL ARABIAN SEA MOVED WEST-NORTHWESTWARDS WITH A SPEED OF 09 KMPH DURING PAST 06 HRS AND LAY CENTRED AT 1800 UTC OF 26TH OCTOBER, 2019 NEAR LATITUDE 16.8°N AND LONGITUDE 68.9°E OVER EASTCENTRAL ARABIAN SEA, ABOUT 470 KM WEST-SOUTHWEST OF RATNAGIRI (43110), 490 KM WEST-SOUTHWEST OF MUMBAI (43003) AND 1580 KM EAST-SOUTHEAST OF SALALAH (41316). IT IS VERY LIKELY TO MOVE WEST-NORTHWESTWARDS TOWARDS OMAN COAST DURING NEXT 5 DAYS.

FORECAST TRACK AND INTENSITY ARE GIVEN IN THE FOLLOWING TABLE:

DATE/TIME(UTC)	POSITION (LAT. °N/ LONG. °E)	MAXIMUM SUSTAINED SURFACE WIND SPEED (KMPH)	CATEGORY OF CYCLONIC DISTURBANCE
26.10.19/1800	16.8/68.9	185-195 GUSTING TO 215	EXTREMELY SEVERE CYCLONIC STORM
27.10.19/0000	16.9/68.3	200-210 GUSTING TO 230	EXTREMELY SEVERE CYCLONIC STORM
27.10.19/0600	17.2/67.4	210-220 GUSTING TO 240	EXTREMELY SEVERE CYCLONIC STORM
27.10.19/1200	17.4/66.8	210-220 GUSTING TO 240	EXTREMELY SEVERE CYCLONIC STORM
27.10.19/1800	17.6/66.3	205-215 GUSTING TO 235	EXTREMELY SEVERE CYCLONIC STORM
28.10.19/0600	18.2/65.2	195-205 GUSTING TO 225	EXTREMELY SEVERE CYCLONIC STORM
28.10.19/1800	18.7/64.1	185-195 GUSTING TO 215	EXTREMELY SEVERE CYCLONIC STORM
29.10.19/0600	19.1/63.4	165-175 GUSTING TO 195	EXTREMELY SEVERE CYCLONIC STORM
29.10.19/1800	19.4/62.7	130-140 GUSTING TO 150	VERY SEVERE CYCLONIC STORM
30.10.19/0600	19.5/62.3	120-130 GUSTING TO 140	VERY SEVERE CYCLONIC STORM
30.10.19/1800	19.4/61.7	110-120 GUSTING TO 130	SEVERE CYCLONIC STORM
31.10.19/0600	19.2/61.3	105-115 GUSTING TO 125	SEVERE CYCLONIC STORM
31.10.19/1800	19.0/60.9	100-110 GUSTING TO 120	SEVERE CYCLONIC STORM

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

REMARKS:

SATELLITE IMAGES INDICATE BANDING EYE PATTERN WITH TIGHTLY WRAPPED CURVED BANDS VISIBLE. CENTRE CLEARLY EXPOSED IN MICROWAVE IMAGERY. AS PER THE SATELLITE IMAGERY AT 1800 UTC OF 26TH OCTOBER, 2019, THE CURRENT INTENSITY OF THE SYSTEM IS T5.5. ASSOCIATED BROKEN LOW TO MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION LIES OVER EAST CENTRAL ARABIAN SEA BETWEEN LAT 15.5°N TO 18.7°N AND LONG 67.5°E TO 70.5°E. THE MINIMUM CTT IS MINUS 93 DEG C.

THE ESTIMATED MAXIMUM SUSTAINED WIND SPEED IS 105 KNOTS GUSTING TO 115 KNOTS. THE ESTIMATED CENTRAL PRESSURE IS 966 HPA. AT 1500 UTC OF 26TH OCTOBER, A BUOY LOCATED NEAR LAT. 18.5°N / LONG. 67.4°E REPORTED A MEAN SEA LEVEL PRESSURE OF 1003.1 HPA AND 230⁰ WIND WITH SPEED 24 KNOTS. ANOTHER BUOY LOCATED NEAR LAT. 14.8°N / LONG. 69.1°E REPORTED A MEAN SEA LEVEL PRESSURE OF 1001.3 HPA AND 310⁰ WIND WITH SPEED 24 KNOTS. THE SEA CONDITION IS PHENOMENAL AROUND THE SYSTEM CENTRE.

THE MJO LIES IN THE PHASE 2 WITH AMPLITUDE GREATER THAN 1. IT WILL REMAIN IN THE SAME PHASE DURING NEXT ONE MORE DAY AND THEN ENTER INTO PHASE 3 WITH AMPLITUDE LESS THAN 1. CONSIDERING THE ENVIRONMENTAL CONDITIONS, TOTAL PRECIPITABLE WATER IMAGERIES INDICATE WARM AIR ADVECTION TO THE SYSTEM CENTRE. THE LOW LEVEL RELATIVE VORTICITY IS $250 \times 10^{-5} \text{ SEC}^{-1}$ AROUND THE SYSTEM CENTRE. THE LOWER LEVEL CONVERGENCE IS ABOUT $30 \times 10^{-5} \text{ S}^{-1}$ TO THE SOUTH OF THE SYSTEM CENTRE. THE UPPER LEVEL DIVERGENCE IS ABOUT $20 \times 10^{-5} \text{ S}^{-1}$ AROUND THE SYSTEM CENTRE. THE VERTICAL WIND SHEAR IS LOW (5-10 KNOTS) AROUND THE SYSTEM CENTER. SEA SURFACE TEMPERATURE OVER MOST PARTS OF EASTCENTRAL ARABIAN SEA IS 29-30°C AND TROPICAL CYCLONE HEAT POTENTIAL IS 80 KJ/CM2 OVER THE REGION THEREBY FAVORING FURTHER INTENSIFICATION. BOTH POLEWARD AND EQUATORWARD OUTFLOW IS TAKING PLACE IN THE UPPER TROPOSPHERIC LEVELS ALL THESE DYNAMIC AND THERMODYNAMIC CONDITIONS FAVOUR FURTHER RAPID INTENSIFICATION. HOWEVER, AS THE SYSTEM WILL TRACK WEST-NORTHWESTWARDS AND ENTER WEST-CENTRAL ARABIAN SEA, IT IS LIKELY TO EXPERIENCE COLDER SEA SURFACE TEMPERATURES, LOWER UPPER OCEAN HEAT CONTENT AND COLD AND DRY AIR INTRUSION INTO THE SYSTEM CENTRE, CAUSING GRADUAL WEAKENING OF THE SYSTEM FROM 1200 UTC OF 30TH OCTOBER.

THE UPPER TROPOSPHERIC RIDGE RUNS ALONG 20°N. HENCE THE SYSTEM LIES TO THE SOUTH OF THE RIDGE LEADING TO NEARLY WEST-NORTHWESTWARD MOVEMENT DURING PAST 06 HOURS. IT IS LIKELY TO CONTINUE TO MOVE WEST-NORTHWESTWARDS TOWARDS OMAN COAST UNDER THE INFLUENCE OF WEST-NORTHWESTWARDS STEERING WINDS DURING NEXT 5 DAYS. MAJORITY OF NUMERICAL MODELS INCLUDING ECMWF, NCMRWF UNIFIED MODELS (NCUM), NCMRWF ENSEMBLE PREDICTION SYSTEM (NEPS), IMD GLOBAL FORECAST SYSTEM (GFS), NCEP GFS, GLOBAL ENSEMBLE FORECASTING SYSTEM (GEFS) AGREE WITH THE ABOVE INFERENCE DURING NEXT 3 DAYS. THERE IS DIVERGENCE AMONG THE TRACK FOR DAY-4 & DAY-5 FORECASTS. A FEW MODELS INDICATING MOVEMENT TOWARDS WEST-SOUTHWEST AND A FEW TOWARDS NORTH. THE CURRENT FORECAST IS BASED ON THE CONSENSUS DERIVED FROM MULTI MODEL ENSEMBLE.

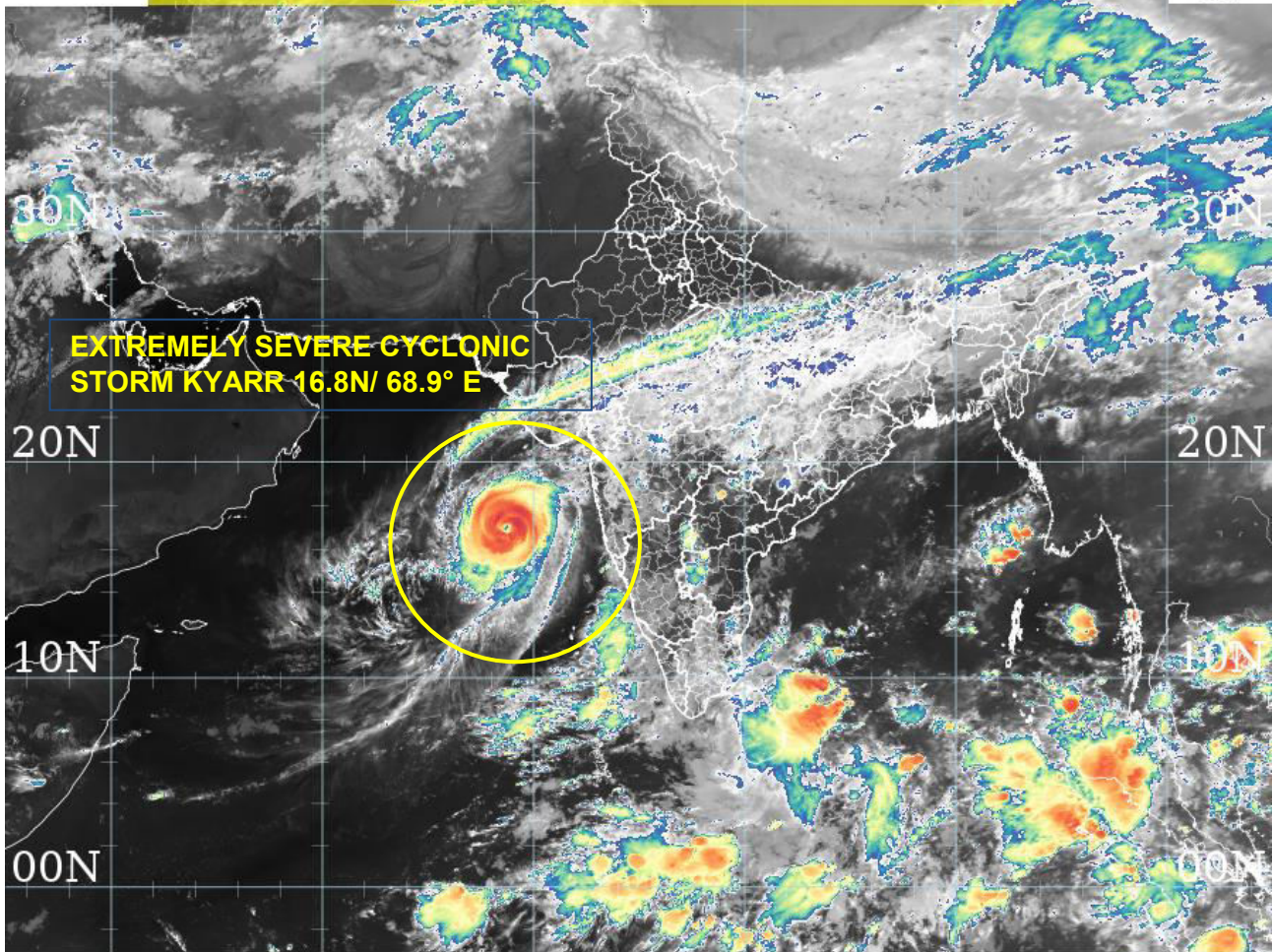
(D R PATTANAIK)
SCIENTIST-E, RSMC, NEW DELHI

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%



60E 70E 80E 90E
MSG-1: SEVIRI [colorized_ir_clouds]
20191026_1900UTC



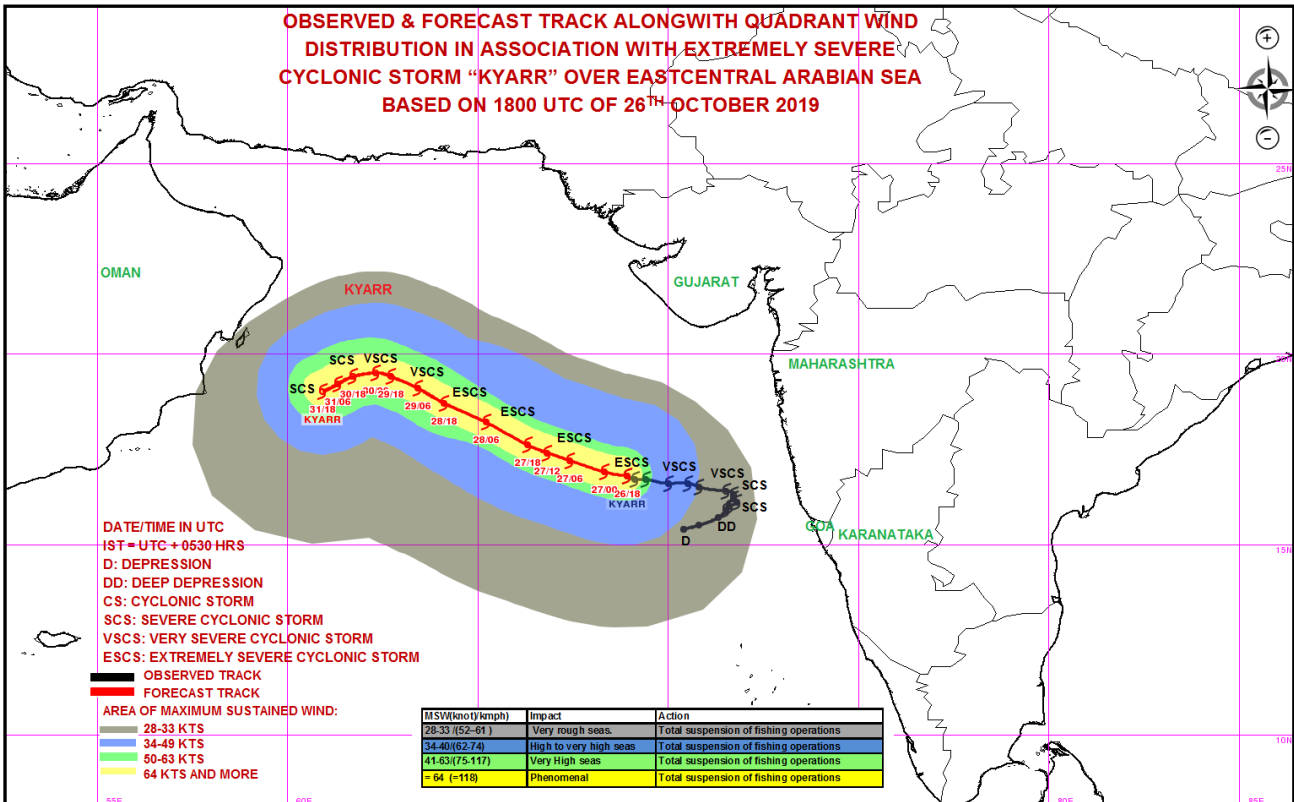
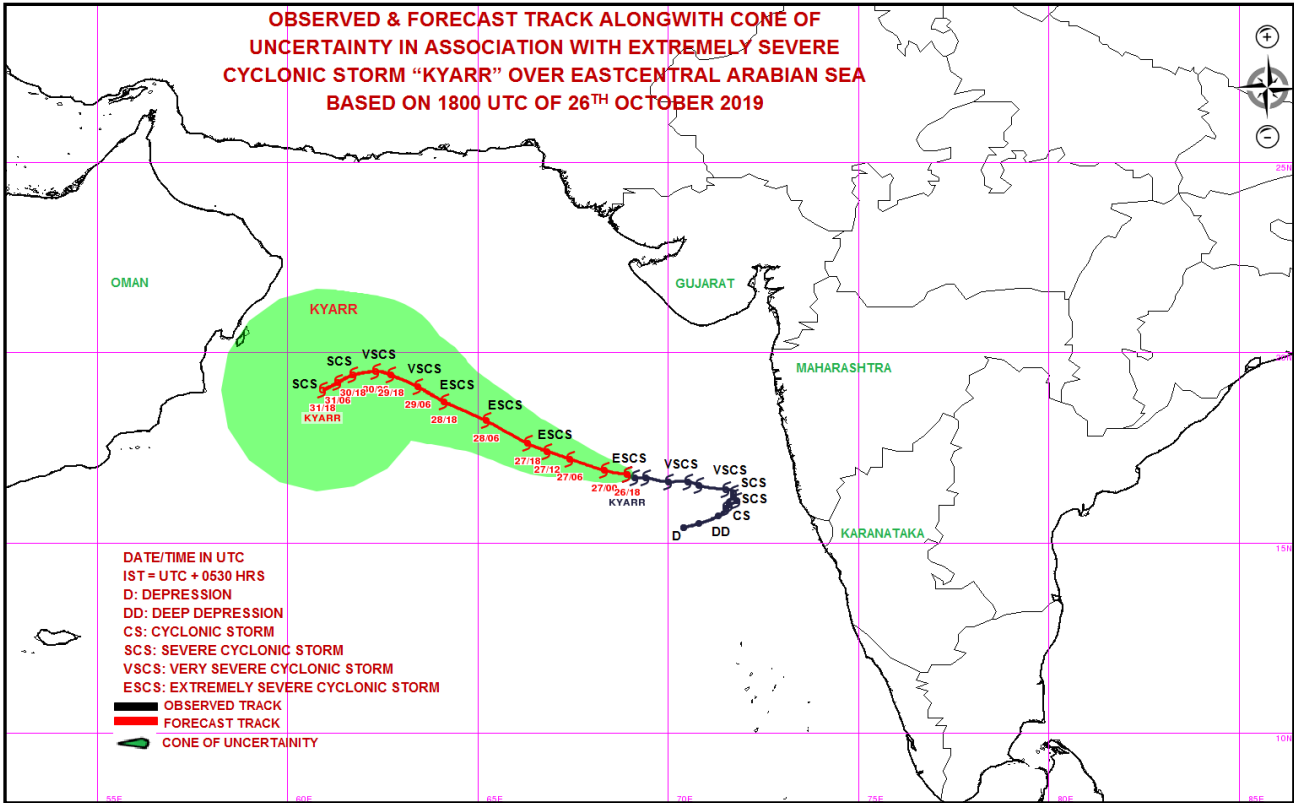
 **EUMETSAT**

70E 80E

 **PyTROLL**

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%



PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%



**REGIONAL SPECIALISED METEOROLOGICAL CENTRE-TROPICAL CYCLONES, NEW DELHI
TROPICAL CYCLONE ADVISORY BULLETIN NO.16**

FROM: RSMC –TROPICAL CYCLONES, NEW DELHI

**TO: STORM WARNING CENTRE, NAYPYI TAW (MYANMAR)
STORM WARNING CENTRE, BANGKOK (THAILAND)
STORM WARNING CENTRE, COLOMBO (SRILANKA)
STORM WARNING CENTRE, DHAKA (BANGLADESH)
STORM WARNING CENTRE, KARACHI (PAKISTAN)
METEOROLOGICAL OFFICE, MALE (MALDIVES)
OMAN METEOROLOGICAL DEPARTMENT, MUSCAT (THROUGH RTH JEDDAH)
YEMEN METEOROLOGICAL SERVICES, REPUBLIC OF YEMEN (THROUGH RTH JEDDAH)
NATIONAL CENTRE FOR METEOROLOGY, UAE (THROUGH RTH JEDDAH)
PRESIDENCY OF METEOROLOGY AND ENVIRONMENT, SAUDI ARABIA (THROUGH RTH JEDDAH)
IRAN METEOROLOGICAL ORGANISATION, (THROUGH RTH JEDDAH)
QATAR METEOROLOGICAL DEPARTMENT (THROUGH RTH JEDDAH)**

TROPICAL CYCLONE ADVISORY No. 16 FOR NORTH INDIAN OCEAN (THE BAY OF BENGAL AND ARABIAN SEA) VALID FOR NEXT 120 HOURS ISSUED AT 0000 UTC OF 27.10.2019 BASED ON 2100 UTC OF 26.10.2019.

SUB: EXTREMELY SEVERE CYCLONIC STORM 'KYARR' (PRONOUNCED AS KYARR) OVER EASTCENTRAL ARABIAN SEA

THE **EXTREMELY SEVERE CYCLONIC STORM 'KYARR'** OVER EASTCENTRAL ARABIAN SEA MOVED WEST-NORTHWESTWARDS WITH A SPEED OF 11 KMPH DURING PAST 06 HRS AND LAY CENTRED AT 2100 UTC OF 26TH OCTOBER, 2019 NEAR LATITUDE 16.9°N AND LONGITUDE 68.5°E OVER EASTCENTRAL ARABIAN SEA, ABOUT 510 KM ALMOST WEST OF RATNAGIRI (43110), 520 KM WEST-SOUTHWEST OF MUMBAI (43003) AND 1530 KM EAST-SOUTHEAST OF SALALAH (41316). IT IS VERY LIKELY TO MOVE WEST-NORTHWESTWARDS TOWARDS OMAN COAST DURING NEXT 5 DAYS.

FORECAST TRACK AND INTENSITY ARE GIVEN IN THE FOLLOWING TABLE:

DATE/TIME(UTC)	POSITION (LAT. °N/ LONG. °E)	MAXIMUM SUSTAINED SURFACE WIND SPEED (KMPH)	CATEGORY OF CYCLONIC DISTURBANCE
26.10.19/2100	16.9/68.5	205-215 GUSTING TO 235	EXTREMELY SEVERE CYCLONIC STORM
27.10.19/0000	16.9/68.3	210-220 GUSTING TO 240	EXTREMELY SEVERE CYCLONIC STORM
27.10.19/0600	17.2/67.4	215-225 GUSTING TO 245	EXTREMELY SEVERE CYCLONIC STORM
27.10.19/1200	17.4/66.8	215-225 GUSTING TO 245	EXTREMELY SEVERE CYCLONIC STORM
27.10.19/1800	17.6/66.3	215-225 GUSTING TO 245	EXTREMELY SEVERE CYCLONIC STORM
28.10.19/0600	18.2/65.2	210-220 GUSTING TO 240	EXTREMELY SEVERE CYCLONIC STORM
28.10.19/1800	18.7/64.1	190-200 GUSTING TO 220	EXTREMELY SEVERE CYCLONIC STORM
29.10.19/0600	19.1/63.4	165-175 GUSTING TO 195	EXTREMELY SEVERE CYCLONIC STORM
29.10.19/1800	19.4/62.7	130-140 GUSTING TO 150	VERY SEVERE CYCLONIC STORM
30.10.19/0600	19.5/62.3	120-130 GUSTING TO 140	VERY SEVERE CYCLONIC STORM
30.10.19/1800	19.4/61.7	110-120 GUSTING TO 130	SEVERE CYCLONIC STORM
31.10.19/0600	19.2/61.3	105-115 GUSTING TO 125	SEVERE CYCLONIC STORM
31.10.19/1800	19.0/60.9	100-110 GUSTING TO 120	SEVERE CYCLONIC STORM

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

REMARKS:

SATELLITE IMAGES INDICATE BANDING EYE PATTERN WITH TIGHTLY WRAPPED CURVED BANDS VISIBLE. CENTRE CLEARLY EXPOSED IN MICROWAVE IMAGERY. AS PER THE SATELLITE IMAGERY AT 1800 UTC OF 26TH OCTOBER, 2019, THE CURRENT INTENSITY OF THE SYSTEM IS T6.0. ASSOCIATED BROKEN LOW TO MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION LIES OVER EAST CENTRAL ARABIAN SEA BETWEEN LAT 14.5°N TO 18.5°N AND LONG 66.5°E TO 70.5°E. THE MINIMUM CTT IS MINUS 93 DEG C.

THE ESTIMATED MAXIMUM SUSTAINED WIND SPEED IS 110 KNOTS GUSTING TO 120 KNOTS. THE ESTIMATED CENTRAL PRESSURE IS 958 HPA. AT 2100 UTC OF 26TH OCTOBER, A BUOY LOCATED NEAR LAT. 18.5°N / LONG. 67.4°E REPORTED A MEAN SEA LEVEL PRESSURE OF 1000.4 HPA AND 240° WIND WITH SPEED 24 KNOTS. ANOTHER BUOY LOCATED NEAR LAT. 14.9°N / LONG. 68.9°E REPORTED A MEAN SEA LEVEL PRESSURE OF 1000.6 HPA AND 300° WIND WITH SPEED 26 KNOTS. THE SEA CONDITION IS PHENOMENAL AROUND THE SYSTEM CENTRE.

THE MJO LIES IN THE PHASE 2 WITH AMPLITUDE GREATER THAN 1. IT WILL REMAIN IN THE SAME PHASE DURING NEXT ONE MORE DAY AND THEN ENTER INTO PHASE 3 WITH AMPLITUDE LESS THAN 1. CONSIDERING THE ENVIRONMENTAL CONDITIONS, TOTAL PRECIPITABLE WATER IMAGERIES INDICATE WARM AIR ADVECTION TO THE SYSTEM CENTRE. THE LOW LEVEL RELATIVE VORTICITY IS $300 \times 10^{-5} \text{ SEC}^{-1}$ TO THE SOUTH OF THE SYSTEM CENTRE. THE LOWER LEVEL CONVERGENCE IS ABOUT $30 \times 10^{-5} \text{ S}^{-1}$ TO THE SOUTH OF THE SYSTEM CENTRE. THE UPPER LEVEL DIVERGENCE IS ABOUT $20 \times 10^{-5} \text{ S}^{-1}$ AROUND THE SYSTEM CENTRE. THE VERTICAL WIND SHEAR IS LOW (5-10 KNOTS) AROUND THE SYSTEM CENTER. SEA SURFACE TEMPERATURE OVER MOST PARTS OF EASTCENTRAL ARABIAN SEA IS 29-30°C AND TROPICAL CYCLONE HEAT POTENTIAL IS 80 KJ/CM² OVER THE REGION THEREBY FAVORING FURTHER INTENSIFICATION. BOTH POLEWARD AND EQUATORWARD OUTFLOW IS TAKING PLACE IN THE UPPER TROPOSPHERIC LEVELS ALL THESE DYNAMIC AND THERMODYNAMIC CONDITIONS FAVOUR FURTHER RAPID INTENSIFICATION. HOWEVER, AS THE SYSTEM WILL TRACK WEST-NORTHWESTWARDS AND ENTER WEST-CENTRAL ARABIAN SEA, IT IS LIKELY TO EXPERIENCE COLDER SEA SURFACE TEMPERATURES, LOWER UPPER OCEAN HEAT CONTENT AND COLD AND DRY AIR INTRUSION INTO THE SYSTEM CENTRE, CAUSING GRADUAL WEAKENING OF THE SYSTEM FROM 1200 UTC OF 30TH OCTOBER.

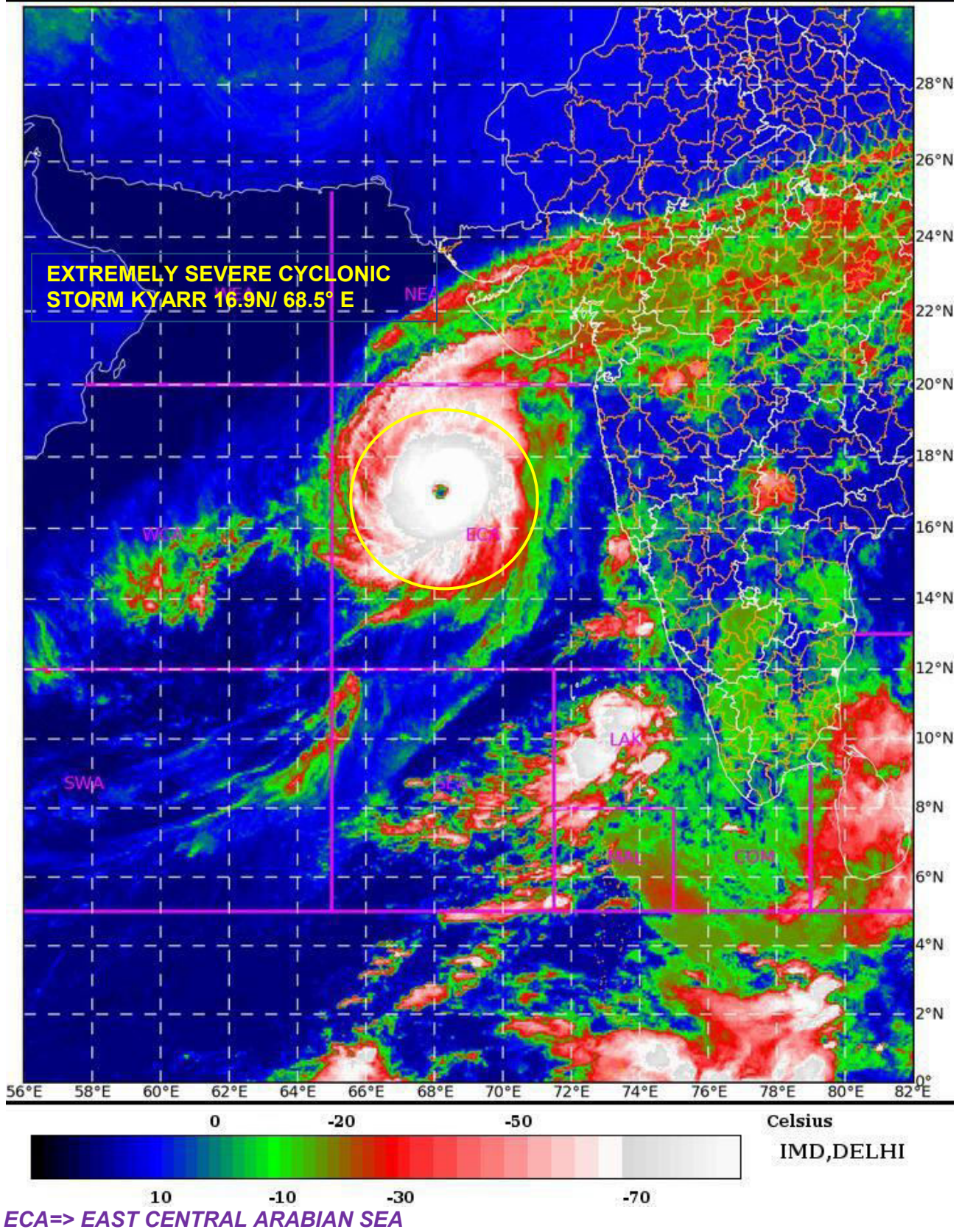
THE UPPER TROPOSPHERIC RIDGE RUNS ALONG 20°N. HENCE THE SYSTEM LIES TO THE SOUTH OF THE RIDGE LEADING TO NEARLY WEST-NORTHWESTWARD MOVEMENT DURING PAST 06 HOURS. IT IS LIKELY TO CONTINUE TO MOVE WEST-NORTHWESTWARDS TOWARDS OMAN COAST UNDER THE INFLUENCE OF WEST-NORTHWESTWARDS STEERING WINDS DURING NEXT 5 DAYS. MAJORITY OF NUMERICAL MODELS INCLUDING ECMWF, NCMRWF UNIFIED MODELS (NCUM), NCMRWF ENSEMBLE PREDICTION SYSTEM (NEPS), IMD GLOBAL FORECAST SYSTEM (GFS), NCEP GFS, GLOBAL ENSEMBLE FORECASTING SYSTEM (GEFS) AGREE WITH THE ABOVE INFERENCE DURING NEXT 3 DAYS. THERE IS DIVERGENCE AMONG THE TRACK FOR DAY-4 & DAY-5 FORECASTS. A FEW MODELS INDICATING MOVEMENT TOWARDS WEST-SOUTHWEST AND A FEW TOWARDS NORTH. THE CURRENT FORECAST IS BASED ON THE CONSENSUS DERIVED FROM MULTI MODEL ENSEMBLE.

(D R PATTANAİK)
SCIENTIST-E, RSMC, NEW DELHI

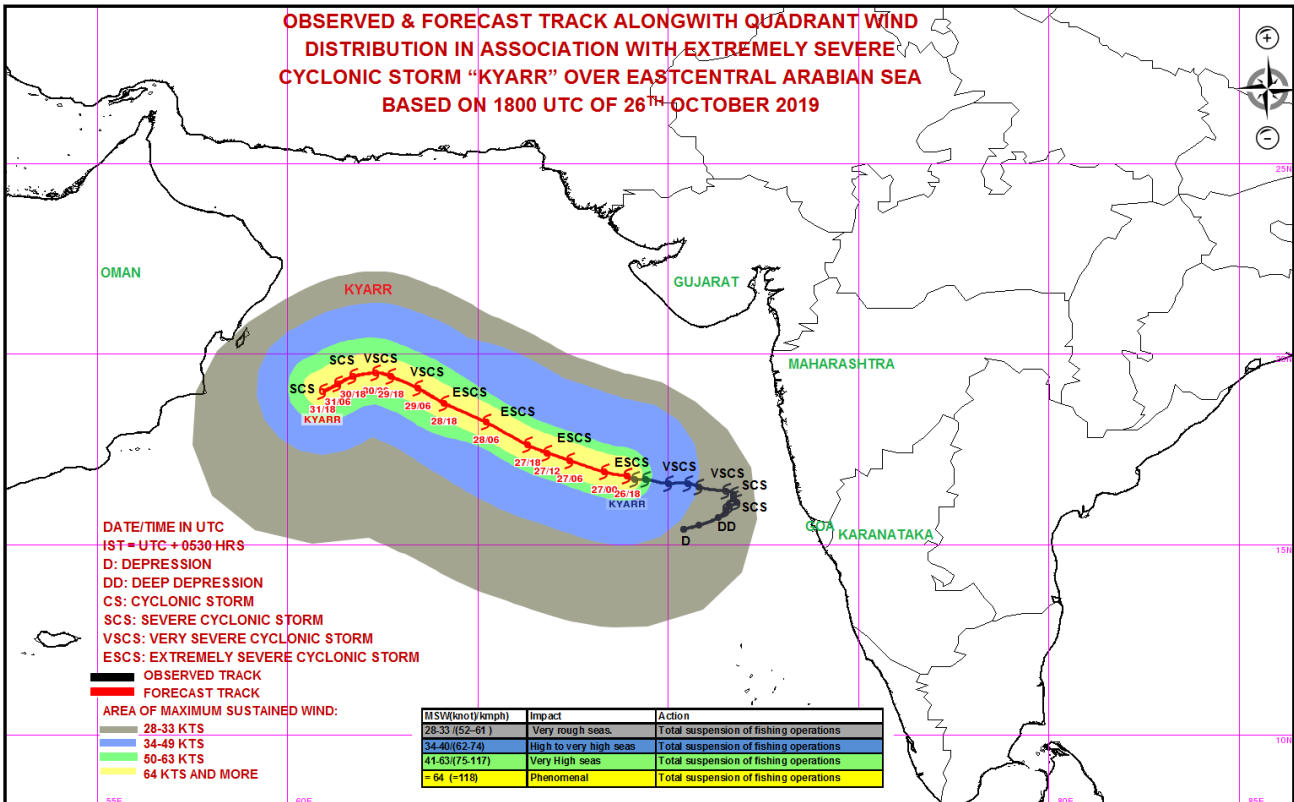
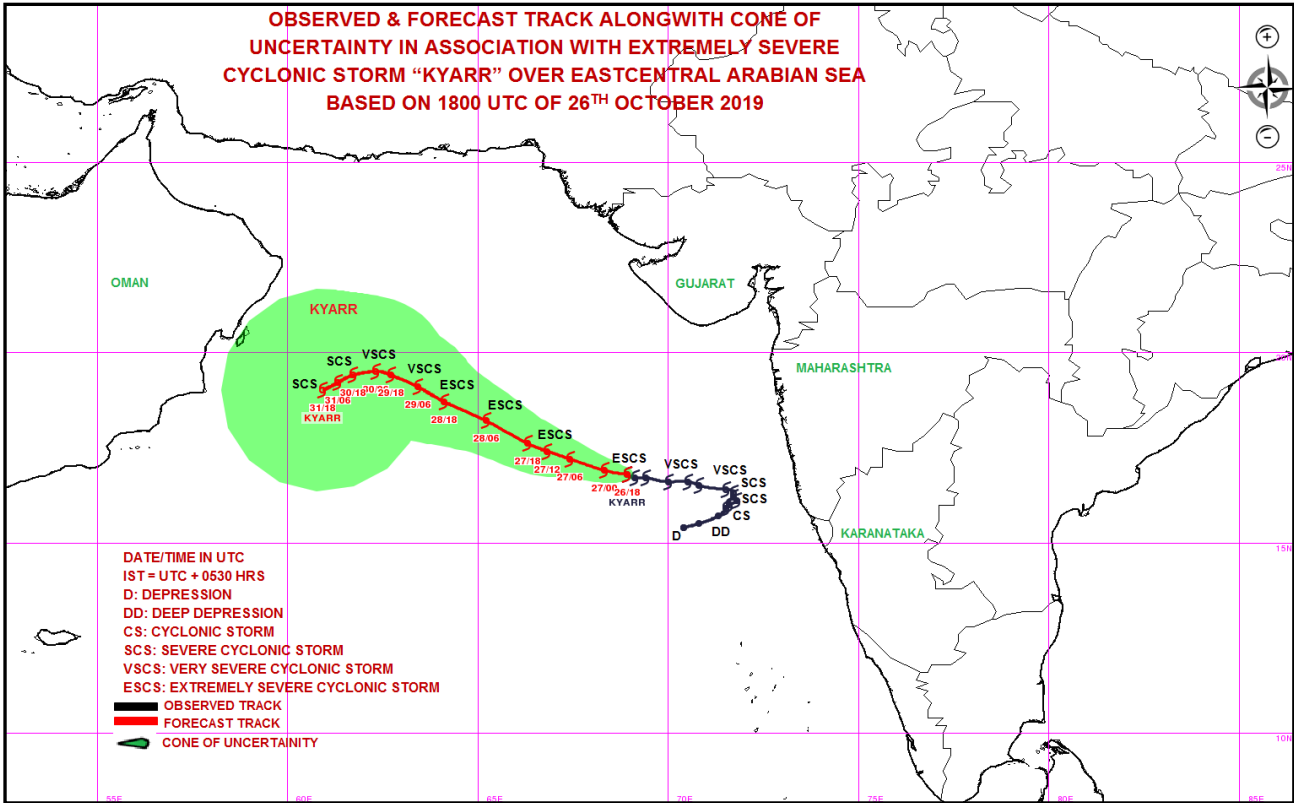
PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

SAT : INSAT-3D IMG 26-10-2019/(2330 to 2356) GMT
IMG_TIR1_TEMP 10.8 um 27-10-2019/(0500 to 0526) IST
ARABIAN_SEA



PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)
NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%



PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%



**REGIONAL SPECIALISED METEOROLOGICAL CENTRE-TROPICAL CYCLONES, NEW DELHI
TROPICAL CYCLONE ADVISORY BULLETIN NO.17**

FROM: RSMC –TROPICAL CYCLONES, NEW DELHI

**TO: STORM WARNING CENTRE, NAYPYI TAW (MYANMAR)
STORM WARNING CENTRE, BANGKOK (THAILAND)
STORM WARNING CENTRE, COLOMBO (SRILANKA)
STORM WARNING CENTRE, DHAKA (BANGLADESH)
STORM WARNING CENTRE, KARACHI (PAKISTAN)
METEOROLOGICAL OFFICE, MALE (MALDIVES)
OMAN METEOROLOGICAL DEPARTMENT, MUSCAT (THROUGH RTH JEDDAH)
YEMEN METEOROLOGICAL SERVICES, REPUBLIC OF YEMEN (THROUGH RTH JEDDAH)
NATIONAL CENTRE FOR METEOROLOGY, UAE (THROUGH RTH JEDDAH)
PRESIDENCY OF METEOROLOGY AND ENVIRONMENT, SAUDI ARABIA (THROUGH RTH JEDDAH)
IRAN METEOROLOGICAL ORGANISATION, (THROUGH RTH JEDDAH)
QATAR METEOROLOGICAL DEPARTMENT (THROUGH RTH JEDDAH)**

TROPICAL CYCLONE ADVISORY No. 17 FOR NORTH INDIAN OCEAN (THE BAY OF BENGAL AND ARABIAN SEA) VALID FOR NEXT 120 HOURS ISSUED AT 0300 UTC OF 27.10.2019 BASED ON 0000 UTC OF 27.10.2019.

SUB: EXTREMELY SEVERE CYCLONIC STORM ‘KYARR’ (PRONOUNCED AS KYARR) OVER EASTCENTRAL ARABIAN SEA

THE **EXTREMELY SEVERE CYCLONIC STORM ‘KYARR’** OVER EASTCENTRAL ARABIAN SEA MOVED WEST-NORTHWESTWARDS WITH A SPEED OF 13 KMPH DURING PAST 06 HRS AND LAY CENTRED AT 0000 UTC OF 27TH OCTOBER, 2019 NEAR LATITUDE 17.0°N AND LONGITUDE 68.2°E OVER EASTCENTRAL ARABIAN SEA, ABOUT 540 KM WEST-SOUTHWEST OF MUMBAI (43003) AND 1500 KM EAST-SOUTHEAST OF SALALAH (41316). IT IS VERY LIKELY TO MOVE WEST-NORTHWESTWARDS TOWARDS OMAN COAST DURING NEXT 5 DAYS. IT IS VERY LIKELY TO FURTHER INTENSIFY INTO A SUPER CYCLONIC STORM DURING NEXT 3 HOURS.

FORECAST TRACK AND INTENSITY ARE GIVEN IN THE FOLLOWING TABLE:

DATE/TIME(UTC)	POSITION (LAT. °N/ LONG. °E)	MAXIMUM SUSTAINED SURFACE WIND SPEED (KMPH)	CATEGORY OF CYCLONIC DISTURBANCE
27.10.19/0000	17.0/68.2	215-225 GUSTING TO 250	EXTREMELY SEVERE CYCLONIC STORM
27.10.19/0600	17.2/67.4	230-240 GUSTING TO 260	SUPER CYCLONIC STORM
27.10.19/1200	17.4/66.8	245-255 GUSTING TO 280	SUPER CYCLONIC STORM
27.10.19/1800	17.6/66.3	255-265 GUSTING TO 290	SUPER CYCLONIC STORM
28.10.19/0000	17.9/65.7	240-250 GUSTING TO 275	SUPER CYCLONIC STORM
28.10.19/1200	18.4/64.7	220-230 GUSTING TO 255	SUPER CYCLONIC STORM
29.10.19/0000	18.9/63.7	200-210 GUSTING TO 230	EXTREMELY SEVERE CYCLONIC STORM
29.10.19/1200	19.2/63.0	180-190 GUSTING TO 210	EXTREMELY SEVERE CYCLONIC STORM
30.10.19/0000	19.4/62.5	160-170 GUSTING TO 190	EXTREMELY SEVERE CYCLONIC STORM
30.10.19/1200	19.5/62.0	140-150 GUSTING TO 165	EXTREMELY SEVERE CYCLONIC STORM
31.10.19/0000	19.4/61.5	125-135 GUSTING TO 145	VERY SEVERE CYCLONIC STORM
31.10.19/1200	19.3/61.2	110-120 GUSTING TO 130	SEVERE CYCLONIC STORM
01.11.19/0000	19.2/60.9	95-105 GUSTING TO 115	SEVERE CYCLONIC STORM

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

REMARKS:

SATELLITE IMAGES INDICATE EYE PATTERN WITH EYE TEMPERATURE +9.4 DEG.C AND EYE DIAMETER IS ABOUT 40 KM. AS PER THE SATELLITE IMAGERY AT 0000 UTC OF 26TH OCTOBER, 2019, THE CURRENT INTENSITY OF THE SYSTEM IS T6.0. ASSOCIATED BROKEN LOW TO MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION LIES OVER EAST CENTRAL ARABIAN SEA BETWEEN LAT 14.5⁰N TO 18.5⁰N AND LONG 66.5⁰E TO 70.5⁰E. THE MINIMUM CTT IS MINUS 93 DEG C.

THE ESTIMATED MAXIMUM SUSTAINED WIND SPEED IS 115 KNOTS GUSTING TO 130 KNOTS. THE ESTIMATED CENTRAL PRESSURE IS 938 HPA. AT 0000 UTC OF 27TH OCTOBER, A SHIP LOCATED NEAR LAT. 16.2°N / LONG. 70.8°E REPORTED A MEAN SEA LEVEL PRESSURE OF 1003.8 HPA AND 170⁰ WIND WITH SPEED 35 KNOTS. A BUOY LOCATED NEAR LAT. 18.5°N / LONG. 67.4°E REPORTED A MEAN SEA LEVEL PRESSURE OF 1003.1 HPA AND 230⁰ WIND WITH SPEED 23 KNOTS. THE SEA CONDITION IS PHENOMENAL AROUND THE SYSTEM CENTRE.

THE MJO LIES IN THE PHASE 2 WITH AMPLITUDE GREATER THAN 1. IT WILL REMAIN IN THE SAME PHASE DURING NEXT ONE MORE DAY AND THEN ENTER INTO PHASE 3 WITH AMPLITUDE LESS THAN 1. CONSIDERING THE ENVIRONMENTAL CONDITIONS, TOTAL PRECIPITABLE WATER IMAGERIES INDICATE WARM AIR ADVECTION TO THE SYSTEM CENTRE. THE LOW LEVEL RELATIVE VORTICITY IS $300 \times 10^{-5} \text{ SEC}^{-1}$ TO THE SOUTH OF THE SYSTEM CENTRE. THE LOWER LEVEL CONVERGENCE IS ABOUT $30 \times 10^{-5} \text{ S}^{-1}$ TO THE SOUTH OF THE SYSTEM CENTRE. THE UPPER LEVEL DIVERGENCE IS ABOUT $20 \times 10^{-5} \text{ S}^{-1}$ AROUND THE SYSTEM CENTRE. THE VERTICAL WIND SHEAR IS LOW (5-10 KNOTS) AROUND THE SYSTEM CENTER. SEA SURFACE TEMPERATURE OVER MOST PARTS OF EASTCENTRAL ARABIAN SEA IS 29-30°C AND TROPICAL CYCLONE HEAT POTENTIAL IS 80 KJ/CM2 OVER THE REGION THEREBY FAVORING FURTHER INTENSIFICATION. BOTH POLEWARD AND EQUATORWARD OUTFLOW IS TAKING PLACE IN THE UPPER TROPOSPHERIC LEVELS ALL THESE DYNAMIC AND THERMODYNAMIC CONDITIONS FAVOUR FURTHER RAPID INTENSIFICATION. HOWEVER, AS THE SYSTEM WILL TRACK WEST-NORTHWESTWARDS AND ENTER WEST-CENTRAL ARABIAN SEA, IT IS LIKELY TO EXPERIENCE COLDER SEA SURFACE TEMPERATURES, LOWER UPPER OCEAN HEAT CONTENT AND COLD AND DRY AIR INTRUSION INTO THE SYSTEM CENTRE, CAUSING GRADUAL WEAKENING OF THE SYSTEM FROM 1200 UTC OF 30TH OCTOBER.

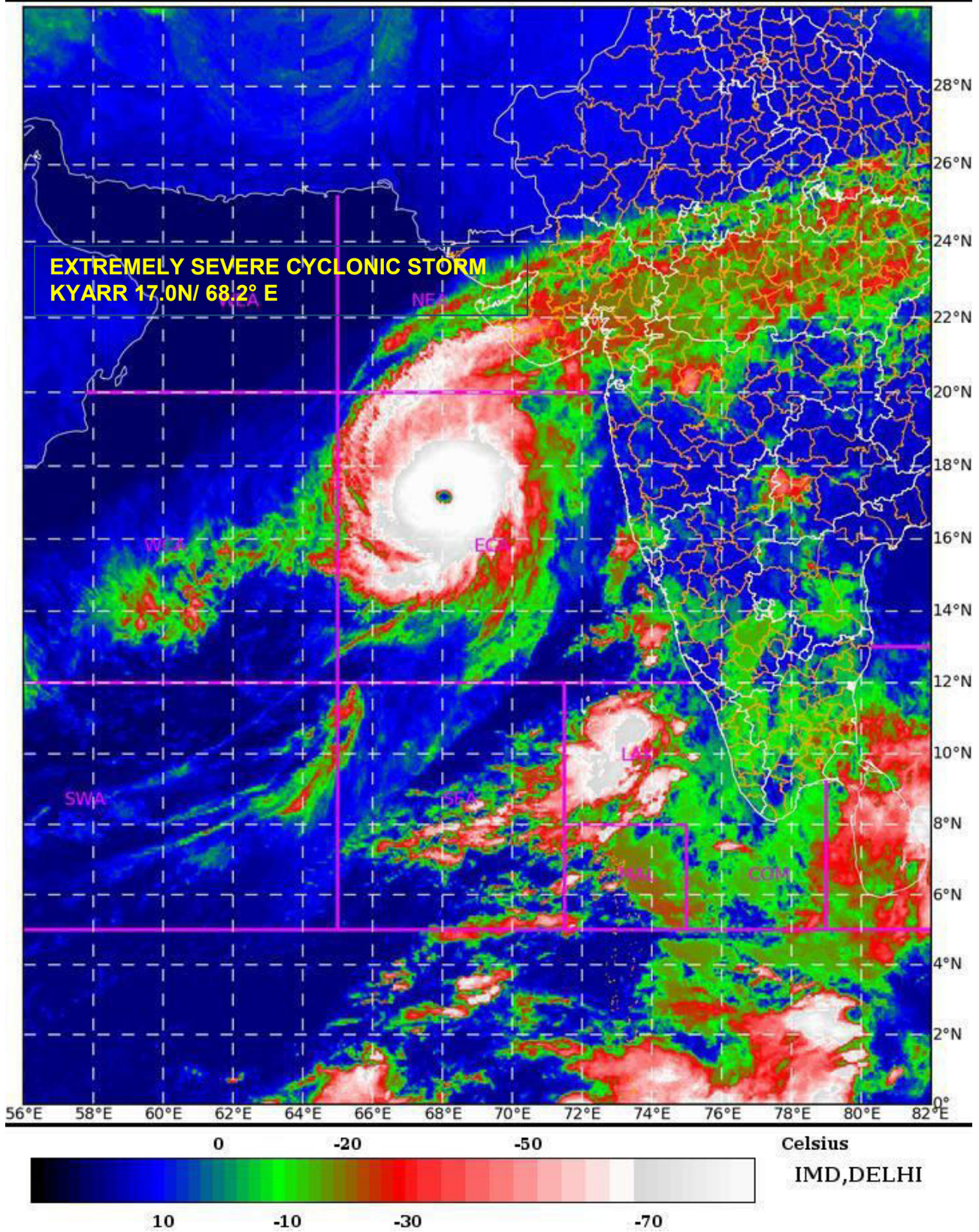
THE UPPER TROPOSPHERIC RIDGE RUNS ALONG 20°N. HENCE THE SYSTEM LIES TO THE SOUTH OF THE RIDGE LEADING TO NEARLY WEST-NORTHWESTWARD MOVEMENT DURING PAST 06 HOURS. IT IS LIKELY TO CONTINUE TO MOVE WEST-NORTHWESTWARDS TOWARDS OMAN COAST UNDER THE INFLUENCE OF WEST-NORTHWESTWARDS STEERING WINDS DURING NEXT 5 DAYS. MAJORITY OF NUMERICAL MODELS INCLUDING ECMWF, NCMRWF UNIFIED MODELS (NCUM), NCMRWF ENSEMBLE PREDICTION SYSTEM (NEPS), IMD GLOBAL FORECAST SYSTEM (GFS), NCEP GFS, GLOBAL ENSEMBLE FORECASTING SYSTEM (GEFS) AGREE WITH THE ABOVE INFERENCE DURING NEXT 3 DAYS. THERE IS DIVERGENCE AMONG THE TRACK FOR DAY-4 & DAY-5 FORECASTS. A FEW MODELS INDICATING MOVEMENT TOWARDS WEST-SOUTHWEST AND A FEW TOWARDS NORTH. THE CURRENT FORECAST IS BASED ON THE CONSENSUS DERIVED FROM MULTI MODEL ENSEMBLE.

(D R PATTANAİK)
SCIENTIST-E, RSMC, NEW DELHI

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

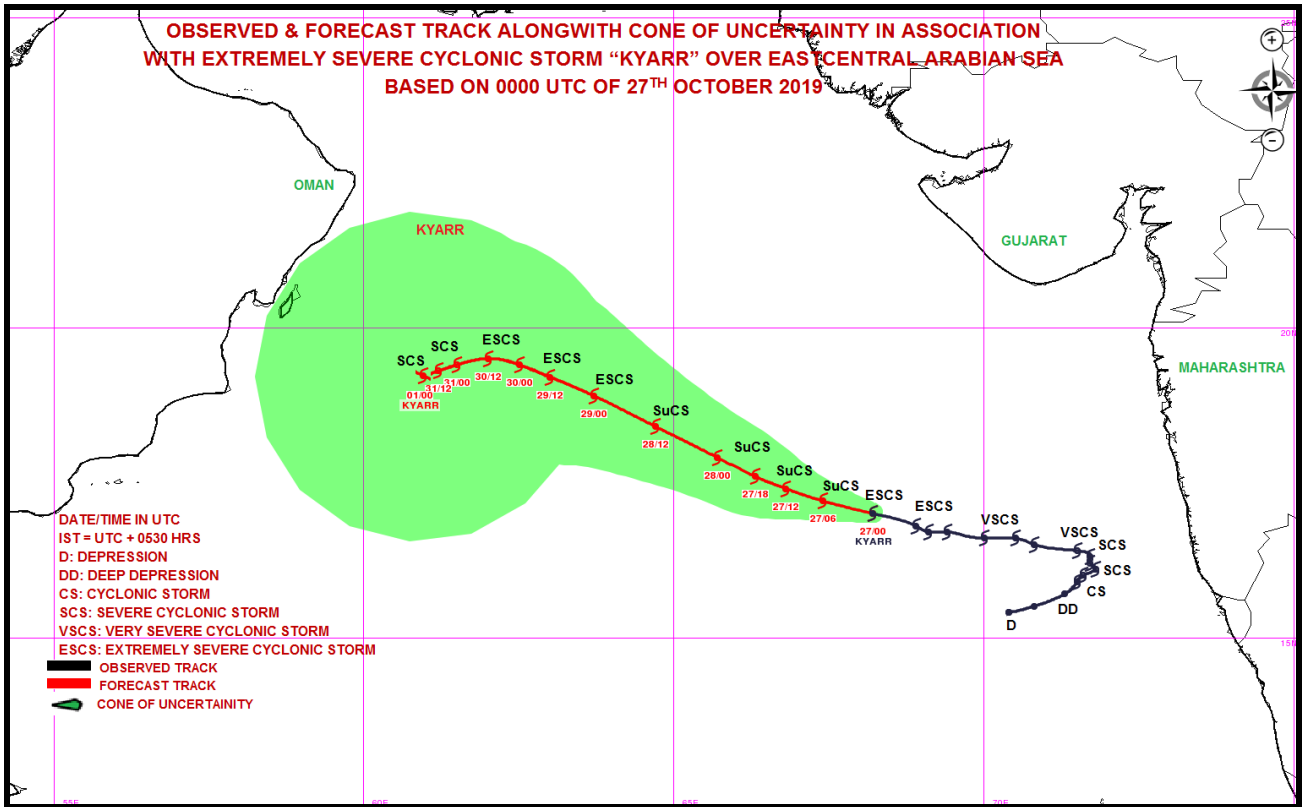
NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

SAT : INSAT-3D IMG 27-10-2019/(0030 to 0056) GMT
IMG_TIR1_TEMP 10.8 um 27-10-2019/(0600 to 0626) IST
ARABIAN_SEA

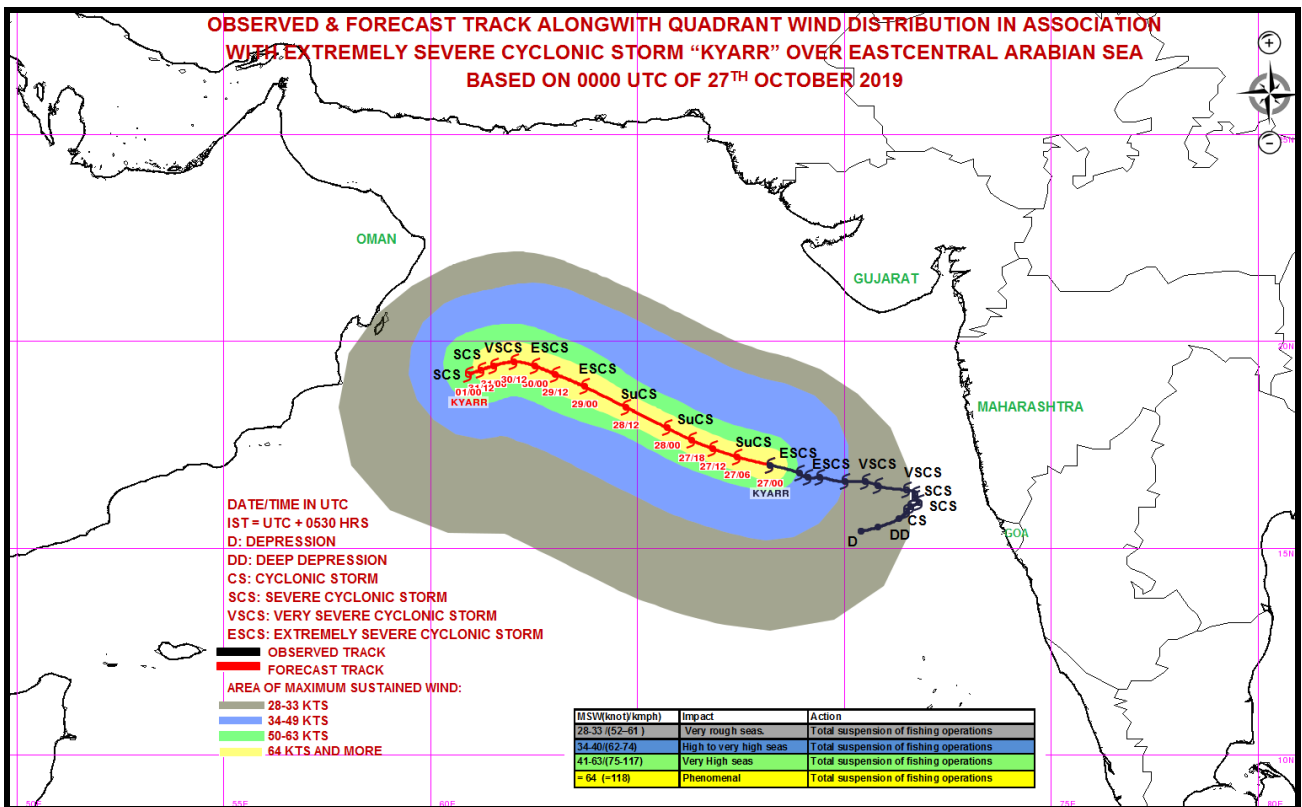


PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%



P



PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%



**REGIONAL SPECIALISED METEOROLOGICAL CENTRE-TROPICAL CYCLONES, NEW DELHI
TROPICAL CYCLONE ADVISORY BULLETIN NO.18**

FROM: RSMC –TROPICAL CYCLONES, NEW DELHI

**TO: STORM WARNING CENTRE, NAYPYI TAW (MYANMAR)
STORM WARNING CENTRE, BANGKOK (THAILAND)
STORM WARNING CENTRE, COLOMBO (SRILANKA)
STORM WARNING CENTRE, DHAKA (BANGLADESH)
STORM WARNING CENTRE, KARACHI (PAKISTAN)
METEOROLOGICAL OFFICE, MALE (MALDIVES)
OMAN METEOROLOGICAL DEPARTMENT, MUSCAT (THROUGH RTH JEDDAH)
YEMEN METEOROLOGICAL SERVICES, REPUBLIC OF YEMEN (THROUGH RTH JEDDAH)
NATIONAL CENTRE FOR METEOROLOGY, UAE (THROUGH RTH JEDDAH)
PRESIDENCY OF METEOROLOGY AND ENVIRONMENT, SAUDI ARABIA (THROUGH RTH JEDDAH)
IRAN METEOROLOGICAL ORGANISATION, (THROUGH RTH JEDDAH)
QATAR METEOROLOGICAL DEPARTMENT (THROUGH RTH JEDDAH)**

TROPICAL CYCLONE ADVISORY No. 18 FOR NORTH INDIAN OCEAN (THE BAY OF BENGAL AND ARABIAN SEA) VALID FOR NEXT 120 HOURS ISSUED AT 0500 UTC OF 27.10.2019 BASED ON 0300 UTC OF 27.10.2019.

SUB: SUPER CYCLONIC STORM STORM 'KYARR' (PRONOUNCED AS KYARR) OVER EASTCENTRAL ARABIAN SEA

THE **EXTREMELY SEVERE CYCLONIC STORM 'KYARR'** OVER EASTCENTRAL ARABIAN SEA MOVED WEST-NORTHWESTWARDS WITH A SPEED OF 13 KMPH DURING PAST 06 HRS, INTENSIFIED INTO A **SUPER CYCLONIC STORM** AND LAY CENTRED AT 0300 UTC OF 27TH OCTOBER, 2019 NEAR LATITUDE 17.1°N AND LONGITUDE 67.8°E OVER EASTCENTRAL ARABIAN SEA, ABOUT 580 KM WEST-SOUTHWEST OF MUMBAI (43003), 1450 KM EAST OF SALALAH (41316) AND 1010 KM EAST-SOUTHEAST OF MASIRAH (41288). IT IS VERY LIKELY TO MOVE WEST-NORTHWESTWARDS TOWARDS OMAN COAST DURING NEXT 5 DAYS. IT IS VERY LIKELY TO INTENSIFY FURTHER TILL 18 UTC OF 28TH OCTOBER AND WEAKEN GRADUALLY THEREAFTER.

FORECAST TRACK AND INTENSITY ARE GIVEN IN THE FOLLOWING TABLE:

DATE/TIME(UTC)	POSITION (LAT. °N/ LONG. °E)	MAXIMUM SUSTAINED SURFACE WIND SPEED (KMPH)	CATEGORY OF CYCLONIC DISTURBANCE
27.10.19/0300	17.1/67.8	230-240 GUSTING TO 265	SUPER CYCLONIC STORM
27.10.19/0600	17.2/67.4	240-250 GUSTING TO 275	SUPER CYCLONIC STORM
27.10.19/1200	17.4/66.8	250-260 GUSTING TO 285	SUPER CYCLONIC STORM
27.10.19/1800	17.6/66.3	255-265 GUSTING TO 290	SUPER CYCLONIC STORM
28.10.19/0000	17.9/65.7	240-250 GUSTING TO 275	SUPER CYCLONIC STORM
28.10.19/1200	18.4/64.7	220-230 GUSTING TO 255	SUPER CYCLONIC STORM
29.10.19/0000	18.9/63.7	200-210 GUSTING TO 230	EXTREMELY SEVERE CYCLONIC STORM
29.10.19/1200	19.2/63.0	180-190 GUSTING TO 210	EXTREMELY SEVERE CYCLONIC STORM
30.10.19/0000	19.4/62.5	160-170 GUSTING TO 190	EXTREMELY SEVERE CYCLONIC STORM
30.10.19/1200	19.5/62.0	140-150 GUSTING TO 165	VERY SEVERE CYCLONIC STORM
31.10.19/0000	19.4/61.5	125-135 GUSTING TO 145	VERY SEVERE CYCLONIC STORM
31.10.19/1200	19.3/61.2	110-120 GUSTING TO 130	SEVERE CYCLONIC STORM
01.11.19/0000	19.2/60.9	95-105 GUSTING TO 115	SEVERE CYCLONIC STORM

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

REMARKS:

SATELLITE IMAGES INDICATE EYE PATTERN WITH EYE TEMPERATURE +9.4 DEG.C AND EYE DIAMETER IS ABOUT 40 KM. AS PER THE SATELLITE IMAGERY AT 0300 UTC OF 27TH OCTOBER, 2019, THE CURRENT INTENSITY OF THE SYSTEM IS T6.0. ASSOCIATED BROKEN LOW TO MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION LIES OVER EAST CENTRAL ARABIAN SEA BETWEEN LAT 14.0⁰N TO 19.5⁰N AND LONG 66.0⁰E TO 70.5⁰E. THE MINIMUM CTT IS MINUS 93 DEG C.

THE ESTIMATED MAXIMUM SUSTAINED WIND SPEED IS 125 KNOTS GUSTING TO 140 KNOTS. THE ESTIMATED CENTRAL PRESSURE IS 920 HPA. AT 0300 UTC OF 27TH OCTOBER, A BUOY (23456) LOCATED NEAR LAT. 18.5°N / LONG. 67.4°E REPORTED A MEAN SEA LEVEL PRESSURE OF 999.1 HPA, 230⁰ WIND WITH SPEED 33 KNOTS AND SST 28.0°C AND ANOTHER BUOY (23451) LOCATED NEAR LAT. 14.9°N / LONG. 69.0°E REPORTED A MEAN SEA LEVEL PRESSURE OF 1004.0 HPA, 310⁰ WIND WITH SPEED 27 KNOTS AND SST 26.9°C. THE SEA CONDITION IS PHENOMENAL AROUND THE SYSTEM CENTRE.

THE MJO LIES IN THE PHASE 3 WITH AMPLITUDE LESS THAN 1. IT WILL REMAIN IN THE SAME PHASE DURING NEXT 3 DAYS AND ENTER INTO PHASE 4 WITH AMPLITUDE LESS THAN 1. CONSIDERING THE ENVIRONMENTAL CONDITIONS, TOTAL PRECIPITABLE WATER IMAGERIES INDICATE WARM AIR ADVECTION TO THE SYSTEM CENTRE. THE LOW LEVEL RELATIVE VORTICITY IS $300 \times 10^{-5} \text{ SEC}^{-1}$ TO THE SOUTH OF THE SYSTEM CENTRE. THE LOWER LEVEL CONVERGENCE AND THE UPPER LEVEL DIVERGENCE ARE ABOUT $20 \times 10^{-5} \text{ S}^{-1}$ AROUND THE SYSTEM CENTRE. THE VERTICAL WIND SHEAR IS LOW (05 KNOTS) AROUND THE SYSTEM CENTER. SEA SURFACE TEMPERATURE OVER MOST PARTS OF EASTCENTRAL ARABIAN SEA IS 29-30°C AND TROPICAL CYCLONE HEAT POTENTIAL IS 80 KJ/CM2 OVER THE REGION THEREBY FAVORING FURTHER INTENSIFICATION. EQUATORWARD OUTFLOW IS TAKING PLACE IN THE UPPER TROPOSPHERIC LEVELS ALL THESE DYNAMIC AND THERMODYNAMIC CONDITIONS FAVOURED RAPID INTENSIFICATION DURING PAST 24 HOURS. HOWEVER, AS THE SYSTEM WILL TRACK WEST-NORTHWESTWARDS AND WESTERN HALF WILL BE ENTERING INTO WESTCENTRAL ARABIAN SEA (COLDER SEA) FROM 1800 UTC OF 27TH OCTOBER, FURTHER RAPID INTENSIFICATION IS NOT LIKELY. HOWEVER DUE TO MODERATE VERTICAL WIND SHEAR AND FAVOURABLE UPPER AIR DIVERGENCE, GRADUAL INTENSIFICATION IS STILL EXPECTED TILL 1800 UTC OF 27TH. THEREAFTER, IT IS LIKELY TO EXPERIENCE COLDER SEA SURFACE TEMPERATURES, LOWER VALUES OF UPPER OCEAN HEAT CONTENT AND COLD AND DRY AIR INTRUSION INTO THE SYSTEM CENTRE, CAUSING GRADUAL WEAKENING OF THE SYSTEM

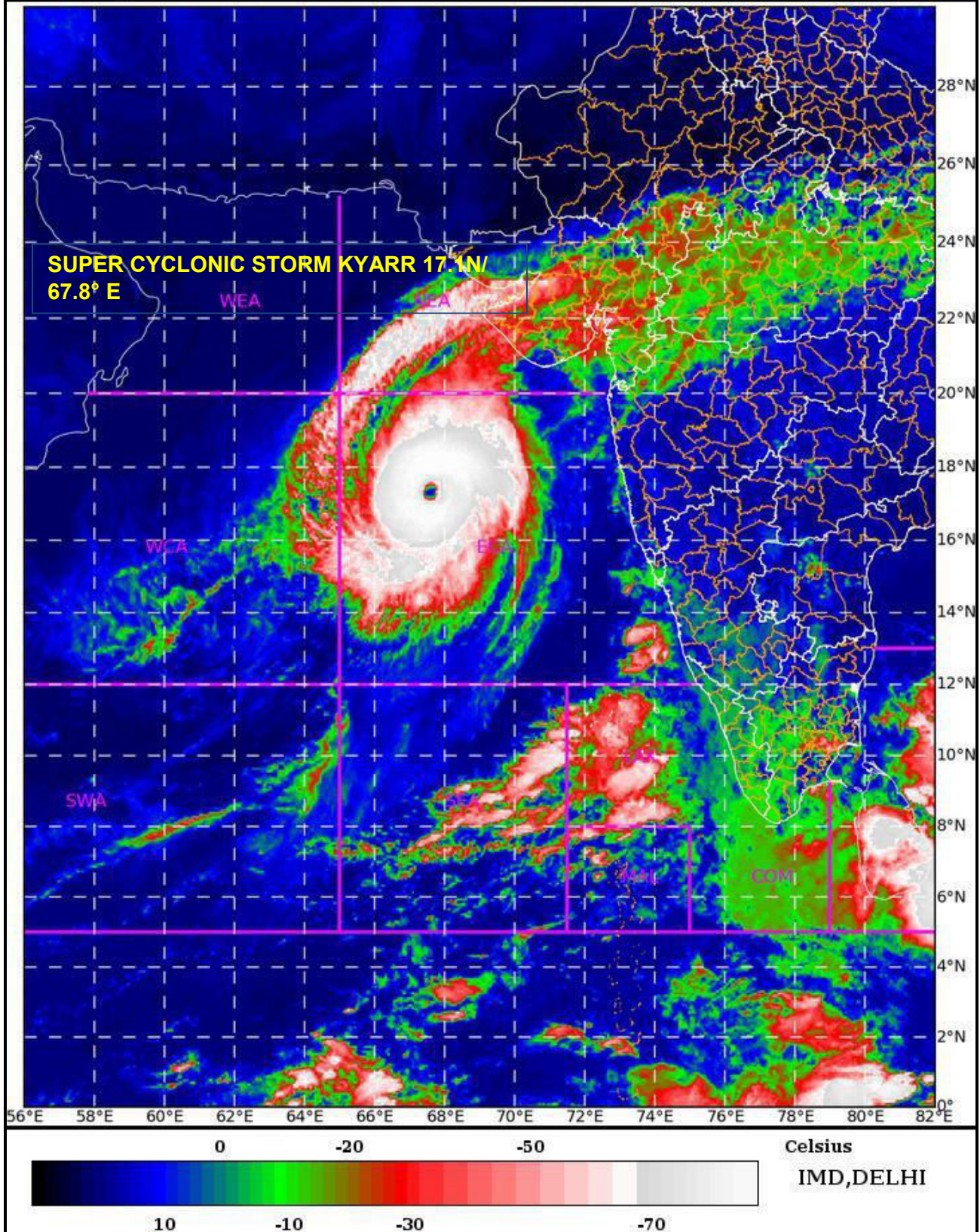
THE UPPER TROPOSPHERIC RIDGE RUNS ALONG 20°N. HENCE THE SYSTEM LIES TO THE SOUTH OF THE RIDGE LEADING TO NEARLY WEST-NORTHWESTWARD MOVEMENT DURING PAST 12 HOURS. IT IS LIKELY TO CONTINUE TO MOVE WEST-NORTHWESTWARDS TOWARDS OMAN COAST UNDER THE INFLUENCE OF WEST-NORTHWESTWARDS STEERING WINDS DURING NEXT 5 DAYS. MAJORITY OF NUMERICAL MODELS INCLUDING ECMWF, NCMRWF UNIFIED MODELS (NCUM), NCMRWF ENSEMBLE PREDICTION SYSTEM (NEPS), IMD GLOBAL FORECAST SYSTEM (GFS), NCEP GFS, GLOBAL ENSEMBLE FORECASTING SYSTEM (GEFS) AGREE WITH THE ABOVE INFERENCE DURING NEXT 3 DAYS.THERE IS DIVERGENCE AMONG THE TRACK FOR DAY-4 & DAY-5 FORECASTS. A FEW MODELS INDICATING MOVEMENT TOWARDS WEST-SOUTHWEST AND A FEW TOWARDS NORTH. THE CURRENT FORECAST IS BASED ON THE CONSENSUS DERIVED FROM MULTI MODEL ENSEMBLE.

(SUNITHA DEVI S)
SCIENTIST-E, RSMC, NEW DELHI

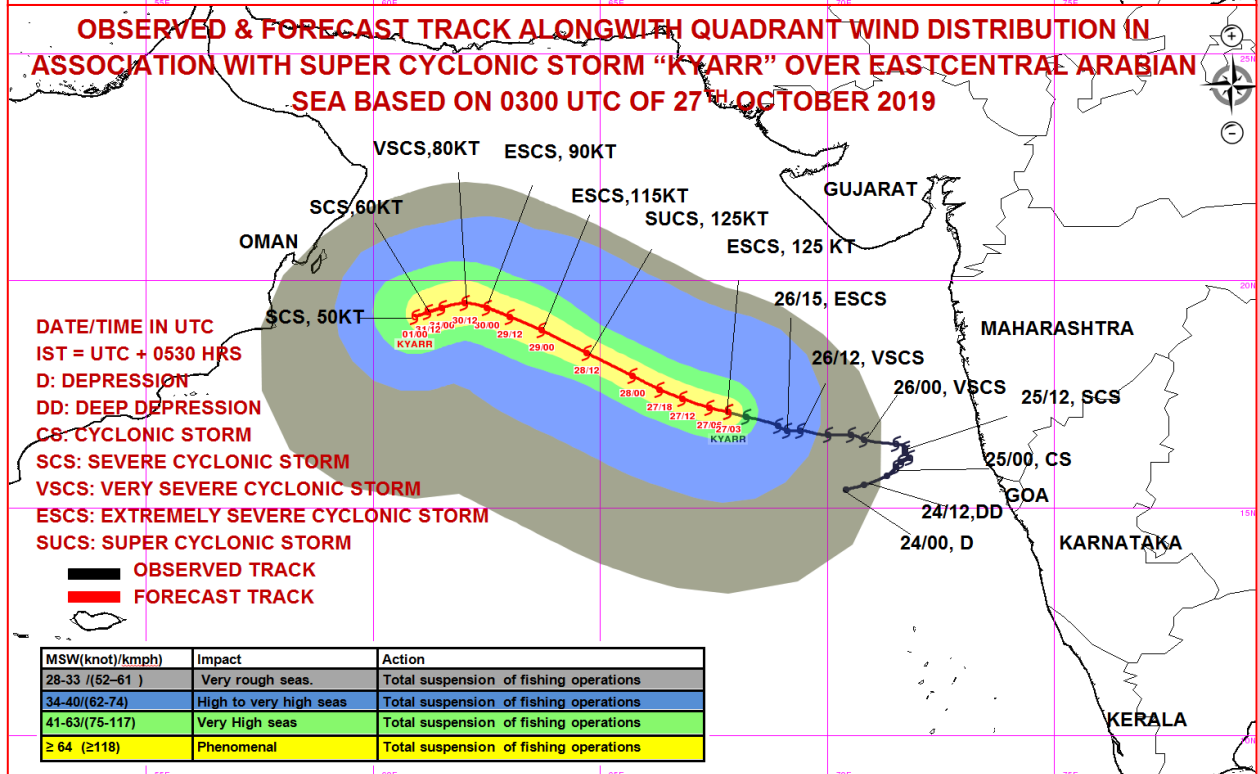
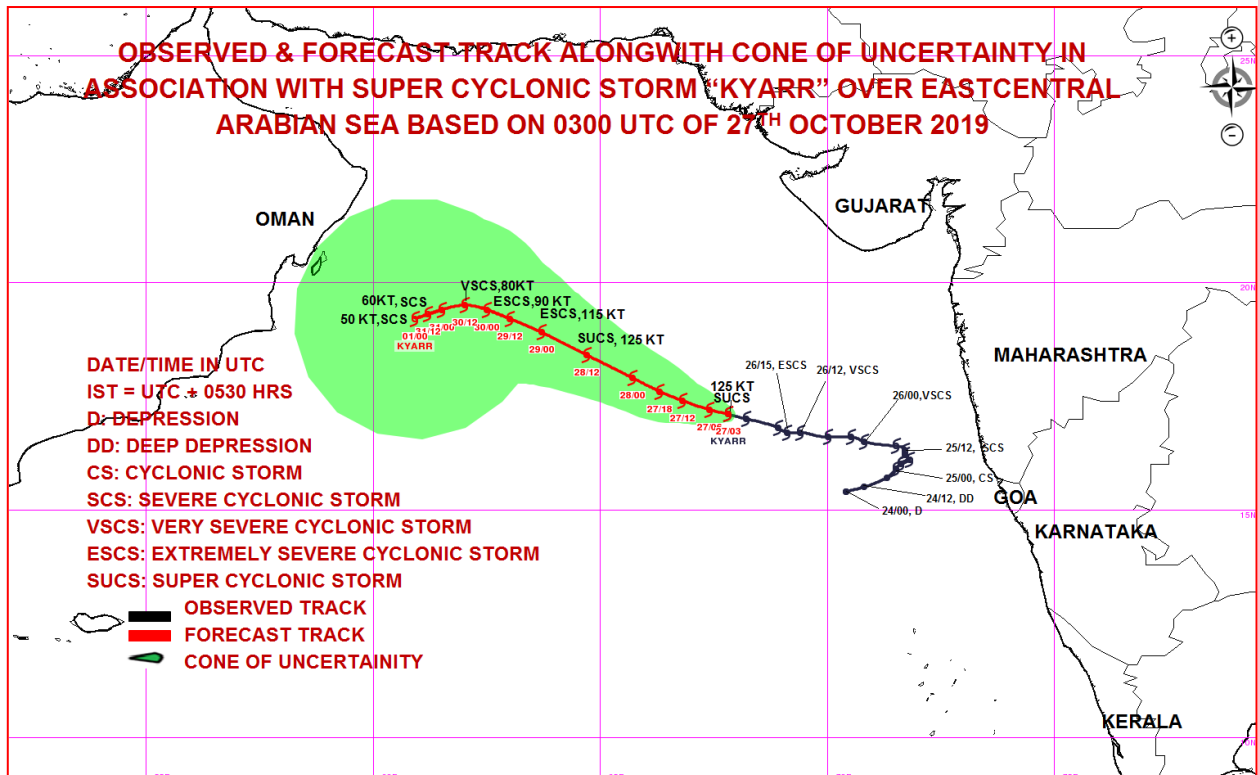
PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

SAT : INSAT-3D IMG 27-10-2019/(0400 to 0427) GMT
IMG_TIR1_TEMP 10.8 um 27-10-2019/(0930 to 0957) IST
ARABIAN_SEA



PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)
NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%



PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%



**REGIONAL SPECIALISED METEOROLOGICAL CENTRE-TROPICAL CYCLONES, NEW DELHI
TROPICAL CYCLONE ADVISORY BULLETIN NO.19**

FROM: RSMC –TROPICAL CYCLONES, NEW DELHI

**TO: STORM WARNING CENTRE, NAYPYI TAW (MYANMAR)
STORM WARNING CENTRE, BANGKOK (THAILAND)
STORM WARNING CENTRE, COLOMBO (SRILANKA)
STORM WARNING CENTRE, DHAKA (BANGLADESH)
STORM WARNING CENTRE, KARACHI (PAKISTAN)
METEOROLOGICAL OFFICE, MALE (MALDIVES)
OMAN METEOROLOGICAL DEPARTMENT, MUSCAT (THROUGH RTH JEDDAH)
YEMEN METEOROLOGICAL SERVICES, REPUBLIC OF YEMEN (THROUGH RTH JEDDAH)
NATIONAL CENTRE FOR METEOROLOGY, UAE (THROUGH RTH JEDDAH)
PRESIDENCY OF METEOROLOGY AND ENVIRONMENT, SAUDI ARABIA (THROUGH RTH JEDDAH)
IRAN METEOROLOGICAL ORGANISATION, (THROUGH RTH JEDDAH)
QATAR METEOROLOGICAL DEPARTMENT (THROUGH RTH JEDDAH)**

TROPICAL CYCLONE ADVISORY No. 19 FOR NORTH INDIAN OCEAN (THE BAY OF BENGAL AND ARABIAN SEA) VALID FOR NEXT 120 HOURS ISSUED AT 0900 UTC OF 27.10.2019 BASED ON 0600 UTC OF 27.10.2019.

SUB: SUPER CYCLONIC STORM STORM 'KYARR' (PRONOUNCED AS KYARR) OVER EASTCENTRAL ARABIAN SEA

THE **SUPER CYCLONIC STORM 'KYARR'** OVER EASTCENTRAL ARABIAN SEA MOVED WEST-NORTHWESTWARDS WITH A SPEED OF 16 KMPH DURING PAST 06 HRS AND LAY CENTRED AT 0600 HRS UTC OF TODAY, THE 27TH OCTOBER, 2019 NEAR LATITUDE 17.2°N AND LONGITUDE 67.3°E OVER EASTCENTRAL ARABIAN SEA, ABOUT 620 KM WEST-SOUTHWEST OF MUMBAI (MAHARASHTRA), 1400 KM EAST OF SALALAH (OMAN) AND 960 KM EAST-SOUTHEAST OF MASIRAH (OMAN). IT IS VERY LIKELY TO MOVE WEST-NORTHWESTWARDS TOWARDS OMAN COAST DURING NEXT 5 DAYS. IT IS VERY LIKELY TO MAINTAIN THE INTENSITY OF A SUPER CYCLONIC STORM TILL 28TH OCTOBER MORNING AND WEAKEN GRADUALLY THEREAFTER.

FORECAST TRACK AND INTENSITY ARE GIVEN IN THE FOLLOWING TABLE:

Date/Time(IST)	Position (Lat. °N/ long. °E)	Maximum sustained surface wind speed (Kmph)	Category of cyclonic disturbance
27.10.19/0600	17.2/67.3	230-240 gusting to 265	Super Cyclonic Storm
27.10.19/1200	17.4/66.7	240-250 gusting to 275	Super Cyclonic Storm
27.10.19/1800	17.6/66.1	240-250 gusting to 275	Super Cyclonic Storm
28.10.19/0000	17.9/65.6	230-240 gusting to 265	Super Cyclonic Storm
28.10.19/0600	18.1/65.1	220-230 gusting to 255	Super Cyclonic Storm
28.10.19/1800	18.6/64.2	210-220 gusting to 245	Extremely Severe Cyclonic Storm
29.10.19/0600	19.1/63.4	200-210 gusting to 230	Extremely Severe Cyclonic Storm
29.10.19/1800	19.3/62.7	180-190 gusting to 210	Extremely Severe Cyclonic Storm
30.10.19/0600	19.4/62.2	160-170 gusting to 190	Extremely Severe Cyclonic Storm
30.10.19/1800	19.4/61.8	140-150 gusting to 165	Very Severe Cyclonic Storm
31.10.19/0600	19.3/61.4	125-135 gusting to 145	Very Severe Cyclonic Storm
31.10.19/1800	19.1/61.0	110-120 gusting to 130	Severe Cyclonic Storm
01.11.19/0600	18.7/60.7	95-105 gusting to 115	Severe Cyclonic Storm

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

REMARKS:

SATELLITE IMAGES INDICATE PERSISTENCE OF EYE PATTERN WITH PRESENT EYE TEMPERATURE +11.6 DEG.C AND EYE DIAMETER IS ABOUT 40 KM. AS PER THE SATELLITE IMAGERY AT 0600 UTC OF 27TH OCTOBER, 2019, THE CURRENT INTENSITY OF THE SYSTEM IS T6.5. ASSOCIATED BROKEN LOW TO MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION LIES OVER EAST CENTRAL ARABIAN SEA BETWEEN LAT 14.0⁰N TO 19.5⁰N AND LONG 63.50⁰E TO 70.5⁰E. THE MINIMUM CTT IS MINUS 89 DEG C.

THE ESTIMATED MAXIMUM SUSTAINED WIND SPEED IS 125 KNOTS GUSTING TO 140 KNOTS. THE ESTIMATED CENTRAL PRESSURE IS 920 HPA. AT 0600 UTC OF 27TH OCTOBER, A BUOY (23456) LOCATED NEAR LAT. 18.5°N / LONG. 67.4°E REPORTED A MEAN SEA LEVEL PRESSURE OF 999.1 HPA, 230⁰ WIND WITH SPEED 33 KNOTS AND SST 28.0°C AND ANOTHER BUOY (23451) LOCATED NEAR LAT. 18.4°N / LONG. 67.4.0°E REPORTED A MEAN SEA LEVEL PRESSURE OF 999.4 HPA, 240⁰ WIND WITH SPEED 30 KNOTS WITH WAVE HEIGHT 7 METER AND SST 26.9°C. THE SEA CONDITION IS PHENOMENAL AROUND THE SYSTEM CENTRE.

THE MJO LIES IN THE PHASE 3 WITH AMPLITUDE LESS THAN 1. IT WILL REMAIN IN THE SAME PHASE DURING NEXT 3 DAYS AND ENTER INTO PHASE 4 WITH AMPLITUDE LESS THAN 1. CONSIDERING THE ENVIRONMENTAL CONDITIONS, TOTAL PRECIPITABLE WATER IMAGERIES INDICATE GRADUAL DECREASING OF WARM AIR ADVECTION TO THE SYSTEM CENTRE. THE LOW LEVEL RELATIVE VORTICITY IS $300 \times 10^{-5} \text{ SEC}^{-1}$ TO THE SOUTH OF THE SYSTEM CENTRE. THE LOWER LEVEL CONVERGENCE AND THE UPPER LEVEL DIVERGENCE HAVE INCREASED AND ARE ABOUT $30 \times 10^{-5} \text{ S}^{-1}$ AROUND THE SYSTEM CENTRE. THE VERTICAL WIND SHEAR IS LOW (05 KNOTS) AROUND THE SYSTEM CENTER. SEA SURFACE TEMPERATURE OVER MOST PARTS OF EASTCENTRAL ARABIAN SEA IS 29-30°C AND TROPICAL CYCLONE HEAT POTENTIAL IS 80 KJ/CM² OVER THE REGION. EQUATORWARD OUTFLOW IS TAKING PLACE IN THE UPPER TROPOSPHERIC LEVELS. ALL THESE DYNAMIC AND THERMODYNAMIC CONDITIONS WILL FAVOUR TO MAINTAIN THE INTENSITY OF A SUPER CYCLONIC STORM FOR NEXT 24 HOURS. THEREAFTER, IT IS LIKELY TO MOVE OVER TO COLDER SEA SURFACE TEMPERATURES AREA WITH LOWER VALUES OF UPPER OCEAN HEAT CONTENT. AT THE SAME TIME, COLD AND DRY AIR INTRUSION ALSO IS LIKELY TO TAKE PLACE INTO THE SYSTEM CENTRE, CAUSING GRADUAL WEAKENING OF THE SYSTEM DURING SUBSEQUENT 24 HOURS. THEN THE SYSTEM IS LIKELY TO ENTER INTO A ZONE OF HIGH VERTICAL WIND SHEAR CAUSING RAPID WEAKENING OF THE SYSTEM.

THE UPPER TROPOSPHERIC RIDGE CONTINUES TO RUN ALONG 20°N. HENCE THE SYSTEM LIES TO THE SOUTH OF THE RIDGE LEADING TO NEARLY WEST-NORTHWESTWARD MOVEMENT DURING PAST 12 HOURS. IT IS LIKELY TO CONTINUE TO MOVE WEST-NORTHWESTWARDS TOWARDS OMAN COAST UNDER THE INFLUENCE OF WEST-NORTHWESTWARDS STEERING WINDS DURING NEXT 5 DAYS. MAJORITY OF NUMERICAL MODELS INCLUDING ECMWF, NCMRWF UNIFIED MODELS (NCUM), NCMRWF ENSEMBLE PREDICTION SYSTEM (NEPS), IMD GLOBAL FORECAST SYSTEM (GFS), NCEP GFS, GLOBAL ENSEMBLE FORECASTING SYSTEM (GEFS) AGREE WITH THE ABOVE INFERENCE DURING NEXT 3 DAYS. THERE IS DIVERGENCE AMONG THE TRACK FOR DAY-4 & DAY-5 FORECASTS. A FEW MODELS INDICATING MOVEMENT TOWARDS WEST-SOUTHWEST AND A FEW TOWARDS NORTH. THE CURRENT FORECAST IS BASED ON THE CONSENSUS DERIVED FROM MULTI MODEL ENSEMBLE.

(R. K. JENAMANI)
SCIENTIST-F, RSMC, NEW DELHI

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

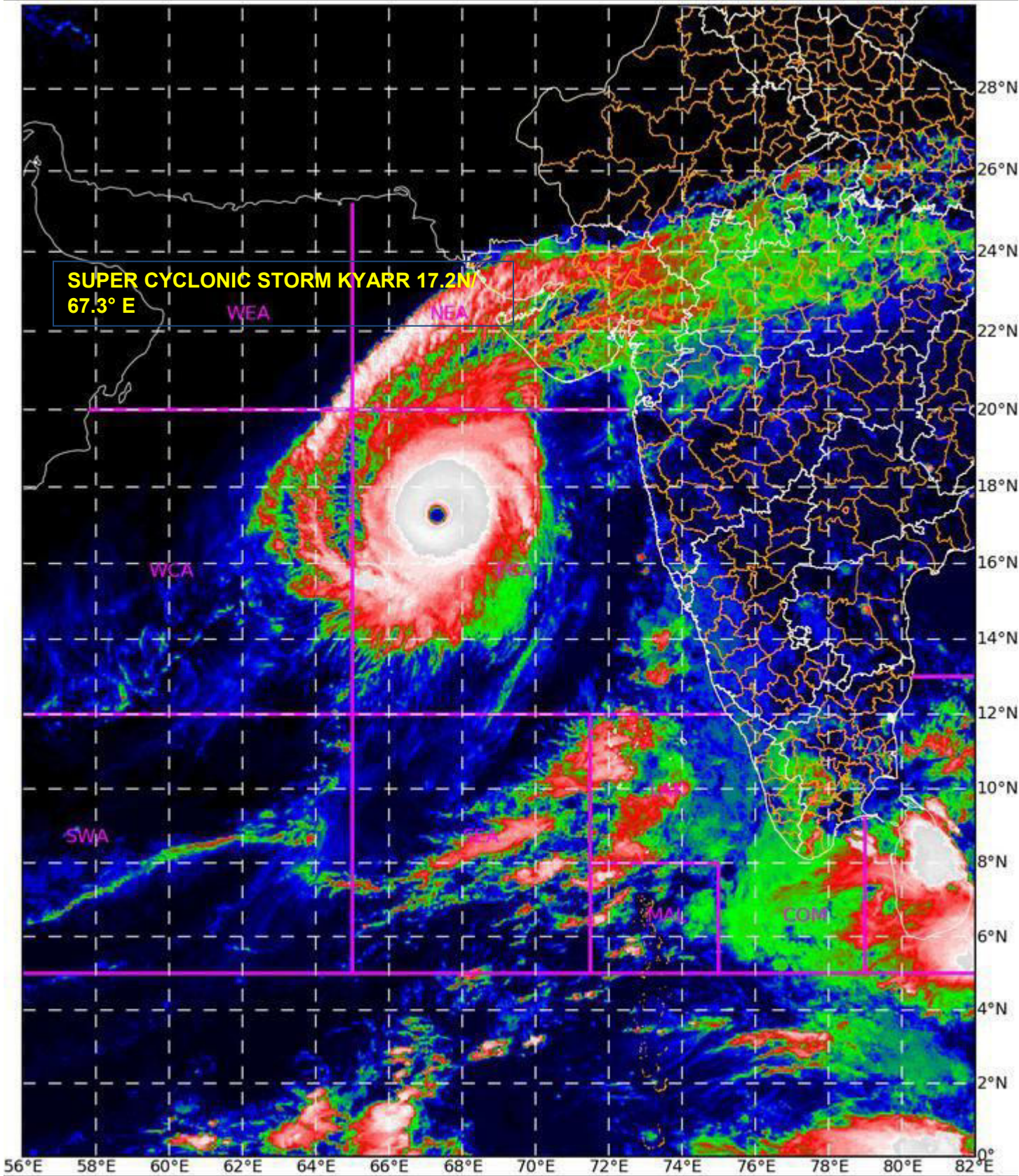
SAT : INSAT-3DR IMG

27-10-2019/(0645 to 0711) GMT

IMG_TIR1_TEMP 10.8 um

27-10-2019/(1215 to 1241) IST

ARABIAN_SEA

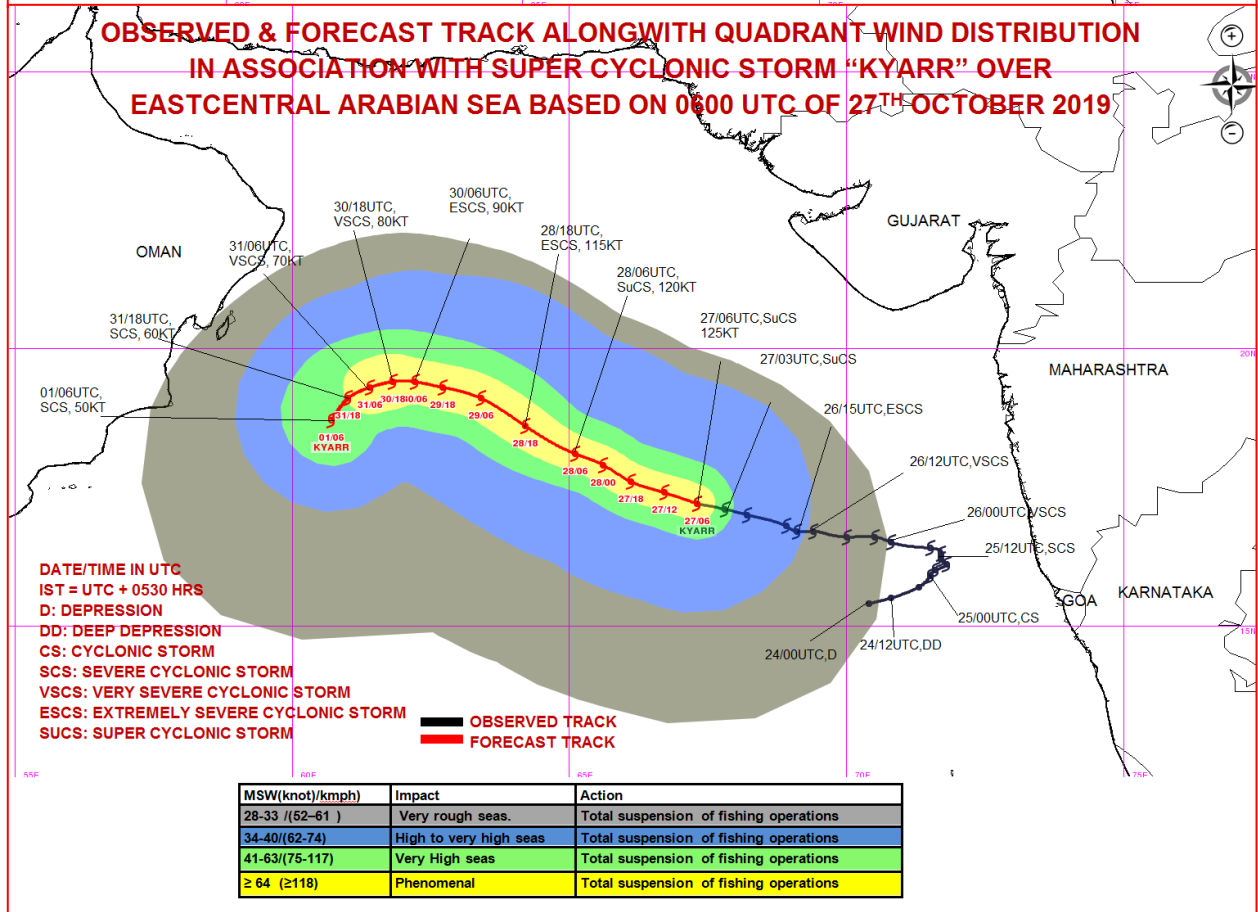
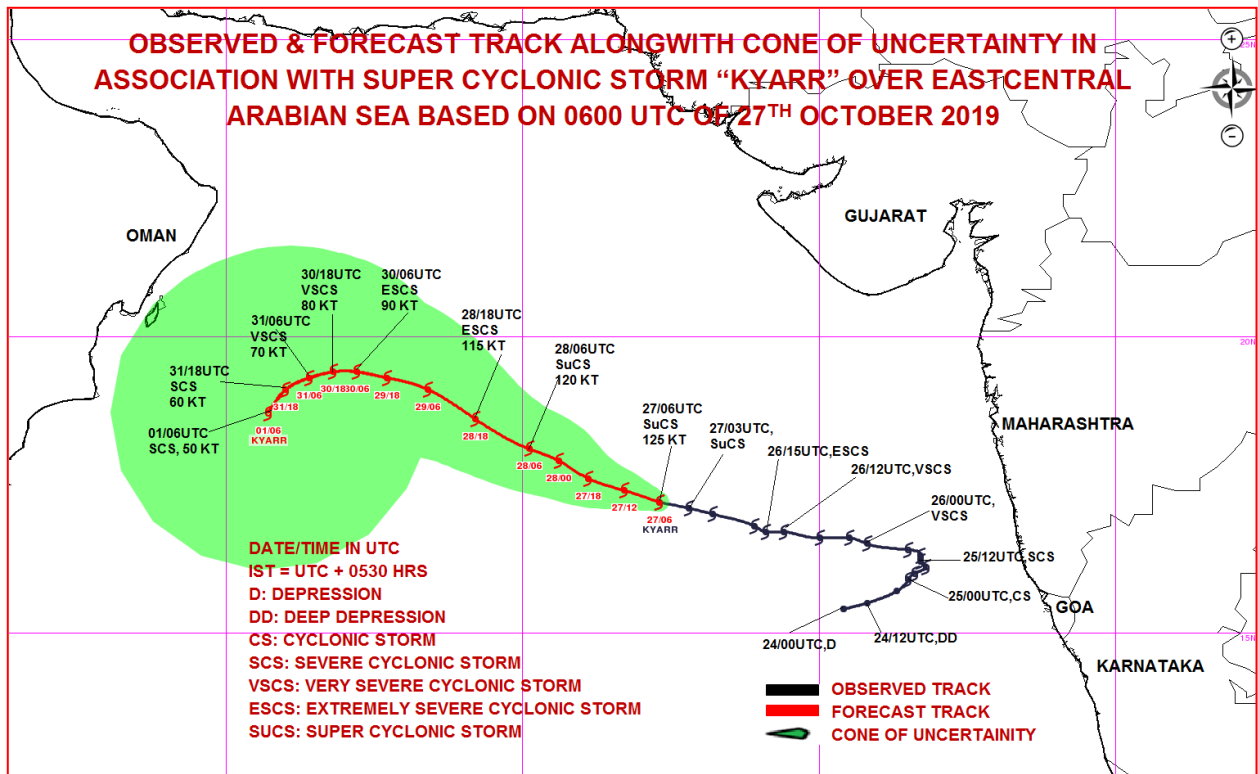


PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

Celsius

IMD, DELHI



PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%



**REGIONAL SPECIALISED METEOROLOGICAL CENTRE-TROPICAL CYCLONES, NEW DELHI
TROPICAL CYCLONE ADVISORY BULLETIN NO.20**

FROM: RSMC –TROPICAL CYCLONES, NEW DELHI

**TO: STORM WARNING CENTRE, NAYPYI TAW (MYANMAR)
STORM WARNING CENTRE, BANGKOK (THAILAND)
STORM WARNING CENTRE, COLOMBO (SRILANKA)
STORM WARNING CENTRE, DHAKA (BANGLADESH)
STORM WARNING CENTRE, KARACHI (PAKISTAN)
METEOROLOGICAL OFFICE, MALE (MALDIVES)
OMAN METEOROLOGICAL DEPARTMENT, MUSCAT (THROUGH RTH JEDDAH)
YEMEN METEOROLOGICAL SERVICES, REPUBLIC OF YEMEN (THROUGH RTH JEDDAH)
NATIONAL CENTRE FOR METEOROLOGY, UAE (THROUGH RTH JEDDAH)
PRESIDENCY OF METEOROLOGY AND ENVIRONMENT, SAUDI ARABIA (THROUGH RTH JEDDAH)
IRAN METEOROLOGICAL ORGANISATION, (THROUGH RTH JEDDAH)
QATAR METEOROLOGICAL DEPARTMENT (THROUGH RTH JEDDAH)**

TROPICAL CYCLONE ADVISORY No. 20 FOR NORTH INDIAN OCEAN (THE BAY OF BENGAL AND ARABIAN SEA) VALID FOR NEXT 120 HOURS ISSUED AT 1100 UTC OF 27.10.2019 BASED ON 0900 UTC OF 27.10.2019.

SUB: SUPER CYCLONIC STORM STORM 'KYARR' (PRONOUNCED AS KYARR) OVER EASTCENTRAL ARABIAN SEA

THE **SUPER CYCLONIC STORM 'KYARR'** OVER EASTCENTRAL ARABIAN SEA MOVED WEST-NORTHWESTWARDS WITH A SPEED OF 15 KMPH DURING PAST 06 HRS AND LAY CENTRED AT 0900 HRS UTC OF TODAY, THE 27TH OCTOBER, 2019 NEAR LATITUDE 17.4°N AND LONGITUDE 67.0°E OVER EASTCENTRAL ARABIAN SEA, ABOUT 630 KM WEST-SOUTHWEST OF MUMBAI (MAHARASHTRA), 1390 KM EAST-NORTHEAST OF SALALAH (OMAN) AND 920 KM EAST-SOUTHEAST OF MASIRAH (OMAN). IT IS VERY LIKELY TO MOVE WEST-NORTHWESTWARDS TOWARDS OMAN COAST DURING NEXT 5 DAYS. IT IS VERY LIKELY TO MAINTAIN THE INTENSITY OF A SUPER CYCLONIC STORM TILL 28TH OCTOBER MORNING AND WEAKEN GRADUALLY THEREAFTER.

FORECAST TRACK AND INTENSITY ARE GIVEN IN THE FOLLOWING TABLE:

Date/Time(IST)	Position (Lat. °N/ long. °E)	Maximum sustained surface wind speed (Kmph)	Category of cyclonic disturbance
27.10.19/0900	17.4/67.0	235-245 gusting to 270	Super Cyclonic Storm
27.10.19/1200	17.4/66.7	240-250 gusting to 275	Super Cyclonic Storm
27.10.19/1800	17.6/66.1	240-250 gusting to 275	Super Cyclonic Storm
28.10.19/0000	17.9/65.6	230-240 gusting to 265	Super Cyclonic Storm
28.10.19/0600	18.1/65.1	220-230 gusting to 255	Super Cyclonic Storm
28.10.19/1800	18.6/64.2	210-220 gusting to 245	Extremely Severe Cyclonic Storm
29.10.19/0600	19.1/63.4	200-210 gusting to 230	Extremely Severe Cyclonic Storm
29.10.19/1800	19.3/62.7	180-190 gusting to 210	Extremely Severe Cyclonic Storm
30.10.19/0600	19.4/62.2	160-170 gusting to 190	Extremely Severe Cyclonic Storm
30.10.19/1800	19.4/61.8	140-150 gusting to 165	Very Severe Cyclonic Storm
31.10.19/0600	19.3/61.4	125-135 gusting to 145	Very Severe Cyclonic Storm
31.10.19/1800	19.1/61.0	110-120 gusting to 130	Severe Cyclonic Storm
01.11.19/0600	18.7/60.7	95-105 gusting to 115	Severe Cyclonic Storm

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

REMARKS:

SATELLITE IMAGES INDICATE PERSISTENCE OF EYE PATTERN WITH PRESENT EYE TEMPERATURE +12.7 DEG.C AND EYE DIAMETER IS ABOUT 40 KM. AS PER THE SATELLITE IMAGERY AT 0900 UTC OF 27TH OCTOBER, 2019, THE CURRENT INTENSITY OF THE SYSTEM IS T6.5. ASSOCIATED BROKEN LOW TO MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION LIES OVER EAST CENTRAL ARABIAN SEA BETWEEN LAT 15.0⁰N TO 19.5⁰N AND LONG 65.0⁰E TO 69.0⁰E. THE MINIMUM CTT IS MINUS 93 DEG C.

THE ESTIMATED MAXIMUM SUSTAINED WIND SPEED IS 130 KNOTS GUSTING TO 150 KNOTS. THE ESTIMATED CENTRAL PRESSURE IS 915 HPA. AT 0900 UTC OF 27TH OCTOBER, A BUOY (23456) LOCATED NEAR LAT. 18.5°N / LONG. 67.4°E REPORTED A MEAN SEA LEVEL PRESSURE OF 996.7 HPA, 240⁰ WIND WITH SPEED 27 KNOTS AND WAVE HEIGHT 7.5 METER AND SST 28.0°C. THE SEA CONDITION IS PHENOMENAL AROUND THE SYSTEM CENTRE.

THE MJO LIES IN THE PHASE 3 WITH AMPLITUDE LESS THAN 1. IT WILL REMAIN IN THE SAME PHASE DURING NEXT 3 DAYS AND ENTER INTO PHASE 4 WITH AMPLITUDE LESS THAN 1. CONSIDERING THE ENVIRONMENTAL CONDITIONS, TOTAL PRECIPITABLE WATER IMAGERIES INDICATE REDUCED WARM AIR ADVECTION TO THE SYSTEM CENTRE. THE LOW LEVEL RELATIVE VORTICITY IS $300 \times 10^{-5} \text{ SEC}^{-1}$ TO THE SOUTH OF THE SYSTEM CENTRE. THE LOWER LEVEL CONVERGENCE IS ABOUT $40 \times 10^{-5} \text{ S}^{-1}$ TO THE SOUTHEAST OF THE SYSTEM CENTRE AND THE UPPER LEVEL DIVERGENCE IS ABOUT $20 \times 10^{-5} \text{ S}^{-1}$ AROUND THE SYSTEM CENTRE. THE VERTICAL WIND SHEAR IS LOW (05 KNOTS) AROUND THE SYSTEM CENTER. SEA SURFACE TEMPERATURE OVER MOST PARTS OF EASTCENTRAL ARABIAN SEA IS 29-30°C AND TROPICAL CYCLONE HEAT POTENTIAL IS 80 KJ/CM² OVER THE REGION. EQUATORWARD OUTFLOW IS TAKING PLACE IN THE UPPER TROPOSPHERIC LEVELS. ALL THESE DYNAMIC AND THERMODYNAMIC CONDITIONS WILL FAVOUR TO MAINTAIN THE INTENSITY OF A SUPER CYCLONIC STORM FOR NEXT 24 HOURS. THEREAFTER, IT IS LIKELY TO MOVE OVER TO COLDER SEA SURFACE TEMPERATURES AREA WITH LOWER VALUES OF UPPER OCEAN HEAT CONTENT. AT THE SAME TIME, COLD AND DRY AIR INTRUSION ALSO IS LIKELY TO TAKE PLACE INTO THE SYSTEM CENTRE, CAUSING GRADUAL WEAKENING OF THE SYSTEM DURING SUBSEQUENT 24 HOURS. THEN THE SYSTEM IS LIKELY TO ENTER INTO A ZONE OF HIGH VERTICAL WIND SHEAR CAUSING RAPID WEAKENING OF THE SYSTEM.

THE UPPER TROPOSPHERIC RIDGE CONTINUES TO RUN ALONG 19°N. HENCE THE SYSTEM LIES TO THE SOUTH OF THE RIDGE LEADING TO NEARLY WEST-NORTHWESTWARD MOVEMENT DURING PAST 12 HOURS. IT IS LIKELY TO CONTINUE TO MOVE WEST-NORTHWESTWARDS TOWARDS OMAN COAST UNDER THE INFLUENCE OF WEST-NORTHWESTWARDS STEERING WINDS DURING NEXT 5 DAYS. MAJORITY OF NUMERICAL MODELS INCLUDING ECMWF, NCMRWF UNIFIED MODELS (NCUM), NCMRWF ENSEMBLE PREDICTION SYSTEM (NEPS), IMD GLOBAL FORECAST SYSTEM (GFS), NCEP GFS, GLOBAL ENSEMBLE FORECASTING SYSTEM (GEFS) AGREE WITH THE ABOVE INFERENCE DURING NEXT 3 DAYS. THERE IS DIVERGENCE AMONG THE TRACK FOR DAY-4 & DAY-5 FORECASTS. A FEW MODELS INDICATING MOVEMENT TOWARDS WEST-SOUTHWEST AND A FEW TOWARDS NORTH. THE CURRENT FORECAST IS BASED ON THE CONSENSUS DERIVED FROM MULTI MODEL ENSEMBLE.

(SUNITHA DEVI)
SCIENTIST-E, RSMC, NEW DELHI

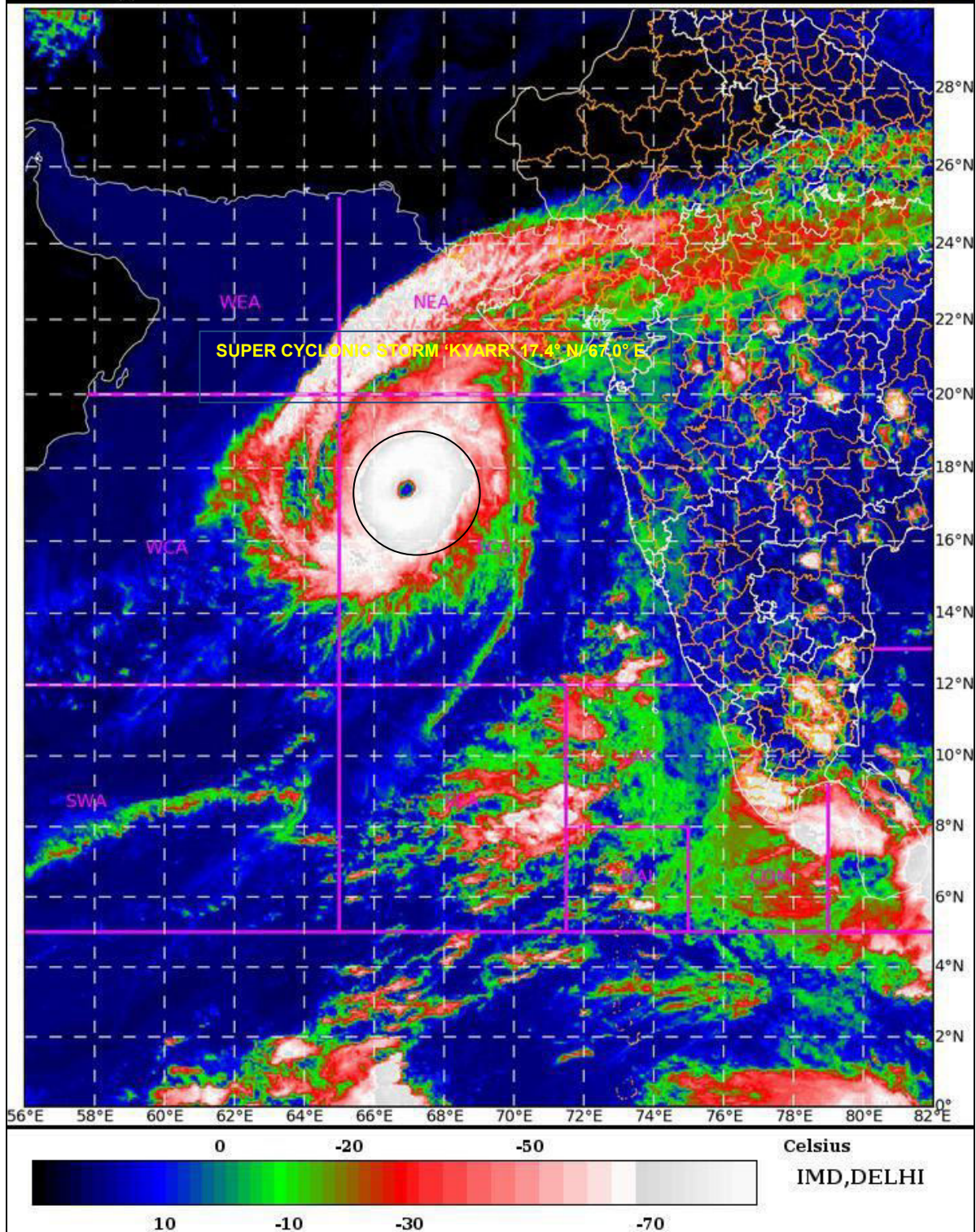
PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

SAT : INSAT-3D IMG 27-10-2019/(0930 to 0956) GMT

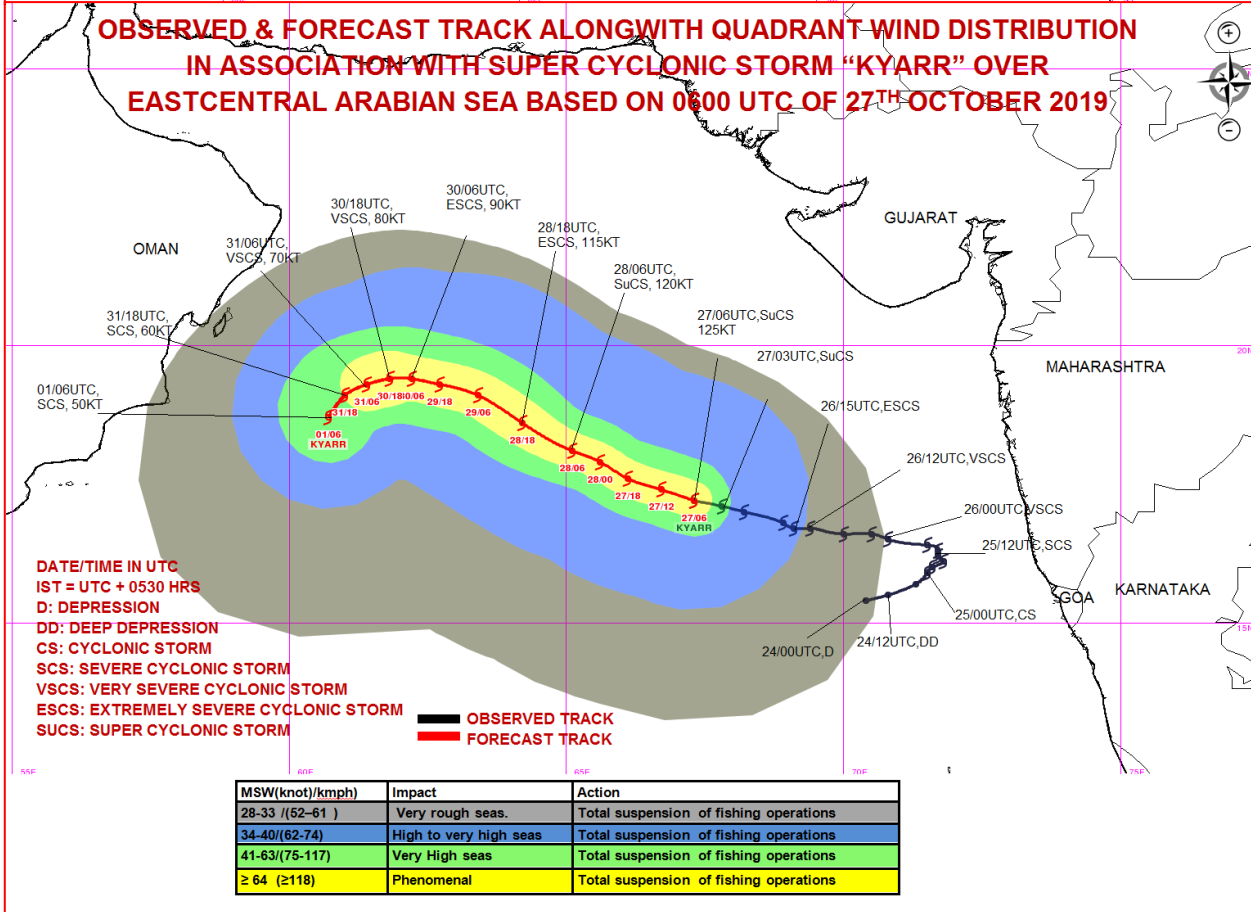
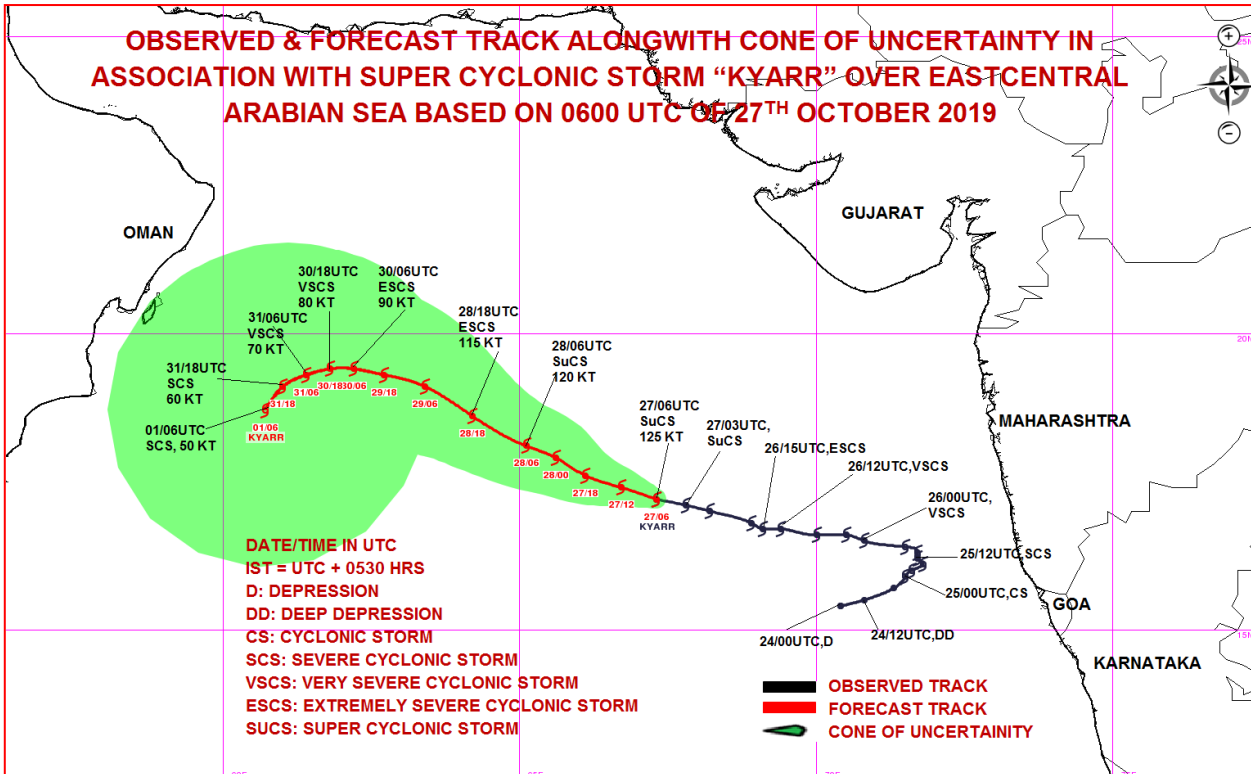
IMG_TIR1_TEMP 10.8 um 27-10-2019/(1500 to 1526) IST

ARABIAN_SEA



PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%



PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%



**REGIONAL SPECIALISED METEOROLOGICAL CENTRE-TROPICAL CYCLONES, NEW DELHI
TROPICAL CYCLONE ADVISORY BULLETIN NO.21**

FROM: RSMC –TROPICAL CYCLONES, NEW DELHI

**TO: STORM WARNING CENTRE, NAYPYI TAW (MYANMAR)
STORM WARNING CENTRE, BANGKOK (THAILAND)
STORM WARNING CENTRE, COLOMBO (SRILANKA)
STORM WARNING CENTRE, DHAKA (BANGLADESH)
STORM WARNING CENTRE, KARACHI (PAKISTAN)
METEOROLOGICAL OFFICE, MALE (MALDIVES)
OMAN METEOROLOGICAL DEPARTMENT, MUSCAT (THROUGH RTH JEDDAH)
YEMEN METEOROLOGICAL SERVICES, REPUBLIC OF YEMEN (THROUGH RTH JEDDAH)
NATIONAL CENTRE FOR METEOROLOGY, UAE (THROUGH RTH JEDDAH)
PRESIDENCY OF METEOROLOGY AND ENVIRONMENT, SAUDI ARABIA (THROUGH RTH JEDDAH)
IRAN METEOROLOGICAL ORGANISATION, (THROUGH RTH JEDDAH)
QATAR METEOROLOGICAL DEPARTMENT (THROUGH RTH JEDDAH)**

TROPICAL CYCLONE ADVISORY No. 21 FOR NORTH INDIAN OCEAN (THE BAY OF BENGAL AND ARABIAN SEA) VALID FOR NEXT 120 HOURS ISSUED AT 1400 UTC OF 27.10.2019 BASED ON 1200 UTC OF 27.10.2019.

SUB: SUPER CYCLONIC STORM STORM 'KYARR' (PRONOUNCED AS KYARR) OVER EASTCENTRAL ARABIAN SEA

THE **SUPER CYCLONIC STORM 'KYARR'** OVER EASTCENTRAL ARABIAN SEA MOVED WEST-NORTHWESTWARDS WITH A SPEED OF 12 KMPH DURING PAST 06 HRS AND LAY CENTRED AT 1200 HRS UTC OF TODAY, THE 27TH OCTOBER, 2019 NEAR LATITUDE 17.5°N AND LONGITUDE 66.7°E OVER EASTCENTRAL ARABIAN SEA, ABOUT 670 KM WEST-SOUTHWEST OF MUMBAI (MAHARASHTRA), 1340 KM EAST-NORTHEAST OF SALALAH (OMAN) AND 890 KM EAST-SOUTHEAST OF MASIRAH (OMAN). IT IS VERY LIKELY TO MOVE WEST-NORTHWESTWARDS TOWARDS OMAN COAST DURING NEXT 5 DAYS. IT IS VERY LIKELY TO MAINTAIN THE INTENSITY OF A SUPER CYCLONIC STORM TILL 28TH OCTOBER MORNING AND WEAKEN GRADUALLY THEREAFTER.

FORECAST TRACK AND INTENSITY ARE GIVEN IN THE FOLLOWING TABLE:

DATE/TIME(UTC)	POSITION (LAT. °N/ LONG. °E)	MAXIMUM SUSTAINED SURFACE WIND SPEED (KMPH)	CATEGORY OF CYCLONIC DISTURBANCE
27.10.19/1200	17.5/66.7	240-250 GUSTING TO 275	SUPER CYCLONIC STORM
27.10.19/1800	17.8/66.1	240-250 GUSTING TO 275	SUPER CYCLONIC STORM
28.10.19/0000	18.0/65.6	235-245 GUSTING TO 270	SUPER CYCLONIC STORM
28.10.19/0600	18.2/65.1	225-235 GUSTING TO 260	SUPER CYCLONIC STORM
28.10.19/1200	18.5/64.6	220-230 GUSTING TO 250	SUPER CYCLONIC STORM
29.10.19/0000	18.9/63.8	210-220 GUSTING TO 240	EXTREMELY SEVERE CYCLONIC STORM
29.10.19/1200	19.2/63.1	200-210 GUSTING TO 230	EXTREMELY SEVERE CYCLONIC STORM
30.10.19/0000	19.4/62.5	180-190 GUSTING TO 210	EXTREMELY SEVERE CYCLONIC STORM
30.10.19/1200	19.5/62.0	160-170 GUSTING TO 185	EXTREMELY SEVERE CYCLONIC STORM
31.10.19/0000	19.4/61.6	140-150 GUSTING TO 165	VERY SEVERE CYCLONIC STORM
31.10.19/1200	19.2/61.2	125-135 GUSTING TO 150	VERY SEVERE CYCLONIC STORM
01.11.19/0000	18.9/60.8	105-115 GUSTING TO 125	SEVERE CYCLONIC STORM
01.11.19/1200	18.8/60.4	90-100 GUSTING TO 110	SEVERE CYCLONIC STORM

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

REMARKS:

SATELLITE IMAGES INDICATE PERSISTENCE OF EYE PATTERN WITH PRESENT EYE TEMPERATURE +14.6 DEG.C AND EYE DIAMETER IS ABOUT 50 KM. AS PER THE SATELLITE IMAGERY AT 1200 UTC OF 27TH OCTOBER, 2019, THE CURRENT INTENSITY OF THE SYSTEM IS T6.5. ASSOCIATED BROKEN LOW TO MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION LIES OVER EAST CENTRAL ARABIAN SEA BETWEEN LAT 15.5⁰N TO 19.0⁰N AND LONG 65.0⁰E TO 68.5⁰E. THE MINIMUM CTT IS MINUS 93 DEG C.

THE ESTIMATED MAXIMUM SUSTAINED WIND SPEED IS 130 KNOTS GUSTING TO 150 KNOTS. THE ESTIMATED CENTRAL PRESSURE IS 915 HPA. AT 1200 UTC OF 27TH OCTOBER, A BUOY (23456) LOCATED NEAR LAT. 18.5°N / LONG. 67.4°E REPORTED A MEAN SEA LEVEL PRESSURE OF 995.6 HPA, 260° WIND WITH SPEED 30 KNOTS AND WAVE HEIGHT 6.0 METER AND SST 27.0°C. THE SEA CONDITION IS PHENOMENAL AROUND THE SYSTEM CENTRE.

THE MJO LIES IN THE PHASE 3 WITH AMPLITUDE LESS THAN 1. IT WILL REMAIN IN THE SAME PHASE DURING NEXT 3 DAYS AND ENTER INTO PHASE 4 WITH AMPLITUDE LESS THAN 1. CONSIDERING THE ENVIRONMENTAL CONDITIONS, TOTAL PRECIPITABLE WATER IMAGERIES INDICATE REDUCED WARM AIR ADVECTION TO THE SYSTEM CENTRE. THE LOW LEVEL RELATIVE VORTICITY IS $300 \times 10^{-5} \text{ SEC}^{-1}$ TO THE SOUTH OF THE SYSTEM CENTRE. THE LOWER LEVEL CONVERGENCE IS ABOUT $40 \times 10^{-5} \text{ S}^{-1}$ TO THE SOUTHEAST OF THE SYSTEM CENTRE AND THE UPPER LEVEL DIVERGENCE IS ABOUT $20 \times 10^{-5} \text{ S}^{-1}$ AROUND THE SYSTEM CENTRE. THE VERTICAL WIND SHEAR IS LOW (05 KNOTS) AROUND THE SYSTEM CENTER. SEA SURFACE TEMPERATURE OVER MOST PARTS OF EASTCENTRAL ARABIAN SEA IS 29-30°C AND TROPICAL CYCLONE HEAT POTENTIAL IS 80 KJ/CM² OVER THE REGION. EQUATORWARD OUTFLOW IS TAKING PLACE IN THE UPPER TROPOSPHERIC LEVELS. ALL THESE DYNAMIC AND THERMODYNAMIC CONDITIONS WILL FAVOUR TO MAINTAIN THE INTENSITY OF A SUPER CYCLONIC STORM FOR NEXT 24 HOURS. THEREAFTER, IT IS LIKELY TO MOVE OVER TO COLDER SEA SURFACE TEMPERATURES AREA WITH LOWER VALUES OF UPPER OCEAN HEAT CONTENT. AT THE SAME TIME, COLD AND DRY AIR INTRUSION ALSO IS LIKELY TO TAKE PLACE INTO THE SYSTEM CENTRE, CAUSING GRADUAL WEAKENING OF THE SYSTEM DURING SUBSEQUENT 24 HOURS. THEN THE SYSTEM IS LIKELY TO ENTER INTO A ZONE OF HIGH VERTICAL WIND SHEAR CAUSING RAPID WEAKENING OF THE SYSTEM.

THE UPPER TROPOSPHERIC RIDGE CONTINUES TO RUN ALONG 19°N. HENCE THE SYSTEM LIES TO THE SOUTH OF THE RIDGE LEADING TO NEARLY WEST-NORTHWESTWARD MOVEMENT DURING PAST 12 HOURS. IT IS LIKELY TO CONTINUE TO MOVE WEST-NORTHWESTWARDS TOWARDS OMAN COAST UNDER THE INFLUENCE OF WEST-NORTHWESTWARDS STEERING WINDS DURING NEXT 5 DAYS. MAJORITY OF NUMERICAL MODELS INCLUDING ECMWF, NCMRWF UNIFIED MODELS (NCUM), NCMRWF ENSEMBLE PREDICTION SYSTEM (NEPS), IMD GLOBAL FORECAST SYSTEM (GFS), NCEP GFS, GLOBAL ENSEMBLE FORECASTING SYSTEM (GEFS) AGREE WITH THE ABOVE INFERENCE DURING NEXT 3 DAYS. THERE IS DIVERGENCE AMONG THE TRACK FOR DAY-4 & DAY-5 FORECASTS. A FEW MODELS INDICATING MOVEMENT TOWARDS WEST-SOUTHWEST AND A FEW TOWARDS NORTH. THE CURRENT FORECAST IS BASED ON THE CONSENSUS DERIVED FROM MULTI MODEL ENSEMBLE.

(SUNITHA DEVI)
SCIENTIST-E, RSMC, NEW DELHI

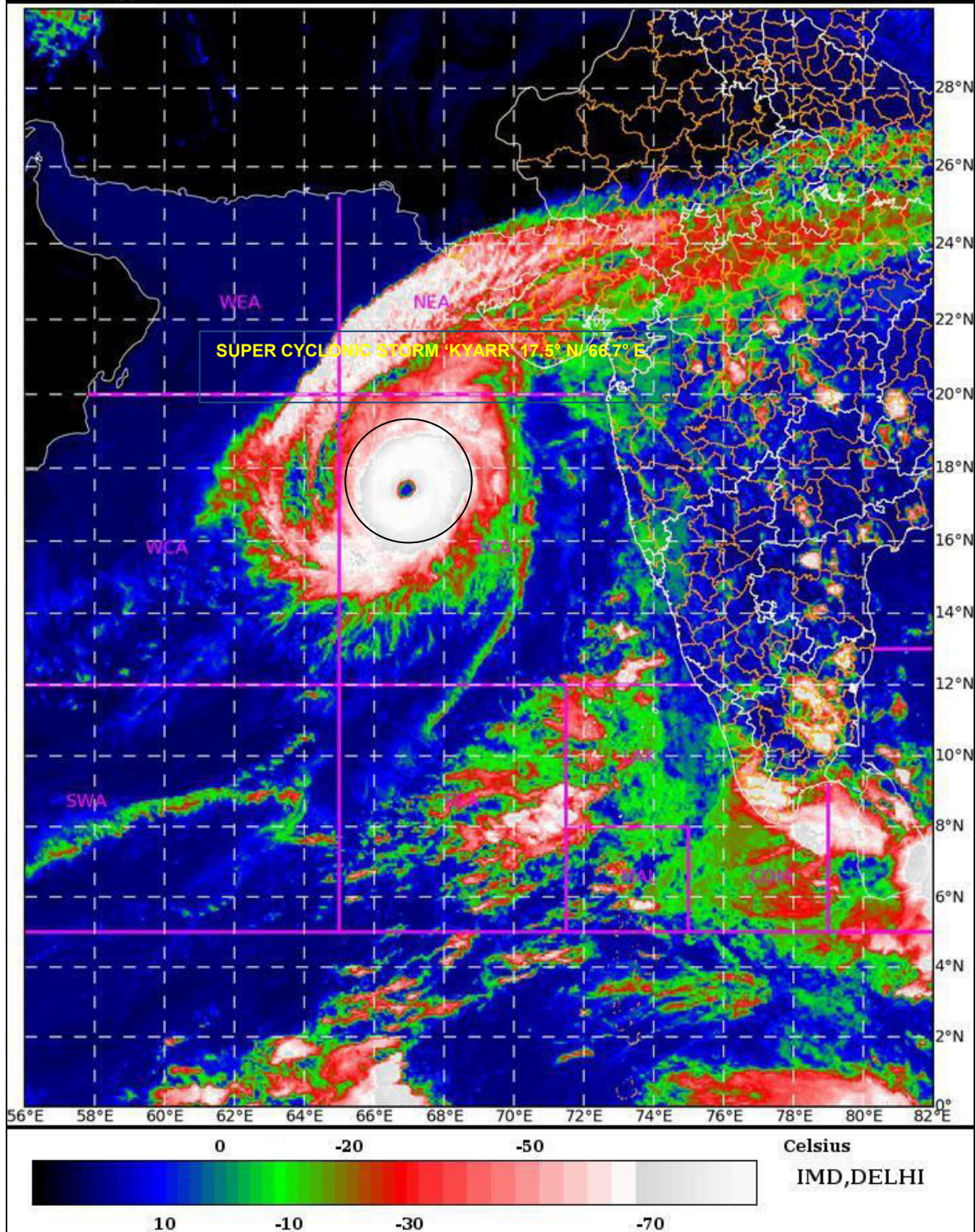
PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

SAT : INSAT-3D IMG 27-10-2019/(0930 to 0956) GMT

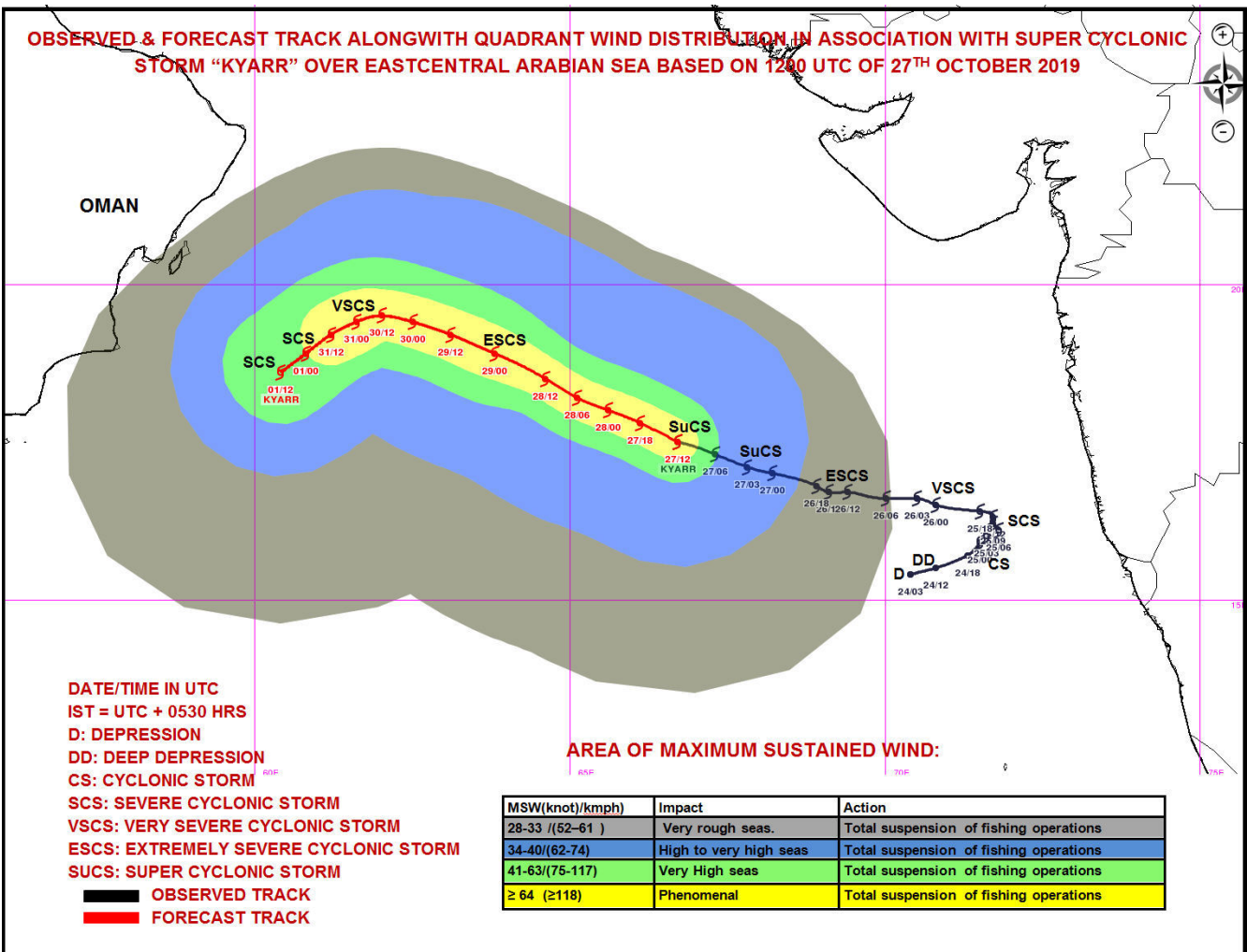
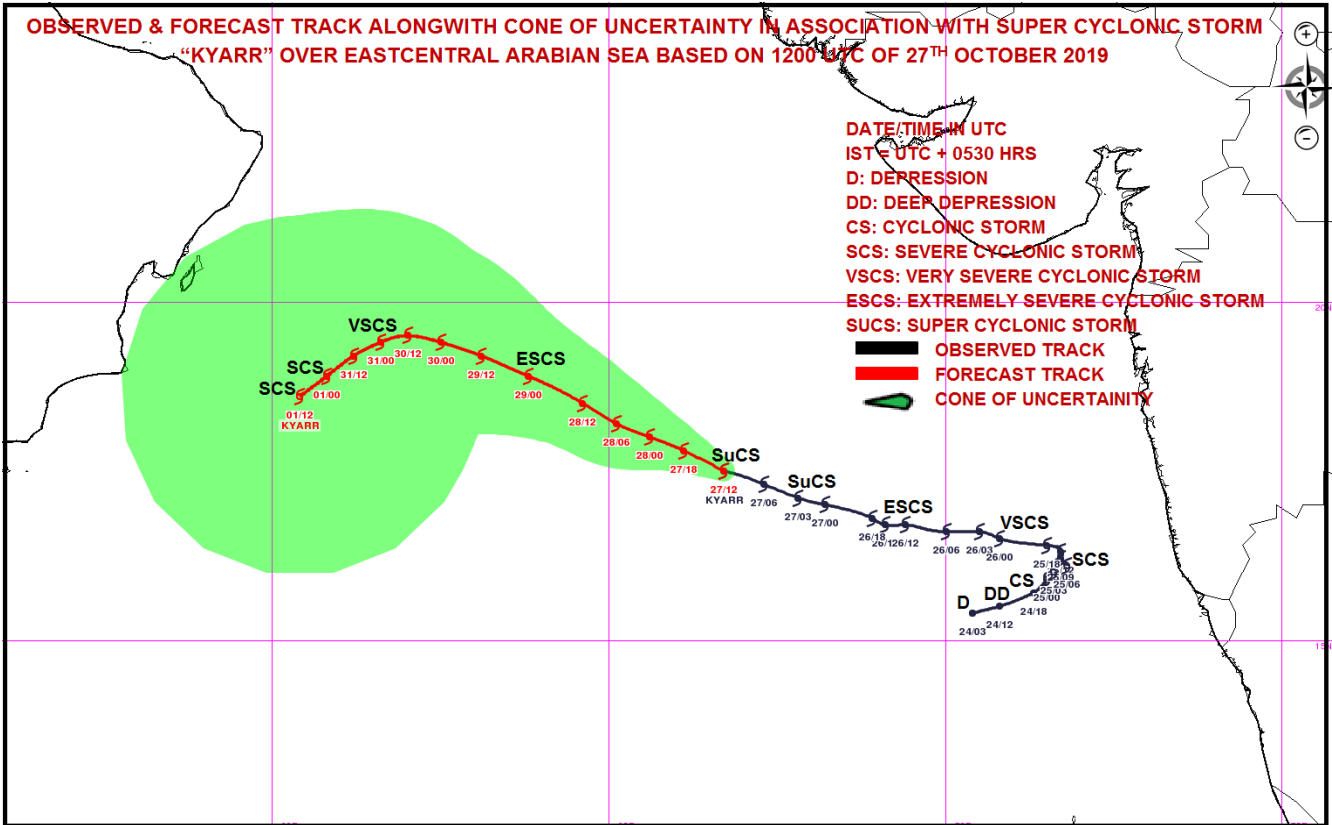
IMG_TIR1_TEMP 10.8 um 27-10-2019/(1500 to 1526) IST

ARABIAN_SEA



PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%



PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%



**REGIONAL SPECIALISED METEOROLOGICAL CENTRE-TROPICAL CYCLONES, NEW DELHI
TROPICAL CYCLONE ADVISORY BULLETIN NO.22**

FROM: RSMC –TROPICAL CYCLONES, NEW DELHI

**TO: STORM WARNING CENTRE, NAYPYI TAW (MYANMAR)
STORM WARNING CENTRE, BANGKOK (THAILAND)
STORM WARNING CENTRE, COLOMBO (SRILANKA)
STORM WARNING CENTRE, DHAKA (BANGLADESH)
STORM WARNING CENTRE, KARACHI (PAKISTAN)
METEOROLOGICAL OFFICE, MALE (MALDIVES)
OMAN METEOROLOGICAL DEPARTMENT, MUSCAT (THROUGH RTH JEDDAH)
YEMEN METEOROLOGICAL SERVICES, REPUBLIC OF YEMEN (THROUGH RTH JEDDAH)
NATIONAL CENTRE FOR METEOROLOGY, UAE (THROUGH RTH JEDDAH)
PRESIDENCY OF METEOROLOGY AND ENVIRONMENT, SAUDI ARABIA (THROUGH RTH JEDDAH)
IRAN METEOROLOGICAL ORGANISATION, (THROUGH RTH JEDDAH)
QATAR METEOROLOGICAL DEPARTMENT (THROUGH RTH JEDDAH)**

TROPICAL CYCLONE ADVISORY No. 22 FOR NORTH INDIAN OCEAN (THE BAY OF BENGAL AND ARABIAN SEA) VALID FOR NEXT 120 HOURS ISSUED AT 1730 UTC OF 27.10.2019 BASED ON 1500 UTC OF 27.10.2019.

SUB: SUPER CYCLONIC STORM STORM 'KYARR' (PRONOUNCED AS KYARR) OVER EASTCENTRAL ARABIAN SEA

THE **SUPER CYCLONIC STORM 'KYARR'** OVER EASTCENTRAL ARABIAN SEA MOVED WEST-NORTHWESTWARDS WITH A SPEED OF 10 KMPH DURING PAST 06 HRS AND LAY CENTRED AT 1500 HRS UTC OF TODAY, THE 27TH OCTOBER, 2019 NEAR LATITUDE 17.7°N AND LONGITUDE 66.5°E OVER EASTCENTRAL ARABIAN SEA, ABOUT 680 KM WEST-SOUTHWEST OF MUMBAI (MAHARASHTRA), 1320 KM EAST-NORTHEAST OF SALALAH (OMAN) AND 860 KM EAST-SOUTHEAST OF MASIRAH (OMAN). IT IS VERY LIKELY TO MOVE WEST-NORTHWESTWARDS TOWARDS OMAN COAST DURING NEXT 5 DAYS. IT IS VERY LIKELY TO MAINTAIN THE INTENSITY OF A SUPER CYCLONIC STORM TILL 28TH OCTOBER MORNING AND WEAKEN GRADUALLY THEREAFTER.

FORECAST TRACK AND INTENSITY ARE GIVEN IN THE FOLLOWING TABLE:

DATE/TIME(UTC)	POSITION (LAT. °N/ LONG. °E)	MAXIMUM SUSTAINED SURFACE WIND SPEED (KMPH)	CATEGORY OF CYCLONIC DISTURBANCE
27.10.19/1500	17.5/66.5	240-250 GUSTING TO 275	SUPER CYCLONIC STORM
27.10.19/1800	17.9/66.2	240-250 GUSTING TO 275	SUPER CYCLONIC STORM
28.10.19/0000	18.1/65.4	235-245 GUSTING TO 270	SUPER CYCLONIC STORM
28.10.19/0600	18.3/65.1	225-235 GUSTING TO 260	SUPER CYCLONIC STORM
28.10.19/1200	18.5/64.6	220-230 GUSTING TO 250	SUPER CYCLONIC STORM
29.10.19/0000	18.9/63.8	210-220 GUSTING TO 240	EXTREMELY SEVERE CYCLONIC STORM
29.10.19/1200	19.2/63.1	200-210 GUSTING TO 230	EXTREMELY SEVERE CYCLONIC STORM
30.10.19/0000	19.4/62.5	180-190 GUSTING TO 210	EXTREMELY SEVERE CYCLONIC STORM
30.10.19/1200	19.5/62.0	160-170 GUSTING TO 185	EXTREMELY SEVERE CYCLONIC STORM
31.10.19/0000	19.4/61.6	140-150 GUSTING TO 165	VERY SEVERE CYCLONIC STORM
31.10.19/1200	19.2/61.2	125-135 GUSTING TO 150	VERY SEVERE CYCLONIC STORM
01.11.19/0000	18.9/60.8	105-115 GUSTING TO 125	SEVERE CYCLONIC STORM
01.11.19/1200	18.8/60.4	90-100 GUSTING TO 110	SEVERE CYCLONIC STORM

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

REMARKS:

SATELLITE IMAGES INDICATE PERSISTENCE OF EYE PATTERN WITH PRESENT EYE TEMPERATURE +12.2 DEG.C AND EYE DIAMETER IS ABOUT 40 KM. AS PER THE SATELLITE IMAGERY AT 1500 UTC OF 27TH OCTOBER, 2019, THE CURRENT INTENSITY OF THE SYSTEM IS T6.5. ASSOCIATED BROKEN LOW TO MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION LIES OVER EAST CENTRAL ARABIAN SEA BETWEEN LAT 16.0⁰N TO 19.5⁰N AND LONG 64.5⁰E TO 68.5⁰E. THE MINIMUM CTT IS MINUS 93 DEG C.

THE ESTIMATED MAXIMUM SUSTAINED WIND SPEED IS 130 KNOTS GUSTING TO 150 KNOTS. THE ESTIMATED CENTRAL PRESSURE IS 915 HPA. AT 1500 UTC OF 27TH OCTOBER, A BUOY (23451) LOCATED NEAR LAT. 14.8⁰N / LONG. 69.0⁰E REPORTED A MEAN SEA LEVEL PRESSURE OF 1006.3 HPA, 280⁰ WIND WITH SPEED 20 KNOTS AND WAVE HEIGHT 6.0 METER AND SST 26.0⁰C. THE SEA CONDITION IS PHENOMENAL AROUND THE SYSTEM CENTRE.

THE MJO LIES IN THE PHASE 3 WITH AMPLITUDE LESS THAN 1. IT WILL REMAIN IN THE SAME PHASE DURING NEXT 3 DAYS AND ENTER INTO PHASE 4 WITH AMPLITUDE LESS THAN 1. CONSIDERING THE ENVIRONMENTAL CONDITIONS, TOTAL PRECIPITABLE WATER IMAGERIES INDICATE REDUCED WARM AIR ADVECTION TO THE SYSTEM CENTRE. THE LOW LEVEL RELATIVE VORTICITY IS $300 \times 10^{-5} \text{ SEC}^{-1}$ TO THE SOUTH OF THE SYSTEM CENTRE. THE LOWER LEVEL CONVERGENCE IS ABOUT $30 \times 10^{-5} \text{ S}^{-1}$ TO THE SOUTHEAST OF THE SYSTEM CENTRE AND THE UPPER LEVEL DIVERGENCE IS ABOUT $20 \times 10^{-5} \text{ S}^{-1}$ AROUND THE SYSTEM CENTRE. THE VERTICAL WIND SHEAR IS LOW (05 KNOTS) AROUND THE SYSTEM CENTER. SEA SURFACE TEMPERATURE OVER MOST PARTS OF EASTCENTRAL ARABIAN SEA IS 29-30⁰C AND TROPICAL CYCLONE HEAT POTENTIAL IS 80 KJ/CM² OVER THE REGION. EQUATORWARD OUTFLOW IS TAKING PLACE IN THE UPPER TROPOSPHERIC LEVELS. ALL THESE DYNAMIC AND THERMODYNAMIC CONDITIONS WILL FAVOUR TO MAINTAIN THE INTENSITY OF A SUPER CYCLONIC STORM FOR NEXT 24 HOURS. THEREAFTER, IT IS LIKELY TO MOVE OVER TO COLDER SEA SURFACE TEMPERATURES AREA WITH LOWER VALUES OF UPPER OCEAN HEAT CONTENT. AT THE SAME TIME, COLD AND DRY AIR INTRUSION ALSO IS LIKELY TO TAKE PLACE INTO THE SYSTEM CENTRE, CAUSING GRADUAL WEAKENING OF THE SYSTEM DURING SUBSEQUENT 24 HOURS. THEN THE SYSTEM IS LIKELY TO ENTER INTO A ZONE OF HIGH VERTICAL WIND SHEAR CAUSING RAPID WEAKENING OF THE SYSTEM.

THE UPPER TROPOSPHERIC RIDGE CONTINUES TO RUN ALONG 19⁰N. HENCE THE SYSTEM LIES TO THE SOUTH OF THE RIDGE LEADING TO NEARLY WEST-NORTHWESTWARD MOVEMENT DURING PAST 12 HOURS. IT IS LIKELY TO CONTINUE TO MOVE WEST-NORTHWESTWARDS TOWARDS OMAN COAST UNDER THE INFLUENCE OF WEST-NORTHWESTWARDS STEERING WINDS DURING NEXT 5 DAYS. MAJORITY OF NUMERICAL MODELS INCLUDING ECMWF, NCMRWF UNIFIED MODELS (NCUM), NCMRWF ENSEMBLE PREDICTION SYSTEM (NEPS), IMD GLOBAL FORECAST SYSTEM (GFS), NCEP GFS, GLOBAL ENSEMBLE FORECASTING SYSTEM (GEFS) AGREE WITH THE ABOVE INFERENCE DURING NEXT 3 DAYS. THERE IS DIVERGENCE AMONG THE TRACK FOR DAY-4 & DAY-5 FORECASTS. A FEW MODELS INDICATING MOVEMENT TOWARDS WEST-SOUTHWEST AND A FEW TOWARDS NORTH. THE CURRENT FORECAST IS BASED ON THE CONSENSUS DERIVED FROM MULTI MODEL ENSEMBLE.

(V R DURAI)
SCIENTIST-E, RSMC, NEW DELHI

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

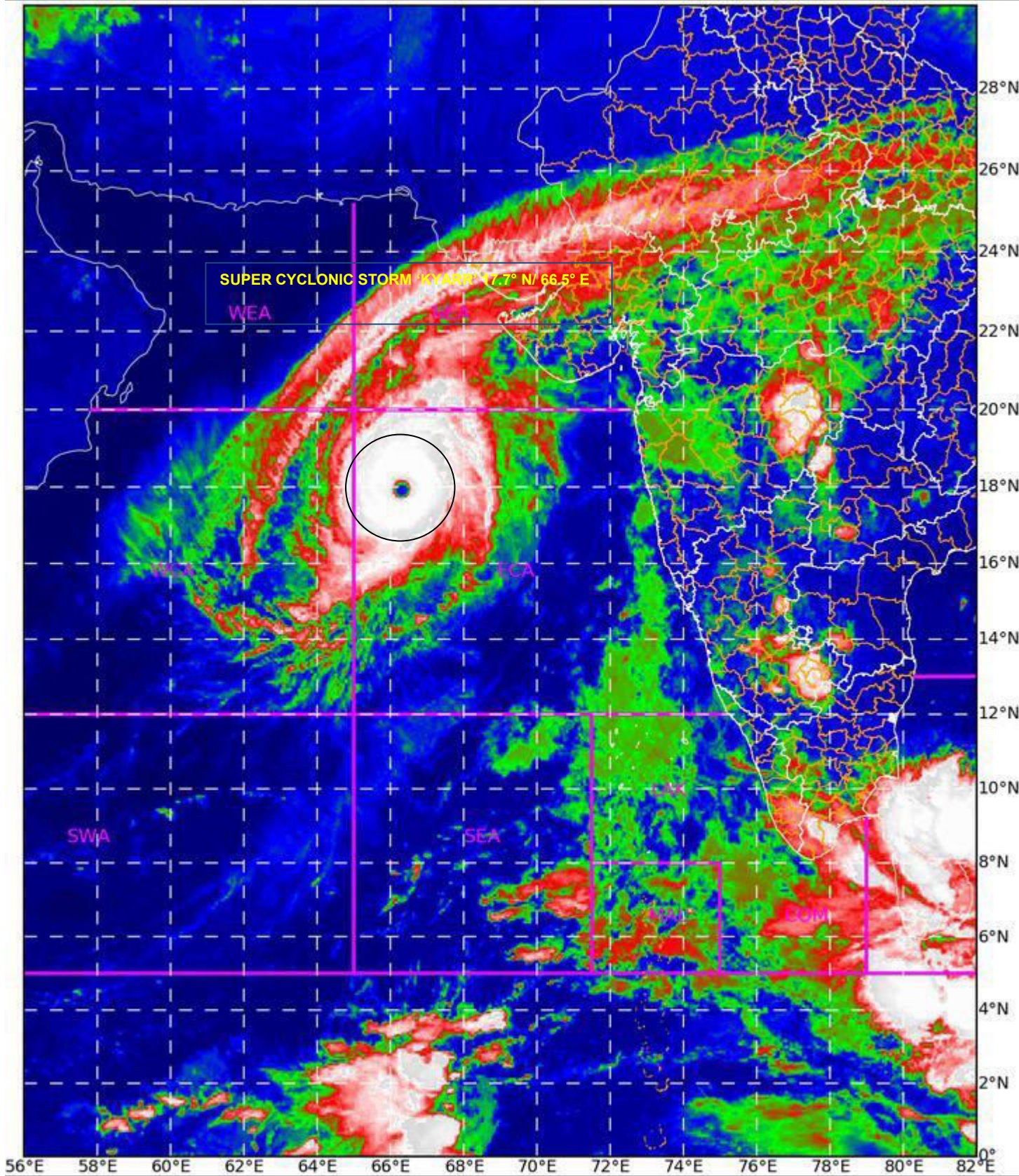
SAT : INSAT-3D IMG

27-10-2019/(1630 to 1656) GMT

IMG_TIR1_TEMP 10.8 um

27-10-2019/(2200 to 2226) IST

ARABIAN_SEA



SUPER CYCLONIC STORM 'KYARR' 17.7° N / 66.5° E

WEA

SWA

SEA

0 -20 -50

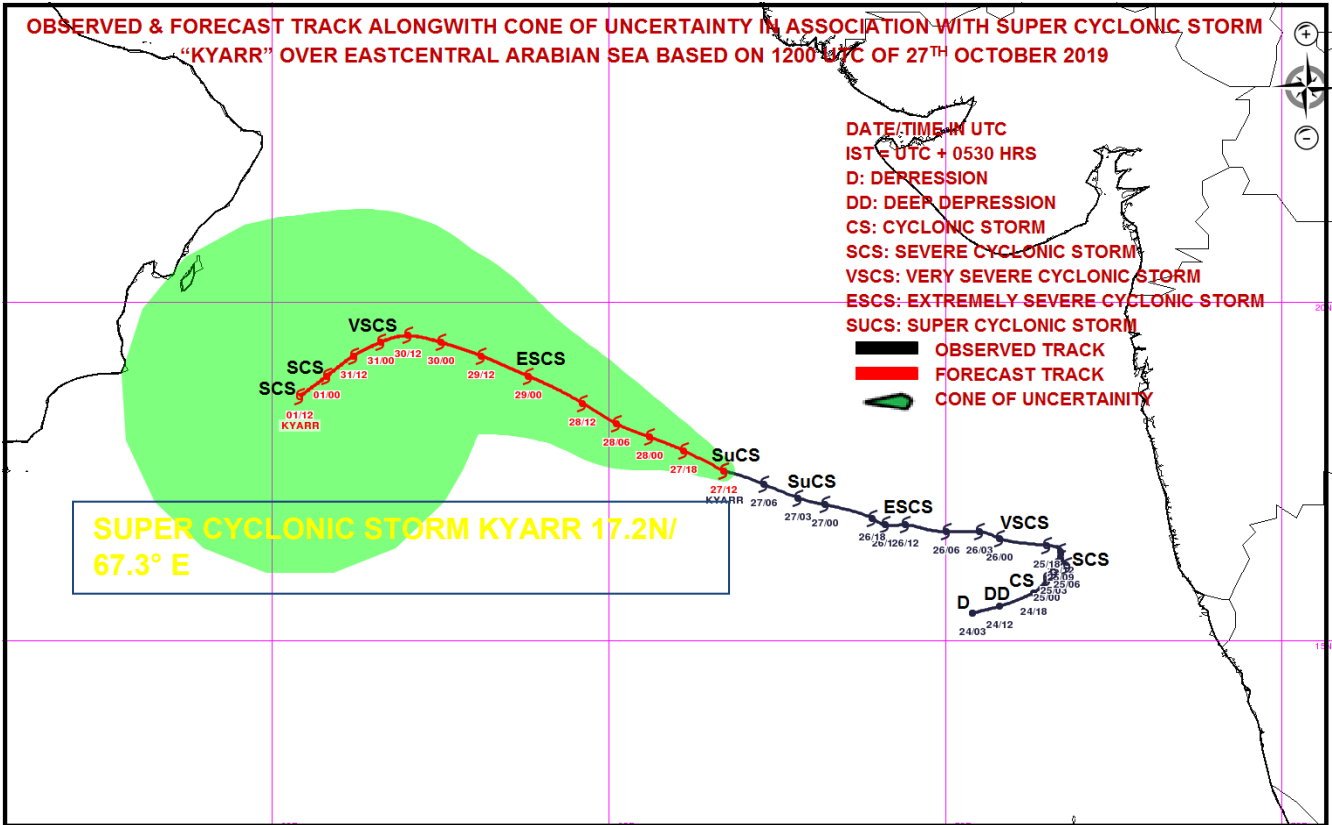
Celsius



IMD, DELHI

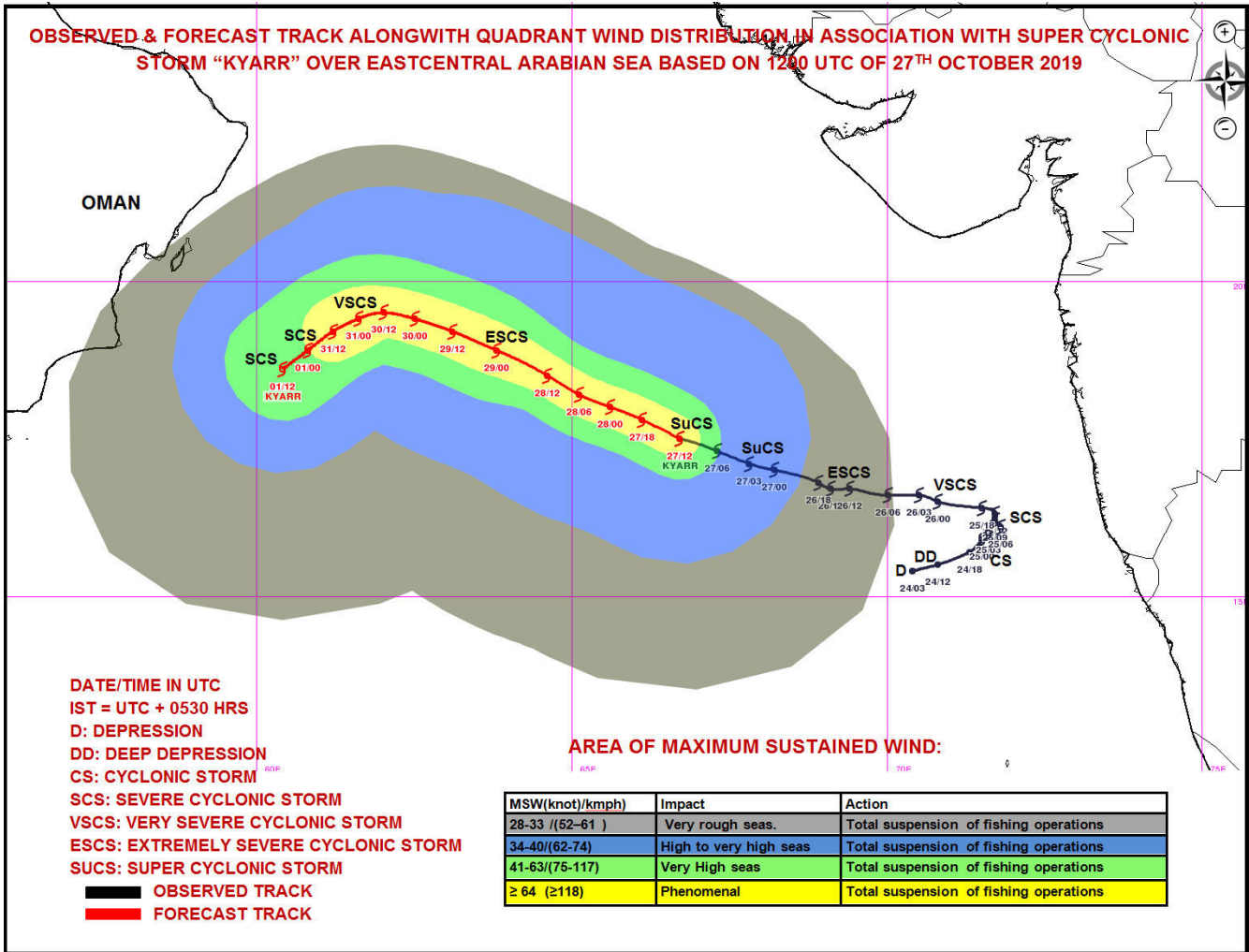
PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%



PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)
 NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

OBSERVED & FORECAST TRACK ALONGWITH QUADRANT WIND DISTRIBUTION IN ASSOCIATION WITH SUPER CYCLONIC STORM "KYARR" OVER EASTCENTRAL ARABIAN SEA BASED ON 1200 UTC OF 27TH OCTOBER 2019



PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%



**REGIONAL SPECIALISED METEOROLOGICAL CENTRE-TROPICAL CYCLONES, NEW DELHI
TROPICAL CYCLONE ADVISORY BULLETIN NO.23**

FROM: RSMC –TROPICAL CYCLONES, NEW DELHI

**TO: STORM WARNING CENTRE, NAYPYI TAW (MYANMAR)
STORM WARNING CENTRE, BANGKOK (THAILAND)
STORM WARNING CENTRE, COLOMBO (SRILANKA)
STORM WARNING CENTRE, DHAKA (BANGLADESH)
STORM WARNING CENTRE, KARACHI (PAKISTAN)
METEOROLOGICAL OFFICE, MALE (MALDIVES)
OMAN METEOROLOGICAL DEPARTMENT, MUSCAT (THROUGH RTH JEDDAH)
YEMEN METEOROLOGICAL SERVICES, REPUBLIC OF YEMEN (THROUGH RTH JEDDAH)
NATIONAL CENTRE FOR METEOROLOGY, UAE (THROUGH RTH JEDDAH)
PRESIDENCY OF METEOROLOGY AND ENVIRONMENT, SAUDI ARABIA (THROUGH RTH JEDDAH)
IRAN METEOROLOGICAL ORGANISATION, (THROUGH RTH JEDDAH)
QATAR METEOROLOGICAL DEPARTMENT (THROUGH RTH JEDDAH)**

TROPICAL CYCLONE ADVISORY No. 23 FOR NORTH INDIAN OCEAN (THE BAY OF BENGAL AND ARABIAN SEA) VALID FOR NEXT 120 HOURS ISSUED AT 2030 UTC OF 27.10.2019 BASED ON 1800 UTC OF 27.10.2019.

SUB: SUPER CYCLONIC STORM STORM 'KYARR' (PRONOUNCED AS KYARR) OVER EASTCENTRAL ARABIAN SEA

THE **SUPER CYCLONIC STORM 'KYARR'** OVER EASTCENTRAL ARABIAN SEA MOVED WEST-NORTHWESTWARDS WITH A SPEED OF 10 KMPH DURING PAST 06 HRS AND LAY CENTRED AT 1800 HRS UTC OF THE 27TH OCTOBER, 2019 NEAR LATITUDE 17.9°N AND LONGITUDE 66.3°E OVER EASTCENTRAL ARABIAN SEA, ABOUT 700 KM WEST-SOUTHWEST OF MUMBAI (MAHARASHTRA), 1300 KM EAST-NORTHEAST OF SALALAH (OMAN) AND 830 KM EAST-SOUTHEAST OF MASIRAH (OMAN). IT IS VERY LIKELY TO MOVE WEST-NORTHWESTWARDS TOWARDS OMAN COAST DURING NEXT +5 DAYS. IT IS VERY LIKELY TO MAINTAIN THE INTENSITY OF A SUPER CYCLONIC STORM TILL 28TH OCTOBER MORNING AND WEAKEN GRADUALLY THEREAFTER.

FORECAST TRACK AND INTENSITY ARE GIVEN IN THE FOLLOWING TABLE:

DATE/TIME(UTC)	POSITION (LAT. °N/ LONG. °E)	MAXIMUM SUSTAINED SURFACE WIND SPEED (KMPH)	CATEGORY OF CYCLONIC DISTURBANCE
27.10.19/1800	17.9/66.3	240-250 GUSTING TO 275	SUPER CYCLONIC STORM
28.10.19/0000	18.2/65.6	235-245 GUSTING TO 270	SUPER CYCLONIC STORM
28.10.19/0600	18.4/65.1	225-235 GUSTING TO 260	SUPER CYCLONIC STORM
28.10.19/1200	18.6/64.6	220-230 GUSTING TO 250	SUPER CYCLONIC STORM
28.10.19/1800	18.8/64.2	220-230 GUSTING TO 250	SUPER CYCLONIC STORM
29.10.19/0600	19.1/63.5	210-220 GUSTING TO 240	EXTREMELY SEVERE CYCLONIC STORM
29.10.19/1800	19.4/62.8	200-210 GUSTING TO 230	EXTREMELY SEVERE CYCLONIC STORM
30.10.19/0600	19.5/62.3	180-190 GUSTING TO 210	EXTREMELY SEVERE CYCLONIC STORM
30.10.19/1800	19.4/61.8	150-160 GUSTING TO 175	VERY SEVERE CYCLONIC STORM
31.10.19/0600	19.3/61.4	140-150 GUSTING TO 165	VERY SEVERE CYCLONIC STORM
31.10.19/1800	19.1/61.0	125-135 GUSTING TO 150	VERY SEVERE CYCLONIC STORM
01.11.19/0600	18.9/60.6	105-115 GUSTING TO 125	SEVERE CYCLONIC STORM
01.11.19/1800	18.7/60.2	90-100 GUSTING TO 110	SEVERE CYCLONIC STORM

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

REMARKS:

SATELLITE IMAGES INDICATE PERSISTENCE OF EYE PATTERN WITH PRESENT EYE TEMPERATURE +11.0 DEG.C AND EYE DIAMETER IS ABOUT 40 KM. AS PER THE SATELLITE IMAGERY AT 1800 UTC OF 27TH OCTOBER, 2019, THE CURRENT INTENSITY OF THE SYSTEM IS T6.5. ASSOCIATED BROKEN LOW TO MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION LIES OVER EAST CENTRAL ARABIAN SEA BETWEEN LAT 16.5⁰N TO 20.0⁰N AND LONG 64.5⁰E TO 67.5⁰E. THE MINIMUM CTT IS MINUS 93 DEG C.

THE ESTIMATED MAXIMUM SUSTAINED WIND SPEED IS 130 KNOTS GUSTING TO 150 KNOTS. THE ESTIMATED CENTRAL PRESSURE IS 915 HPA. AT 1500 UTC OF 27TH OCTOBER, A BUOY (23451) LOCATED NEAR LAT. 14.8⁰N / LONG. 69.0⁰E REPORTED A MEAN SEA LEVEL PRESSURE OF 1006.3 HPA, 280⁰ WIND WITH SPEED 20 KNOTS AND WAVE HEIGHT 6.0 METER AND SST 26.0⁰C. THE SEA CONDITION IS PHENOMENAL AROUND THE SYSTEM CENTRE.

THE MJO LIES IN THE PHASE 3 WITH AMPLITUDE LESS THAN 1. IT WILL REMAIN IN THE SAME PHASE DURING NEXT 3 DAYS AND ENTER INTO PHASE 4 WITH AMPLITUDE LESS THAN 1. CONSIDERING THE ENVIRONMENTAL CONDITIONS, TOTAL PRECIPITABLE WATER IMAGERIES INDICATE REDUCED WARM AIR ADVECTION TO THE SYSTEM CENTRE. THE LOW LEVEL RELATIVE VORTICITY IS $300 \times 10^{-5} \text{ SEC}^{-1}$ TO THE SOUTH OF THE SYSTEM CENTRE. THE LOWER LEVEL CONVERGENCE IS ABOUT $30 \times 10^{-5} \text{ S}^{-1}$ TO THE SOUTHEAST OF THE SYSTEM CENTRE AND THE UPPER LEVEL DIVERGENCE IS ABOUT $20 \times 10^{-5} \text{ S}^{-1}$ AROUND THE SYSTEM CENTRE. THE VERTICAL WIND SHEAR IS LOW (05 KNOTS) AROUND THE SYSTEM CENTER. SEA SURFACE TEMPERATURE OVER MOST PARTS OF EASTCENTRAL ARABIAN SEA IS 29-30⁰C AND TROPICAL CYCLONE HEAT POTENTIAL IS 80 KJ/CM2 OVER THE REGION. EQUATORWARD OUTFLOW IS TAKING PLACE IN THE UPPER TROPOSPHERIC LEVELS. ALL THESE DYNAMIC AND THERMODYNAMIC CONDITIONS WILL FAVOUR TO MAINTAIN THE INTENSITY OF A SUPER CYCLONIC STORM FOR NEXT 24 HOURS. THEREAFTER, IT IS LIKELY TO MOVE OVER TO COLDER SEA SURFACE TEMPERATURES AREA WITH LOWER VALUES OF UPPER OCEAN HEAT CONTENT. AT THE SAME TIME, COLD AND DRY AIR INTRUSION ALSO IS LIKELY TO TAKE PLACE INTO THE SYSTEM CENTRE, CAUSING GRADUAL WEAKENING OF THE SYSTEM DURING SUBSEQUENT 24 HOURS. THEN THE SYSTEM IS LIKELY TO ENTER INTO A ZONE OF HIGH VERTICAL WIND SHEAR CAUSING RAPID WEAKENING OF THE SYSTEM.

THE UPPER TROPOSPHERIC RIDGE CONTINUES TO RUN ALONG 19⁰N. HENCE THE SYSTEM LIES TO THE SOUTH OF THE RIDGE LEADING TO NEARLY WEST-NORTHWESTWARD MOVEMENT DURING PAST 12 HOURS. IT IS LIKELY TO CONTINUE TO MOVE WEST-NORTHWESTWARDS TOWARDS OMAN COAST UNDER THE INFLUENCE OF WEST-NORTHWESTWARDS STEERING WINDS DURING NEXT 5 DAYS. MAJORITY OF NUMERICAL MODELS INCLUDING ECMWF, NCMRWF UNIFIED MODELS (NCUM), NCMRWF ENSEMBLE PREDICTION SYSTEM (NEPS), IMD GLOBAL FORECAST SYSTEM (GFS), NCEP GFS, GLOBAL ENSEMBLE FORECASTING SYSTEM (GEFS) AGREE WITH THE ABOVE INFERENCE DURING NEXT 3 DAYS. THERE IS DIVERGENCE AMONG THE TRACK FOR DAY-4 & DAY-5 FORECASTS. A FEW MODELS INDICATING MOVEMENT TOWARDS WEST-SOUTHWEST AND A FEW TOWARDS NORTH. THE CURRENT FORECAST IS BASED ON THE CONSENSUS DERIVED FROM MULTI MODEL ENSEMBLE.

(V R DURAI)
SCIENTIST-E, RSMC, NEW DELHI

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

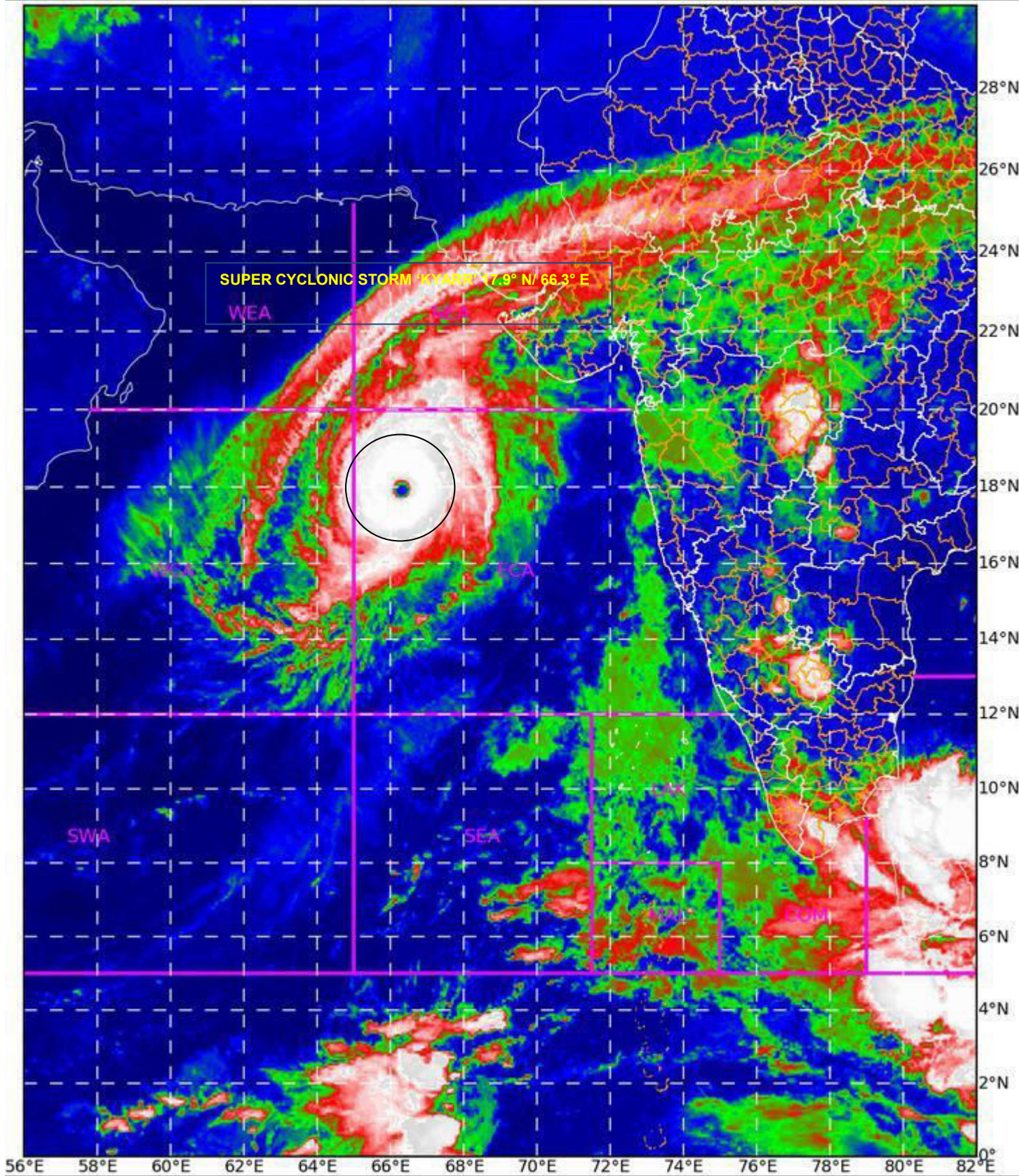
SAT : INSAT-3D IMG

27-10-2019/(1630 to 1656) GMT

IMG_TIR1_TEMP 10.8 um

27-10-2019/(2200 to 2226) IST

ARABIAN_SEA



0 -20 -50

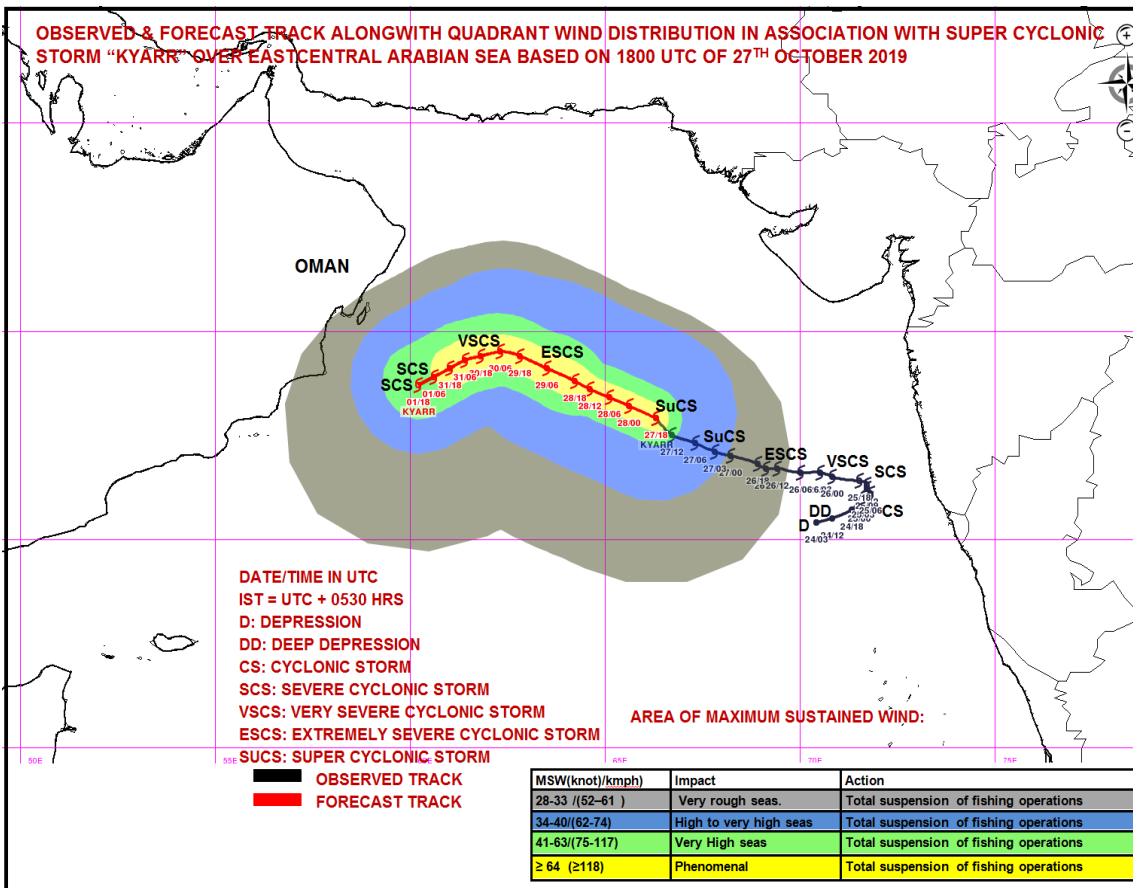
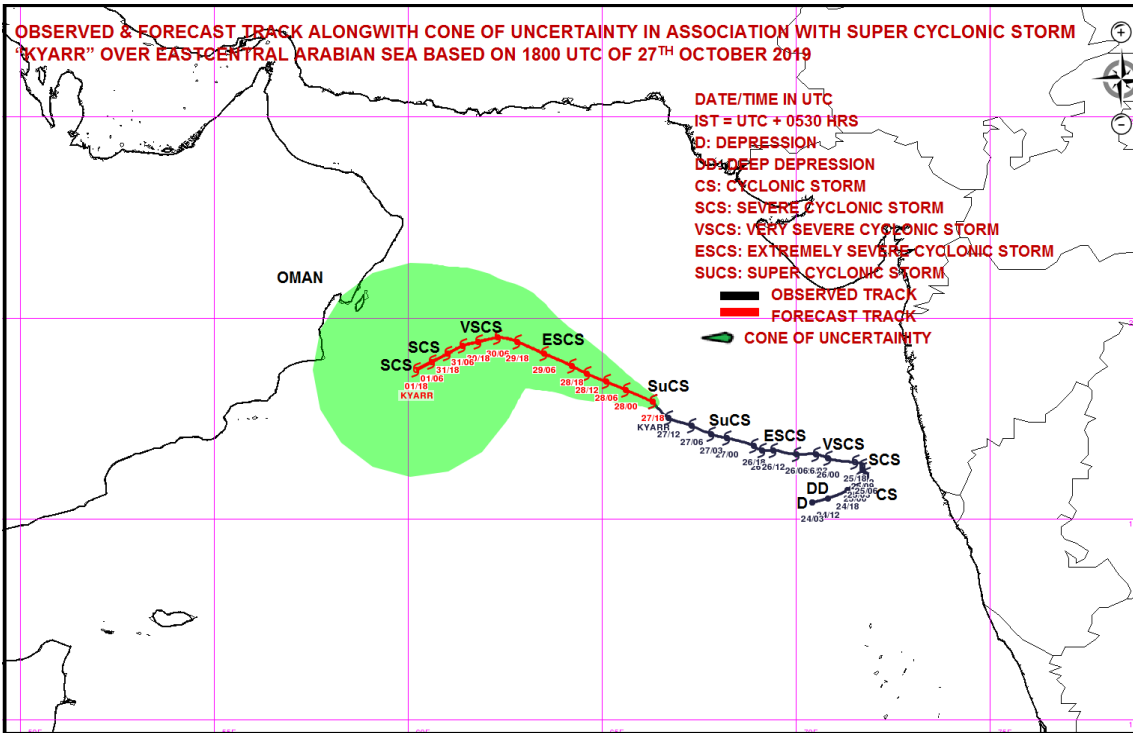
Celsius



IMD, DELHI

10 -10 -30 -70
PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%



PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%



**REGIONAL SPECIALISED METEOROLOGICAL CENTRE-TROPICAL CYCLONES, NEW DELHI
TROPICAL CYCLONE ADVISORY BULLETIN NO.24**

FROM: RSMC –TROPICAL CYCLONES, NEW DELHI

**TO: STORM WARNING CENTRE, NAYPYI TAW (MYANMAR)
STORM WARNING CENTRE, BANGKOK (THAILAND)
STORM WARNING CENTRE, COLOMBO (SRILANKA)
STORM WARNING CENTRE, DHAKA (BANGLADESH)
STORM WARNING CENTRE, KARACHI (PAKISTAN)
METEOROLOGICAL OFFICE, MALE (MALDIVES)
OMAN METEOROLOGICAL DEPARTMENT, MUSCAT (THROUGH RTH JEDDAH)
YEMEN METEOROLOGICAL SERVICES, REPUBLIC OF YEMEN (THROUGH RTH JEDDAH)
NATIONAL CENTRE FOR METEOROLOGY, UAE (THROUGH RTH JEDDAH)
PRESIDENCY OF METEOROLOGY AND ENVIRONMENT, SAUDI ARABIA (THROUGH RTH JEDDAH)
IRAN METEOROLOGICAL ORGANISATION, (THROUGH RTH JEDDAH)
QATAR METEOROLOGICAL DEPARTMENT (THROUGH RTH JEDDAH)**

TROPICAL CYCLONE ADVISORY No. 24 FOR NORTH INDIAN OCEAN (THE BAY OF BENGAL AND ARABIAN SEA) VALID FOR NEXT 120 HOURS ISSUED AT 0000 UTC OF 28.10.2019 BASED ON 2100 UTC OF 27.10.2019.

SUB: SUPER CYCLONIC STORM STORM 'KYARR' (PRONOUNCED AS KYARR) OVER EASTCENTRAL ARABIAN SEA

THE **SUPER CYCLONIC STORM 'KYARR'** OVER EASTCENTRAL ARABIAN SEA MOVED WEST-NORTHWESTWARDS WITH A SPEED OF 15 KMPH DURING PAST 06 HRS AND LAY CENTRED AT 2100 HRS UTC OF THE 27TH OCTOBER, 2019 NEAR LATITUDE 18.0°N AND LONGITUDE 66.3°E OVER EASTCENTRAL ARABIAN SEA, ABOUT 760 KM WEST-SOUTHWEST OF MUMBAI (MAHARASHTRA), 1240 KM EAST-NORTHEAST OF SALALAH (OMAN) AND 770 KM EAST-SOUTHEAST OF MASIRAH (OMAN). IT IS VERY LIKELY TO MOVE WEST-NORTHWESTWARDS TOWARDS OMAN COAST DURING NEXT +5 DAYS. IT IS VERY LIKELY TO MAINTAIN THE INTENSITY OF A SUPER CYCLONIC STORM TILL 28TH OCTOBER MORNING AND WEAKEN GRADUALLY THEREAFTER.

FORECAST TRACK AND INTENSITY ARE GIVEN IN THE FOLLOWING TABLE:

DATE/TIME(UTC)	POSITION (LAT. °N/ LONG. °E)	MAXIMUM SUSTAINED SURFACE WIND SPEED (KMPH)	CATEGORY OF CYCLONIC DISTURBANCE
27.10.19/2100	18.0/65.7	235-245 GUSTING TO 270	SUPER CYCLONIC STORM
28.10.19/0000	18.2/65.4	235-245 GUSTING TO 270	SUPER CYCLONIC STORM
28.10.19/0600	18.4/65.1	225-235 GUSTING TO 260	SUPER CYCLONIC STORM
28.10.19/1200	18.6/64.6	220-230 GUSTING TO 250	SUPER CYCLONIC STORM
28.10.19/1800	18.8/64.2	220-230 GUSTING TO 250	SUPER CYCLONIC STORM
29.10.19/0600	19.1/63.5	210-220 GUSTING TO 240	EXTREMELY SEVERE CYCLONIC STORM
29.10.19/1800	19.4/62.8	200-210 GUSTING TO 230	EXTREMELY SEVERE CYCLONIC STORM
30.10.19/0600	19.5/62.3	180-190 GUSTING TO 210	EXTREMELY SEVERE CYCLONIC STORM
30.10.19/1800	19.4/61.8	150-160 GUSTING TO 175	VERY SEVERE CYCLONIC STORM
31.10.19/0600	19.3/61.4	140-150 GUSTING TO 165	VERY SEVERE CYCLONIC STORM
31.10.19/1800	19.1/61.0	125-135 GUSTING TO 150	VERY SEVERE CYCLONIC STORM
01.11.19/0600	18.9/60.6	105-115 GUSTING TO 125	SEVERE CYCLONIC STORM
01.11.19/1800	18.7/60.2	90-100 GUSTING TO 110	SEVERE CYCLONIC STORM

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

REMARKS:

SATELLITE IMAGES INDICATE PERSISTENCE OF EYE PATTERN WITH PRESENT EYE TEMPERATURE +16.9 DEG.C AND EYE DIAMETER IS ABOUT 40 KM. AS PER THE SATELLITE IMAGERY AT 2100 UTC OF 27TH OCTOBER, 2019, THE CURRENT INTENSITY OF THE SYSTEM IS T6.5. ASSOCIATED BROKEN LOW TO MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION LIES OVER EAST CENTRAL ARABIAN SEA BETWEEN LAT 16.5⁰N TO 20.0⁰N AND LONG 64.5⁰E TO 67.5⁰E. THE MINIMUM CTT IS MINUS 93 DEG C.

THE ESTIMATED MAXIMUM SUSTAINED WIND SPEED IS 125 KNOTS GUSTING TO 145 KNOTS. THE ESTIMATED CENTRAL PRESSURE IS 915 HPA. AT 1500 UTC OF 27TH OCTOBER, A BUOY (23451) LOCATED NEAR LAT. 14.8⁰N / LONG. 69.0⁰E REPORTED A MEAN SEA LEVEL PRESSURE OF 1006.3 HPA, 280⁰ WIND WITH SPEED 20 KNOTS AND WAVE HEIGHT 6.0 METER AND SST 26.0⁰C. THE SEA CONDITION IS PHENOMENAL AROUND THE SYSTEM CENTRE.

THE MJO LIES IN THE PHASE 3 WITH AMPLITUDE LESS THAN 1. IT WILL REMAIN IN THE SAME PHASE DURING NEXT 3 DAYS AND ENTER INTO PHASE 4 WITH AMPLITUDE LESS THAN 1. CONSIDERING THE ENVIRONMENTAL CONDITIONS, TOTAL PRECIPITABLE WATER IMAGERIES INDICATE REDUCED WARM AIR ADVECTION TO THE SYSTEM CENTRE. THE LOW LEVEL RELATIVE VORTICITY IS $300 \times 10^{-5} \text{ SEC}^{-1}$ TO THE SOUTH OF THE SYSTEM CENTRE. THE LOWER LEVEL CONVERGENCE IS ABOUT $30 \times 10^{-5} \text{ S}^{-1}$ TO THE SOUTHEAST OF THE SYSTEM CENTRE AND THE UPPER LEVEL DIVERGENCE IS ABOUT $20 \times 10^{-5} \text{ S}^{-1}$ AROUND THE SYSTEM CENTRE. THE VERTICAL WIND SHEAR IS LOW (05 KNOTS) AROUND THE SYSTEM CENTER. SEA SURFACE TEMPERATURE OVER MOST PARTS OF EASTCENTRAL ARABIAN SEA IS 29-30⁰C AND TROPICAL CYCLONE HEAT POTENTIAL IS 80 KJ/CM² OVER THE REGION. EQUATORWARD OUTFLOW IS TAKING PLACE IN THE UPPER TROPOSPHERIC LEVELS. ALL THESE DYNAMIC AND THERMODYNAMIC CONDITIONS WILL FAVOUR TO MAINTAIN THE INTENSITY OF A SUPER CYCLONIC STORM FOR NEXT 24 HOURS. THEREAFTER, IT IS LIKELY TO MOVE OVER TO COLDER SEA SURFACE TEMPERATURES AREA WITH LOWER VALUES OF UPPER OCEAN HEAT CONTENT. AT THE SAME TIME, COLD AND DRY AIR INTRUSION ALSO IS LIKELY TO TAKE PLACE INTO THE SYSTEM CENTRE, CAUSING GRADUAL WEAKENING OF THE SYSTEM DURING SUBSEQUENT 24 HOURS. THEN THE SYSTEM IS LIKELY TO ENTER INTO A ZONE OF HIGH VERTICAL WIND SHEAR CAUSING RAPID WEAKENING OF THE SYSTEM.

THE UPPER TROPOSPHERIC RIDGE CONTINUES TO RUN ALONG 19⁰N. HENCE THE SYSTEM LIES TO THE SOUTH OF THE RIDGE LEADING TO NEARLY WEST-NORTHWESTWARD MOVEMENT DURING PAST 12 HOURS. IT IS LIKELY TO CONTINUE TO MOVE WEST-NORTHWESTWARDS TOWARDS OMAN COAST UNDER THE INFLUENCE OF WEST-NORTHWESTWARDS STEERING WINDS DURING NEXT 5 DAYS. MAJORITY OF NUMERICAL MODELS INCLUDING ECMWF, NCMRWF UNIFIED MODELS (NCUM), NCMRWF ENSEMBLE PREDICTION SYSTEM (NEPS), IMD GLOBAL FORECAST SYSTEM (GFS), NCEP GFS, GLOBAL ENSEMBLE FORECASTING SYSTEM (GEFS) AGREE WITH THE ABOVE INFERENCE DURING NEXT 3 DAYS. THERE IS DIVERGENCE AMONG THE TRACK FOR DAY-4 & DAY-5 FORECASTS. A FEW MODELS INDICATING MOVEMENT TOWARDS WEST-SOUTHWEST AND A FEW TOWARDS NORTH. THE CURRENT FORECAST IS BASED ON THE CONSENSUS DERIVED FROM MULTI MODEL ENSEMBLE.

(V R DURAI)
SCIENTIST-E, RSMC, NEW DELHI

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

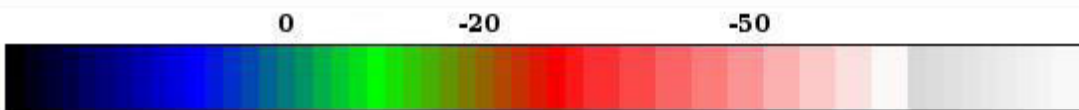
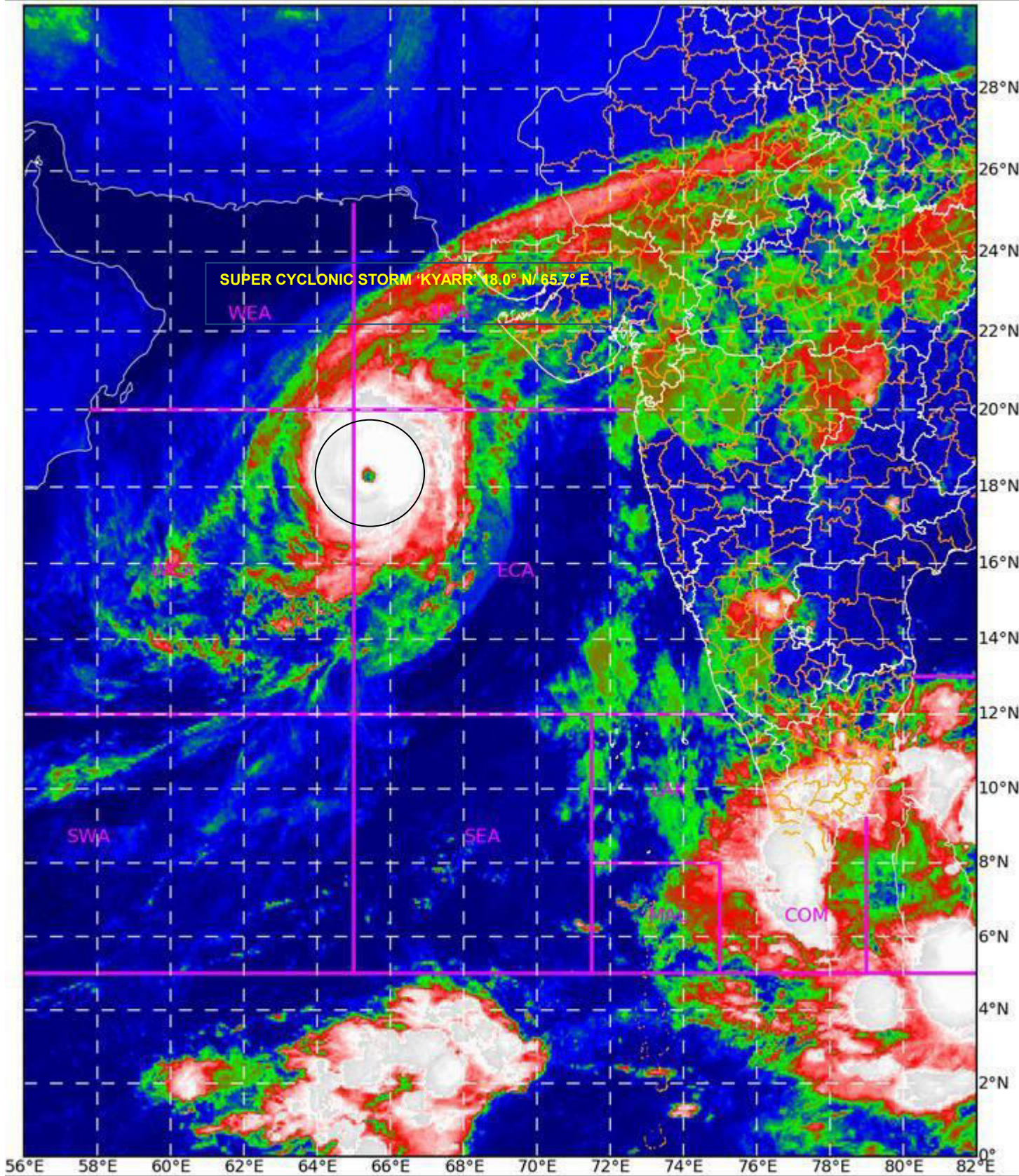
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27-10-2019/(2300 to 2326) GMT

IMG_TIR1_TEMP 10.8 um

28-10-2019/(0430 to 0456) IST

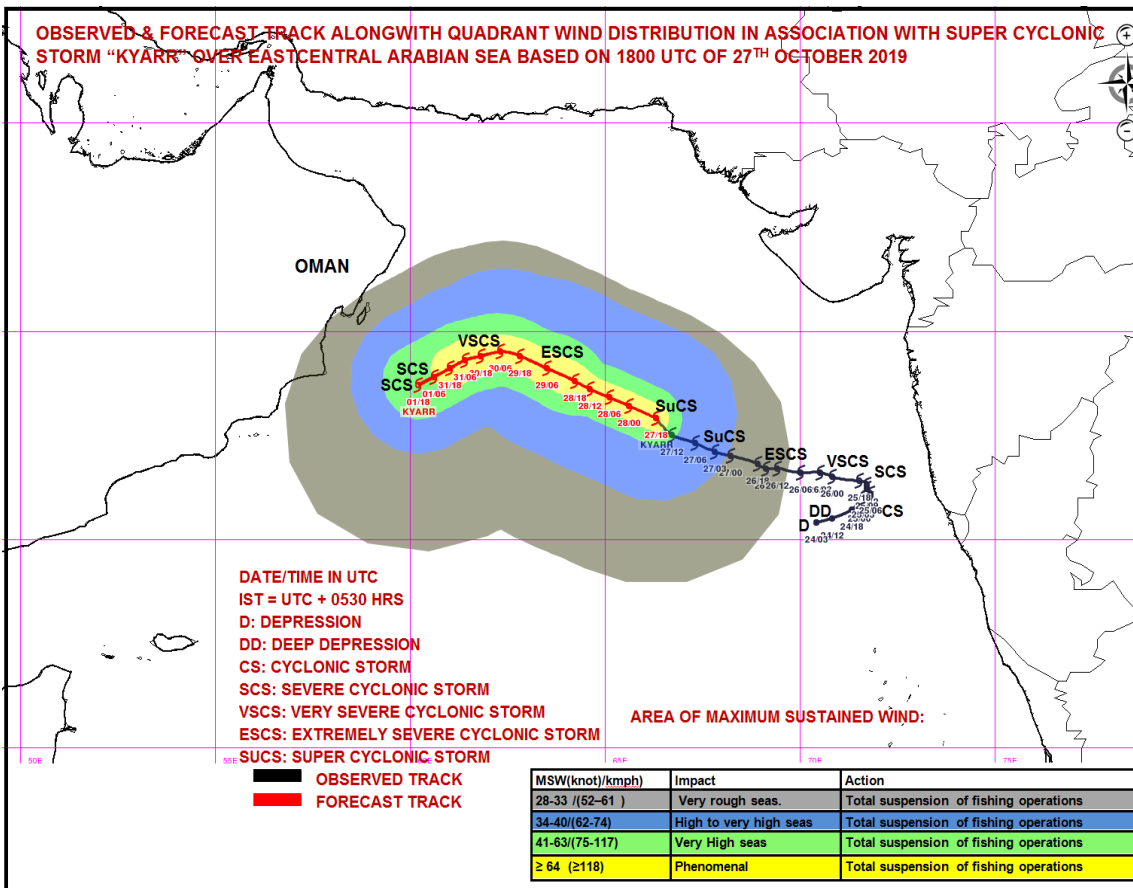
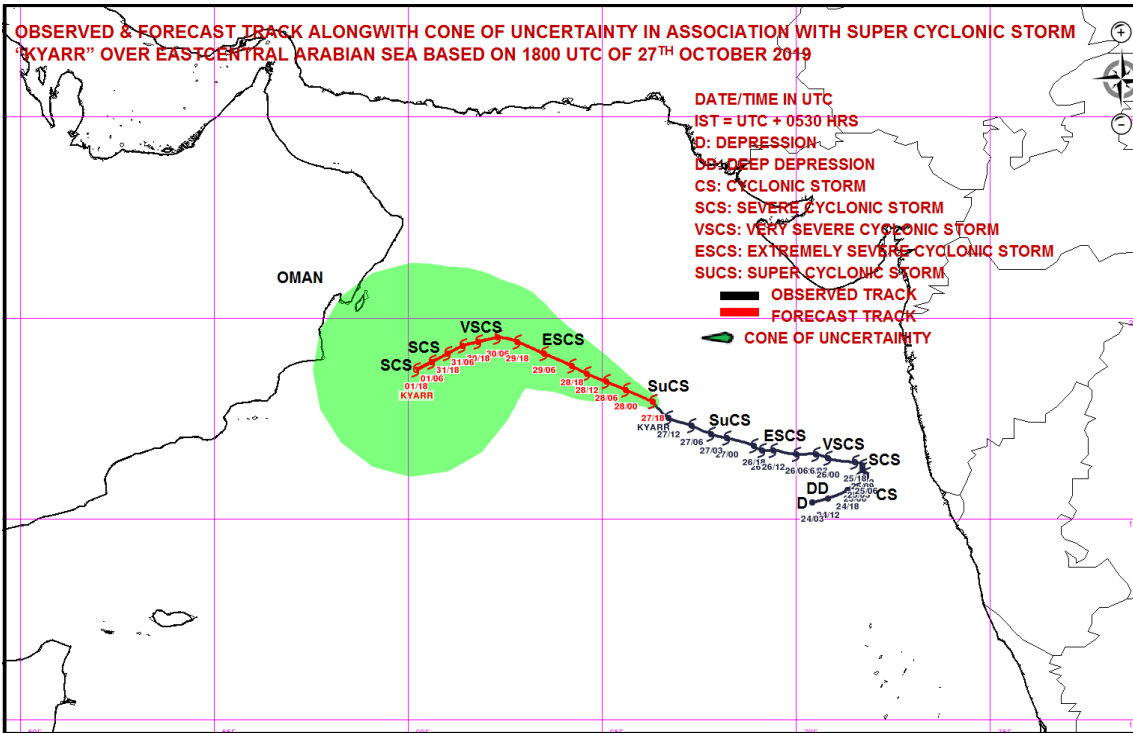
ARABIAN_SEA



Celsius
IMD, DELHI

10 -10 -30 -70
PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%



PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%



**REGIONAL SPECIALISED METEOROLOGICAL CENTRE-TROPICAL CYCLONES, NEW DELHI
TROPICAL CYCLONE ADVISORY BULLETIN NO.25**

FROM: RSMC –TROPICAL CYCLONES, NEW DELHI

**TO: STORM WARNING CENTRE, NAYPYI TAW (MYANMAR)
STORM WARNING CENTRE, BANGKOK (THAILAND)
STORM WARNING CENTRE, COLOMBO (SRILANKA)
STORM WARNING CENTRE, DHAKA (BANGLADESH)
STORM WARNING CENTRE, KARACHI (PAKISTAN)
METEOROLOGICAL OFFICE, MALE (MALDIVES)
OMAN METEOROLOGICAL DEPARTMENT, MUSCAT (THROUGH RTH JEDDAH)
YEMEN METEOROLOGICAL SERVICES, REPUBLIC OF YEMEN (THROUGH RTH JEDDAH)
NATIONAL CENTRE FOR METEOROLOGY, UAE (THROUGH RTH JEDDAH)
PRESIDENCY OF METEOROLOGY AND ENVIRONMENT, SAUDI ARABIA (THROUGH RTH JEDDAH)
IRAN METEOROLOGICAL ORGANISATION, (THROUGH RTH JEDDAH)
QATAR METEOROLOGICAL DEPARTMENT (THROUGH RTH JEDDAH)**

TROPICAL CYCLONE ADVISORY No. 25 FOR NORTH INDIAN OCEAN (THE BAY OF BENGAL AND ARABIAN SEA) VALID FOR NEXT 120 HOURS ISSUED AT 0300 UTC OF 28.10.2019 BASED ON 0000 UTC OF 28.10.2019.

SUB: SUPER CYCLONIC STORM STORM 'KYARR' (PRONOUNCED AS KYARR) OVER EASTCENTRAL ARABIAN SEA

THE **SUPER CYCLONIC STORM 'KYARR'** OVER EASTCENTRAL ARABIAN SEA MOVED WEST-NORTHWESTWARDS WITH A SPEED OF 16 KMPH DURING PAST 06 HRS AND LAY CENTRED AT 0000 HRS UTC OF THE 28TH OCTOBER, 2019 NEAR LATITUDE 18.1°N AND LONGITUDE 65.4°E OVER EASTCENTRAL ARABIAN SEA, ABOUT 790 KM WEST-SOUTHWEST OF MUMBAI (MAHARASHTRA), 1200 KM EAST-NORTHEAST OF SALALAH (OMAN) AND 740 KM EAST-SOUTHEAST OF MASIRAH (OMAN). IT IS VERY LIKELY TO MOVE WEST-NORTHWESTWARDS TOWARDS OMAN COAST DURING NEXT +5 DAYS. IT IS VERY LIKELY TO MAINTAIN THE INTENSITY OF A SUPER CYCLONIC STORM TILL 28TH OCTOBER EVENING AND WEAKEN GRADUALLY THEREAFTER.

FORECAST TRACK AND INTENSITY ARE GIVEN IN THE FOLLOWING TABLE:

DATE/TIME(UTC)	POSITION (LAT. °N/ LONG. °E)	MAXIMUM SUSTAINED SURFACE WIND SPEED (KMPH)	CATEGORY OF CYCLONIC DISTURBANCE
28.10.19/0000	18.1/65.4	230-240 GUSTING TO 265	SUPER CYCLONIC STORM
28.10.19/0600	18.4/64.8	220-230 GUSTING TO 255	SUPER CYCLONIC STORM
28.10.19/1200	18.6/64.3	210-220 GUSTING TO 240	EXTREMELY SEVERE CYCLONIC STORM
28.10.19/1800	18.8/63.9	200-210 GUSTING TO 220	EXTREMELY SEVERE CYCLONIC STORM
29.10.19/0000	18.9/63.6	190-200 GUSTING TO 220	EXTREMELY SEVERE CYCLONIC STORM
29.10.19/1200	19.1/63.0	180-190 GUSTING TO 210	EXTREMELY SEVERE CYCLONIC STORM
30.10.19/0000	19.2/62.5	170-180 GUSTING TO 190	EXTREMELY SEVERE CYCLONIC STORM
30.10.19/1200	19.2/62.2	155-165 GUSTING TO 180	VERY SEVERE CYCLONIC STORM
31.10.19/0000	19.1/61.5	140-150 GUSTING TO 165	VERY SEVERE CYCLONIC STORM
31.10.19/1200	18.9/61.1	125-135 GUSTING TO 145	VERY SEVERE CYCLONIC STORM
01.11.19/0000	18.5/60.6	110-120 GUSTING TO 130	SEVERE CYCLONIC STORM
01.11.19/1200	18.0/60.0	95-105 GUSTING TO 115	SEVERE CYCLONIC STORM
02.11.19/0000	17.4/59.3	80-90 GUSTING TO 100	CYCLONIC STORM

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

REMARKS:

SATELLITE IMAGES INDICATE EYE PATTERN, THOUGH WITH MARGINAL DISTORTION. PRESENT EYE TEMPERATURE IS +10.2 DEG.C AND EYE DIAMETER IS ABOUT 40 KM. AS PER THE SATELLITE IMAGERY AT 0000 UTC OF 28TH OCTOBER, 2019, THE CURRENT INTENSITY OF THE SYSTEM IS T6.5. ASSOCIATED BROKEN LOW TO MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION LIES OVER EAST CENTRAL ARABIAN SEA BETWEEN LAT 17.5⁰N TO 20.0⁰N AND LONG 64.0⁰E TO 66.5⁰E. THE MINIMUM CTT IS MINUS 93 DEG C.

THE ESTIMATED MAXIMUM SUSTAINED WIND SPEED IS 125 KNOTS GUSTING TO 145 KNOTS. THE ESTIMATED CENTRAL PRESSURE IS 920 HPA. AT 0000 UTC OF 28TH OCTOBER, A BUOY (23451) LOCATED NEAR LAT. 14.8⁰N / LONG. 69.0⁰E REPORTED A MEAN SEA LEVEL PRESSURE OF 1006.0 HPA, 280⁰ WIND WITH SPEED 18 KNOTS AND WAVE HEIGHT 3.0 METER AND SST 28.0⁰C. THE SEA CONDITION IS PHENOMENAL AROUND THE SYSTEM CENTRE.

THE MJO LIES IN THE PHASE 3 WITH AMPLITUDE LESS THAN 1. IT WILL REMAIN IN THE SAME PHASE DURING NEXT 3 DAYS AND ENTER INTO PHASE 4 WITH AMPLITUDE LESS THAN 1. CONSIDERING THE ENVIRONMENTAL CONDITIONS, TOTAL PRECIPITABLE WATER IMAGERIES INDICATE FURTHER REDUCTION IN WARM AIR ADVECTION WHICH IS HAPPENING ONLY TO THE SOUTHEAST OF THE SYSTEM CENTRE. THE LOW LEVEL RELATIVE VORTICITY HAS REDUCED AND IS ABOUT IS $250 \times 10^{-5} \text{ SEC}^{-1}$ TO THE SOUTH OF THE SYSTEM CENTRE. THE LOWER LEVEL CONVERGENCE IS ABOUT $40 \times 10^{-5} \text{ S}^{-1}$ TO THE SOUTHEAST OF THE SYSTEM CENTRE AND THE UPPER LEVEL DIVERGENCE IS ABOUT $20 \times 10^{-5} \text{ S}^{-1}$ AROUND THE SYSTEM CENTRE. THE VERTICAL WIND SHEAR IS LOW (05 KNOTS) AROUND THE SYSTEM CENTER. SEA SURFACE TEMPERATURE OVER MOST PARTS OF EASTCENTRAL ARABIAN SEA IS 29-30⁰C AND TROPICAL CYCLONE HEAT POTENTIAL IS 80 KJ/CM2 OVER THE REGION. EQUATORWARD OUTFLOW IS TAKING PLACE IN THE UPPER TROPOSPHERIC LEVELS. ALL THESE DYNAMIC AND THERMODYNAMIC CONDITIONS WILL FAVOUR TO MAINTAIN THE INTENSITY OF A SUPER CYCLONIC STORM FOR NEXT 12 HOURS. THEREAFTER, IT IS LIKELY TO MOVE OVER TO COLDER SEA SURFACE TEMPERATURES AREA WITH LOWER VALUES OF UPPER OCEAN HEAT CONTENT. AT THE SAME TIME, COLD AND DRY AIR INTRUSION ALSO IS LIKELY TO TAKE PLACE INTO THE SYSTEM CENTRE, CAUSING GRADUAL WEAKENING OF THE SYSTEM DURING SUBSEQUENT 24 HOURS. THEN THE SYSTEM IS LIKELY TO ENTER INTO A ZONE OF HIGH VERTICAL WIND SHEAR CASUING RAPID WEAKENING OF THE SYSTEM.

THE UPPER TROPOSPHERIC RIDGE RUNS ALONG 20⁰N. HENCE THE SYSTEM LIES TO THE SOUTH OF THE RIDGE LEADING TO NEARLY WEST-NORTHWESTWARD MOVEMENT DURING PAST 24 HOURS. IT IS LIKELY TO CONTINUE TO MOVE WEST-NORTHWESTWARDS TOWARDS OMAN COAST UNDER THE INFLUENCE OF WEST-NORTHWESTWARDS STEERING WINDS DURING NEXT 5 DAYS. MAJORITY OF NUMERICAL MODELS INCLUDING ECMWF, NCMRWF UNIFIED MODELS (NCUM), NCMRWF ENSEMBLE PREDICTION SYSTEM (NEPS), IMD GLOBAL FORECAST SYSTEM (GFS), NCEP GFS, GLOBAL ENSEMBLE FORECASTING SYSTEM (GEFS) AGREE WITH THE ABOVE INFERENCE DURING NEXT 3 DAYS.THERE IS DIVERGENCE AMONG THE TRACK FOR DAY-4 & DAY-5 FORECASTS. A FEW MODELS INDICATING MOVEMENT TOWARDS WEST-SOUTHWEST AND A FEW TOWARDS NORTH. THE CURRENT FORECAST IS BASED ON THE CONSENSUS DERIVED FROM MULTI MODEL ENSEMBLE.

(V R DURAI)
SCIENTIST-E, RSMC, NEW DELHI

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

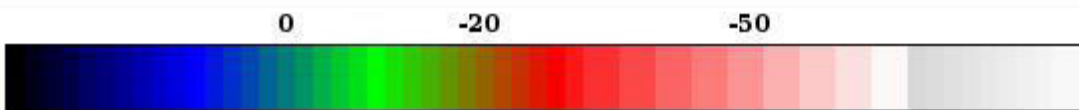
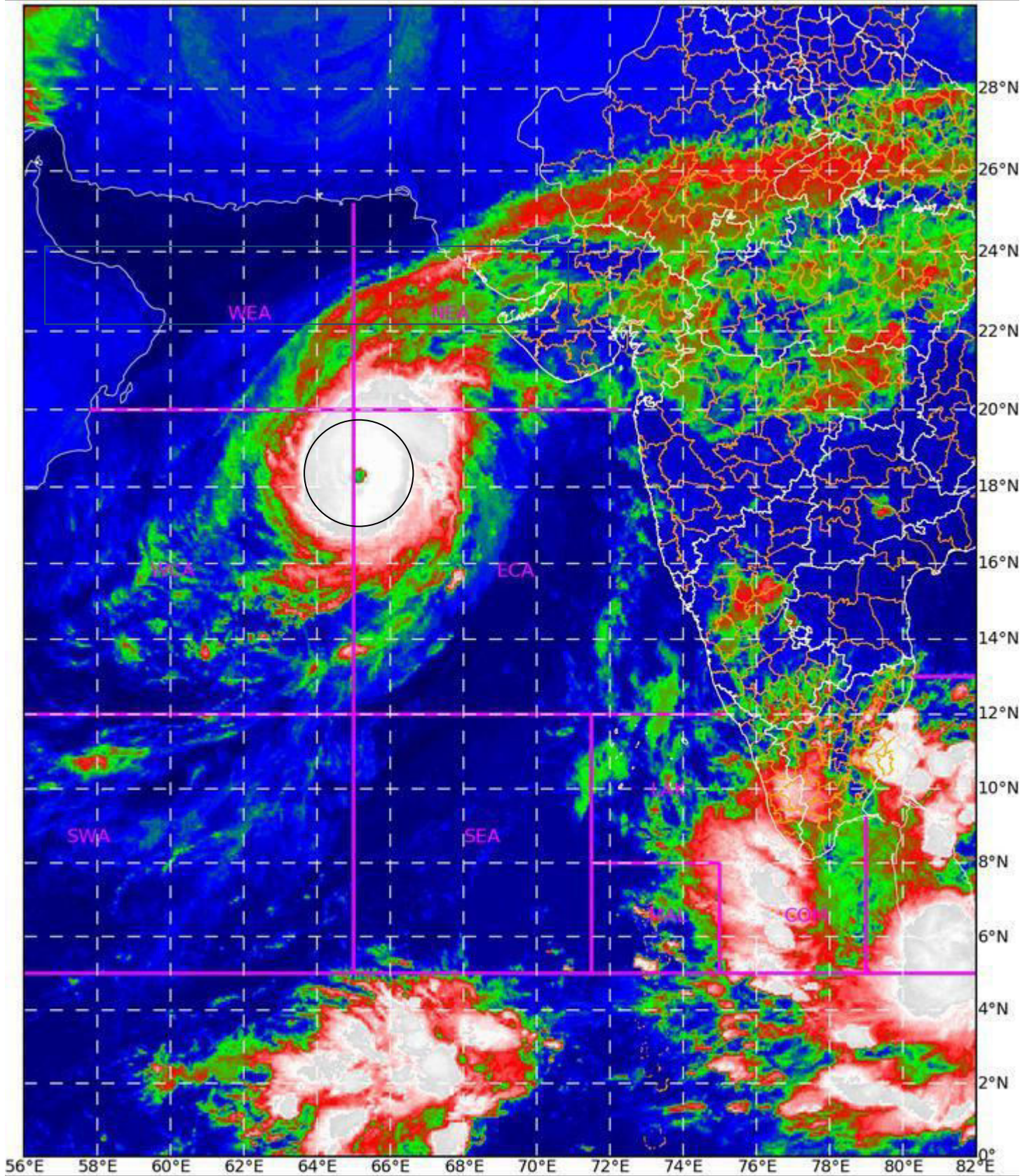
SAT : INSAT-3D IMG

28-10-2019/(0130 to 0156) GMT

IMG_TIR1_TEMP 10.8 um

28-10-2019/(0700 to 0726) IST

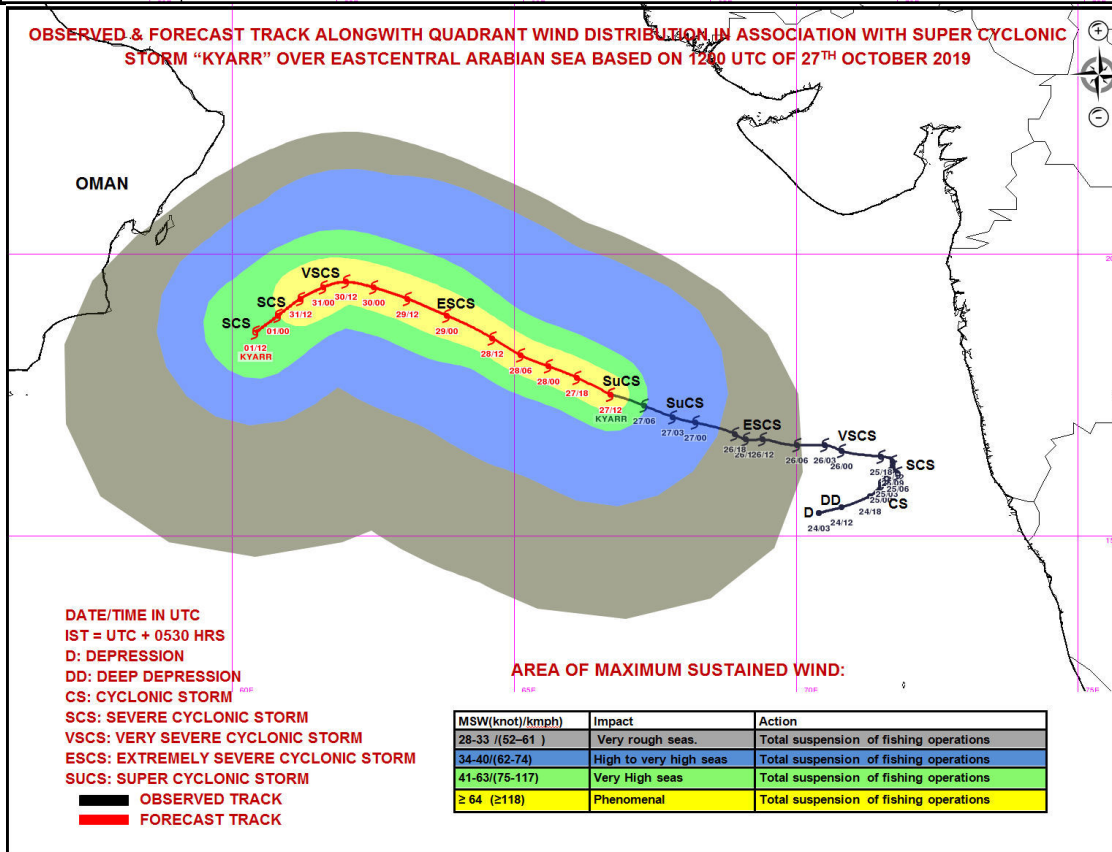
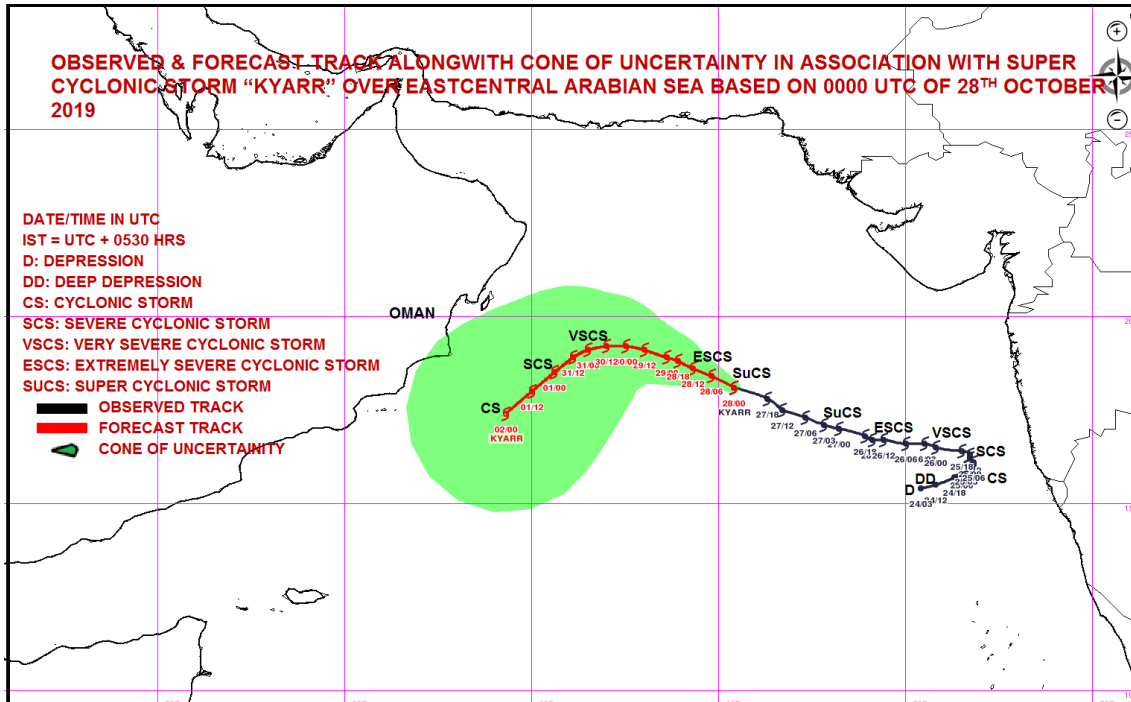
ARABIAN_SEA



Celsius
IMD, DELHI

10 -10 -30 -70
PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%



PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%



**REGIONAL SPECIALISED METEOROLOGICAL CENTRE-TROPICAL CYCLONES, NEW DELHI
TROPICAL CYCLONE ADVISORY BULLETIN NO.26**

FROM: RSMC –TROPICAL CYCLONES, NEW DELHI

**TO: STORM WARNING CENTRE, NAYPYI TAW (MYANMAR)
STORM WARNING CENTRE, BANGKOK (THAILAND)
STORM WARNING CENTRE, COLOMBO (SRILANKA)
STORM WARNING CENTRE, DHAKA (BANGLADESH)
STORM WARNING CENTRE, KARACHI (PAKISTAN)
METEOROLOGICAL OFFICE, MALE (MALDIVES)
OMAN METEOROLOGICAL DEPARTMENT, MUSCAT (THROUGH RTH JEDDAH)
YEMEN METEOROLOGICAL SERVICES, REPUBLIC OF YEMEN (THROUGH RTH JEDDAH)
NATIONAL CENTRE FOR METEOROLOGY, UAE (THROUGH RTH JEDDAH)
PRESIDENCY OF METEOROLOGY AND ENVIRONMENT, SAUDI ARABIA (THROUGH RTH JEDDAH)
IRAN METEOROLOGICAL ORGANISATION, (THROUGH RTH JEDDAH)
QATAR METEOROLOGICAL DEPARTMENT (THROUGH RTH JEDDAH)**

TROPICAL CYCLONE ADVISORY No. 26 FOR NORTH INDIAN OCEAN (THE BAY OF BENGAL AND ARABIAN SEA) VALID FOR NEXT 120 HOURS ISSUED AT 0830 UTC OF 28.10.2019 BASED ON 0300 UTC OF 28.10.2019.

SUB: SUPER CYCLONIC STORM STORM 'KYARR' (PRONOUNCED AS KYARR) OVER EASTCENTRAL ARABIAN SEA

THE **SUPER CYCLONIC STORM 'KYARR'** OVER EASTCENTRAL ARABIAN SEA MOVED WEST-NORTHWESTWARDS WITH A SPEED OF 13 KMPH DURING PAST 06 HRS AND LAY CENTRED AT 0300 UTC OF THE 28TH OCTOBER, 2019 NEAR LATITUDE 18.2°N AND LONGITUDE 65.0°E OVER EASTCENTRAL ARABIAN SEA, ABOUT 830 KM WEST-SOUTHWEST OF MUMBAI (MAHARASHTRA), 1160 KM EAST-NORTHEAST OF SALALAH (OMAN) AND 690 KM EAST-SOUTHEAST OF MASIRAH (OMAN). IT IS VERY LIKELY TO MOVE WEST-NORTHWESTWARDS TILL 30TH OCTOBER, RE-CURVE WEST-SOUTHWESTWARDS THEREAFTER AND MOVE TOWARDS GULF OF ADEN OFF SOUTH OMAN-YEMEN COASTS DURING SUBSEQUENT 3 DAYS. IT IS VERY LIKELY TO MAINTAIN THE INTENSITY OF A SUPER CYCLONIC STORM TILL 28TH OCTOBER EVENING AND WEAKEN GRADUALLY THEREAFTER.

FORECAST TRACK AND INTENSITY ARE GIVEN IN THE FOLLOWING TABLE:

DATE/TIME(UTC)	POSITION (LAT. °N/ LONG. °E)	MAXIMUM SUSTAINED SURFACE WIND SPEED (KMPH)	CATEGORY OF CYCLONIC DISTURBANCE
28.10.19/0600	18.4/64.8	220-230 GUSTING TO 255	SUPER CYCLONIC STORM
28.10.19/1200	18.6/64.3	210-220 GUSTING TO 240	EXTREMELY SEVERE CYCLONIC STORM
28.10.19/1800	18.8/63.9	200-210 GUSTING TO 220	EXTREMELY SEVERE CYCLONIC STORM
29.10.19/0000	18.9/63.6	190-200 GUSTING TO 220	EXTREMELY SEVERE CYCLONIC STORM
29.10.19/1200	19.1/63.0	180-190 GUSTING TO 210	EXTREMELY SEVERE CYCLONIC STORM
30.10.19/0000	19.2/62.5	170-180 GUSTING TO 190	EXTREMELY SEVERE CYCLONIC STORM
30.10.19/1200	19.2/62.2	155-165 GUSTING TO 180	VERY SEVERE CYCLONIC STORM
31.10.19/0000	19.1/61.5	140-150 GUSTING TO 165	VERY SEVERE CYCLONIC STORM
31.10.19/1200	18.9/61.1	125-135 GUSTING TO 145	VERY SEVERE CYCLONIC STORM
01.11.19/0000	18.5/60.6	110-120 GUSTING TO 130	SEVERE CYCLONIC STORM
01.11.19/1200	18.0/60.0	95-105 GUSTING TO 115	SEVERE CYCLONIC STORM
02.11.19/0000	17.4/59.3	80-90 GUSTING TO 100	CYCLONIC STORM

REMARKS:

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

SATELLITE IMAGES INDICATE EYE PATTERN, EYE CONTINUES TO SHOW MARGINAL DISTORTION. PRESENT EYE TEMPERATURE IS +17.2 DEG.C AND EYE DIAMETER IS ABOUT 43 KM(IR IMAGE) WITH ORGANIZING TO RUGGED EYE FORM(VISIBLE IMAGE) . AS PER THE SATELLITE IMAGERY AT 0600 UTC OF 28TH OCTOBER, 2019, THE CURRENT INTENSITY OF THE SYSTEM IS T6.0/C16.5. ASSOCIATED BROKEN LOW TO MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION LIES OVER EAST CENTRAL ARABIAN SEA BETWEEN LAT 16.5⁰N TO 20.0⁰N AND LONG 62.0⁰E TO 66.5⁰E. THE MINIMUM CTT IS MINUS 93.1 DEG C.

THE ESTIMATED MAXIMUM SUSTAINED WIND SPEED IS 125 KNOTS GUSTING TO 145 KNOTS. THE ESTIMATED CENTRAL PRESSURE IS 920 HPA. AT 0600 UTC OF 28TH OCTOBER, A BUOY (23456) LOCATED NEAR LAT. 18.2°N / LONG. 67.3°E REPORTED A MEAN SEA LEVEL PRESSURE OF 1006.0 HPA, 300⁰ WIND WITH SPEED 23 KNOTS AND WAVE HEIGHT 3.0 METER AND SST 25.7°C. THE SEA CONDITION IS PHENOMENAL AROUND THE SYSTEM CENTRE.

THE MJO LIES IN THE PHASE 3 WITH AMPLITUDE LESS THAN 1. IT WILL REMAIN IN THE SAME PHASE DURING NEXT 3 DAYS AND ENTER INTO PHASE 4 WITH AMPLITUDE LESS THAN 1 THEREAFTER. CONSIDERING THE ENVIRONMENTAL CONDITIONS, TOTAL PRECIPITABLE WATER IMAGERIES INDICATE FURTHER REDUCTION IN WARM AIR ADVECTION WHICH IS HAPPENING ONLY TO THE SOUTHEAST OF THE SYSTEM CENTRE. THE LOW LEVEL RELATIVE VORTICITY IS ABOUT $250 \times 10^{-5} \text{ SEC}^{-1}$ TO THE SOUTH OF THE SYSTEM CENTRE. THE LOWER LEVEL CONVERGENCE IS ABOUT $30 \times 10^{-5} \text{ S}^{-1}$ TO THE SOUTH OF THE SYSTEM CENTRE AND THE UPPER LEVEL DIVERGENCE IS ABOUT $30 \times 10^{-5} \text{ S}^{-1}$ TO THE SOUTH-SOUTHEAST OF THE SYSTEM CENTRE. THE VERTICAL WIND SHEAR IS LOW (05-10 KNOTS) AROUND THE SYSTEM CENTER. SEA SURFACE TEMPERATURE OVER MOST PARTS OF WEST CENTRAL ARABIAN SEA, TO THE WEST OF THE SYSTEM IS COLDER(26-27°C) WHILE AT WEST OF THE CENTER OVER EASTCENTRAL ARABIAN SEA. TROPICAL CYCLONE HEAT POTENTIAL AT WEST OF THE SYSTEM CENTER IS LOWER WITH VALUE OF 40-50 KJ/CM2 OVER WESTCENTRAL ARABIAN SEAS AND 50-70 KJ/CM2 AT EAST OF THE SYSTEM CENTER OVER WESTCENTRAL ARABIAN SEAS. EQUATORWARD OUTFLOW IS TAKING PLACE IN THE UPPER TROPOSPHERIC LEVELS. ALL THESE DYNAMIC AND THERMODYNAMIC CONDITIONS WILL FAVOUR TO MAINTAIN THE INTENSITY OF A SUPER CYCLONIC STORM FOR NEXT 12 HOURS. THEREAFTER, IT IS LIKELY TO MOVE OVER TO COLDER SEA SURFACE TEMPERATURES AREA WITH LOWER VALUES OF UPPER OCEAN HEAT CONTENT. AT THE SAME TIME, COLD AND DRY AIR INTRUSION ALSO IS LIKELY TO TAKE PLACE INTO THE SYSTEM CENTRE, CAUSING GRADUAL WEAKENING OF THE SYSTEM DURING SUBSEQUENT 24 HOURS. THEN THE SYSTEM IS LIKELY TO ENTER INTO A ZONE OF HIGH VERTICAL WIND SHEAR CASUING RAPID WEAKENING OF THE SYSTEM.

THE UPPER TROPOSPHERIC RIDGE RUNS ALONG 20°N. HENCE THE SYSTEM LIES TO THE SOUTH OF THE RIDGE LEADING TO CONTINUOUS WEST-NORTHWESTWARDS MOVEMENT TOWARDS OMAN COAST UNDER THE INFLUENCE OF WEST-NORTHWESTWARDS STEERING WINDS DURING NEXT 5 DAYS. MAJORITY OF NUMERICAL MODELS INCLUDING ECMWF, NCMRWF UNIFIED MODELS (NCUM), NCMRWF ENSEMBLE PREDICTION SYSTEM (NEPS), IMD GLOBAL FORECAST SYSTEM (GFS), NCEP GFS, GLOBAL ENSEMBLE FORECATING SYSTEM (GEFS) AGREE WITH THE ABOVE INFERENCE DURING NEXT 3 DAYS.THERE IS DIVERGENCE AMONG THE TRACK FOR DAY-4 & DAY-5 FORECASTS. A FEW MODELS INDICATING MOVEMENT TOWARDS WEST-SOUTHWEST AND A FEW TOWARDS NORTH. THE CURRENT FORECAST IS BASED ON THE CONSENSUS DERIVED FROM MULTI MODEL ENSEMBLE.

(SUNITHA DEVI)
SCIENTIST-E, RSMC, NEW DELHI

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

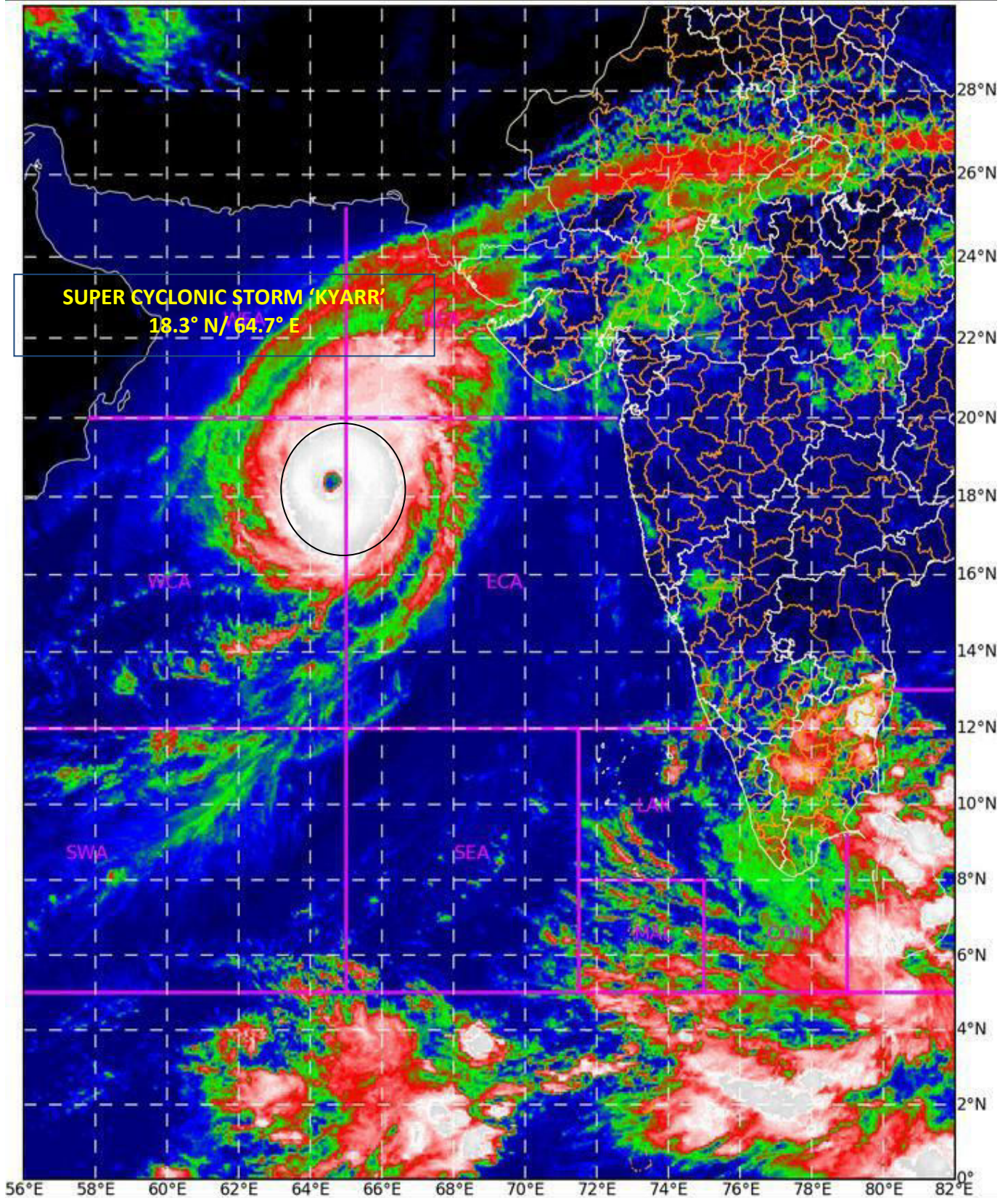
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28-10-2019/(0630 to 0657) GMT

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28-10-2019/(1200 to 1227) IST

ARABIAN_SEA



0

-20

-50

Celsius

IMD, DELHI

10

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-30

-70

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

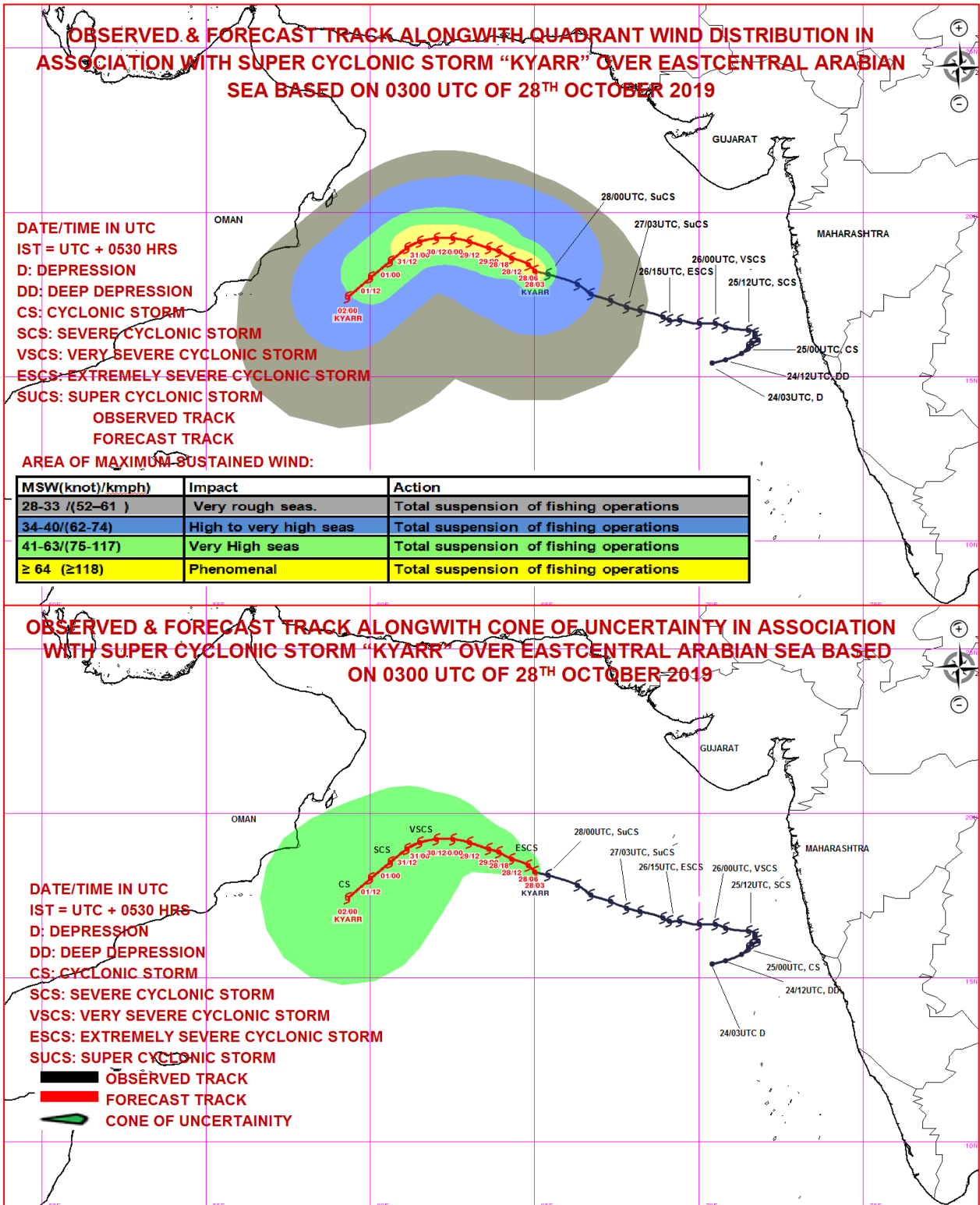
OBSERVED & FORECAST TRACK ALONGWITH QUADRANT WIND DISTRIBUTION IN ASSOCIATION WITH SUPER CYCLONIC STORM "KYARR" OVER EASTCENTRAL ARABIAN SEA BASED ON 0300 UTC OF 28TH OCTOBER 2019

DATE/TIME IN UTC
 IST = UTC + 0530 HRS
 D: DEPRESSION
 DD: DEEP DEPRESSION
 CS: CYCLONIC STORM
 SCS: SEVERE CYCLONIC STORM
 VSCS: VERY SEVERE CYCLONIC STORM
 ESCS: EXTREMELY SEVERE CYCLONIC STORM
 SUCS: SUPER CYCLONIC STORM
 OBSERVED TRACK
 FORECAST TRACK
 AREA OF MAXIMUM SUSTAINED WIND:

MSW(knot)/kmph)	Impact	Action
28-33 (52-61)	Very rough seas.	Total suspension of fishing operations
34-40(62-74)	High to very high seas	Total suspension of fishing operations
41-63/(75-117)	Very High seas	Total suspension of fishing operations
≥ 64 (≥118)	Phenomenal	Total suspension of fishing operations

OBSERVED & FORECAST TRACK ALONGWITH CONE OF UNCERTAINTY IN ASSOCIATION WITH SUPER CYCLONIC STORM "KYARR" OVER EASTCENTRAL ARABIAN SEA BASED ON 0300 UTC OF 28TH OCTOBER 2019

DATE/TIME IN UTC
 IST = UTC + 0530 HRS
 D: DEPRESSION
 DD: DEEP DEPRESSION
 CS: CYCLONIC STORM
 SCS: SEVERE CYCLONIC STORM
 VSCS: VERY SEVERE CYCLONIC STORM
 ESCS: EXTREMELY SEVERE CYCLONIC STORM
 SUCS: SUPER CYCLONIC STORM
 ——— OBSERVED TRACK
 ——— FORECAST TRACK
 CONE OF UNCERTAINTY



PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%



**REGIONAL SPECIALISED METEOROLOGICAL CENTRE-TROPICAL CYCLONES, NEW DELHI
TROPICAL CYCLONE ADVISORY BULLETIN NO.27**

FROM: RSMC –TROPICAL CYCLONES, NEW DELHI

**TO: STORM WARNING CENTRE, NAYPYI TAW (MYANMAR)
STORM WARNING CENTRE, BANGKOK (THAILAND)
STORM WARNING CENTRE, COLOMBO (SRILANKA)
STORM WARNING CENTRE, DHAKA (BANGLADESH)
STORM WARNING CENTRE, KARACHI (PAKISTAN)
METEOROLOGICAL OFFICE, MALE (MALDIVES)
OMAN METEOROLOGICAL DEPARTMENT, MUSCAT (THROUGH RTH JEDDAH)
YEMEN METEOROLOGICAL SERVICES, REPUBLIC OF YEMEN (THROUGH RTH JEDDAH)
NATIONAL CENTRE FOR METEOROLOGY, UAE (THROUGH RTH JEDDAH)
PRESIDENCY OF METEOROLOGY AND ENVIRONMENT, SAUDI ARABIA (THROUGH RTH JEDDAH)
IRAN METEOROLOGICAL ORGANISATION, (THROUGH RTH JEDDAH)
QATAR METEOROLOGICAL DEPARTMENT (THROUGH RTH JEDDAH)**

TROPICAL CYCLONE ADVISORY No. 27 FOR NORTH INDIAN OCEAN (THE BAY OF BENGAL AND ARABIAN SEA) VALID FOR NEXT 120 HOURS ISSUED AT 0900 UTC OF 28.10.2019 BASED ON 0600 UTC OF 28.10.2019.

**Sub: (a) Super Cyclonic Storm ‘Kyarr’ (Pronounced as Kyarr) over eastcentral and adjoining westcentral Arabian Sea
(b) Low pressure area over equatorial Indian Ocean off south Sri Lanka coast.**

(a) Super Cyclonic Storm ‘Kyarr’ (Pronounced as Kyarr) over eastcentral and adjoining westcentral Arabian Sea

The **Super Cyclonic Storm ‘Kyarr’** over eastcentral Arabian Sea moved west-northwestwards with a speed of 13 Kmph during past 06 hrs and lay centred at 0600 hrs UTC of 28th October, 2019 near latitude 18.3°N and longitude 64.7°E over eastcentral and adjoining westcentral Arabian Sea, about 860 km west-southwest of Mumbai (Maharashtra), 1130 km east-northeast of Salalah (Oman) and 660 km east-southeast of Masirah (Oman). It is very likely to move west-northwestwards till 30th October re-curve west-southwestwards thereafter and move towards Gulf of Aden off south Oman-Yemen coasts during subsequent 3 days. It is very likely to maintain the intensity of a Super Cyclonic Storm till the night of 28th October and weaken gradually thereafter.

Forecast track and intensity are given in the following table:

Date/Time(IST)	Position (Lat. °N/ long. °E)	Maximum sustained surface wind speed (Kmph)	Category of cyclonic disturbance
28.10.19/0600	18.3/64.7	225-235 gusting to 260	Super Cyclonic Storm
28.10.19/1200	18.5/64.3	225-235 gusting to 260	Super Cyclonic Storm
28.10.19/1800	18.7/63.9	215-225 gusting to 245	Extremely Severe Cyclonic Storm
29.10.19/0000	18.8/63.6	210-220 gusting to 240	Extremely Severe Cyclonic Storm
29.10.19/0600	18.9/63.3	200-210 gusting to 230	Extremely Severe Cyclonic Storm
29.10.19/1800	19.0/62.7	180-190 gusting to 210	Extremely Severe Cyclonic Storm
30.10.19/0600	19.1/62.2	160-170 gusting to 185	Very Severe Cyclonic Storm
30.10.19/1800	18.9/61.5	140-150 gusting to 165	Very Severe Cyclonic Storm
31.10.19/0600	18.3/60.6	125-135 gusting to 150	Very Severe Cyclonic Storm
31.10.19/1800	17.6/59.6	105-115 gusting to 130	Severe Cyclonic Storm
01.11.19/0600	16.7/58.5	85-95 gusting to 105	Cyclonic Storm
01.11.19/1800	15.8/57.3	70-80 gusting to 90	Cyclonic Storm
02.11.19/0600	15.0/56.0	50-60 gusting to 70	Deep Depression

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

REMARKS:

SATELLITE IMAGES INDICATE EYE PATTERN WITH MARGINAL DISTORTION. PRESENT EYE TEMPERATURE IS +17.2 DEG.C AND EYE DIAMETER IS ABOUT 43 KM(IR IMAGE) WITH ORGANIZING TO RUGGED EYE FORM(VISIBLE IMAGE). AS PER THE SATELLITE IMAGERY AT 0600 UTC OF 28TH OCTOBER, 2019, THE CURRENT INTENSITY OF THE SYSTEM IS T6.0/C16.5. ASSOCIATED BROKEN LOW TO MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION LIES OVER EAST CENTRAL ARABIAN SEA BETWEEN LAT 16.5⁰N TO 20.0⁰N AND LONG 62.0⁰E TO 66.5⁰E. THE MINIMUM CTT IS MINUS 93.1 DEG C.

THE ESTIMATED MAXIMUM SUSTAINED WIND SPEED IS 125 KNOTS GUSTING TO 145 KNOTS. THE ESTIMATED CENTRAL PRESSURE IS 920 HPA. AT 0600 UTC OF 28TH OCTOBER, A BUOY (23456) LOCATED NEAR LAT. 18.2°N / LONG. 67.3°E REPORTED A MEAN SEA LEVEL PRESSURE OF 1006.0 HPA, 300° WIND WITH SPEED 23 KNOTS AND WAVE HEIGHT 3.0 METER AND SST 25.7°C. THE SEA CONDITION IS PHENOMENAL AROUND THE SYSTEM CENTRE.

THE MJO LIES IN THE PHASE 3 WITH AMPLITUDE LESS THAN 1. IT WILL REMAIN IN THE SAME PHASE DURING NEXT 3 DAYS AND ENTER INTO PHASE 4 WITH AMPLITUDE LESS THAN 1 THEREAFTER. CONSIDERING THE ENVIRONMENTAL CONDITIONS, TOTAL PRECIPITABLE WATER IMAGERIES INDICATE FURTHER REDUCTION IN WARM AIR ADVECTION WHICH IS HAPPENING ONLY TO THE SOUTHEAST OF THE SYSTEM CENTRE. THE LOW LEVEL RELATIVE VORTICITY IS ABOUT $250 \times 10^{-5} \text{ SEC}^{-1}$ TO THE SOUTH OF THE SYSTEM CENTRE. THE LOWER LEVEL CONVERGENCE IS ABOUT $30 \times 10^{-5} \text{ S}^{-1}$ TO THE SOUTH OF THE SYSTEM CENTRE AND THE UPPER LEVEL DIVERGENCE IS ABOUT $30 \times 10^{-5} \text{ S}^{-1}$ TO THE SOUTH-SOUTHEAST OF THE SYSTEM CENTRE. THE VERTICAL WIND SHEAR IS LOW (05-10 KNOTS) AROUND THE SYSTEM CENTER. SEA SURFACE TEMPERATURE TO THE WEST OF THE SYSTEM CENTER OVER MOST PARTS OF WEST CENTRAL ARABIAN SEA IS COLDER(26-27°C) WHILE AT EAST OF THE CENTER OVER EASTCENTRAL ARABIAN SEA, IT IS WARMER(27-29°C). TROPICAL CYCLONE HEAT POTENTIAL TO THE WEST OF THE SYSTEM CENTER OVER WESTCENTRAL ARABIAN SEAS IS 40-50 KJ/CM2 WHILE AT EAST OF THE SYSTEM CENTER OVER EASTCENTRAL ARABIAN SEA, IT IS 50-70 KJ/CM2. EQUATORWARD OUTFLOW IS TAKING PLACE IN THE UPPER TROPOSPHERIC LEVELS. ALL THESE DYNAMIC AND THERMODYNAMIC CONDITIONS INDICATE GRADUAL WEAKENING OF THE SYSTEM.

THE UPPER TROPOSPHERIC RIDGE RUNS ALONG 20°N. HENCE THE SYSTEM LIES TO THE SOUTH OF THE RIDGE LEADING TO CONTINUOUS WEST-NORTHWESTWARDS MOVEMENT FOR SOMETIMES. THERE IS AN ANTICYCLONIC CIRCULATION TO THE NORTHEAST OF THE SYSTEM AT MID AND UPPER TROPOSPHERIC LEVEL. IT IS STEERING THE SYSTEM WESTNORTHWESTWARDS. HOWEVER, AS THE SYSTEM MOVES WESTNORTHWESTWARDS, IT IS VERY LIKELY TO COME UNDER THE INFLUENCE OF ANOTHER ANTICYCLONIC CURCULATION WHICH LIES OVER ARABIAN PENINSULA, LOCATED NORTHWEST OF THE SYSTEM. AS A RESULT, THE SYSTEM MOST LIKELY RECURVE TO WESTSOUTHWESTWARDS, COMMENCING AFTER 1200UTC OF 30 OCTOBER AND VERY LIKELY TO MOVE TOWARDS GULF OF ADEN OFF SOUTH OMAN-YEMEN COASTS DURING SUBSEQUENT 3 DAYS. MAJORITY OF NUMERICAL MODELS AGREE WITH THE ABOVE INFERENCE.

(b) Low pressure area over equatorial Indian Ocean off south Sri Lanka coast.

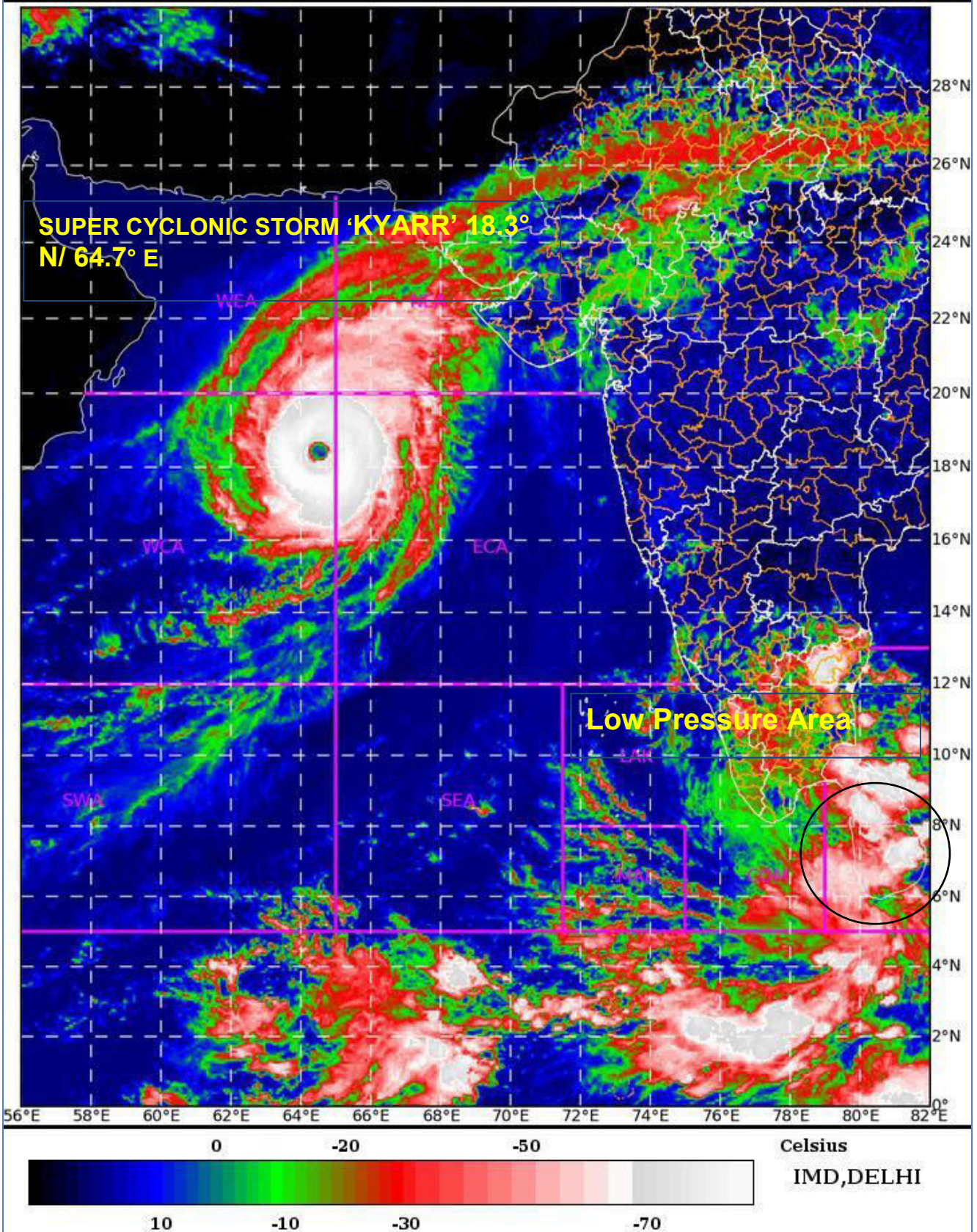
A Low pressure area has formed over equatorial Indian Ocean off south Sri Lanka coast. The system is likely to become more marked over Comorin area & neighbourhood during next 24 hours and concentrate into a depression over southeast Arabian Sea & adjoining Lakshadweep-Maldives areas during the subsequent 48 hours.

(R. K. JENAMANI)
SCIENTIST-F, RSMC, NEW DELHI

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

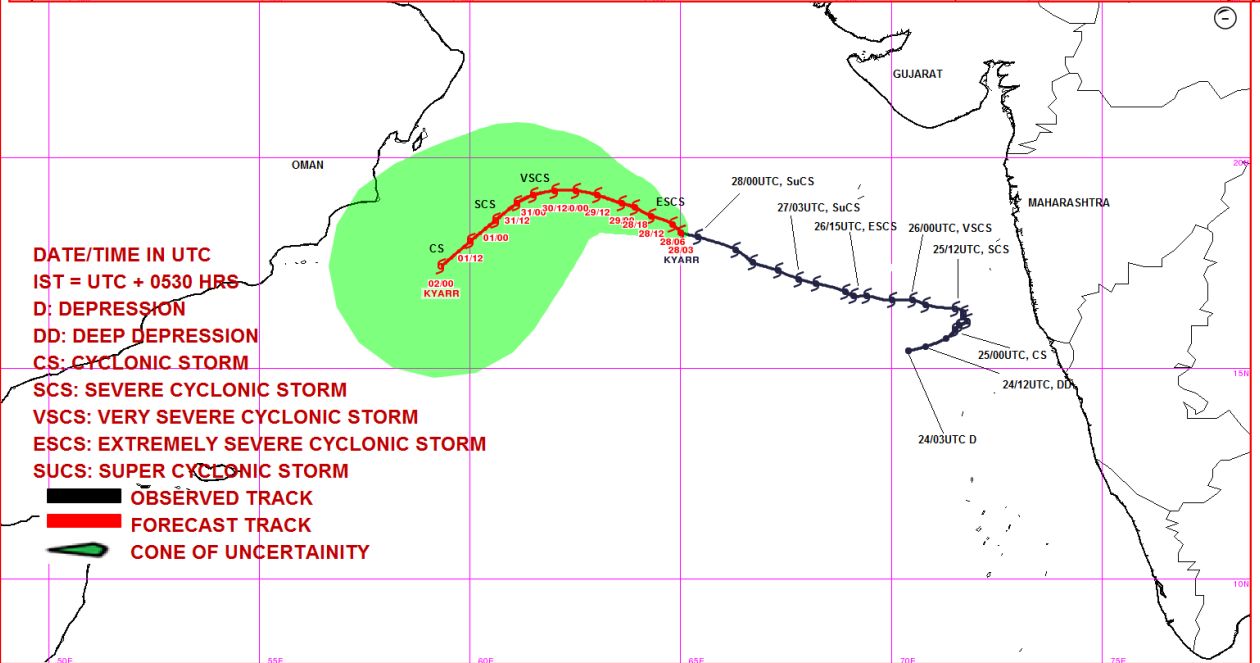
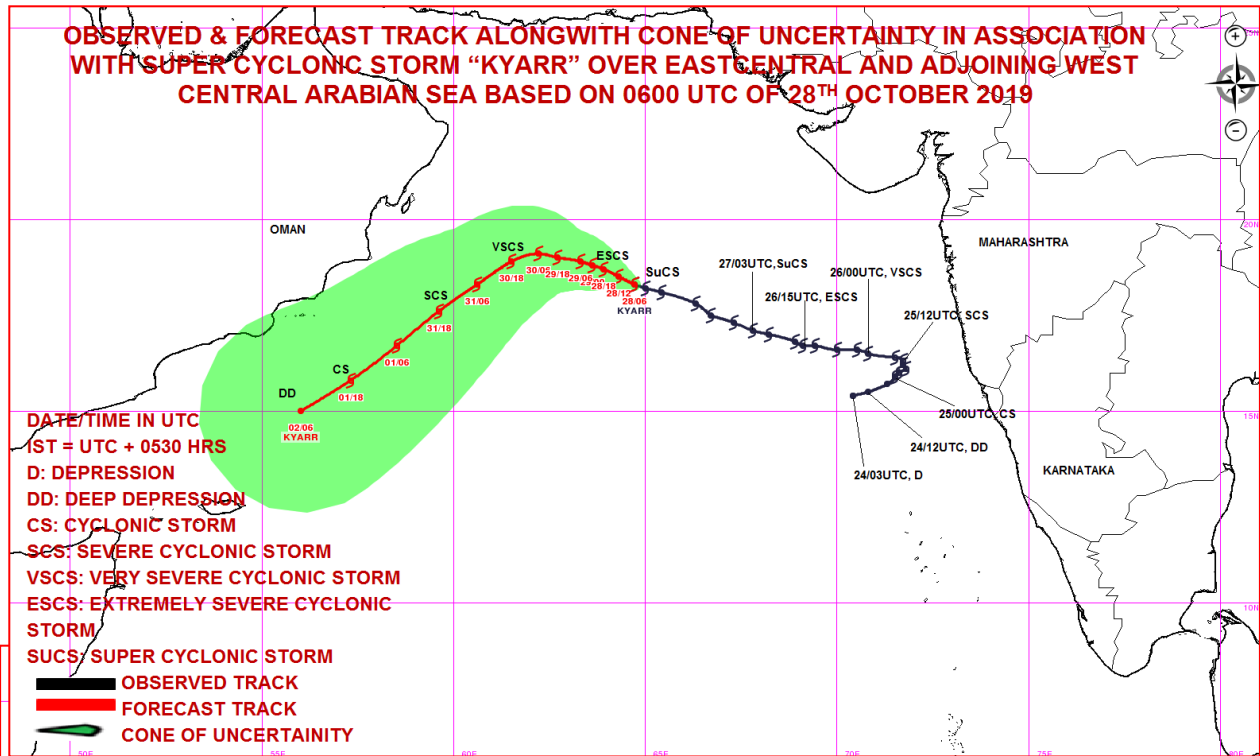
NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

SAT : INSAT-3D IMG 28-10-2019/(0730 to 0757) GMT
IMG_TIR1_TEMP 10.8 um 28-10-2019/(1300 to 1327) IST
ARABIAN_SEA



PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)
NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

OBSERVED & FORECAST TRACK ALONGWITH CONE OF UNCERTAINTY IN ASSOCIATION WITH SUPER CYCLONIC STORM "KYARR" OVER EAST CENTRAL AND ADJOINING WEST CENTRAL ARABIAN SEA BASED ON 0600 UTC OF 28TH OCTOBER 2019



PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)
NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%



**REGIONAL SPECIALISED METEOROLOGICAL CENTRE-TROPICAL CYCLONES, NEW DELHI
TROPICAL CYCLONE ADVISORY BULLETIN NO.28**

FROM: RSMC –TROPICAL CYCLONES, NEW DELHI

**TO: STORM WARNING CENTRE, NAYPYI TAW (MYANMAR)
STORM WARNING CENTRE, BANGKOK (THAILAND)
STORM WARNING CENTRE, COLOMBO (SRILANKA)
STORM WARNING CENTRE, DHAKA (BANGLADESH)
STORM WARNING CENTRE, KARACHI (PAKISTAN)
METEOROLOGICAL OFFICE, MALE (MALDIVES)
OMAN METEOROLOGICAL DEPARTMENT, MUSCAT (THROUGH RTH JEDDAH)
YEMEN METEOROLOGICAL SERVICES, REPUBLIC OF YEMEN (THROUGH RTH JEDDAH)
NATIONAL CENTRE FOR METEOROLOGY, UAE (THROUGH RTH JEDDAH)
PRESIDENCY OF METEOROLOGY AND ENVIRONMENT, SAUDI ARABIA (THROUGH RTH JEDDAH)
IRAN METEOROLOGICAL ORGANISATION, (THROUGH RTH JEDDAH)
QATAR METEOROLOGICAL DEPARTMENT (THROUGH RTH JEDDAH)**

TROPICAL CYCLONE ADVISORY No. 28 FOR NORTH INDIAN OCEAN (THE BAY OF BENGAL AND ARABIAN SEA) VALID FOR NEXT 120 HOURS ISSUED AT 1200 UTC OF 28.10.2019 BASED ON 0900 UTC OF 28.10.2019.

SUB: (A) SUPER CYCLONIC STORM 'KYARR' (PRONOUNCED AS KYARR) OVER EASTCENTRAL AND ADJOINING WESTCENTRAL ARABIAN SEA

(B) LOW PRESSURE AREA OVER EQUATORIAL INDIAN OCEAN OFF SOUTH SRI LANKA COAST.

(A) SUPER CYCLONIC STORM 'KYARR' (PRONOUNCED AS KYARR) OVER EASTCENTRAL AND ADJOINING WESTCENTRAL ARABIAN SEA

THE **SUPER CYCLONIC STORM 'KYARR'** OVER EASTCENTRAL ARABIAN SEA MOVED WEST-NORTHWESTWARDS WITH A SPEED OF 09 KMPH DURING PAST 06 HRS AND LAY CENTRED AT 0900 HRS UTC OF 28TH OCTOBER, 2019 NEAR LATITUDE 18.4°N AND LONGITUDE 64.5°E OVER EASTCENTRAL AND ADJOINING WESTCENTRAL ARABIAN SEA, ABOUT 880 KM WEST-SOUTHWEST OF MUMBAI (MAHARASHTRA), 1110 KM EAST-NORTHEAST OF SALALAH (OMAN) AND 640 KM EAST-SOUTHEAST OF MASIRAH (OMAN). IT IS VERY LIKELY TO MOVE WEST-NORTHWESTWARDS TILL 30TH OCTOBER AND RE-CURVE WEST-SOUTHWESTWARDS THEREAFTER AND MOVE TOWARDS GULF OF ADEN OFF SOUTH OMAN-YEMEN COASTS DURING SUBSEQUENT 3 DAYS. IT IS VERY LIKELY TO MAINTAIN THE INTENSITY OF A SUPER CYCLONIC STORM TILL 0000 UTC OF 29TH OCTOBER AND WEAKEN GRADUALLY THEREAFTER.

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

FORECAST TRACK AND INTENSITY ARE GIVEN IN THE FOLLOWING TABLE:

DATE/TIME(UTC)	POSITION (LAT. °N/ LONG. °E)	MAXIMUM SUSTAINED SURFACE WIND SPEED (KMPH)	CATEGORY OF CYCLONIC DISTURBANCE
28.10.19/0900	18.4/64.5	230-240 GUSTING TO 265	SUPER CYCLONIC STORM
28.10.19/1200	18.5/64.3	230-240 GUSTING TO 265	SUPER CYCLONIC STORM
28.10.19/1800	18.7/63.9	230-240 GUSTING TO 265	SUPER CYCLONIC STORM
29.10.19/0000	18.8/63.6	225-235 GUSTING TO 260	SUPER CYCLONIC STORM
29.10.19/0600	18.9/63.3	215-225 GUSTING TO 250	EXTREMELY SEVERE CYCLONIC STORM
29.10.19/1800	19.0/62.7	190-200 GUSTING TO 220	EXTREMELY SEVERE CYCLONIC STORM
30.10.19/0600	19.1/62.2	165-175 GUSTING TO 190	EXTREMELY SEVERE CYCLONIC STORM
30.10.19/1800	18.9/61.5	140-150 GUSTING TO 165	VERY SEVERE CYCLONIC STORM
31.10.19/0600	18.3/60.6	125-135 GUSTING TO 150	VERY SEVERE CYCLONIC STORM
31.10.19/1800	17.6/59.6	105-115 GUSTING TO 130	SEVERE CYCLONIC STORM
01.11.19/0600	16.7/58.5	85-95 GUSTING TO 105	SEVERE CYCLONIC STORM
01.11.19/1800	15.8/57.3	70-80 GUSTING TO 90	CYCLONIC STORM
02.11.19/0600	15.0/56.0	50-60 GUSTING TO 70	DEEP DEPRESSION

REMARKS:

SATELLITE IMAGES INDICATE EYE PATTERN WITH RAGGED EYE IN VISIBLE IMAGERY. PRESENT EYE TEMPERATURE IS +17.0 DEG.C AND EYE DIAMETER IS ABOUT 44 KM(IR IMAGE) WITH ORGANIZING TO RUGGED EYE FORM(VISIBLE IMAGE). AS PER THE SATELLITE IMAGERY AT 0900 UTC OF 28TH OCTOBER, 2019, THE CURRENT INTENSITY OF THE SYSTEM IS T6.0/6.5. ASSOCIATED BROKEN LOW TO MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION LIES OVER EAST CENTRAL ARABIAN SEA BETWEEN LAT 16.5°N TO 20.0°N AND LONG 62.0°E TO 66.5°E. THE MINIMUM CTT IS MINUS 93 DEG C.

THE ESTIMATED MAXIMUM SUSTAINED WIND SPEED IS 125 KNOTS GUSTING TO 145 KNOTS. THE ESTIMATED CENTRAL PRESSURE IS 920 HPA. AT 0900 UTC OF 28TH OCTOBER, A BUOY (23456) LOCATED NEAR LAT. 18.4°N / LONG. 67.5 °E REPORTED A MEAN SEA LEVEL PRESSURE OF 1004.6 HPA, WAVE HEIGHT 4.5 METER AND SST 25.7°C. THE SEA CONDITION IS PHENOMENAL AROUND THE SYSTEM CENTRE.

THE MJO LIES IN THE PHASE 3 WITH AMPLITUDE LESS THAN 1. IT WILL REMAIN IN THE SAME PHASE DURING NEXT 3 DAYS AND ENTER INTO PHASE 4 WITH AMPLITUDE LESS THAN 1 THEREAFTER. CONSIDERING THE ENVIRONMENTAL CONDITIONS, TOTAL PRECIPITABLE WATER IMAGERIES INDICATE FURTHER REDUCTION IN WARM AIR ADVECTION WHICH IS HAPPENING ONLY TO THE SOUTHEAST OF THE SYSTEM CENTRE. THE LOW LEVEL RELATIVE VORTICITY HAS INCREASED AND IS NOW ABOUT 300 X10⁻⁵ SEC⁻¹ AROUND THE SYSTEM CENTRE. THE LOWER LEVEL CONVERGENCE IS ABOUT 30 X10⁻⁵S⁻¹ TO THE SOUTH OF THE SYSTEM CENTRE AND THE UPPER LEVEL DIVERGENCE IS ABOUT 20 X10⁻⁵S⁻¹ TO THE SOUTH OF THE SYSTEM CENTRE. THE VERTICAL WIND SHEAR IS LOW (05-10 KNOTS) AROUND THE SYSTEM CENTER. SEA SURFACE TEMPERATURE TO THE SOUTHWEST OF THE SYSTEM CENTER OVER MOST PARTS OF WEST CENTRAL ARABIAN SEA IS AROUND 27-28°C WHILE TO THE NORTH OF THE SYSTEM CENTRE, IT IS WARMER(29-30°C). TROPICAL CYCLONE HEAT POTENTIAL TO THE WEST OF THE SYSTEM CENTER OVER WESTCENTRAL ARABIAN SEAS IS 40-50 KJ/CM2 WHILE AT EAST OF THE SYSTEM CENTER OVER EASTCENTRAL ARABIAN SEA, IT IS 50-70 KJ/CM2. EQUATORWARD OUTFLOW IS TAKING PLACE IN THE UPPER TROPOSPHERIC LEVELS. ALL THESE DYNAMIC AND THERMODYNAMIC CONDITIONS INDICATE GRADUAL WEAKENING OF THE SYSTEM.

THE UPPER TROPOSPHERIC RIDGE RUNS ALONG 20°N. HENCE THE SYSTEM LIES TO THE SOUTH OF THE RIDGE LEADING TO CONTINUOUS WEST-NORTHWESTWARDS MOVEMENT FOR SOMETIMES. THERE IS AN ANTICYCLONIC CIRCULATION TO THE NORTHEAST OF THE SYSTEM AT MID AND UPPER TROPOSPHERIC LEVEL. IT IS STEERING THE SYSTEM WESTNORTHWESTWARDS. HOWEVER, AS THE SYSTEM MOVES WESTNORTHWESTWARDS, IT IS VERY LIKELY TO COME UNDER THE INFLUENCE OF ANOTHER ANTICYCLONIC CIRCULATION WHICH LIES OVER ARABIAN PENINSULA, LOCATED NORTHWEST OF THE SYSTEM. AS A RESULT, THE SYSTEM MOST LIKELY RECURVE TO WESTSOUTHWESTWARDS, COMMENCING AFTER 1200UTC OF 30 OCTOBER AND VERY LIKELY TO MOVE TOWARDS GULF OF ADEN OFF SOUTH OMAN-YEMEN COASTS DURING SUBSEQUENT 3 DAYS. MAJORITY OF NUMERICAL MODELS AGREE WITH THE ABOVE INFERENCE.

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

(B) LOW PRESSURE AREA OVER EQUATORIAL INDIAN OCEAN OFF SOUTH SRI LANKA COAST.

A LOW PRESSURE AREA HAS FORMED OVER EQUATORIAL INDIAN OCEAN OFF SOUTH SRI LANKA COAST. THE SYSTEM IS LIKELY TO BECOME MORE MARKED OVER COMORIN AREA & NEIGHBOURHOOD DURING NEXT 24 HOURS AND CONCENTRATE INTO A DEPRESSION OVER SOUTHEAST ARABIAN SEA & ADJOINING LAKSHADWEEP-MALDIVES AREAS DURING THE SUBSEQUENT 48 HOURS.

(R. K. JENAMANI)
SCIENTIST-F, RSMC, NEW DELHI

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

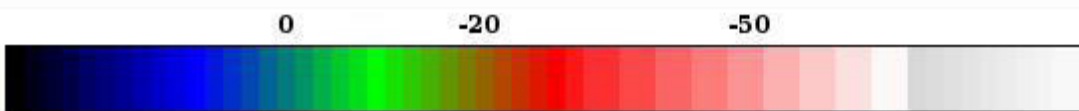
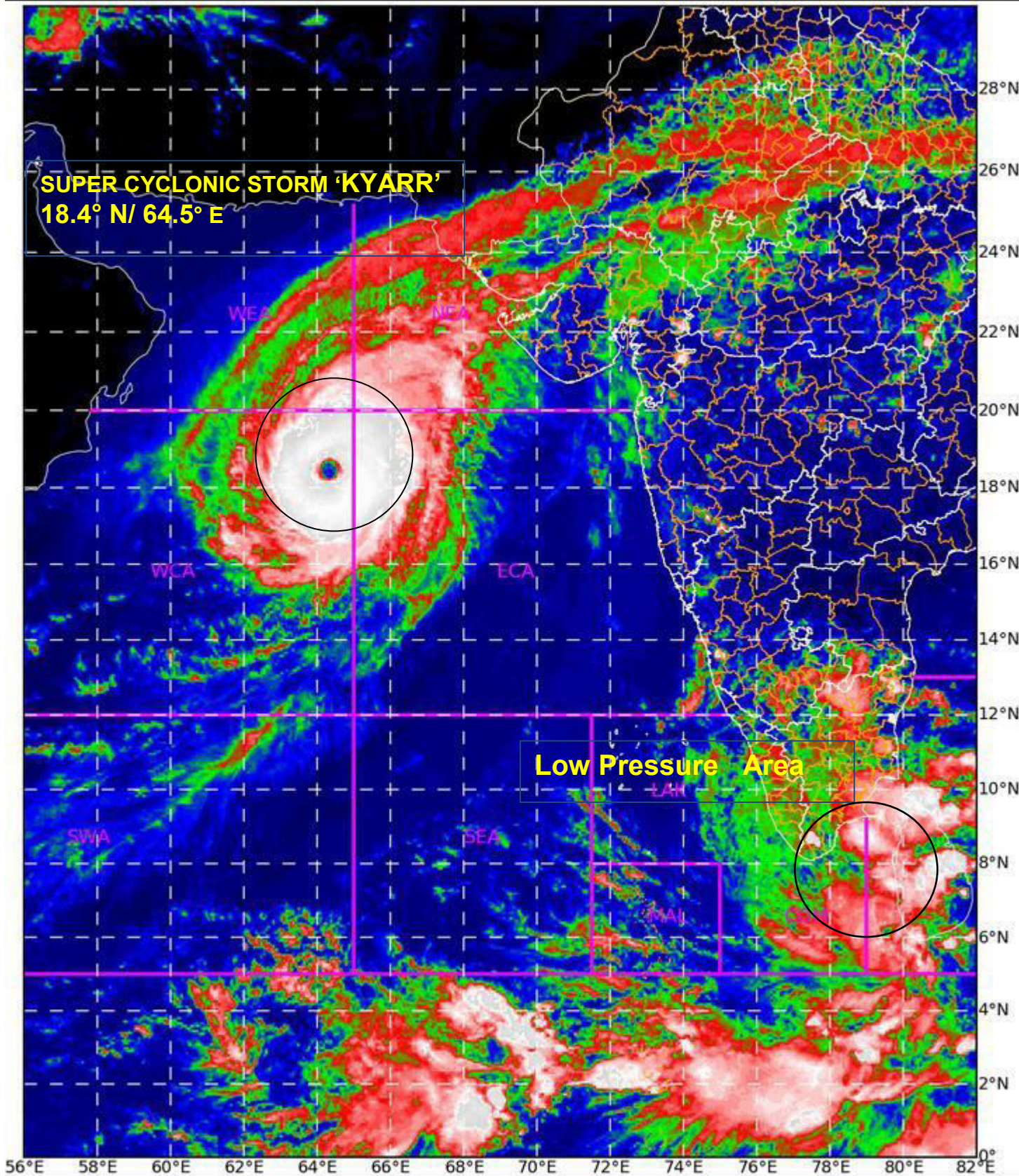
SAT : INSAT-3D IMG

28-10-2019/(0930 to 0956) GMT

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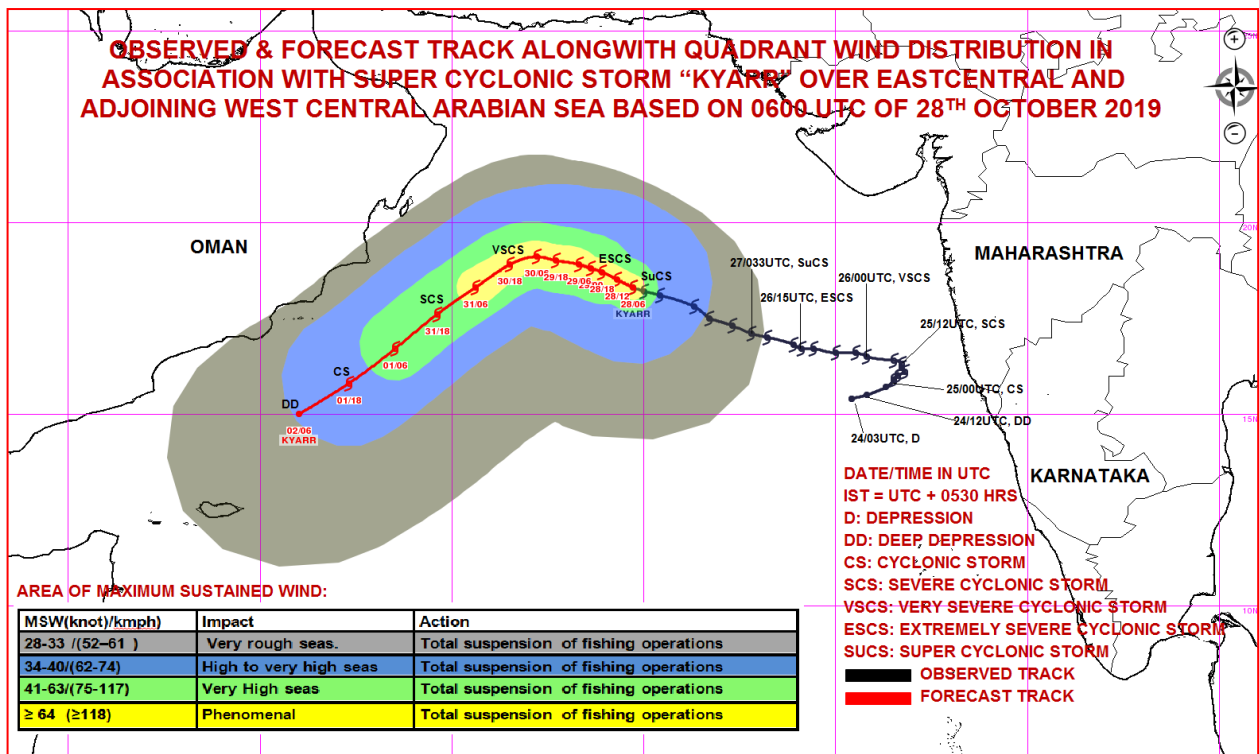
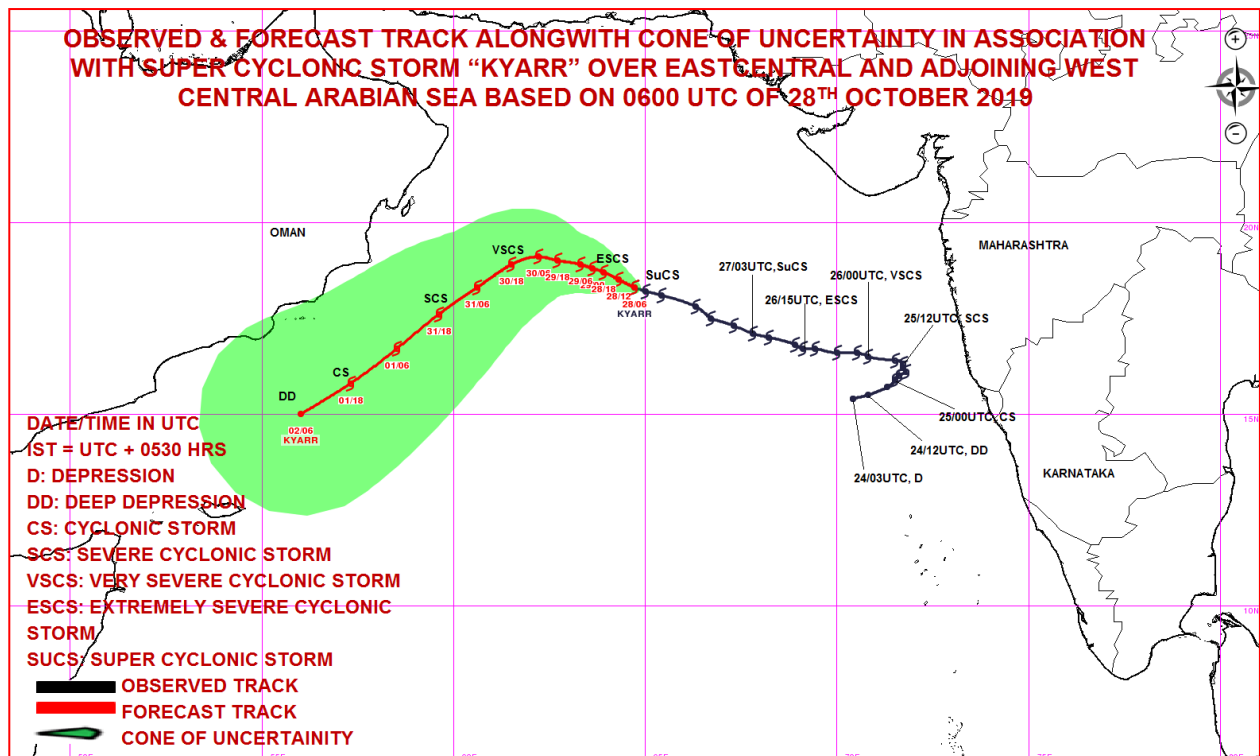
28-10-2019/(1500 to 1526) IST

ARABIAN_SEA



Celsius
IMD, DELHI

10 -10 -30 -70
PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)
NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%



PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%



**REGIONAL SPECIALISED METEOROLOGICAL CENTRE-TROPICAL CYCLONES, NEW DELHI
TROPICAL CYCLONE ADVISORY BULLETIN NO.29**

FROM: RSMC –TROPICAL CYCLONES, NEW DELHI

**TO: STORM WARNING CENTRE, NAYPYI TAW (MYANMAR)
STORM WARNING CENTRE, BANGKOK (THAILAND)
STORM WARNING CENTRE, COLOMBO (SRILANKA)
STORM WARNING CENTRE, DHAKA (BANGLADESH)
STORM WARNING CENTRE, KARACHI (PAKISTAN)
METEOROLOGICAL OFFICE, MALE (MALDIVES)
OMAN METEOROLOGICAL DEPARTMENT, MUSCAT (THROUGH RTH JEDDAH)
YEMEN METEOROLOGICAL SERVICES, REPUBLIC OF YEMEN (THROUGH RTH JEDDAH)
NATIONAL CENTRE FOR METEOROLOGY, UAE (THROUGH RTH JEDDAH)
PRESIDENCY OF METEOROLOGY AND ENVIRONMENT, SAUDI ARABIA (THROUGH RTH JEDDAH)
IRAN METEOROLOGICAL ORGANISATION, (THROUGH RTH JEDDAH)
QATAR METEOROLOGICAL DEPARTMENT (THROUGH RTH JEDDAH)**

TROPICAL CYCLONE ADVISORY No. 29 FOR NORTH INDIAN OCEAN (THE BAY OF BENGAL AND ARABIAN SEA) VALID FOR NEXT 120 HOURS ISSUED AT 1430 UTC OF 28.10.2019 BASED ON 1200 UTC OF 28.10.2019.

**SUB: (A) SUPER CYCLONIC STORM 'KYARR' (PRONOUNCED AS KYARR) OVER EASTCENTRAL AND ADJOINING WESTCENTRAL ARABIAN SEA
(B) LOW PRESSURE AREA OVER EQUATORIAL INDIAN OCEAN OFF SOUTH SRI LANKA COAST.**

(A) SUPER CYCLONIC STORM 'KYARR' (PRONOUNCED AS KYARR) OVER EASTCENTRAL AND ADJOINING WESTCENTRAL ARABIAN SEA

THE **SUPER CYCLONIC STORM 'KYARR'** OVER EASTCENTRAL ARABIAN SEA MOVED WEST-NORTHWESTWARDS WITH A SPEED OF 06 KMPH DURING PAST 06 HRS AND LAY CENTRED AT 1200 HRS UTC OF 28TH OCTOBER, 2019 NEAR LATITUDE 18.5°N AND LONGITUDE 64.3°E OVER EASTCENTRAL AND ADJOINING WESTCENTRAL ARABIAN SEA, ABOUT 880 KM WEST-SOUTHWEST OF MUMBAI (MAHARASHTRA), 1110 KM EAST-NORTHEAST OF SALALAH (OMAN) AND 610 KM EAST-SOUTHEAST OF MASIRAH (OMAN). IT IS VERY LIKELY TO MOVE WEST-NORTHWESTWARDS TILL 30TH OCTOBER RE-CURVE WEST-SOUTHWESTWARDS THEREAFTER AND MOVE TOWARDS GULF OF ADEN OFF SOUTH OMAN-YEMEN COASTS DURING SUBSEQUENT 3 DAYS. IT IS VERY LIKELY TO MAINTAIN THE INTENSITY OF A SUPER CYCLONIC STORM TILL THE MORNING HOURS OF 29TH OCTOBER AND WEAKEN GRADUALLY THEREAFTER.

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

Forecast track and intensity are given in the following table:

Date/Time(IST)	Position (Lat. °N/ long. °E)	Maximum sustained surface wind speed (Kmph)	Category of cyclonic disturbance
28.10.19/1200	18.5/64.3	230-240 gusting to 265	Super Cyclonic Storm
28.10.19/1800	18.7/63.9	230-240 gusting to 265	Super Cyclonic Storm
29.10.19/0000	18.8/63.6	225-235 gusting to 260	Super Cyclonic Storm
29.10.19/0600	18.9/63.3	215-225 gusting to 250	Extremely Severe Cyclonic Storm
29.10.19/1200	18.9/63.0	200-210 gusting to 230	Extremely Severe Cyclonic Storm
30.10.19/0000	19.0/62.5	190-200 gusting to 220	Extremely Severe Cyclonic Storm
30.10.19/1200	18.7/61.9	165-175 gusting to 190	Extremely Severe Cyclonic Storm
31.10.19/0000	18.6/61.1	145-155 gusting to 165	Very Severe Cyclonic Storm
31.10.19/1200	18.2/60.1	125-135 gusting to 150	Very Severe Cyclonic Storm
01.11.19/0000	17.2/59.0	110-120 gusting to 130	Severe Cyclonic Storm
01.11.19/1200	16.3/57.9	90-100 gusting to 110	Severe Cyclonic Storm
02.11.19/0000	15.4/56.6	70-80 gusting to 90	Cyclonic Storm
02.11.19/1200	14.6/55.4	50-60 gusting to 70	Deep Depression

REMARKS:

SATELLITE IMAGES INDICATE EYE PATTERN WITH RAGGED EYE IN VISIBLE IMAGERY. PRESENT EYE TEMPERATURE IS +10.0 DEG.C AND EYE DIAMETER IS ABOUT 44 KM(IR IMAGE) WITH ORGANIZING TO RUGGED EYE FORM(VISIBLE IMAGE). AS PER THE SATELLITE IMAGERY AT 1200 UTC OF 28TH OCTOBER, 2019, THE CURRENT INTENSITY OF THE SYSTEM IS T6.5/6.5. ASSOCIATED BROKEN LOW TO MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION LIES OVER EAST CENTRAL ARABIAN SEA BETWEEN LAT 16.5°N TO 20.0°N AND LONG 62.0°E TO 66.5°E. THE MINIMUM CTT IS MINUS 93 DEG C.

THE ESTIMATED MAXIMUM SUSTAINED WIND SPEED IS 125 KNOTS GUSTING TO 145 KNOTS. THE ESTIMATED CENTRAL PRESSURE IS 920 HPA. AT 1200 UTC OF 28TH OCTOBER, A BUOY (23456) LOCATED NEAR LAT. 18.5°N / LONG. 67.4 °E REPORTED A MEAN SEA LEVEL PRESSURE OF 1004.7 HPA, 320⁰ WIND WITH SPEED 21 KNOTS, WAVE HEIGHT 4.0 METER AND SST 25.7°C. THE SEA CONDITION IS PHENOMENAL AROUND THE SYSTEM CENTRE.

THE MJO LIES IN THE PHASE 3 WITH AMPLITUDE LESS THAN 1. IT WILL REMAIN IN THE SAME PHASE DURING NEXT 3 DAYS AND ENTER INTO PHASE 4 WITH AMPLITUDE LESS THAN 1 THEREAFTER. CONSIDERING THE ENVIRONMENTAL CONDITIONS, TOTAL PRECIPITABLE WATER IMAGERIES INDICATE FURTHER REDUCTION IN WARM AIR ADVECTION WHICH IS HAPPENING ONLY TO THE SOUTHEAST OF THE SYSTEM CENTRE. THE LOW LEVEL RELATIVE VORTICITY HAS INCREASED AND IS NOW ABOUT 300 X10⁻⁵ SEC⁻¹ AROUND THE SYSTEM CENTRE. THE LOWER LEVEL CONVERGENCE IS ABOUT 30 X10⁻⁵S⁻¹ TO THE SOUTH OF THE SYSTEM CENTRE AND THE UPPER LEVEL DIVERGENCE IS ABOUT 20 X10⁻⁵S⁻¹ TO THE SOUTH OF THE SYSTEM CENTRE. THE VERTICAL WIND SHEAR IS LOW (05-10 KNOTS) AROUND THE SYSTEM CENTER. SEA SURFACE TEMPERATURE TO THE SOUTHWEST OF THE SYSTEM CENTER OVER MOST PARTS OF WEST CENTRAL ARABIAN SEA IS AROUND 27-28°C WHILE TO THE NORTH OF THE SYSTEM CENTRE, IT IS WARMER(29-30°C). TROPICAL CYCLONE HEAT POTENTIAL TO THE WEST OF THE SYSTEM CENTER OVER WESTCENTRAL ARABIAN SEAS IS 40-50 KJ/CM2 WHILE AT EAST OF THE SYSTEM CENTER OVER EASTCENTRAL ARABIAN SEA, IT IS 50-70

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

KJ/CM². EQUATORWARD OUTFLOW IS TAKING PLACE IN THE UPPER TROPOSPHERIC LEVELS. ALL THESE DYNAMIC AND THERMODYNAMIC CONDITIONS INDICATE GRADUAL WEAKENING OF THE SYSTEM.

THE UPPER TROPOSPHERIC RIDGE RUNS ALONG 20°N. HENCE THE SYSTEM LIES TO THE SOUTH OF THE RIDGE LEADING TO CONTINUOUS WEST-NORTHWESTWARDS MOVEMENT FOR SOMETIMES. THERE IS AN ANTICYCLONIC CIRCULATION TO THE NORTHEAST OF THE SYSTEM AT MID AND UPPER TROPOSPHERIC LEVEL. IT IS STEERING THE SYSTEM WESTNORTHWESTWARDS. HOWEVER, AS THE SYSTEM MOVES WESTNORTHWESTWARDS, IT IS VERY LIKELY TO COME UNDER THE INFLUENCE OF

ANOTHER ANTICYCLONIC CIRCULATION WHICH LIES OVER ARABIAN PENINSULA, LOCATED NORTHWEST OF THE SYSTEM. AS A RESULT, THE SYSTEM MOST LIKELY RECURVE TO WESTSOUTHWESTWARDS, COMMENCING AFTER 1200UTC OF 30 OCTOBER AND VERY LIKELY TO MOVE TOWARDS GULF OF ADEN OFF SOUTH OMAN-YEMEN COASTS DURING SUBSEQUENT 3 DAYS. MAJORITY OF NUMERICAL MODELS AGREE WITH THE ABOVE INFERENCE.

(B) LOW PRESSURE AREA OVER EQUATORIAL INDIAN OCEAN OFF SOUTH SRI LANKA COAST.

THE LOW PRESSURE AREA OVER EQUATORIAL INDIAN OCEAN OFF SOUTH SRI LANKA COAST PERSISTS. THE SYSTEM IS LIKELY TO BECOME MORE MARKED OVER COMORIN AREA & NEIGHBOURHOOD DURING NEXT 24 HOURS AND CONCENTRATE INTO A DEPRESSION OVER SOUTHEAST ARABIAN SEA & ADJOINING LAKSHADWEEP-MALDIVES AREAS DURING THE SUBSEQUENT 48 HOURS.

(R. K. JENAMANI)
SCIENTIST-F, RSMC, NEW DELHI

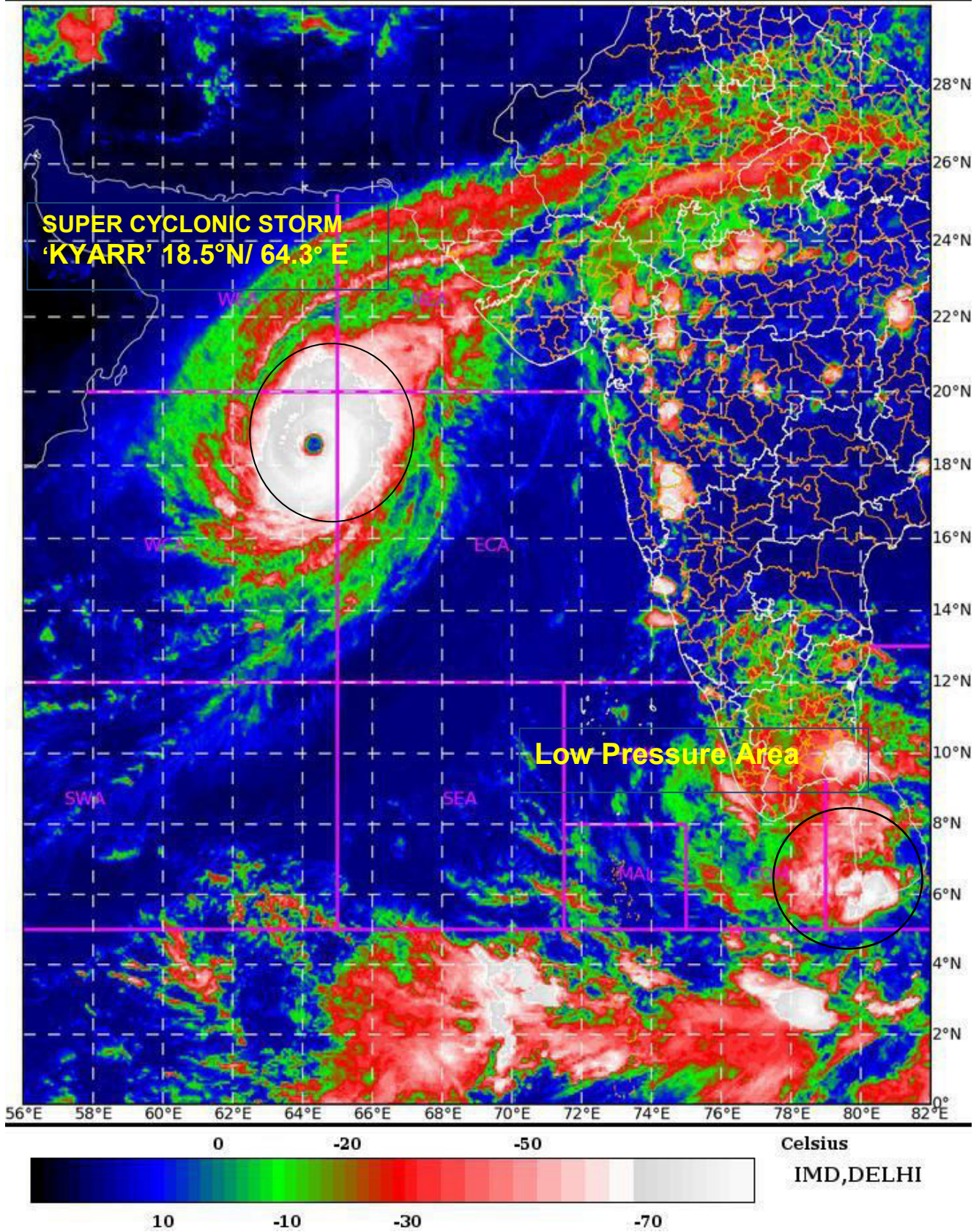
PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

SAT : INSAT-3D IMG 28-10-2019/(1200 to 1226) GMT

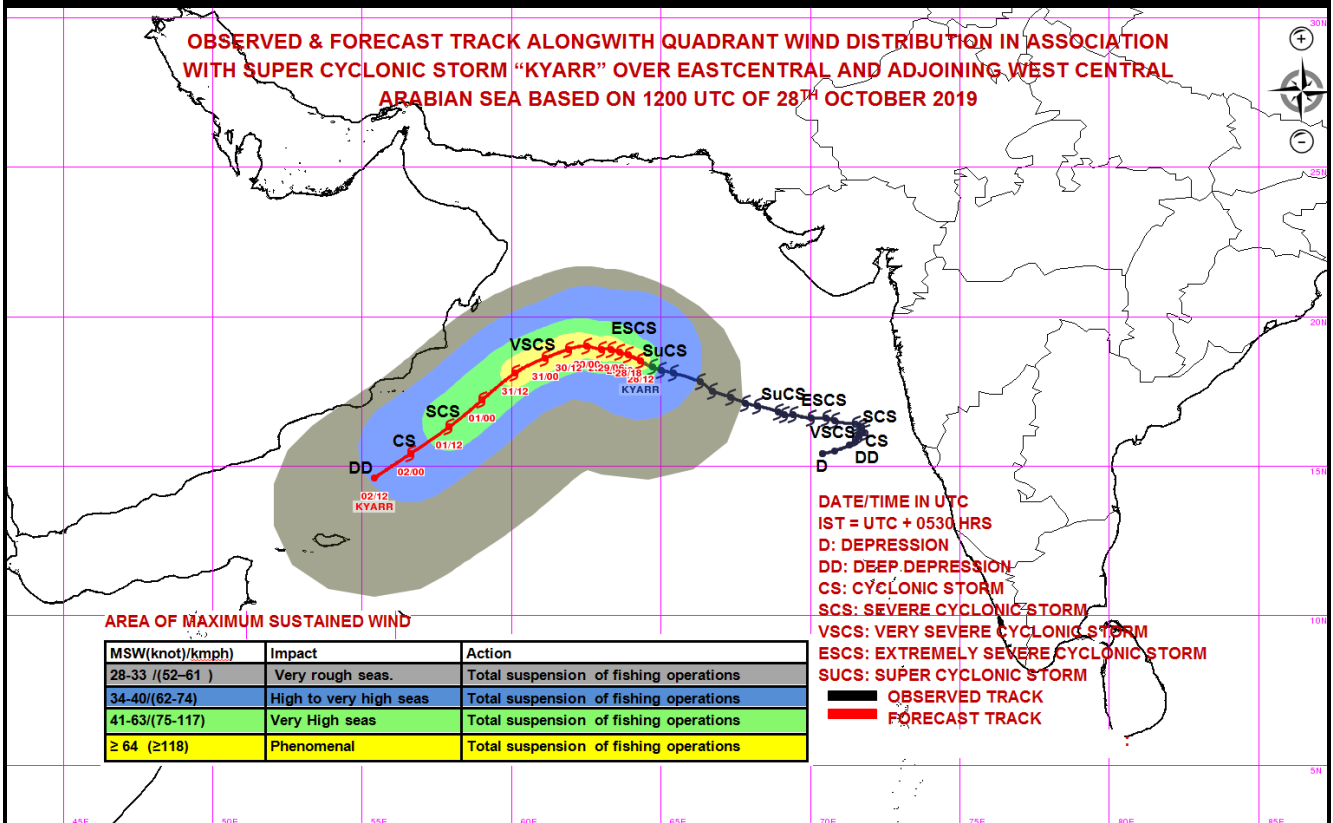
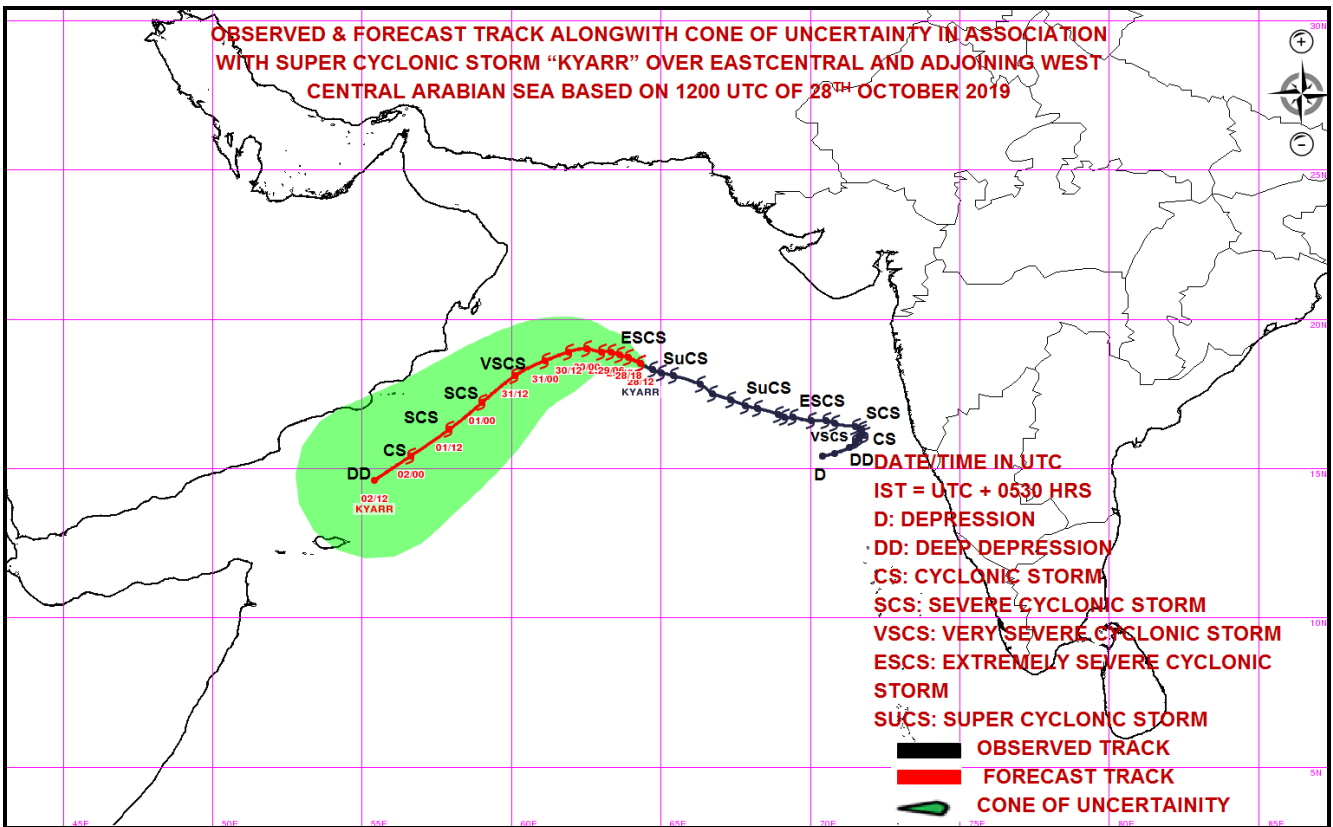
IMG_TIR1_TEMP 10.8 um 28-10-2019/(1730 to 1756) IST

ARABIAN_SEA



PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%



PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%



**REGIONAL SPECIALISED METEOROLOGICAL CENTRE-TROPICAL CYCLONES, NEW DELHI
TROPICAL CYCLONE ADVISORY BULLETIN NO.30**

FROM: RSMC –TROPICAL CYCLONES, NEW DELHI

**TO: STORM WARNING CENTRE, NAYPYI TAW (MYANMAR)
STORM WARNING CENTRE, BANGKOK (THAILAND)
STORM WARNING CENTRE, COLOMBO (SRILANKA)
STORM WARNING CENTRE, DHAKA (BANGLADESH)
STORM WARNING CENTRE, KARACHI (PAKISTAN)
METEOROLOGICAL OFFICE, MALE (MALDIVES)
OMAN METEOROLOGICAL DEPARTMENT, MUSCAT (THROUGH RTH JEDDAH)
YEMEN METEOROLOGICAL SERVICES, REPUBLIC OF YEMEN (THROUGH RTH JEDDAH)
NATIONAL CENTRE FOR METEOROLOGY, UAE (THROUGH RTH JEDDAH)
PRESIDENCY OF METEOROLOGY AND ENVIRONMENT, SAUDI ARABIA (THROUGH RTH JEDDAH)
IRAN METEOROLOGICAL ORGANISATION, (THROUGH RTH JEDDAH)
QATAR METEOROLOGICAL DEPARTMENT (THROUGH RTH JEDDAH)**

TROPICAL CYCLONE ADVISORY No. 30 FOR NORTH INDIAN OCEAN (THE BAY OF BENGAL AND ARABIAN SEA) VALID FOR NEXT 120 HOURS ISSUED AT 1700 UTC OF 28.10.2019 BASED ON 1500 UTC OF 28.10.2019.

**SUB: (A) SUPER CYCLONIC STORM 'KYARR' (PRONOUNCED AS KYARR) OVER EASTCENTRAL AND ADJOINING WESTCENTRAL & NORTH ARABIAN SEA
(B) LOW PRESSURE AREA OVER EQUATORIAL INDIAN OCEAN OFF SOUTH SRI LANKA COAST.**

(A) SUPER CYCLONIC STORM 'KYARR' (PRONOUNCED AS KYARR) OVER EASTCENTRAL AND ADJOINING WESTCENTRAL & NORTH ARABIAN SEA

THE **SUPER CYCLONIC STORM 'KYARR'** OVER EASTCENTRAL AND ADJOINING WESTCENTRAL ARABIAN SEA MOVED WEST-NORTHWESTWARDS WITH A SPEED OF 09 KMPH DURING PAST 06 HRS AND LAY CENTRED AT 1500 HRS UTC OF 28TH OCTOBER, 2019 NEAR LATITUDE 18.7°N AND LONGITUDE 64.1°E OVER EASTCENTRAL AND ADJOINING WESTCENTRAL AND NORTH ARABIAN SEA, ABOUT 920 KM WEST-SOUTHWEST OF MUMBAI (43003), 1080 KM EAST-NORTHEAST OF SALALAH (41316) AND 590 KM EAST-SOUTHEAST OF MASIRAH (41288). IT IS VERY LIKELY TO MOVE WEST-NORTHWESTWARDS TILL 30TH OCTOBER RE-CURVE WEST-SOUTHWESTWARDS THEREAFTER AND MOVE TOWARDS GULF OF ADEN OFF SOUTH OMAN-YEMEN COASTS DURING SUBSEQUENT 3 DAYS. IT IS VERY LIKELY TO MAINTAIN THE INTENSITY OF A SUPER CYCLONIC STORM TILL THE MORNING HOURS OF 29TH OCTOBER AND WEAKEN GRADUALLY THEREAFTER.

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

FORECAST TRACK AND INTENSITY ARE GIVEN IN THE FOLLOWING TABLE:

DATE/TIME (UTC)	POSITION (LAT. °N/ LONG. °E)	MAXIMUM SUSTAINED SURFACE WIND SPEED (KMPH)	CATEGORY OF CYCLONIC DISTURBANCE
28.10.19/1500	18.7/64.1	230-240 GUSTING TO 265	SUPER CYCLONIC STORM
28.10.19/1800	18.7/63.9	230-240 GUSTING TO 265	SUPER CYCLONIC STORM
29.10.19/0000	18.8/63.6	225-235 GUSTING TO 260	SUPER CYCLONIC STORM
29.10.19/0600	18.9/63.3	215-225 GUSTING TO 250	EXTREMELY SEVERE CYCLONIC STORM
29.10.19/1200	18.9/63.0	200-210 GUSTING TO 230	EXTREMELY SEVERE CYCLONIC STORM
30.10.19/0000	19.0/62.5	190-200 GUSTING TO 220	EXTREMELY SEVERE CYCLONIC STORM
30.10.19/1200	18.7/61.9	165-175 GUSTING TO 190	EXTREMELY SEVERE CYCLONIC STORM
31.10.19/0000	18.6/61.1	145-155 GUSTING TO 165	VERY SEVERE CYCLONIC STORM
31.10.19/1200	18.2/60.1	125-135 GUSTING TO 150	VERY SEVERE CYCLONIC STORM
01.11.19/0000	17.2/59.0	110-120 GUSTING TO 130	SEVERE CYCLONIC STORM
01.11.19/1200	16.3/57.9	90-100 GUSTING TO 110	SEVERE CYCLONIC STORM
02.11.19/0000	15.4/56.6	70-80 GUSTING TO 90	CYCLONIC STORM
02.11.19/1200	14.6/55.4	50-60 GUSTING TO 70	DEEP DEPRESSION

REMARKS:

SATELLITE IMAGES INDICATE EYE PATTERN WITH RAGGED EYE IN VISIBLE IMAGERY. PRESENT EYE TEMPERATURE IS +8.5 DEG.C AND EYE DIAMETER IS ABOUT 50 KM(IR IMAGE) WITH ORGANIZING TO RUGGED EYE FORM(VISIBLE IMAGE). AS PER THE SATELLITE IMAGERY AT 1500 UTC OF 28TH OCTOBER, 2019, THE CURRENT INTENSITY OF THE SYSTEM IS T6.5/6.5. ASSOCIATED BROKEN LOW TO MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION LIES OVER EAST CENTRAL ARABIAN SEA BETWEEN LAT 16.5°N TO 20.5°N AND LONG 62.0°E TO 66.5°E. THE MINIMUM CTT IS MINUS 93 DEG C.

THE ESTIMATED MAXIMUM SUSTAINED WIND SPEED IS 125 KNOTS GUSTING TO 145 KNOTS. THE ESTIMATED CENTRAL PRESSURE IS 920 HPA. AT 1500 UTC OF 28TH OCTOBER, A BUOY (23456) LOCATED NEAR LAT. 18.5°N / LONG. 67.5 °E REPORTED MEAN SEA LEVEL PRESSURE OF 1006.8 HPA, 300⁰ WIND WITH SPEED 17.5 KNOTS, WAVE HEIGHT 4.0 METER AND SST 25.7°C. A SHIP LOCATED NEAR LAT. 19.5°N / 71.2°E REPORTED MEAN SEA LEVEL PRESSURE 1012.2 HPA 7.8 KNOTS 160⁰ WIND AND SST 28.5°C. THE SEA CONDITION IS PHENOMENAL AROUND THE SYSTEM CENTRE.

THE MJO LIES IN THE PHASE 3 WITH AMPLITUDE LESS THAN 1. IT WILL REMAIN IN THE SAME PHASE DURING NEXT 3 DAYS AND ENTER INTO PHASE 4 WITH AMPLITUDE LESS THAN 1 THEREAFTER. CONSIDERING THE ENVIRONMENTAL CONDITIONS, TOTAL PRECIPITABLE WATER IMAGERIES INDICATE FURTHER REDUCTION IN WARM AIR ADVECTION WHICH IS HAPPENING ONLY TO THE SOUTHEAST OF THE SYSTEM CENTRE. THE LOW LEVEL RELATIVE VORTICITY HAS INCREASED AND IS NOW ABOUT 300 X10⁻⁵ SEC⁻¹ AROUND THE SYSTEM CENTRE. THE LOWER LEVEL CONVERGENCE IS ABOUT 30 X10⁻⁵S⁻¹ TO THE SOUTH OF THE SYSTEM CENTRE AND THE UPPER LEVEL DIVERGENCE IS ABOUT 20 X10⁻⁵S⁻¹ TO THE SOUTH OF THE SYSTEM CENTRE. THE VERTICAL WIND SHEAR IS LOW (05-10 KNOTS) AROUND THE SYSTEM CENTER. SEA SURFACE TEMPERATURE TO THE SOUTHWEST OF THE SYSTEM CENTER OVER MOST PARTS OF WEST CENTRAL ARABIAN SEA IS AROUND 27-28°C WHILE TO THE NORTH OF THE SYSTEM CENTRE, IT IS WARMER(29-30°C). TROPICAL CYCLONE HEAT POTENTIAL TO THE WEST OF THE SYSTEM CENTER OVER WESTCENTRAL ARABIAN SEAS IS 40-50 KJ/CM2 WHILE AT EAST OF THE SYSTEM CENTER OVER EASTCENTRAL ARABIAN SEA, IT IS 50-70 KJ/CM2 . EQUATORWARD OUTFLOW IS TAKING PLACE IN THE UPPER TROPOSPHERIC LEVELS. ALL THESE DYNAMIC AND THERMODYNAMIC CONDITIONS INDICATE GRADUAL WEAKENING OF THE SYSTEM.

THE UPPER TROPOSPHERIC RIDGE RUNS ALONG 20°N. HENCE THE SYSTEM LIES TO THE SOUTH OF THE RIDGE LEADING TO CONTINUOUS WEST-NORTHWESTWARDS MOVEMENT FOR SOMETIMES. THERE IS AN ANTICYCLONIC CIRCULATION TO THE

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

NORTHEAST OF THE SYSTEM AT MID AND UPPER TROPOSPHERIC LEVEL. IT IS STEERING THE SYSTEM WESTNORTHWESTWARDS. HOWEVER, AS THE SYSTEM MOVES WESTNORTHWESTWARDS , IT IS VERY LIKELY TO COME UNDER THE INFLUENCE OF

ANOTHER ANTICYCLONIC CURCULATION WHICH LIES OVER ARABIAN PENINSULA, LOCATED NORTHWEST OF THE SYSTEM. AS A RESULT, THE SYSTEM MOST LIKELY RECURVE TO WESTSOUTHWESTWARDS, COMMENCING AFTER 1200UTC OF 30 OCTOBER AND VERY LIKELY TO MOVE TOWARDS GULF OF ADEN OFF SOUTH OMAN-YEMEN COASTS DURING SUBSEQUENT 3 DAYS. MAJORITY OF NUMERICAL MODELS AGREE WITH THE ABOVE INFERENCE.

(B) LOW PRESSURE AREA OVER EQUATORIAL INDIAN OCEAN OFF SOUTH SRI LANKA COAST.

THE LOW PRESSURE AREA OVER EQUATORIAL INDIAN OCEAN OFF SOUTH SRI LANKA COAST PERSISTS. THE SYSTEM IS LIKELY TO BECOME MORE MARKED OVER COMORIN AREA & NEIGHBOURHOOD DURING NEXT 24 HOURS AND CONCENTRATE INTO A DEPRESSION OVER SOUTHEAST ARABIAN SEA & ADJOINING LAKSHADWEEP-MALDIVES AREAS DURING THE SUBSEQUENT 48 HOURS.

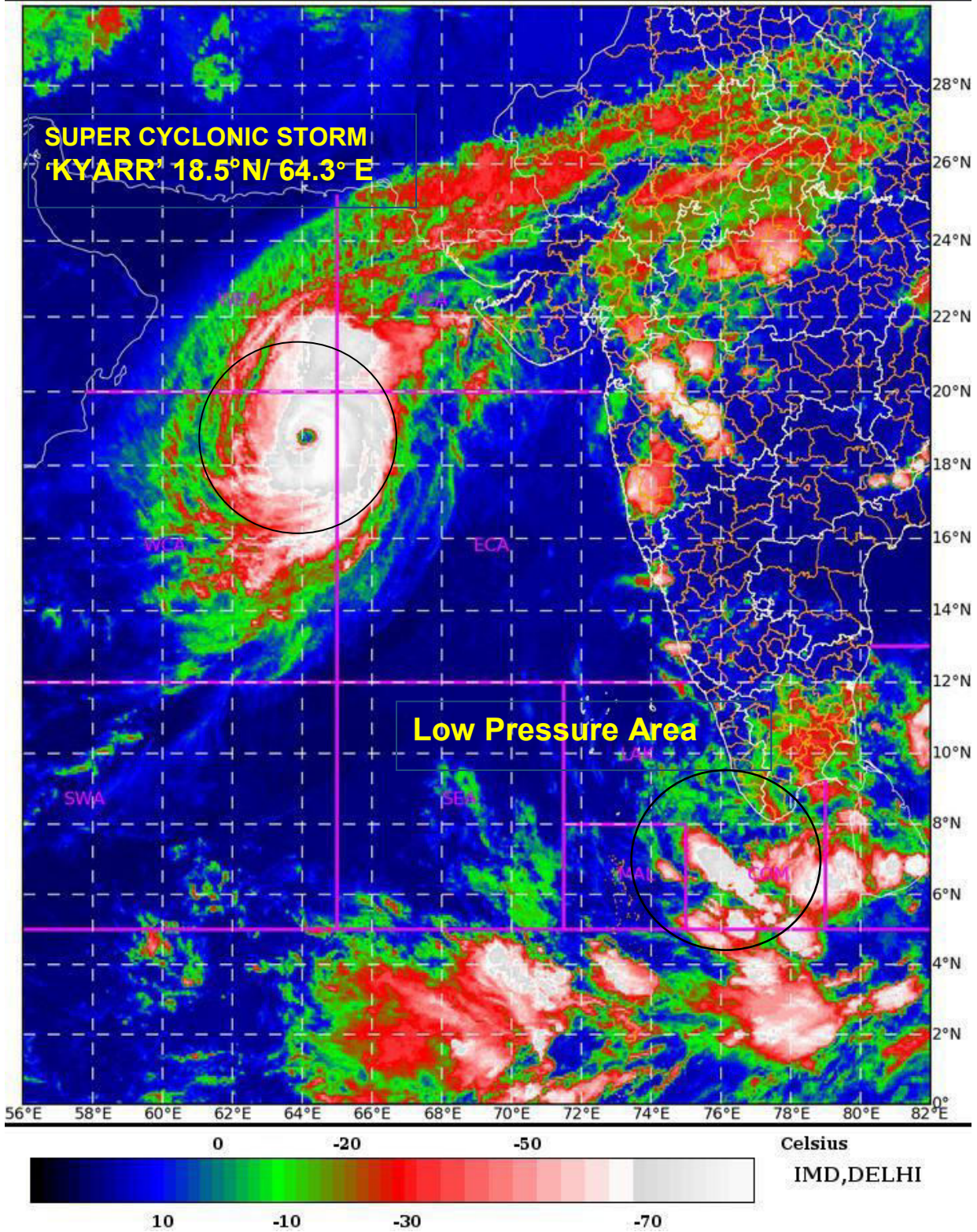
(ANANDA KUMAR DAS)
SCIENTIST-E, RSMC, NEW DELHI

SAT : INSAT-3D IMG 28-10-2019/(1500 to 1526) GMT

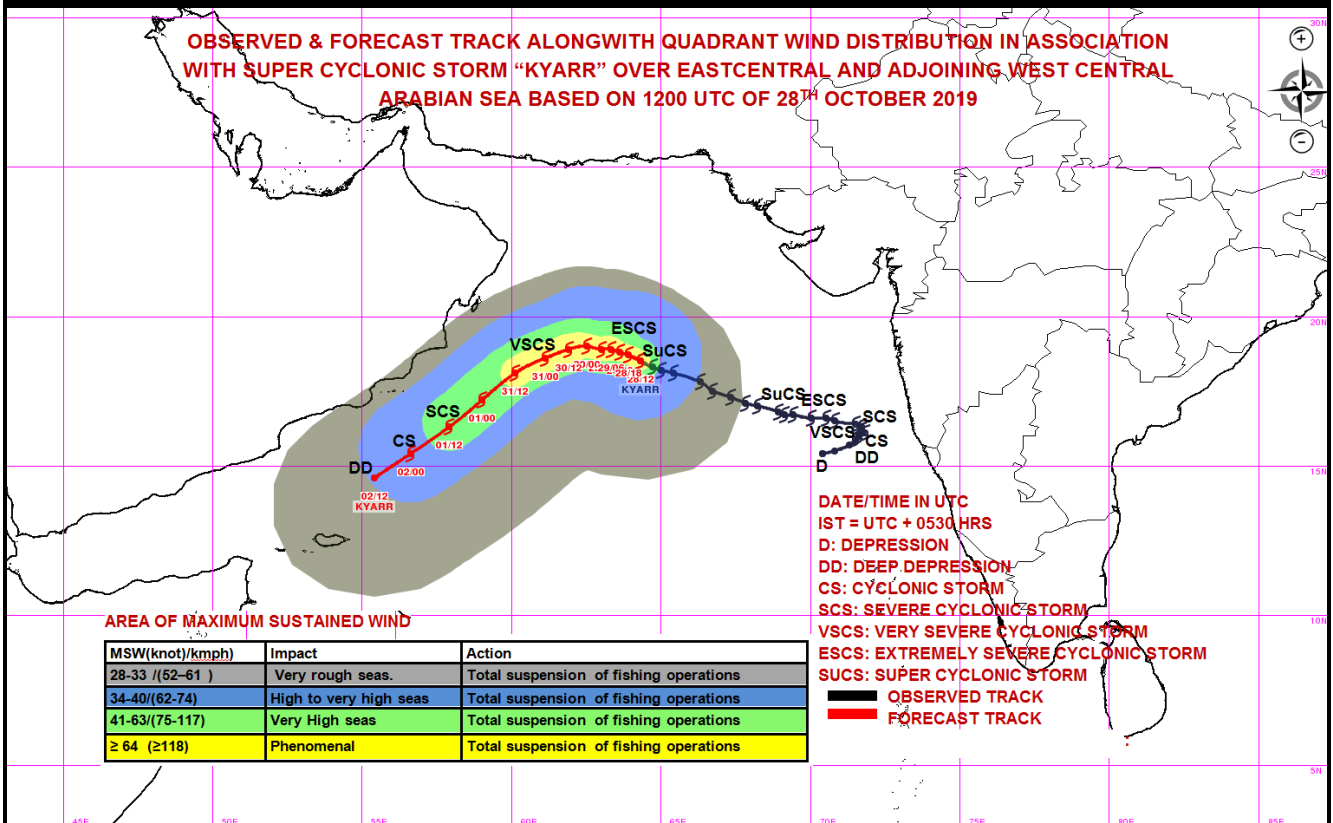
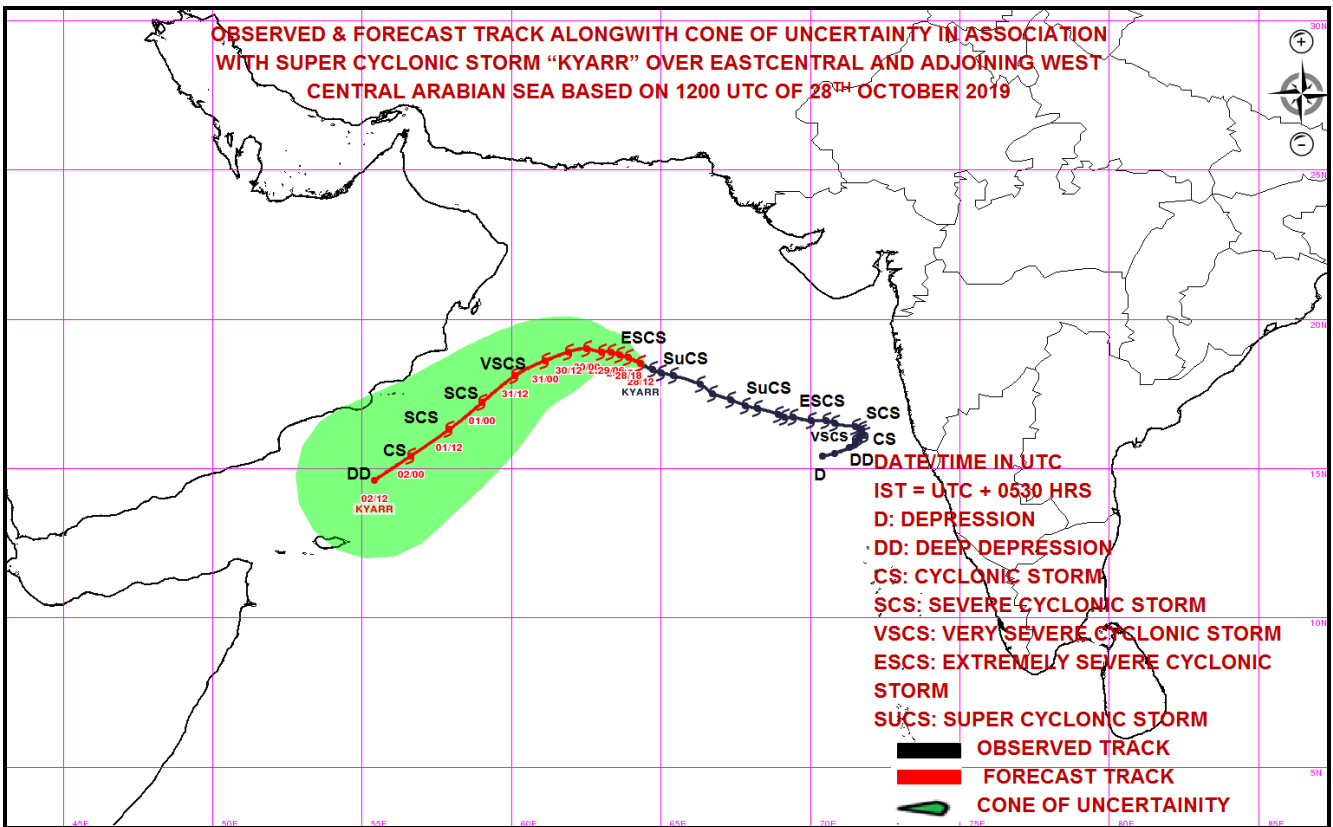
IMG_TIR1_TEMP 10.8 um 28-10-2019/(2030 to 2056) IST



ARABIAN_SEA



PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)
NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%



PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%



**REGIONAL SPECIALISED METEOROLOGICAL CENTRE-TROPICAL CYCLONES, NEW DELHI
TROPICAL CYCLONE ADVISORY BULLETIN NO.31**

FROM: RSMC –TROPICAL CYCLONES, NEW DELHI

**TO: STORM WARNING CENTRE, NAYPYI TAW (MYANMAR)
STORM WARNING CENTRE, BANGKOK (THAILAND)
STORM WARNING CENTRE, COLOMBO (SRILANKA)
STORM WARNING CENTRE, DHAKA (BANGLADESH)
STORM WARNING CENTRE, KARACHI (PAKISTAN)
METEOROLOGICAL OFFICE, MALE (MALDIVES)
OMAN METEOROLOGICAL DEPARTMENT, MUSCAT (THROUGH RTH JEDDAH)
YEMEN METEOROLOGICAL SERVICES, REPUBLIC OF YEMEN (THROUGH RTH JEDDAH)
NATIONAL CENTRE FOR METEOROLOGY, UAE (THROUGH RTH JEDDAH)
PRESIDENCY OF METEOROLOGY AND ENVIRONMENT, SAUDI ARABIA (THROUGH RTH JEDDAH)
IRAN METEOROLOGICAL ORGANISATION, (THROUGH RTH JEDDAH)
QATAR METEOROLOGICAL DEPARTMENT (THROUGH RTH JEDDAH)**

TROPICAL CYCLONE ADVISORY No. 31 FOR NORTH INDIAN OCEAN (THE BAY OF BENGAL AND ARABIAN SEA) VALID FOR NEXT 120 HOURS ISSUED AT 2030 UTC OF 28.10.2019 BASED ON 1800 UTC OF 28.10.2019.

**SUB: (A) SUPER CYCLONIC STORM 'KYARR' (PRONOUNCED AS KYARR) OVER WESTCENTRAL AND ADJOINING EASTCENTRAL & NORTH ARABIAN SEA
(B) LOW PRESSURE AREA OVER EQUATORIAL INDIAN OCEAN OFF SOUTH SRI LANKA COAST.**

(A) SUPER CYCLONIC STORM 'KYARR' (PRONOUNCED AS KYARR) OVER WESTCENTRAL AND ADJOINING EASTCENTRAL & NORTH ARABIAN SEA

THE **SUPER CYCLONIC STORM 'KYARR'** OVER EASTCENTRAL AND ADJOINING WESTCENTRAL & NORTH ARABIAN SEA MOVED WEST-NORTHWESTWARDS WITH A SPEED OF 09 KMPH DURING PAST 06 HRS AND LAY CENTRED AT 1800 HRS UTC OF 28TH OCTOBER, 2019 NEAR LATITUDE 18.8°N AND LONGITUDE 63.9°E OVER WESTCENTRAL AND ADJOINING EASTCENTRAL & NORTH ARABIAN SEA, ABOUT 940 KM WEST-SOUTHWEST OF MUMBAI (43003), 1060 KM EAST-NORTHEAST OF SALALAH (41316) AND 560 KM EAST-SOUTHEAST OF MASIRAH (41288). IT IS VERY LIKELY TO MOVE WEST-NORTHWESTWARDS TILL 30TH OCTOBER EVENING, RE-CURVE WEST-SOUTHWESTWARDS THEREAFTER AND MOVE TOWARDS GULF OF ADEN OFF SOUTH OMAN-YEMEN COASTS DURING SUBSEQUENT 3 DAYS. IT IS VERY LIKELY TO WEAKEN INTO AN EXTREMELY SEVERE CYCLONIC STORM DURING NEXT 12 HOURS, INTO A VERY SEVERE CYCLONIC STORM DURING SUBSEQUENT 24 HOURS AND FURTHER INTO A SEVERE CYCLONIC STORM BY 31ST OCTOBER MORNING.

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

FORECAST TRACK AND INTENSITY ARE GIVEN IN THE FOLLOWING TABLE:

DATE/TIME(UTC)	POSITION (LAT. °N/ LONG. °E)	MAXIMUM SUSTAINED SURFACE WIND SPEED (KMPH)	CATEGORY OF CYCLONIC DISTURBANCE
28.10.19/1800	18.8/63.9	225-235 GUSTING TO 260	SUPER CYCLONIC STORM
29.10.19/0000	18.9/63.6	220-230 GUSTING TO 255	SUPER CYCLONIC STORM
29.10.19/0600	19.0/63.3	210-220 GUSTING TO 240	EXTREMELY SEVERE CYCLONIC STORM
29.10.19/1200	19.0/62.9	200-210 GUSTING TO 230	EXTREMELY SEVERE CYCLONIC STORM
29.10.19/1800	18.9/62.5	190-200 GUSTING TO 220	EXTREMELY SEVERE CYCLONIC STORM
30.10.19/0600	18.8/62.0	165-175 GUSTING TO 190	EXTREMELY SEVERE CYCLONIC STORM
30.10.19/1800	18.7/61.5	140-150 GUSTING TO 165	VERY SEVERE CYCLONIC STORM
31.10.19/0600	18.4/60.6	120-130 GUSTING TO 145	VERY SEVERE CYCLONIC STORM
31.10.19/1800	17.7/59.5	100-110 GUSTING TO 120	SEVERE CYCLONIC STORM
01.11.19/0600	16.7/58.4	90-100 GUSTING TO 110	SEVERE CYCLONIC STORM
01.11.19/1800	15.8/57.3	70-80 GUSTING TO 90	CYCLONIC STORM
02.11.19/0600	15.0/56.0	50-60 GUSTING TO 70	DEEP DEPRESSION
02.11.19/1800	14.2/54.8	30-40 GUSTING TO 50	DEPRESSION

REMARKS:

SATELLITE IMAGES INDICATE EYE PATTERN WITH RAGGED EYE IN VISIBLE IMAGERY. PRESENT EYE TEMPERATURE IS +8.0 DEG.C AND EYE DIAMETER IS ABOUT 50 KM(IR IMAGE) WITH ORGANIZING TO RUGGED EYE FORM(IR IMAGE). AS PER THE SATELLITE IMAGERY AT 1800 UTC OF 28TH OCTOBER, 2019, THE CURRENT INTENSITY OF THE SYSTEM IS T6.0/6.5. ASSOCIATED BROKEN LOW TO MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION LIES OVER EAST CENTRAL ARABIAN SEA BETWEEN LAT 17.0⁰N TO 20.5⁰N AND LONG 62.5⁰E TO 66.0⁰E. THE MINIMUM CTT IS MINUS 93 DEG C.

THE ESTIMATED MAXIMUM SUSTAINED WIND SPEED IS 125 KNOTS GUSTING TO 145 KNOTS. THE ESTIMATED CENTRAL PRESSURE IS 930 HPA. AT 1800 UTC OF 28TH OCTOBER, A BUOY (23456) LOCATED NEAR LAT. 18.5°N / LONG. 67.4 °E REPORTED MEAN SEA LEVEL PRESSURE OF 1007.7 HPA, 320⁰ WIND WITH SPEED 19.4 KNOTS, WAVE HEIGHT 4.0 METER AND SST 25.7°C. A SHIP LOCATED NEAR LAT. 19.6°N / 71.3°E REPORTED MEAN SEA LEVEL PRESSURE 1013.0 HPA 7.9 KNOTS 160⁰ WIND AND SST 28.4°C. THE SEA CONDITION IS PHENOMENAL AROUND THE SYSTEM CENTRE.

THE MJO LIES IN THE PHASE 3 WITH AMPLITUDE LESS THAN 1. IT WILL REMAIN IN THE SAME PHASE DURING NEXT 3 DAYS AND ENTER INTO PHASE 4 WITH AMPLITUDE LESS THAN 1 THEREAFTER. THE LOW LEVEL RELATIVE VORTICITY IS NOW ABOUT 300 X10⁻⁵ SEC⁻¹ TO THE SOUTHEAST OF THE SYSTEM CENTRE. THE LOWER LEVEL CONVERGENCE IS ABOUT 05 X10⁻⁵S⁻¹ TO THE SOUTHEAST OF THE SYSTEM CENTRE AND THE UPPER LEVEL DIVERGENCE IS ABOUT 10 X10⁻⁵S⁻¹ OVER THE SYSTEM CENTRE. THE VERTICAL WIND SHEAR IS LOW (10-15 KNOTS) AROUND THE SYSTEM CENTER. SEA SURFACE TEMPERATURE TO THE SOUTHWEST OF THE SYSTEM CENTER OVER MOST PARTS OF WEST CENTRAL ARABIAN SEA IS AROUND 27-28°C WHILE TO THE NORTH OF THE SYSTEM CENTRE, IT IS WARMER(29-30°C). TROPICAL CYCLONE HEAT POTENTIAL TO THE WEST OF THE SYSTEM CENTER OVER WESTCENTRAL ARABIAN SEAS IS 40-50 KJ/CM2 WHILE AT EAST OF THE SYSTEM CENTER OVER EASTCENTRAL ARABIAN SEA, IT IS 50-70 KJ/CM2 . TOTAL PRECIPITABLE WATER IMAGERIES INDICATE FURTHER REDUCTION IN WARM AIR ADVECTION WHICH IS HAPPENING ONLY TO THE SOUTHEAST OF THE SYSTEM CENTRE. EQUATORWARD OUTFLOW IS TAKING PLACE IN THE UPPER TROPOSPHERIC LEVELS. ALL THESE THE ENVIRONMENTAL, DYNAMIC AND THERMODYNAMIC CONDITIONS INDICATE GRADUAL WEAKENING OF THE SYSTEM.

THE UPPER TROPOSPHERIC RIDGE RUNS ALONG 20°N. HENCE THE SYSTEM LIES TO THE SOUTH OF THE RIDGE LEADING TO CONTINUOUS WEST-NORTHWESTWARDS MOVEMENT FOR SOMETIME. THERE IS AN ANTICYCLONIC CIRCULATION TO THE NORTHEAST OF THE SYSTEM AT MID AND UPPER TROPOSPHERIC LEVEL. IT IS STEERING THE SYSTEM WESTNORTHWESTWARDS. AS THE SYSTEM IS COMING UNDER THE INFLUENCE OF ANOTHER ANTICYCLONIC CURCULATION OVER ARABIAN PENINSULA, LOCATED TO THE NORTHWEST OF SYSTEM, IT IS INHIBITING FURTHER NORTHWARD MOVEMENT. AS A RESULT, THE SYSTEM IS MOST LIKELY TO RECURVE WEST-SOUTHWESTWARDS BY 1200 UTC OF 30TH OCTOBER AND VERY LIKELY TO MOVE TOWARDS GULF OF ADEN OFF SOUTH OMAN-YEMEN COASTS DURING SUBSEQUENT 3 DAYS. MAJORITY OF NUMERICAL MODELS AGREE WITH THE ABOVE INFERENCE.

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

(B) LOW PRESSURE AREA OVER EQUATORIAL INDIAN OCEAN OFF SOUTH SRI LANKA COAST.

THE LOW PRESSURE AREA OVER EQUATORIAL INDIAN OCEAN OFF SOUTH SRI LANKA COAST PERSISTS. THE SYSTEM IS LIKELY TO BECOME MORE MARKED OVER COMORIN AREA & NEIGHBOURHOOD DURING NEXT 24 HOURS AND CONCENTRATE INTO A DEPRESSION OVER SOUTHEAST ARABIAN SEA & ADJOINING LAKSHADWEEP-MALDIVES AREAS DURING THE SUBSEQUENT 48 HOURS.

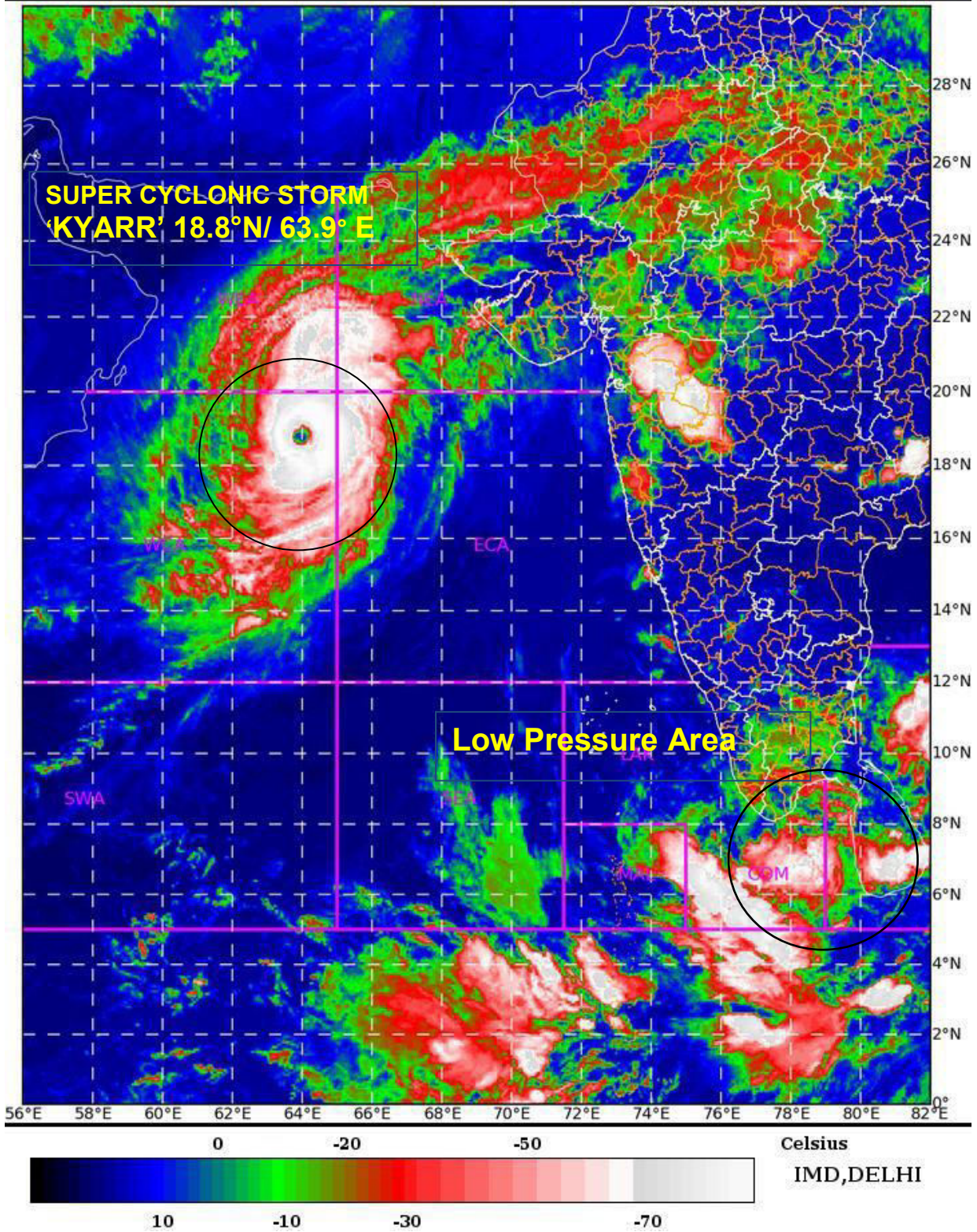
**(ANANDA KUMAR DAS)
SCIENTIST-E, RSMC, NEW DELHI**

SAT : INSAT-3D IMG 28-10-2019/(1630 to 1656) GMT

IMG_TIR1_TEMP 10.8 um 28-10-2019/(2200 to 2226) IST

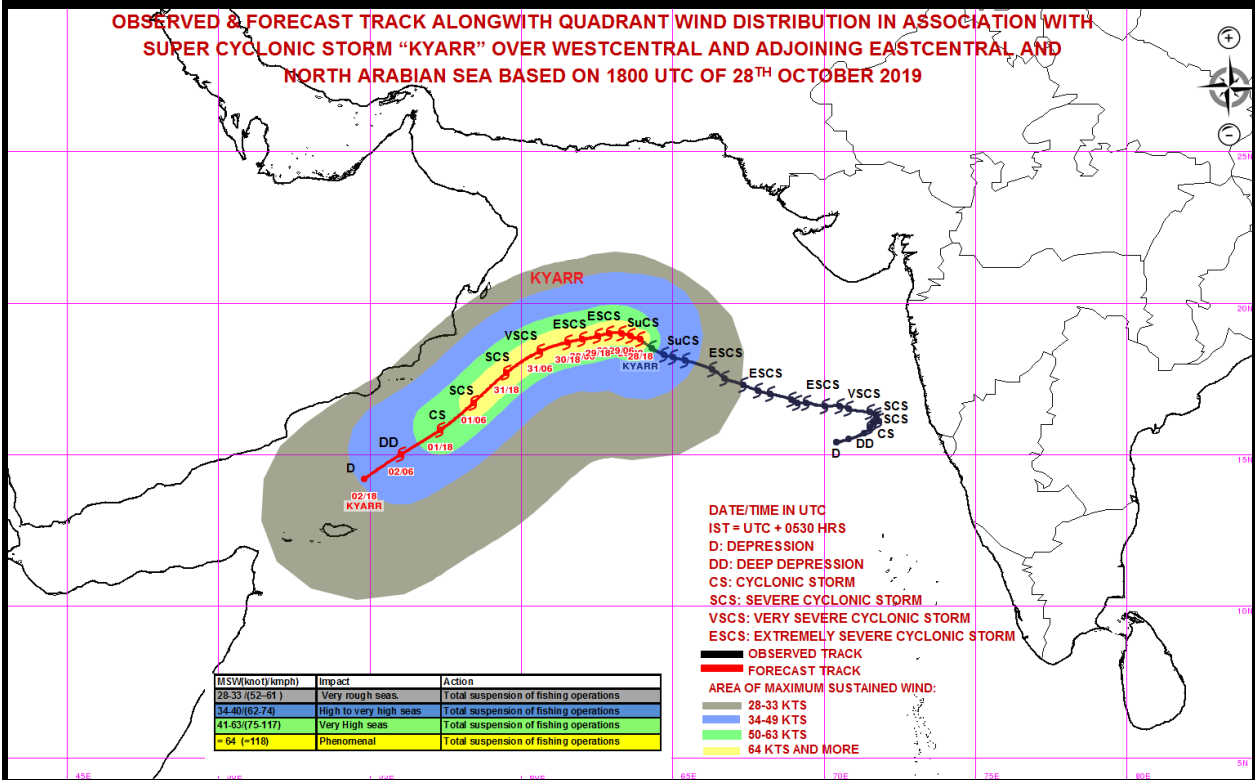
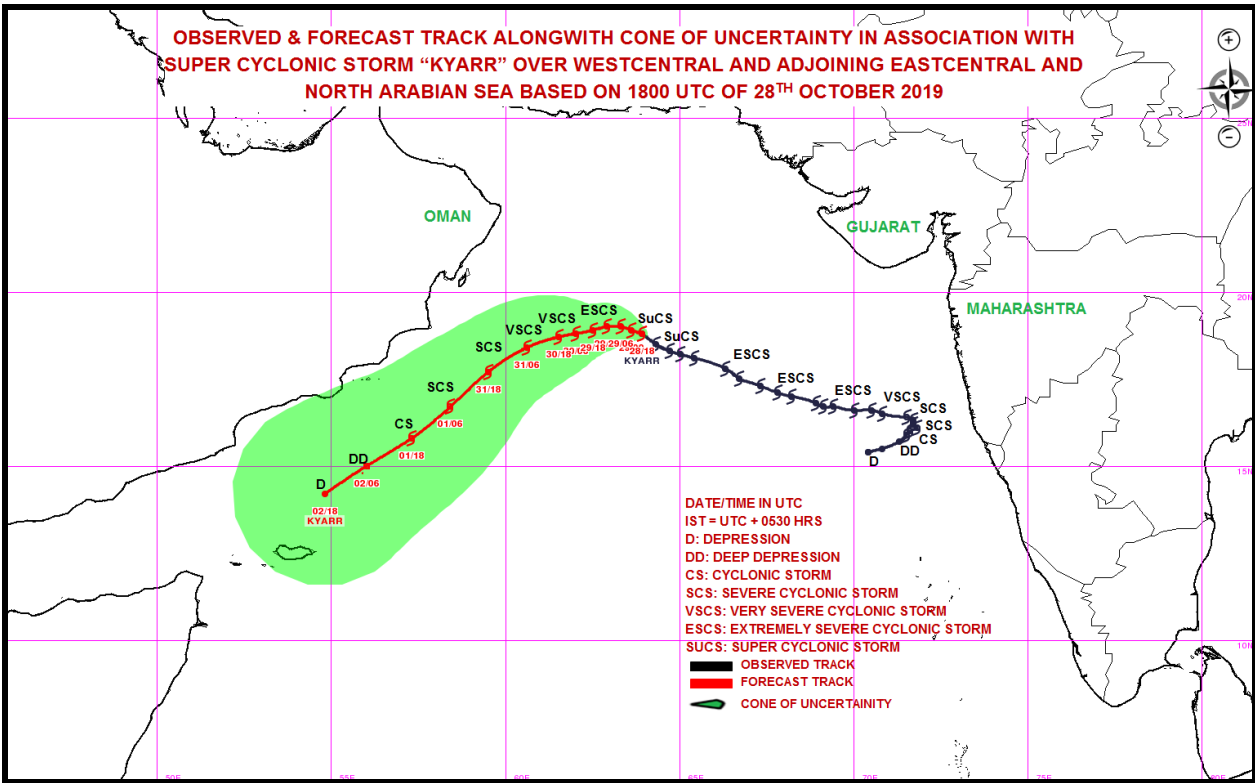


ARABIAN_SEA



PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%



PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)
 NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%



**REGIONAL SPECIALISED METEOROLOGICAL CENTRE-TROPICAL CYCLONES, NEW DELHI
TROPICAL CYCLONE ADVISORY BULLETIN NO.32**

FROM: RSMC –TROPICAL CYCLONES, NEW DELHI

**TO: STORM WARNING CENTRE, NAYPYI TAW (MYANMAR)
STORM WARNING CENTRE, BANGKOK (THAILAND)
STORM WARNING CENTRE, COLOMBO (SRILANKA)
STORM WARNING CENTRE, DHAKA (BANGLADESH)
STORM WARNING CENTRE, KARACHI (PAKISTAN)
METEOROLOGICAL OFFICE, MALE (MALDIVES)
OMAN METEOROLOGICAL DEPARTMENT, MUSCAT (THROUGH RTH JEDDAH)
YEMEN METEOROLOGICAL SERVICES, REPUBLIC OF YEMEN (THROUGH RTH JEDDAH)
NATIONAL CENTRE FOR METEOROLOGY, UAE (THROUGH RTH JEDDAH)
PRESIDENCY OF METEOROLOGY AND ENVIRONMENT, SAUDI ARABIA (THROUGH RTH JEDDAH)
IRAN METEOROLOGICAL ORGANISATION, (THROUGH RTH JEDDAH)
QATAR METEOROLOGICAL DEPARTMENT (THROUGH RTH JEDDAH)**

TROPICAL CYCLONE ADVISORY No. 32 FOR NORTH INDIAN OCEAN (THE BAY OF BENGAL AND ARABIAN SEA) VALID FOR NEXT 120 HOURS ISSUED AT 2230 UTC OF 28.10.2019 BASED ON 2100 UTC OF 28.10.2019.

**SUB: (A) SUPER CYCLONIC STORM 'KYARR' (PRONOUNCED AS KYARR) OVER WESTCENTRAL AND ADJOINING EASTCENTRAL & NORTH ARABIAN SEA
(B) LOW PRESSURE AREA OVER EQUATORIAL INDIAN OCEAN OFF SOUTH SRI LANKA COAST.**

(A) SUPER CYCLONIC STORM 'KYARR' (PRONOUNCED AS KYARR) OVER WESTCENTRAL AND ADJOINING EASTCENTRAL & NORTH ARABIAN SEA

THE **SUPER CYCLONIC STORM 'KYARR'** OVER EASTCENTRAL AND ADJOINING WESTCENTRAL & NORTH ARABIAN SEA MOVED WEST-NORTHWESTWARDS WITH A SPEED OF 06 KMPH DURING PAST 06 HRS AND LAY CENTRED AT 2100 UTC OF 28TH OCTOBER, 2019 NEAR LATITUDE 18.9°N AND LONGITUDE 63.8°E OVER WESTCENTRAL AND ADJOINING EASTCENTRAL & NORTH ARABIAN SEA, ABOUT 950 KM WEST-SOUTHWEST OF MUMBAI (43003), 1050 KM EAST-NORTHEAST OF SALALAH (41316) AND 550 KM EAST-SOUTHEAST OF MASIRAH (41288). IT IS VERY LIKELY TO MOVE WEST-NORTHWESTWARDS TILL 30TH OCTOBER EVENING, RE-CURVE WEST-SOUTHWESTWARDS THEREAFTER AND MOVE TOWARDS GULF OF ADEN OFF SOUTH OMAN-YEMEN COASTS DURING SUBSEQUENT 3 DAYS. IT IS VERY LIKELY TO WEAKEN INTO AN EXTREMELY SEVERE CYCLONIC STORM DURING NEXT 12 HOURS, INTO A VERY SEVERE CYCLONIC STORM DURING SUBSEQUENT 24 HOURS AND FURTHER INTO A SEVERE CYCLONIC STORM BY 31ST OCTOBER MORNING.

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

FORECAST TRACK AND INTENSITY ARE GIVEN IN THE FOLLOWING TABLE:

DATE/TIME(UTC)	POSITION (LAT. °N/ LONG. °E)	MAXIMUM SUSTAINED SURFACE WIND SPEED (KMPH)	CATEGORY OF CYCLONIC DISTURBANCE
28.10.19/2100	18.9/63.8	225-235 GUSTING TO 260	SUPER CYCLONIC STORM
29.10.19/0000	18.9/63.6	220-230 GUSTING TO 255	SUPER CYCLONIC STORM
29.10.19/0600	19.0/63.3	210-220 GUSTING TO 240	EXTREMELY SEVERE CYCLONIC STORM
29.10.19/1200	19.0/62.9	200-210 GUSTING TO 230	EXTREMELY SEVERE CYCLONIC STORM
29.10.19/1800	18.9/62.5	190-200 GUSTING TO 220	EXTREMELY SEVERE CYCLONIC STORM
30.10.19/0600	18.8/62.0	165-175 GUSTING TO 190	EXTREMELY SEVERE CYCLONIC STORM
30.10.19/1800	18.7/61.5	140-150 GUSTING TO 165	VERY SEVERE CYCLONIC STORM
31.10.19/0600	18.4/60.6	120-130 GUSTING TO 145	VERY SEVERE CYCLONIC STORM
31.10.19/1800	17.7/59.5	100-110 GUSTING TO 120	SEVERE CYCLONIC STORM
01.11.19/0600	16.7/58.4	90-100 GUSTING TO 110	SEVERE CYCLONIC STORM
01.11.19/1800	15.8/57.3	70-80 GUSTING TO 90	CYCLONIC STORM
02.11.19/0600	15.0/56.0	50-60 GUSTING TO 70	DEEP DEPRESSION
02.11.19/1800	14.2/54.8	30-40 GUSTING TO 50	DEPRESSION

REMARKS:

SATELLITE IMAGES INDICATE EYE PATTERN WITH RAGGED EYE IN VISIBLE IMAGERY. PRESENT EYE TEMPERATURE IS MINUS 31.4 DEG.C AND EYE DIAMETER IS ABOUT 40 KM(IR IMAGE) WITH ORGANIZING TO RUGGED EYE FORM(IR IMAGE). AS PER THE SATELLITE IMAGERY AT 2100 UTC OF 28TH OCTOBER, 2019, THE CURRENT INTENSITY OF THE SYSTEM IS T6.0/6.5. ASSOCIATED BROKEN LOW TO MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION LIES OVER EAST CENTRAL ARABIAN SEA BETWEEN LAT 18.0⁰N TO 21.0⁰N AND LONG 62.0⁰E TO 66.0⁰E. THE MINIMUM CTT IS MINUS 93 DEG C.

THE ESTIMATED MAXIMUM SUSTAINED WIND SPEED IS 125 KNOTS GUSTING TO 145 KNOTS. THE ESTIMATED CENTRAL PRESSURE IS 930 HPA. AT 2100 UTC OF 28TH OCTOBER. A SHIP LOCATED NEAR LAT. 19.6°N / 71.3°E REPORTED MEAN SEA LEVEL PRESSURE 1011.3 HPA 5.8 KNOTS 110⁰ WIND AND SST 28.0°C. THE SEA CONDITION IS PHENOMENAL AROUND THE SYSTEM CENTRE.

THE MJO LIES IN THE PHASE 3 WITH AMPLITUDE LESS THAN 1. IT WILL REMAIN IN THE SAME PHASE DURING NEXT 3 DAYS AND ENTER INTO PHASE 4 WITH AMPLITUDE LESS THAN 1 THEREAFTER. THE LOW LEVEL RELATIVE VORTICITY IS NOW ABOUT 300 X10⁻⁵ SEC⁻¹ TO THE SOUTHEAST OF THE SYSTEM CENTRE. THE LOWER LEVEL CONVERGENCE IS ABOUT 10 X10⁻⁵S⁻¹ TO THE SOUTH-SOUTHEAST OF THE SYSTEM CENTRE AND THE UPPER LEVEL DIVERGENCE IS ABOUT 20 X10⁻⁵S⁻¹ OVER THE SYSTEM CENTRE. THE VERTICAL WIND SHEAR IS LOW (10-15 KNOTS) AROUND THE SYSTEM CENTER. SEA SURFACE TEMPERATURE TO THE SOUTHWEST OF THE SYSTEM CENTER OVER MOST PARTS OF WEST CENTRAL ARABIAN SEA IS AROUND 27-28°C WHILE TO THE NORTH OF THE SYSTEM CENTRE, IT IS WARMER(29-30°C). TROPICAL CYCLONE HEAT POTENTIAL TO THE WEST OF THE SYSTEM CENTER OVER WESTCENTRAL ARABIAN SEAS IS 40-50 KJ/CM2 WHILE AT EAST OF THE SYSTEM CENTER OVER EASTCENTRAL ARABIAN SEA, IT IS 50-70 KJ/CM2 .

TOTAL PRECIPITABLE WATER IMAGERIES INDICATE FURTHER REDUCTION IN WARM AIR ADVECTION WHICH IS HAPPENING ONLY TO THE SOUTHEAST OF THE SYSTEM CENTRE. EQUATORWARD OUTFLOW IS TAKING PLACE IN THE UPPER TROPOSPHERIC LEVELS. ALL THESE THE ENVIRONMENTAL, DYNAMIC AND THERMODYNAMIC CONDITIONS INDICATE GRADUAL WEAKENING OF THE SYSTEM.

THE UPPER TROPOSPHERIC RIDGE RUNS ALONG 20°N. HENCE THE SYSTEM LIES CLOSELY SOUTH OF THE RIDGE LEADING TO CONTINUOUS WEST-NORTHWESTWARDS MOVEMENT FOR SOMETIME. THERE IS AN ANTICYCLONIC CIRCULATION TO THE NORTHEAST OF THE SYSTEM AT MID AND UPPER TROPOSPHERIC LEVEL. IT IS STEERING THE SYSTEM WESTNORTHWESTWARDS. AS THE SYSTEM IS COMING UNDER THE INFLUENCE OF ANOTHER ANTICYCLONIC CURCULATION OVER ARABIAN PENINSULA, LOCATED TO THE NORTHWEST OF SYSTEM, IT IS INHIBITING FURTHER NORTHWARD MOVEMENT. AS A RESULT, THE SYSTEM IS MOST LIKELY TO RECURVE WEST-SOUTHWESTWARDS BY 1200 UTC OF 30TH OCTOBER AND VERY LIKELY TO MOVE TOWARDS GULF OF ADEN OFF SOUTH OMAN-YEMEN COASTS DURING SUBSEQUENT 3 DAYS. MAJORITY OF NUMERICAL MODELS AGREE WITH THE ABOVE INFERENCE.

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

(B) LOW PRESSURE AREA OVER EQUATORIAL INDIAN OCEAN OFF SOUTH SRI LANKA COAST.

THE LOW PRESSURE AREA OVER EQUATORIAL INDIAN OCEAN OFF SOUTH SRI LANKA COAST PERSISTS. THE SYSTEM IS LIKELY TO BECOME MORE MARKED OVER COMORIN AREA & NEIGHBOURHOOD DURING NEXT 24 HOURS AND CONCENTRATE INTO A DEPRESSION OVER SOUTHEAST ARABIAN SEA & ADJOINING LAKSHADWEEP-MALDIVES AREAS DURING THE SUBSEQUENT 48 HOURS.

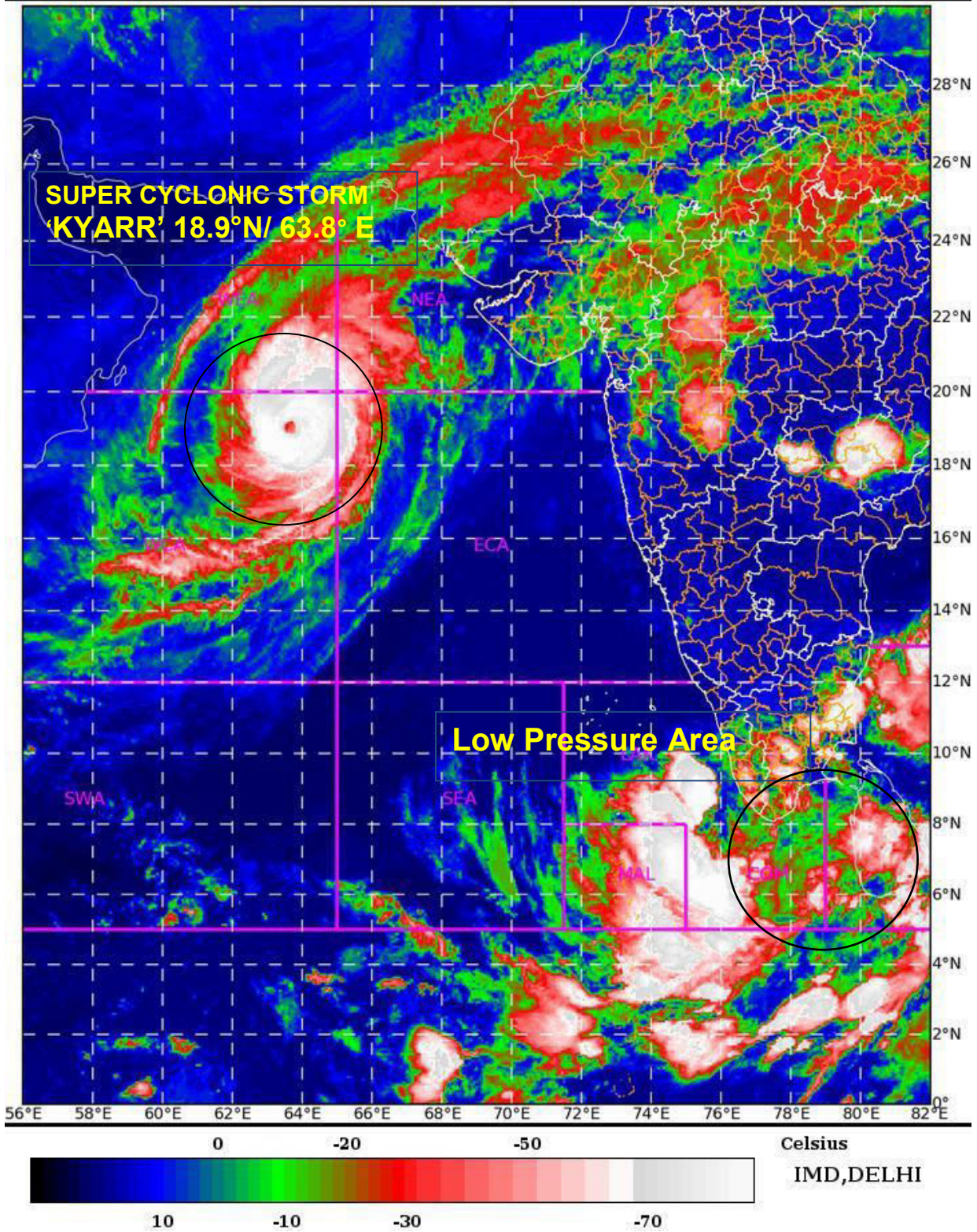
**(ANANDA KUMAR DAS)
SCIENTIST-E, RSMC, NEW DELHI**

SAT : INSAT-3D IMG 28-10-2019/(2130 to 2156) GMT

IMG_TIR1_TEMP 10.8 um 29-10-2019/(0300 to 0326) IST

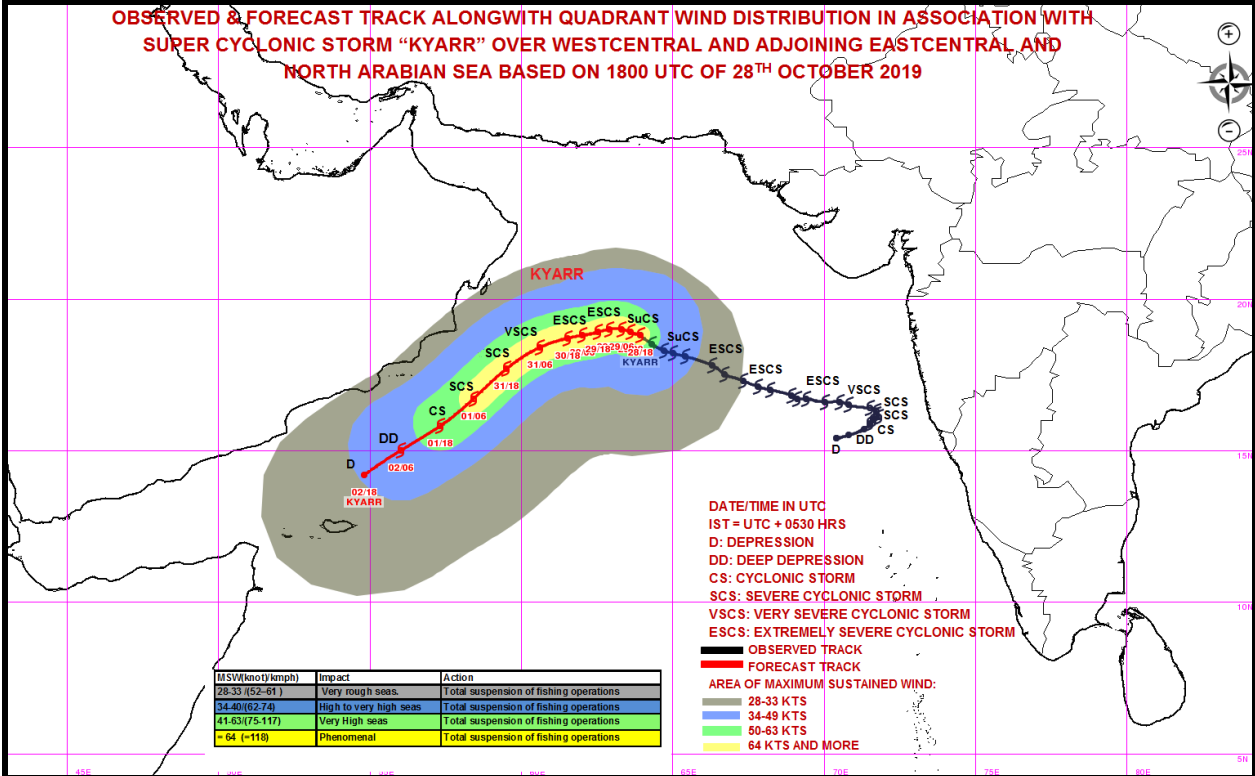
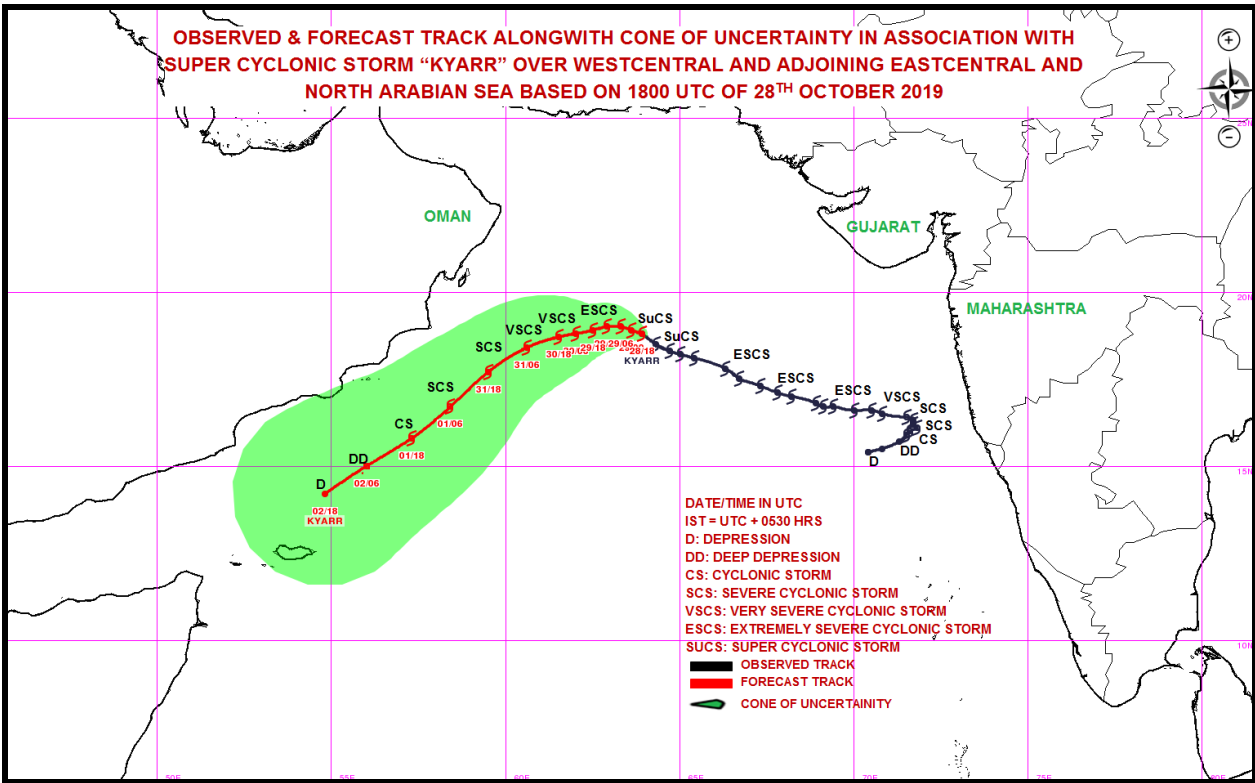


ARABIAN_SEA



PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%



PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)
NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%



**REGIONAL SPECIALISED METEOROLOGICAL CENTRE-TROPICAL CYCLONES, NEW DELHI
TROPICAL CYCLONE ADVISORY BULLETIN NO.33**

FROM: RSMC –TROPICAL CYCLONES, NEW DELHI

**TO: STORM WARNING CENTRE, NAYPYI TAW (MYANMAR)
STORM WARNING CENTRE, BANGKOK (THAILAND)
STORM WARNING CENTRE, COLOMBO (SRILANKA)
STORM WARNING CENTRE, DHAKA (BANGLADESH)
STORM WARNING CENTRE, KARACHI (PAKISTAN)
METEOROLOGICAL OFFICE, MALE (MALDIVES)
OMAN METEOROLOGICAL DEPARTMENT, MUSCAT (THROUGH RTH JEDDAH)
YEMEN METEOROLOGICAL SERVICES, REPUBLIC OF YEMEN (THROUGH RTH JEDDAH)
NATIONAL CENTRE FOR METEOROLOGY, UAE (THROUGH RTH JEDDAH)
PRESIDENCY OF METEOROLOGY AND ENVIRONMENT, SAUDI ARABIA (THROUGH RTH JEDDAH)
IRAN METEOROLOGICAL ORGANISATION, (THROUGH RTH JEDDAH)
QATAR METEOROLOGICAL DEPARTMENT (THROUGH RTH JEDDAH)**

TROPICAL CYCLONE ADVISORY No. 33 FOR NORTH INDIAN OCEAN (THE BAY OF BENGAL AND ARABIAN SEA) VALID FOR NEXT 120 HOURS ISSUED AT 0300 UTC OF 29.10.2019 BASED ON 0000 UTC OF 29.10.2019.

**SUB: (A) SUPER CYCLONIC STORM 'KYARR' (PRONOUNCED AS KYARR) OVER WESTCENTRAL AND ADJOINING EASTCENTRAL & NORTH ARABIAN SEA
(B) WELL MARKED LOW PRESSURE AREA OVER COMORIN AREA AND ADJOINING EQUATORIAL INDIAN OCEAN .**

(A) SUPER CYCLONIC STORM 'KYARR' (PRONOUNCED AS KYARR) OVER WESTCENTRAL AND ADJOINING EASTCENTRAL & NORTH ARABIAN SEA

THE SUPER CYCLONIC STORM 'KYARR' OVER EASTCENTRAL AND ADJOINING WESTCENTRAL & NORTH ARABIAN SEA MOVED WEST-NORTHWESTWARDS WITH A SPEED OF 09 KMPH DURING PAST 06 HRS AND LAY CENTRED AT 0000 UTC OF 29TH OCTOBER, 2019 NEAR LATITUDE 19.1°N AND LONGITUDE 63.5°E OVER WESTCENTRAL AND ADJOINING EASTCENTRAL & NORTH ARABIAN SEA, ABOUT 980 KM WEST OF MUMBAI (43003), 1020 KM EAST-NORTHEAST OF SALALAH (41316) AND 510 KM EAST-SOUTHEAST OF MASIRAH (41288). IT IS VERY LIKELY TO MOVE WEST-NORTHWESTWARDS TILL 0000 UTC OF 30TH OCTOBER, RE-CURVE WEST-SOUTHWESTWARDS THEREAFTER AND MOVE TOWARDS GULF OF ADEN OFF SOUTH OMAN-YEMEN COASTS DURING SUBSEQUENT 3 DAYS. IT IS VERY LIKELY TO WEAKEN INTO AN EXTREMELY SEVERE CYCLONIC STORM DURING NEXT 06 HOURS, INTO A VERY SEVERE CYCLONIC STORM DURING SUBSEQUENT 24 HOURS AND FURTHER INTO A SEVERE CYCLONIC STORM BY 1200 UTC OF 31ST OCTOBER.

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

FORECAST TRACK AND INTENSITY ARE GIVEN IN THE FOLLOWING TABLE:

DATE/TIME(UTC)	POSITION (LAT. °N/ LONG. °E)	MAXIMUM SUSTAINED SURFACE WIND SPEED (KMPH)	CATEGORY OF CYCLONIC DISTURBANCE
29.10.19/0000	19.1/63.5	220-230 GUSTING TO 255	SUPER CYCLONIC STORM
29.10.19/0600	19.2/63.2	200-210 GUSTING TO 230	EXTREMELY SEVERE CYCLONIC STORM
29.10.19/1200	19.3/62.9	190-200 GUSTING TO 220	EXTREMELY SEVERE CYCLONIC STORM
29.10.19/1800	19.4/62.5	170-180 GUSTING TO 200	EXTREMELY SEVERE CYCLONIC STORM
30.10.19/0000	19.4/62.1	160-170 GUSTING TO 190	EXTREMELY SEVERE CYCLONIC STORM
30.10.19/1200	19.3/61.4	140-150 GUSTING TO 170	VERY SEVERE CYCLONIC STORM
31.10.19/0000	19.0/60.7	120-130 GUSTING TO 140	VERY SEVERE CYCLONIC STORM
31.10.19/1200	18.6/60.0	100-110 GUSTING TO 120	SEVERE CYCLONIC STORM
01.11.19/0000	17.6/59.0	80-90 GUSTING TO 100	CYCLONIC STORM
01.11.19/1200	16.6/57.9	60-70 GUSTING TO 80	CYCLONIC STORM
02.11.19/0000	15.6/56.6	50-60 GUSTING TO 70	DEEP DEPRESSION
02.11.19/1200	14.6/55.4	30-40 GUSTING TO 50	DEPRESSION

REMARKS:

SATELLITE IMAGES INDICATE EYE PATTERN WITH RAGGED EYE IN IR IMAGERY. PRESENT EYE TEMPERATURE IS MINUS 43.4 DEG.C. AS PER THE SATELLITE IMAGERY AT 0000 UTC OF 29TH OCTOBER, 2019, THE CURRENT INTENSITY OF THE SYSTEM IS T 5.5/6.5. ASSOCIATED BROKEN LOW TO MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION LIES OVER EAST CENTRAL ARABIAN SEA BETWEEN LAT 18.0°N TO 21.0°N AND LONG 62.0°E TO 65.5°E. THE MINIMUM CTT IS MINUS 93 DEG C.

THE ESTIMATED MAXIMUM SUSTAINED WIND SPEED IS 120 KNOTS GUSTING TO 140 KNOTS. THE ESTIMATED CENTRAL PRESSURE IS 940 HPA. AT 0000 UTC OF 28TH OCTOBER. A SHIP LOCATED NEAR LAT. 23.9°N / 61.5°E REPORTED MEAN SEA LEVEL PRESSURE 1011.3 HPA AND WIND 50⁰ /23 KNOTS. THE SEA CONDITION IS PHENOMENAL AROUND THE SYSTEM CENTRE.

THE MJO LIES IN THE PHASE 3 WITH AMPLITUDE LESS THAN 1. IT WILL REMAIN IN THE SAME PHASE DURING NEXT 3 DAYS AND ENTER INTO PHASE 4 WITH AMPLITUDE LESS THAN 1 THEREAFTER. THE LOW LEVEL RELATIVE VORTICITY IS ABOUT $300 \times 10^{-5} \text{ SEC}^{-1}$ TO THE SOUTHEAST OF THE SYSTEM CENTRE. THE LOWER LEVEL CONVERGENCE IS ABOUT $30 \times 10^{-5} \text{ S}^{-1}$ TO THE SOUTH-SOUTHEAST OF THE SYSTEM CENTRE AND THE UPPER LEVEL DIVERGENCE IS ABOUT $20 \times 10^{-5} \text{ S}^{-1}$ OVER THE SYSTEM CENTRE. THE VERTICAL WIND SHEAR IS LOW TO MODERATE (10-20 KNOTS) AROUND THE SYSTEM CENTER. SEA SURFACE TEMPERATURE TO THE SOUTHWEST OF THE SYSTEM CENTER OVER MOST PARTS OF WEST CENTRAL ARABIAN SEA IS AROUND 27-28°C WHILE TO THE NORTH OF THE SYSTEM CENTRE, IT IS WARMER(29-30°C). TROPICAL CYCLONE HEAT POTENTIAL TO THE WEST OF THE SYSTEM CENTER OVER WESTCENTRAL ARABIAN SEAS IS 40-50 KJ/CM2 WHILE AT EAST OF THE SYSTEM CENTER OVER EASTCENTRAL ARABIAN SEA, IT IS 50-70 KJ/CM2 .

TOTAL PRECIPITABLE WATER IMAGERIES INDICATE FURTHER REDUCTION IN WARM AIR ADVECTION AND DRY AIR INCURSION IN THE WESTERN SECTOR OF THE SYSTEM CENTRE. EQUATORWARD OUTFLOW IS TAKING PLACE IN THE UPPER TROPOSPHERIC LEVELS. ALL THESE THE ENVIRONMENTAL, DYNAMIC AND THERMODYNAMIC CONDITIONS INDICATE GRADUAL WEAKENING OF THE SYSTEM.

THE UPPER TROPOSPHERIC RIDGE RUNS ALONG 20°N. THE SYSTEM IS BEING STEERED BY THE WINDS IN THE WESTERN PERIPHERY OF THE ANTI-CYCLONE LOCATED TO THE EAST.AS A RESULT, IT IS CONTINUING TO MOVE WEST-NORTHWESTWARDS AND WILL COME UNDER THE INFLUENCE OF THE ANTICYCLONIC CIRCULATION OVER ARABIAN PENINSULA, LOCATED TO THE NORTHWEST OF SYSTEM, THE SYSTEM IS CURRENTLY ENTERING INTO THE COL REGION AND THUS HAS SLOWED DOWN. THE SYSTEM IS MOST LIKELY TO RECURVE WEST-SOUTHWESTWARDS BY 1200 UTC OF 30TH OCTOBER AND VERY LIKELY TO MOVE TOWARDS GULF OF ADEN OFF SOUTH OMAN-YEMEN COASTS DURING SUBSEQUENT 3 DAYS. MAJORITY OF NUMERICAL MODELS AGREE WITH THE ABOVE INFERENCE.

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

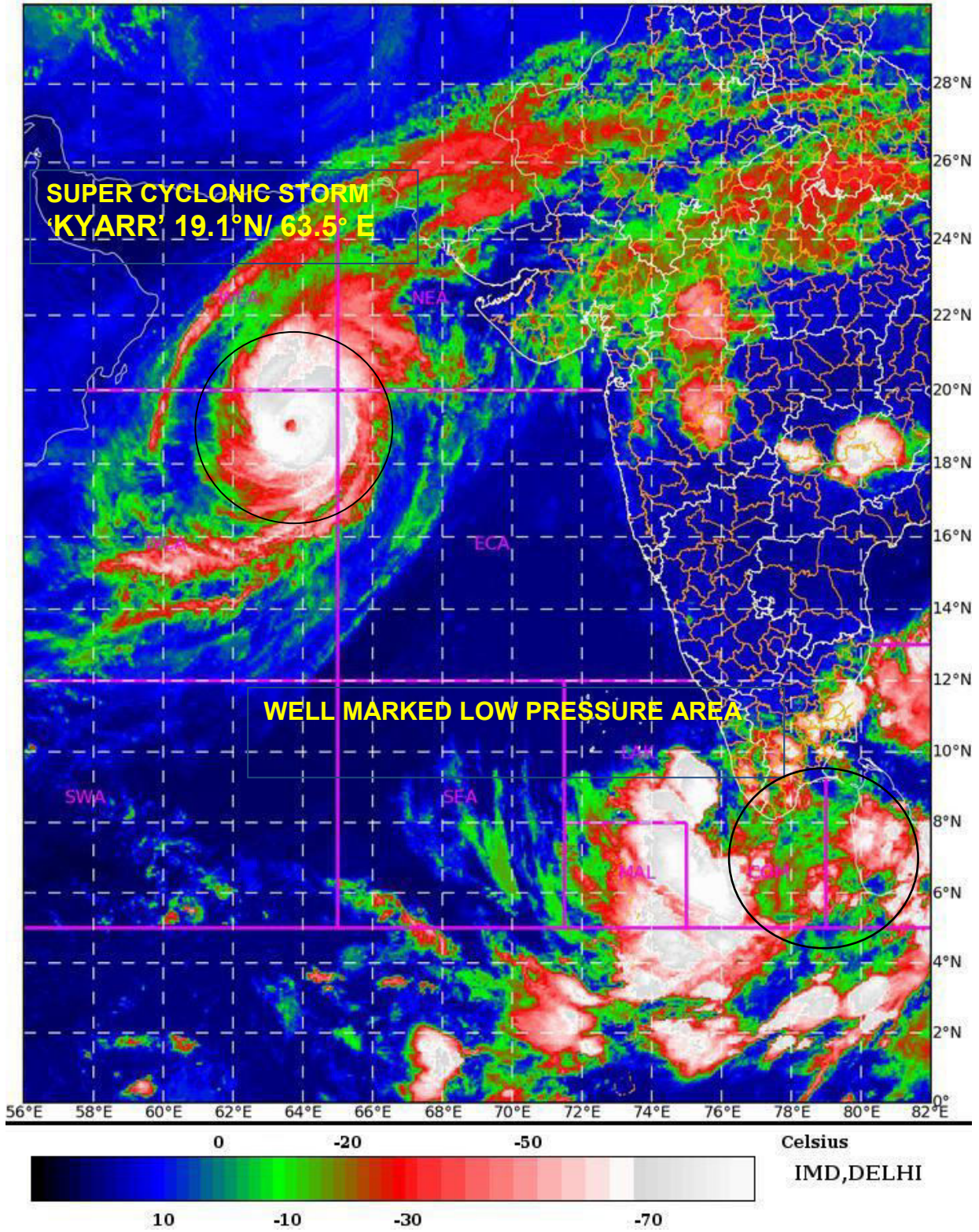
(B) WELL MARKED LOW PRESSURE AREA OVER COMORIN AREA AND ADJOINING EQUATORIAL INDIAN OCEAN.

THE LOW PRESSURE AREA OVER EQUATORIAL INDIAN OCEAN OFF SOUTH SRI LANKA COAST NOW LIES AS A WELL MARKED LOW PRESSURE AREA OVER COMORIN AREA AND ADJOINING EQUATORIAL INDIAN OCEAN. IT IS LIKELY TO CONCENTRATE INTO A DEPRESSION OVER SOUTHEAST ARABIAN SEA & ADJOINING LAKSHADWEEP-MALDIVES AREAS DURING NEXT 24 HOURS.

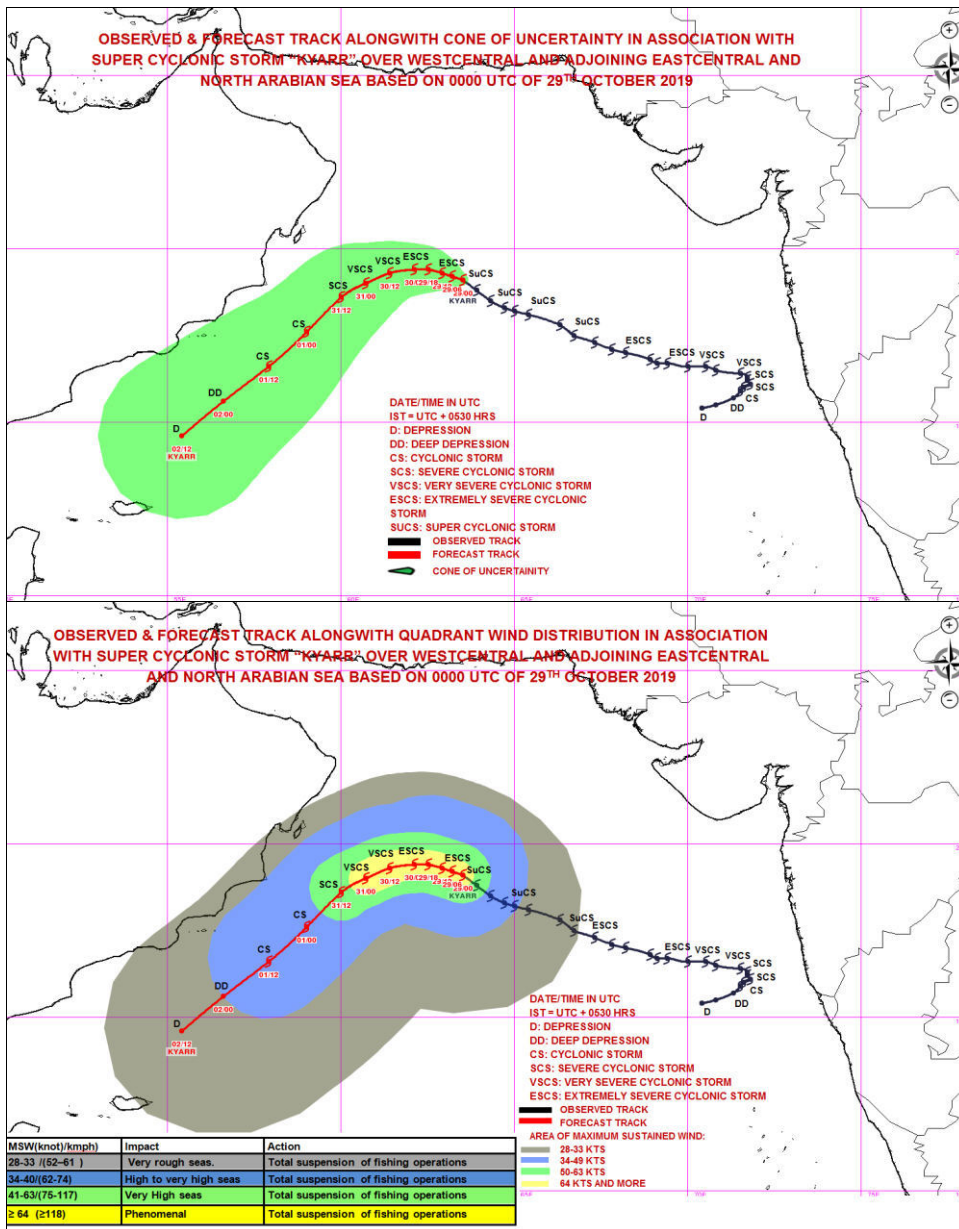
**(SUNITHA DEVI)
SCIENTIST-E, RSMC, NEW DELHI**



ARABIAN SEA



PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)
NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%



PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%



REGIONAL SPECIALISED METEOROLOGICAL CENTRE-TROPICAL CYCLONES, NEW DELHI
TROPICAL CYCLONE ADVISORY BULLETIN NO.34

FROM: RSMC –TROPICAL CYCLONES, NEW DELHI

TO: STORM WARNING CENTRE, NAYPYI TAW (MYANMAR)
STORM WARNING CENTRE, BANGKOK (THAILAND)
STORM WARNING CENTRE, COLOMBO (SRILANKA)
STORM WARNING CENTRE, DHAKA (BANGLADESH)
STORM WARNING CENTRE, KARACHI (PAKISTAN)
METEOROLOGICAL OFFICE, MALE (MALDIVES)
OMAN METEOROLOGICAL DEPARTMENT, MUSCAT (THROUGH RTH JEDDAH)
YEMEN METEOROLOGICAL SERVICES, REPUBLIC OF YEMEN (THROUGH RTH JEDDAH)
NATIONAL CENTRE FOR METEOROLOGY, UAE (THROUGH RTH JEDDAH)
PRESIDENCY OF METEOROLOGY AND ENVIRONMENT, SAUDI ARABIA (THROUGH RTH JEDDAH)
IRAN METEOROLOGICAL ORGANISATION, (THROUGH RTH JEDDAH)
QATAR METEOROLOGICAL DEPARTMENT (THROUGH RTH JEDDAH)

TROPICAL CYCLONE ADVISORY No. 34 FOR NORTH INDIAN OCEAN (THE BAY OF BENGAL AND ARABIAN SEA) VALID FOR NEXT 120 HOURS ISSUED AT 0600 UTC OF 29.10.2019 BASED ON 0300 UTC OF 29.10.2019.

SUB: (A) EXTREMELEY SEVERE CYCLONIC STORM 'KYARR' (PRONOUNCED AS KYARR) OVER WESTCENTRAL AND ADJOINING EASTCENTRAL & NORTH ARABIAN SEA
(B) WELL MARKED LOW PRESSURE AREA OVER COMORIN AREA AND ADJOINING EQUATORIAL INDIAN OCEAN .

(A) EXTREMELEY SEVERE CYCLONIC STORM 'KYARR' (PRONOUNCED AS KYARR) OVER WESTCENTRAL AND ADJOINING EASTCENTRAL & NORTH ARABIAN SEA

THE **SUPER CYCLONIC STORM 'KYARR'** OVER WESTCENTRAL AND ADJOINING EASTCENTRAL & NORTH ARABIAN SEA MOVED WEST-NORTHWESTWARDS WITH A SPEED OF 09 KMPH DURING PAST 06 HRS, WEAKENED INTO AN **EXTREMELY SEVERE CYCLONIC STORM** OVER WESTCENTRAL AND ADJOINING EASTCENTRAL & NORTH ARABIAN SEA AND LAY CENTRED AT 0300 UTC OF 29TH OCTOBER, 2019 NEAR LATITUDE 19.2°N AND LONGITUDE 63.4°E, ABOUT 990 KM WEST OF MUMBAI (43003), 1010 KM EAST-NORTHEAST OF SALALAH (41316) (OMAN) AND 500 KM EAST-SOUTHEAST OF MASIRAH (41288) (OMAN). IT IS VERY LIKELY TO MOVE WEST-NORTHWESTWARDS TILL 30TH OCTOBER MORNING, RE-CURVE WEST-SOUTHWESTWARDS THEREAFTER AND MOVE TOWARDS GULF OF ADEN OFF SOUTH OMAN-YEMEN COASTS DURING SUBSEQUENT 3 DAYS. IT IS VERY LIKELY TO WEAKEN INTO A VERY SEVERE CYCLONIC STORM BY 0000 UTC OF 30TH OCTOBER AND FURTHER INTO A SEVERE CYCLONIC STORM BY 1200 UTC OF 31ST OCTOBER.

FORECAST TRACK AND INTENSITY ARE GIVEN IN THE FOLLOWING TABLE:

DATE/TIME(UTC)	POSITION (LAT. °N/ LONG. °E)	MAXIMUM SUSTAINED SURFACE WIND SPEED (KMPH)	CATEGORY OF CYCLONIC DISTURBANCE
29.10.19/0300	19.2/63.4	200-210 GUSTING TO 230	EXTREMELY SEVERE CYCLONIC STORM
29.10.19/0600	19.2/63.2	200-210 GUSTING TO 230	EXTREMELY SEVERE CYCLONIC STORM
29.10.19/1200	19.3/62.9	180-190 GUSTING TO 210	EXTREMELY SEVERE CYCLONIC STORM
29.10.19/1800	19.4/62.5	160-170 GUSTING TO 190	EXTREMELY SEVERE CYCLONIC STORM
30.10.19/0000	19.4/62.1	140-150 GUSTING TO 170	VERY SEVERE CYCLONIC STORM
30.10.19/1200	19.3/61.4	130-140 GUSTING TO 150	VERY SEVERE CYCLONIC STORM
31.10.19/0000	19.0/60.7	120-130 GUSTING TO 140	VERY SEVERE CYCLONIC STORM
31.10.19/1200	18.6/60.0	100-110 GUSTING TO 120	SEVERE CYCLONIC STORM
01.11.19/0000	17.6/59.0	80-90 GUSTING TO 100	CYCLONIC STORM
01.11.19/1200	16.6/57.9	60-70 GUSTING TO 80	CYCLONIC STORM
02.11.19/0000	15.6/56.6	50-60 GUSTING TO 70	DEEP DEPRESSION
02.11.19/1200	14.6/55.4	30-40 GUSTING TO 50	DEPRESSION

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

REMARKS:

SATELLITE IMAGES INDICATE EYE PATTERN WITH RAGGED EYE IN IR IMAGERY. PRESENT EYE TEMPERATURE IS MINUS 34.6 DEG.C. AS PER THE SATELLITE IMAGERY AT 0300 UTC OF 29TH OCTOBER, 2019, THE CURRENT INTENSITY OF THE SYSTEM IS T 5.5/6.5. ASSOCIATED BROKEN LOW TO MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION LIES OVER WESTCENTRAL AND ADJOINING EAST CENTRAL ARABIAN SEA BETWEEN LAT 17.5⁰N TO 21.5⁰N AND LONG 61.5⁰E TO 65.5⁰E. THE MINIMUM CTT IS MINUS 93 DEG C.

THE ESTIMATED MAXIMUM SUSTAINED WIND SPEED IS 115 KNOTS GUSTING TO 130 KNOTS. THE ESTIMATED CENTRAL PRESSURE IS 943 HPA. THE SEA CONDITION IS PHENOMENAL AROUND THE SYSTEM CENTRE.

THE MJO LIES IN THE PHASE 3 WITH AMPLITUDE LESS THAN 1. IT WILL REMAIN IN THE SAME PHASE DURING NEXT 3 DAYS AND ENTER INTO PHASE 4 WITH AMPLITUDE LESS THAN 1 THEREAFTER. THE LOW LEVEL RELATIVE VORTICITY IS ABOUT $300 \times 10^{-5} \text{ SEC}^{-1}$ TO THE SOUTHEAST OF THE SYSTEM CENTRE. THE LOWER LEVEL CONVERGENCE IS ABOUT $40 \times 10^{-5} \text{ S}^{-1}$ TO THE SOUTH OF THE SYSTEM CENTRE AND THE UPPER LEVEL DIVERGENCE IS ABOUT $20 \times 10^{-5} \text{ S}^{-1}$ OVER THE SYSTEM CENTRE. THE VERTICAL WIND SHEAR IS MODERATE (20 KNOTS) AROUND THE SYSTEM CENTER. SEA SURFACE TEMPERATURE TO THE SOUTHWEST OF THE SYSTEM CENTER OVER MOST PARTS OF WEST CENTRAL ARABIAN SEA IS AROUND 27-28°C WHILE TO THE NORTH OF THE SYSTEM CENTRE, IT IS WARMER (29-30°C). TROPICAL CYCLONE HEAT POTENTIAL TO THE WEST OF THE SYSTEM CENTER OVER WESTCENTRAL ARABIAN SEAS IS 40-50 KJ/CM² WHILE TO THE EAST OF THE SYSTEM CENTER OVER EASTCENTRAL ARABIAN SEA, IT IS 50-70 KJ/CM².

TOTAL PRECIPITABLE WATER IMAGERIES INDICATE FURTHER REDUCTION IN WARM AIR ADVECTION AND DRY AIR INCURSION IN THE WESTERN AND SOUTHERN SECTORS OF THE SYSTEM CENTRE. EQUATORWARD OUTFLOW IS TAKING PLACE IN THE UPPER TROPOSPHERIC LEVELS. ALL THESE ENVIRONMENTAL, DYNAMIC AND THERMODYNAMIC CONDITIONS INDICATE GRADUAL WEAKENING OF THE SYSTEM.

THE UPPER TROPOSPHERIC RIDGE RUNS ALONG 19°N. THE SYSTEM IS BEING STEERED BY THE WINDS IN THE WESTERN PERIPHERY OF THE ANTI-CYCLONE LOCATED TO THE EAST OF THE SYSTEM. AS A RESULT, IT IS CONTINUING TO MOVE WEST-NORTHWESTWARDS SLOWLY BEING IN THE COL REGION. IT WILL COME UNDER THE INFLUENCE OF THE ANTICYCLONIC CIRCULATION OVER ARABIAN PENINSULA, LOCATED TO THE NORTHWEST OF SYSTEM BY 0000 UTC OF 30TH OCTOBER. SUBSEQUENTLY THE SYSTEM IS MOST LIKELY TO RECURVE WEST-SOUTHWESTWARDS AND VERY LIKELY TO MOVE TOWARDS GULF OF ADEN OFF SOUTH OMAN-YEMEN COASTS THEREAFTER. MAJORITY OF NUMERICAL MODELS AGREE WITH THE ABOVE INFERENCE.

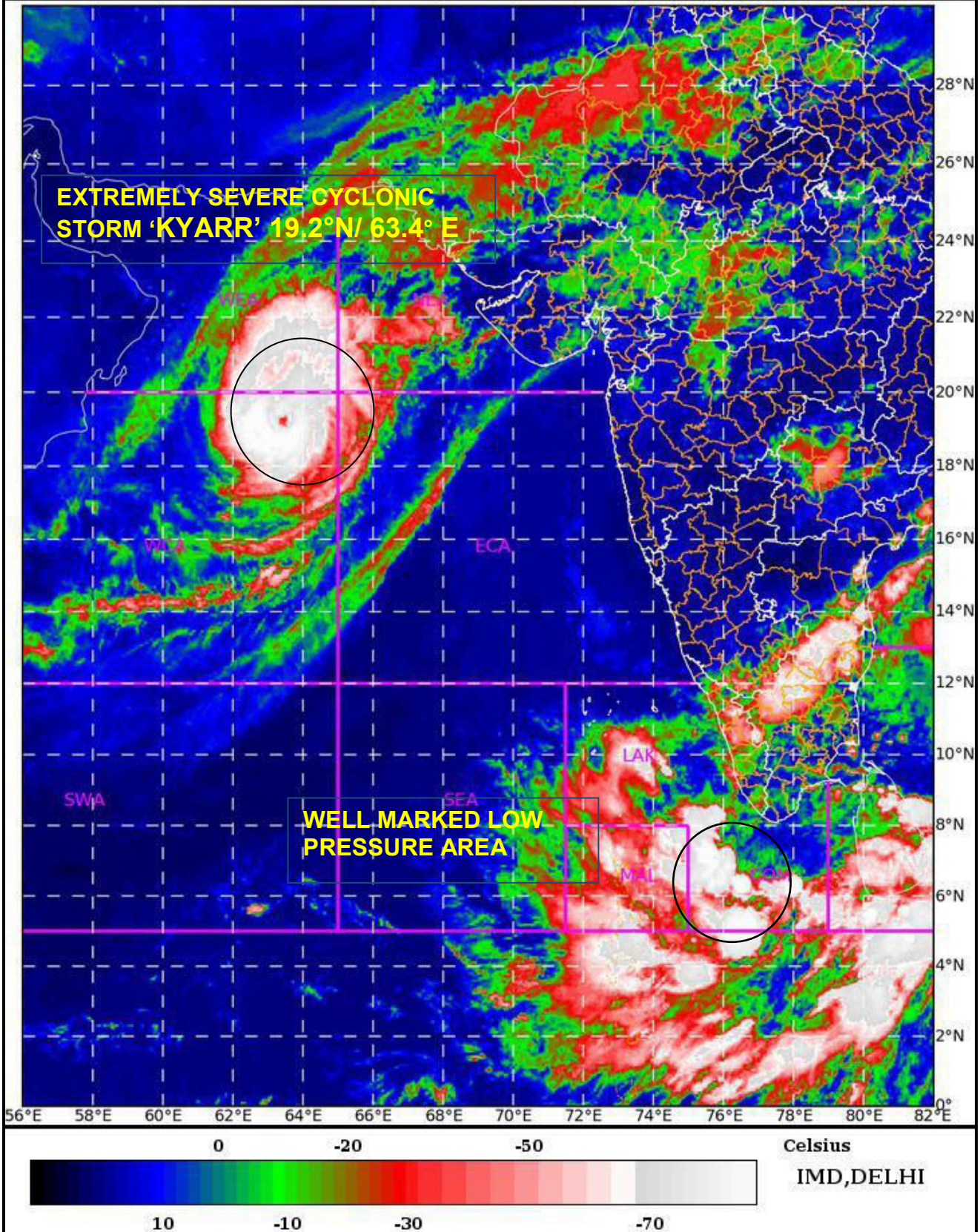
(B) WELL MARKED LOW PRESSURE AREA OVER COMORIN AREA & ADJOINING EQUATORIAL INDIAN OCEAN.

THE WELL MARKED LOW PRESSURE AREA OVER COMORIN AREA & ADJOINING EQUATORIAL INDIAN OCEAN PERSISTS. IT IS LIKELY TO CONCENTRATE INTO A DEPRESSION OVER LAKSHADWEEP-MALDIVES AREAS AND ADJOINING SOUTHEAST ARABIAN SEA DURING NEXT 24 HOURS. IT IS LIKELY TO MOVE NORTHWESTWARDS ACROSS LAKSHADWEEP ISLANDS AND INTENSIFY INTO A DEEP DEPRESSION DURING SUBSEQUENT 24 HOURS.

**(NEETHA K GOPAL)
SCIENTIST-E, RSMC, NEW DELHI**

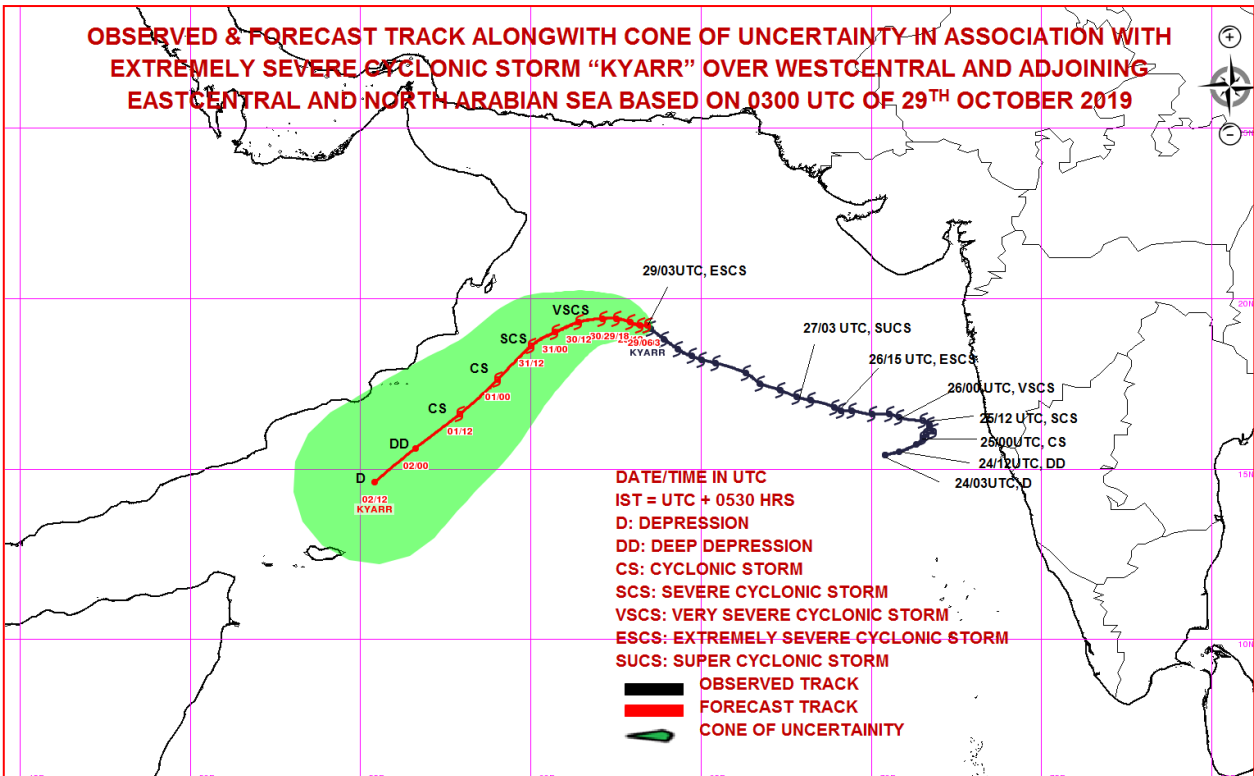
PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

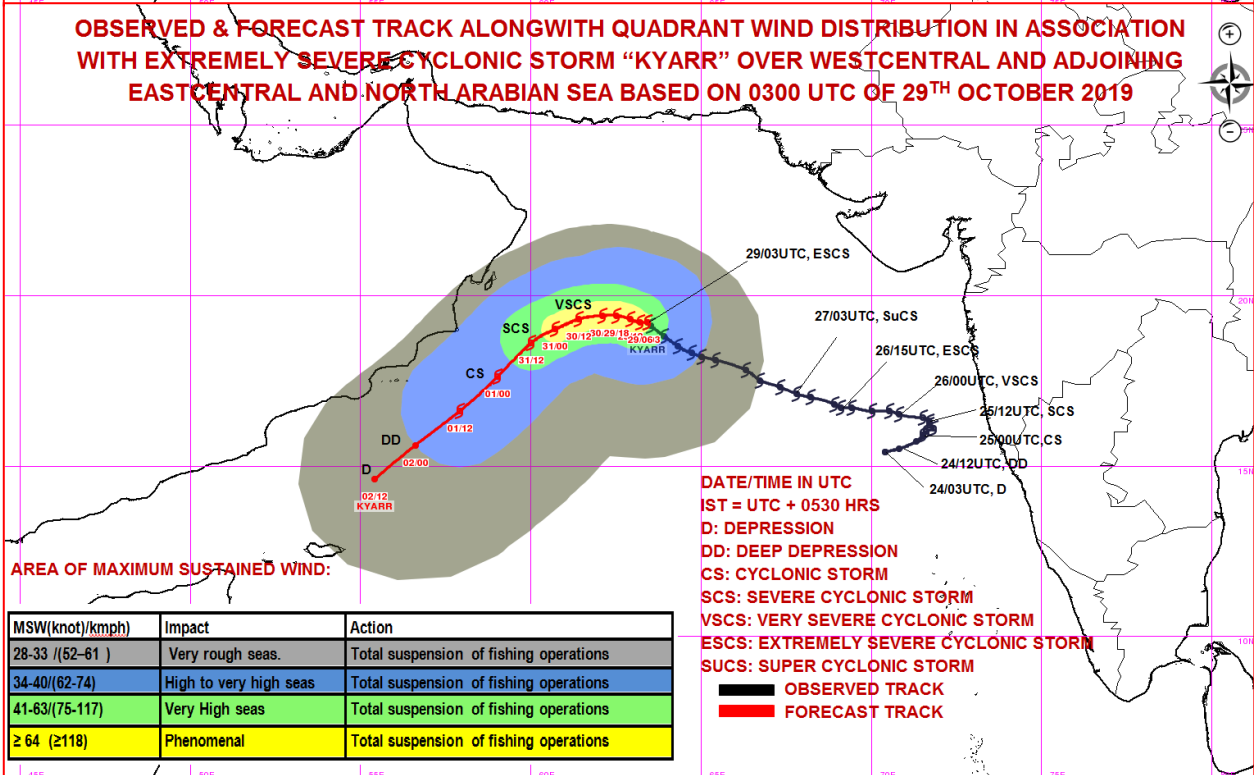


PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)
NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

OBSERVED & FORECAST TRACK ALONGWITH CONE OF UNCERTAINTY IN ASSOCIATION WITH EXTREMELY SEVERE CYCLONIC STORM "KYARR" OVER WESTCENTRAL AND ADJOINING EASTCENTRAL AND NORTH ARABIAN SEA BASED ON 0300 UTC OF 29TH OCTOBER 2019



OBSERVED & FORECAST TRACK ALONGWITH QUADRANT WIND DISTRIBUTION IN ASSOCIATION WITH EXTREMELY SEVERE CYCLONIC STORM "KYARR" OVER WESTCENTRAL AND ADJOINING EASTCENTRAL AND NORTH ARABIAN SEA BASED ON 0300 UTC OF 29TH OCTOBER 2019



PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)
NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%



**REGIONAL SPECIALISED METEOROLOGICAL CENTRE-TROPICAL CYCLONES, NEW DELHI
TROPICAL CYCLONE ADVISORY BULLETIN NO.35**

FROM: RSMC –TROPICAL CYCLONES, NEW DELHI

**TO: STORM WARNING CENTRE, NAYPYI TAW (MYANMAR)
STORM WARNING CENTRE, BANGKOK (THAILAND)
STORM WARNING CENTRE, COLOMBO (SRILANKA)
STORM WARNING CENTRE, DHAKA (BANGLADESH)
STORM WARNING CENTRE, KARACHI (PAKISTAN)
METEOROLOGICAL OFFICE, MALE (MALDIVES)
OMAN METEOROLOGICAL DEPARTMENT, MUSCAT (THROUGH RTH JEDDAH)
YEMEN METEOROLOGICAL SERVICES, REPUBLIC OF YEMEN (THROUGH RTH JEDDAH)
NATIONAL CENTRE FOR METEOROLOGY, UAE (THROUGH RTH JEDDAH)
PRESIDENCY OF METEOROLOGY AND ENVIRONMENT, SAUDI ARABIA (THROUGH RTH JEDDAH)
IRAN METEOROLOGICAL ORGANISATION, (THROUGH RTH JEDDAH)
QATAR METEOROLOGICAL DEPARTMENT (THROUGH RTH JEDDAH)**

TROPICAL CYCLONE ADVISORY No. 35 FOR NORTH INDIAN OCEAN (THE BAY OF BENGAL AND ARABIAN SEA) VALID FOR NEXT 120 HOURS ISSUED AT 0900 UTC OF 29.10.2019 BASED ON 0600 UTC OF 29.10.2019.

**SUB: (A) EXTREMELEY SEVERE CYCLONIC STORM 'KYARR' (PRONOUNCED AS KYARR) OVER WESTCENTRAL AND ADJOINING EASTCENTRAL & NORTH ARABIAN SEA
(B) WELL MARKED LOW PRESSURE AREA OVER COMORIN AREA AND ADJOINING EQUATORIAL INDIAN OCEAN.**

(A) EXTREMELEY SEVERE CYCLONIC STORM 'KYARR' (PRONOUNCED AS KYARR) OVER WESTCENTRAL AND ADJOINING EASTCENTRAL & NORTH ARABIAN SEA

THE **EXTREMELY SEVERE CYCLONIC STORM 'KYARR'** OVER WESTCENTRAL AND ADJOINING EASTCENTRAL & NORTH ARABIAN SEA MOVED WEST-NORTHWESTWARDS WITH A SPEED OF 06 KMPH DURING PAST 06 HRS AND LAY CENTRED AT 0600 OF 29TH OCTOBER, 2019 NEAR LATITUDE 19.3°N AND LONGITUDE 63.2°E, ABOUT 1010 KM WEST-NORTHWEST OF MUMBAI (43003), 990 KM EAST-NORTHEAST OF SALALAH (41316) (OMAN) AND 470 KM EAST-SOUTHEAST OF MASIRAH (41288) (OMAN). IT IS VERY LIKELY TO MOVE WEST-NORTHWESTWARDS TILL 0000 UTC OF 30TH OCTOBER, RE-CURVE WEST-SOUTHWESTWARDS THEREAFTER AND MOVE TOWARDS GULF OF ADEN OFF SOUTH OMAN-YEMEN COASTS DURING SUBSEQUENT 3 DAYS. IT IS VERY LIKELY TO WEAKEN INTO A VERY SEVERE CYCLONIC STORM BY 0000 UTC OF 30TH OCTOBER AND FURTHER INTO A SEVERE CYCLONIC STORM BY 0600 OF 31ST OCTOBER.

FORECAST TRACK AND INTENSITY ARE GIVEN IN THE FOLLOWING TABLE:

DATE/TIME(UTC)	POSITION (LAT. °N/ LONG. °E)	MAXIMUM SUSTAINED SURFACE WIND SPEED (KMPH)	CATEGORY OF CYCLONIC DISTURBANCE
29.10.19/0600	19.3/63.2	200-210 GUSTING TO 230	EXTREMELY SEVERE CYCLONIC STORM
29.10.19/1200	19.4/62.9	180-190 GUSTING TO 210	EXTREMELY SEVERE CYCLONIC STORM
29.10.19/1800	19.5/62.5	160-170 GUSTING TO 190	EXTREMELY SEVERE CYCLONIC STORM
30.10.19/0000	19.5/62.1	140-150 GUSTING TO 170	VERY SEVERE CYCLONIC STORM
30.10.19/0600	19.5/61.7	130-140 GUSTING TO 150	VERY SEVERE CYCLONIC STORM
30.10.19/1800	19.2/61.0	120-130 GUSTING TO 140	VERY SEVERE CYCLONIC STORM
31.10.19/0600	18.9/60.4	100-110 GUSTING TO 120	SEVERE CYCLONIC STORM
31.10.19/1800	18.2/59.5	80-90 GUSTING TO 100	CYCLONIC STORM
01.11.19/0600	17.2/58.4	60-70 GUSTING TO 80	CYCLONIC STORM
01.11.19/1800	16.2/57.3	50-60 GUSTING TO 70	DEEP DEPRESSION
02.11.19/0600	15.2/56.0	30-40 GUSTING TO 50	DEPRESSION
02.11.19/1800	14.2/55.0	25-35 GUSTING TO 45	DEPRESSION

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

REMARKS:

SATELLITE IMAGES INDICATE EYE PATTERN WITH RAGGED EYE IN IR/VIS IMAGERY. PRESENT EYE TEMPERATURE IS MINUS 36.4 DEG.C. AS PER THE SATELLITE IMAGERY AT 0600 UTC OF 29TH OCTOBER, 2019, THE CURRENT INTENSITY OF THE SYSTEM IS T 5.5/6.5. ASSOCIATED BROKEN LOW TO MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION LIES OVER WESTCENTRAL AND ADJOINING EAST CENTRAL ARABIAN SEA BETWEEN LAT 17.5⁰N TO 20.5⁰N AND LONG 61.5⁰E TO 64.5⁰E. THE MINIMUM CTT IS MINUS 91 DEG C.

THE ESTIMATED MAXIMUM SUSTAINED WIND SPEED IS 115 KNOTS GUSTING TO 130 KNOTS. THE ESTIMATED CENTRAL PRESSURE IS 943 HPA. THE SEA CONDITION IS PHENOMENAL AROUND THE SYSTEM CENTRE. AT 0600 UTC A SHIP LOCATED NEAR LAT. 15.5°N / 66.2°E REPORTED MEAN SEA LEVEL PRESSURE 1007.7 HPA AND WIND 150⁰ /25 KNOTS.

THE MJO LIES IN THE PHASE 3 WITH AMPLITUDE LESS THAN 1. IT WILL REMAIN IN THE SAME PHASE DURING NEXT 3 DAYS AND ENTER INTO PHASE 4 WITH AMPLITUDE LESS THAN 1 THEREAFTER. THE LOW LEVEL RELATIVE VORTICITY IS ABOUT $300 \times 10^{-5} \text{ SEC}^{-1}$ TO THE SOUTHEAST OF THE SYSTEM CENTRE. THE LOWER LEVEL CONVERGENCE IS ABOUT $40 \times 10^{-5} \text{ S}^{-1}$ TO THE SOUTH OF THE SYSTEM CENTRE AND THE UPPER LEVEL DIVERGENCE IS ABOUT $30 \times 10^{-5} \text{ S}^{-1}$ TO THE NORTHEAST OF THE SYSTEM CENTRE. THE VERTICAL WIND SHEAR IS MODERATE (20 KNOTS) AROUND THE SYSTEM CENTER. SEA SURFACE TEMPERATURE TO THE SOUTHWEST OF THE SYSTEM CENTER OVER MOST PARTS OF WEST CENTRAL ARABIAN SEA IS AROUND 27-28°C WHILE TO THE NORTH OF THE SYSTEM CENTRE, IT IS WARMER (29-30°C). TROPICAL CYCLONE HEAT POTENTIAL TO THE WEST OF THE SYSTEM CENTER OVER WESTCENTRAL ARABIAN SEAS IS 40-50 KJ/CM² WHILE TO THE EAST OF THE SYSTEM CENTER OVER EASTCENTRAL ARABIAN SEA, IT IS 50-70 KJ/CM².

TOTAL PRECIPITABLE WATER IMAGERIES INDICATE FURTHER REDUCTION IN WARM AIR ADVECTION AND DRY AIR INCURSION IN THE WESTERN AND SOUTHERN SECTORS OF THE SYSTEM CENTRE. EQUATORWARD OUTFLOW IS TAKING PLACE IN THE UPPER TROPOSPHERIC LEVELS. ALL THESE ENVIRONMENTAL, DYNAMIC AND THERMODYNAMIC CONDITIONS INDICATE GRADUAL WEAKENING OF THE SYSTEM.

THE UPPER TROPOSPHERIC RIDGE RUNS ALONG 19°N. THE SYSTEM IS BEING STEERED BY THE WINDS IN THE WESTERN PERIPHERY OF THE ANTI-CYCLONE LOCATED TO THE EAST OF THE SYSTEM. AS A RESULT, IT IS CONTINUING TO MOVE WEST-NORTHWESTWARDS SLOWLY BEING IN THE COL REGION. IT WILL COME UNDER THE INFLUENCE OF THE ANTICYCLONIC CIRCULATION OVER ARABIAN PENINSULA, LOCATED TO THE NORTHWEST OF SYSTEM BY 0000 UTC OF 30TH OCTOBER. SUBSEQUENTLY THE SYSTEM IS MOST LIKELY TO RECURVE WEST-SOUTHWESTWARDS AND VERY LIKELY TO MOVE TOWARDS GULF OF ADEN OFF SOUTH OMAN-YEMEN COASTS THEREAFTER. MAJORITY OF NUMERICAL MODELS AGREE WITH THE ABOVE INFERENCE.

(B) WELL MARKED LOW PRESSURE AREA OVER COMORIN AREA & ADJOINING EQUATORIAL INDIAN OCEAN.

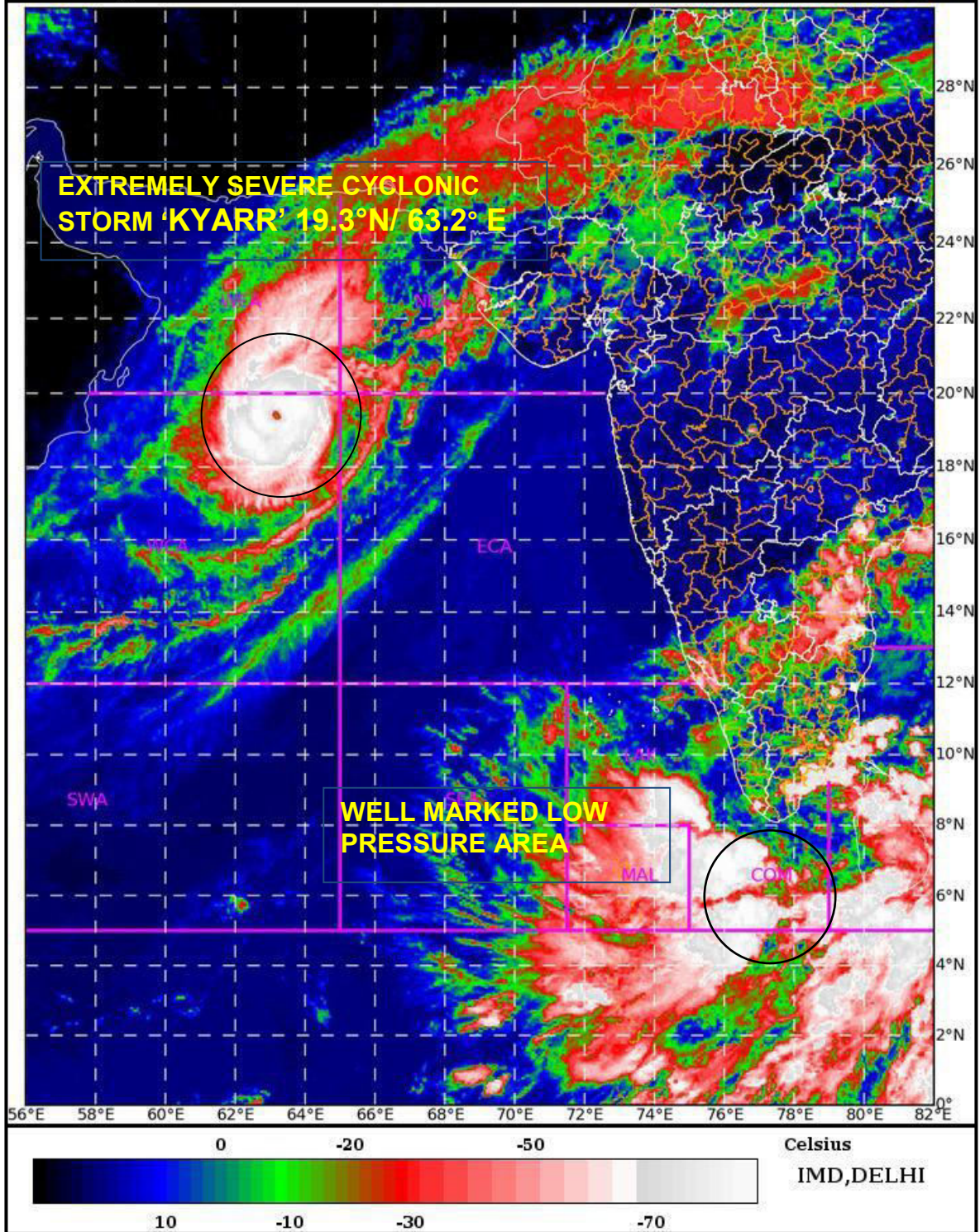
THE WELL MARKED LOW PRESSURE AREA OVER COMORIN AREA & ADJOINING EQUATORIAL INDIAN OCEAN PERSISTS. IT IS LIKELY TO CONCENTRATE INTO A DEPRESSION OVER LAKSHADWEEP-MALDIVES AREAS AND ADJOINING SOUTHEAST ARABIAN SEA DURING NEXT 24 HOURS. IT IS LIKELY TO MOVE NORTHWESTWARDS ACROSS LAKSHADWEEP ISLANDS AND INTENSIFY INTO A DEEP DEPRESSION DURING SUBSEQUENT 24 HOURS.

**(NEETHA K GOPAL)
SCIENTIST-E, RSMC, NEW DELHI**

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

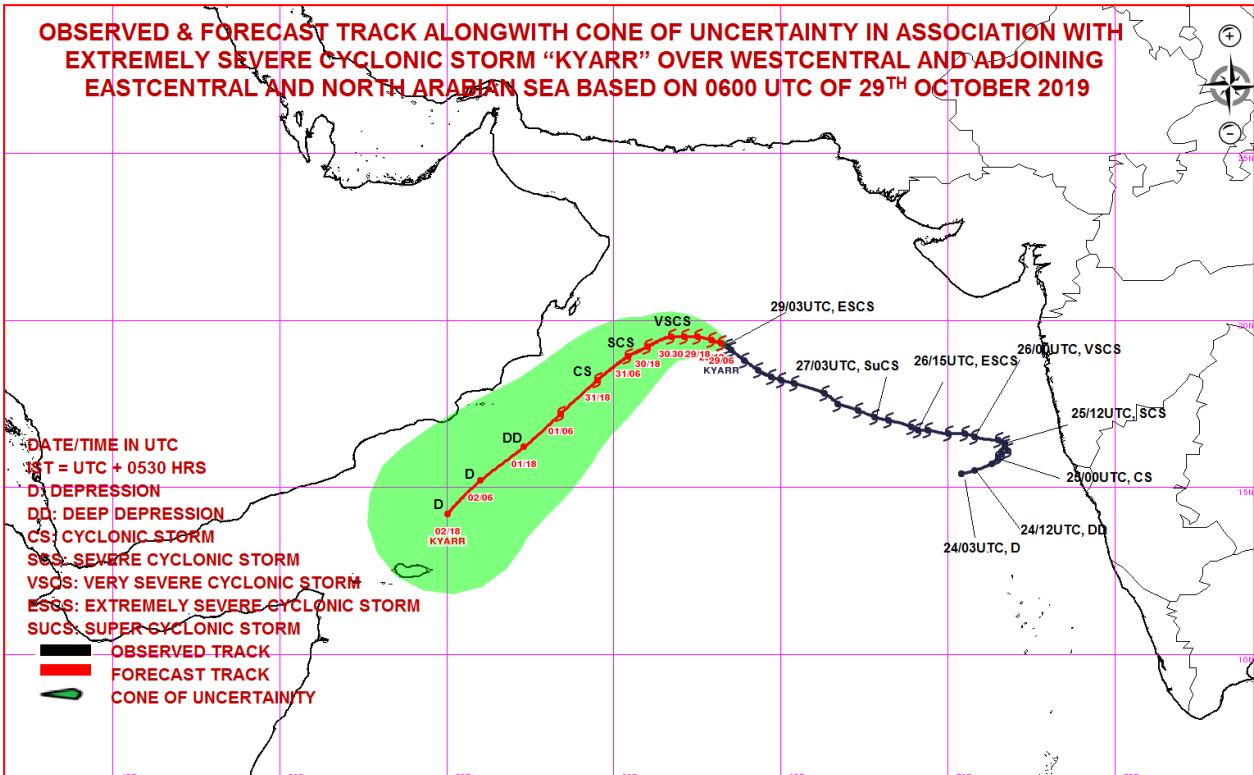
NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

SAT : INSAT-3D IMG 29-10-2019/(0700 to 0727) GMT
IMG_TIR1_TEMP 10.8 um 29-10-2019/(1230 to 1257) IST
ARABIAN_SEA



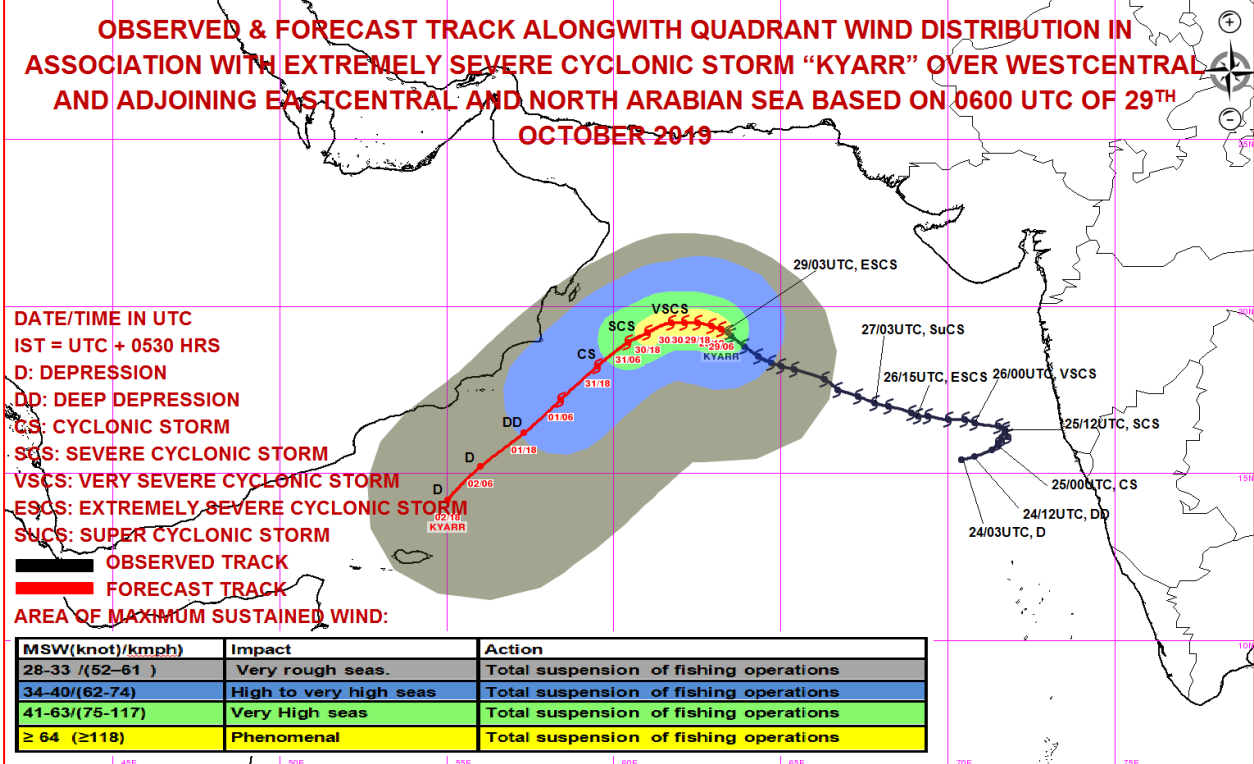
PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)
NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

OBSERVED & FORECAST TRACK ALONGWITH CONE OF UNCERTAINTY IN ASSOCIATION WITH EXTREMELY SEVERE CYCLONIC STORM "KYARR" OVER WESTCENTRAL AND ADJOINING EASTCENTRAL AND NORTH ARABIAN SEA BASED ON 0600 UTC OF 29TH OCTOBER 2019



DATE/TIME IN UTC
 IST = UTC + 0530 HRS
 D: DEPRESSION
 DD: DEEP DEPRESSION
 CS: CYCLONIC STORM
 SCS: SEVERE CYCLONIC STORM
 VSCS: VERY SEVERE CYCLONIC STORM
 ESCS: EXTREMELY SEVERE CYCLONIC STORM
 SuCS: SUPER CYCLONIC STORM
 — OBSERVED TRACK
 — FORECAST TRACK
 CONE OF UNCERTAINTY

OBSERVED & FORECAST TRACK ALONGWITH QUADRANT WIND DISTRIBUTION IN ASSOCIATION WITH EXTREMELY SEVERE CYCLONIC STORM "KYARR" OVER WESTCENTRAL AND ADJOINING EASTCENTRAL AND NORTH ARABIAN SEA BASED ON 0600 UTC OF 29TH OCTOBER 2019



DATE/TIME IN UTC
 IST = UTC + 0530 HRS
 D: DEPRESSION
 DD: DEEP DEPRESSION
 CS: CYCLONIC STORM
 SCS: SEVERE CYCLONIC STORM
 VSCS: VERY SEVERE CYCLONIC STORM
 ESCS: EXTREMELY SEVERE CYCLONIC STORM
 SuCS: SUPER CYCLONIC STORM
 — OBSERVED TRACK
 — FORECAST TRACK
 AREA OF MAXIMUM SUSTAINED WIND:

MSW(knot)/kmph)	Impact	Action
28-33 (52-61)	Very rough seas.	Total suspension of fishing operations
34-40(62-74)	High to very high seas	Total suspension of fishing operations
41-63/(75-117)	Very High seas	Total suspension of fishing operations
≥ 64 (≥118)	Phenomenal	Total suspension of fishing operations

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)
 NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%



**REGIONAL SPECIALISED METEOROLOGICAL CENTRE-TROPICAL CYCLONES, NEW DELHI
TROPICAL CYCLONE ADVISORY BULLETIN NO.36**

FROM: RSMC –TROPICAL CYCLONES, NEW DELHI

**TO: STORM WARNING CENTRE, NAYPYI TAW (MYANMAR)
STORM WARNING CENTRE, BANGKOK (THAILAND)
STORM WARNING CENTRE, COLOMBO (SRILANKA)
STORM WARNING CENTRE, DHAKA (BANGLADESH)
STORM WARNING CENTRE, KARACHI (PAKISTAN)
METEOROLOGICAL OFFICE, MALE (MALDIVES)
OMAN METEOROLOGICAL DEPARTMENT, MUSCAT (THROUGH RTH JEDDAH)
YEMEN METEOROLOGICAL SERVICES, REPUBLIC OF YEMEN (THROUGH RTH JEDDAH)
NATIONAL CENTRE FOR METEOROLOGY, UAE (THROUGH RTH JEDDAH)
PRESIDENCY OF METEOROLOGY AND ENVIRONMENT, SAUDI ARABIA (THROUGH RTH JEDDAH)
IRAN METEOROLOGICAL ORGANISATION, (THROUGH RTH JEDDAH)
QATAR METEOROLOGICAL DEPARTMENT (THROUGH RTH JEDDAH)**

TROPICAL CYCLONE ADVISORY No. 36 FOR NORTH INDIAN OCEAN (THE BAY OF BENGAL AND ARABIAN SEA) VALID FOR NEXT 120 HOURS ISSUED AT 1100 UTC OF 29.10.2019 BASED ON 0900 UTC OF 29.10.2019.

Sub: (a) Extremely Severe Cyclonic Storm 'Kyarr' (Pronounced as Kyarr) over Westcentral and adjoining Eastcentral & North Arabian Sea.

(b) Well Marked Low pressure area over Comorin area & adjoining Equatorial Indian Ocean.

(a) Extremely Severe Cyclonic Storm 'Kyarr' (Pronounced as Kyarr) over westcentral and adjoining eastcentral & north Arabian Sea

THE **EXTREMELY SEVERE CYCLONIC STORM 'KYARR'** OVER WESTCENTRAL AND ADJOINING EASTCENTRAL & NORTH ARABIAN SEA MOVED WEST-NORTHWESTWARDS WITH A SPEED OF 06 KMPH DURING PAST 06 HRS AND LAY CENTRED AT 0900HRS UTC OF 29TH OCTOBER, 2019 NEAR LATITUDE 19.4°N AND LONGITUDE 63.1°E, ABOUT 1020 KM WEST-NORTHWEST OF MUMBAI (MAHARASHTRA), 980 KM EAST-NORTHEAST OF SALALAH (OMAN) AND 460 KM EAST-SOUTHEAST OF MASIRAH (OMAN). IT IS VERY LIKELY TO MOVE WEST-NORTHWESTWARDS TILL 30TH OCTOBER MORNING, RE-CURVE WEST-SOUTHWESTWARDS THEREAFTER AND MOVE TOWARDS GULF OF ADEN OFF SOUTH OMAN-YEMEN COASTS DURING SUBSEQUENT 3 DAYS. IT IS VERY LIKELY TO WEAKEN INTO A VERY SEVERE CYCLONIC STORM DURING THE MORNING OF 30TH OCTOBER AND FURTHER INTO A SEVERE CYCLONIC STORM BY THE MORNING OF 31ST OCTOBER.

FORECAST TRACK AND INTENSITY ARE GIVEN IN THE FOLLOWING TABLE:

DATE/TIME(IST)	POSITION (LAT. °N/ LONG. °E)	MAXIMUM SUSTAINED SURFACE WIND SPEED (KMPH)	CATEGORY OF CYCLONIC DISTURBANCE
29.10.19/0900	19.4/63.1	190-200 GUSTING TO 220	EXTREMELY SEVERE CYCLONIC STORM
29.10.19/1200	19.5/62.9	180-190 GUSTING TO 210	EXTREMELY SEVERE CYCLONIC STORM
29.10.19/1800	19.6/62.5	160-170 GUSTING TO 190	EXTREMELY SEVERE CYCLONIC STORM
30.10.19/0000	19.6/62.1	140-150 GUSTING TO 170	VERY SEVERE CYCLONIC STORM
30.10.19/0600	19.5/61.7	130-140 GUSTING TO 150	VERY SEVERE CYCLONIC

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

			STORM
30.10.19/1800	19.2/61.0	120-130 GUSTING TO 140	VERY SEVERE CYCLONIC STORM
31.10.19/0600	18.9/60.4	100-110 GUSTING TO 120	SEVERE CYCLONIC STORM
31.10.19/1800	18.2/59.5	80-90 GUSTING TO 100	CYCLONIC STORM
01.11.19/0600	17.2/58.4	60-70 GUSTING TO 80	CYCLONIC STORM
01.11.19/1800	16.2/57.3	50-60 GUSTING TO 70	DEEP DEPRESSION
02.11.19/0600	15.2/56.0	30-40 GUSTING TO 50	DEPRESSION
02.11.19/1800	14.2/55.0	25-35 GUSTING TO 45	DEPRESSION

REMARKS:

SATELLITE IMAGES INDICATE EYE PATTERN WITH RAGGED EYE IN IR/VIS IMAGERY. PRESENT EYE TEMPERATURE IS MINUS 27.0 DEG.C. AS PER THE SATELLITE IMAGERY AT 0900 UTC OF 29TH OCTOBER, 2019, THE CURRENT INTENSITY OF THE SYSTEM IS T 5.5/6.0. ASSOCIATED BROKEN LOW TO MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION LIES OVER WESTCENTRAL AND ADJOINING EAST CENTRAL ARABIAN SEA BETWEEN LAT 18.0⁰N TO 21.0⁰N AND LONG 61.5⁰E TO 64.5⁰E. THE MINIMUM CTT IS MINUS 88 DEG C.

THE ESTIMATED MAXIMUM SUSTAINED WIND SPEED IS 115 KNOTS GUSTING TO 130 KNOTS. THE ESTIMATED CENTRAL PRESSURE IS 943 HPA. THE SEA CONDITION IS PHENOMENAL AROUND THE SYSTEM CENTRE. AT 0600 UTC A SHIP LOCATED NEAR LAT. 15.5°N / 66.2°E REPORTED MEAN SEA LEVEL PRESSURE 1007.7 HPA AND WIND 150⁰ /25 KNOTS.

THE MJO LIES IN THE PHASE 3 WITH AMPLITUDE LESS THAN 1. IT WILL REMAIN IN THE SAME PHASE DURING NEXT 3 DAYS AND ENTER INTO PHASE 4 WITH AMPLITUDE LESS THAN 1 THEREAFTER. THE LOW LEVEL RELATIVE VORTICITY IS ABOUT 300 X10⁻⁵ SEC⁻¹ TO THE SOUTHEAST OF THE SYSTEM CENTRE. THE LOWER LEVEL CONVERGENCE IS ABOUT 40 X10⁻⁵S⁻¹ TO THE SOUTHEAST OF THE SYSTEM CENTRE AND THE UPPER LEVEL DIVERGENCE IS ABOUT 20 X10⁻⁵S⁻¹ TO THE SOUTHEAST OF THE SYSTEM CENTRE. THE VERTICAL WIND SHEAR IS MODERATE (15-20 KNOTS) AROUND THE SYSTEM CENTER. SEA SURFACE TEMPERATURE TO THE SOUTHWEST OF THE SYSTEM CENTER OVER MOST PARTS OF WEST CENTRAL ARABIAN SEA IS AROUND 27-28°C WHILE TO THE NORTH OF THE SYSTEM CENTRE, IT IS WARMER (29-30°C). TROPICAL CYCLONE HEAT POTENTIAL TO THE WEST OF THE SYSTEM CENTER OVER WESTCENTRAL ARABIAN SEAS IS 40-50 KJ/CM² WHILE TO THE EAST OF THE SYSTEM CENTER OVER EASTCENTRAL ARABIAN SEA, IT IS 50-70 KJ/CM².

TOTAL PRECIPITABLE WATER IMAGERIES INDICATE FURTHER REDUCTION IN WARM AIR ADVECTION AND DRY AIR INCURSION IN THE WESTERN AND SOUTHERN SECTORS OF THE SYSTEM CENTRE. EQUATORWARD OUTFLOW IS TAKING PLACE IN THE UPPER TROPOSPHERIC LEVELS. ALL THESE ENVIRONMENTAL, DYNAMIC AND THERMODYNAMIC CONDITIONS INDICATE GRADUAL WEAKENING OF THE SYSTEM.

THE UPPER TROPOSPHERIC RIDGE RUNS ALONG 19°N. THE SYSTEM IS BEING STEERED BY THE WINDS IN THE WESTERN PERIPHERY OF THE ANTI-CYCLONE LOCATED TO THE EAST OF THE SYSTEM. AS A RESULT, IT IS CONTINUING TO MOVE WEST-NORTHWESTWARDS SLOWLY BEING IN THE COL REGION. IT WILL COME UNDER THE INFLUENCE OF THE ANTICYCLONIC CIRCULATION OVER ARABIAN PENINSULA, LOCATED TO THE NORTHWEST OF SYSTEM BY 0000 UTC OF 30TH OCTOBER. SUBSEQUENTLY THE SYSTEM IS MOST LIKELY TO RECURVE WEST-SOUTHWESTWARDS AND VERY LIKELY TO MOVE TOWARDS GULF OF ADEN OFF SOUTH OMAN-YEMEN COASTS THEREAFTER. MAJORITY OF NUMERICAL MODELS AGREE WITH THE ABOVE INFERENCE.

(B) WELL MARKED LOW PRESSURE AREA OVER COMORIN AREA & ADJOINING EQUATORIAL INDIAN OCEAN.

THE WELL MARKED LOW PRESSURE AREA OVER COMORIN AREA & ADJOINING EQUATORIAL INDIAN OCEAN PERSISTS. IT IS LIKELY TO CONCENTRATE INTO A DEPRESSION OVER LAKSHADWEEP-MALDIVES AREAS AND ADJOINING SOUTHEAST ARABIAN SEA DURING NEXT 24 HOURS. IT IS LIKELY TO MOVE NORTHWESTWARDS ACROSS LAKSHADWEEP ISLANDS AND INTENSIFY INTO A DEEP DEPRESSION DURING SUBSEQUENT 24 HOURS.

(RK JENAMANI)
SCIENTIST-F, RSMC, NEW DELHI

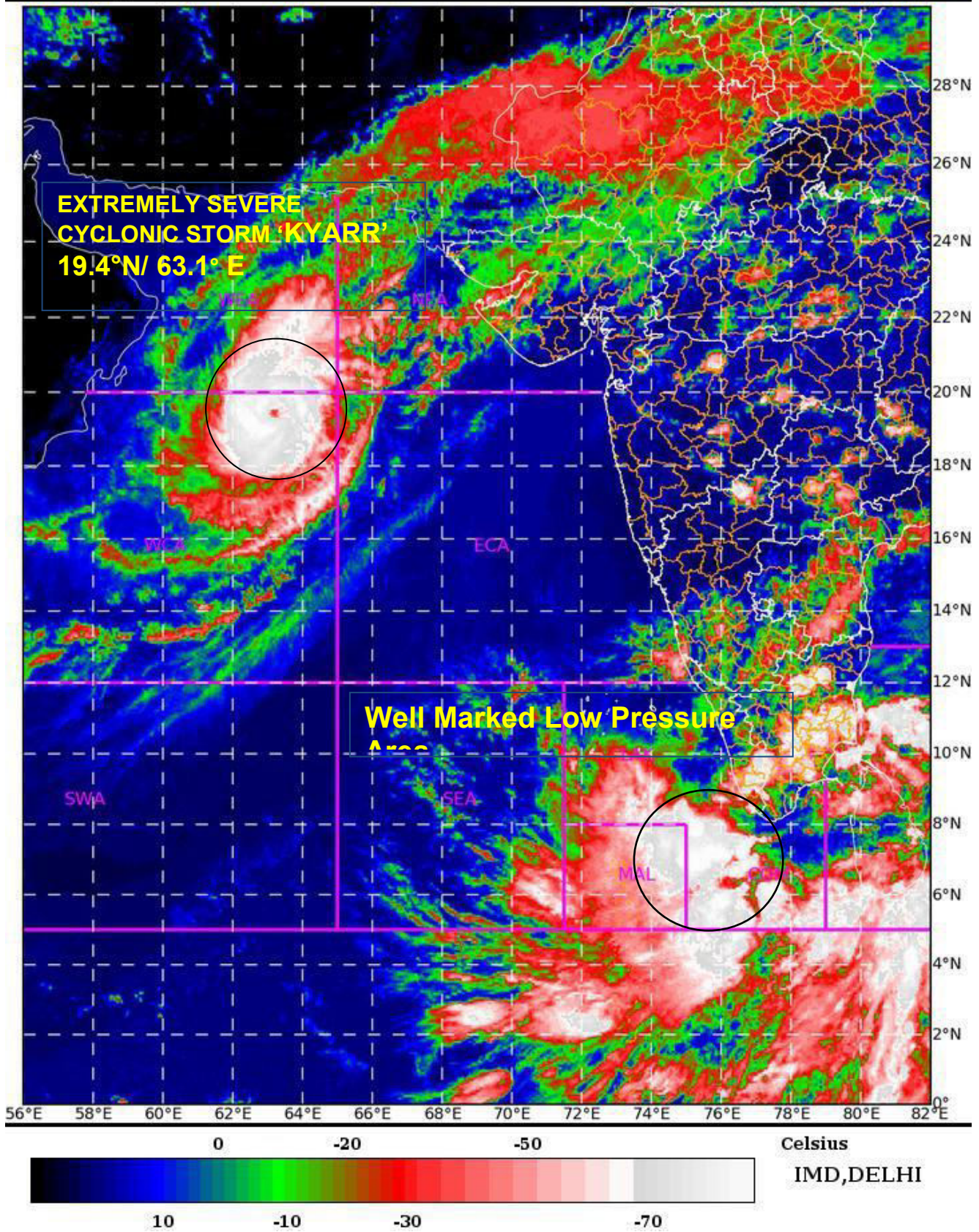
PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

SAT : INSAT-3D IMG 29-10-2019/(0930 to 0956) GMT

IMG_TIR1_TEMP 10.8 um 29-10-2019/(1500 to 1526) IST

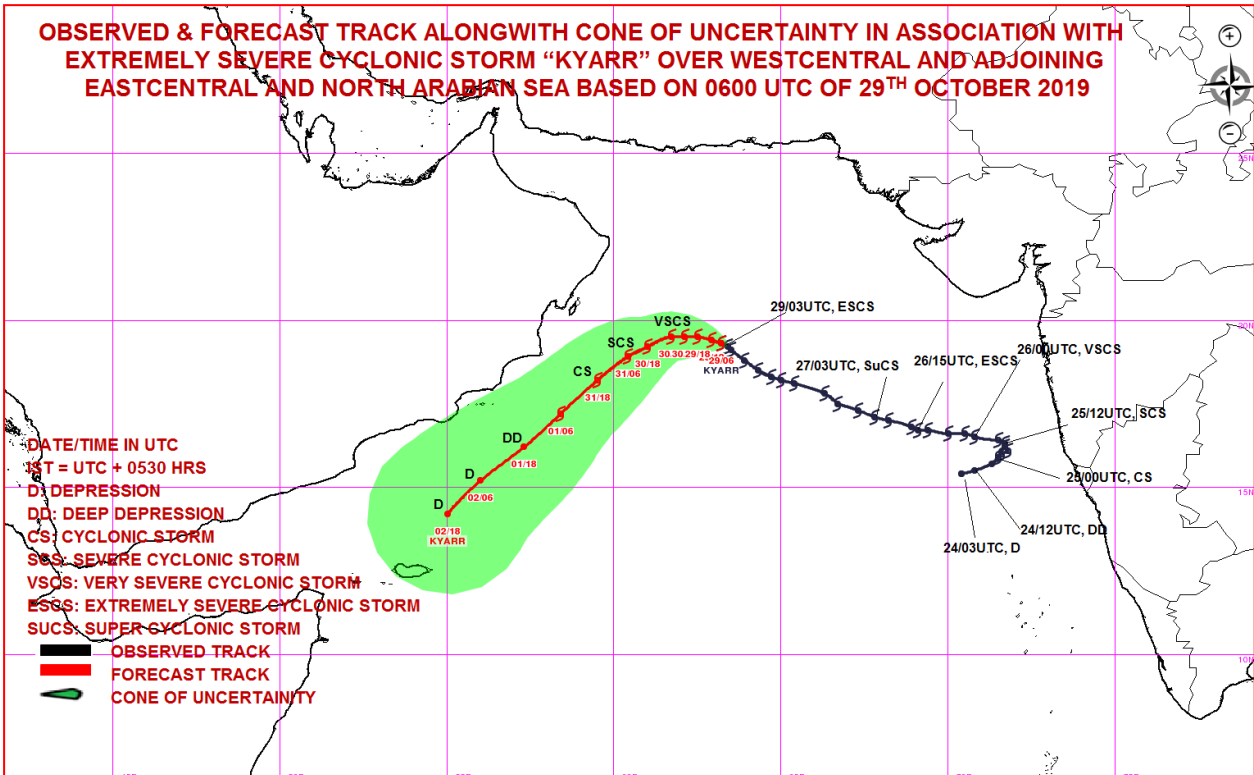
ARABIAN_SEA



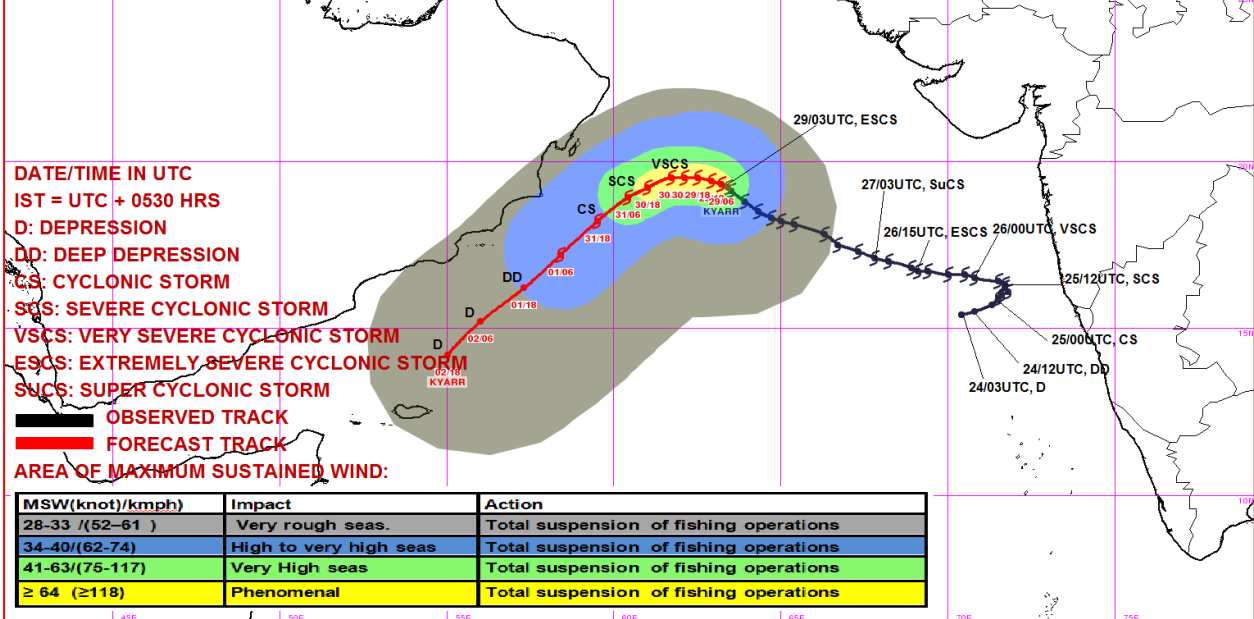
PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

OBSERVED & FORECAST TRACK ALONGWITH CONE OF UNCERTAINTY IN ASSOCIATION WITH EXTREMELY SEVERE CYCLONIC STORM "KYARR" OVER WESTCENTRAL AND ADJOINING EASTCENTRAL AND NORTH ARABIAN SEA BASED ON 0600 UTC OF 29TH OCTOBER 2019



OBSERVED & FORECAST TRACK ALONGWITH QUADRANT WIND DISTRIBUTION IN ASSOCIATION WITH EXTREMELY SEVERE CYCLONIC STORM "KYARR" OVER WESTCENTRAL AND ADJOINING EASTCENTRAL AND NORTH ARABIAN SEA BASED ON 0600 UTC OF 29TH OCTOBER 2019



PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%



**REGIONAL SPECIALISED METEOROLOGICAL CENTRE-TROPICAL CYCLONES, NEW DELHI
TROPICAL CYCLONE ADVISORY BULLETIN NO.37**

FROM: RSMC –TROPICAL CYCLONES, NEW DELHI

**TO: STORM WARNING CENTRE, NAYPYI TAW (MYANMAR)
STORM WARNING CENTRE, BANGKOK (THAILAND)
STORM WARNING CENTRE, COLOMBO (SRILANKA)
STORM WARNING CENTRE, DHAKA (BANGLADESH)
STORM WARNING CENTRE, KARACHI (PAKISTAN)
METEOROLOGICAL OFFICE, MALE (MALDIVES)
OMAN METEOROLOGICAL DEPARTMENT, MUSCAT (THROUGH RTH JEDDAH)
YEMEN METEOROLOGICAL SERVICES, REPUBLIC OF YEMEN (THROUGH RTH JEDDAH)
NATIONAL CENTRE FOR METEOROLOGY, UAE (THROUGH RTH JEDDAH)
PRESIDENCY OF METEOROLOGY AND ENVIRONMENT, SAUDI ARABIA (THROUGH RTH JEDDAH)
IRAN METEOROLOGICAL ORGANISATION, (THROUGH RTH JEDDAH)
QATAR METEOROLOGICAL DEPARTMENT (THROUGH RTH JEDDAH)**

TROPICAL CYCLONE ADVISORY No. 37 FOR NORTH INDIAN OCEAN (THE BAY OF BENGAL AND ARABIAN SEA) VALID FOR NEXT 120 HOURS ISSUED AT 1400 UTC OF 29.10.2019 BASED ON 1200 UTC OF 29.10.2019.

SUB: (A) EXTREMELY SEVERE CYCLONIC STORM 'KYARR' (PRONOUNCED AS KYARR) OVER WESTCENTRAL AND ADJOINING EASTCENTRAL & NORTH ARABIAN SEA.

(B) WELL MARKED LOW PRESSURE AREA OVER LAKSHADWEEP, MALDIVES & ADJOINING COMORIN AREA

(A) EXTREMELY SEVERE CYCLONIC STORM 'KYARR' (PRONOUNCED AS KYARR) OVER WESTCENTRAL AND ADJOINING EASTCENTRAL & NORTH ARABIAN SEA

THE **EXTREMELY SEVERE CYCLONIC STORM 'KYARR'** OVER WESTCENTRAL AND ADJOINING EASTCENTRAL & NORTH ARABIAN SEA MOVED SLOWLY NORTH-NORTHWESTWARDS WITH A SPEED OF 04 KMPH DURING PAST 06 HRS AND LAY CENTRED AT 1200 HRS UTC OF 29TH OCTOBER, 2019 NEAR LATITUDE 19.5°N AND LONGITUDE 63.1°E, ABOUT 1020 KM WEST-NORTHWEST OF MUMBAI (MAHARASHTRA), 990 KM EAST-NORTHEAST OF SALALAH (OMAN) AND 460 KM EAST-SOUTHEAST OF MASIRAH (OMAN). IT IS VERY LIKELY TO MOVE WEST-NORTHWESTWARDS TILL 30TH OCTOBER MORNING, RE-CURVE WEST-SOUTHWESTWARDS THEREAFTER AND MOVE TOWARDS GULF OF ADEN OFF SOUTH OMAN-YEMEN COASTS DURING SUBSEQUENT 3 DAYS. IT IS VERY LIKELY TO WEAKEN INTO A VERY SEVERE CYCLONIC STORM DURING THE 0600UTC OF 30TH OCTOBER AND FURTHER INTO A SEVERE CYCLONIC STORM BY THE 0000UTC OF 31ST OCTOBER.

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

FORECAST TRACK AND INTENSITY ARE GIVEN IN THE FOLLOWING TABLE:

DATE/TIME(IST)	POSITION (LAT. °N/ LONG. °E)	MAXIMUM SUSTAINED SURFACE WIND SPEED (KMPH)	CATEGORY OF CYCLONIC DISTURBANCE
29.10.19/1200	19.5/63.1	180-190 GUSTING TO 210	EXTREMELY SEVERE CYCLONIC STORM
29.10.19/1800	19.6/62.7	170-180 GUSTING TO 200	EXTREMELY SEVERE CYCLONIC STORM
30.10.19/0000	19.6/62.3	160-170 GUSTING TO 190	EXTREMELY SEVERE CYCLONIC STORM
30.10.19/0600	19.5/61.9	145-155 GUSTING TO 170	VERY SEVERE CYCLONIC STORM
30.10.19/1200	19.4/61.6	130-140 GUSTING TO 155	VERY SEVERE CYCLONIC STORM
31.10.19/0000	19.1/61.1	110-120 GUSTING TO 130	SEVERE CYCLONIC STORM
31.10.19/1200	18.6/60.4	90-100 GUSTING TO 110	SEVERE CYCLONIC STORM
01.11.19/0000	17.7/59.3	70-80 GUSTING TO 90	CYCLONIC STORM
01.11.19/1200	16.7/58.2	60-70 GUSTING TO 80	CYCLONIC STORM
02.11.19/0000	15.7/57.0	50-60 GUSTING TO 70	DEEP DEPRESSION
02.11.19/1200	14.7/55.9	40-50 GUSTING TO 60	DEPRESSION
03.11.19/0000	13.7/54.8	25-35 GUSTING TO 45	DEPRESSION

REMARKS:

SATELLITE IMAGES INDICATE EYE PATTERN WITH RAGGED EYE IN IR/VIS IMAGERY. PRESENT EYE TEMPERATURE IS MINUS 50.0 DEG.C. AS PER THE SATELLITE IMAGERY AT 1200 UTC OF 29TH OCTOBER, 2019, THE CURRENT INTENSITY OF THE SYSTEM IS T 5.5/5.5. ASSOCIATED BROKEN LOW TO MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION LIES OVER WESTCENTRAL AND ADJOINING EAST CENTRAL ARABIAN SEA BETWEEN LAT 17.5⁰N TO 21.0⁰N AND LONG 61.0⁰E TO 64.5⁰E. THE MINIMUM CTT IS MINUS 73 DEG C.

THE ESTIMATED MAXIMUM SUSTAINED WIND SPEED IS 115 KNOTS GUSTING TO 130 KNOTS. THE ESTIMATED CENTRAL PRESSURE IS 943 HPA. THE SEA CONDITION IS PHENOMENAL AROUND THE SYSTEM CENTRE. AT 1200 UTC A SHIP LOCATED NEAR LAT. 16.2°N / 65.2°E REPORTED MEAN SEA LEVEL PRESSURE 1007.6 HPA AND WIND 180⁰ /25 KNOTS.

THE MJO LIES IN THE PHASE 3 WITH AMPLITUDE LESS THAN 1. IT WILL REMAIN IN THE SAME PHASE DURING NEXT 3 DAYS AND ENTER INTO PHASE 4 WITH AMPLITUDE LESS THAN 1 THEREAFTER. THE LOW LEVEL RELATIVE VORTICITY IS ABOUT 250 X10⁻⁵ SEC⁻¹ TO THE SOUTHEAST OF THE SYSTEM CENTRE. THE LOWER LEVEL CONVERGENCE IS ABOUT 40 X10⁻⁵S⁻¹ TO THE SOUTHEAST OF THE SYSTEM CENTRE AND THE UPPER LEVEL DIVERGENCE IS ABOUT 20 X10⁻⁵S⁻¹ TO THE SOUTHEAST OF THE SYSTEM CENTRE. THE VERTICAL WIND SHEAR IS MODERATE (15-20 KNOTS) AROUND THE SYSTEM CENTER. SEA SURFACE TEMPERATURE TO THE SOUTHWEST OF THE SYSTEM CENTER OVER MOST PARTS OF WEST CENTRAL ARABIAN SEA IS AROUND 27-28°C WHILE TO THE NORTH OF THE SYSTEM CENTRE, IT IS WARMER (29-30°C). TROPICAL CYCLONE HEAT POTENTIAL TO THE WEST OF THE SYSTEM CENTER OVER WESTCENTRAL ARABIAN SEAS IS 20-40 KJ/CM² WHILE TO THE EAST OF THE SYSTEM CENTER OVER EASTCENTRAL ARABIAN SEA, IT IS 50-80 KJ/CM².

TOTAL PRECIPITABLE WATER IMAGERIES INDICATE CONTINUED REDUCTION IN WARM AND DRY AIR INCURSION IN THE SOUTHWESTERN SECTORS OF THE SYSTEM CENTRE. EQUATORWARD OUTFLOW IS TAKING PLACE IN THE UPPER TROPOSPHERIC LEVELS. ALL THESE ENVIRONMENTAL, DYNAMIC AND THERMODYNAMIC CONDITIONS INDICATE GRADUAL WEAKENING OF THE SYSTEM.

THE UPPER TROPOSPHERIC RIDGE RUNS ALONG 19°N. THE SYSTEM IS BEING STEERED BY THE WINDS IN THE WESTERN PERIPHERY OF THE ANTI-CYCLONE LOCATED TO THE EAST OF THE SYSTEM. AS A RESULT, IT IS CONTINUING TO MOVE WEST-NORTHWESTWARDS SLOWLY BEING IN THE COL REGION. IT WILL COME UNDER THE INFLUENCE OF THE ANTICYCLONIC CIRCULATION OVER ARABIAN PENINSULA, LOCATED TO THE NORTHWEST OF SYSTEM BY 0000 UTC OF 30TH OCTOBER. SUBSEQUENTLY THE SYSTEM IS MOST LIKELY TO RECURVE WEST-SOUTHWESTWARDS AND VERY LIKELY TO MOVE TOWARDS GULF OF ADEN OFF SOUTH OMAN-

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

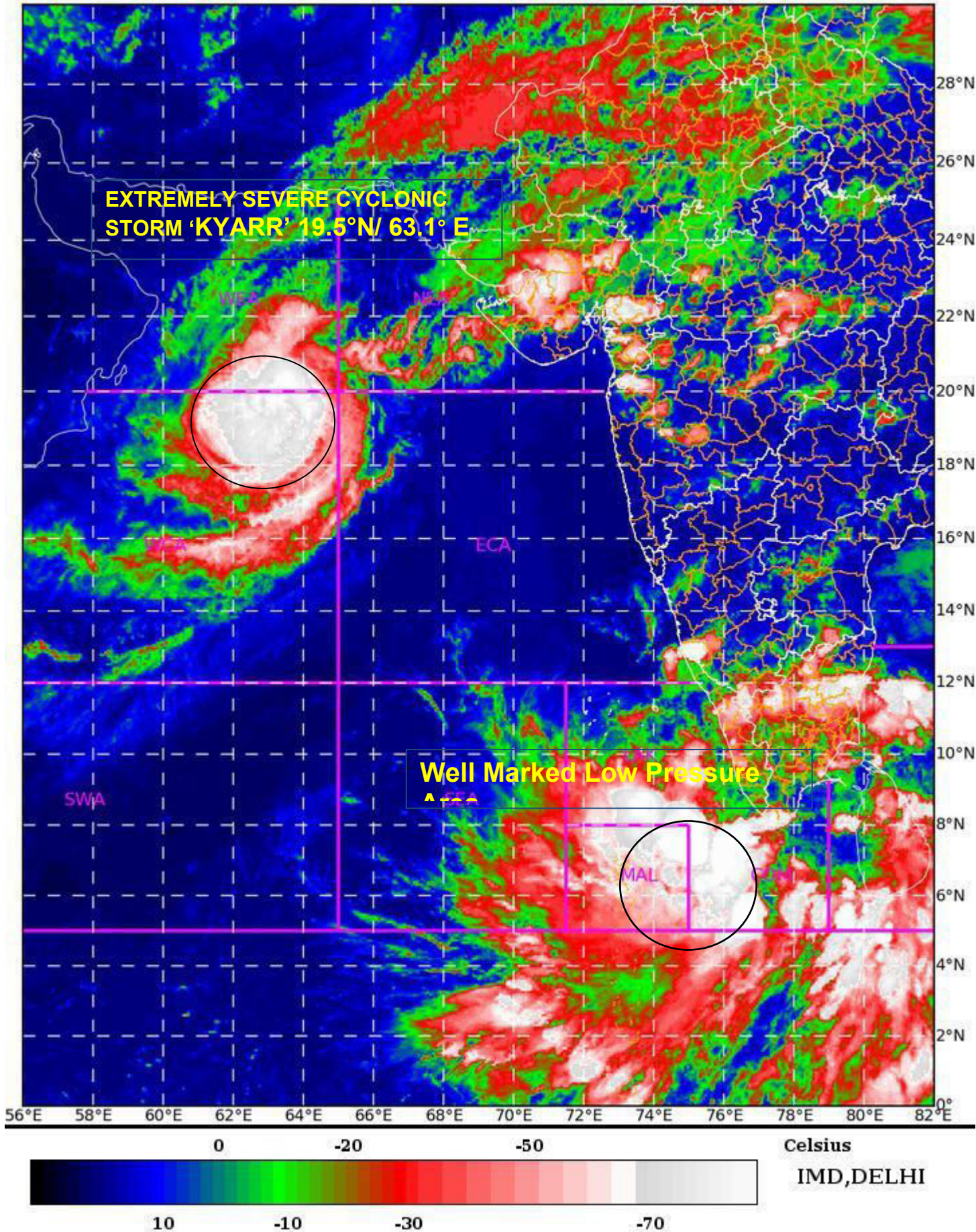
NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

YEMEN COASTS THEREAFTER. MAJORITY OF NUMERICAL MODELS AGREE WITH THE ABOVE INFERENCE.

(B) WELL MARKED LOW PRESSURE AREA OVER LAKSHADWEEP, MALDIVES & ADJOINING COMORIN AREA

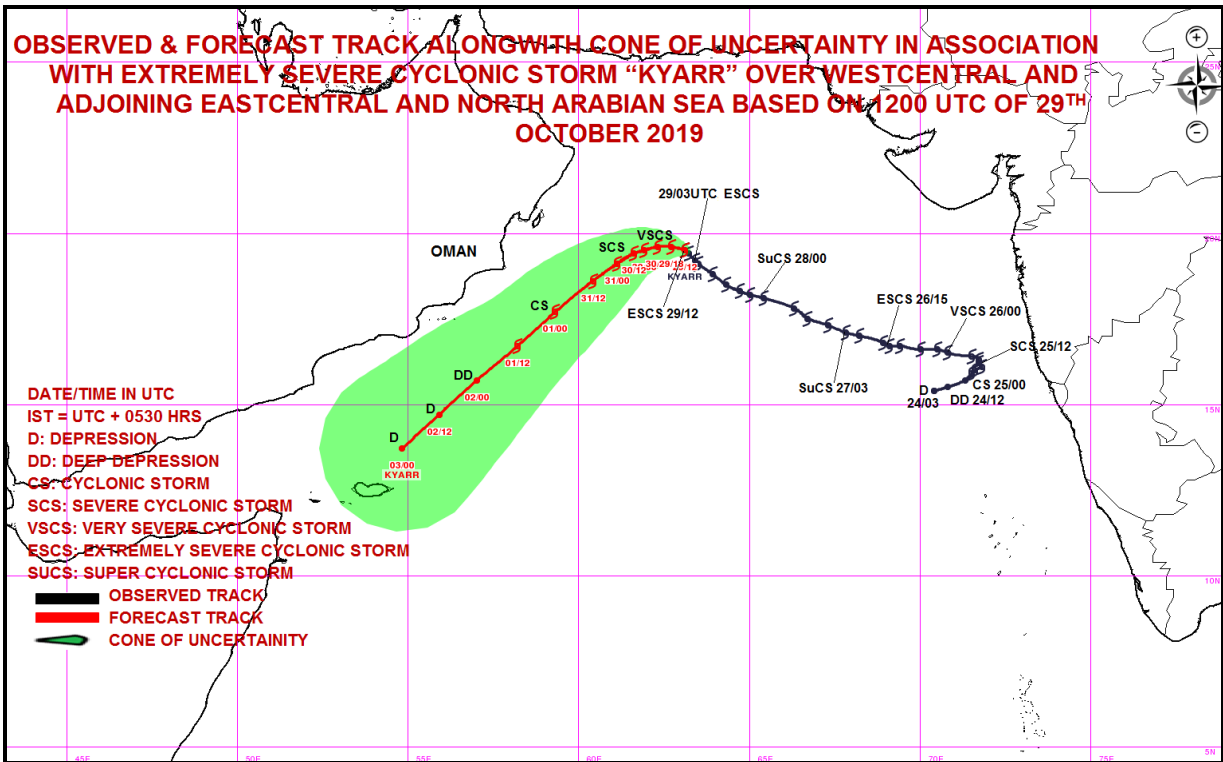
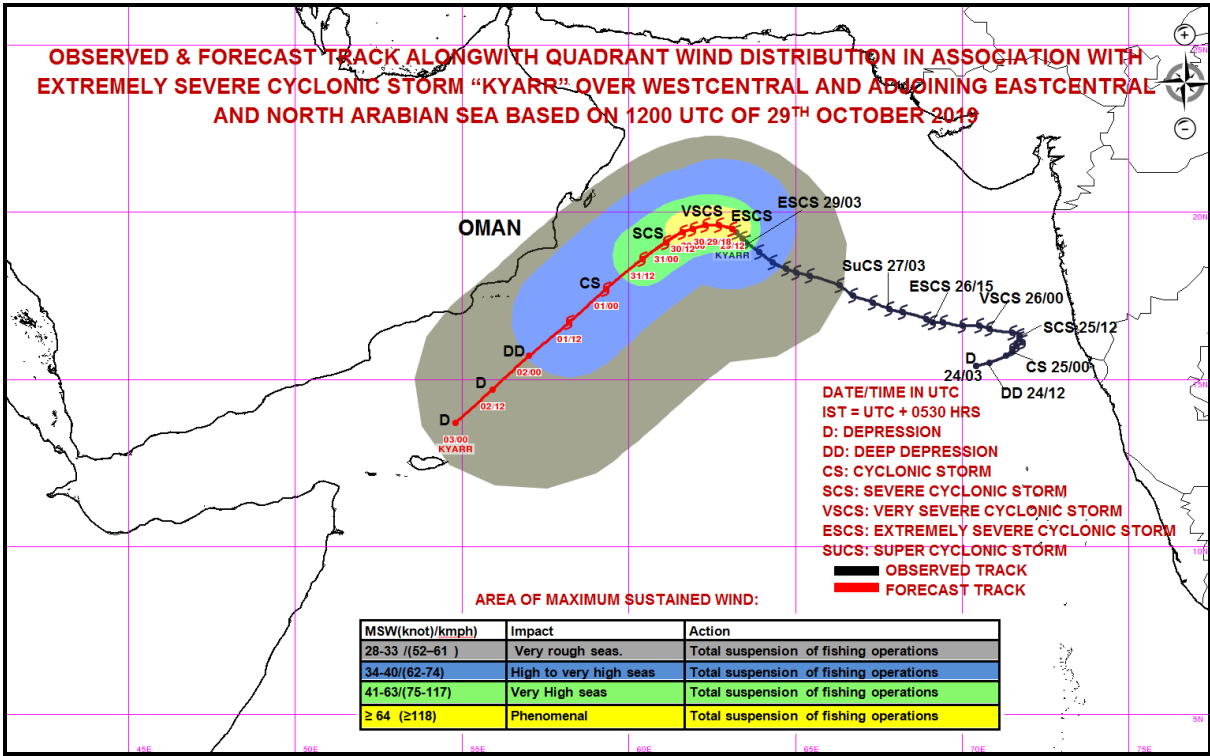
THE WELL MARKED LOW PRESSURE AREA OVER COMORIN AREA & ADJOINING EQUATORIAL INDIAN OCEAN NOW LIES OVER LAKSHADWEEP, MALDIVES & ADJOINING COMORIN AREA. IT IS LIKELY TO CONCENTRATE INTO A DEPRESSION OVER LAKSHADWEEP-MALDIVES AREAS AND ADJOINING SOUTHEAST ARABIAN SEA DURING NEXT 24 HOURS. IT IS LIKELY TO MOVE NORTHWESTWARDS ACROSS LAKSHADWEEP ISLANDS AND INTENSIFY INTO A DEEP DEPRESSION DURING SUBSEQUENT 24 HOURS.

**(RK JENAMANI)
SCIENTIST-F, RSMC, NEW DELHI**



PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%



PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%



**REGIONAL SPECIALISED METEOROLOGICAL CENTRE-TROPICAL CYCLONES, NEW DELHI
TROPICAL CYCLONE ADVISORY BULLETIN NO.38**

FROM: RSMC –TROPICAL CYCLONES, NEW DELHI

**TO: STORM WARNING CENTRE, NAYPYI TAW (MYANMAR)
STORM WARNING CENTRE, BANGKOK (THAILAND)
STORM WARNING CENTRE, COLOMBO (SRILANKA)
STORM WARNING CENTRE, DHAKA (BANGLADESH)
STORM WARNING CENTRE, KARACHI (PAKISTAN)
METEOROLOGICAL OFFICE, MALE (MALDIVES)
OMAN METEOROLOGICAL DEPARTMENT, MUSCAT (THROUGH RTH JEDDAH)
YEMEN METEOROLOGICAL SERVICES, REPUBLIC OF YEMEN (THROUGH RTH JEDDAH)
NATIONAL CENTRE FOR METEOROLOGY, UAE (THROUGH RTH JEDDAH)
PRESIDENCY OF METEOROLOGY AND ENVIRONMENT, SAUDI ARABIA (THROUGH RTH JEDDAH)
IRAN METEOROLOGICAL ORGANISATION, (THROUGH RTH JEDDAH)
QATAR METEOROLOGICAL DEPARTMENT (THROUGH RTH JEDDAH)**

TROPICAL CYCLONE ADVISORY No. 38 FOR NORTH INDIAN OCEAN (THE BAY OF BENGAL AND ARABIAN SEA) VALID FOR NEXT 120 HOURS ISSUED AT 1700 UTC OF 29.10.2019 BASED ON 1500 UTC OF 29.10.2019.

SUB: (A) EXTREMELY SEVERE CYCLONIC STORM ‘KYARR’ (PRONOUNCED AS KYARR) OVER WESTCENTRAL AND ADJOINING EASTCENTRAL & NORTH ARABIAN SEA.

(B) WELL MARKED LOW PRESSURE AREA OVER LAKSHADWEEP, MALDIVES & ADJOINING COMORIN AREA

(A) EXTREMELY SEVERE CYCLONIC STORM ‘KYARR’ (PRONOUNCED AS KYARR) OVER WESTCENTRAL AND ADJOINING EASTCENTRAL & NORTH ARABIAN SEA

THE **EXTREMELY SEVERE CYCLONIC STORM ‘KYARR’** OVER WESTCENTRAL AND ADJOINING EASTCENTRAL & NORTH ARABIAN SEA MOVED SLOWLY NORTH-NORTHWESTWARDS WITH A SPEED OF 04 KMPH DURING PAST 06 HRS AND LAY CENTRED AT 1500 HRS UTC OF 29TH OCTOBER, 2019 NEAR LATITUDE 19.5°N AND LONGITUDE 62.9°E, ABOUT 1040 KM WEST-NORTHWEST OF MUMBAI (MAHARASHTRA), 990 KM EAST-NORTHEAST OF SALALAH (OMAN) AND 440 KM EAST-SOUTHEAST OF MASIRAH (OMAN). IT IS VERY LIKELY TO MOVE WEST-NORTHWESTWARDS TILL 30TH OCTOBER MORNING, RE-CURVE WEST-SOUTHWESTWARDS THEREAFTER AND MOVE TOWARDS GULF OF ADEN OFF SOUTH OMAN-YEMEN COASTS DURING SUBSEQUENT 3 DAYS. IT IS VERY LIKELY TO WEAKEN INTO A VERY SEVERE CYCLONIC STORM DURING THE 0600UTC OF 30TH OCTOBER AND FURTHER INTO A SEVERE CYCLONIC STORM BY THE 0000UTC OF 31ST OCTOBER.

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

FORECAST TRACK AND INTENSITY ARE GIVEN IN THE FOLLOWING TABLE:

DATE/TIME(IST)	POSITION (LAT. °N/ LONG. °E)	MAXIMUM SUSTAINED SURFACE WIND SPEED (KMPH)	CATEGORY OF CYCLONIC DISTURBANCE
29.10.19/1500	19.5/62.9	180-190 GUSTING TO 210	EXTREMELY SEVERE CYCLONIC STORM
29.10.19/1800	19.6/62.7	170-180 GUSTING TO 200	EXTREMELY SEVERE CYCLONIC STORM
30.10.19/0000	19.6/62.3	160-170 GUSTING TO 190	EXTREMELY SEVERE CYCLONIC STORM
30.10.19/0600	19.5/61.9	145-155 GUSTING TO 170	VERY SEVERE CYCLONIC STORM
30.10.19/1200	19.4/61.6	130-140 GUSTING TO 155	VERY SEVERE CYCLONIC STORM
31.10.19/0000	19.1/61.1	110-120 GUSTING TO 130	SEVERE CYCLONIC STORM
31.10.19/1200	18.6/60.4	90-100 GUSTING TO 110	SEVERE CYCLONIC STORM
01.11.19/0000	17.7/59.3	70-80 GUSTING TO 90	CYCLONIC STORM
01.11.19/1200	16.7/58.2	60-70 GUSTING TO 80	CYCLONIC STORM
02.11.19/0000	15.7/57.0	50-60 GUSTING TO 70	DEEP DEPRESSION
02.11.19/1200	14.7/55.9	40-50 GUSTING TO 60	DEPRESSION
03.11.19/0000	13.7/54.8	25-35 GUSTING TO 45	DEPRESSION

REMARKS:

AS PER THE SATELLITE IMAGERY AT 1500 UTC OF 29TH OCTOBER, 2019, THE CURRENT INTENSITY OF THE SYSTEM IS T 5.5/CI 5.5. ASSOCIATED BROKEN LOW TO MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION LIES OVER WESTCENTRAL AND ADJOINING EAST CENTRAL ARABIAN SEA BETWEEN LAT 17.5°N TO 21.0°N AND LONG 61.0°E TO 64.5°E. THE MINIMUM CTT IS MINUS 93 DEG C.

THE ESTIMATED MAXIMUM SUSTAINED WIND SPEED IS 115 KNOTS GUSTING TO 130 KNOTS. THE ESTIMATED CENTRAL PRESSURE IS 943 HPA. THE SEA CONDITION IS PHENOMENAL AROUND THE SYSTEM CENTRE. AT 1500 UTC A SHIP LOCATED NEAR LAT. 16.0°N / 64.5°E REPORTED MEAN SEA LEVEL PRESSURE 1008.8 HPA AND WIND 190° /25 KNOTS.

THE MJO LIES IN THE PHASE 3 WITH AMPLITUDE LESS THAN 1. IT WILL REMAIN IN THE SAME PHASE DURING NEXT 3 DAYS AND ENTER INTO PHASE 4 WITH AMPLITUDE LESS THAN 1 THEREAFTER. THE LOW LEVEL RELATIVE VORTICITY IS ABOUT $250 \times 10^{-5} \text{ SEC}^{-1}$ TO THE SOUTHEAST OF THE SYSTEM CENTRE. THE LOWER LEVEL CONVERGENCE IS ABOUT $30 \times 10^{-5} \text{ S}^{-1}$ TO THE SOUTHEAST OF THE SYSTEM CENTRE AND THE UPPER LEVEL DIVERGENCE IS ABOUT $20 \times 10^{-5} \text{ S}^{-1}$ TO THE SOUTHEAST OF THE SYSTEM CENTRE. THE VERTICAL WIND SHEAR IS MODERATE (15-20 KNOTS) AROUND THE SYSTEM CENTER. SEA SURFACE TEMPERATURE TO THE SOUTHWEST OF THE SYSTEM CENTER OVER MOST PARTS OF WEST CENTRAL ARABIAN SEA IS AROUND 27-28°C WHILE TO THE NORTH OF THE SYSTEM CENTRE, IT IS WARMER (29-30°C). TROPICAL CYCLONE HEAT POTENTIAL TO THE WEST OF THE SYSTEM CENTER OVER WESTCENTRAL ARABIAN SEAS IS 20-40 KJ/CM² WHILE TO THE EAST OF THE SYSTEM CENTER OVER EASTCENTRAL ARABIAN SEA, IT IS 50-80 KJ/CM².

TOTAL PRECIPITABLE WATER IMAGERIES INDICATE CONTINUED REDUCTION IN WARM AND DRY AIR INCURSION IN THE SOUTHWESTERN SECTORS OF THE SYSTEM CENTRE. EQUATORWARD OUTFLOW IS TAKING PLACE IN THE UPPER TROPOSPHERIC LEVELS. ALL THESE ENVIRONMENTAL, DYNAMIC AND THERMODYNAMIC CONDITIONS INDICATE GRADUAL WEAKENING OF THE SYSTEM.

THE UPPER TROPOSPHERIC RIDGE RUNS ALONG 19°N. THE SYSTEM IS BEING STEERED BY THE WINDS IN THE WESTERN PERIPHERY OF THE ANTI-CYCLONE LOCATED TO THE EAST OF THE SYSTEM. AS A RESULT, IT IS CONTINUING TO MOVE WEST-NORTHWESTWARDS SLOWLY BEING IN THE COL REGION. IT WILL COME UNDER THE INFLUENCE OF THE ANTICYCLONIC CIRCULATION OVER ARABIAN PENINSULA, LOCATED TO THE NORTHWEST OF SYSTEM BY 0000 UTC OF 30TH OCTOBER. SUBSEQUENTLY THE SYSTEM IS MOST LIKELY TO RECURVE WEST-SOUTHWESTWARDS AND VERY LIKELY TO MOVE TOWARDS GULF OF ADEN OFF SOUTH OMAN-YEMEN COASTS THEREAFTER. MAJORITY OF NUMERICAL MODELS AGREE WITH THE ABOVE INFERENCE.

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

(B) WELL MARKED LOW PRESSURE AREA OVER LAKSHADWEEP, MALDIVES & ADJOINING COMORIN AREA

THE WELL MARKED LOW PRESSURE AREA OVER LAKSHADWEEP, MALDIVES & ADJOINING COMORIN AREA PERSISTS. IT IS LIKELY TO CONCENTRATE INTO A DEPRESSION OVER LAKSHADWEEP-MALDIVES AREAS AND ADJOINING SOUTHEAST ARABIAN SEA DURING NEXT 24 HOURS. IT IS LIKELY TO MOVE NORTHWESTWARDS ACROSS LAKSHADWEEP ISLANDS AND INTENSIFY INTO A DEEP DEPRESSION DURING SUBSEQUENT 24 HOURS.

**(V R DURAI)
SCIENTIST-F, RSMC, NEW DELHI**

SAT : INSAT-3D IMG

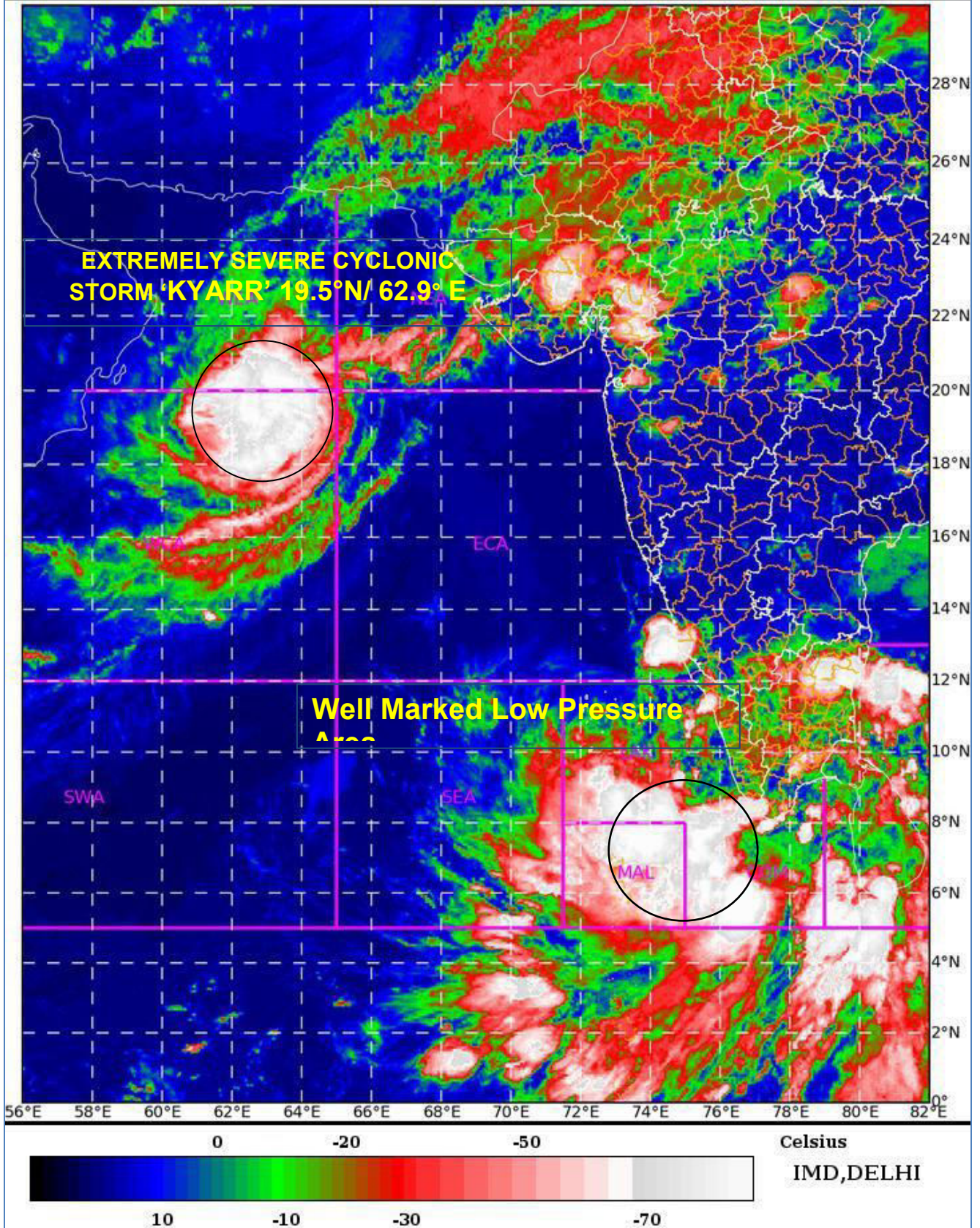
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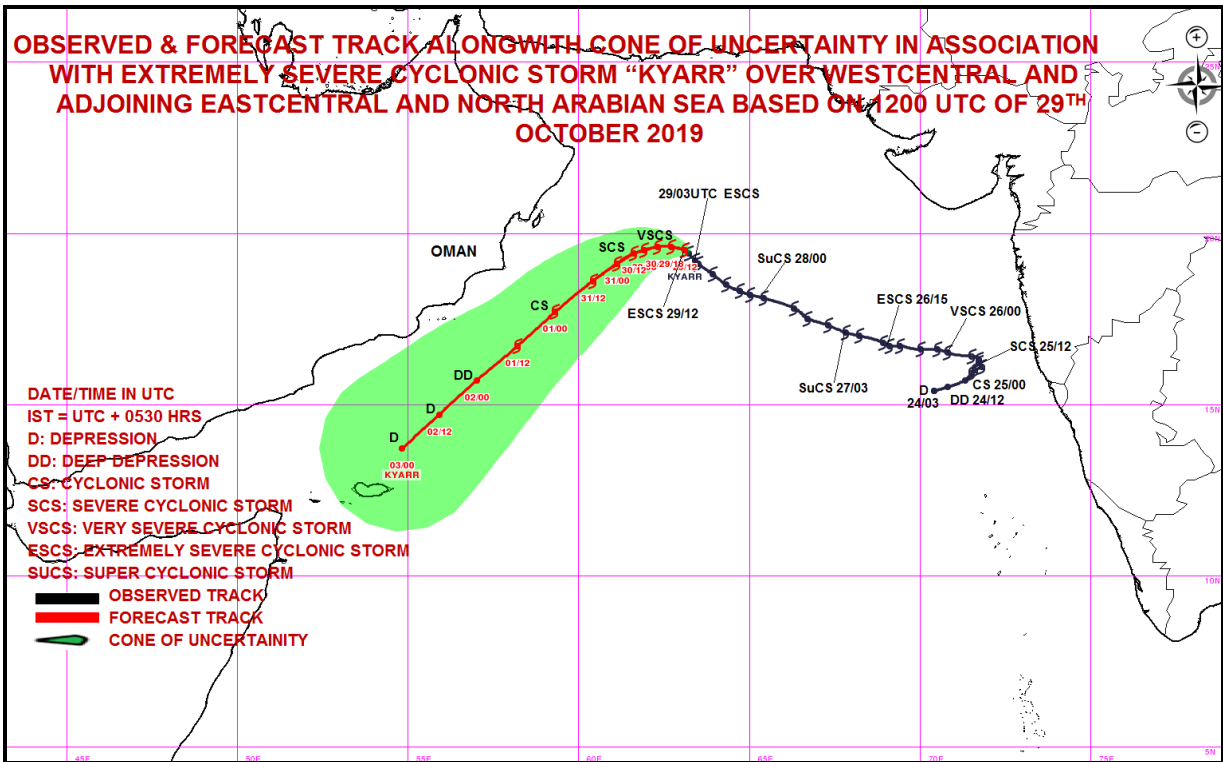
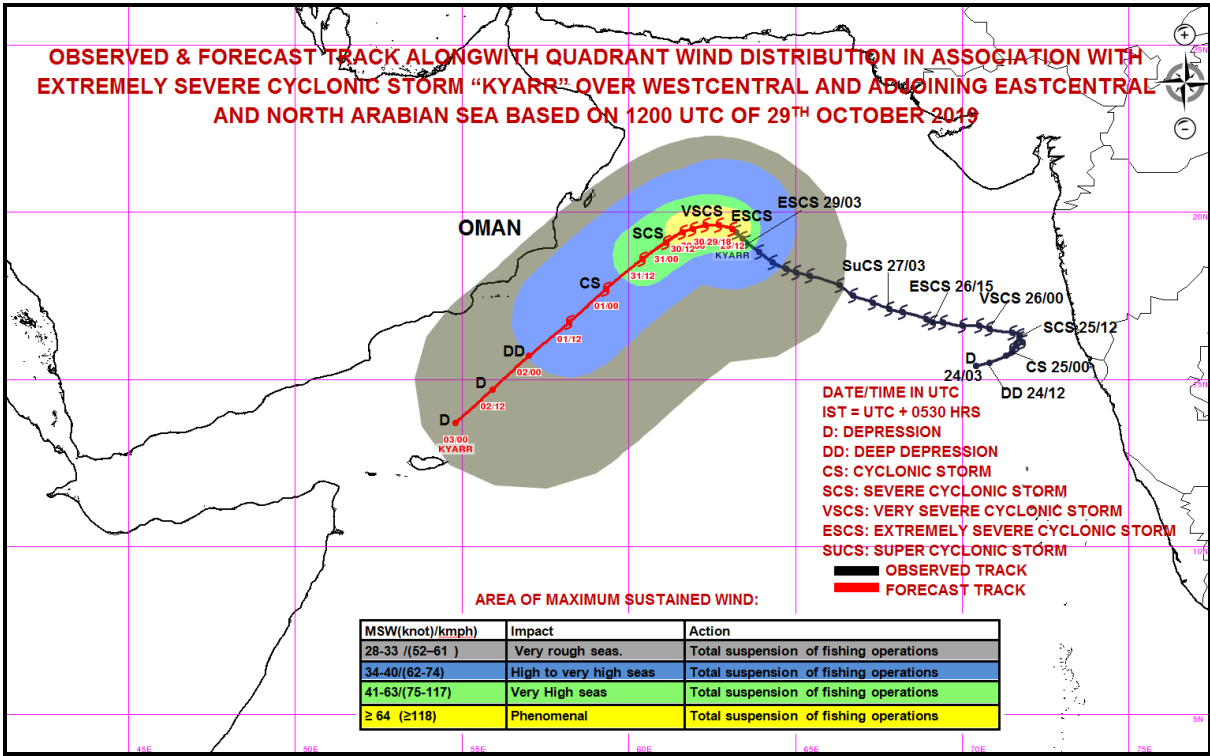


ARABIAN_SEA



PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%



PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)
NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%



**REGIONAL SPECIALISED METEOROLOGICAL CENTRE-TROPICAL CYCLONES, NEW DELHI
TROPICAL CYCLONE ADVISORY BULLETIN NO.39**

FROM: RSMC –TROPICAL CYCLONES, NEW DELHI

**TO: STORM WARNING CENTRE, NAYPYI TAW (MYANMAR)
STORM WARNING CENTRE, BANGKOK (THAILAND)
STORM WARNING CENTRE, COLOMBO (SRILANKA)
STORM WARNING CENTRE, DHAKA (BANGLADESH)
STORM WARNING CENTRE, KARACHI (PAKISTAN)
METEOROLOGICAL OFFICE, MALE (MALDIVES)
OMAN METEOROLOGICAL DEPARTMENT, MUSCAT (THROUGH RTH JEDDAH)
YEMEN METEOROLOGICAL SERVICES, REPUBLIC OF YEMEN (THROUGH RTH JEDDAH)
NATIONAL CENTRE FOR METEOROLOGY, UAE (THROUGH RTH JEDDAH)
PRESIDENCY OF METEOROLOGY AND ENVIRONMENT, SAUDI ARABIA (THROUGH RTH JEDDAH)
IRAN METEOROLOGICAL ORGANISATION, (THROUGH RTH JEDDAH)
QATAR METEOROLOGICAL DEPARTMENT (THROUGH RTH JEDDAH)**

TROPICAL CYCLONE ADVISORY No. 39 FOR NORTH INDIAN OCEAN (THE BAY OF BENGAL AND ARABIAN SEA) VALID FOR NEXT 120 HOURS ISSUED AT 2030 UTC OF 29.10.2019 BASED ON 1800 UTC OF 29.10.2019.

SUB: (A) EXTREMELY SEVERE CYCLONIC STORM ‘KYARR’ (PRONOUNCED AS KYARR) OVER WESTCENTRAL AND ADJOINING EASTCENTRAL & NORTH ARABIAN SEA.

(B) WELL MARKED LOW PRESSURE AREA OVER LAKSHADWEEP, MALDIVES & ADJOINING COMORIN AREA

(A) EXTREMELY SEVERE CYCLONIC STORM ‘KYARR’ (PRONOUNCED AS KYARR) OVER WESTCENTRAL AND ADJOINING EASTCENTRAL & NORTH ARABIAN SEA

THE **EXTREMELY SEVERE CYCLONIC STORM ‘KYARR’** OVER WESTCENTRAL AND ADJOINING EASTCENTRAL & NORTH ARABIAN SEA MOVED SLOWLY WEST-NORTHWESTWARDS WITH A SPEED OF 05 KMPH DURING PAST 06 HRS AND LAY CENTRED AT 1800 HRS UTC OF 29TH OCTOBER, 2019 NEAR LATITUDE 19.6°N AND LONGITUDE 62.8°E, ABOUT 1050 KM WEST-NORTHWEST OF MUMBAI (MAHARASHTRA), 980 KM EAST-NORTHEAST OF SALALAH (OMAN) AND 420 KM EAST-SOUTHEAST OF MASIRAH (OMAN). IT IS VERY LIKELY TO MOVE WEST-NORTHWESTWARDS TILL 30TH OCTOBER MORNING, RE-CURVE WEST-SOUTHWESTWARDS THEREAFTER AND MOVE TOWARDS GULF OF ADEN OFF SOUTH OMAN-YEMEN COASTS DURING SUBSEQUENT 3 DAYS. IT IS VERY LIKELY TO WEAKEN INTO A VERY SEVERE CYCLONIC STORM AROUND 0000UTC OF 30TH OCTOBER AND FURTHER INTO A SEVERE CYCLONIC STORM BY THE 0000UTC OF 31ST OCTOBER.

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

FORECAST TRACK AND INTENSITY ARE GIVEN IN THE FOLLOWING TABLE:

DATE/TIME(IST)	POSITION (LAT. °N/ LONG. °E)	MAXIMUM SUSTAINED SURFACE WIND SPEED (KMPH)	CATEGORY OF CYCLONIC DISTURBANCE
29.10.19/1800	19.6/62.8	170-180 GUSTING TO 200	EXTREMELY SEVERE CYCLONIC STORM
30.10.19/0000	19.6/62.3	160-170 GUSTING TO 190	EXTREMELY SEVERE CYCLONIC STORM
30.10.19/0600	19.5/61.9	140-150 GUSTING TO 165	VERY SEVERE CYCLONIC STORM
30.10.19/1200	19.4/61.6	130-140 GUSTING TO 155	VERY SEVERE CYCLONIC STORM
30.10.19/1800	19.2/61.3	110-120 GUSTING TO 130	SEVERE CYCLONIC STORM
31.10.19/0600	18.9/60.8	100-110 GUSTING TO 120	SEVERE CYCLONIC STORM
31.11.19/1800	18.1/59.8	80-90 GUSTING TO 100	CYCLONIC STORM
01.11.19/0600	17.2/58.8	70-80 GUSTING TO 90	CYCLONIC STORM
01.11.19/1800	16.2/57.6	60-70 GUSTING TO 80	CYCLONIC STORM
02.11.19/0600	15.2/56.5	50-60 GUSTING TO 70	DEEP DEPRESSION
02.11.19/1800	14.2/55.4	40-50 GUSTING TO 60	DEPRESSION
03.11.19/0600	13.2/54.3	30-40 GUSTING TO 50	DEPRESSION

REMARKS:

AS PER THE SATELLITE IMAGERY AT 1800 UTC OF 29TH OCTOBER, 2019, THE CURRENT INTENSITY OF THE SYSTEM IS T 4.5/CI 5.5. ASSOCIATED BROKEN LOW TO MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION LIES OVER WESTCENTRAL AND ADJOINING EAST CENTRAL ARABIAN SEA BETWEEN LAT 17.5°N TO 21.5°N AND LONG 60.0°E TO 64.5°E. THE MINIMUM CTT IS MINUS 93 DEG C.

THE ESTIMATED MAXIMUM SUSTAINED WIND SPEED IS 95 KNOTS GUSTING TO 105 KNOTS. THE ESTIMATED CENTRAL PRESSURE IS 955 HPA. THE SEA CONDITION IS PHENOMENAL AROUND THE SYSTEM CENTRE. AT 1800 UTC A SHIP LOCATED NEAR LAT. 15.9°N / 63.9°E REPORTED MEAN SEA LEVEL PRESSURE 1009 HPA AND WIND 200⁰ /25 KNOTS.

THE MJO LIES IN THE PHASE 3 WITH AMPLITUDE LESS THAN 1. IT WILL REMAIN IN THE SAME PHASE DURING NEXT 3 DAYS AND ENTER INTO PHASE 4 WITH AMPLITUDE LESS THAN 1 THEREAFTER. THE LOW LEVEL RELATIVE VORTICITY IS ABOUT $250 \times 10^{-5} \text{ SEC}^{-1}$ TO THE SOUTHEAST OF THE SYSTEM CENTRE. THE LOWER LEVEL CONVERGENCE IS ABOUT $30 \times 10^{-5} \text{ S}^{-1}$ TO THE SOUTHEAST OF THE SYSTEM CENTRE AND THE UPPER LEVEL DIVERGENCE IS ABOUT $30 \times 10^{-5} \text{ S}^{-1}$ TO THE SOUTHEAST OF THE SYSTEM CENTRE. THE VERTICAL WIND SHEAR IS MODERATE (10-15 KNOTS) AROUND THE SYSTEM CENTER. SEA SURFACE TEMPERATURE TO THE SOUTHWEST OF THE SYSTEM CENTER OVER MOST PARTS OF WEST CENTRAL ARABIAN SEA IS AROUND 27-28°C WHILE TO THE NORTH OF THE SYSTEM CENTRE, IT IS WARMER (29-30°C). TROPICAL CYCLONE HEAT POTENTIAL TO THE WEST OF THE SYSTEM CENTER OVER WESTCENTRAL ARABIAN SEAS IS 20-40 KJ/CM² WHILE TO THE EAST OF THE SYSTEM CENTER OVER EASTCENTRAL ARABIAN SEA, IT IS 50-80 KJ/CM².

TOTAL PRECIPITABLE WATER IMAGERIES INDICATE CONTINUED REDUCTION IN WARM AND DRY AIR INCURSION IN THE SOUTHWESTERN SECTORS OF THE SYSTEM CENTRE. EQUATORWARD OUTFLOW IS TAKING PLACE IN THE UPPER TROPOSPHERIC LEVELS. ALL THESE ENVIRONMENTAL, DYNAMIC AND THERMODYNAMIC CONDITIONS INDICATE GRADUAL WEAKENING OF THE SYSTEM.

THE UPPER TROPOSPHERIC RIDGE RUNS ALONG 19°N. THE SYSTEM IS BEING STEERED BY THE WINDS IN THE WESTERN PERIPHERY OF THE ANTI-CYCLONE LOCATED TO THE EAST OF THE SYSTEM. AS A RESULT, IT IS CONTINUING TO MOVE WEST-NORTHWESTWARDS SLOWLY BEING IN THE COL REGION. IT WILL COME UNDER THE INFLUENCE OF THE ANTICYCLONIC CIRCULATION OVER ARABIAN PENINSULA, LOCATED TO THE NORTHWEST OF SYSTEM BY 0000 UTC OF 30TH OCTOBER. SUBSEQUENTLY THE SYSTEM IS MOST LIKELY TO RECURVE WEST-SOUTHWESTWARDS AND VERY LIKELY TO MOVE TOWARDS GULF OF ADEN OFF SOUTH OMAN-YEMEN COASTS THEREAFTER. MAJORITY OF NUMERICAL MODELS AGREE WITH THE ABOVE INFERENCE.

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

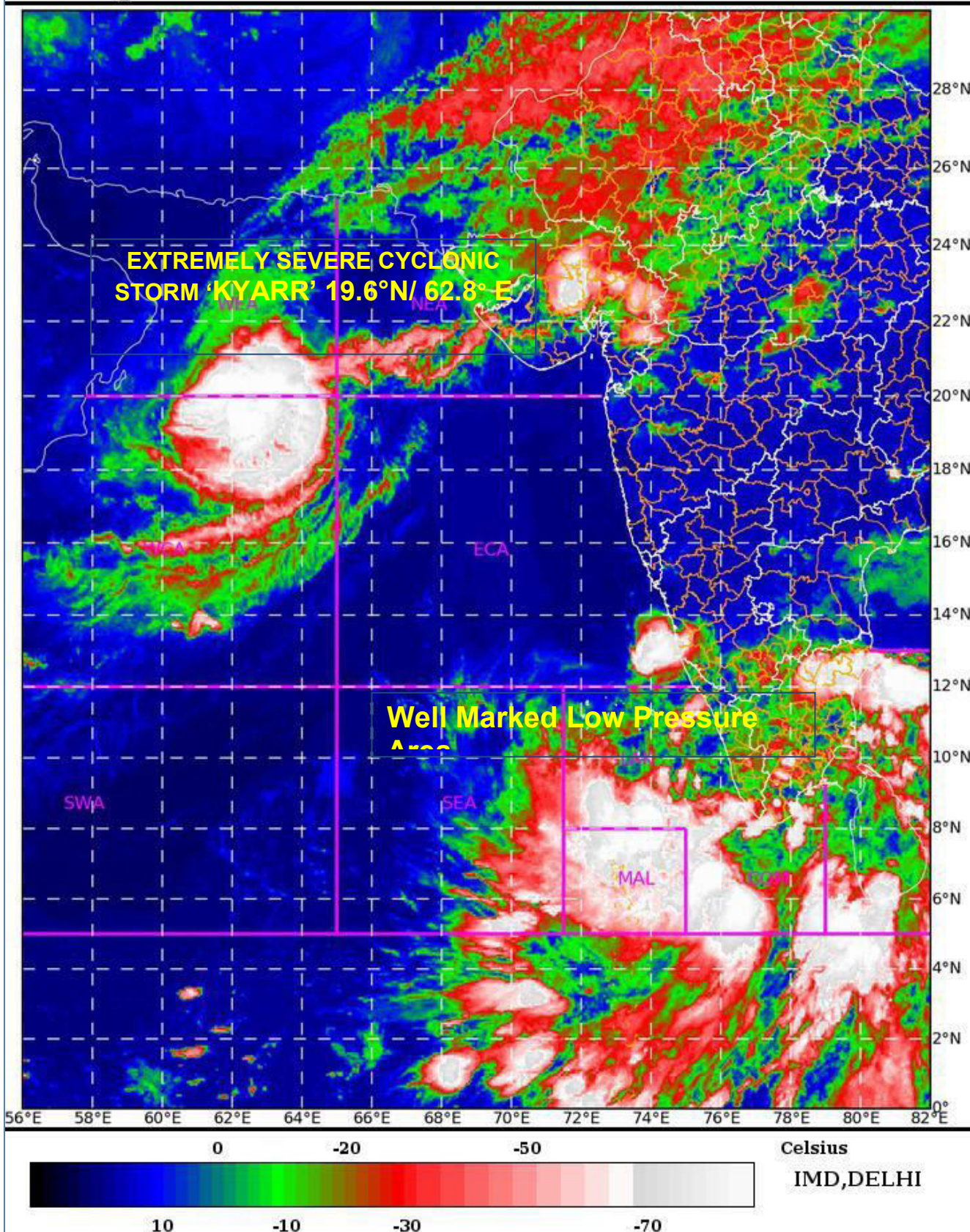
NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

(B) WELL MARKED LOW PRESSURE AREA OVER LAKSHADWEEP, MALDIVES & ADJOINING COMORIN AREA

THE WELL MARKED LOW PRESSURE AREA OVER LAKSHADWEEP, MALDIVES & ADJOINING COMORIN AREA PERSISTS. IT IS LIKELY TO CONCENTRATE INTO A DEPRESSION OVER LAKSHADWEEP-MALDIVES AREAS AND ADJOINING SOUTHEAST ARABIAN SEA DURING NEXT 24 HOURS. IT IS LIKELY TO MOVE NORTHWESTWARDS ACROSS LAKSHADWEEP ISLANDS AND INTENSIFY INTO A DEEP DEPRESSION DURING SUBSEQUENT 24 HOURS.

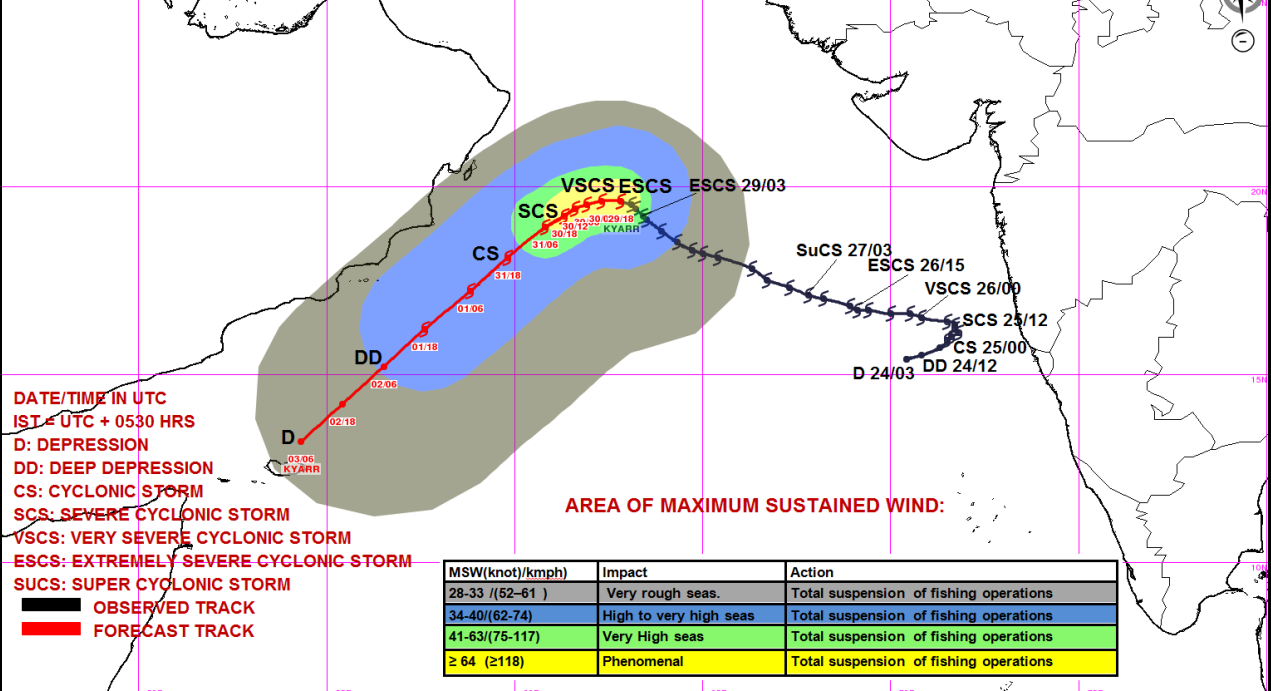
**(V R DURAI)
SCIENTIST-E, RSMC, NEW DELHI**

SAT : INSAT-3D IMG 29-10-2019/(1630 to 1656) GMT
IMG_TIR1_TEMP 10.8 um 29-10-2019/(2200 to 2226) IST
ARABIAN_SEA

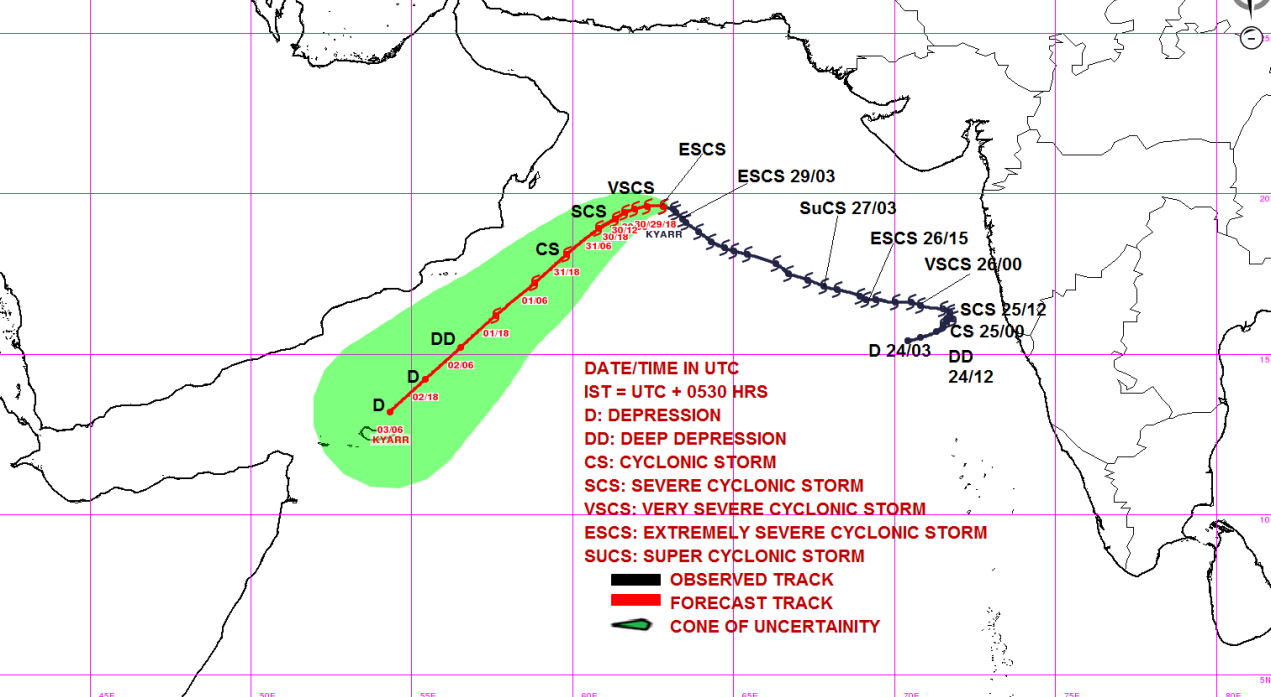


PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)
NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

OBSERVED & FORECAST TRACK ALONGWITH QUADRANT WIND DISTRIBUTION IN ASSOCIATION WITH EXTREMELY SEVERE CYCLONIC STORM "KYARR" OVER WESTCENTRAL AND ADJOINING EASTCENTRAL AND NORTH ARABIAN SEA BASED ON 1800 UTC OF 29TH OCTOBER 2019



OBSERVED & FORECAST TRACK ALONGWITH CONE OF UNCERTAINTY IN ASSOCIATION WITH EXTREMELY SEVERE CYCLONIC STORM "KYARR" OVER WESTCENTRAL AND ADJOINING EASTCENTRAL AND NORTH ARABIAN SEA BASED ON 1800 UTC OF 29TH OCTOBER 2019



PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)
NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%



**REGIONAL SPECIALISED METEOROLOGICAL CENTRE-TROPICAL CYCLONES, NEW DELHI
TROPICAL CYCLONE ADVISORY BULLETIN NO.40**

FROM: RSMC –TROPICAL CYCLONES, NEW DELHI

**TO: STORM WARNING CENTRE, NAYPYI TAW (MYANMAR)
STORM WARNING CENTRE, BANGKOK (THAILAND)
STORM WARNING CENTRE, COLOMBO (SRILANKA)
STORM WARNING CENTRE, DHAKA (BANGLADESH)
STORM WARNING CENTRE, KARACHI (PAKISTAN)
METEOROLOGICAL OFFICE, MALE (MALDIVES)
OMAN METEOROLOGICAL DEPARTMENT, MUSCAT (THROUGH RTH JEDDAH)
YEMEN METEOROLOGICAL SERVICES, REPUBLIC OF YEMEN (THROUGH RTH JEDDAH)
NATIONAL CENTRE FOR METEOROLOGY, UAE (THROUGH RTH JEDDAH)
PRESIDENCY OF METEOROLOGY AND ENVIRONMENT, SAUDI ARABIA (THROUGH RTH JEDDAH)
IRAN METEOROLOGICAL ORGANISATION, (THROUGH RTH JEDDAH)
QATAR METEOROLOGICAL DEPARTMENT (THROUGH RTH JEDDAH)**

TROPICAL CYCLONE ADVISORY No. 40 FOR NORTH INDIAN OCEAN (THE BAY OF BENGAL AND ARABIAN SEA) VALID FOR NEXT 120 HOURS ISSUED AT 0000 UTC OF 30.10.2019 BASED ON 2100 UTC OF 29.10.2019.

SUB: (A) EXTREMELY SEVERE CYCLONIC STORM ‘KYARR’ (PRONOUNCED AS KYARR) OVER WESTCENTRAL AND ADJOINING EASTCENTRAL & NORTH ARABIAN SEA.

(B) WELL MARKED LOW PRESSURE AREA OVER LAKSHADWEEP, MALDIVES & ADJOINING COMORIN AREA

(A) EXTREMELY SEVERE CYCLONIC STORM ‘KYARR’ (PRONOUNCED AS KYARR) OVER WESTCENTRAL AND ADJOINING EASTCENTRAL & NORTH ARABIAN SEA

THE EXTREMELY SEVERE CYCLONIC STORM ‘KYARR’ OVER WESTCENTRAL AND ADJOINING EASTCENTRAL & NORTH ARABIAN SEA MOVED SLOWLY WEST-NORTHWESTWARDS WITH A SPEED OF 05 KMPH DURING PAST 06 HRS AND LAY CENTRED AT 2100 HRS UTC OF 29TH OCTOBER, 2019 NEAR LATITUDE 19.6°N AND LONGITUDE 62.6°E, ABOUT 1070 KM WEST-NORTHWEST OF MUMBAI (MAHARASHTRA), 960 KM EAST-NORTHEAST OF SALALAH (OMAN) AND 420 KM EAST-SOUTHEAST OF MASIRAH (OMAN). IT IS VERY LIKELY TO MOVE WEST-NORTHWESTWARDS DURING NEXT 06 HOURS , RE-CURVE WEST-SOUTHWESTWARDS THEREAFTER AND MOVE TOWARDS GULF OF ADEN OFF SOUTH OMAN-YEMEN COASTS DURING SUBSEQUENT 3 DAYS. IT IS VERY LIKELY TO WEAKEN INTO A VERY SEVERE CYCLONIC STORM DURING NEXT 06 HOURS AND FURTHER INTO A SEVERE CYCLONIC STORM BY THE 0000UTC OF 31ST OCTOBER.

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

FORECAST TRACK AND INTENSITY ARE GIVEN IN THE FOLLOWING TABLE:

DATE/TIME(IST)	POSITION (LAT. °N/ LONG. °E)	MAXIMUM SUSTAINED SURFACE WIND SPEED (KMPH)	CATEGORY OF CYCLONIC DISTURBANCE
29.10.19/1800	19.6/62.6	165-175 GUSTING TO 190	EXTREMELY SEVERE CYCLONIC STORM
30.10.19/0000	19.6/62.3	160-170 GUSTING TO 190	EXTREMELY SEVERE CYCLONIC STORM
30.10.19/0600	19.5/61.9	140-150 GUSTING TO 165	VERY SEVERE CYCLONIC STORM
30.10.19/1200	19.4/61.6	130-140 GUSTING TO 155	VERY SEVERE CYCLONIC STORM
30.10.19/1800	19.2/61.3	110-120 GUSTING TO 130	SEVERE CYCLONIC STORM
31.10.19/0600	18.9/60.8	100-110 GUSTING TO 120	SEVERE CYCLONIC STORM
31.11.19/1800	18.1/59.8	80-90 GUSTING TO 100	CYCLONIC STORM
01.11.19/0600	17.2/58.8	70-80 GUSTING TO 90	CYCLONIC STORM
01.11.19/1800	16.2/57.6	60-70 GUSTING TO 80	CYCLONIC STORM
02.11.19/0600	15.2/56.5	50-60 GUSTING TO 70	DEEP DEPRESSION
02.11.19/1800	14.2/55.4	40-50 GUSTING TO 60	DEPRESSION
03.11.19/0600	13.2/54.3	30-40 GUSTING TO 50	DEPRESSION

REMARKS:

AS PER THE SATELLITE IMAGERY AT 2100 UTC OF 29TH OCTOBER, 2019, THE CURRENT INTENSITY OF THE SYSTEM IS T 4.5/CI 5.5. ASSOCIATED BROKEN LOW TO MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION LIES OVER WESTCENTRAL AND ADJOINING EAST CENTRAL ARABIAN SEA BETWEEN LAT 17.5°N TO 22.0°N AND LONG 60.0°E TO 64.0°E. THE MINIMUM CTT IS MINUS 93 DEG C.

THE ESTIMATED MAXIMUM SUSTAINED WIND SPEED IS 95 KNOTS GUSTING TO 105 KNOTS. THE ESTIMATED CENTRAL PRESSURE IS 955 HPA. THE SEA CONDITION IS PHENOMENAL AROUND THE SYSTEM CENTRE. AT 2100 UTC A SHIP LOCATED NEAR LAT. 15.9°N / 62.4°E REPORTED MEAN SEA LEVEL PRESSURE 1007.2 HPA AND WIND 200⁰ /20 KNOTS.

THE MJO LIES IN THE PHASE 3 WITH AMPLITUDE LESS THAN 1. IT WILL REMAIN IN THE SAME PHASE DURING NEXT 3 DAYS AND ENTER INTO PHASE 4 WITH AMPLITUDE LESS THAN 1 THEREAFTER. THE LOW LEVEL RELATIVE VORTICITY IS ABOUT $240 \times 10^{-5} \text{ SEC}^{-1}$ TO THE SOUTHEAST OF THE SYSTEM CENTRE. THE LOWER LEVEL CONVERGENCE IS ABOUT $20 \times 10^{-5} \text{ S}^{-1}$ TO THE SOUTHEAST OF THE SYSTEM CENTRE AND THE UPPER LEVEL DIVERGENCE IS ABOUT $20 \times 10^{-5} \text{ S}^{-1}$ TO THE SOUTHEAST OF THE SYSTEM CENTRE. THE VERTICAL WIND SHEAR IS MODERATE (10-15 KNOTS) AROUND THE SYSTEM CENTER. SEA SURFACE TEMPERATURE TO THE SOUTHWEST OF THE SYSTEM CENTER OVER MOST PARTS OF WEST CENTRAL ARABIAN SEA IS AROUND 27-28°C WHILE TO THE NORTH OF THE SYSTEM CENTRE, IT IS WARMER (29-30°C). TROPICAL CYCLONE HEAT POTENTIAL TO THE WEST OF THE SYSTEM CENTER OVER WESTCENTRAL ARABIAN SEAS IS 20-40 KJ/CM² WHILE TO THE EAST OF THE SYSTEM CENTER OVER EASTCENTRAL ARABIAN SEA, IT IS 50-80 KJ/CM².

TOTAL PRECIPITABLE WATER IMAGERIES INDICATE CONTINUED REDUCTION IN WARM AND DRY AIR INCURSION IN THE SOUTHWESTERN SECTORS OF THE SYSTEM CENTRE. EQUATORWARD OUTFLOW IS TAKING PLACE IN THE UPPER TROPOSPHERIC LEVELS. ALL THESE ENVIRONMENTAL, DYNAMIC AND THERMODYNAMIC CONDITIONS INDICATE GRADUAL WEAKENING OF THE SYSTEM.

THE UPPER TROPOSPHERIC RIDGE RUNS ALONG 19°N. THE SYSTEM IS BEING STEERED BY THE WINDS IN THE WESTERN PERIPHERY OF THE ANTI-CYCLONE LOCATED TO THE EAST OF THE SYSTEM. AS A RESULT, IT IS CONTINUING TO MOVE WEST-NORTHWESTWARDS SLOWLY BEING IN THE COL REGION. IT WILL COME UNDER THE INFLUENCE OF THE ANTICYCLONIC CIRCULATION OVER ARABIAN PENINSULA, LOCATED TO THE NORTHWEST OF SYSTEM BY 0000 UTC OF 30TH OCTOBER. SUBSEQUENTLY THE SYSTEM IS MOST LIKELY TO RECURVE WEST-SOUTHWESTWARDS AND VERY LIKELY TO MOVE TOWARDS GULF OF ADEN OFF SOUTH OMAN-YEMEN COASTS THEREAFTER. MAJORITY OF NUMERICAL MODELS AGREE WITH THE ABOVE INFERENCE.

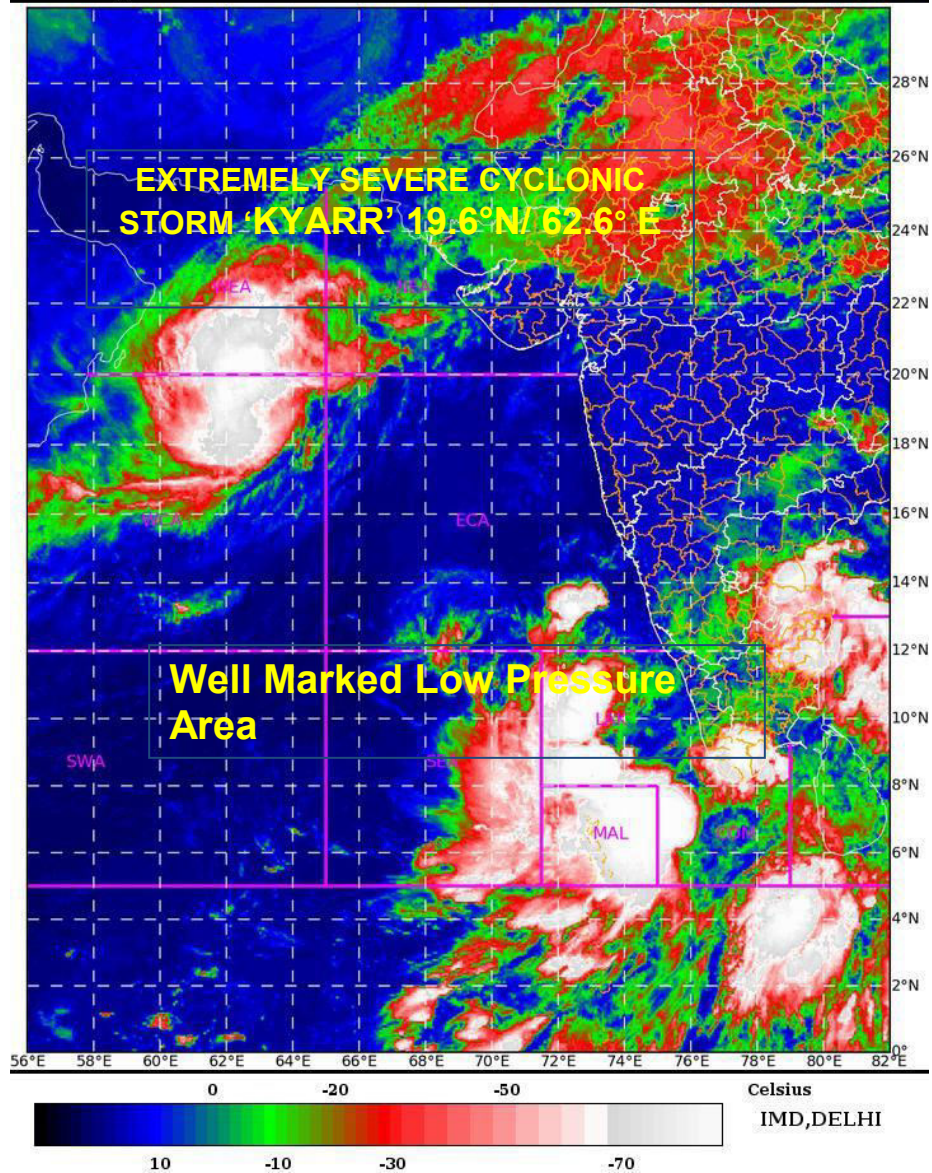
PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

(B) WELL MARKED LOW PRESSURE AREA OVER LAKSHADWEEP, MALDIVES & ADJOINING COMORIN AREA

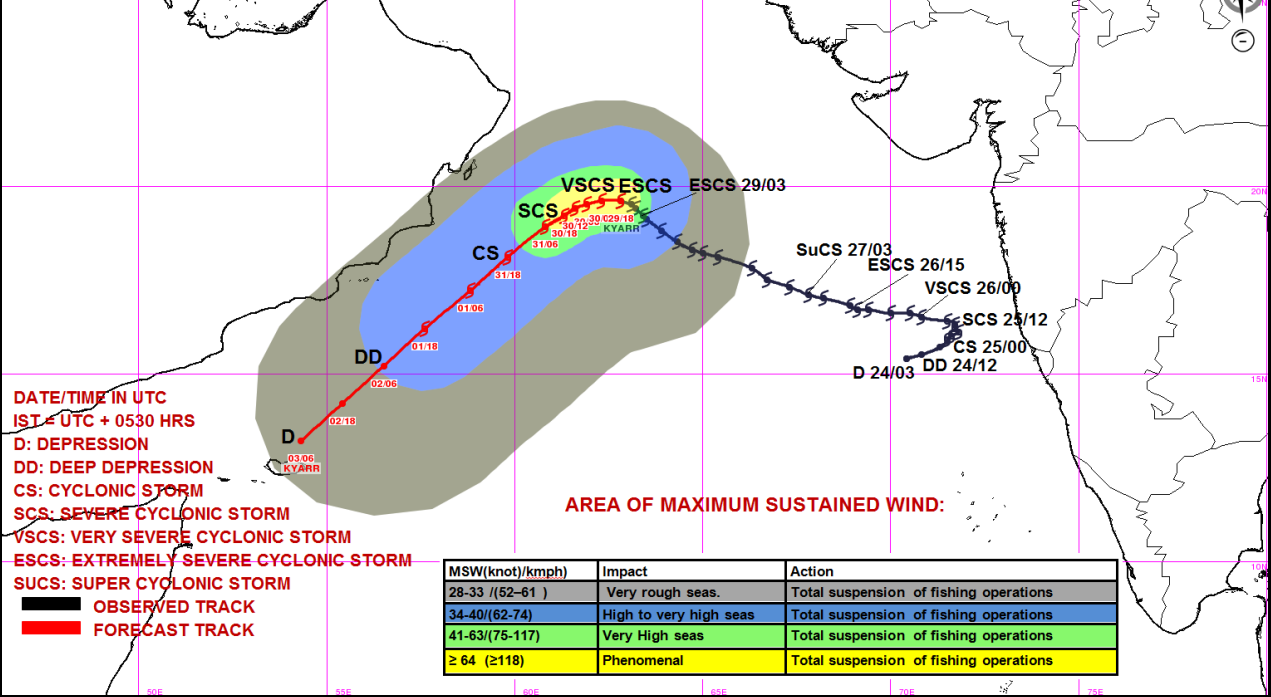
THE WELL MARKED LOW PRESSURE AREA OVER LAKSHADWEEP, MALDIVES & ADJOINING COMORIN AREA PERSISTS. IT IS LIKELY TO CONCENTRATE INTO A DEPRESSION OVER LAKSHADWEEP-MALDIVES AREAS AND ADJOINING SOUTHEAST ARABIAN SEA DURING NEXT 12 HOURS. IT IS LIKELY TO MOVE NORTHWESTWARDS ACROSS LAKSHADWEEP ISLANDS AND INTENSIFY INTO A DEEP DEPRESSION DURING SUBSEQUENT 12 HOURS.

**(V R DURAI)
SCIENTIST-E, RSMC, NEW DELHI**

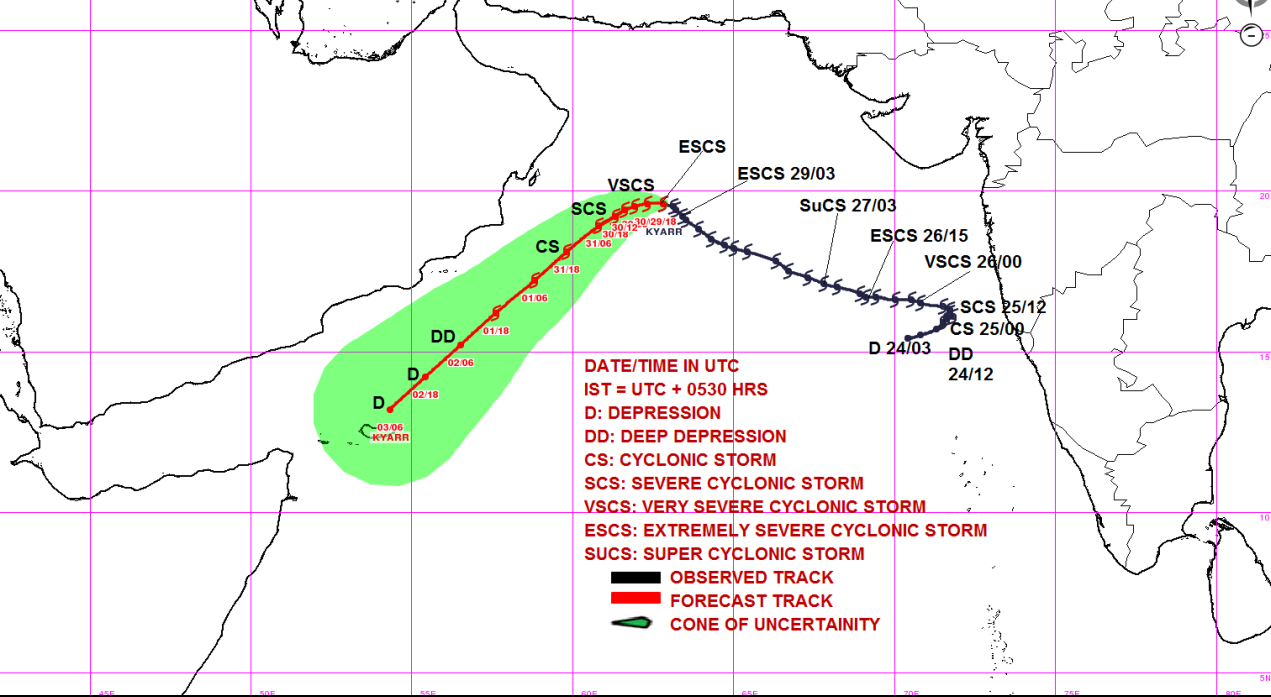


PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)
NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

OBSERVED & FORECAST TRACK ALONGWITH QUADRANT WIND DISTRIBUTION IN ASSOCIATION WITH EXTREMELY SEVERE CYCLONIC STORM "KYARR" OVER WESTCENTRAL AND ADJOINING EASTCENTRAL AND NORTH ARABIAN SEA BASED ON 1800 UTC OF 29TH OCTOBER 2019



OBSERVED & FORECAST TRACK ALONGWITH CONE OF UNCERTAINTY IN ASSOCIATION WITH EXTREMELY SEVERE CYCLONIC STORM "KYARR" OVER WESTCENTRAL AND ADJOINING EASTCENTRAL AND NORTH ARABIAN SEA BASED ON 1800 UTC OF 29TH OCTOBER 2019



PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%



**REGIONAL SPECIALISED METEOROLOGICAL CENTRE-TROPICAL CYCLONES, NEW DELHI
TROPICAL CYCLONE ADVISORY BULLETIN NO.41**

FROM: RSMC –TROPICAL CYCLONES, NEW DELHI

**TO: STORM WARNING CENTRE, NAYPYI TAW (MYANMAR)
STORM WARNING CENTRE, BANGKOK (THAILAND)
STORM WARNING CENTRE, COLOMBO (SRILANKA)
STORM WARNING CENTRE, DHAKA (BANGLADESH)
STORM WARNING CENTRE, KARACHI (PAKISTAN)
METEOROLOGICAL OFFICE, MALE (MALDIVES)
OMAN METEOROLOGICAL DEPARTMENT, MUSCAT (THROUGH RTH JEDDAH)
YEMEN METEOROLOGICAL SERVICES, REPUBLIC OF YEMEN (THROUGH RTH JEDDAH)
NATIONAL CENTRE FOR METEOROLOGY, UAE (THROUGH RTH JEDDAH)
PRESIDENCY OF METEOROLOGY AND ENVIRONMENT, SAUDI ARABIA (THROUGH RTH JEDDAH)
IRAN METEOROLOGICAL ORGANISATION, (THROUGH RTH JEDDAH)
QATAR METEOROLOGICAL DEPARTMENT (THROUGH RTH JEDDAH)**

TROPICAL CYCLONE ADVISORY No. 41 FOR NORTH INDIAN OCEAN (THE BAY OF BENGAL AND ARABIAN SEA) VALID FOR NEXT 120 HOURS ISSUED AT 0300 UTC OF 30.10.2019 BASED ON 0000 UTC OF 30.10.2019.

**SUB: (A) EXTREMELY SEVERE CYCLONIC STORM ‘KYARR’ (PRONOUNCED AS KYARR)
OVER WESTCENTRAL AND ADJOINING EASTCENTRAL & NORTH
ARABIAN SEA.**

(B) DEPRESSION OVER MALDIVES- COMORIN AREAS

**(A) EXTREMELY SEVERE CYCLONIC STORM ‘KYARR’ (PRONOUNCED AS KYARR)
OVER WESTCENTRAL AND ADJOINING EASTCENTRAL & NORTH
ARABIAN SEA**

THE **EXTREMELY SEVERE CYCLONIC STORM ‘KYARR’** OVER WESTCENTRAL AND ADJOINING EASTCENTRAL & NORTH ARABIAN SEA MOVED WESTWARDS WITH A SPEED OF 08 KMPH DURING PAST 06 HRS, WEAKENED INTO A **VERY SEVERE CYCLONIC** STORM OVER WESTCENTRAL AND NORTH ARABIAN SEA AND LAY CENTRED AT 0000 HRS UTC OF 30TH OCTOBER, 2019 NEAR LATITUDE 19.6°N AND LONGITUDE 62.3°E, ABOUT 1100 KM WEST-NORTHWEST OF MUMBAI (MAHARASHTRA), 930 KM EAST-NORTHEAST OF SALALAH (OMAN) AND 370 KM EAST-SOUTHEAST OF MASIRAH (OMAN). IT IS VERY LIKELY TO RE-CURVE WEST-SOUTHWESTWARDS DURING NEXT 06 HOURS AND MOVE WEST-SOUTHWESTWARDS TOWARDS SOCOTARA ISLAND DURING NEXT 4 DAYS. IT IS VERY LIKELY TO WEAKEN INTO A SEVERE CYCLONIC STORM BY 1800 UTC OF 30TH OCTOBER AND INTO A CYCLONIC STORM BY 1200 UTC OF 31ST OCTOBER, 2019.

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

FORECAST TRACK AND INTENSITY ARE GIVEN IN THE FOLLOWING TABLE:

DATE/TIME(IST)	POSITION (LAT. °N/ LONG. °E)	MAXIMUM SUSTAINED SURFACE WIND SPEED (KMPH)	CATEGORY OF CYCLONIC DISTURBANCE
30.10.19/0000	19.6/62.3	155-165 GUSTING TO 180	VERY SEVERE CYCLONIC STORM
30.10.19/0600	19.5/61.9	145-155 GUSTING TO 170	VERY SEVERE CYCLONIC STORM
30.10.19/1200	19.4/61.6	130-140 GUSTING TO 155	VERY SEVERE CYCLONIC STORM
30.10.19/1800	19.2/61.3	110-120 GUSTING TO 130	SEVERE CYCLONIC STORM
31.10.19/0000	19.0/61.0	100-110 GUSTING TO 120	SEVERE CYCLONIC STORM
31.11.19/1200	18.5/60.3	80-90 GUSTING TO 100	CYCLONIC STORM
01.11.19/0000	17.7/59.3	70-80 GUSTING TO 90	CYCLONIC STORM
01.11.19/1200	16.7/58.2	60-70 GUSTING TO 80	CYCLONIC STORM
02.11.19/0000	15.7/57.0	50-60 GUSTING TO 70	DEEP DEPRESSION
02.11.19/1200	14.7/55.9	40-50 GUSTING TO 60	DEPRESSION
03.11.19/0000	13.7/54.8	30-40 GUSTING TO 50	DEPRESSION
03.11.19/1200	12.7/53.7	20-30 GUSTING TO 40	WELL MARKED LOW PRESSURE AREA

REMARKS:

AS PER THE SATELLITE IMAGERY AT 0000 UTC OF 30TH OCTOBER, 2019, THE CURRENT INTENSITY OF THE SYSTEM IS T 4.5/CI 5.5. ASSOCIATED BROKEN LOW TO MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION LIES OVER WESTCENTRAL AND ADJOINING EAST CENTRAL ARABIAN SEA BETWEEN LAT 17.0°N TO 22.0°N AND LONG 60.0°E TO 64.°E. THE MINIMUM CTT IS MINUS 93 DEG C.

THE ESTIMATED MAXIMUM SUSTAINED WIND SPEED IS 85 KNOTS GUSTING TO 95 KNOTS. THE ESTIMATED CENTRAL PRESSURE IS 968 HPA. THE SEA CONDITION IS PHENOMENAL AROUND THE SYSTEM CENTRE. AT 0000 UTC A SHIP LOCATED NEAR LAT. 18.5°N / 67.5°E REPORTED MEAN SEA LEVEL PRESSURE 1009 HPA AND WIND 330⁰ /08 KNOTS.

THE MJO LIES IN THE PHASE 3 WITH AMPLITUDE LESS THAN 1. IT WILL REMAIN IN THE SAME PHASE DURING NEXT 3 DAYS AND ENTER INTO PHASE 4 WITH AMPLITUDE LESS THAN 1 THEREAFTER. THE LOW LEVEL RELATIVE VORTICITY IS ABOUT $230 \times 10^{-5} \text{ SEC}^{-1}$ TO THE SOUTHEAST OF THE SYSTEM CENTRE. THE LOWER LEVEL CONVERGENCE IS ABOUT $20 \times 10^{-5} \text{ S}^{-1}$ TO THE SOUTHWEST OF THE SYSTEM CENTRE AND THE UPPER LEVEL DIVERGENCE IS ABOUT $20 \times 10^{-5} \text{ S}^{-1}$ TO THE SOUTHEAST OF THE SYSTEM CENTRE. THE VERTICAL WIND SHEAR IS MODERATE (5-10 KNOTS) AROUND THE SYSTEM CENTER. SEA SURFACE TEMPERATURE TO THE SOUTHWEST OF THE SYSTEM CENTER OVER MOST PARTS OF WEST CENTRAL ARABIAN SEA IS AROUND 27-28°C WHILE TO THE NORTH OF THE SYSTEM CENTRE, IT IS WARMER (29-30°C). TROPICAL CYCLONE HEAT POTENTIAL TO THE WEST OF THE SYSTEM CENTER OVER WESTCENTRAL ARABIAN SEAS IS 20-40 KJ/CM² WHILE TO THE EAST OF THE SYSTEM CENTER OVER EASTCENTRAL ARABIAN SEA, IT IS 50-80 KJ/CM².

TOTAL PRECIPITABLE WATER IMAGERIES INDICATE CONTINUED REDUCTION IN WARM AND DRY AIR INCURSION IN THE SOUTHWESTERN SECTORS OF THE SYSTEM CENTRE. EQUATORWARD OUTFLOW IS TAKING PLACE IN THE UPPER TROPOSPHERIC LEVELS. ALL THESE ENVIRONMENTAL, DYNAMIC AND THERMODYNAMIC CONDITIONS INDICATE FURTHER WEAKENING OF THE SYSTEM. THE SYSTEM IS MOST LIKELY TO RECURVE WEST-SOUTHWESTWARDS DURING NEXT 06 HOURS AND VERY LIKELY TO MOVE TOWARDS TOWARDS SOCOTARA ISLAND THEREAFTER. MAJORITY OF NUMERICAL MODELS AGREE WITH THE ABOVE INFERENCE.

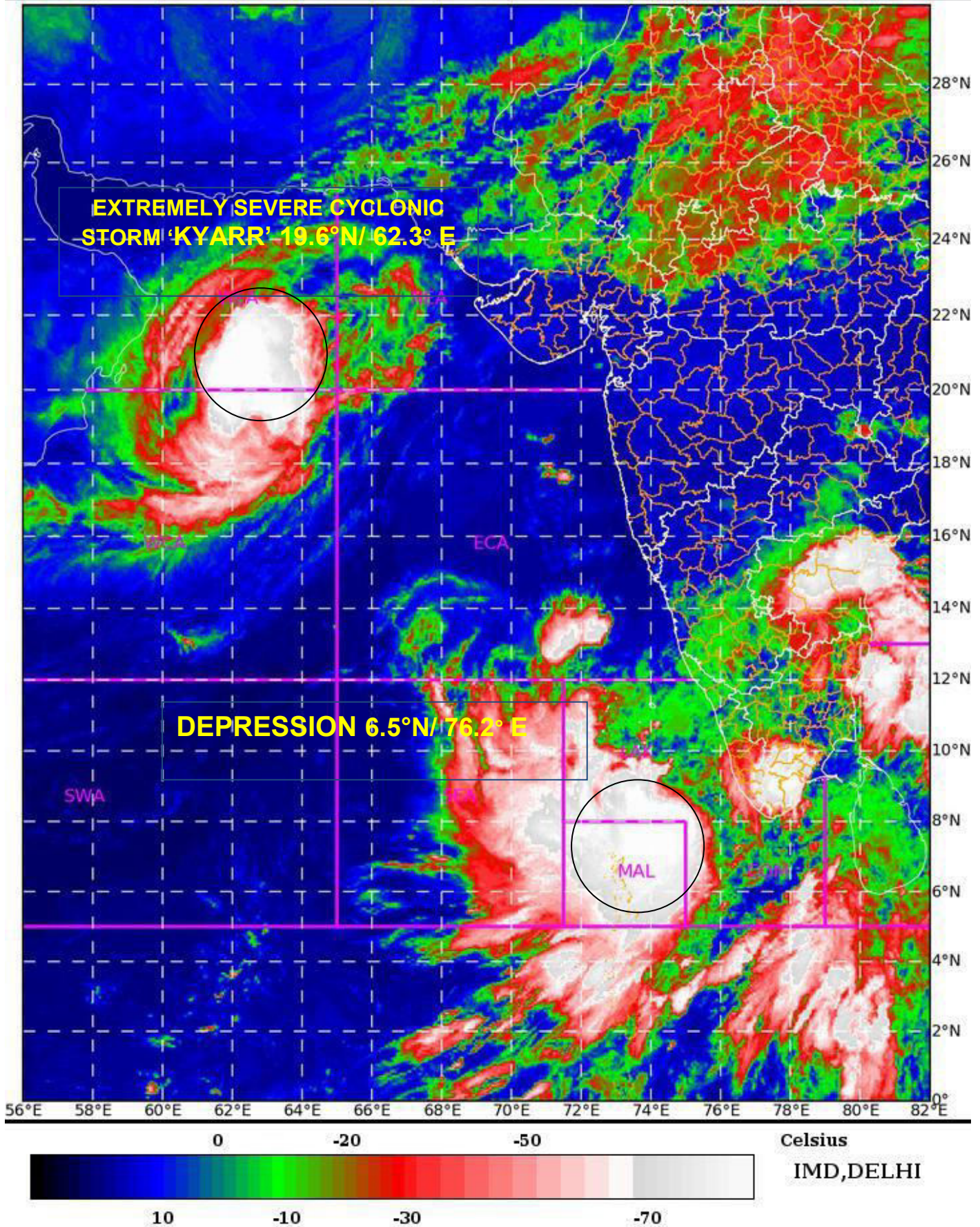
PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

(B) DEPRESSION OVER MALDIVES- COMORIN AREAS

THE WELL MARKED LOW PRESSURE AREA OVER LAKSHADWEEP-MALDIVES AREAS & ADJOINING COMORIN AREA HAS CONCENTRATED INTO A DEPRESSION OVER MALDIVES- COMORIN AREAS AND LAY CENTERED AT 0530 HRS IST OF 30TH OCTOBER, 2019 NEAR LATITUDE 6.5°N AND LONGITUDE 76.2°E ABOUT 390 KM EAST-NORTHEAST OF MALE (MALDIVES-43555), 390 KM EAST-SOUTHEAST OF MINICOY (LAKSHADWEEP-43369). IT IS LIKELY TO MOVE NORTHWESTWARDS ACROSS LAKSHADWEEP ISLANDS AND INTENSIFY INTO A DEEP DEPRESSION DURING NEXT 24 HOURS.

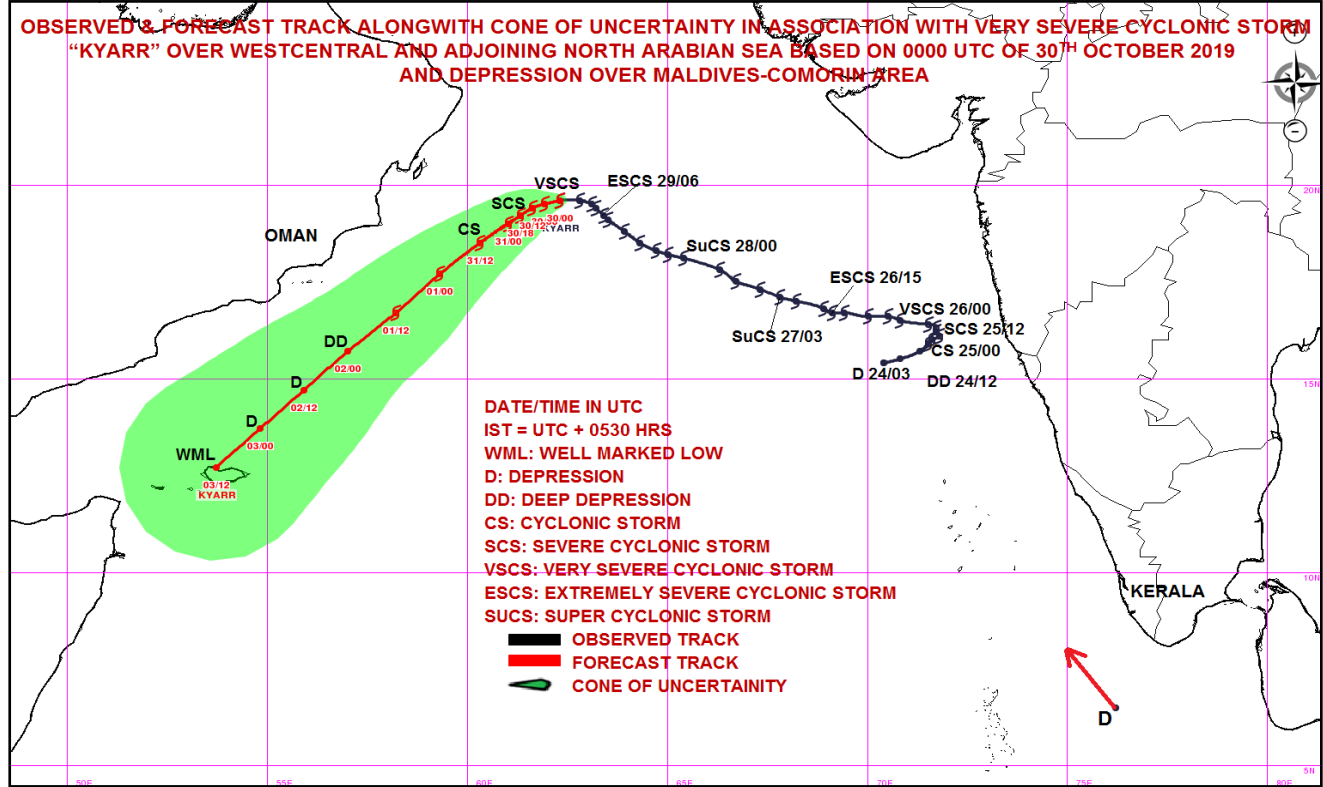
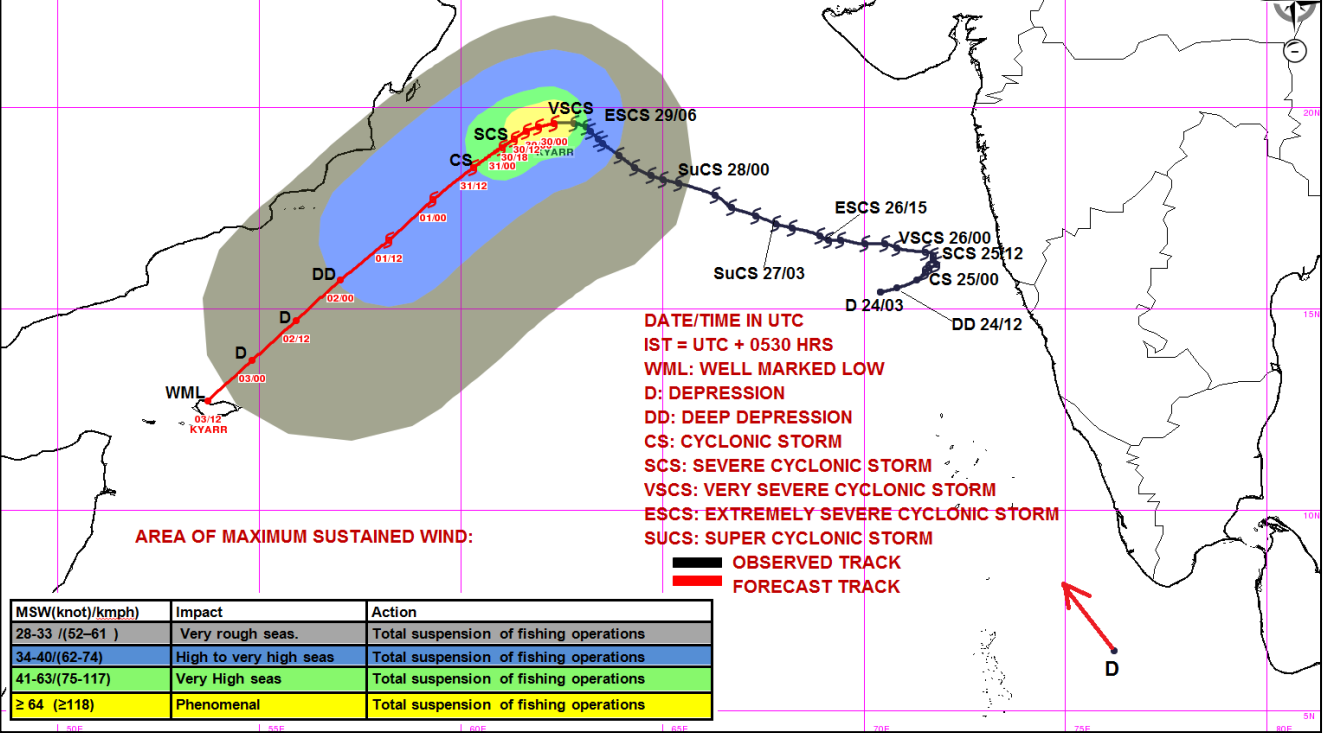
**(V R DURAI)
SCIENTIST-E, RSMC, NEW DELHI**



PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

OBSERVED & FORECAST TRACK ALONGWITH QUADRANT WIND DISTRIBUTION IN ASSOCIATION WITH VERY SEVERE CYCLONIC STORM "KYARR" OVER WESTCENTRAL AND ADJOINING NORTH ARABIAN SEA BASED ON 0000 UTC OF 30TH OCTOBER 2019 AND DEPRESSION OVER MALDIVES-COMORIN AREA



PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)
NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%



**REGIONAL SPECIALISED METEOROLOGICAL CENTRE-TROPICAL CYCLONES, NEW DELHI
TROPICAL CYCLONE ADVISORY BULLETIN NO.42**

FROM: RSMC –TROPICAL CYCLONES, NEW DELHI

**TO: STORM WARNING CENTRE, NAYPYI TAW (MYANMAR)
STORM WARNING CENTRE, BANGKOK (THAILAND)
STORM WARNING CENTRE, COLOMBO (SRILANKA)
STORM WARNING CENTRE, DHAKA (BANGLADESH)
STORM WARNING CENTRE, KARACHI (PAKISTAN)
METEOROLOGICAL OFFICE, MALE (MALDIVES)
OMAN METEOROLOGICAL DEPARTMENT, MUSCAT (THROUGH RTH JEDDAH)
YEMEN METEOROLOGICAL SERVICES, REPUBLIC OF YEMEN (THROUGH RTH JEDDAH)
NATIONAL CENTRE FOR METEOROLOGY, UAE (THROUGH RTH JEDDAH)
PRESIDENCY OF METEOROLOGY AND ENVIRONMENT, SAUDI ARABIA (THROUGH RTH JEDDAH)
IRAN METEOROLOGICAL ORGANISATION, (THROUGH RTH JEDDAH)
QATAR METEOROLOGICAL DEPARTMENT (THROUGH RTH JEDDAH)**

TROPICAL CYCLONE ADVISORY No. 42 FOR NORTH INDIAN OCEAN (THE BAY OF BENGAL AND ARABIAN SEA) VALID FOR NEXT 120 HOURS ISSUED AT 0730 UTC OF 30.10.2019 BASED ON 0300 UTC OF 30.10.2019.

**SUB: (A) VERY SEVERE CYCLONIC STORM 'KYARR' (PRONOUNCED AS KYARR) OVER WESTCENTRAL AND ADJOINING NORTHWEST ARABIAN SEA.
(B) DEPRESSION OVER MALDIVES- COMORIN AND ADJOINING LAKSHADWEEP AREAS**

(A) VERY SEVERE CYCLONIC STORM 'KYARR' (PRONOUNCED AS KYARR) OVER WESTCENTRAL & ADJOINING NORTHWEST ARABIAN SEA.

THE **VERY SEVERE CYCLONIC STORM 'KYARR'** MOVED FURTHER WESTWARDS WITH A SPEED OF 08 KMPH DURING PAST 06 HRS, LAY CENTRED AT 0300 UTC OF TODAY, THE 30TH OCTOBER, 2019 OVER WESTCENTRAL & ADJOINING NORTHWEST ARABIAN SEA NEAR LATITUDE 19.6°N AND LONGITUDE 62.1°E, ABOUT 1130 KM WEST-NORTHWEST OF MUMBAI (43003) (MAHARASHTRA), 910 KM EAST-NORTHEAST OF SALALAH (41316) (OMAN) AND 350 KM EAST-SOUTHEAST OF MASIRAH (41288) (OMAN). IT IS VERY LIKELY TO MOVE WEST-SOUTHWESTWARDS ACROSS WESTCENTRAL ARABIAN SEA DURING NEXT 4 DAYS. IT IS VERY LIKELY TO WEAKEN INTO A SEVERE CYCLONIC STORM BY 1800 UTC OF 30TH OCTOBER AND INTO A CYCLONIC STORM BY 1200 UTC OF 31ST OCTOBER, 2019.

FORECAST TRACK AND INTENSITY ARE GIVEN IN THE FOLLOWING TABLE:

DATE/TIME(UTC)	POSITION (LAT. °N/ LONG. °E)	MAXIMUM SUSTAINED SURFACE WIND SPEED (KMPH)	CATEGORY OF CYCLONIC DISTURBANCE
30.10.19/0300	19.6/62.1	145-155 GUSTING TO 170	VERY SEVERE CYCLONIC STORM
30.10.19/0600	19.5/61.9	135-145 GUSTING TO 160	VERY SEVERE CYCLONIC STORM
30.10.19/1200	19.4/61.6	120-130 GUSTING TO 155	VERY SEVERE CYCLONIC STORM
30.10.19/1800	19.2/61.3	100-110 GUSTING TO 125	SEVERE CYCLONIC STORM
31.10.19/0000	19.0/61.0	90-100 GUSTING TO 110	SEVERE CYCLONIC STORM
31.11.19/1200	18.5/60.3	75-85 GUSTING TO 95	CYCLONIC STORM
01.11.19/0000	17.7/59.3	65-75 GUSTING TO 85	CYCLONIC STORM
01.11.19/1200	16.7/58.6	60-70 GUSTING TO 80	CYCLONIC STORM
02.11.19/0000	15.7/57.0	50-60 GUSTING TO 70	DEEP DEPRESSION
02.11.19/1200	14.7/55.9	40-50 GUSTING TO 60	DEPRESSION
03.11.19/0000	13.7/54.8	30-40 GUSTING TO 50	DEPRESSION

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

(B) DEPRESSION OVER MALDIVES- COMORIN AND ADJOINING LAKSHADWEEP AREAS

THE **DEPRESSION** OVER MALDIVES- COMORIN AREAS MOVED NORTHWESTWARDS AND LAY CENTERED AT 0300 UTC OF TODAY, THE 30TH OCTOBER, 2019 OVER MALDIVES-COMORIN AND ADJOINING LAKSHADWEEP AREA NEAR LATITUDE 8.0°N AND LONGITUDE 75.0°E, ABOUT 450 KM NORTH-NORTHEAST OF MALE (43555) (MALDIVES), 200 KM EAST-SOUTHEAST OF MINICOY (43369) (LAKSHADWEEP), 380 KM SOUTHEAST OF KAVARATTI (43337) (LAKSHADWEEP) AND 220 KM WEST-SOUTHWEST OF THIRUVANANTHAPURAM (43371) (KERALA). IT IS VERY LIKELY TO MOVE NORTHWESTWARDS ACROSS LAKSHADWEEP ISLANDS DURING NEXT 36 HOURS AND THEN EMERGE INTO EASTCENTRAL ARABIAN SEA. IT IS VERY LIKELY TO INTENSIFY INTO A DEEP DEPRESSION DURING NEXT 24 HOURS AND INTO A CYCLONIC STORM DURING THE SUBSEQUENT 36 HOURS.

FORECAST TRACK AND INTENSITY ARE GIVEN IN THE FOLLOWING TABLE:

DATE/TIME(UTC)	POSITION (LAT. °N/ LONG. °E)	MAXIMUM SUSTAINED SURFACE WIND SPEED (KMPH)	CATEGORY OF CYCLONIC DISTURBANCE
30.10.19/0300	8.0/75.0	40-50 GUSTING TO 60	DEPRESSION
30.10.19/1200	9.1/74.1	40-50 GUSTING TO 60	DEPRESSION
31.10.19/0000	10.8/72.9	50-60 GUSTING TO 70	DEEP DEPRESSION
31.11.19/1200	12.4/71.4	50-60 GUSTING TO 70	DEEP DEPRESSION
01.11.19/0000	13.7/70.0	50-60 GUSTING TO 70	DEEP DEPRESSION
01.11.19/1200	14.9/68.2	60-70 GUSTING TO 80	CYCLONIC STORM
02.11.19/0000	15.9/66.7	70-80 GUSTING TO 90	CYCLONIC STORM

REMARKS (A):

AS PER THE SATELLITE IMAGERY AT 0300 UTC OF 30TH OCTOBER, 2019, THE CURRENT INTENSITY OF THE SYSTEM IS T 4.5/CI 5.5. ASSOCIATED BROKEN LOW TO MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION LIES OVER WESTCENTRAL AND ADJOINING EAST CENTRAL ARABIAN SEA BETWEEN LAT 18.5°N TO 22.5°N AND LONG 61.0°E TO 64.0°E. THE MINIMUM CTT IS MINUS 93 DEG C.

THE ESTIMATED MAXIMUM SUSTAINED WIND SPEED IS 80 KNOTS GUSTING TO 90 KNOTS. THE ESTIMATED CENTRAL PRESSURE IS 970 HPA. THE SEA CONDITION IS PHENOMENAL AROUND THE SYSTEM CENTRE. AT 0300 UTC A SHIP LOCATED NEAR LAT. 18.5°N / 67.5°E REPORTED MEAN SEA LEVEL PRESSURE 1009 HPA AND WIND 330° /08 KNOTS.

THE MJO LIES IN THE PHASE 4 WITH AMPLITUDE LESS THAN 1. IT WILL REMAIN IN THE SAME PHASE DURING NEXT 2 DAYS AND ENTER INTO PHASE 5 WITH AMPLITUDE LESS THAN 1. THE LOW LEVEL RELATIVE VORTICITY IS ABOUT $250 \times 10^{-5} \text{ SEC}^{-1}$ TO THE SOUTH OF THE SYSTEM CENTRE. THE LOWER LEVEL CONVERGENCE IS ABOUT $20 \times 10^{-5} \text{ S}^{-1}$ TO THE SOUTHWEST OF THE SYSTEM CENTRE AND THE UPPER LEVEL DIVERGENCE IS ABOUT $20 \times 10^{-5} \text{ S}^{-1}$ TO THE SOUTH OF THE SYSTEM CENTRE. THE VERTICAL WIND SHEAR IS LOW TO MODERATE (10-20 KNOTS) OVER THE SYSTEM AREA. SEA SURFACE TEMPERATURE IS AROUND 27-28°C OVER THE SYSTEM AREA WHILE TO THE NORTH AND TO THE SOUTH SYSTEM AREA, IT IS WARMER (29-30°C). TROPICAL CYCLONE HEAT POTENTIAL TO THE WEST OF THE SYSTEM CENTER OVER WESTCENTRAL ARABIAN SEAS IS 20-40 KJ/CM² WHILE TO THE EAST OF THE SYSTEM CENTER OVER EASTCENTRAL ARABIAN SEA, IT IS 50-80 KJ/CM².

TOTAL PRECIPITABLE WATER IMAGERIES INDICATE CONTINUED REDUCTION IN WARM AIR INCURSION AND DRY AIR INCURSION IS TAKING PLACE IN THE SOUTH AND WESTERN SECTORS OF THE SYSTEM CENTRE. EQUATORWARD OUTFLOW IS TAKING PLACE IN THE UPPER TROPOSPHERIC LEVELS. ALL THESE ENVIRONMENTAL, DYNAMIC AND THERMODYNAMIC CONDITIONS INDICATE FURTHER WEAKENING OF THE SYSTEM.

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

THE SYSTEM IS MOST LIKELY MOVE IN A WEST-SOUTHWESTWARD DIRECTION ACROSS WEST CENTRAL ARABIAN SEA. MAJORITY OF NUMERICAL MODELS AGREE WITH THE ABOVE INFERENCE.

REMARKS (B):

AS PER THE SATELLITE IMAGERY AT 0300 UTC OF 30TH OCTOBER, 2019, THE CURRENT INTENSITY OF THE SYSTEM IS T 1.5. ASSOCIATED SCATTERED LOW TO MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION LIES OVER COMORIN AND ADJOINING AREAS BETWEEN LAT 6.0⁰N TO 9.5⁰N AND LONG 72.5⁰E TO 75.5⁰E. THE MINIMUM CTT IS MINUS 93 DEG C.

THE ESTIMATED MAXIMUM SUSTAINED WIND SPEED IS 25 KNOTS GUSTING TO 35 KNOTS. THE ESTIMATED CENTRAL PRESSURE IS 1005 HPA. THE SEA CONDITION IS ROUGH TO VERY ROUGH AROUND THE SYSTEM CENTRE. AT 0300 UTC MINICOY (43369) REPORTED MEAN SEA LEVEL PRESSURE 1008.6 HPA AND WIND 29⁰ /14 KNOTS.

THE LOW LEVEL RELATIVE VORTICITY IS ABOUT $100 \times 10^{-5} \text{ SEC}^{-1}$ TO THE SOUTHWEST OF THE SYSTEM CENTRE. POSITIVE VORTICITY FIELD IS SEEN UPTO 500 HPA LEVEL. THE RIDGE OVER THE SYSTEM AREA RUNS ROUGHLY ALONG 15⁰N. THE LOWER LEVEL CONVERGENCE IS ABOUT $40 \times 10^{-5} \text{ S}^{-1}$ TO THE SOUTHWEST OF THE SYSTEM CENTRE AND THE UPPER LEVEL DIVERGENCE IS ABOUT $30 \times 10^{-5} \text{ S}^{-1}$ TO THE SOUTHWEST OF THE SYSTEM CENTRE. THE VERTICAL WIND SHEAR IS LOW TO MODERATE (10-20 KNOTS) OVER THE SYSTEM AREA. SEA SURFACE TEMPERATURE IS AROUND 29-30°C OVER THE SYSTEM AREA AND IS DECREASING IN THE FORECAST DIRECTION . TROPICAL CYCLONE HEAT POTENTIAL IS AROUND 80-100 KJ/CM² OVER THE THE SYSTEM AREA AND DECREASES IN THE FORECAST DIRCTION OF THE SYSTEM.

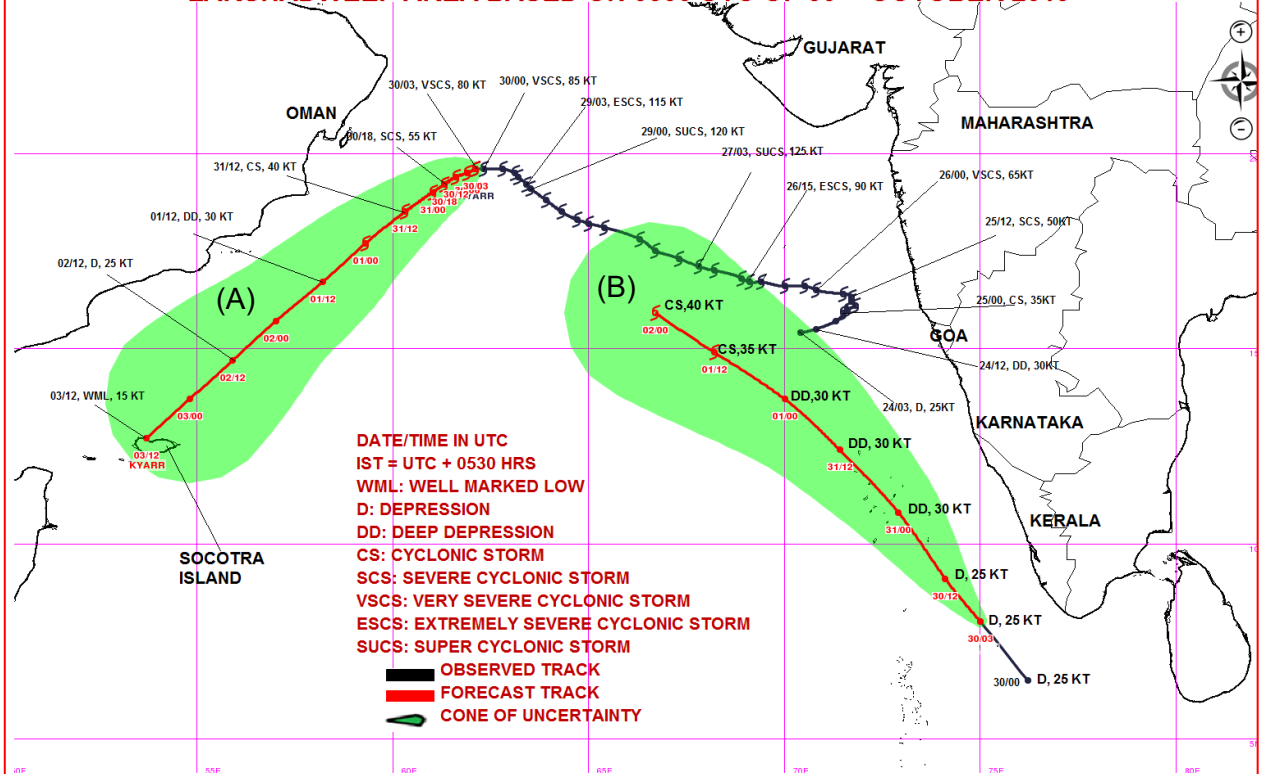
AS THE SYSTEM IS LYING IN A FAVOURABLE ENVIRONMENT, IT IS EXPECTED TO INTENSIFY FURTHER INTO A DEEP DEPRESSION DURING NEXT 24 HOURS AND INTO A CYCLONIC STORM DURING SUBSEQUENT 36 HOURS WHILE MOVING IN A NORTHWEST DIRECTION. MOST OF THE NWP MODELS ARE IN AGREEMENT WITH THIS OBSERVATION.

(NEETHA K GOPAL)
SCIENTIST-E, RSMC, NEW DELHI

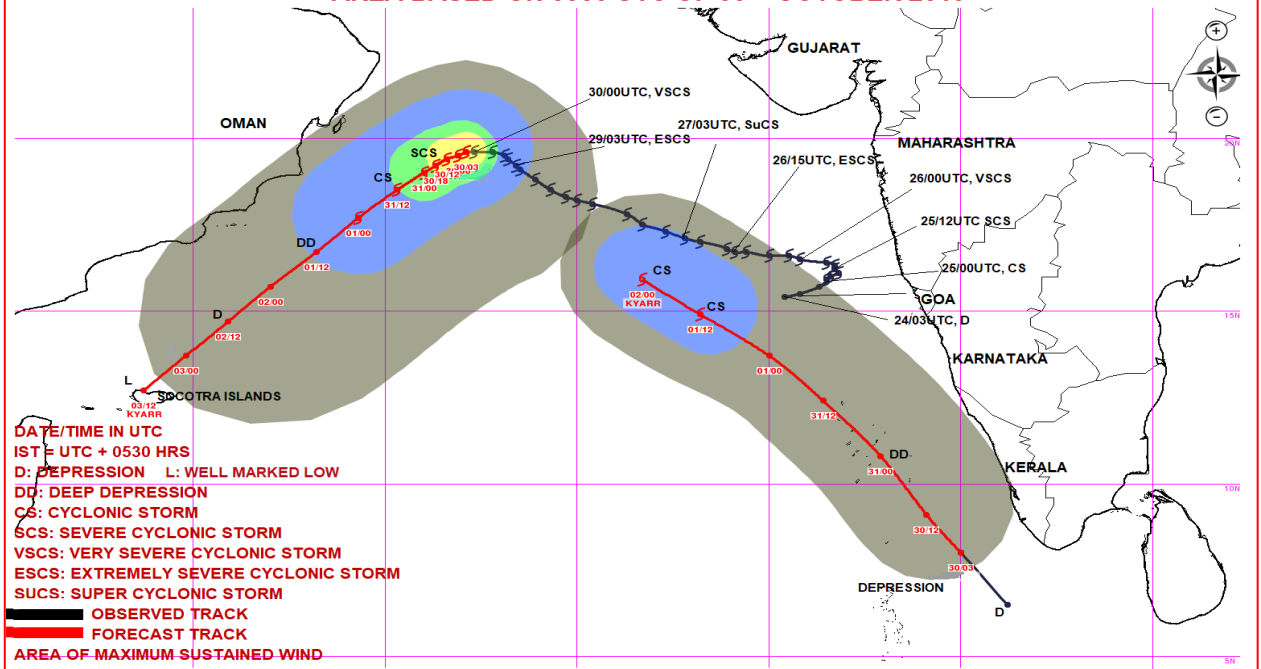
PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

OBSERVED & FORECAST TRACK ALONGWITH CONE OF UNCERTAINTY IN ASSOCIATION WITH (A) VERY SEVERE CYCLONIC STORM “KYARR” OVER WESTCENTRAL AND ADJOINING NORTHWEST ARABIAN SEA AND (B) DEPRESSION OVER MALDIVES-COMORIN & ADJOINING LAKSHADWEEP AREA BASED ON 0300 UTC OF 30TH OCTOBER 2019



OBSERVED & FORECAST TRACK ALONGWITH QUADRANT WIND DISTRIBUTION IN ASSOCIATION WITH (A) VERY SEVERE CYCLONIC STORM “KYARR” OVER WESTCENTRAL AND ADJOINING NW ARABIAN SEA AND (B) DEPRESSION OVER MALDIVES-COMORIN & ADJOINING LAKSHADWEEP AREA BASED ON 0300 UTC OF 30TH OCTOBER 2019



MSW(knot)/kmph	Impact	Action
28-33 (62-61)	Very rough seas.	Total suspension of fishing operations
34-40 (62-74)	High to very high seas	Total suspension of fishing operations
41-63 (75-117)	Very High seas	Total suspension of fishing operations
≥ 64 (≥118)	Phenomenal	Total suspension of fishing operations

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)
NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%



**REGIONAL SPECIALISED METEOROLOGICAL CENTRE-TROPICAL CYCLONES, NEW DELHI
TROPICAL CYCLONE ADVISORY BULLETIN NO.43**

FROM: RSMC –TROPICAL CYCLONES, NEW DELHI

**TO: STORM WARNING CENTRE, NAYPYI TAW (MYANMAR)
STORM WARNING CENTRE, BANGKOK (THAILAND)
STORM WARNING CENTRE, COLOMBO (SRILANKA)
STORM WARNING CENTRE, DHAKA (BANGLADESH)
STORM WARNING CENTRE, KARACHI (PAKISTAN)
METEOROLOGICAL OFFICE, MALE (MALDIVES)
OMAN METEOROLOGICAL DEPARTMENT, MUSCAT (THROUGH RTH JEDDAH)
YEMEN METEOROLOGICAL SERVICES, REPUBLIC OF YEMEN (THROUGH RTH JEDDAH)
NATIONAL CENTRE FOR METEOROLOGY, UAE (THROUGH RTH JEDDAH)
PRESIDENCY OF METEOROLOGY AND ENVIRONMENT, SAUDI ARABIA (THROUGH RTH JEDDAH)
IRAN METEOROLOGICAL ORGANISATION, (THROUGH RTH JEDDAH)
QATAR METEOROLOGICAL DEPARTMENT (THROUGH RTH JEDDAH)**

TROPICAL CYCLONE ADVISORY No. 43 FOR NORTH INDIAN OCEAN (THE BAY OF BENGAL AND ARABIAN SEA) VALID FOR NEXT 120 HOURS ISSUED AT 1000 UTC OF 30.10.2019 BASED ON 0600 UTC OF 30.10.2019.

**SUB: (A) VERY SEVERE CYCLONIC STORM 'KYARR' (PRONOUNCED AS KYARR) OVER WESTCENTRAL AND ADJOINING NORTHWEST ARABIAN SEA.
(B) DEPRESSION OVER MALDIVES- COMORIN AND ADJOINING LAKSHADWEEP AREAS**

(A) VERY SEVERE CYCLONIC STORM 'KYARR' (PRONOUNCED AS KYARR) OVER WESTCENTRAL & ADJOINING NORTHWEST ARABIAN SEA.

THE **VERY SEVERE CYCLONIC STORM 'KYARR'** MOVED WEST-SOUTHWESTWARDS WITH A SPEED OF 08 KMPH DURING PAST 06 HRS, LAY CENTRED AT 0600 UTC OF TODAY, THE 30TH OCTOBER, 2019 OVER WESTCENTRAL & ADJOINING NORTHWEST ARABIAN SEA NEAR LATITUDE 19.4°N AND LONGITUDE 61.8°E, ABOUT 1160 KM WEST-NORTHWEST OF MUMBAI (43003) (MAHARASHTRA), 870 KM EAST-NORTHEAST OF SALALAH (41316) (OMAN) AND 330 KM EAST-SOUTHEAST OF MASIRAH (41288) (OMAN). IT IS VERY LIKELY TO MOVE WEST-SOUTHWESTWARDS ACROSS WESTCENTRAL ARABIAN SEA DURING NEXT 4 DAYS. IT IS VERY LIKELY TO WEAKEN INTO A SEVERE CYCLONIC STORM BY 1800 UTC OF 30TH OCTOBER AND INTO A CYCLONIC STORM BY 0600 UTC OF 31ST OCTOBER, 2019.

FORECAST TRACK AND INTENSITY ARE GIVEN IN THE FOLLOWING TABLE:

Date/Time(UTC)	Position (Lat. °N/ long. °E)	Maximum sustained surface wind speed (Kmph)	Category of cyclonic disturbance
30.10.19/0600	19.4/61.8	125-135 gusting to 150	Very Severe Cyclonic Storm
30.10.19/1200	19.2/61.6	120-130 gusting to 155	Very Severe Cyclonic Storm
30.10.19/1800	19.0/61.3	100-110 gusting to 125	Severe Cyclonic Storm
31.10.19/0000	18.8/61.0	90-100 gusting to 110	Severe Cyclonic Storm
31.11.19/0600	18.5/60.6	70-80 gusting to 90	Cyclonic Storm
31.11.19/1800	17.9/59.8	65-75 gusting to 85	Cyclonic Storm
01.11.19/0600	17.0/58.7	55-65 gusting to 75	Deep Depression
01.11.19/1800	16.0/57.6	50-60 gusting to 70	Deep Depression
02.11.19/0600	15.0/56.5	40-50 gusting to 60	Depression
02.11.19/1800	14.0/55.4	30-40 gusting to 50	Depression
03.11.19/0600	13.0/54.3	20-30 gusting to 40	Well Marked Low

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

(B) DEPRESSION OVER MALDIVES- COMORIN AND ADJOINING LAKSHADWEEP AREAS

THE **DEPRESSION** OVER MALDIVES-COMORIN AREAS MOVED NORTHWESTWARDS WITH A SPEED OF 35 KMPH AND LAY CENTERED AT 0600 UTC OF TODAY, THE 30TH OCTOBER, 2019 OVER MALDIVES- COMORIN AND ADJOINING LAKSHADWEEP AREA NEAR LATITUDE 8.0°N AND LONGITUDE 75.0°E, ABOUT 450 KM NORTH-NORTHEAST OF MALE (43555) (MALDIVES), 200 KM EAST-SOUTHEAST OF MINICOY (43369) (LAKSHADWEEP), 380 KM SOUTHEAST OF KAVARATTI (43337) (LAKSHADWEEP) AND 220 KM WEST-SOUTHWEST OF THIRUVANANTHAPURAM (43371) (KERALA). IT IS VERY LIKELY TO MOVE NORTHWESTWARDS ACROSS LAKSHADWEEP ISLANDS DURING NEXT 36 HOURS AND THEN EMERGE INTO EASTCENTRAL ARABIAN SEA. IT IS VERY LIKELY TO INTENSIFY INTO A DEEP DEPRESSION DURING NEXT 12 HOURS AND INTO A CYCLONIC STORM DURING THE SUBSEQUENT 12 HOURS.

FORECAST TRACK AND INTENSITY ARE GIVEN IN THE FOLLOWING TABLE:

Date/Time(UTC)	Position (Lat. °N/ long. °E)	Maximum sustained surface wind speed (Kmph)	Category of cyclonic disturbance
30.10.19/0600	8.0/75.0	45-55 gusting to 65	Depression
30.10.19/1800	10.0/73.5	50-60 gusting to 70	Deep Depression
31.10.19/0600	11.6/72.1	80-90 gusting to 100	Cyclonic Storm
31.11.19/1800	13.0/70.7	80-90 gusting to 100	Cyclonic Storm
01.11.19/0600	14.3/69.1	90-100 gusting to 110	Severe Cyclonic Storm
01.11.19/1800	15.4/67.5	100-110 gusting to 125	Severe Cyclonic Storm
02.11.19/0600	16.5/65.9	100-110 gusting to 125	Severe Cyclonic Storm

REMARKS (A):

AS PER THE SATELLITE IMAGERY AT 0600 UTC OF 30TH OCTOBER, 2019, THE CURRENT INTENSITY OF THE SYSTEM IS T 4.5/CI 5.5. ASSOCIATED BROKEN LOW TO MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION LIES OVER WESTCENTRAL AND ADJOINING EAST CENTRAL ARABIAN SEA BETWEEN LAT 18.0°N TO 23.0°N AND LONG 60.5°E TO 64.5°E. THE MINIMUM CTT IS MINUS 93 DEG C.

THE ESTIMATED MAXIMUM SUSTAINED WIND SPEED IS 80 KNOTS GUSTING TO 90 KNOTS. THE ESTIMATED CENTRAL PRESSURE IS 970 HPA. THE SEA CONDITION IS PHENOMENAL AROUND THE SYSTEM CENTRE. AT 0600 UTC, A SHIP (AWUU) LOCATED NEAR LAT. 22.0°N / 64.9°E REPORTED MEAN SEA LEVEL PRESSURE 1014.4 HPA AND WIND 130°/22 KNOTS. ANOTHER SHIP (WNTC) LOCATED NEAR LAT. 16.0°N /59.3°E REPORTED MEAN SEA LEVEL PRESSURE 1009.4 HPA, SST 27.6°C AND WIND 280°/20 KNOTS .

THE MJO LIES IN THE PHASE 4 WITH AMPLITUDE LESS THAN 1. IT WILL REMAIN IN THE SAME PHASE TILL 31ST OCTOBER AND ENTER INTO PHASE 5 WITH AMPLITUDE LESS THAN 1 AND REMAIN THERE FOR SUBSEQUENT TWO DAYS. THE LOW LEVEL RELATIVE VORTICITY IS ABOUT $250 \times 10^{-5} \text{ SEC}^{-1}$ TO THE SOUTH OF THE SYSTEM CENTRE. THE LOWER LEVEL CONVERGENCE IS ABOUT $10 \times 10^{-5} \text{ S}^{-1}$ TO THE SOUTH OF THE SYSTEM CENTRE AND THE UPPER LEVEL DIVERGENCE IS ABOUT $20 \times 10^{-5} \text{ S}^{-1}$ TO THE SOUTH OF THE SYSTEM CENTRE. THE VERTICAL WIND SHEAR IS MODERATE (15-20 KNOTS) OVER THE SYSTEM AREA. SEA SURFACE TEMPERATURE IS AROUND 27-28°C OVER THE SYSTEM AREA WHILE TO THE NORTH AND TO THE SOUTH SYSTEM AREA, IT IS WARMER (29-30°C). TROPICAL CYCLONE HEAT POTENTIAL TO THE WEST OF THE SYSTEM CENTER OVER WESTCENTRAL ARABIAN SEA IS 20-40 KJ/CM² WHILE TO THE EAST OF THE SYSTEM CENTER OVER EASTCENTRAL ARABIAN SEA, IT IS 50-80 KJ/CM².

TOTAL PRECIPITABLE WATER IMAGERIES INDICATE CONTINUED REDUCTION IN WARM AIR INCURSION AND DRY AIR INCURSION IS TAKING PLACE IN THE SOUTH AND WESTERN SECTORS OF THE SYSTEM CENTRE. EQUATORWARD OUTFLOW IS TAKING PLACE IN THE UPPER TROPOSPHERIC LEVELS. ALL THESE ENVIRONMENTAL, DYNAMIC

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

AND THERMODYNAMIC CONDITIONS INDICATE FURTHER WEAKENING OF THE SYSTEM. THE SYSTEM IS MOST LIKELY TO MOVE IN A WEST-SOUTHWESTWARD DIRECTION ACROSS WEST CENTRAL ARABIAN SEA. MAJORITY OF NUMERICAL MODELS AGREE WITH THE ABOVE INFERENCE.

REMARKS (B):

AS PER THE SATELLITE IMAGERY AT 0600 UTC OF 30TH OCTOBER, 2019, THE CURRENT INTENSITY OF THE SYSTEM IS T 1.5. ASSOCIATED SCATTERED LOW TO MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION LIES OVER COMORIN AND ADJOINING AREAS BETWEEN LAT 5.5⁰N TO 9.5⁰N AND LONG 72.5⁰E TO 75.0⁰E. THE MINIMUM CTT IS MINUS 93 DEG C.

THE ESTIMATED MAXIMUM SUSTAINED WIND SPEED IS 25 KNOTS GUSTING TO 35 KNOTS. THE ESTIMATED CENTRAL PRESSURE IS 1005 HPA. THE SEA CONDITION IS ROUGH TO VERY ROUGH AROUND THE SYSTEM CENTRE. AT 0600 UTC MINICOY (43369) REPORTED MEAN SEA LEVEL PRESSURE 1008.6 HPA AND WIND 250⁰ /12 KNOTS. A BUOY (23452) LOCATED NEAR LAT. 12.0⁰N / 68.5⁰E REPORTED MEAN SEA LEVEL PRESSURE 1011.0 HPA, SST 28.8⁰C AND WIND 300⁰/10 KNOTS

THE LOW LEVEL RELATIVE VORTICITY IS ABOUT $150 \times 10^{-5} \text{ SEC}^{-1}$ OVER THE SYSTEM CENTRE. POSITIVE VORTICITY FIELD IS SEEN UPTO 500 HPA LEVEL. THE RIDGE OVER THE SYSTEM AREA RUNS ROUGHLY ALONG 15⁰N. THE LOWER LEVEL CONVERGENCE IS ABOUT $20 \times 10^{-5} \text{ S}^{-1}$ OVER THE SYSTEM CENTRE AND THE UPPER LEVEL DIVERGENCE IS ABOUT $30 \times 10^{-5} \text{ S}^{-1}$ OVER THE SYSTEM CENTRE. THE VERTICAL WIND SHEAR IS MODERATE TO HIGH (20-25 KNOTS) OVER THE SYSTEM AREA. SEA SURFACE TEMPERATURE IS AROUND 29-30⁰C OVER THE SYSTEM AREA AND IS DECREASING IN THE FORECAST DIRECTION . TROPICAL CYCLONE HEAT POTENTIAL IS AROUND 80-100 KJ/CM² OVER THE THE SYSTEM AREA AND DECREASES IN THE FORECAST DIRCTION OF THE SYSTEM.

AS THE SYSTEM IS LYING IN A FAVOURABLE ENVIRONMENT, IT IS EXPECTED TO INTENSIFY FURTHER INTO A DEEP DEPRESSION DURING NEXT 24 HOURS AND INTO A CYCLONIC STORM DURING SUBSEQUENT 36 HOURS WHILE MOVING IN A NORTHWEST DIRECTION. MOST OF THE NWP MODELS ARE IN AGREEMENT WITH THIS OBSERVATION.

(NEETHA K GOPAL)
SCIENTIST-E, RSMC, NEW DELHI

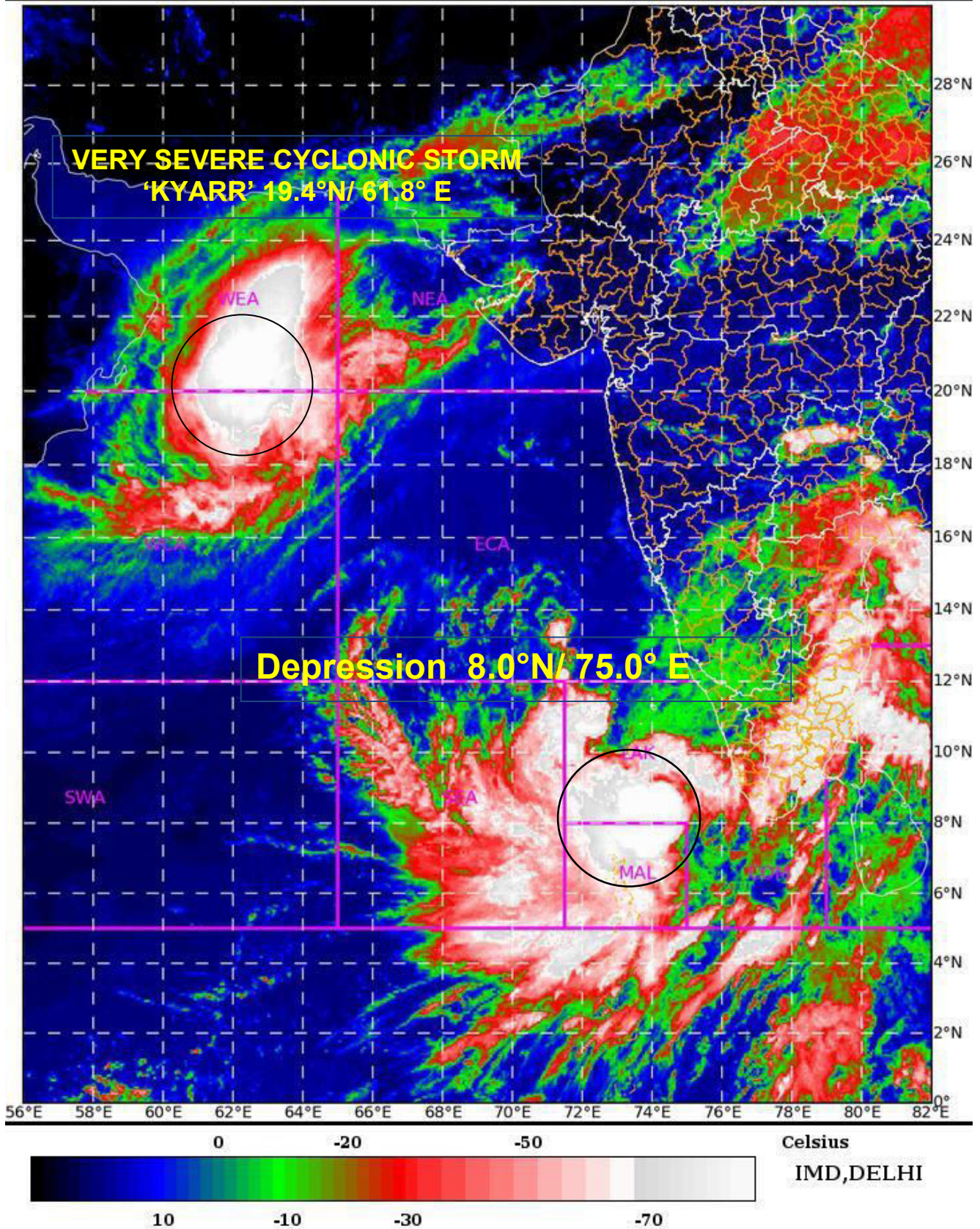
PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

SAT : INSAT-3D IMG 30-10-2019/(0800 to 0827) GMT

IMG_TIR1_TEMP 10.8 um 30-10-2019/(1330 to 1357) IST

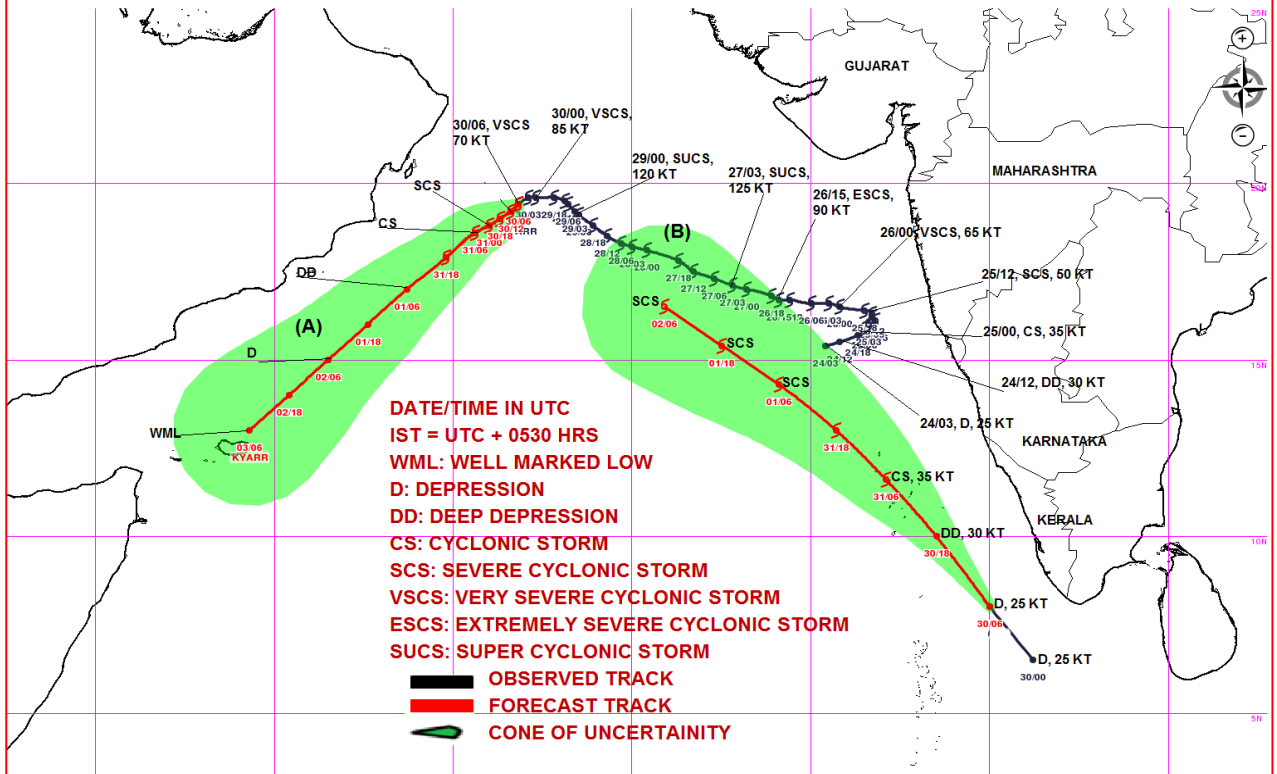
ARABIAN_SEA



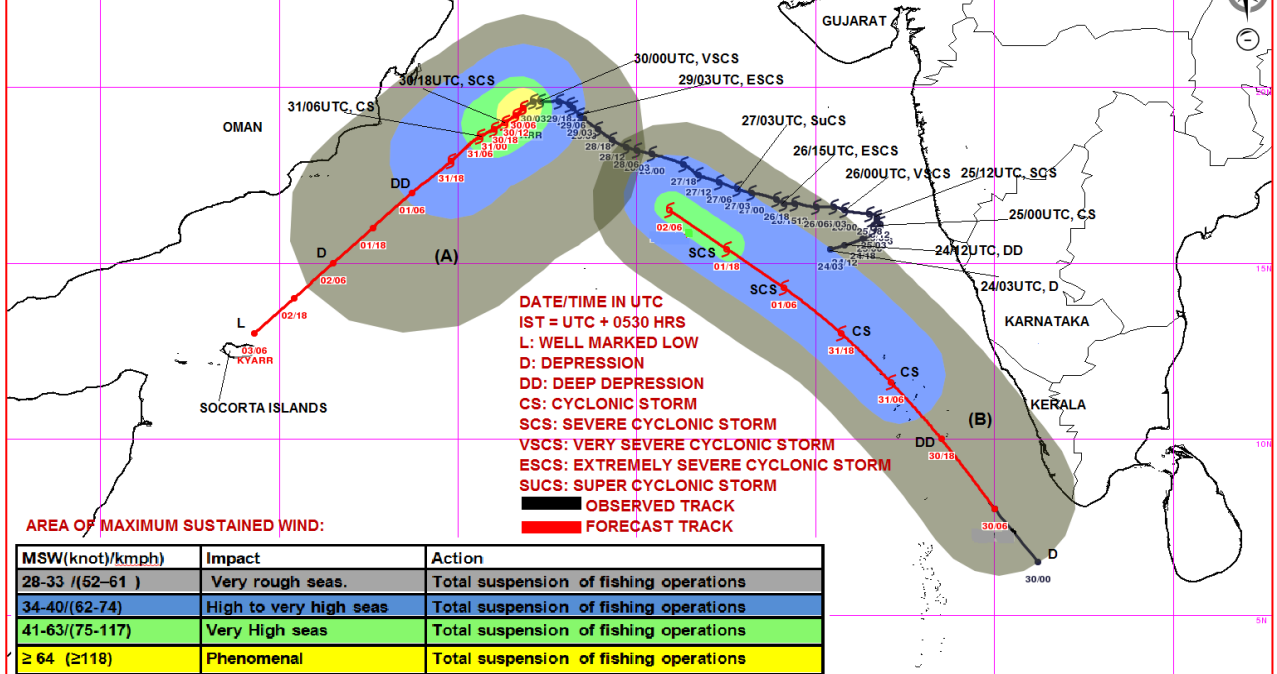
PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

OBSERVED & FORECAST TRACK ALONGWITH CONE OF UNCERTAINTY IN ASSOCIATION WITH (A) VERY SEVERE CYCLONIC STORM "KYARR" OVER WESTCENTRAL AND ADJOINING NORTH ARABIAN SEA AND (B) DEPRESSION OVER MALDIVES-COMORIN & ADJOINING LAKSHADWEEP AREA BASED ON 0600 UTC OF 30TH OCTOBER 2019



OBSERVED & FORECAST TRACK ALONGWITH QUADRANT WIND DISTRIBUTION IN ASSOCIATION WITH (A) VERY SEVERE CYCLONIC STORM "KYARR" OVER WESTCENTRAL AND ADJOINING NORTH ARABIAN SEA AND (B) DEPRESSION OVER MALDIVES-COMORIN & ADJOINING LAKSHADWEEP AREA BASED ON 0600 UTC OF 30TH OCTOBER 2019



PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%



**REGIONAL SPECIALISED METEOROLOGICAL CENTRE-TROPICAL CYCLONES, NEW DELHI
TROPICAL CYCLONE ADVISORY BULLETIN NO. 44**

FROM: RSMC –TROPICAL CYCLONES, NEW DELHI

**TO: STORM WARNING CENTRE, NAYPYI TAW (MYANMAR)
STORM WARNING CENTRE, BANGKOK (THAILAND)
STORM WARNING CENTRE, COLOMBO (SRILANKA)
STORM WARNING CENTRE, DHAKA (BANGLADESH)
STORM WARNING CENTRE, KARACHI (PAKISTAN)
METEOROLOGICAL OFFICE, MALE (MALDIVES)
OMAN METEOROLOGICAL DEPARTMENT, MUSCAT (THROUGH RTH JEDDAH)
YEMEN METEOROLOGICAL SERVICES, REPUBLIC OF YEMEN (THROUGH RTH JEDDAH)
NATIONAL CENTRE FOR METEOROLOGY, UAE (THROUGH RTH JEDDAH)
PRESIDENCY OF METEOROLOGY AND ENVIRONMENT, SAUDI ARABIA (THROUGH RTH JEDDAH)
IRAN METEOROLOGICAL ORGANISATION, (THROUGH RTH JEDDAH)
QATAR METEOROLOGICAL DEPARTMENT (THROUGH RTH JEDDAH)**

TROPICAL CYCLONE ADVISORY No. 44 FOR NORTH INDIAN OCEAN (THE BAY OF BENGAL AND ARABIAN SEA) VALID FOR NEXT 120 HOURS ISSUED AT 1200 UTC OF 30.10.2019 BASED ON 0900 UTC OF 30.10.2019.

**SUB: (A) VERY SEVERE CYCLONIC STORM 'KYARR' (PRONOUNCED AS KYARR) OVER WESTCENTRAL AND ADJOINING NORTHWEST ARABIAN SEA.
(B) DEEP DEPRESSION OVER LAKSHADWEEP AREA & ADJOINING MALDIVES AREA AND SOUTHEAST ARABIAN SEA**

(A) VERY SEVERE CYCLONIC STORM 'KYARR' (PRONOUNCED AS KYARR) OVER WESTCENTRAL & ADJOINING NORTHWEST ARABIAN SEA.

THE **VERY SEVERE CYCLONIC STORM 'KYARR'** OVER WESTCENTRAL & ADJOINING NORTHWEST ARABIAN SEA MOVED WEST-SOUTHWESTWARDS WITH A SPEED OF 09 KMPH DURING PAST 06 HRS, LAY CENTRED AT 0900 UTC OF TODAY, THE 30TH OCTOBER, 2019 OVER WESTCENTRAL & ADJOINING NORTHWEST ARABIAN SEA NEAR LATITUDE 19.3°N AND LONGITUDE 61.7°E, ABOUT 1170 KM WEST-NORTHWEST OF MUMBAI (43003) (MAHARASHTRA), 860 KM EAST-NORTHEAST OF SALALAH (41316) (OMAN) AND 330 KM EAST-SOUTHEAST OF MASIRAH (41288) (OMAN). IT IS VERY LIKELY TO MOVE WEST-SOUTHWESTWARDS ACROSS WESTCENTRAL ARABIAN SEA DURING NEXT 4 DAYS. IT IS VERY LIKELY TO WEAKEN INTO A SEVERE CYCLONIC STORM BY 1800 UTC OF 30TH OCTOBER AND INTO A CYCLONIC STORM BY 0600 UTC OF 31ST OCTOBER, 2019.

FORECAST TRACK AND INTENSITY ARE GIVEN IN THE FOLLOWING TABLE:

Date/Time(UTC)	Position (Lat. °N/ long. °E)	Maximum sustained surface wind speed (Kmph)	Category of cyclonic disturbance
30.10.19/1200	19.0/61.5	120-130 gusting to 155	Very Severe Cyclonic Storm
30.10.19/1800	18.8/61.0	110-120 gusting to 135	Severe Cyclonic Storm
31.10.19/0000	18.5/60.5	100-110 gusting to 125	Severe Cyclonic Storm
31.10.19/0600	18.1/60.2	90-100 gusting to 115	Severe Cyclonic Storm
31.10.19/1200	17.6/59.8	80-90 gusting to 100	Cyclonic Storm
01.11.19/0000	16.5/58.7	70-80 gusting to 90	Cyclonic Storm
01.11.19/1200	15.2/57.1	60-70 gusting to 80	Cyclonic Storm
02.11.19/0000	13.8/55.2	50-60 gusting to 70	Deep Depression
02.11.19/1200	12.8/53.0	40-50 gusting to 60	Depression

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

(B) CYCLONIC STORM 'MAHA' (PRONOUNCED AS M'MAHA) OVER LAKSHADWEEP AREA & ADJOINING MALDIVES AREA

THE **DEEP DEPRESSION** LAKSHADWEEP AREA & ADJOINING MALDIVES AREA AND SOUTHEAST ARABIAN SEA MOVED NORTHWESTWARDS WITH A SPEED OF 13 KMPH, INTENSIFIED INTO A **CYCLONIC STORM 'MAHA' (PRONOUNCED AS M'MAHA)** OVER LAKSHADWEEP AREA & ADJOINING MALDIVES AREA AND LAY CENTERED AT 1200 UTC OF TODAY, THE 30TH OCTOBER, 2019 AND SOUTHEAST ARABIAN SEA NEAR LATITUDE 9.0°N AND LONGITUDE 74.1°E, ABOUT 490 KM NORTH-NORTHEAST OF MALE (43555) (MALDIVES), 150 KM EAST-NORTHEAST OF MINICOY (43369) (LAKSHADWEEP), 300 KM SOUTHEAST OF KAVARATTI (43337) (LAKSHADWEEP) AND 270 KM WEST OF THIRUVANANTHAPURAM (43371) (KERALA). IT IS VERY LIKELY TO MOVE NORTHWESTWARDS ACROSS LAKSHADWEEP ISLANDS DURING NEXT 36 HOURS AND THEN EMERGE INTO EASTCENTRAL ARABIAN SEA. IT IS VERY LIKELY TO INTENSIFY INTO ASEVERE CYCLONIC STORM DURING NEXT 36 HOURS.

FORECAST TRACK AND INTENSITY ARE GIVEN IN THE FOLLOWING TABLE:

Date/Time(UTC)	Position (Lat. °N/ long. °E)	Maximum sustained surface wind speed (Kmph)	Category of cyclonic disturbance
30.10.19/1200	9.0/74.1	65-75 gusting to 85	Cyclonic Storm
30.10.19/1800	10.0/73.5	70-80 gusting to 90	Cyclonic Storm
31.10.19/0000	10.9/72.9	80-90 gusting to 100	Cyclonic Storm
31.10.19/0600	11.9/72.4	90-100 gusting to 115	Severe Cyclonic Storm
31.10.19/1200	12.9/71.8	100-110 gusting to 125	Severe Cyclonic Storm
01.11.19/0000	14.4/70.4	110-120 gusting to 135	Severe Cyclonic Storm
01.11.19/1200	15.4/69.0	115-125 gusting to 140	Severe Cyclonic Storm
02.11.19/0000	16.3/68.0	120-130 gusting to 150	Very Severe Cyclonic Storm
02.11.19/1200	16.9/67.1	130-140 gusting to 160	Very Severe Cyclonic Storm
03.11.19/0000	17.2/66.2	140-150 gusting to 170	Very Severe Cyclonic Storm
03.11.19/1200	17.3/65.2	150-160 gusting to 180	Very Severe Cyclonic Storm
04.11.19/0000	17.1/64.2	160-170 gusting to 190	Very Severe Cyclonic Storm

REMARKS (A):

AS PER THE SATELLITE IMAGERY AT 1200 UTC OF 30TH OCTOBER, 2019, THE CURRENT INTENSITY OF THE SYSTEM IS T 3.5/CI 4.5. ASSOCIATED BROKEN LOW TO MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION LIES OVER WESTCENTRAL AND ADJOINING EAST CENTRAL ARABIAN SEA BETWEEN LAT 18.50°N TO 23.0°N AND LONG 61.0°E TO 64.0°E. THE MINIMUM CTT IS MINUS 93 DEG C.

THE ESTIMATED MAXIMUM SUSTAINED WIND SPEED IS 70 KNOTS GUSTING TO 80 KNOTS. THE ESTIMATED CENTRAL PRESSURE IS 970 HPA. THE SEA CONDITION IS PHENOMENAL AROUND THE SYSTEM CENTRE. AT 1200 UTC, A SHIP (WNTL) LOCATED NEAR LAT. 16.2°N /56.5°E REPORTED MEAN SEA LEVEL PRESSURE 1007.0 HPA, SST 27.1°C AND WIND 350°/17 KNOTS.

THE MJO LIES IN THE PHASE 4 WITH AMPLITUDE LESS THAN 1. IT WILL REMAIN IN THE SAME PHASE TILL 31ST OCTOBER AND ENTER INTO PHASE 5 WITH AMPLITUDE LESS THAN 1 AND REMAIN THERE FOR SUBSEQUENT TWO DAYS. THE LOW LEVEL RELATIVE VORTICITY IS ABOUT 250 X10⁻⁵ SEC⁻¹ TO THE SOUTH OF THE SYSTEM CENTRE. THE LOWER LEVEL CONVERGENCE IS ABOUT 10 X10⁻⁵S⁻¹ TO THE SOUTH OF THE SYSTEM CENTRE AND THE UPPER LEVEL DIVERGENCE IS ABOUT 20 X10⁻⁵S⁻¹ TO THE SOUTH OF THE SYSTEM CENTRE. THE VERTICAL WIND SHEAR IS MODERATE (15-20 KNOTS) OVER THE SYSTEM AREA. SEA SURFACE TEMPERATURE IS AROUND 27-28°C OVER THE SYSTEM AREA WHILE TO THE NORTH AND TO THE SOUTH SYSTEM AREA, IT IS WARMER (29-30°C). TROPICAL CYCLONE HEAT POTENTIAL AROUND THE SYSTEM CENTER OVER

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

WESTCENTRAL ARABIAN SEA IS 20-40 KJ/CM².

TOTAL PRECIPITABLE WATER IMAGERIES INDICATE CONTINUED REDUCTION IN WARM AIR INCURSION AND DRY AIR INCURSION IS TAKING PLACE IN THE SOUTH AND WESTERN SECTORS OF THE SYSTEM CENTRE. EQUATORWARD OUTFLOW IS TAKING PLACE IN THE UPPER TROPOSPHERIC LEVELS. ALL THESE ENVIRONMENTAL, DYNAMIC AND THERMODYNAMIC CONDITIONS INDICATE FURTHER WEAKENING OF THE SYSTEM. THE SYSTEM IS MOST LIKELY TO MOVE IN A WEST-SOUTHWESTWARD DIRECTION ACROSS WEST CENTRAL ARABIAN SEA. MAJORITY OF NUMERICAL MODELS AGREE WITH THE ABOVE INFERENCE.

REMARKS (B):

AS PER THE SATELLITE IMAGERY AT 1200 UTC OF 30TH OCTOBER, 2019, THE CURRENT INTENSITY OF THE SYSTEM IS T 2.5. ASSOCIATED SCATTERED LOW TO MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION LIES OVER COMORIN AND ADJOINING AREAS BETWEEN LAT 6.5⁰N TO 11.5⁰N AND LONG 70.5⁰E TO 74.5⁰E. THE MINIMUM CTT IS MINUS 93⁰C.

THE ESTIMATED MAXIMUM SUSTAINED WIND SPEED IS 30 KNOTS GUSTING TO 40 KNOTS. THE ESTIMATED CENTRAL PRESSURE IS 1002 HPA. THE SEA CONDITION IS ROUGH TO VERY ROUGH AROUND THE SYSTEM CENTRE. AT 1200 UTC, MINICOY (43369) REPORTED MEAN SEA LEVEL PRESSURE 1006.06 HPA AND WIND 290⁰/15 KNOTS. A BUOY (23452) LOCATED NEAR LAT. 12.7⁰N / 68.43⁰E REPORTED MEAN SEA LEVEL PRESSURE 1008.3HPA, SST 28.8⁰C AND WIND 310⁰/9.7 KNOTS

THE LOW LEVEL RELATIVE VORTICITY IS ABOUT 150 X10⁻⁵ SEC⁻¹ OVER THE SYSTEM CENTRE. POSITIVE VORTICITY FIELD IS SEEN UPTO 500 HPA LEVEL. THE RIDGE OVER THE SYSTEM AREA RUNS ROUGHLY ALONG 15⁰N. THE LOWER LEVEL CONVERGENCE IS ABOUT 20 X10⁻⁵S⁻¹ OVER THE SYSTEM CENTRE AND THE UPPER LEVEL DIVERGENCE IS ABOUT 30 X10⁻⁵S⁻¹ OVER THE SYSTEM CENTRE. THE VERTICAL WIND SHEAR IS MODERATE TO HIGH (20-25 KNOTS) OVER THE SYSTEM AREA. SEA SURFACE TEMPERATURE IS AROUND 29-30⁰C OVER THE SYSTEM AREA AND IS DECREASING IN THE FORECAST DIRECTION . TROPICAL CYCLONE HEAT POTENTIAL IS AROUND 100-120 KJ/CM² OVER THE THE SYSTEM AREA AND DECREASES IN THE FORECAST DIRCTION OF THE SYSTEM.

AS THE SYSTEM IS LYING IN A FAVOURABLE ENVIRONMENT, IT HAS INTENSIFIED INTO A CYCLONIC STORM AND IS VERY LIKELY TO INTENSIFY INTO A SEVERE CYCLONIC STORM DURING NEXT 18 HOURS WHILE MOVING IN A NORTHWEST DIRECTION. MOST OF THE NWP MODELS ARE IN AGREEMENT WITH THIS OBSERVATION.

(NARESH KUMAR)
SCIENTIST-E, RSMC, NEW DELHI

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

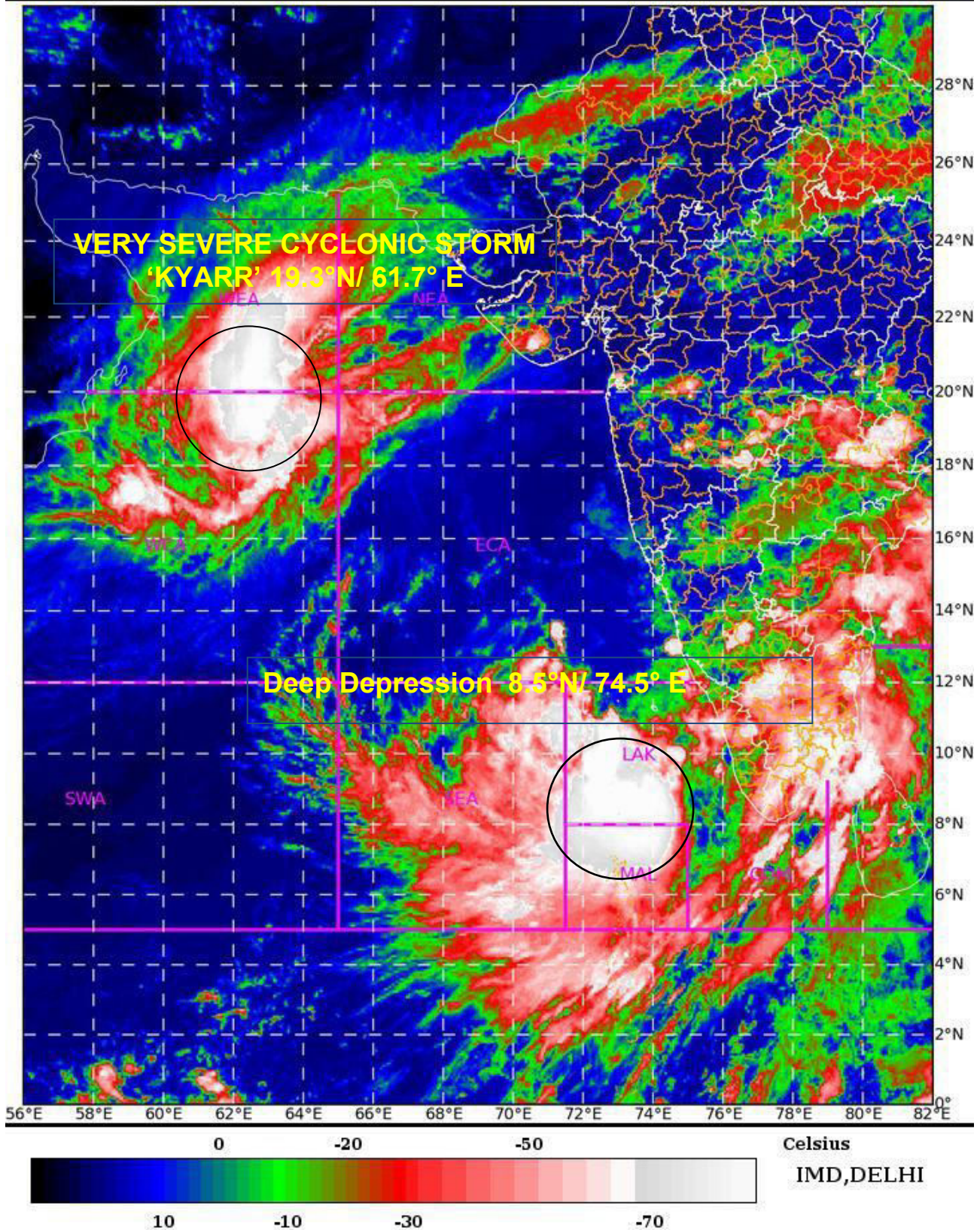
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30-10-2019/(1130 to 1156) GMT

IMG_TIR1_TEMP 10.8 um

30-10-2019/(1700 to 1726) IST

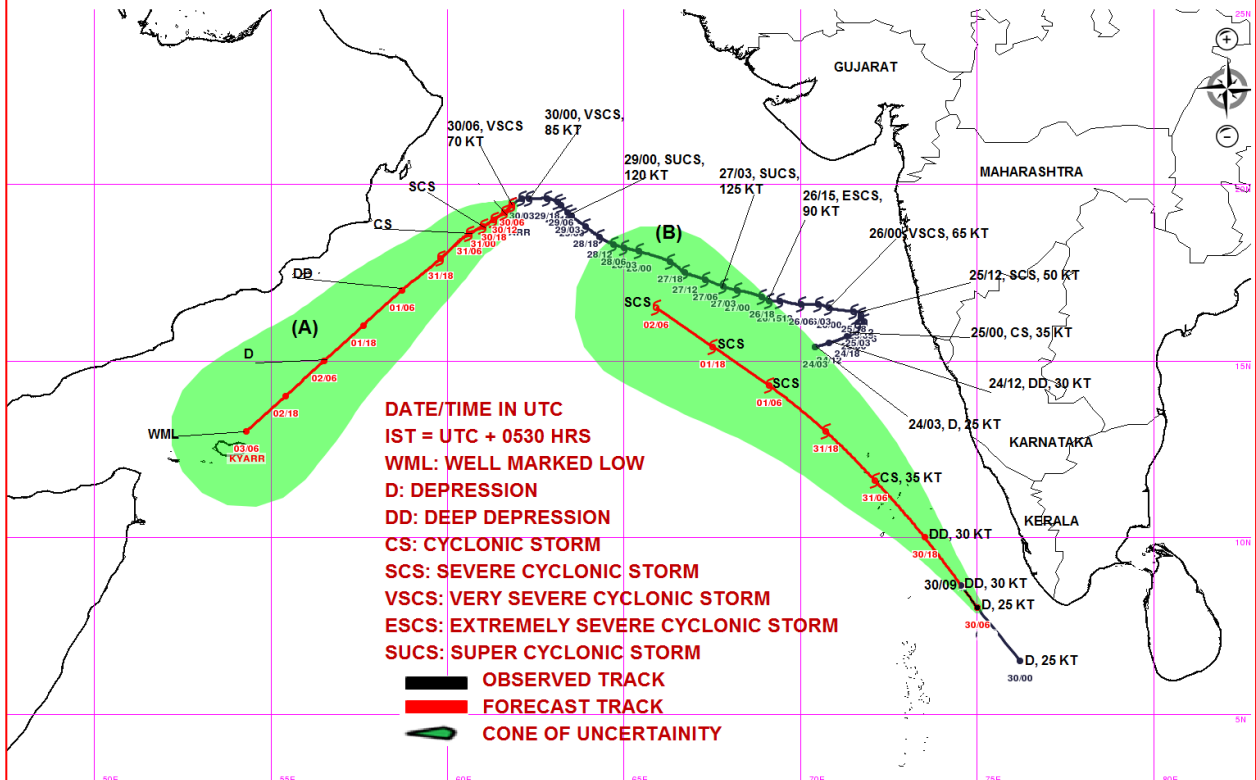
ARABIAN SEA



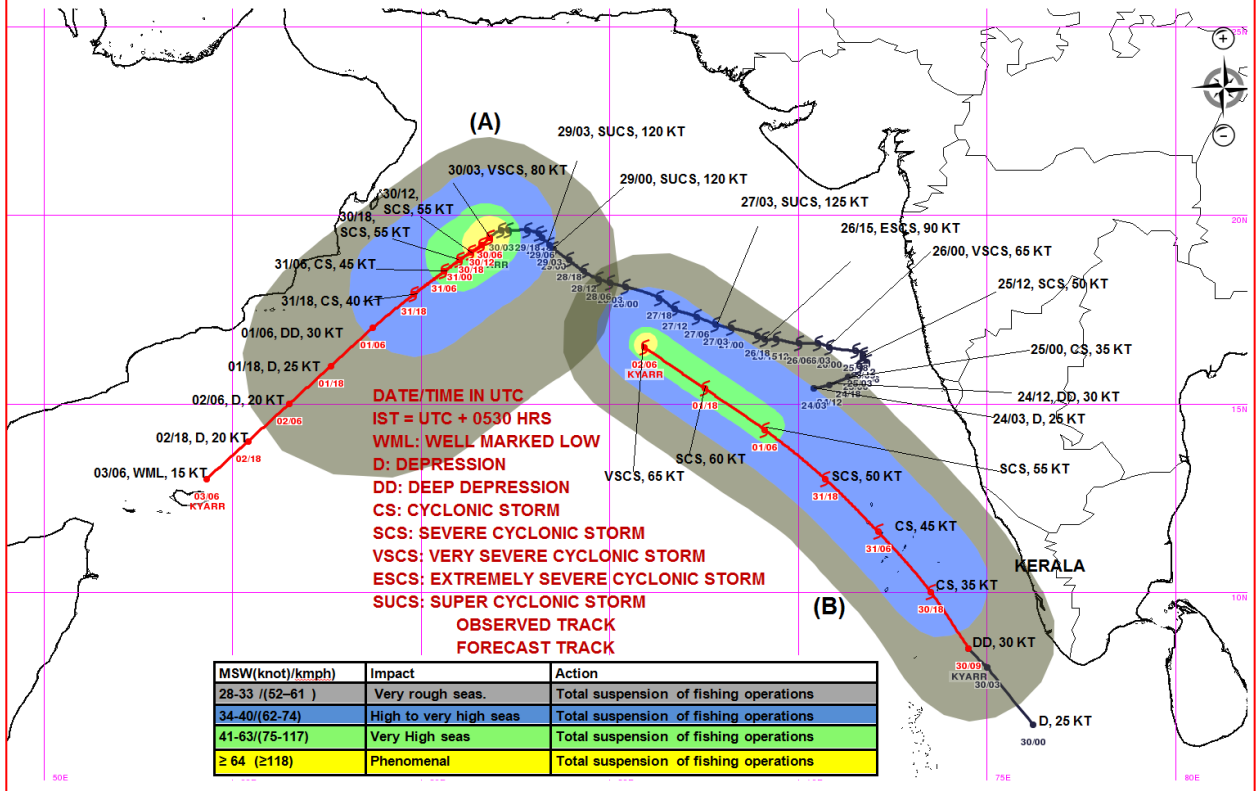
PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

OBSERVED & FORECAST TRACK ALONGWITH CONE OF UNCERTAINTY IN ASSOCIATION WITH (A) VERY SEVERE CYCLONIC STORM "KYARR" OVER WESTCENTRAL AND ADJOINING NORTH ARABIAN SEA AND (B) DEEP DEPRESSION OVER LAKSHADWEEP & ADJOINING MALDIVES AREA & SOUTHEAST ARABIAN SEA BASED ON 0900 UTC OF 30TH OCTOBER 2019



OBSERVED & FORECAST TRACK ALONGWITH QUADRANT WIND DISTRIBUTION IN ASSOCIATION WITH VERY SEVERE CYCLONIC STORM "KYARR" OVER WESTCENTRAL AND ADJOINING NORTH ARABIAN SEA AND (B) DEEP DEPRESSION OVER LAKSHADWEEP & ADJOINING MALDIVES AREA & SOUTHEAST ARABIAN SEA BASED ON 0900 UTC OF 30TH OCTOBER 2019



PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%



**REGIONAL SPECIALISED METEOROLOGICAL CENTRE-TROPICAL CYCLONES, NEW DELHI
TROPICAL CYCLONE ADVISORY BULLETIN NO. 45 & TROPICAL CYCLONE ADVISORY
BULLETIN NO. 1**

FROM: RSMC –TROPICAL CYCLONES, NEW DELHI

**TO: STORM WARNING CENTRE, NAYPYI TAW (MYANMAR)
STORM WARNING CENTRE, BANGKOK (THAILAND)
STORM WARNING CENTRE, COLOMBO (SRILANKA)
STORM WARNING CENTRE, DHAKA (BANGLADESH)
STORM WARNING CENTRE, KARACHI (PAKISTAN)
METEOROLOGICAL OFFICE, MALE (MALDIVES)
OMAN METEOROLOGICAL DEPARTMENT, MUSCAT (THROUGH RTH JEDDAH)
YEMEN METEOROLOGICAL SERVICES, REPUBLIC OF YEMEN (THROUGH RTH JEDDAH)
NATIONAL CENTRE FOR METEOROLOGY, UAE (THROUGH RTH JEDDAH)
PRESIDENCY OF METEOROLOGY AND ENVIRONMENT, SAUDI ARABIA (THROUGH RTH JEDDAH)
IRAN METEOROLOGICAL ORGANISATION, (THROUGH RTH JEDDAH)
QATAR METEOROLOGICAL DEPARTMENT (THROUGH RTH JEDDAH)**

**TROPICAL CYCLONE ADVISORY No. 45 & TROPICAL CYCLONE ADVISORY BULLETIN NO. 1
FOR NORTH INDIAN OCEAN (THE BAY OF BENGAL AND ARABIAN SEA) VALID FOR NEXT 120
HOURS ISSUED AT 1500 UTC OF 30.10.2019 BASED ON 1200 UTC OF 30.10.2019.**

**SUB: (A) VERY SEVERE CYCLONIC STORM 'KYARR' (PRONOUNCED AS KYARR) OVER
WESTCENTRAL AND ADJOINING NORTHWEST ARABIAN SEA.
(B) CYCLONIC STORM 'MAHA' (PRONOUNCED AS M'MAHA) OVER
LAKSHADWEEP AREA & ADJOINING MALDIVES AREA**

**(A) VERY SEVERE CYCLONIC STORM 'KYARR' (PRONOUNCED AS KYARR) OVER WESTCENTRAL
& ADJOINING NORTHWEST ARABIAN SEA.**

THE **VERY SEVERE CYCLONIC STORM 'KYARR'** OVER WESTCENTRAL & ADJOINING NORTHWEST ARABIAN SEA MOVED WEST-SOUTHWESTWARDS WITH A SPEED OF 09 KMPH DURING PAST 06 HRS, LAY CENTRED AT 1200 UTC OF TODAY, THE 30TH OCTOBER, 2019 OVER WESTCENTRAL & ADJOINING NORTHWEST ARABIAN SEA NEAR LATITUDE 19.0°N AND LONGITUDE 61.5°E, ABOUT 1190 KM WEST OF MUMBAI (43003) (MAHARASHTRA), 830 KM EAST-NORTHEAST OF SALALAH (41316) (OMAN) AND 330 KM EAST-SOUTHEAST OF MASIRAH (41288) (OMAN). IT IS VERY LIKELY TO MOVE WEST-SOUTHWESTWARDS ACROSS WESTCENTRAL ARABIAN SEA DURING NEXT 4 DAYS. IT IS VERY LIKELY TO WEAKEN INTO A SEVERE CYCLONIC STORM BY 1800 UTC OF 30TH OCTOBER AND INTO A CYCLONIC STORM BY 0600 UTC OF 31ST OCTOBER, 2019.

FORECAST TRACK AND INTENSITY ARE GIVEN IN THE FOLLOWING TABLE:

Date/Time(UTC)	Position (Lat. °N/ long. °E)	Maximum sustained surface wind speed (Kmph)	Category of cyclonic disturbance
30.10.19/1200	19.0/61.5	120-130 gusting to 155	Very Severe Cyclonic Storm
30.10.19/1800	18.8/61.0	110-120 gusting to 135	Severe Cyclonic Storm
31.10.19/0000	18.5/60.5	100-110 gusting to 125	Severe Cyclonic Storm
31.10.19/0600	18.1/60.2	90-100 gusting to 115	Severe Cyclonic Storm
31.10.19/1200	17.6/59.8	80-90 gusting to 100	Cyclonic Storm
01.11.19/0000	16.5/58.7	70-80 gusting to 90	Cyclonic Storm
01.11.19/1200	15.2/57.1	60-70 gusting to 80	Cyclonic Storm
02.11.19/0000	13.8/55.2	50-60 gusting to 70	Deep Depression
02.11.19/1200	12.8/53.0	40-50 gusting to 60	Depression

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

(B) CYCLONIC STORM 'MAHA' (PRONOUNCED AS M'MAHA) OVER LAKSHADWEEP AREA & ADJOINING MALDIVES AREA

THE **DEEP DEPRESSION** OVER LAKSHADWEEP AREA & ADJOINING MALDIVES AREA AND SOUTHEAST ARABIAN SEA MOVED NORTHWESTWARDS WITH A SPEED OF 25 KMPH, INTENSIFIED INTO A **CYCLONIC STORM 'MAHA' (PRONOUNCED AS M'MAHA)** OVER LAKSHADWEEP AREA & ADJOINING MALDIVES AREA AND SOUTHEAST ARABIAN SEA AND LAY CENTERED AT 1200 UTC OF TODAY, THE 30TH OCTOBER, 2019 NEAR LATITUDE 9.6°N AND LONGITUDE 73.8°E, ABOUT 540 KM NORTH-NORTHEAST OF MALE (43555) (MALDIVES), 130 KM NORTH-NORTHEAST OF MINICOY (43369) (LAKSHADWEEP), 160 KM EAST-SOUTHEAST OF KAVARATTI (43337) (LAKSHADWEEP) AND 370 KM WEST-NORTHWEST OF THIRUVANANTHAPURAM (43371) (KERALA). IT IS VERY LIKELY TO CONTINUE TO MOVE NORTHWESTWARDS ACROSS LAKSHADWEEP ISLANDS DURING NEXT 24 HOURS AND THEN EMERGE INTO EASTCENTRAL ARABIAN SEA. IT IS VERY LIKELY TO INTENSIFY INTO A SEVERE CYCLONIC STORM BY 0600UTC OF 31ST OCTOBER OVER LAKSHADWEEP AREA.

FORECAST TRACK AND INTENSITY ARE GIVEN IN THE FOLLOWING TABLE:

Date/Time(UTC)	Position (Lat. °N/ long. °E)	Maximum sustained surface wind speed (Kmph)	Category of cyclonic disturbance
30.10.19/1500	9.6/73.8	65-75 gusting to 85	Cyclonic Storm
30.10.19/1800	10.0/73.5	70-80 gusting to 90	Cyclonic Storm
31.10.19/0000	10.9/72.9	80-90 gusting to 100	Cyclonic Storm
31.10.19/0600	11.9/72.4	90-100 gusting to 115	Severe Cyclonic Storm
31.10.19/1200	12.9/71.8	100-110 gusting to 125	Severe Cyclonic Storm
01.11.19/0000	14.4/70.4	110-120 gusting to 135	Severe Cyclonic Storm
01.11.19/1200	15.4/69.0	115-125 gusting to 140	Severe Cyclonic Storm
02.11.19/0000	16.3/68.0	120-130 gusting to 150	Very Severe Cyclonic Storm
02.11.19/1200	16.9/67.1	130-140 gusting to 160	Very Severe Cyclonic Storm
03.11.19/0000	17.2/66.2	140-150 gusting to 170	Very Severe Cyclonic Storm
03.11.19/1200	17.3/65.2	150-160 gusting to 180	Very Severe Cyclonic Storm
04.11.19/0000	17.1/64.2	160-170 gusting to 190	Very Severe Cyclonic Storm

REMARKS (A):

AS PER THE SATELLITE IMAGERY AT 1200 UTC OF 30TH OCTOBER, 2019, THE CURRENT INTENSITY OF THE SYSTEM IS T 3.5/CI 4.5. ASSOCIATED BROKEN LOW TO MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION LIES OVER WESTCENTRAL AND ADJOINING EAST CENTRAL ARABIAN SEA BETWEEN LAT 18.50°N TO 23.0°N AND LONG 61.0°E TO 64.0°E. THE MINIMUM CTT IS MINUS 93 DEG C.

THE ESTIMATED MAXIMUM SUSTAINED WIND SPEED IS 70 KNOTS GUSTING TO 80 KNOTS. THE ESTIMATED CENTRAL PRESSURE IS 980 HPA. THE SEA CONDITION IS PHENOMENAL AROUND THE SYSTEM CENTRE. AT 1200 UTC, A SHIP (WNTL) LOCATED NEAR LAT. 16.2°N /56.5°E REPORTED MEAN SEA LEVEL PRESSURE 1007.0 HPA, SST 27.1°C AND WIND 350°/17 KNOTS.

THE MJO LIES IN THE PHASE 4 WITH AMPLITUDE LESS THAN 1. IT WILL REMAIN IN THE SAME PHASE TILL 31ST OCTOBER AND ENTER INTO PHASE 5 WITH AMPLITUDE LESS THAN 1 AND REMAIN THERE FOR SUBSEQUENT TWO DAYS. THE LOW LEVEL RELATIVE VORTICITY IS ABOUT 250 X10⁻⁵ SEC⁻¹ TO THE SOUTH OF THE SYSTEM CENTRE. THE LOWER LEVEL CONVERGENCE IS ABOUT 10 X10⁻⁵S⁻¹ TO THE SOUTH OF THE SYSTEM CENTRE AND THE UPPER LEVEL DIVERGENCE IS ABOUT 20 X10⁻⁵S⁻¹ TO THE SOUTH OF THE SYSTEM CENTRE. THE VERTICAL WIND SHEAR IS MODERATE (15-20 KNOTS) OVER THE SYSTEM AREA. SEA SURFACE TEMPERATURE IS AROUND 27-28°C OVER THE SYSTEM AREA WHILE TO THE NORTH AND TO THE SOUTH SYSTEM AREA, IT IS WARMER

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

(29-30°C). TROPICAL CYCLONE HEAT POTENTIAL AROUND THE SYSTEM CENTER OVER WESTCENTRAL ARABIAN SEA IS 20-40 KJ/CM².

TOTAL PRECIPITABLE WATER IMAGERIES INDICATE CONTINUED REDUCTION IN WARM AIR INCURSION AND DRY AIR INCURSION IS TAKING PLACE IN THE SOUTH AND WESTERN SECTORS OF THE SYSTEM CENTRE. EQUATORWARD OUTFLOW IS TAKING PLACE IN THE UPPER TROPOSPHERIC LEVELS. ALL THESE ENVIRONMENTAL, DYNAMIC AND THERMODYNAMIC CONDITIONS INDICATE FURTHER WEAKENING OF THE SYSTEM. THE SYSTEM IS MOST LIKELY TO MOVE IN A WEST-SOUTHWESTWARD DIRECTION ACROSS WEST CENTRAL ARABIAN SEA. MAJORITY OF NUMERICAL MODELS AGREE WITH THE ABOVE INFERENCE.

REMARKS (B):

AS PER THE SATELLITE IMAGERY AT 1200 UTC OF 30TH OCTOBER, 2019, THE CURRENT INTENSITY OF THE SYSTEM IS T 2.5. ASSOCIATED SCATTERED LOW TO MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION LIES OVER COMORIN AND ADJOINING AREAS BETWEEN LAT 6.5⁰N TO 11.5⁰N AND LONG 70.5⁰E TO 74.5⁰E. THE MINIMUM CTT IS MINUS 93⁰C.

THE ESTIMATED MAXIMUM SUSTAINED WIND SPEED IS 30 KNOTS GUSTING TO 40 KNOTS. THE ESTIMATED CENTRAL PRESSURE IS 998 HPA. THE SEA CONDITION IS ROUGH TO VERY ROUGH AROUND THE SYSTEM CENTRE. AT 1200 UTC, MINICOY (43369) REPORTED MEAN SEA LEVEL PRESSURE 1006.06 HPA AND WIND 290⁰ /15 KNOTS. A BUOY (23452) LOCATED NEAR LAT. 12.7°N / 68.43°E REPORTED MEAN SEA LEVEL PRESSURE 1008.3HPA, SST 28.8°C AND WIND 310⁰/9.7 KNOTS

THE LOW LEVEL RELATIVE VORTICITY IS ABOUT 150 X10⁻⁵ SEC⁻¹ OVER THE SYSTEM CENTRE. POSITIVE VORTICITY FIELD IS SEEN UPTO 500 HPA LEVEL. THE RIDGE OVER THE SYSTEM AREA RUNS ROUGHLY ALONG 15⁰N. THE LOWER LEVEL CONVERGENCE IS ABOUT 20 X10⁻⁵S⁻¹ OVER THE SYSTEM CENTRE AND THE UPPER LEVEL DIVERGENCE IS ABOUT 30 X10⁻⁵S⁻¹ OVER THE SYSTEM CENTRE. THE VERTICAL WIND SHEAR IS MODERATE TO HIGH (20-25 KNOTS) OVER THE SYSTEM AREA. SEA SURFACE TEMPERATURE IS AROUND 29-30°C OVER THE SYSTEM AREA AND IS DECREASING IN THE FORECAST DIRECTION . TROPICAL CYCLONE HEAT POTENTIAL IS AROUND 100-120 KJ/CM² OVER THE THE SYSTEM AREA AND DECREASES IN THE FORECAST DIRCTION OF THE SYSTEM.

AS THE SYSTEM IS LYING IN A FAVOURABLE ENVIRONMENT, IT HAS INTENSIFIED INTO A CYCLONIC STORM AND IS VERY LIKELY TO INTENSIFY INTO A SEVERE CYCLONIC STORM DURING NEXT 18 HOURS WHILE MOVING IN A NORTHWEST DIRECTION. MOST OF THE NWP MODELS ARE IN AGREEMENT WITH THIS OBSERVATION.

(RK JENAMANI)
SCIENTIST-F, RSMC, NEW DELHI

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

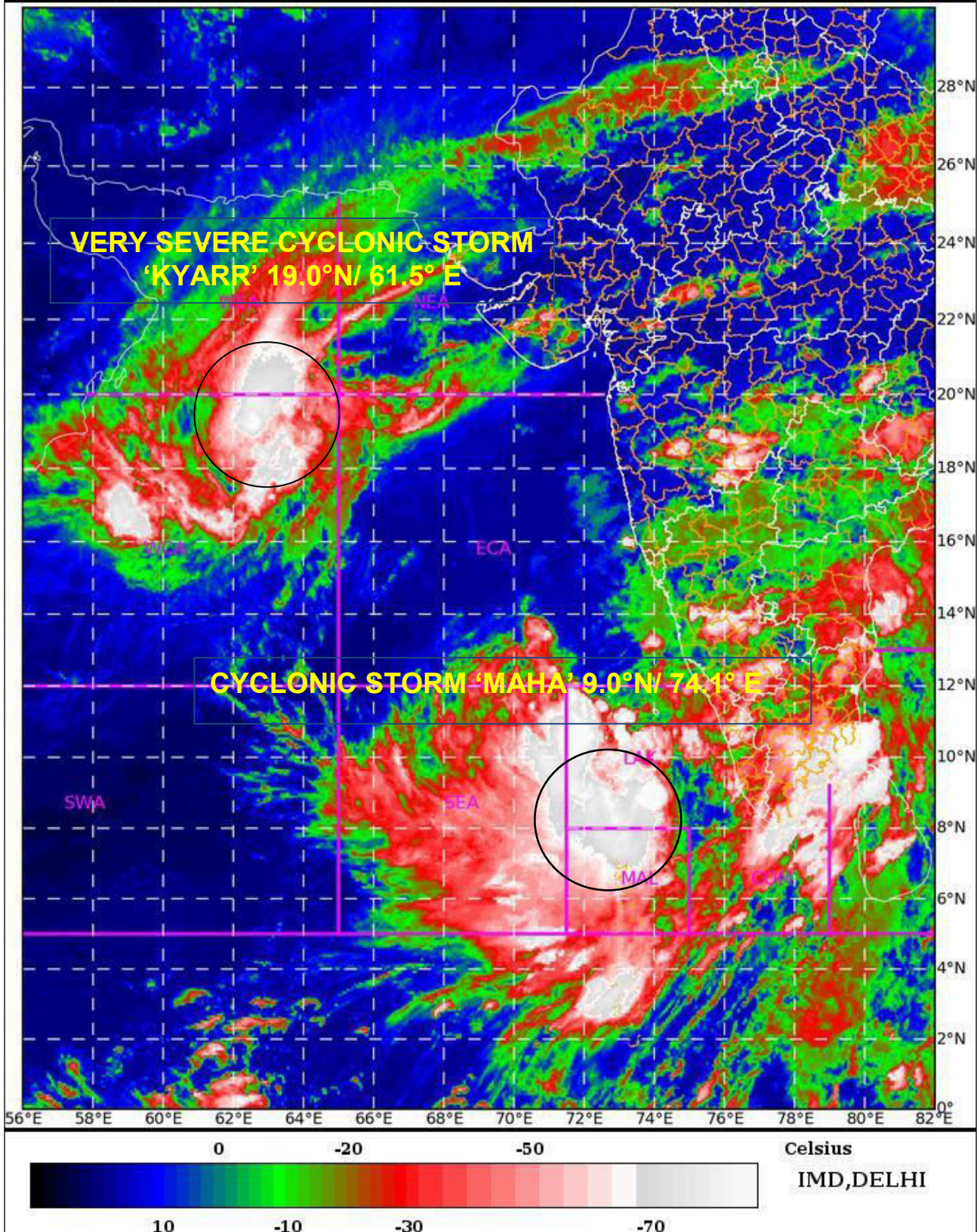
NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

SAT : INSAT-3D IMG 30-10-2019/(1330 to 1356) GMT

IMG_TIR1_TEMP 10.8 um 30-10-2019/(1900 to 1926) IST



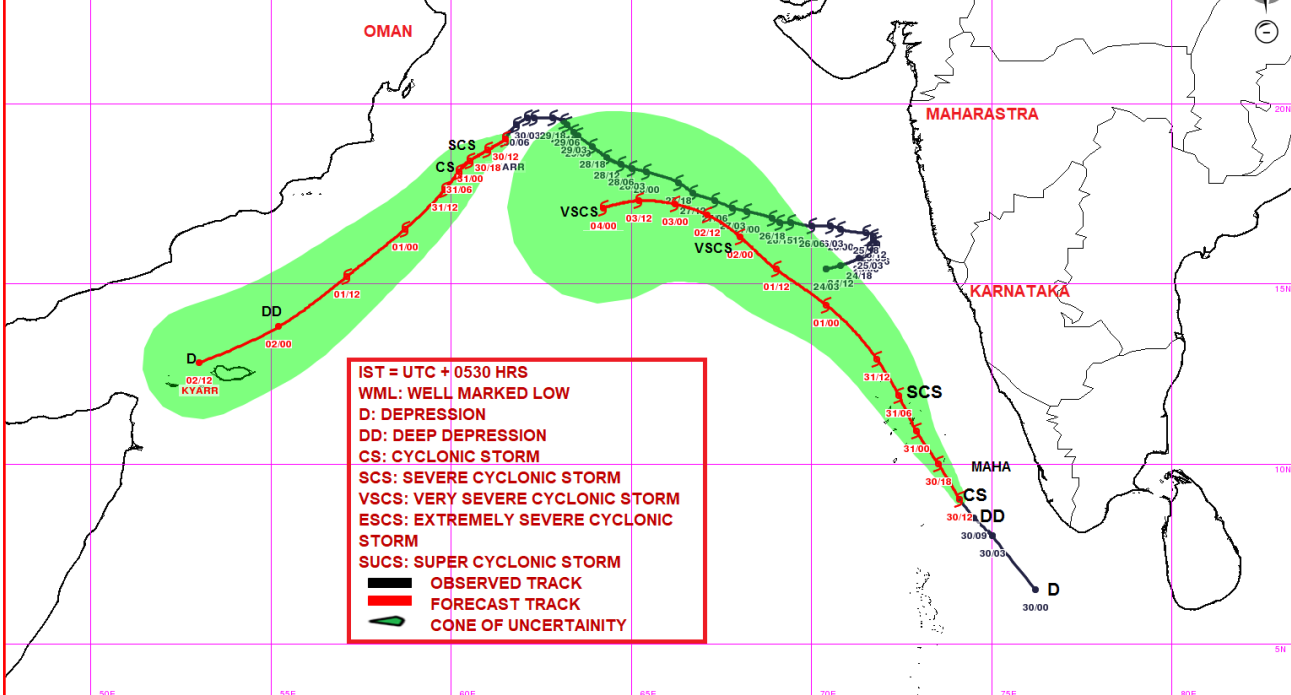
ARABIAN SEA



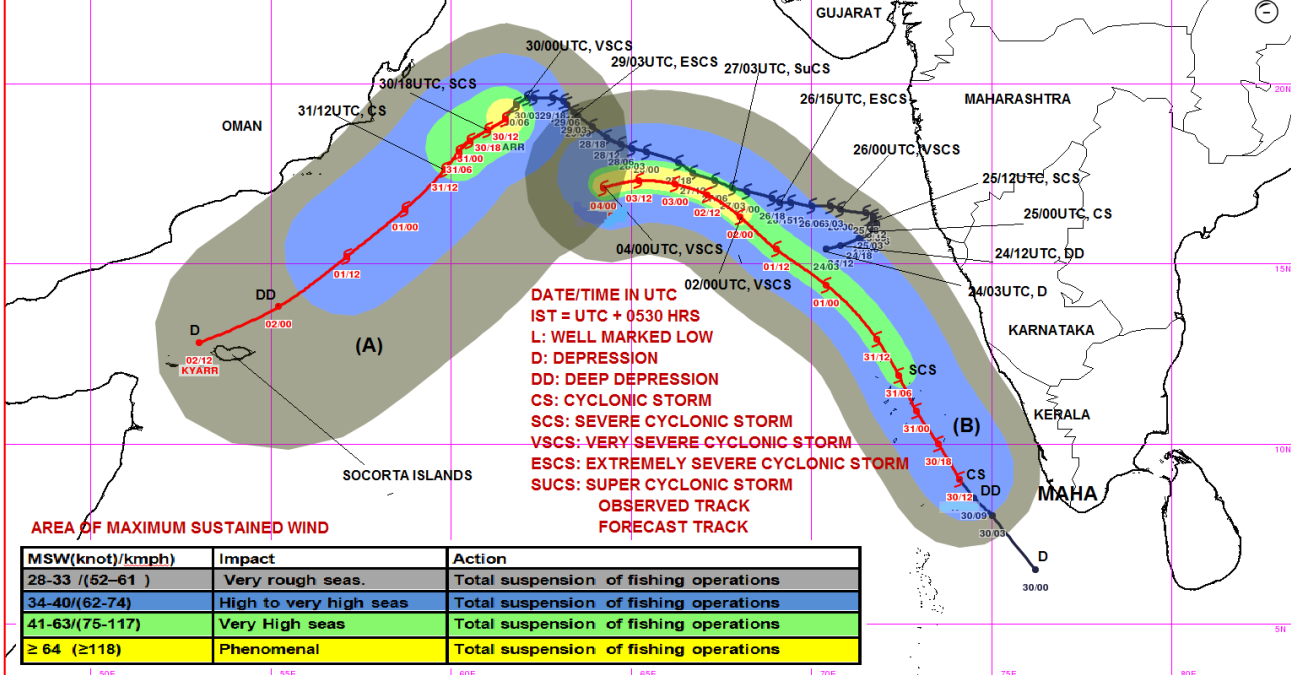
PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

OBSERVED & FORECAST TRACK ALONGWITH CONE OF UNCERTAINTY IN ASSOCIATION WITH (A) VERY SEVERE CYCLONIC STORM "KYARR" OVER WESTCENTRAL AND ADJOINING NORTH ARABIAN SEA AND (B) CYCLONIC STORM MAHA OVER LAKSHADWEEP & ADJOINING MALDIVES AREA & SOUTHEAST ARABIAN SEA BASED ON 1200 UTC OF 30TH OCTOBER 2019



OBSERVED & FORECAST TRACK ALONGWITH QUADRANT WIND DISTRIBUTION IN ASSOCIATION WITH (A) VERY SEVERE CYCLONIC STORM "KYARR" OVER WESTCENTRAL AND ADJOINING NORTH ARABIAN SEA AND (B) CYCLONIC STORM MAHA OVER LAKSHADWEEP & ADJOINING MALDIVES AREA & SOUTHEAST ARABIAN SEA BASED ON 1200 UTC OF 30TH OCTOBER 2019



PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%



**REGIONAL SPECIALISED METEOROLOGICAL CENTRE-TROPICAL CYCLONES, NEW DELHI
TROPICAL CYCLONE ADVISORY BULLETIN NO. 46 & TROPICAL CYCLONE ADVISORY
BULLETIN NO. 2**

FROM: RSMC –TROPICAL CYCLONES, NEW DELHI

**TO: STORM WARNING CENTRE, NAYPYI TAW (MYANMAR)
STORM WARNING CENTRE, BANGKOK (THAILAND)
STORM WARNING CENTRE, COLOMBO (SRILANKA)
STORM WARNING CENTRE, DHAKA (BANGLADESH)
STORM WARNING CENTRE, KARACHI (PAKISTAN)
METEOROLOGICAL OFFICE, MALE (MALDIVES)
OMAN METEOROLOGICAL DEPARTMENT, MUSCAT (THROUGH RTH JEDDAH)
YEMEN METEOROLOGICAL SERVICES, REPUBLIC OF YEMEN (THROUGH RTH JEDDAH)
NATIONAL CENTRE FOR METEOROLOGY, UAE (THROUGH RTH JEDDAH)
PRESIDENCY OF METEOROLOGY AND ENVIRONMENT, SAUDI ARABIA (THROUGH RTH JEDDAH)
IRAN METEOROLOGICAL ORGANISATION, (THROUGH RTH JEDDAH)
QATAR METEOROLOGICAL DEPARTMENT (THROUGH RTH JEDDAH)**

**TROPICAL CYCLONE ADVISORY No. 46 & TROPICAL CYCLONE ADVISORY NO. 2
FOR NORTH INDIAN OCEAN (THE BAY OF BENGAL AND ARABIAN SEA) VALID FOR NEXT 120
HOURS ISSUED AT 1700 UTC OF 30.10.2019 BASED ON 1500 UTC OF 30.10.2019.**

**SUB: (A) VERY SEVERE CYCLONIC STORM 'KYARR' (PRONOUNCED AS KYARR) WEAKENED INTO A SEVERE
CYCLONIC STORM OVER WESTCENTRAL & ADJOINING NORTHWEST ARABIAN SEA.
(B) CYCLONIC STORM 'MAHA' (PRONOUNCED AS M'MAHA) OVER LAKSHADWEEP AREA & ADJOINING
MALDIVES AREA**

**(A) VERY SEVERE CYCLONIC STORM 'KYARR' (PRONOUNCED AS KYARR) WEAKENED INTO A
SEVERE CYCLONIC STORM OVER WESTCENTRAL & ADJOINING NORTHWEST ARABIAN SEA.**

THE **VERY SEVERE CYCLONIC STORM 'KYARR'** OVER WESTCENTRAL & ADJOINING NORTHWEST ARABIAN SEA MOVED SOUTHWESTWARDS WITH A SPEED OF 11 KMPH DURING PAST 06 HRS, WEAKENED INTO A SEVERE CYCLONIC STORM AND LAY CENTRED AT 1500 UTC OF 30TH OCTOBER, 2019 OVER WESTCENTRAL & ADJOINING NORTHWEST ARABIAN SEA NEAR LATITUDE 18.9°N AND LONGITUDE 61.2°E, ABOUT 1220 KM WEST OF MUMBAI (43003) (MAHARASHTRA), 780 KM EAST-NORTHEAST OF SALALAH (41316) (OMAN) AND 310 KM EAST-SOUTHEAST OF MASIRAH (41288) (OMAN). IT IS VERY LIKELY TO MOVE WEST-SOUTHWESTWARDS ACROSS WESTCENTRAL ARABIAN SEA DURING NEXT 4 DAYS. IT IS VERY LIKELY TO WEAKEN INTO A CYCLONIC STORM BY 0600 UTC OF 31ST OCTOBER, 2019.

FORECAST TRACK AND INTENSITY ARE GIVEN IN THE FOLLOWING TABLE:

Date/Time(UTC)	Position (Lat. °N/ long. °E)	Maximum sustained surface wind speed (Kmph)	Category of cyclonic disturbance
30.10.19/1500	18.9/61.2	110-120 gusting to 135	Severe Cyclonic Storm
30.10.19/1800	18.8/61.0	105-115 gusting to 130	Severe Cyclonic Storm
31.10.19/0000	18.5/60.5	100-110 gusting to 125	Severe Cyclonic Storm
31.10.19/0600	18.1/60.2	90-100 gusting to 115	Severe Cyclonic Storm
31.10.19/1200	17.6/59.8	80-90 gusting to 100	Cyclonic Storm
01.11.19/0000	16.5/58.7	70-80 gusting to 90	Cyclonic Storm
01.11.19/1200	15.2/57.1	60-70 gusting to 80	Cyclonic Storm
02.11.19/0000	13.8/55.2	50-60 gusting to 70	Deep Depression
02.11.19/1200	12.8/53.0	40-50 gusting to 60	Depression

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

(B) CYCLONIC STORM 'MAHA' (PRONOUNCED AS M'MAHA) OVER LAKSHADWEEP AREA & ADJOINING MALDIVES AREA

THE CYCLONIC STORM 'MAHA' (PRONOUNCED AS M'MAHA) OVER LAKSHADWEEP AREA & ADJOINING SOUTHEAST ARABIAN SEA & MALDIVES AREA MOVED NORTH-NORTHWESTWARDS WITH A SPEED OF 24 KMPH DURING THE PAST 06 HOURS AND LAY CENTERED AT 1500 UTC OF 30TH OCTOBER, 2019 NEAR LATITUDE 9.6°N AND LONGITUDE 73.8°E OVER LAKSHADWEEP AND ADJOINING SOUTHEAST ARABIAN SEA & MALDIVES AREA, ABOUT 600 KM NORTH-NORTHEAST OF MALE (43555) (MALDIVES), 170 KM NORTH-NORTHEAST OF MINICOY (43369) (LAKSHADWEEP), 160 KM EAST-SOUTHEAST OF KAVARATTI (43337) (LAKSHADWEEP) AND 370 KM WEST-NORTHWEST OF THIRUVANANTHAPURAM (43371) (KERALA). IT IS VERY LIKELY TO CONTINUE TO MOVE NORTHWESTWARDS ACROSS LAKSHADWEEP ISLANDS DURING NEXT 24 HOURS AND THEN EMERGE INTO EASTCENTRAL ARABIAN SEA. IT IS VERY LIKELY TO INTENSIFY INTO A SEVERE CYCLONIC STORM BY 0600UTC OF 31ST OCTOBER OVER LAKSHADWEEP AREA.

FORECAST TRACK AND INTENSITY ARE GIVEN IN THE FOLLOWING TABLE:

Date/Time(UTC)	Position (Lat. °N/ long. °E)	Maximum sustained surface wind speed (Kmph)	Category of cyclonic disturbance
30.10.19/1500	9.6/73.8	65-75 gusting to 85	Cyclonic Storm
30.10.19/1800	10.0/73.5	70-80 gusting to 90	Cyclonic Storm
31.10.19/0000	10.9/72.9	80-90 gusting to 100	Cyclonic Storm
31.10.19/0600	11.9/72.4	90-100 gusting to 115	Severe Cyclonic Storm
31.10.19/1200	12.9/71.8	100-110 gusting to 125	Severe Cyclonic Storm
01.11.19/0000	14.4/70.4	110-120 gusting to 135	Severe Cyclonic Storm
01.11.19/1200	15.4/69.0	115-125 gusting to 140	Severe Cyclonic Storm
02.11.19/0000	16.3/68.0	120-130 gusting to 150	Very Severe Cyclonic Storm
02.11.19/1200	16.9/67.1	130-140 gusting to 160	Very Severe Cyclonic Storm
03.11.19/0000	17.2/66.2	140-150 gusting to 170	Very Severe Cyclonic Storm
03.11.19/1200	17.3/65.2	150-160 gusting to 180	Very Severe Cyclonic Storm
04.11.19/0000	17.1/64.2	160-170 gusting to 190	Very Severe Cyclonic Storm

REMARKS (A):

AS PER THE SATELLITE IMAGERY AT 1500 UTC OF 30TH OCTOBER, 2019, THE CURRENT INTENSITY OF THE SYSTEM IS T 3.5/CI 4.5. ASSOCIATED BROKEN LOW TO MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION LIES OVER WESTCENTRAL AND ADJOINING EAST CENTRAL ARABIAN SEA BETWEEN LAT 18.50°N TO 23.0°N AND LONG 61.0°E TO 64.0°E. THE MINIMUM CTT IS MINUS 93 DEG C.

THE ESTIMATED MAXIMUM SUSTAINED WIND SPEED IS 70 KNOTS GUSTING TO 80 KNOTS. THE ESTIMATED CENTRAL PRESSURE IS 990 HPA. THE SEA CONDITION IS PHENOMENAL AROUND THE SYSTEM CENTRE. AT 1500 UTC, A BUOY (23456) LOCATED NEAR LAT. 18.5°N /67.4°E REPORTED MEAN SEA LEVEL PRESSURE 1010.7 HPA, SST 26.4°C.

THE MJO LIES IN THE PHASE 4 WITH AMPLITUDE LESS THAN 1. IT WILL REMAIN IN THE SAME PHASE TILL 31ST OCTOBER AND ENTER INTO PHASE 5 WITH AMPLITUDE LESS THAN 1 AND REMAIN THERE FOR SUBSEQUENT TWO DAYS. THE LOW LEVEL RELATIVE VORTICITY IS ABOUT 250 X10⁻⁵ SEC⁻¹ TO THE SOUTH OF THE SYSTEM CENTRE. THE LOWER LEVEL CONVERGENCE IS ABOUT 10 X10⁻⁵S⁻¹ TO THE SOUTH OF THE SYSTEM CENTRE AND THE UPPER LEVEL DIVERGENCE IS ABOUT 20 X10⁻⁵S⁻¹ AROUND THE SYSTEM CENTRE. THE VERTICAL WIND SHEAR IS MODERATE (10-15 KNOTS) OVER THE SYSTEM AREA. SEA SURFACE TEMPERATURE IS AROUND 27-28°C OVER THE SYSTEM AREA WHILE IT IS WARMER (29-30°C) TOWARDS NORTH. TROPICAL CYCLONE HEAT

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

POTENTIAL AROUND THE SYSTEM CENTER OVER WESTCENTRAL ARABIAN SEA IS 20-40 KJ/CM².

TOTAL PRECIPITABLE WATER IMAGERIES INDICATE CONTINUED REDUCTION IN WARM AND DRY AIR INCURSION IS TAKING PLACE IN THE SOUTH AND WESTERN SECTORS OF THE SYSTEM CENTRE. EQUATORWARD OUTFLOW IS TAKING PLACE IN THE UPPER TROPOSPHERIC LEVELS. ALL THESE ENVIRONMENTAL, DYNAMIC AND THERMODYNAMIC CONDITIONS INDICATE FURTHER WEAKENING OF THE SYSTEM. THE SYSTEM IS MOST LIKELY TO MOVE IN A WEST-SOUTHWESTWARD DIRECTION ACROSS WEST CENTRAL ARABIAN SEA. MAJORITY OF NUMERICAL MODELS AGREE WITH THE ABOVE INFERENCE.

REMARKS (B):

AS PER THE SATELLITE IMAGERY AT 1500 UTC OF 30TH OCTOBER, 2019, THE CURRENT INTENSITY OF THE SYSTEM IS T 2.5. ASSOCIATED SCATTERED LOW TO MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION LIES OVER COMORIN AND ADJOINING AREAS BETWEEN LAT 6.5⁰N TO 11.5⁰N AND LONG 70.5⁰E TO 74.5⁰E. THE MINIMUM CTT IS MINUS 93⁰C.

THE ESTIMATED MAXIMUM SUSTAINED WIND SPEED IS 40 KNOTS GUSTING TO 50 KNOTS. THE ESTIMATED CENTRAL PRESSURE IS 996 HPA. THE SEA CONDITION IS ROUGH TO VERY ROUGH AROUND THE SYSTEM CENTRE. AT 1500 UTC, MINICOY (43369) REPORTED MEAN SEA LEVEL PRESSURE 1008.7 HPA AND WIND 320⁰ /10 KNOTS. A SHIP (MAOR5) LOCATED NEAR LAT. 11.3⁰N / 69.6⁰E REPORTED MEAN SEA LEVEL PRESSURE 1009.6HPA, SST 28.9⁰C AND WIND 320⁰/13 KNOTS

THE LOW LEVEL RELATIVE VORTICITY IS ABOUT 200 X10⁻⁵ SEC⁻¹ SOUTH OF THE SYSTEM CENTRE. POSITIVE VORTICITY FIELD IS SEEN UPTO 500 HPA LEVEL. THE RIDGE OVER THE SYSTEM AREA RUNS ROUGHLY ALONG 15⁰N. THE LOWER LEVEL CONVERGENCE IS ABOUT 30 X10⁻⁵S⁻¹ OVER THE SYSTEM CENTRE AND THE UPPER LEVEL DIVERGENCE IS ABOUT 20 X10⁻⁵S⁻¹ OVER THE SYSTEM CENTRE. THE VERTICAL WIND SHEAR IS MODERATE TO HIGH (15-20 KNOTS) OVER THE SYSTEM AREA. SEA SURFACE TEMPERATURE IS AROUND 29-30⁰C AROUND THE SYSTEM AREA AND IS DECREASING IN THE FORECAST DIRECTION . TROPICAL CYCLONE HEAT POTENTIAL IS AROUND 100-120 KJ/CM² OVER THE THE SYSTEM AREA AND DECREASES IN THE FORECAST DIRCTION OF THE SYSTEM.

AS THE SYSTEM IS LYING IN A FAVOURABLE ENVIRONMENT, IT IS VERY LIKELY TO INTENSIFY INTO A SEVERE CYCLONIC STORM DURING NEXT 12 HOURS WHILE MOVING IN A NORTHWEST DIRECTION. MOST OF THE NWP MODELS ARE IN AGREEMENT WITH THIS OBSERVATION.

(ANANDA KUMAR DAS)
SCIENTIST-E, RSMC, NEW DELHI

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

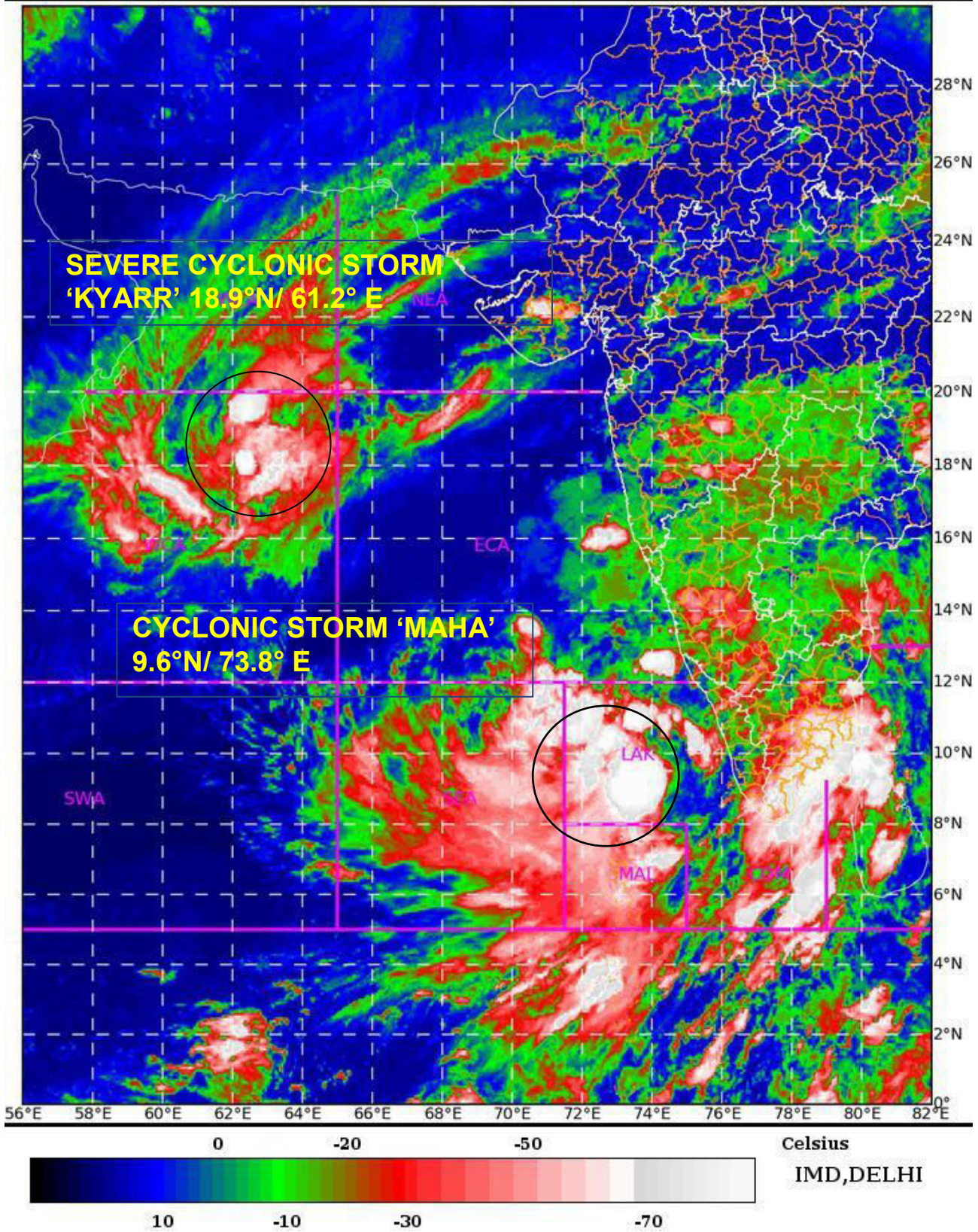
NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

SAT : INSAT-3D IMG 30-10-2019/(1600 to 1626) GMT

IMG_TIR1_TEMP 10.8 um 30-10-2019/(2130 to 2156) IST



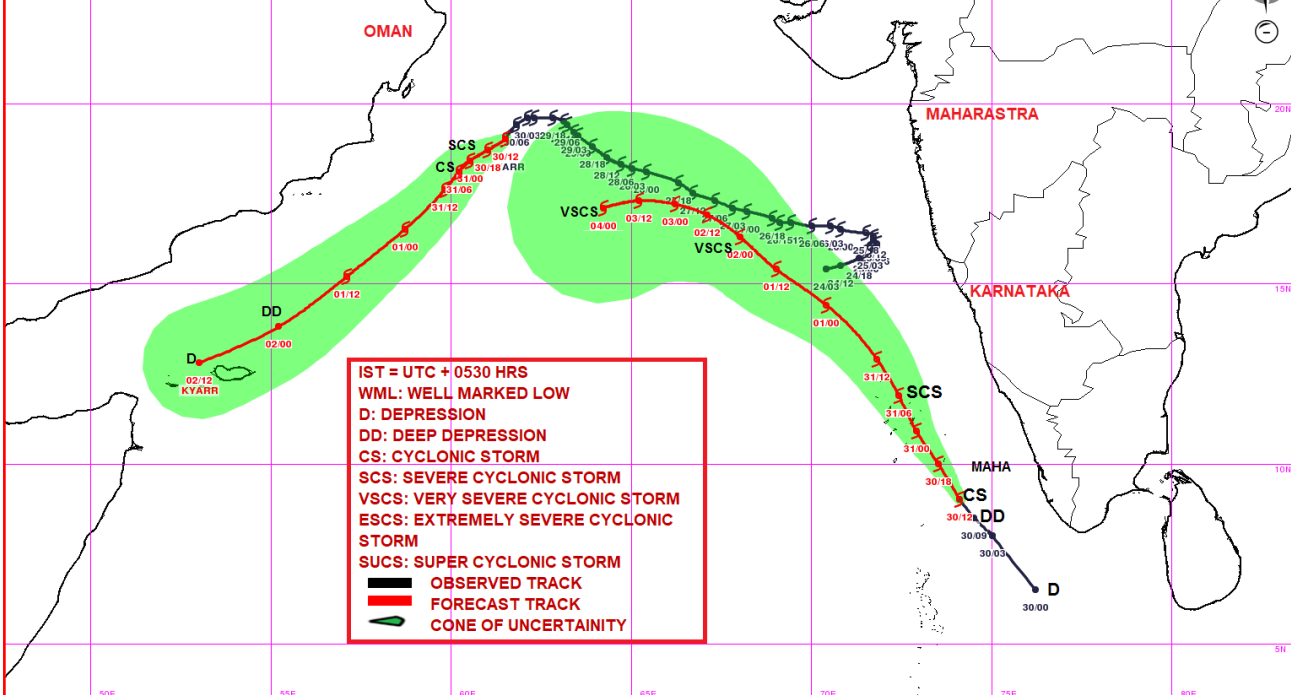
ARABIAN SEA



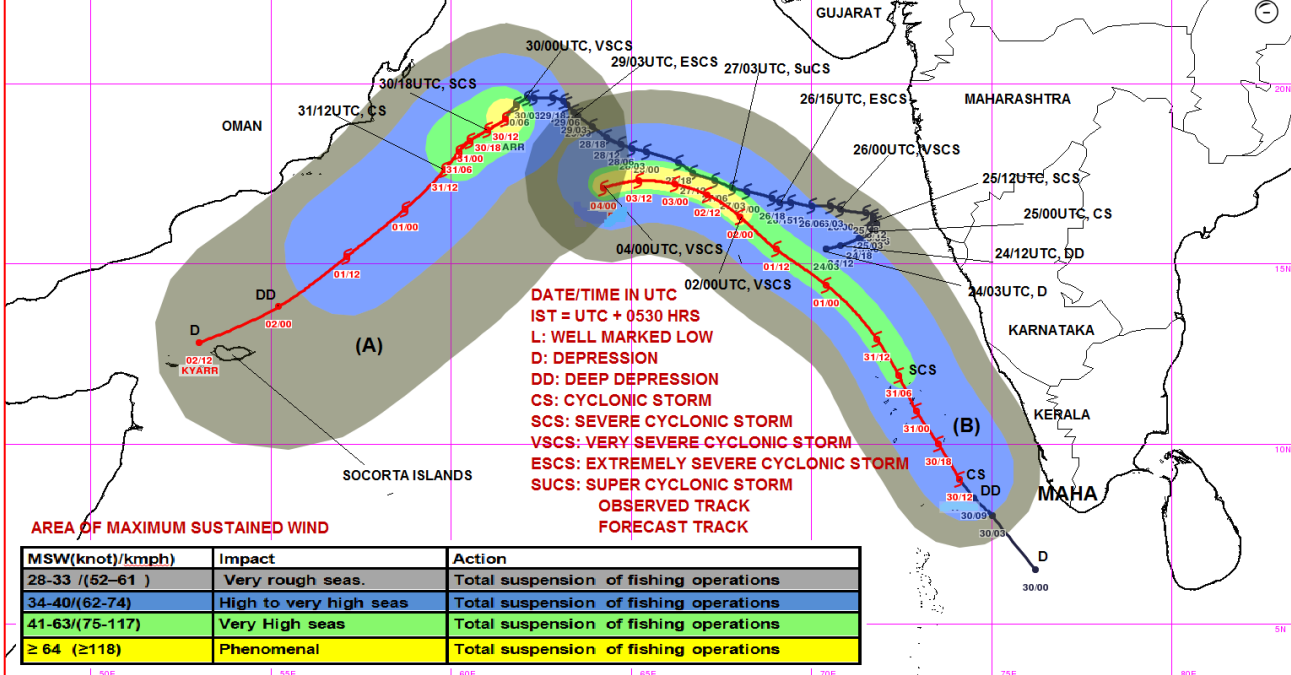
PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

OBSERVED & FORECAST TRACK ALONGWITH CONE OF UNCERTAINTY IN ASSOCIATION WITH (A) VERY SEVERE CYCLONIC STORM "KYARR" OVER WESTCENTRAL AND ADJOINING NORTH ARABIAN SEA AND (B) CYCLONIC STORM MAHA OVER LAKSHADWEEP & ADJOINING MALDIVES AREA & SOUTHEAST ARABIAN SEA BASED ON 1200 UTC OF 30TH OCTOBER 2019



OBSERVED & FORECAST TRACK ALONGWITH QUADRANT WIND DISTRIBUTION IN ASSOCIATION WITH (A) VERY SEVERE CYCLONIC STORM "KYARR" OVER WESTCENTRAL AND ADJOINING NORTH ARABIAN SEA AND (B) CYCLONIC STORM MAHA OVER LAKSHADWEEP & ADJOINING MALDIVES AREA & SOUTHEAST ARABIAN SEA BASED ON 1200 UTC OF 30TH OCTOBER 2019



PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%



**REGIONAL SPECIALISED METEOROLOGICAL CENTRE-TROPICAL CYCLONES, NEW DELHI
TROPICAL CYCLONE ADVISORY BULLETIN NO. 47 & TROPICAL CYCLONE ADVISORY
BULLETIN NO. 3**

FROM: RSMC –TROPICAL CYCLONES, NEW DELHI

**TO: STORM WARNING CENTRE, NAYPYI TAW (MYANMAR)
STORM WARNING CENTRE, BANGKOK (THAILAND)
STORM WARNING CENTRE, COLOMBO (SRILANKA)
STORM WARNING CENTRE, DHAKA (BANGLADESH)
STORM WARNING CENTRE, KARACHI (PAKISTAN)
METEOROLOGICAL OFFICE, MALE (MALDIVES)
OMAN METEOROLOGICAL DEPARTMENT, MUSCAT (THROUGH RTH JEDDAH)
YEMEN METEOROLOGICAL SERVICES, REPUBLIC OF YEMEN (THROUGH RTH JEDDAH)
NATIONAL CENTRE FOR METEOROLOGY, UAE (THROUGH RTH JEDDAH)
PRESIDENCY OF METEOROLOGY AND ENVIRONMENT, SAUDI ARABIA (THROUGH RTH JEDDAH)
IRAN METEOROLOGICAL ORGANISATION, (THROUGH RTH JEDDAH)
QATAR METEOROLOGICAL DEPARTMENT (THROUGH RTH JEDDAH)**

**TROPICAL CYCLONE ADVISORY No. 47 & TROPICAL CYCLONE ADVISORY NO. 3
FOR NORTH INDIAN OCEAN (THE BAY OF BENGAL AND ARABIAN SEA) VALID FOR NEXT 120
HOURS ISSUED AT 2100 UTC OF 30.10.2019 BASED ON 1800 UTC OF 30.10.2019.**

**SUB: (A) SEVERE CYCLONIC STORM 'KYARR' (PRONOUNCED AS KYARR) OVER WESTCENTRAL &
ADJOINING NORTHWEST ARABIAN SEA.
(B) CYCLONIC STORM 'MAHA' (PRONOUNCED AS M'MAHA) OVER LAKSHADWEEP AREA & ADJOINING
MALDIVES AREA**

**(A) SEVERE CYCLONIC STORM 'KYARR' (PRONOUNCED AS KYARR) OVER WESTCENTRAL &
ADJOINING NORTHWEST ARABIAN SEA.**

THE **VERY SEVERE CYCLONIC STORM 'KYARR'** OVER WESTCENTRAL & ADJOINING NORTHWEST ARABIAN SEA MOVED SOUTHWESTWARDS WITH A SPEED OF 10 KMPH DURING PAST 06 HRS AND LAY CENTRED AT 1800 UTC OF 30TH OCTOBER, 2019 OVER WESTCENTRAL & ADJOINING NORTHWEST ARABIAN SEA NEAR LATITUDE 18.7°N AND LONGITUDE 61.0°E, ABOUT 1250 KM WEST-SOUTHWEST OF MUMBAI (43003) (MAHARASHTRA), 750 KM EAST-NORTHEAST OF SALALAH (41316) (OMAN) AND 310 KM EAST-SOUTHEAST OF MASIRAH (41288) (OMAN). IT IS VERY LIKELY TO MOVE WEST-SOUTHWESTWARDS ACROSS WESTCENTRAL ARABIAN SEA DURING NEXT 4 DAYS. IT IS VERY LIKELY TO WEAKEN INTO A CYCLONIC STORM BY 0600 UTC OF 31ST OCTOBER, 2019.

FORECAST TRACK AND INTENSITY ARE GIVEN IN THE FOLLOWING TABLE:

DATE/TIME(UTC)	POSITION (LAT. °N/ LONG. °E)	MAXIMUM SUSTAINED SURFACE WIND SPEED (KMPH)	CATEGORY OF CYCLONIC DISTURBANCE
30.10.19/1800	18.7/61.0	100-110 GUSTING TO 120	SEVERE CYCLONIC STORM
31.10.19/0000	18.4/60.6	95-105 GUSTING TO 115	SEVERE CYCLONIC STORM
31.10.19/0600	18.1/60.3	85-95 GUSTING TO 105	SEVERE CYCLONIC STORM
31.10.19/1200	17.6/59.8	75-85 GUSTING TO 95	CYCLONIC STORM
31.10.19/1800	17.1/59.3	70-80 GUSTING TO 90	CYCLONIC STORM
01.11.19/0600	15.9/57.9	60-70 GUSTING TO 80	DEEP DEPRESSION
01.11.19/1800	14.5/56.1	40-50 GUSTING TO 60	DEPRESSION
02.11.19/0600	13.3/54.0	30-40 GUSTING TO 50	DEPRESSION

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

(B) CYCLONIC STORM 'MAHA' (PRONOUNCED AS M'MAHA) OVER LAKSHADWEEP AREA & ADJOINING MALDIVES AREA

THE CYCLONIC STORM 'MAHA' (PRONOUNCED AS M'MAHA) OVER LAKSHADWEEP AREA & ADJOINING SOUTHEAST ARABIAN SEA & MALDIVES AREA MOVED NORTH-NORTHWESTWARDS WITH A SPEED OF 26 KMPH DURING THE PAST 06 HOURS AND LAY CENTERED AT 1800 UTC OF 30TH OCTOBER, 2019 NEAR LATITUDE 10.2°N AND LONGITUDE 73.3°E OVER LAKSHADWEEP AND ADJOINING SOUTHEAST ARABIAN SEA & MALDIVES AREA, ABOUT 670 KM NEARLY NORTH OF MALE (43555) (MALDIVES), 210 KM NORTH-NORTHEAST OF MINICOY (43369) (LAKSHADWEEP), 80 KM EAST-SOUTHEAST OF KAVARATTI (43337) (LAKSHADWEEP) AND 440 KM WEST-NORTHWEST OF THIRUVANANTHAPURAM (43371) (KERALA). IT IS VERY LIKELY TO CONTINUE TO MOVE NORTHWESTWARDS ACROSS LAKSHADWEEP ISLANDS DURING NEXT 12 HOURS AND THEN EMERGE INTO EASTCENTRAL ARABIAN SEA. IT IS VERY LIKELY TO INTENSIFY INTO A SEVERE CYCLONIC STORM BY 0600UTC OF 31ST OCTOBER OVER LAKSHADWEEP AREA.

FORECAST TRACK AND INTENSITY ARE GIVEN IN THE FOLLOWING TABLE:

DATE/TIME(UTC)	POSITION (LAT. °N/ LONG. °E)	MAXIMUM SUSTAINED SURFACE WIND SPEED (KMPH)	CATEGORY OF CYCLONIC DISTURBANCE
30.10.19/1800	10.2/73.3	70-80 GUSTING TO 90	CYCLONIC STORM
31.10.19/0000	11.0/72.9	75-85 GUSTING TO 95	CYCLONIC STORM
31.10.19/0600	11.9/72.4	85-95 GUSTING TO 105	SEVERE CYCLONIC STORM
31.10.19/1200	12.9/71.8	95-105 GUSTING TO 115	SEVERE CYCLONIC STORM
31.10.19/1800	13.6/71.1	100-110 GUSTING TO 125	SEVERE CYCLONIC STORM
01.11.19/0600	14.9/69.7	110-120 GUSTING TO 135	SEVERE CYCLONIC STORM
01.11.19/1800	15.9/68.5	115-125 GUSTING TO 140	VERY SEVERE CYCLONIC STORM
02.11.19/0600	16.6/67.6	120-130 GUSTING TO 150	VERY SEVERE CYCLONIC STORM
02.11.19/1800	17.0/66.7	130-140 GUSTING TO 160	VERY SEVERE CYCLONIC STORM
03.11.19/0600	17.2/65.7	140-150 GUSTING TO 170	VERY SEVERE CYCLONIC STORM
03.11.19/1800	17.3/64.9	150-160 GUSTING TO 180	VERY SEVERE CYCLONIC STORM
04.11.19/0600	17.4/64.1	160-170 GUSTING TO 190	VERY SEVERE CYCLONIC STORM

REMARKS (A):

AS PER THE SATELLITE IMAGERY AT 1800 UTC OF 30TH OCTOBER, 2019, THE CURRENT INTENSITY OF THE SYSTEM IS T 3.0/CI 4.0. ASSOCIATED BROKEN LOW TO MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION LIES OVER WESTCENTRAL AND ADJOINING EAST CENTRAL ARABIAN SEA BETWEEN LAT 18.50°N TO 23.0°N AND LONG 61.0°E TO 64.0°E. THE MINIMUM CTT IS MINUS 93 DEG C.

THE ESTIMATED MAXIMUM SUSTAINED WIND SPEED IS 60 KNOTS GUSTING TO 70 KNOTS. THE ESTIMATED CENTRAL PRESSURE IS 988 HPA. THE SEA CONDITION IS PHENOMENAL AROUND THE SYSTEM CENTRE. AT 1800 UTC, A SHIP (WHMA) LOCATED NEAR LAT. 18.0°N /57.3°E REPORTED MEAN SEA LEVEL PRESSURE 1006.4 HPA, WIND 50° 15 KNOTS AND SST 28.0°C.

THE MJO LIES IN THE PHASE 4 WITH AMPLITUDE LESS THAN 1. IT WILL REMAIN IN THE SAME PHASE TILL 31ST OCTOBER AND ENTER INTO PHASE 5 WITH AMPLITUDE LESS THAN 1 AND REMAIN THERE FOR SUBSEQUENT TWO DAYS. THE LOW LEVEL RELATIVE VORTICITY IS ABOUT 200 X10⁻⁵ SEC⁻¹ TO THE SOUTH OF THE SYSTEM CENTRE. THE LOWER LEVEL CONVERGENCE IS ABOUT 20 X10⁻⁵S⁻¹ TO THE SOUTH OF THE SYSTEM CENTRE AND THE UPPER LEVEL DIVERGENCE IS ABOUT 20 X10⁻⁵S⁻¹ AROUND THE SYSTEM CENTRE. THE VERTICAL WIND SHEAR IS MODERATE (10-15 KNOTS) OVER THE SYSTEM AREA. SEA SURFACE TEMPERATURE IS AROUND 27-28°C OVER THE SYSTEM AREA WHILE IT IS WARMER (29-30°C) TOWARDS NORTH. TROPICAL CYCLONE HEAT POTENTIAL AROUND THE SYSTEM CENTER OVER WESTCENTRAL ARABIAN SEA IS 20-40 KJ/CM².

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

TOTAL PRECIPITABLE WATER IMAGERIES INDICATE CONTINUED REDUCTION IN WARM AND DRY AIR INCURSION IS TAKING PLACE IN THE SOUTH AND WESTERN SECTORS OF THE SYSTEM CENTRE. EQUATORWARD OUTFLOW IS TAKING PLACE IN THE UPPER TROPOSPHERIC LEVELS. ALL THESE ENVIRONMENTAL, DYNAMIC AND THERMODYNAMIC CONDITIONS INDICATE FURTHER WEAKENING OF THE SYSTEM. THE SYSTEM IS MOST LIKELY TO MOVE IN A WEST-SOUTHWESTWARD DIRECTION ACROSS WEST CENTRAL ARABIAN SEA. MAJORITY OF NUMERICAL MODELS AGREE WITH THE ABOVE INFERENCE.

REMARKS (B):

AS PER THE SATELLITE IMAGERY AT 1800 UTC OF 30TH OCTOBER, 2019, THE CURRENT INTENSITY OF THE SYSTEM IS T 2.5. ASSOCIATED SCATTERED LOW TO MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION LIES OVER COMORIN AND ADJOINING AREAS BETWEEN LAT 6.5⁰N TO 11.5⁰N AND LONG 70.5⁰E TO 74.5⁰E. THE MINIMUM CTT IS MINUS 93⁰C.

THE ESTIMATED MAXIMUM SUSTAINED WIND SPEED IS 40 KNOTS GUSTING TO 50 KNOTS. THE ESTIMATED CENTRAL PRESSURE IS 996 HPA. THE SEA CONDITION IS ROUGH TO VERY ROUGH AROUND THE SYSTEM CENTRE. AT 1800 UTC, MINICOY (43369) REPORTED MEAN SEA LEVEL PRESSURE 1009.3 HPA AND WIND 320⁰ /10 KNOTS. A BUOY (23454) LOCATED NEAR LAT. 10.3⁰N / 72.6⁰E REPORTED WIND 290⁰/ 20 KNOTS AND SST 28.7⁰C.

THE LOW LEVEL RELATIVE VORTICITY IS ABOUT 150 X10⁻⁵ SEC⁻¹ SOUTH OF THE SYSTEM CENTRE. POSITIVE VORTICITY FIELD IS SEEN UPTO 500 HPA LEVEL. THE RIDGE OVER THE SYSTEM AREA RUNS ROUGHLY ALONG 15⁰N. THE LOWER LEVEL CONVERGENCE IS ABOUT 30 X10⁻⁵S⁻¹ OVER THE SYSTEM CENTRE AND THE UPPER LEVEL DIVERGENCE IS ABOUT 20 X10⁻⁵S⁻¹ OVER THE SYSTEM CENTRE. THE VERTICAL WIND SHEAR IS MODERATE TO HIGH (15-20 KNOTS) OVER THE SYSTEM AREA. SEA SURFACE TEMPERATURE IS AROUND 29-30⁰C AROUND THE SYSTEM AREA AND IS DECREASING IN THE FORECAST DIRECTION . TROPICAL CYCLONE HEAT POTENTIAL IS AROUND 100-120 KJ/CM² OVER THE THE SYSTEM AREA AND DECREASES IN THE FORECAST DIRCTION OF THE SYSTEM.

AS THE SYSTEM IS LYING IN A FAVOURABLE ENVIRONMENT, IT IS VERY LIKELY TO INTENSIFY INTO A SEVERE CYCLONIC STORM DURING NEXT 12 HOURS WHILE MOVING IN A NORTHWEST DIRECTION. MOST OF THE NWP MODELS ARE IN AGREEMENT WITH THIS OBSERVATION.

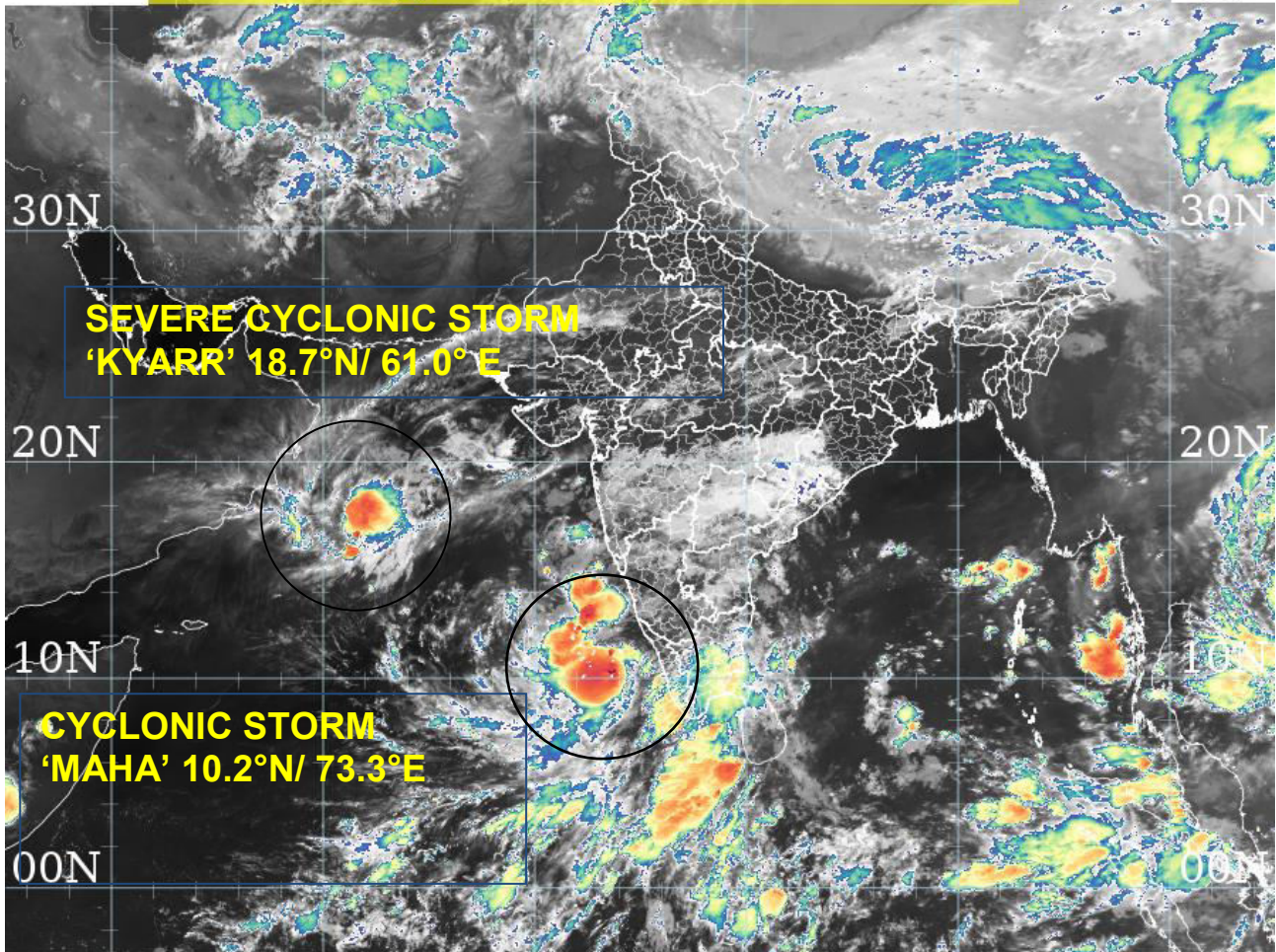
(ANANDA KUMAR DAS)
SCIENTIST-E, RSMC, NEW DELHI

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

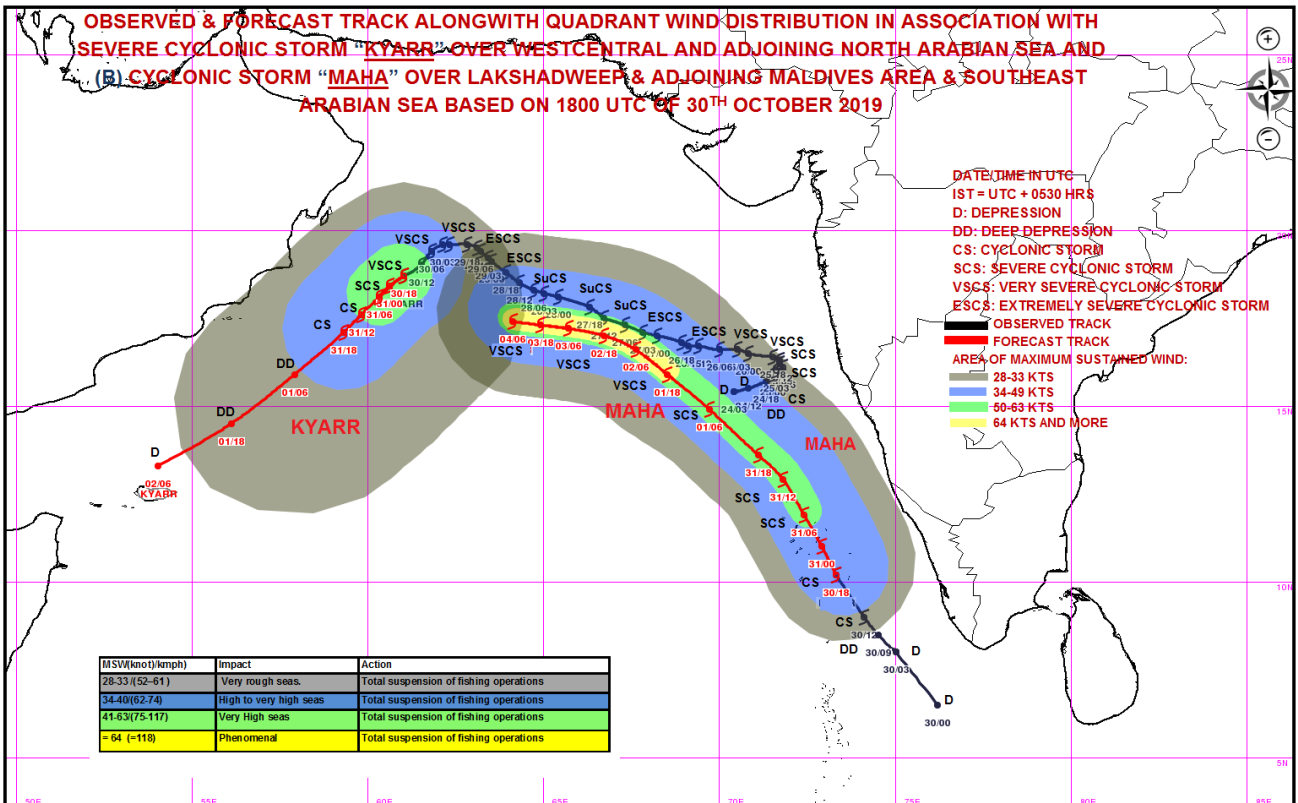
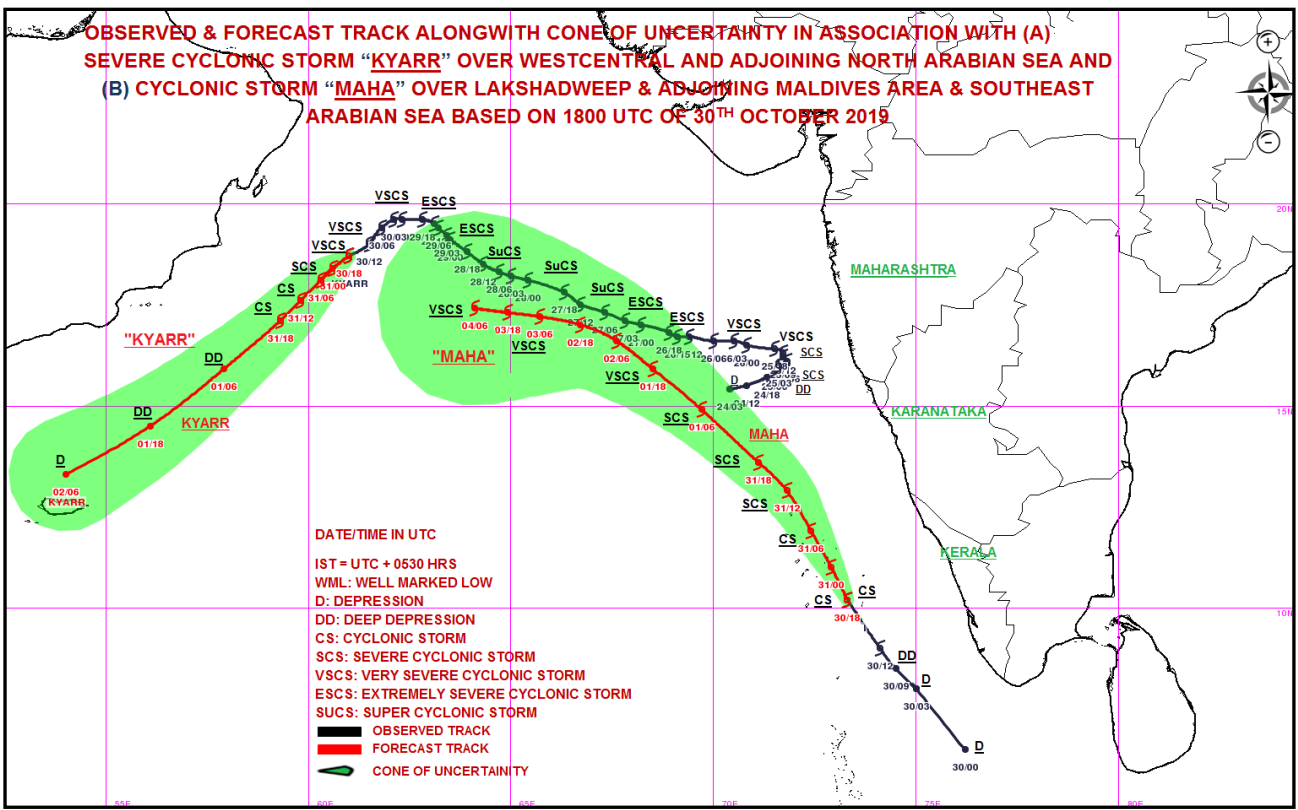
NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%



60E 70E 80E 90E 10
MSG-1: SEVIRI [colorized_ir_clouds]
20191030_2100UTC



PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)
NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%



PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)
 NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%



**REGIONAL SPECIALISED METEOROLOGICAL CENTRE-TROPICAL CYCLONES, NEW DELHI
TROPICAL CYCLONE ADVISORY BULLETIN NO. 48 & TROPICAL CYCLONE ADVISORY
BULLETIN NO. 4**

FROM: RSMC –TROPICAL CYCLONES, NEW DELHI

**TO: STORM WARNING CENTRE, NAYPYI TAW (MYANMAR)
STORM WARNING CENTRE, BANGKOK (THAILAND)
STORM WARNING CENTRE, COLOMBO (SRILANKA)
STORM WARNING CENTRE, DHAKA (BANGLADESH)
STORM WARNING CENTRE, KARACHI (PAKISTAN)
METEOROLOGICAL OFFICE, MALE (MALDIVES)
OMAN METEOROLOGICAL DEPARTMENT, MUSCAT (THROUGH RTH JEDDAH)
YEMEN METEOROLOGICAL SERVICES, REPUBLIC OF YEMEN (THROUGH RTH JEDDAH)
NATIONAL CENTRE FOR METEOROLOGY, UAE (THROUGH RTH JEDDAH)
PRESIDENCY OF METEOROLOGY AND ENVIRONMENT, SAUDI ARABIA (THROUGH RTH JEDDAH)
IRAN METEOROLOGICAL ORGANISATION, (THROUGH RTH JEDDAH)
QATAR METEOROLOGICAL DEPARTMENT (THROUGH RTH JEDDAH)**

**TROPICAL CYCLONE ADVISORY No. 48 & TROPICAL CYCLONE ADVISORY NO. 4
FOR NORTH INDIAN OCEAN (THE BAY OF BENGAL AND ARABIAN SEA) VALID FOR NEXT 120
HOURS ISSUED AT 0100 UTC OF 31.10.2019 BASED ON 2100 UTC OF 30.10.2019.**

SUB:

**(A) SEVERE CYCLONIC STORM 'KYARR' (PRONOUNCED AS KYARR) OVER WESTCENTRAL ARABIAN SEA.
(B) CYCLONIC STORM 'MAHA' (PRONOUNCED AS M'MAHA) OVER LAKSHADWEEP AREA AND ADJOINING
SOUTHEAST ARABIAN SEA**

**(A) SEVERE CYCLONIC STORM 'KYARR' (PRONOUNCED AS KYARR) OVER WESTCENTRAL
ARABIAN SEA.**

THE **SEVERE CYCLONIC STORM 'KYARR'** OVER WESTCENTRAL & ADJOINING NORTHWEST ARABIAN SEA MOVED SOUTHWESTWARDS WITH A SPEED OF 11 KMPH DURING PAST 06 HRS AND LAY CENTRED AT 2100 UTC OF 30TH OCTOBER, 2019 OVER WESTCENTRAL ARABIAN SEA NEAR LATITUDE 18.5°N AND LONGITUDE 60.7°E, ABOUT 1280 KM WEST-SOUTHWEST OF MUMBAI (43003) (MAHARASHTRA), 720 KM EAST-NORTHEAST OF SALALAH (41316) (OMAN) AND 300 KM SOUTHEAST OF MASIRAH (41288) (OMAN). IT IS VERY LIKELY TO MOVE WEST-SOUTHWESTWARDS ACROSS WESTCENTRAL ARABIAN SEA DURING NEXT 3 DAYS. IT IS VERY LIKELY TO WEAKEN INTO A CYCLONIC STORM BY 0600 UTC OF 31ST OCTOBER, 2019.

FORECAST TRACK AND INTENSITY ARE GIVEN IN THE FOLLOWING TABLE:

DATE/TIME(UTC)	POSITION (LAT. °N/ LONG. °E)	MAXIMUM SUSTAINED SURFACE WIND SPEED (KMPH)	CATEGORY OF CYCLONIC DISTURBANCE
30.10.19/2100	18.5/60.7	95-105 GUSTING TO 115	SEVERE CYCLONIC STORM
31.10.19/0000	18.4/60.6	90-100 GUSTING TO 110	SEVERE CYCLONIC STORM
31.10.19/0600	18.1/60.3	85-95 GUSTING TO 105	SEVERE CYCLONIC STORM
31.10.19/1200	17.6/59.8	75-85 GUSTING TO 95	CYCLONIC STORM
31.10.19/1800	17.1/59.3	70-80 GUSTING TO 90	CYCLONIC STORM
01.11.19/0600	15.9/57.9	60-70 GUSTING TO 80	DEEP DEPRESSION
01.11.19/1800	14.5/56.1	40-50 GUSTING TO 60	DEPRESSION
02.11.19/0600	13.3/54.0	30-40 GUSTING TO 50	DEPRESSION

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

(B) CYCLONIC STORM 'MAHA' (PRONOUNCED AS M'MAHA) OVER LAKSHADWEEP AREA AND ADJOINING SOUTHEAST ARABIAN SEA

THE CYCLONIC STORM 'MAHA' (PRONOUNCED AS M'MAHA) OVER LAKSHADWEEP AREA & ADJOINING SOUTHEAST ARABIAN SEA & MALDIVES AREA MOVED NORTH-NORTHWESTWARDS WITH A SPEED OF 22 KMPH DURING THE PAST 06 HOURS AND LAY CENTERED AT 2100 UTC OF 30TH OCTOBER, 2019 NEAR LATITUDE 10.6°N AND LONGITUDE 73.1°E OVER LAKSHADWEEP AREA AND ADJOINING SOUTHEAST ARABIAN SEA, ABOUT 710 KM NORTH-NORTHWEST OF MALE (43555) (MALDIVES), 250 KM NEARLY NORTH OF MINICOY (43369) (LAKSHADWEEP), 50 KM EAST OF KAVARATTI (43337) (LAKSHADWEEP) AND 480 KM NORTH-NORTHWEST OF THIRUVANANTHAPURAM (43371) (KERALA). IT IS VERY LIKELY TO CONTINUE TO MOVE NORTHWESTWARDS ACROSS LAKSHADWEEP ISLANDS DURING NEXT 12 HOURS AND THEN EMERGE INTO EASTCENTRAL ARABIAN SEA. IT IS VERY LIKELY TO INTENSIFY INTO A SEVERE CYCLONIC STORM BY 0600UTC OF 31ST OCTOBER OVER LAKSHADWEEP AREA.

FORECAST TRACK AND INTENSITY ARE GIVEN IN THE FOLLOWING TABLE:

DATE/TIME(UTC)	POSITION (LAT. °N/ LONG. °E)	MAXIMUM SUSTAINED SURFACE WIND SPEED (KMPH)	CATEGORY OF CYCLONIC DISTURBANCE
30.10.19/2100	10.6/73.1	75-85 GUSTING TO 95	CYCLONIC STORM
31.10.19/0000	11.0/72.9	80-90 GUSTING TO 100	CYCLONIC STORM
31.10.19/0600	11.9/72.4	85-95 GUSTING TO 105	SEVERE CYCLONIC STORM
31.10.19/1200	12.9/71.8	95-105 GUSTING TO 115	SEVERE CYCLONIC STORM
31.10.19/1800	13.6/71.1	100-110 GUSTING TO 125	SEVERE CYCLONIC STORM
01.11.19/0600	14.9/69.7	110-120 GUSTING TO 135	SEVERE CYCLONIC STORM
01.11.19/1800	15.9/68.5	115-125 GUSTING TO 140	VERY SEVERE CYCLONIC STORM
02.11.19/0600	16.6/67.6	120-130 GUSTING TO 150	VERY SEVERE CYCLONIC STORM
02.11.19/1800	17.0/66.7	130-140 GUSTING TO 160	VERY SEVERE CYCLONIC STORM
03.11.19/0600	17.2/65.7	140-150 GUSTING TO 170	VERY SEVERE CYCLONIC STORM
03.11.19/1800	17.3/64.9	150-160 GUSTING TO 180	VERY SEVERE CYCLONIC STORM
04.11.19/0600	17.4/64.1	160-170 GUSTING TO 190	VERY SEVERE CYCLONIC STORM

REMARKS (A):

AS PER THE SATELLITE IMAGERY AT 2100 UTC OF 30TH OCTOBER, 2019, THE CURRENT INTENSITY OF THE SYSTEM IS T 3.0/3.5. ASSOCIATED BROKEN LOW TO MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION LIES OVER WESTCENTRAL AND ADJOINING EAST CENTRAL ARABIAN SEA BETWEEN LAT 18.50°N TO 23.0°N AND LONG 61.0°E TO 64.0°E. THE MINIMUM CTT IS MINUS 93 DEG C.

THE ESTIMATED MAXIMUM SUSTAINED WIND SPEED IS 60 KNOTS GUSTING TO 70 KNOTS. THE ESTIMATED CENTRAL PRESSURE IS 988 HPA. THE SEA CONDITION IS VERY HIGH AROUND THE SYSTEM CENTRE.

THE MJO LIES IN THE PHASE 4 WITH AMPLITUDE LESS THAN 1. IT WILL REMAIN IN THE SAME PHASE TILL 31ST OCTOBER AND ENTER INTO PHASE 5 WITH AMPLITUDE LESS THAN 1 AND REMAIN THERE FOR SUBSEQUENT TWO DAYS. THE LOW LEVEL RELATIVE VORTICITY IS ABOUT $200 \times 10^{-5} \text{ SEC}^{-1}$ TO THE SOUTH OF THE SYSTEM CENTRE. THE LOWER LEVEL CONVERGENCE IS ABOUT $10 \times 10^{-5} \text{ S}^{-1}$ TO THE SOUTH OF THE SYSTEM CENTRE AND THE UPPER LEVEL DIVERGENCE IS ABOUT $20 \times 10^{-5} \text{ S}^{-1}$ AROUND THE SYSTEM CENTRE. THE VERTICAL WIND SHEAR IS MODERATE (10-15 KNOTS) OVER THE SYSTEM AREA. SEA SURFACE TEMPERATURE IS AROUND 27-28°C OVER THE SYSTEM AREA. TROPICAL CYCLONE HEAT POTENTIAL AROUND THE SYSTEM CENTER OVER WESTCENTRAL ARABIAN SEA IS 20-40 KJ/CM².

TOTAL PRECIPITABLE WATER IMAGERIES INDICATE CONTINUED INCREASE IN DRY AIR INCURSION IN THE SOUTH AND WESTERN SECTORS OF THE SYSTEM ALTHOUGH EQUATORWARD OUTFLOW IS TAKING PLACE IN THE UPPER TROPOSPHERIC LEVELS.

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

ALL THESE ENVIRONMENTAL, DYNAMIC AND THERMODYNAMIC CONDITIONS INDICATE FURTHER WEAKENING OF THE SYSTEM. THE SYSTEM IS MOST LIKELY TO MOVE IN A WEST-SOUTHWESTWARD DIRECTION ACROSS WEST CENTRAL ARABIAN SEA. MAJORITY OF NUMERICAL MODELS AGREE WITH THE ABOVE INFERENCE.

REMARKS (B):

AS PER THE SATELLITE IMAGERY AT 2100 UTC OF 30TH OCTOBER, 2019, THE CURRENT INTENSITY OF THE SYSTEM IS T 2.5. ASSOCIATED SCATTERED LOW TO MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION LIES OVER COMORIN AND ADJOINING AREAS BETWEEN LAT 6.5⁰N TO 11.5⁰N AND LONG 70.5⁰E TO 74.5⁰E. THE MINIMUM CTT IS MINUS 93⁰C.

THE ESTIMATED MAXIMUM SUSTAINED WIND SPEED IS 40 KNOTS GUSTING TO 50 KNOTS. THE ESTIMATED CENTRAL PRESSURE IS 996 HPA. THE SEA CONDITION IS ROUGH TO VERY ROUGH AROUND THE SYSTEM CENTRE. AT 2100 UTC, AMINIDIVI (43311) REPORTED MEAN SEA LEVEL PRESSURE 1005.0 HPA AND WIND 25⁰ /18 KNOTS.

THE LOW LEVEL RELATIVE VORTICITY IS ABOUT $150 \times 10^{-5} \text{ SEC}^{-1}$ SOUTH OF THE SYSTEM CENTRE. POSITIVE VORTICITY FIELD IS SEEN UPTO 500 HPA LEVEL. THE RIDGE OVER THE SYSTEM AREA RUNS ROUGHLY ALONG 15⁰N. THE LOWER LEVEL CONVERGENCE IS ABOUT $20 \times 10^{-5} \text{ S}^{-1}$ OVER THE SYSTEM CENTRE AND THE UPPER LEVEL DIVERGENCE IS ABOUT $40 \times 10^{-5} \text{ S}^{-1}$ OVER THE SYSTEM CENTRE. THE VERTICAL WIND SHEAR IS MODERATE TO HIGH (15-20 KNOTS) OVER THE SYSTEM AREA. SEA SURFACE TEMPERATURE IS AROUND 29-30°C AROUND THE SYSTEM AREA AND SHOWS GRADUAL REDUCTION IN THE FORECAST DIRECTION . TROPICAL CYCLONE HEAT POTENTIAL IS AROUND 100-120 KJ/CM² OVER THE THE SYSTEM AREA AND DECREASES IN THE FORECAST DIRCTION OF THE SYSTEM.

AS THE SYSTEM IS LYING IN A FAVOURABLE ENVIRONMENT, IT IS VERY LIKELY TO INTENSIFY INTO A SEVERE CYCLONIC STORM DURING NEXT 12 HOURS WHILE MOVING IN A NORTHWEST DIRECTION. MOST OF THE NWP MODELS ARE IN AGREEMENT WITH THIS OBSERVATION.

(ANANDA KUMAR DAS)
SCIENTIST-E, RSMC, NEW DELHI

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

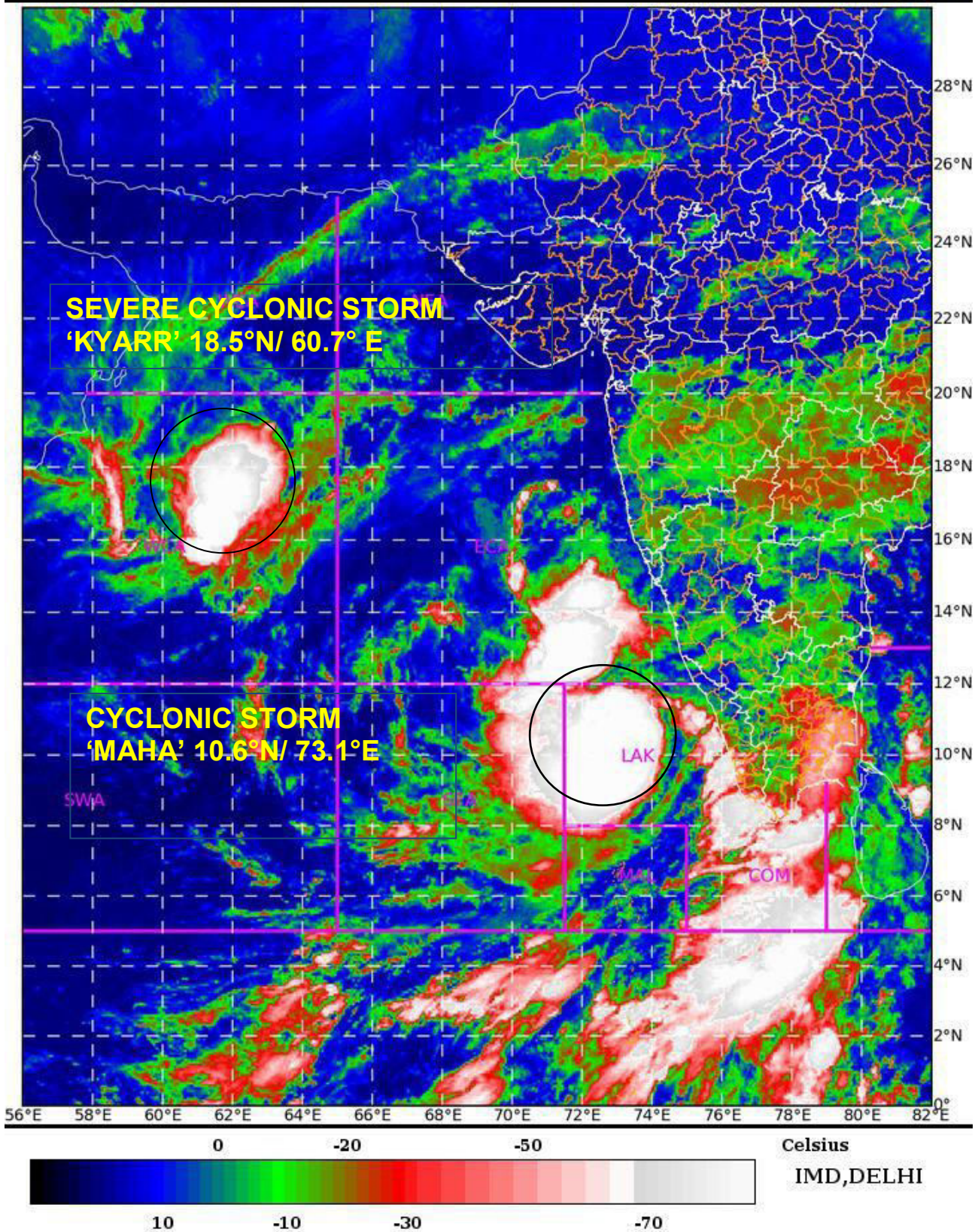
NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

SAT : INSAT-3D IMG 30-10-2019/(2230 to 2256) GMT

IMG_TIR1_TEMP 10.8 um 31-10-2019/(0400 to 0426) IST

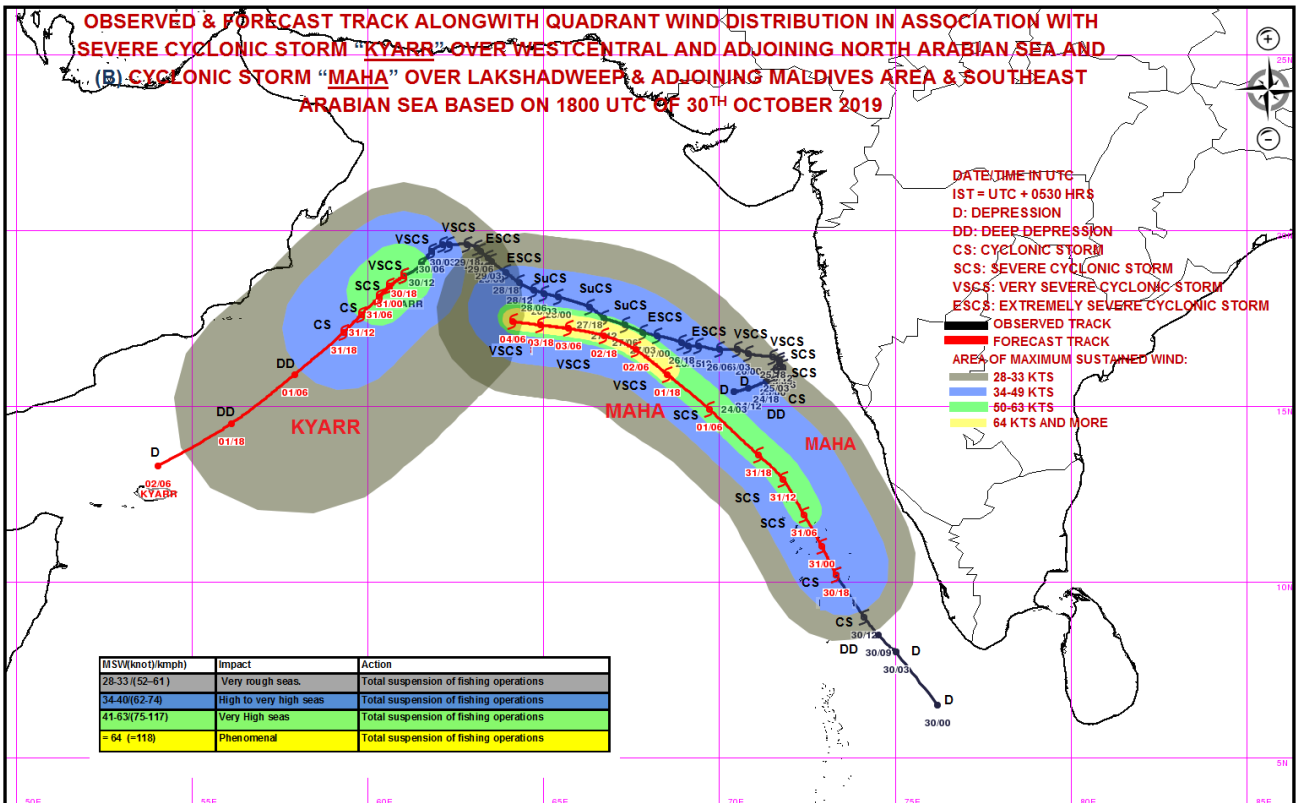
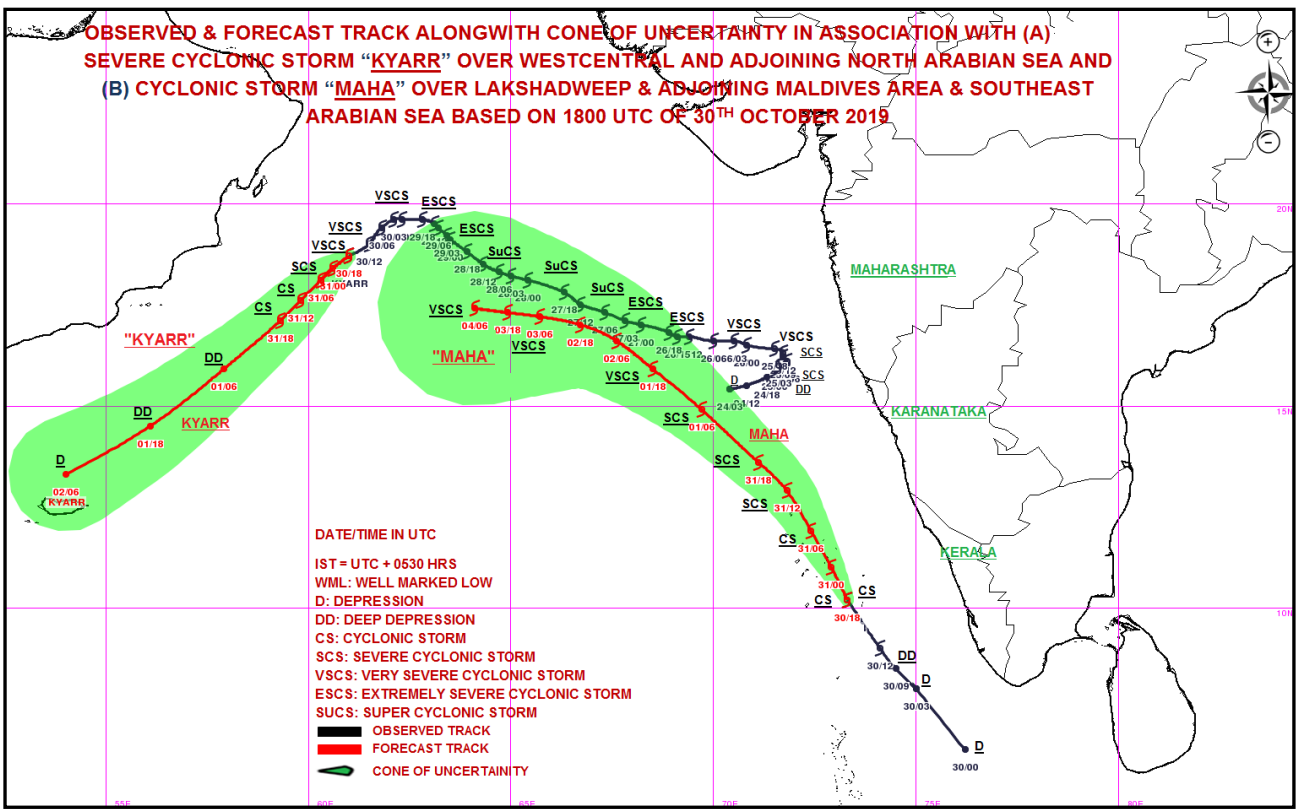


ARABIAN_SEA



PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%



PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)
 NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%



**REGIONAL SPECIALISED METEOROLOGICAL CENTRE-TROPICAL CYCLONES, NEW DELHI
TROPICAL CYCLONE ADVISORY BULLETIN NO. 49 & TROPICAL CYCLONE ADVISORY
BULLETIN NO. 5**

FROM: RSMC –TROPICAL CYCLONES, NEW DELHI

**TO: STORM WARNING CENTRE, NAYPYI TAW (MYANMAR)
STORM WARNING CENTRE, BANGKOK (THAILAND)
STORM WARNING CENTRE, COLOMBO (SRILANKA)
STORM WARNING CENTRE, DHAKA (BANGLADESH)
STORM WARNING CENTRE, KARACHI (PAKISTAN)
METEOROLOGICAL OFFICE, MALE (MALDIVES)
OMAN METEOROLOGICAL DEPARTMENT, MUSCAT (THROUGH RTH JEDDAH)
YEMEN METEOROLOGICAL SERVICES, REPUBLIC OF YEMEN (THROUGH RTH JEDDAH)
NATIONAL CENTRE FOR METEOROLOGY, UAE (THROUGH RTH JEDDAH)
PRESIDENCY OF METEOROLOGY AND ENVIRONMENT, SAUDI ARABIA (THROUGH RTH JEDDAH)
IRAN METEOROLOGICAL ORGANISATION, (THROUGH RTH JEDDAH)
QATAR METEOROLOGICAL DEPARTMENT (THROUGH RTH JEDDAH)**

**TROPICAL CYCLONE ADVISORY No. 49 & TROPICAL CYCLONE ADVISORY NO. 5
FOR NORTH INDIAN OCEAN (THE BAY OF BENGAL AND ARABIAN SEA) VALID FOR NEXT 120
HOURS ISSUED AT 0300 UTC OF 31.10.2019 BASED ON 0000 UTC OF 31.10.2019.**

SUB:

**(A) SEVERE CYCLONIC STORM 'KYARR' (PRONOUNCED AS KYARR) OVER WESTCENTRAL ARABIAN SEA.
(B) CYCLONIC STORM 'MAHA' (PRONOUNCED AS M'MAHA) OVER LAKSHADWEEP AREA AND ADJOINING
SOUTHEAST ARABIAN SEA**

**(A) SEVERE CYCLONIC STORM 'KYARR' (PRONOUNCED AS KYARR) OVER WESTCENTRAL
ARABIAN SEA.**

THE **SEVERE CYCLONIC STORM 'KYARR'** OVER WESTCENTRAL AND ADJOINING NORTHWEST ARABIAN SEA MOVED SOUTHWESTWARDS WITH A SPEED OF 13 KMPH DURING PAST 06 HRS AND LAY CENTRED AT 0000 UTC OF 31ST OCTOBER, 2019 OVER WESTCENTRAL ARABIAN SEA NEAR LATITUDE 18.4°N AND LONGITUDE 60.3°E, ABOUT 1320 KM WEST-SOUTHWEST OF MUMBAI (43003) (MAHARASHTRA), 680 KM EAST-NORTHEAST OF SALALAH (41316) (OMAN) AND 290 KM SOUTHEAST OF MASIRAH (41288) (OMAN). IT IS VERY LIKELY TO MOVE SOUTHWESTWARDS ACROSS WESTCENTRAL ARABIAN SEA DURING NEXT 3 DAYS. IT IS VERY LIKELY TO WEAKEN INTO A CYCLONIC STORM BY 0600 UTC OF 31ST OCTOBER, 2019.

FORECAST TRACK AND INTENSITY ARE GIVEN IN THE FOLLOWING TABLE:

Date/Time(UTC)	Position (Lat. °N/ long. °E)	Maximum sustained surface wind speed (Kmph)	Category of cyclonic disturbance
31.10.19/0000	18.4/60.3	85-95 gusting to 105	Severe Cyclonic Storm
31.10.19/0600	18.1/60.1	80-90 gusting to 100	Severe Cyclonic Storm
31.10.19/1200	17.6/59.8	70-80 gusting to 90	Cyclonic Storm
31.10.19/1800	17.1/59.3	60-70 gusting to 80	Cyclonic Storm
01.11.19/0000	15.9/57.9	50-60 gusting to 70	Deep Depression
01.11.19/1200	14.5/56.1	40-50 gusting to 60	Depression
02.11.19/0000	13.3/54.0	30-40 gusting to 50	Depression
02.11.19/1200	13.3/54.0	20-30 gusting to 40	Low

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

(B) CYCLONIC STORM 'MAHA' (PRONOUNCED AS M'MAHA) OVER LAKSHADWEEP AREA AND ADJOINING SOUTHEAST ARABIAN SEA

THE **CYCLONIC STORM 'MAHA' (PRONOUNCED AS M'MAHA)** OVER LAKSHADWEEP AREA & ADJOINING SOUTHEAST ARABIAN SEA MOVED NORTH-NORTHWESTWARDS WITH A SPEED OF 15 KMPH DURING THE PAST 06 HOURS AND LAY CENTERED AT 0000 UTC OF 31ST OCTOBER, 2019 NEAR LATITUDE 11.0°N AND LONGITUDE 73.0°E OVER LAKSHADWEEP AREA AND ADJOINING SOUTHEAST ARABIAN SEA, ABOUT 30 KM EAST-SOUTHEAST OF AMINI DIVI(43311), 60 KM NORTH-NORTHEAST OF KAVARATTI (43337), 300 KM NORTH OF MINICOY (43369) AND 300 KM WEST-SOUTHWEST OF KOZHIKODE (43314). IT IS VERY LIKELY TO CONTINUE TO MOVE NORTH-NORTHWESTWARDS ACROSS LAKSHADWEEP ISLANDS DURING NEXT 12 HOURS. THEN, IT IS VERY LIKELY TO MOVE NORTHWESTWARDS, EMERGE INTO EASTCENTRAL ARABIAN SEA DURING SUBSEQUENT 12 HOURS AND THEREAFTER MOVE WEST-NORTHWESTWARDS. IT IS VERY LIKELY TO INTENSIFY INTO A SEVERE CYCLONIC STORM DURING NEXT 06 HOURS OVER LAKSHADWEEP AREA AND INTO A VERY SEVERE CYCLONIC STORM OVER EAST CENTRAL ARABIAN SEA DURING SUBSEQUENT 24 HOURS.

Date/Time(UTC)	Position (Lat. °N/ long. °E)	Maximum sustained surface wind speed (Kmph)	Category of cyclonic disturbance
31.10.19/0000	11.0/73.0	80-90 gusting to 100	Cyclonic Storm
31.10.19/0600	11.8/72.6	90-100 gusting to 110	Severe Cyclonic Storm
31.10.19/1200	12.6/72.2	100-110 gusting to 120	Severe Cyclonic Storm
31.10.19/1800	13.5/71.6	110-120 gusting to 135	Severe Cyclonic Storm
01.11.19/0000	14.3/71.1	120-130 gusting to 145	Very Severe Cyclonic Storm
01.11.19/1200	15.4/69.6	120-130 gusting to 145	Very Severe Cyclonic Storm
02.11.19/0000	16.2/68.4	130-140 gusting to 155	Very Severe Cyclonic Storm
02.11.19/1200	16.8/67.1	130-140 gusting to 155	Very Severe Cyclonic Storm
03.11.19/0000	17.2/65.9	140-150 gusting to 170	Very Severe Cyclonic Storm
03.11.19/1200	17.3/64.8	140-150 gusting to 170	Very Severe Cyclonic Storm
04.11.19/0000	17.3/63.2	150-160 gusting to 180	Very Severe Cyclonic Storm
04.11.19/1200	17.4/61.8	150-160 gusting to 180	Very Severe Cyclonic Storm

FORECAST TRACK AND INTENSITY ARE GIVEN IN THE FOLLOWING TABLE:

REMARKS (A):

AS PER THE SATELLITE IMAGERY AT 0000 UTC OF 31ST OCTOBER, 2019, THE CURRENT INTENSITY OF THE SYSTEM IS T 2.5/3.0. ASSOCIATED BROKEN LOW TO MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION LIES OVER WESTCENTRAL AND ADJOINING EAST CENTRAL ARABIAN SEA BETWEEN LAT 14.50°N TO 19.5°N AND LONG 59.5°E TO 63.5°E. THE MINIMUM CTT IS MINUS 93 DEG C.

THE ESTIMATED MAXIMUM SUSTAINED WIND SPEED IS 50 KNOTS GUSTING TO 60 KNOTS. THE ESTIMATED CENTRAL PRESSURE IS 988 HPA. THE SEA CONDITION IS VERY HIGH AROUND THE SYSTEM CENTRE.

THE MJO LIES IN THE PHASE 4 WITH AMPLITUDE LESS THAN 1. IT WILL REMAIN IN THE SAME PHASE TILL 31ST OCTOBER AND ENTER INTO PHASE 5 WITH AMPLITUDE LESS THAN 1 AND REMAIN THERE FOR SUBSEQUENT TWO DAYS. THE LOW LEVEL RELATIVE VORTICITY IS ABOUT $200 \times 10^{-5} \text{ SEC}^{-1}$ AROUND THE SYSTEM CENTRE. THE LOWER LEVEL CONVERGENCE IS ABOUT $30 \times 10^{-5} \text{ S}^{-1}$ AROUND THE SYSTEM CENTRE AND THE UPPER LEVEL DIVERGENCE IS ABOUT $30 \times 10^{-5} \text{ S}^{-1}$ TO THE SOUTHWEST OF THE SYSTEM CENTRE. THE VERTICAL WIND SHEAR IS MODERATE (10-15 KNOTS) OVER THE SYSTEM AREA. SEA SURFACE TEMPERATURE IS AROUND 27-28°C OVER THE SYSTEM AREA. TROPICAL

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

CYCLONE HEAT POTENTIAL AROUND THE SYSTEM CENTER OVER WESTCENTRAL ARABIAN SEA IS 20-40 KJ/CM².

TOTAL PRECIPITABLE WATER IMAGERIES INDICATE CONTINUED INCREASE IN DRY AIR INCURSION IN THE SOUTH AND WESTERN SECTORS OF THE SYSTEM ALTHOUGH EQUATORWARD OUTFLOW IS TAKING PLACE IN THE UPPER TROPOSPHERIC LEVELS. ALL THESE ENVIRONMENTAL, DYNAMIC AND THERMODYNAMIC CONDITIONS INDICATE FURTHER WEAKENING OF THE SYSTEM. THE SYSTEM IS MOST LIKELY TO MOVE IN A WEST-SOUTHWESTWARD DIRECTION ACROSS WEST CENTRAL ARABIAN SEA. MAJORITY OF NUMERICAL MODELS AGREE WITH THE ABOVE INFERENCE.

REMARKS (B):

AS PER THE SATELLITE IMAGERY AT 0000 UTC OF 31ST OCTOBER, 2019, THE CURRENT INTENSITY OF THE SYSTEM IS T 3.0. ASSOCIATED SCATTERED LOW TO MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION LIES OVER COMORIN AND ADJOINING AREAS BETWEEN LAT 7.5⁰N TO 14.5⁰N AND LONG 68.5⁰E TO 74.5⁰E. THE MINIMUM CTT IS MINUS 93⁰C.

THE ESTIMATED MAXIMUM SUSTAINED WIND SPEED IS 45 KNOTS GUSTING TO 55 KNOTS. THE ESTIMATED CENTRAL PRESSURE IS 996 HPA. THE SEA CONDITION IS ROUGH TO VERY ROUGH AROUND THE SYSTEM CENTRE. AT 0000 UTC, AMINIDIVI (43311) REPORTED MEAN SEA LEVEL PRESSURE 1002.8 HPA AND WIND 27⁰ /40 KNOTS.

THE LOW LEVEL RELATIVE VORTICITY IS ABOUT 150 X10⁻⁵ SEC⁻¹ SOUTH OF THE SYSTEM CENTRE. POSITIVE VORTICITY FIELD IS SEEN UPTO 500 HPA LEVEL. THE RIDGE OVER THE SYSTEM AREA RUNS ROUGHLY ALONG 15⁰N. THE LOWER LEVEL CONVERGENCE IS ABOUT 30 X10⁻⁵S⁻¹ OVER THE SYSTEM CENTRE AND THE UPPER LEVEL DIVERGENCE IS ABOUT 30 X10⁻⁵S⁻¹ TO THE SOUTHWEST OF THE SYSTEM CENTRE. THE VERTICAL WIND SHEAR IS MODERATE TO HIGH (15-20 KNOTS) OVER THE SYSTEM AREA. SEA SURFACE TEMPERATURE IS AROUND 29-30⁰C AROUND THE SYSTEM AREA AND SHOWS GRADUAL REDUCTION IN THE FORECAST DIRECTION . TROPICAL CYCLONE HEAT POTENTIAL IS AROUND 100-120 KJ/CM² OVER THE THE SYSTEM AREA AND DECREASES IN THE FORECAST DIRCTION OF THE SYSTEM.

AS THE SYSTEM IS LYING IN A FAVOURABLE ENVIRONMENT, IT IS VERY LIKELY TO INTENSIFY INTO A SEVERE CYCLONIC STORM DURING NEXT 06 HOURS WHILE MOVING IN A NORTHWEST DIRECTION. MOST OF THE NWP MODELS ARE IN AGREEMENT WITH THIS OBSERVATION.

(RK JENAMANI)
SCIENTIST-F, RSMC, NEW DELHI

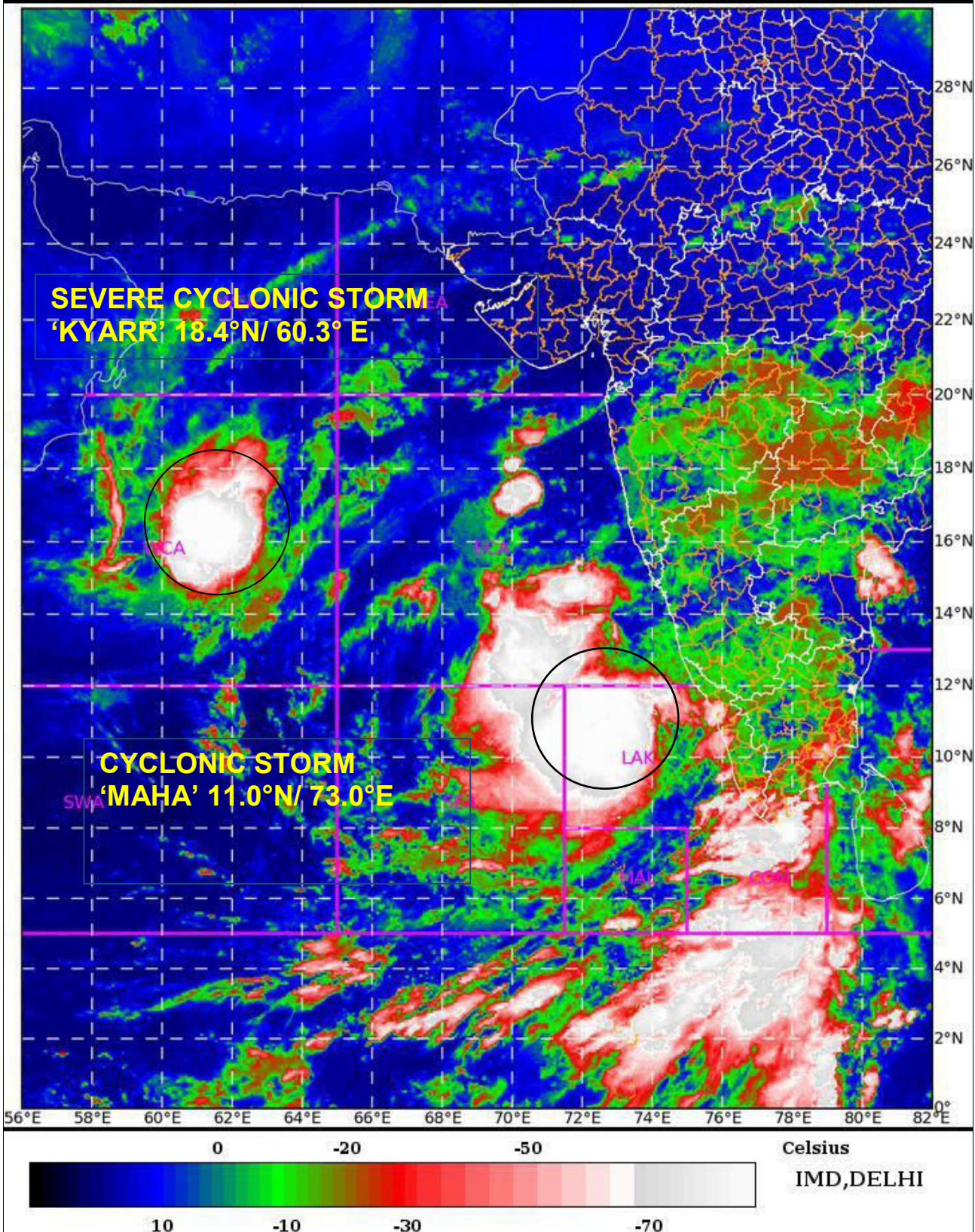
PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

SAT : INSAT-3D IMG 31-10-2019/(0100 to 0126) GMT

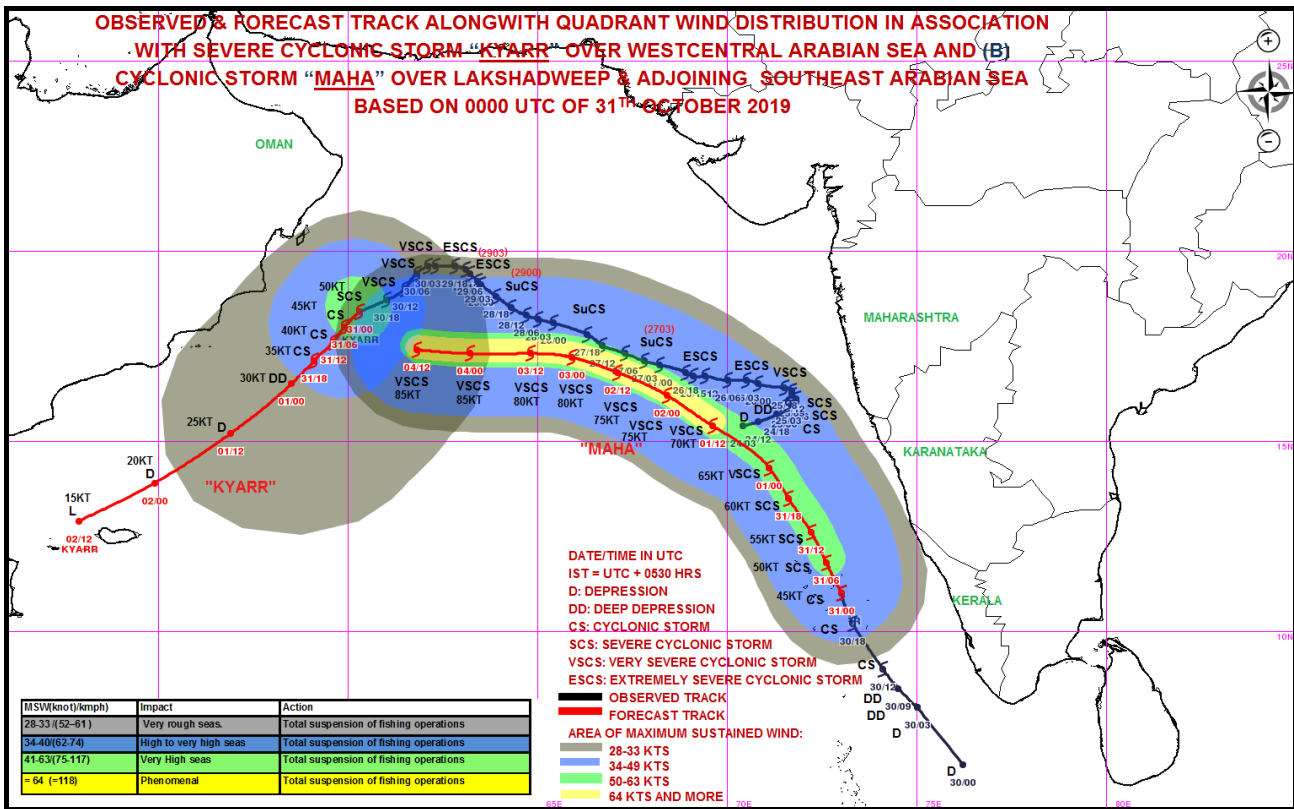
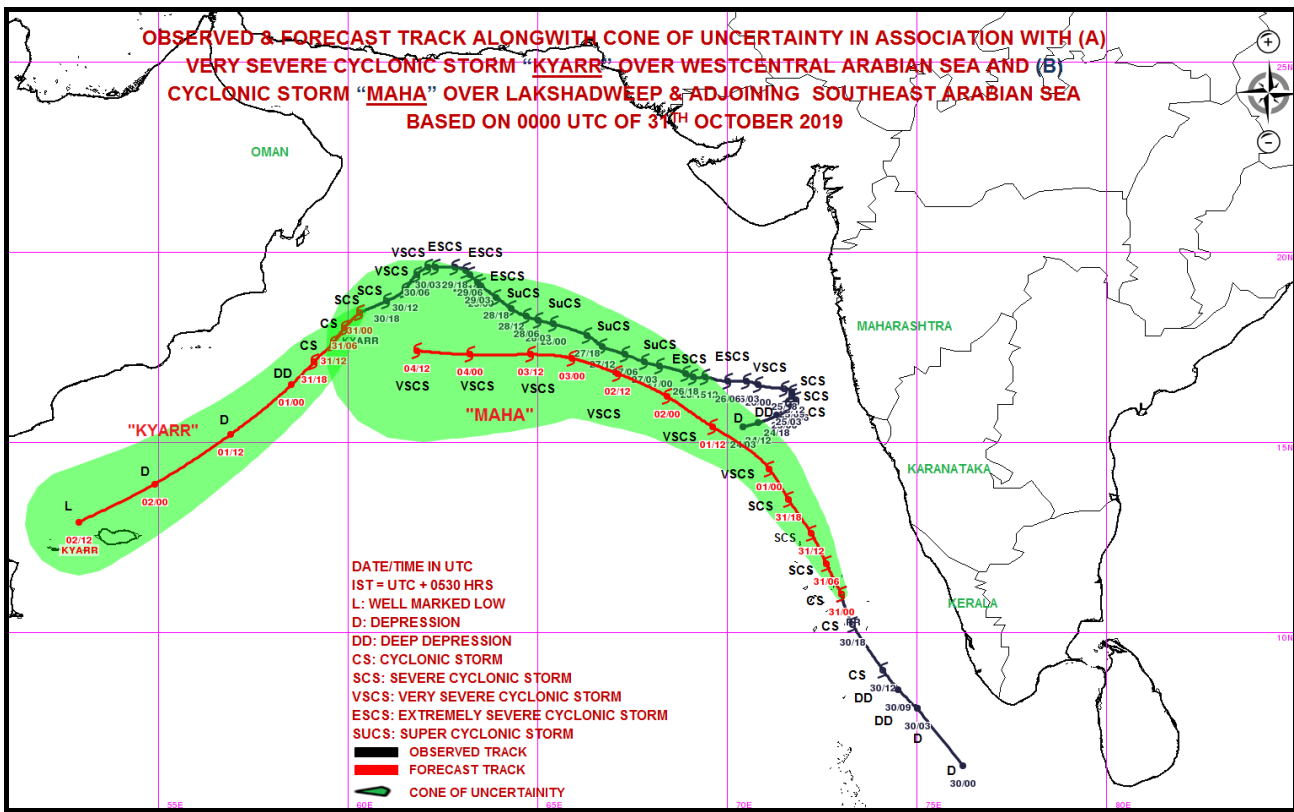
IMG_TIR1_TEMP 10.8 um 31-10-2019/(0630 to 0656) IST

ARABIAN_SEA



PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%



PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%



**REGIONAL SPECIALISED METEOROLOGICAL CENTRE-TROPICAL CYCLONES, NEW DELHI
TROPICAL CYCLONE ADVISORY BULLETIN NO. 50 & TROPICAL CYCLONE ADVISORY
BULLETIN NO. 06**

FROM: RSMC –TROPICAL CYCLONES, NEW DELHI

**TO: STORM WARNING CENTRE, NAYPYI TAW (MYANMAR)
STORM WARNING CENTRE, BANGKOK (THAILAND)
STORM WARNING CENTRE, COLOMBO (SRILANKA)
STORM WARNING CENTRE, DHAKA (BANGLADESH)
STORM WARNING CENTRE, KARACHI (PAKISTAN)
METEOROLOGICAL OFFICE, MALE (MALDIVES)
OMAN METEOROLOGICAL DEPARTMENT, MUSCAT (THROUGH RTH JEDDAH)
YEMEN METEOROLOGICAL SERVICES, REPUBLIC OF YEMEN (THROUGH RTH JEDDAH)
NATIONAL CENTRE FOR METEOROLOGY, UAE (THROUGH RTH JEDDAH)
PRESIDENCY OF METEOROLOGY AND ENVIRONMENT, SAUDI ARABIA (THROUGH RTH JEDDAH)
IRAN METEOROLOGICAL ORGANISATION, (THROUGH RTH JEDDAH)
QATAR METEOROLOGICAL DEPARTMENT (THROUGH RTH JEDDAH)**

TROPICAL CYCLONE ADVISORY No. 50 & TROPICAL CYCLONE ADVISORY NO. 06 FOR NORTH INDIAN OCEAN (THE BAY OF BENGAL AND ARABIAN SEA) VALID FOR NEXT 120 HOURS ISSUED AT 0600 UTC OF 31.10.2019 BASED ON 0300 UTC OF 31.10.2019.

SUB: (A) CYCLONIC STORM 'KYARR' (PRONOUNCED AS KYARR) OVER WESTCENTRAL ARABIAN SEA.

(B) CYCLONIC STORM MAHA (PRONOUNCED AS M'MAHA) OVER LAKSHADWEEP AND ADJOINING SOUTHEAST ARABIAN SEA: CYCLONE WARNING FOR LAKSHADWEEP ISLANDS (RED MESSAGE)

(A) CYCLONIC STORM 'KYARR' (PRONOUNCED AS KYARR) OVER WESTCENTRAL ARABIAN SEA

THE **SEVERE CYCLONIC STORM 'KYARR'** OVER WESTCENTRAL ARABIAN SEA MOVED SOUTHWESTWARDS WITH A SPEED OF 13 KMPH DURING PAST 06 HRS, WEAKENED INTO A **CYCLONIC STORM** AND LAY CENTRED AT 0300 UTC OF 31ST OCTOBER, 2019 OVER WESTCENTRAL ARABIAN SEA NEAR LATITUDE 18.0°N AND LONGITUDE 60.2°E, ABOUT 1330 KM WEST-SOUTHWEST OF MUMBAI (43003) (MAHARASHTRA), 670 KM EAST-NORTHEAST OF SALALAH (41316) (OMAN) AND 320 KM SOUTH-SOUTHEAST OF MASIRAH (41288) (OMAN). IT IS VERY LIKELY TO MOVE SOUTHWESTWARDS ACROSS WESTCENTRAL ARABIAN SEA DURING NEXT 3 DAYS. IT IS VERY LIKELY TO WEAKEN INTO A DEEP DEPRESSION DURING NEXT 18 HOURS AND FURTHER INTO A DEPRESSION DURING SUBSEQUENT 06 HOURS.

FORECAST TRACK AND INTENSITY ARE GIVEN IN THE FOLLOWING TABLE:

DATE/TIME (UTC)	POSITION (LAT. °N/ LONG. °E)	MAXIMUM SUSTAINED SURFACE WIND SPEED (KMPH)	CATEGORY OF CYCLONIC DISTURBANCE
31.10.19/0300	18.0/60.2	80-90 GUSTING TO 100	CYCLONIC STORM
31.10.19/0600	17.7/59.9	75-85 GUSTING TO 95	CYCLONIC STORM
31.10.19/1200	17.4/59.6	65-75 GUSTING TO 85	CYCLONIC STORM
31.10.19/1800	17.0/59.1	55-65 GUSTING TO 75	DEEP DEPRESSION
01.11.19/0000	16.5/58.5	45-55 GUSTING TO 65	DEPRESSION
01.11.19/1200	15.2/56.9	35-45 GUSTING TO 55	DEPRESSION
02.11.19/0000	13.9/54.9	25-35 GUSTING TO 45	WELL MARKED LOW

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

(B) CYCLONIC STORM MAHA (PRONOUNCED AS M'MAHA) OVER LAKSHADWEEP AND ADJOINING SOUTHEAST ARABIAN SEA: CYCLONE WARNING FOR LAKSHADWEEP ISLANDS (RED MESSAGE)

THE CYCLONIC STORM MAHA (PRONOUNCED AS M'MAHA) OVER LAKSHADWEEP AND ADJOINING SOUTHEAST ARABIAN SEA MOVED NORTH-NORTHWESTWARDS WITH A SPEED OF 17 KMPH DURING PAST 06 HOURS AND LAY CENTERED AT 0300 UTC OF 31ST OCTOBER, 2019 NEAR LATITUDE 11.5°N AND LONGITUDE 72.8°E OVER LAKSHADWEEP AND ADJOINING SOUTHEAST ARABIAN SEA ABOUT 40 KM NORTH-NORTHEAST OF AMINIDIVI (43311), 110 KM NORTH-NORTHEAST OF KAVARATTI (43337), 350 KM NORTH-NORTHWEST OF MINICOY (43369) AND 325 KM WEST-NORTHWEST OF KOZHIKODE (43314). IT IS VERY LIKELY TO CONTINUE TO MOVE NORTH-NORTHWESTWARDS ACROSS LAKSHADWEEP ISLANDS DURING NEXT 12 HOURS. THEN, IT IS VERY LIKELY TO MOVE NORTHWESTWARDS, EMERGE INTO EASTCENTRAL ARABIAN SEA DURING SUBSEQUENT 12 HOURS AND THEREAFTER MOVE WEST-NORTHWESTWARDS. IT IS VERY LIKELY TO INTENSIFY INTO A SEVERE CYCLONIC STORM DURING NEXT 06 HOURS OVER LAKSHADWEEP AREA AND INTO A VERY SEVERE CYCLONIC STORM OVER EASTCENTRAL ARABIAN SEA DURING SUBSEQUENT 24 HOURS.

FORECAST TRACK AND INTENSITY ARE GIVEN IN THE FOLLOWING TABLE:

DATE/TIME (UTC)	POSITION (LAT. °N/ LONG. °E)	MAXIMUM SUSTAINED SURFACE WIND SPEED (KMPH)	CATEGORY OF CYCLONIC DISTURBANCE
31.10.19/0300	11.5/72.8	80-90 GUSTING TO 100	CYCLONIC STORM
31.10.19/0600	11.8/72.6	90-100 GUSTING TO 110	SEVERE CYCLONIC STORM
31.10.19/1200	12.6/72.2	100-110 GUSTING TO 120	SEVERE CYCLONIC STORM
31.10.19/1800	13.5/71.6	110-120 GUSTING TO 135	SEVERE CYCLONIC STORM
01.11.19/0000	14.3/71.1	120-130 GUSTING TO 145	VERY SEVERE CYCLONIC STORM
01.11.19/1200	15.4/69.6	120-130 GUSTING TO 145	VERY SEVERE CYCLONIC STORM
02.11.19/0000	16.2/68.4	130-140 GUSTING TO 155	VERY SEVERE CYCLONIC STORM
02.11.19/1200	16.8/67.1	130-140 GUSTING TO 155	VERY SEVERE CYCLONIC STORM
03.11.19/0000	17.2/65.9	140-150 GUSTING TO 170	VERY SEVERE CYCLONIC STORM
03.11.19/1200	17.3/64.8	140-150 GUSTING TO 170	VERY SEVERE CYCLONIC STORM
04.11.19/0000	17.3/63.2	150-160 GUSTING TO 180	VERY SEVERE CYCLONIC STORM
04.11.19/1200	17.4/61.8	150-160 GUSTING TO 180	VERY SEVERE CYCLONIC STORM

REMARKS (A):

AS PER THE SATELLITE IMAGERY AT 0300 UTC OF 31ST OCTOBER, 2019, THE CURRENT INTENSITY OF THE SYSTEM IS T 2.5/3.0. ASSOCIATED BROKEN LOW TO MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION LIES OVER WESTCENTRAL AND ADJOINING EAST CENTRAL ARABIAN SEA BETWEEN LAT 15.0°N TO 17.5°N AND LONG 60.0°E TO 62.5°E. THE MINIMUM CTT IS MINUS 93 DEG C.

THE ESTIMATED MAXIMUM SUSTAINED WIND SPEED IS 45 KNOTS GUSTING TO 55 KNOTS. THE ESTIMATED CENTRAL PRESSURE IS 990 HPA. THE SEA CONDITION IS VERY HIGH AROUND THE SYSTEM CENTRE.

THE MJO LIES IN THE PHASE 4 WITH AMPLITUDE LESS THAN 1. IT WILL ENTER INTO PHASE 5 FROM 01ST NOVEMBER WITH AMPLITUDE LESS THAN 1 AND REMAIN THERE FOR NEXT 4-5 DAYS. THE LOW LEVEL RELATIVE VORTICITY IS ABOUT $200 \times 10^{-5} \text{ SEC}^{-1}$ AROUND THE SYSTEM CENTRE. THE LOWER LEVEL CONVERGENCE IS ABOUT $10 \times 10^{-5} \text{ S}^{-1}$ AROUND THE SYSTEM CENTRE AND THE UPPER LEVEL DIVERGENCE IS ABOUT $10 \times 10^{-5} \text{ S}^{-1}$ TO THE SOUTHWEST OF THE SYSTEM CENTRE. THE VERTICAL WIND SHEAR IS LOW (05-15 KNOTS) OVER THE SYSTEM AREA. SEA SURFACE TEMPERATURE IS AROUND 26-28°C OVER THE SYSTEM AREA. TROPICAL CYCLONE HEAT POTENTIAL AROUND THE SYSTEM CENTER OVER WESTCENTRAL ARABIAN SEA IS 20-40 KJ/CM² AND ALSO ALONG THE FORECAST TRACK.

TOTAL PRECIPITABLE WATER IMAGERIES INDICATE CONTINUED INCREASE IN DRY AIR INCURSION IN THE SOUTH AND WESTERN SECTORS OF THE SYSTEM. ALL THESE UNFAVOURABLE ENVIRONMENTAL, DYNAMIC AND THERMODYNAMIC CONDITIONS CAUSED THE SYSTEM TO WEAKEN INTO A CYCLONIC STORM. THE SYSTEM IS MOST

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

LIKELY TO MOVE IN A WEST-SOUTHWESTWARD DIRECTION ACROSS WEST CENTRAL ARABIAN SEA WEAKEN FURTHER INTO A WELL MARKED LOW PRESSURE AREA 0000 UTC OF 02ND NOVEMBER. MAJORITY OF NUMERICAL MODELS AGREE WITH THE ABOVE INFERENCE.

REMARKS (B):

AS PER THE SATELLITE IMAGERY AT 0300 UTC OF 31ST OCTOBER, 2019, THE CURRENT INTENSITY OF THE SYSTEM IS T 3.0. ASSOCIATED SCATTERED LOW TO MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION LIES OVER COMORIN AND ADJOINING AREAS BETWEEN LAT 8.5⁰N TO 15.0⁰N AND LONG 68.5⁰E TO 74.5⁰E. THE MINIMUM CTT IS MINUS 93⁰C.

THE ESTIMATED MAXIMUM SUSTAINED WIND SPEED IS 45 KNOTS GUSTING TO 55 KNOTS. THE ESTIMATED CENTRAL PRESSURE IS 996 HPA. THE SEA CONDITION IS HIGH AROUND THE SYSTEM CENTRE. AT 0300 UTC, AMINIDIVI (43311) REPORTED MEAN SEA LEVEL PRESSURE 1005.1 HPA AND WIND 290⁰ /42 KNOTS.

THE LOW LEVEL RELATIVE VORTICITY INCREASED AND IS ABOUT $200 \times 10^{-5} \text{ SEC}^{-1}$ AROUND THE SYSTEM CENTRE. POSITIVE VORTICITY FIELD IS SEEN UPTO 500 HPA LEVEL. THE RIDGE OVER THE SYSTEM AREA RUNS ROUGHLY ALONG 18⁰N. THE LOWER LEVEL CONVERGENCE IS ABOUT $20 \times 10^{-5} \text{ S}^{-1}$ TO THE WEST OF THE SYSTEM CENTRE AND THE UPPER LEVEL DIVERGENCE IS ABOUT $30 \times 10^{-5} \text{ S}^{-1}$ TO THE SOUTHWEST OF THE SYSTEM CENTRE. THE VERTICAL WIND SHEAR IS MODERATE TO HIGH (20-25 KNOTS) OVER THE SYSTEM AREA. SEA SURFACE TEMPERATURE IS AROUND 28-30⁰C AROUND THE SYSTEM AREA AND SHOWS GRADUAL REDUCTION IN THE FORECAST DIRECTION . TROPICAL CYCLONE HEAT POTENTIAL IS AROUND 70-90 KJ/CM² OVER THE THE SYSTEM AREA AND DECREASES IN THE FORECAST DIRCTION OF THE SYSTEM.

AS THE SYSTEM IS LYING IN A FAVOURABLE ENVIRONMENT, IT IS VERY LIKELY TO INTENSIFY INTO A SEVERE CYCLONIC STORM DURING NEXT 06 HOURS WHILE MOVING IN A NORTHWEST DIRECTION. MOST OF THE NWP MODELS ARE IN AGREEMENT WITH THIS OBSERVATION.

(NEETHA K GOPAL)
SCIENTIST-E, RSMC, NEW DELHI

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

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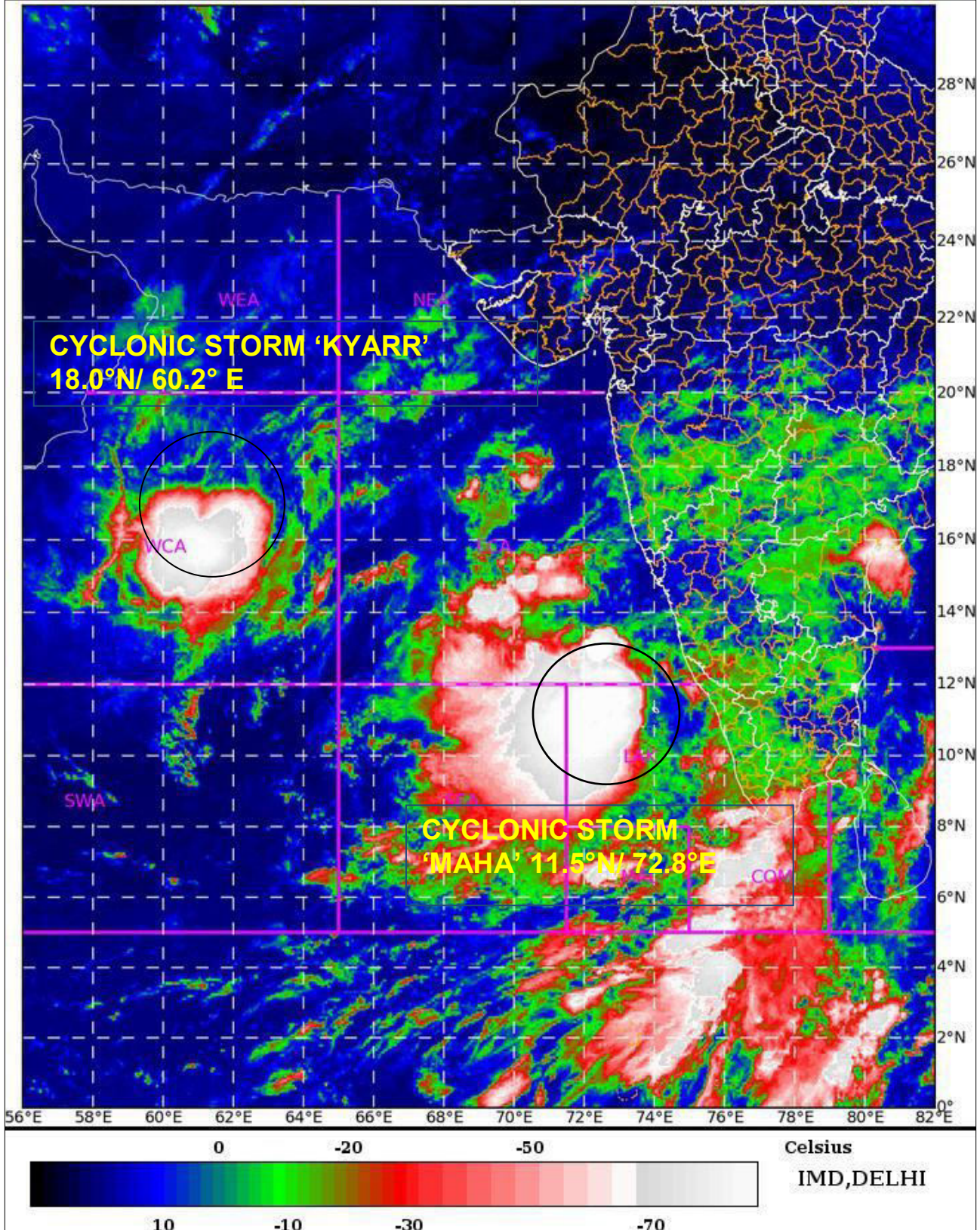
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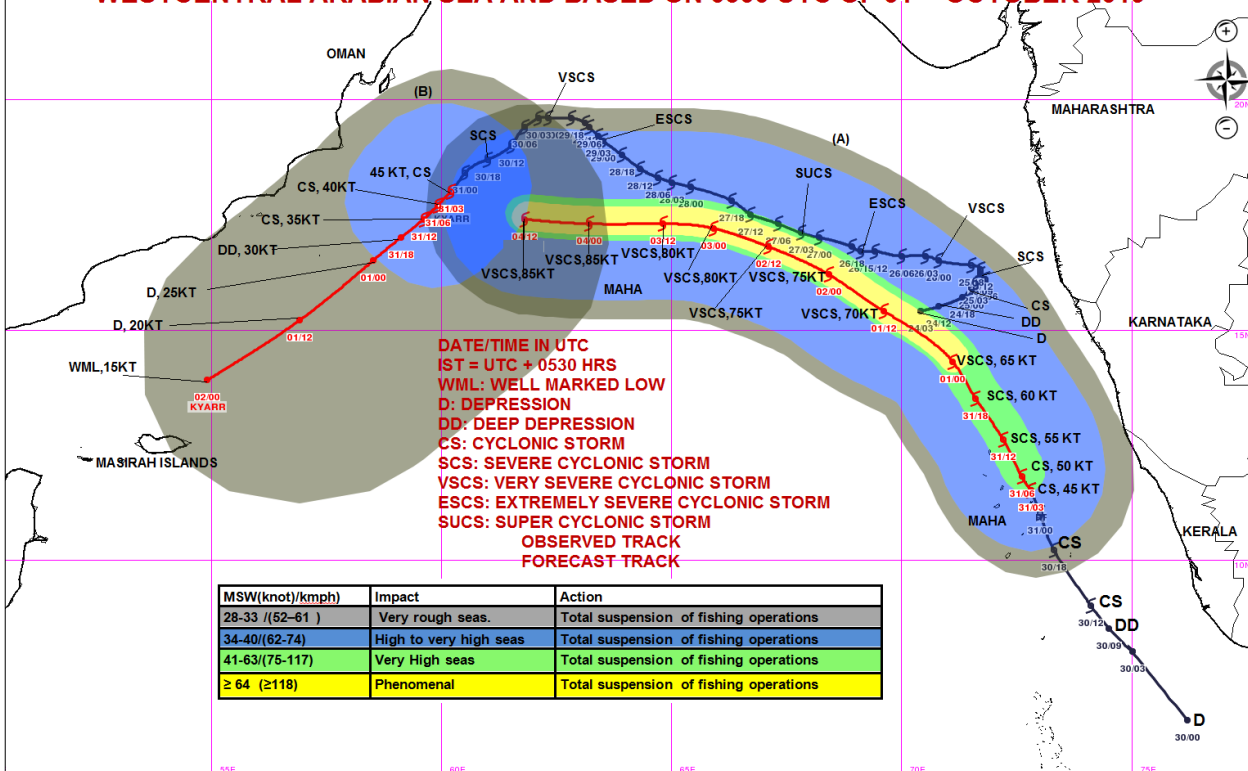
ARABIAN_SEA



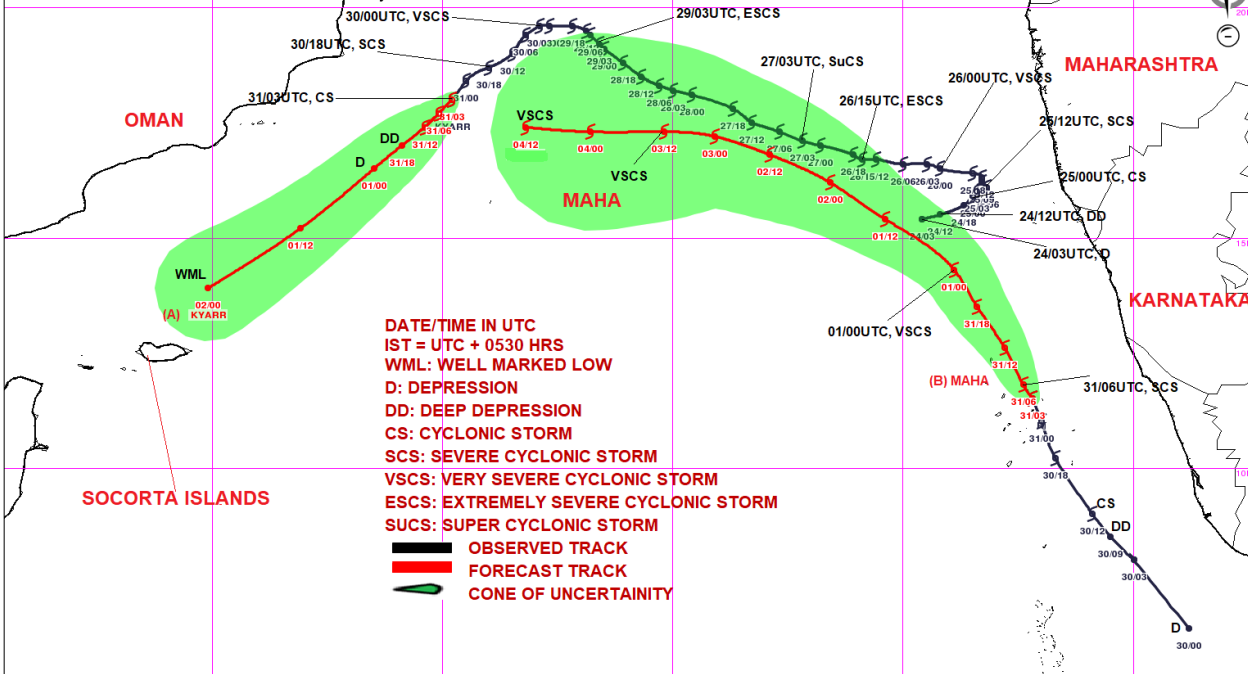
PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

OBSERVED & FORECAST TRACK ALONGWITH QUADRANT WIND DISTRIBUTION IN ASSOCIATION WITH (A) CYCLONIC STORM "MAHA" OVER LAKSHADWEEP & ADJOINING SOUTHEAST ARABIAN SEA AND (B) VERY SEVERE CYCLONIC STORM "KYARR" OVER WESTCENTRAL ARABIAN SEA AND BASED ON 0300 UTC OF 31ST OCTOBER 2019



OBSERVED & FORECAST TRACK ALONGWITH CONE OF UNCERTAINTY IN ASSOCIATION WITH (A) CYCLONIC STORM "KYARR" OVER WESTCENTRAL AND ADJOINING NORTHWEST ARABIAN SEA AND (B) CYCLONIC STORM "MAHA" OVER LAKSHADWEEP & ADJOINING MALDIVES AREA & SOUTHEAST ARABIAN SEA BASED ON 0300 UTC OF 31TH OCTOBER 2019



PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%



**REGIONAL SPECIALISED METEOROLOGICAL CENTRE-TROPICAL CYCLONES, NEW DELHI
TROPICAL CYCLONE ADVISORY BULLETIN NO. 51 & TROPICAL CYCLONE ADVISORY
BULLETIN NO. 07**

FROM: RSMC –TROPICAL CYCLONES, NEW DELHI

**TO: STORM WARNING CENTRE, NAYPYI TAW (MYANMAR)
STORM WARNING CENTRE, BANGKOK (THAILAND)
STORM WARNING CENTRE, COLOMBO (SRILANKA)
STORM WARNING CENTRE, DHAKA (BANGLADESH)
STORM WARNING CENTRE, KARACHI (PAKISTAN)
METEOROLOGICAL OFFICE, MALE (MALDIVES)
OMAN METEOROLOGICAL DEPARTMENT, MUSCAT (THROUGH RTH JEDDAH)
YEMEN METEOROLOGICAL SERVICES, REPUBLIC OF YEMEN (THROUGH RTH JEDDAH)
NATIONAL CENTRE FOR METEOROLOGY, UAE (THROUGH RTH JEDDAH)
PRESIDENCY OF METEOROLOGY AND ENVIRONMENT, SAUDI ARABIA (THROUGH RTH JEDDAH)
IRAN METEOROLOGICAL ORGANISATION, (THROUGH RTH JEDDAH)
QATAR METEOROLOGICAL DEPARTMENT (THROUGH RTH JEDDAH)**

TROPICAL CYCLONE ADVISORY No. 51 & TROPICAL CYCLONE ADVISORY NO. 07 FOR NORTH INDIAN OCEAN (THE BAY OF BENGAL AND ARABIAN SEA) VALID FOR NEXT 120 HOURS ISSUED AT 0900 UTC OF 31.10.2019 BASED ON 0600 UTC OF 31.10.2019.

**SUB: (A) CYCLONIC STORM 'KYARR' (PRONOUNCED AS KYARR) OVER WESTCENTRAL ARABIAN SEA
(B) SEVERE CYCLONIC STORM MAHA (PRONOUNCED AS M'MAHA) OVER EASTCENTRAL ARABIAN SEA AND ADJOINING LAKSHADWEEP AREA: CYCLONE WARNING FOR LAKSHADWEEP ISLANDS (RED MESSAGE)**

(A) CYCLONIC STORM 'KYARR' (PRONOUNCED AS KYARR) OVER WESTCENTRAL ARABIAN SEA

THE **CYCLONIC STORM 'KYARR'** OVER WESTCENTRAL ARABIAN SEA MOVED SOUTH-SOUTHWESTWARDS WITH A SPEED OF 13 KMPH DURING PAST 06 HRS AND LAY CENTRED AT 0600 UTC OF 31ST OCTOBER, 2019 OVER WESTCENTRAL ARABIAN SEA NEAR LATITUDE 17.7°N AND LONGITUDE 60.1°E, ABOUT 1350 KM WEST-SOUTHWEST OF MUMBAI (43003), 640 KM EAST-NORTHEAST OF SALALAH (41316) AND 350 KM SOUTH-SOUTHEAST OF MASIRAH (41288). IT IS VERY LIKELY TO MOVE SOUTHWESTWARDS ACROSS WESTCENTRAL ARABIAN SEA DURING NEXT 36 HOURS. IT IS VERY LIKELY TO WEAKEN INTO A DEEP DEPRESSION DURING NEXT 12 HOURS AND FURTHER INTO A DEPRESSION DURING SUBSEQUENT 06 HOURS.

FORECAST TRACK AND INTENSITY ARE GIVEN IN THE FOLLOWING TABLE:

DATE/ TIME(UTC)	POSITION (LAT. °N/ LONG. °E)	MAXIMUM SUSTAINED SURFACE WIND SPEED (KMPH)	CATEGORY OF CYCLONIC DISTURBANCE
31.10.19/0600	17.7/60.1	70-80 GUSTING TO 90	CYCLONIC STORM
31.10.19/1200	17.4/59.8	60-70 GUSTING TO 80	CYCLONIC STORM
31.10.19/1800	17.0/59.4	50-60 GUSTING TO 70	DEEP DEPRESSION
01.11.19/0000	16.4/58.8	40-50 GUSTING TO 60	DEPRESSION
01.11.19/0600	15.8/58.2	30-40 GUSTING TO 50	DEPRESSION
01.11.19/1800	14.5/56.5	20-30 GUSTING TO 40	WELL MARKED LOW

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

(B) SEVERE CYCLONIC STORM MAHA (PRONOUNCED AS M'MAHA) OVER EASTCENTRAL ARABIAN SEA AND ADJOINING LAKSHADWEEP AREA: CYCLONE WARNING FOR LAKSHADWEEP ISLANDS (RED MESSAGE)

THE CYCLONIC STORM MAHA (PRONOUNCED AS M'MAHA) OVER LAKSHADWEEP AND ADJOINING SOUTHEAST ARABIAN SEA MOVED FURTHER NORTH-NORTHWESTWARDS WITH A SPEED OF 17 KMPH DURING PAST 06 HOURS, INTENSIFIED INTO A SEVERE CYCLONIC STORM AND LAY CENTERED AT 0600 UTC OF TODAY, THE 31ST OCTOBER, 2019 NEAR LATITUDE 11.9°N AND LONGITUDE 72.8°E OVER EASTCENTRAL ARABIAN SEA AND ADJOINING LAKSHADWEEP AREA ABOUT 90 KM NORTH-NORTHEAST OF AMINIDIVI (43311), 150 KM NORTH-NORTHEAST OF KAVARATTI (43337), 400 KM NORTH-NORTHWEST OF MINICOY (43369) AND 330 KM WEST-NORTHWEST OF KOZHIKODE (43314).

IT IS VERY LIKELY TO CONTINUE TO MOVE NORTH-NORTHWESTWARDS ACROSS LAKSHADWEEP ISLANDS DURING NEXT 06 HOURS. IT IS VERY LIKELY TO MOVE NORTHWESTWARDS DURING SUBSEQUENT 12 HOURS AND THEREAFTER MOVE WEST-NORTHWESTWARDS. IT IS VERY LIKELY TO INTENSIFY INTO A VERY SEVERE CYCLONIC STORM OVER EASTCENTRAL ARABIAN SEA DURING 24 HOURS.

FORECAST TRACK AND INTENSITY ARE GIVEN IN THE FOLLOWING TABLE:

DATE/TIME (UTC)	POSITION (LAT. °N/ LONG. °E)	MAXIMUM SUSTAINED SURFACE WIND SPEED (KMPH)	CATEGORY OF CYCLONIC DISTURBANCE
31.10.19/0600	11.9/72.8	90-100 GUSTING TO 110	SEVERE CYCLONIC STORM
31.10.19/1200	12.8/72.2	100-110 GUSTING TO 120	SEVERE CYCLONIC STORM
31.10.19/1800	13.6/71.7	110-120 GUSTING TO 135	SEVERE CYCLONIC STORM
01.11.19/0000	14.3/71.2	120-130 GUSTING TO 145	VERY SEVERE CYCLONIC STORM
01.11.19/0600	14.7/70.6	120-130 GUSTING TO 145	VERY SEVERE CYCLONIC STORM
01.11.19/1800	15.8/69.2	130-140 GUSTING TO 155	VERY SEVERE CYCLONIC STORM
02.11.19/0600	16.4/68.1	130-140 GUSTING TO 155	VERY SEVERE CYCLONIC STORM
02.11.19/1800	16.9/67.0	135-145 GUSTING TO 165	VERY SEVERE CYCLONIC STORM
03.11.19/0600	17.2/65.8	140-150 GUSTING TO 170	VERY SEVERE CYCLONIC STORM
03.11.19/1800	17.2/64.4	145-155 GUSTING TO 175	VERY SEVERE CYCLONIC STORM
04.11.19/0600	17.4/63.0	150-160 GUSTING TO 180	VERY SEVERE CYCLONIC STORM
04.11.19/1800	17.6/61.7	150-160 GUSTING TO 180	VERY SEVERE CYCLONIC STORM

REMARKS (A):

AS PER THE SATELLITE IMAGERY AT 0600 UTC OF 31ST OCTOBER, 2019, THE CURRENT INTENSITY OF THE SYSTEM IS T 2.0/2.5. ASSOCIATED BROKEN LOW TO MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION LIES OVER WESTCENTRAL AND ADJOINING EAST CENTRAL ARABIAN SEA BETWEEN LAT 15.0°N TO 16.5°N AND LONG 60.0°E TO 62.0°E. THE MINIMUM CTT IS MINUS 93 DEG C.

THE ESTIMATED MAXIMUM SUSTAINED WIND SPEED IS 40 KNOTS GUSTING TO 50 KNOTS. THE ESTIMATED CENTRAL PRESSURE IS 994 HPA. THE SEA CONDITION IS HIGH AROUND THE SYSTEM CENTRE.

THE MJO LIES IN THE PHASE 4 WITH AMPLITUDE LESS THAN 1. IT WILL ENTER INTO PHASE 5 FROM 01ST NOVEMBER WITH AMPLITUDE LESS THAN 1 AND REMAIN THERE FOR NEXT 4-5 DAYS. THE LOW LEVEL RELATIVE VORTICITY REDUCED AND IS ABOUT $150 \times 10^{-5} \text{ SEC}^{-1}$ AROUND THE SYSTEM CENTRE. THE LOWER LEVEL CONVERGENCE IS ABOUT $10 \times 10^{-5} \text{ S}^{-1}$ TO THE SOUTHWEST OF THE SYSTEM CENTRE AND THE UPPER LEVEL DIVERGENCE IS ABOUT $20 \times 10^{-5} \text{ S}^{-1}$ TO THE SOUTHWEST OF THE SYSTEM CENTRE. THE VERTICAL WIND SHEAR IS LOW (05-15 KNOTS) OVER THE SYSTEM AREA. SEA SURFACE TEMPERATURE IS AROUND 26-28°C OVER THE SYSTEM AREA. TROPICAL CYCLONE HEAT POTENTIAL AROUND THE SYSTEM CENTER OVER WESTCENTRAL ARABIAN SEA IS 20-40 KJ/CM² AND ALSO ALONG THE FORECAST TRACK.

TOTAL PRECIPITABLE WATER IMAGERIES INDICATE CONTINUED INCREASE IN DRY AIR INCURSION IN ALL THE SECTORS OF THE SYSTEM. ALL THESE UNFAVOURABLE

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

ENVIRONMENTAL, DYNAMIC AND THERMODYNAMIC CONDITIONS CAUSING THE SYSTEM TO WEAKEN CONTINUOUSLY. THE SYSTEM IS MOST LIKELY TO MOVE IN A WEST-SOUTHWESTWARD DIRECTION ACROSS WEST CENTRAL ARABIAN SEA AND WEAKEN INTO A WELL MARKED LOW PRESSURE AREA BY 1800 UTC OF 01ST NOVEMBER. MAJORITY OF NUMERICAL MODELS AGREE WITH THE ABOVE INFERENCE.

REMARKS (B):

AS PER THE SATELLITE IMAGERY AT 0600 UTC OF 31ST OCTOBER, 2019, THE CURRENT INTENSITY OF THE SYSTEM IS T 3.0. ASSOCIATED SCATTERED LOW TO MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION LIES OVER COMORIN AND ADJOINING AREAS BETWEEN LAT 9.5⁰N TO 15.0⁰N AND LONG 68.0⁰E TO 74.5⁰E. THE MINIMUM CTT IS MINUS 93⁰C.

THE ESTIMATED MAXIMUM SUSTAINED WIND SPEED IS 50 KNOTS GUSTING TO 60 KNOTS. THE ESTIMATED CENTRAL PRESSURE IS 994 HPA. THE SEA CONDITION IS VERY HIGH AROUND THE SYSTEM CENTRE. AT 0600 UTC, AMINIDIVI (43311) REPORTED MEAN SEA LEVEL PRESSURE 1006.6 HPA AND WIND 270⁰ /45 KNOTS.

THE LOW LEVEL RELATIVE VORTICITY INCREASED AND IS ABOUT $200 \times 10^{-5} \text{ SEC}^{-1}$ TO THE SOUTH OF THE SYSTEM CENTRE. POSITIVE VORTICITY FIELD IS SEEN UPTO 500 HPA LEVEL. THE RIDGE OVER THE SYSTEM AREA RUNS ROUGHLY ALONG 18⁰N. THE LOWER LEVEL CONVERGENCE IS ABOUT $20 \times 10^{-5} \text{ S}^{-1}$ TO THE NORTHEAST OF THE SYSTEM CENTRE AND THE UPPER LEVEL DIVERGENCE IS ABOUT $30 \times 10^{-5} \text{ S}^{-1}$ AROUND THE SYSTEM CENTRE. THE VERTICAL WIND SHEAR IS LOW TO MODERATE (10-20 KNOTS) OVER THE SYSTEM AREA. SEA SURFACE TEMPERATURE IS AROUND 28-30⁰C AROUND THE SYSTEM AREA AND SHOWS GRADUAL REDUCTION IN THE FORECAST DIRECTION . TROPICAL CYCLONE HEAT POTENTIAL IS AROUND 70-90 KJ/CM² OVER THE THE SYSTEM AREA AND DECREASES IN THE FORECAST DIRCTION OF THE SYSTEM.

AS THE SYSTEM IS LYING IN A FAVOURABLE ENVIRONMENT, IT INTENSIFIED INTO A SEVERE CYCLONIC STORM AND IS LIKELY TO INTENSIFY FURTHER INTO A VERY SEVERE CYCLONIC STORM DURING NEXT 24 HOURS. MOST OF THE NWP MODELS ARE IN AGREEMENT WITH THIS OBSERVATION.

(NEETHA K GOPAL)
SCIENTIST-E, RSMC, NEW DELHI

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

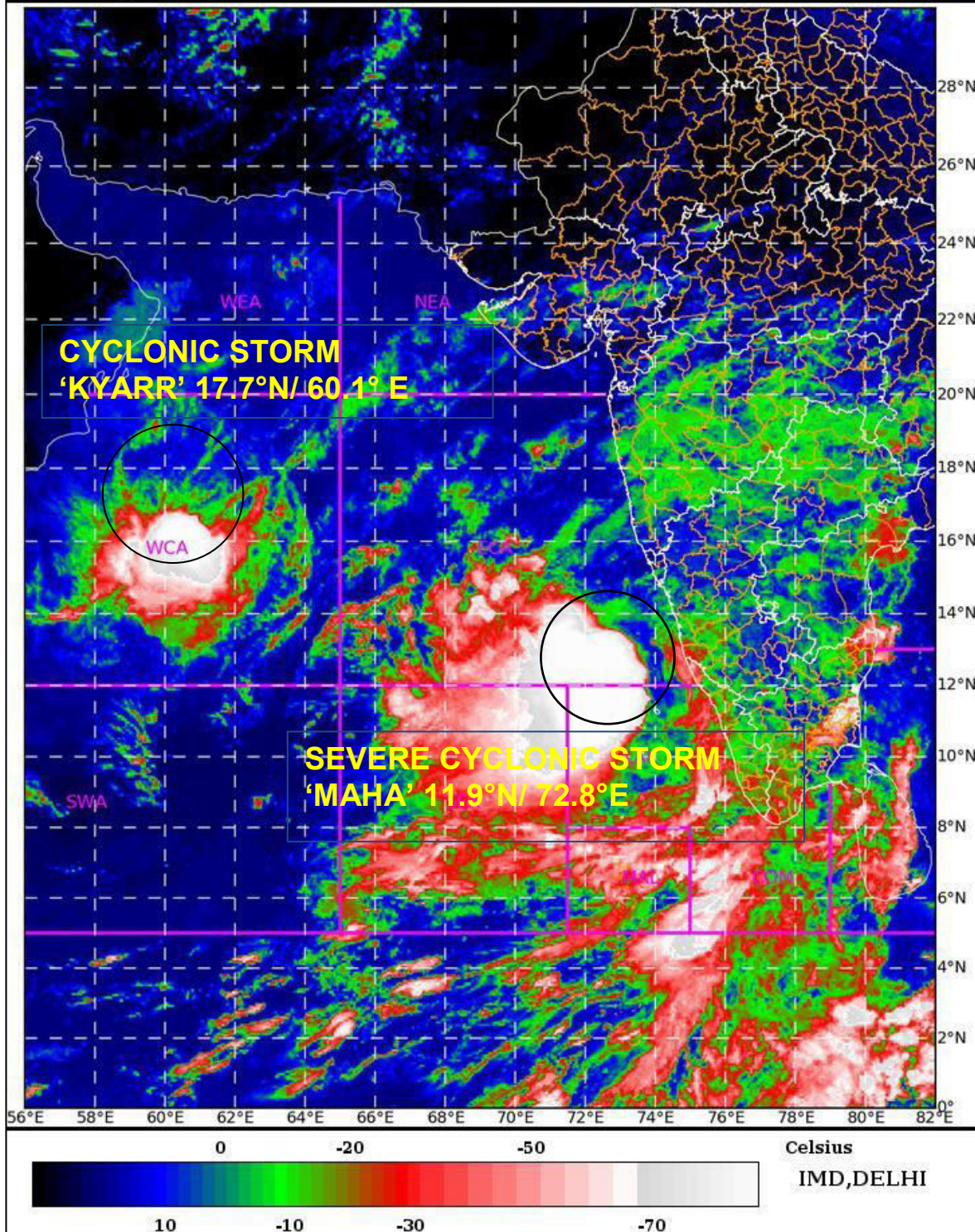
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31-10-2019/(0800 to 0827) GMT

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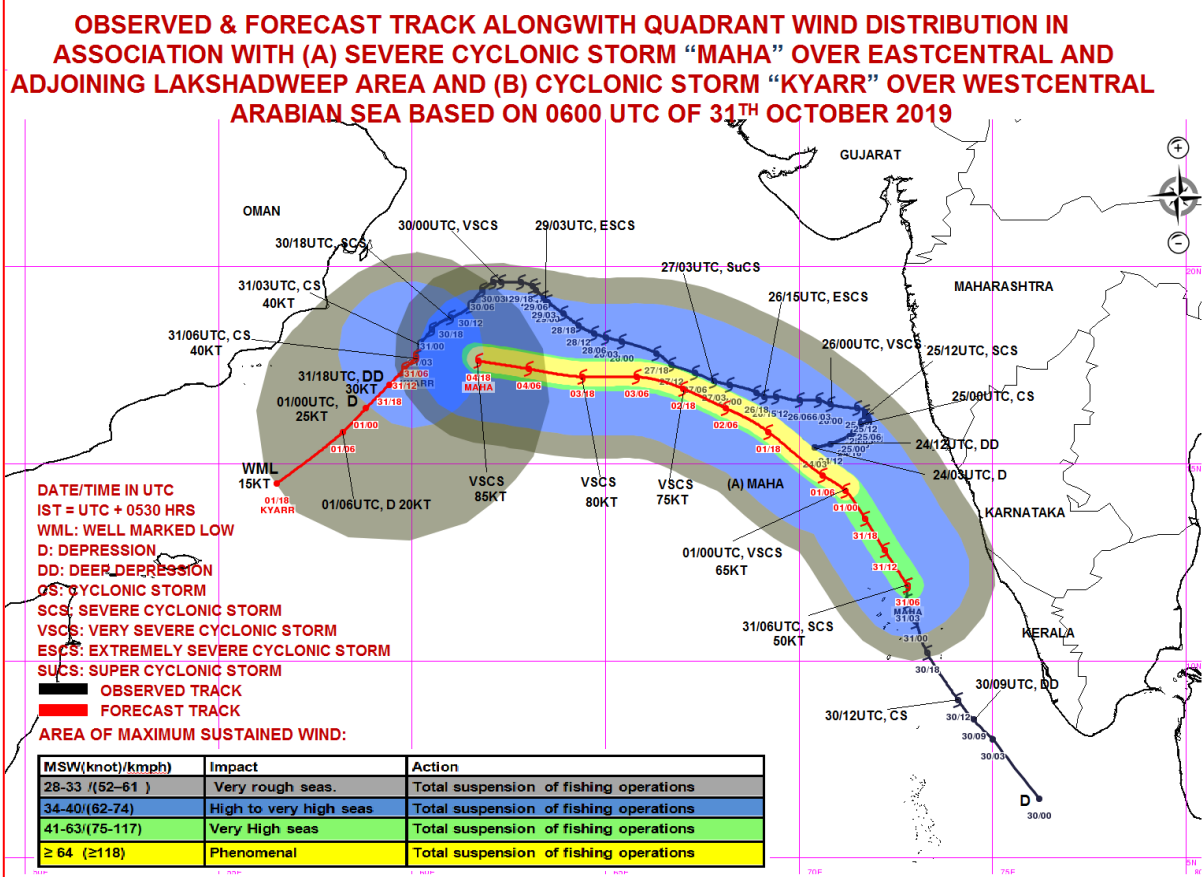
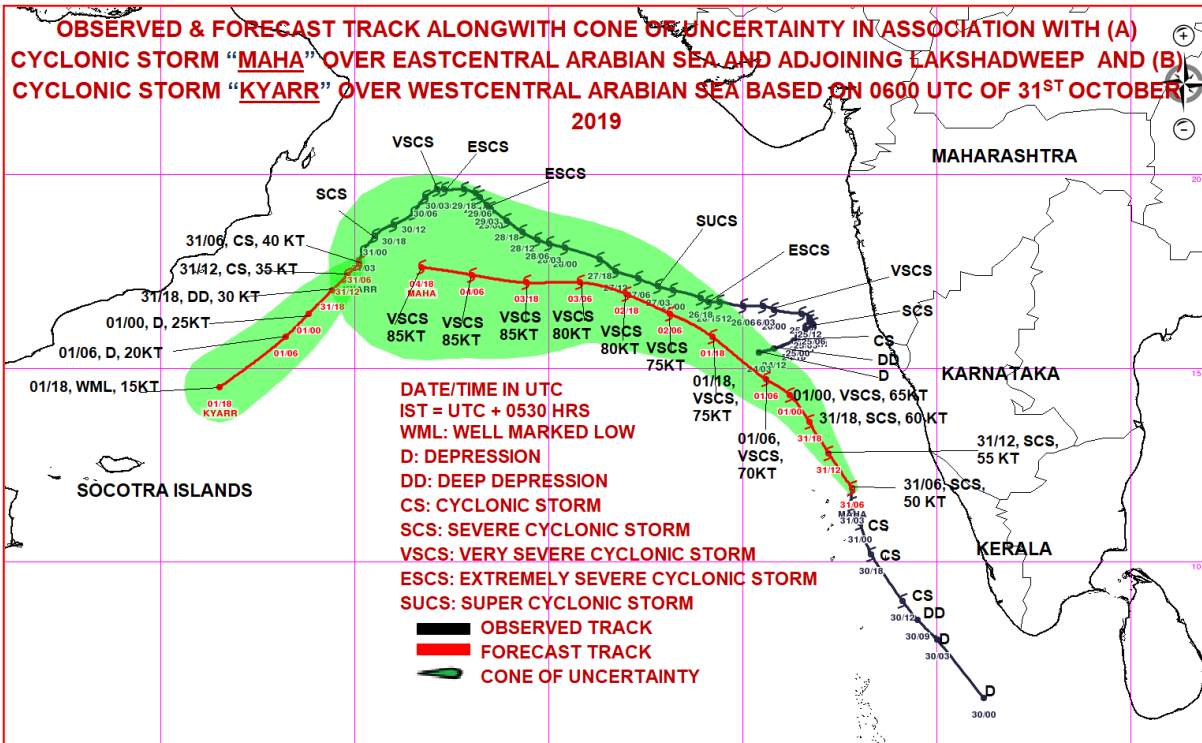
31-10-2019/(1330 to 1357) IST

ARABIAN_SEA



PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%



PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%



**REGIONAL SPECIALISED METEOROLOGICAL CENTRE-TROPICAL CYCLONES, NEW DELHI
TROPICAL CYCLONE ADVISORY BULLETIN NO. 52 & TROPICAL CYCLONE ADVISORY
BULLETIN NO. 08**

FROM: RSMC –TROPICAL CYCLONES, NEW DELHI

**TO: STORM WARNING CENTRE, NAYPYI TAW (MYANMAR)
STORM WARNING CENTRE, BANGKOK (THAILAND)
STORM WARNING CENTRE, COLOMBO (SRILANKA)
STORM WARNING CENTRE, DHAKA (BANGLADESH)
STORM WARNING CENTRE, KARACHI (PAKISTAN)
METEOROLOGICAL OFFICE, MALE (MALDIVES)
OMAN METEOROLOGICAL DEPARTMENT, MUSCAT (THROUGH RTH JEDDAH)
YEMEN METEOROLOGICAL SERVICES, REPUBLIC OF YEMEN (THROUGH RTH JEDDAH)
NATIONAL CENTRE FOR METEOROLOGY, UAE (THROUGH RTH JEDDAH)
PRESIDENCY OF METEOROLOGY AND ENVIRONMENT, SAUDI ARABIA (THROUGH RTH JEDDAH)
IRAN METEOROLOGICAL ORGANISATION, (THROUGH RTH JEDDAH)
QATAR METEOROLOGICAL DEPARTMENT (THROUGH RTH JEDDAH)**

TROPICAL CYCLONE ADVISORY No. 52 & TROPICAL CYCLONE ADVISORY NO. 08 FOR NORTH INDIAN OCEAN (THE BAY OF BENGAL AND ARABIAN SEA) VALID FOR NEXT 120 HOURS ISSUED AT 1130 UTC OF 31.10.2019 BASED ON 0900 UTC OF 31.10.2019.

**SUB: (A) CYCLONIC STORM 'KYARR' (PRONOUNCED AS KYARR) OVER WESTCENTRAL ARABIAN SEA
(B) SEVERE CYCLONIC STORM MAHA (PRONOUNCED AS M'MAHA) OVER LAKSHADWEEP AND ADJOINING SOUTHEAST ARABIAN SEA**

(A) CYCLONIC STORM 'KYARR' (PRONOUNCED AS KYARR) OVER WESTCENTRAL ARABIAN SEA

THE **CYCLONIC STORM 'KYARR'** OVER WESTCENTRAL ARABIAN SEA MOVED SOUTH-SOUTHWESTWARDS WITH A SPEED OF 10 KMPH DURING PAST 06 HRS AND LAY CENTRED AT 0900 HRS UTC OF 31ST OCTOBER, 2019 OVER WESTCENTRAL ARABIAN SEA NEAR LATITUDE 17.5°N AND LONGITUDE 60.0°E, ABOUT 1360 KM WEST-SOUTHWEST OF MUMBAI (MAHARASHTRA), 650 KM EAST-NORTHEAST OF SALALAH (OMAN) AND 350 KM SOUTH-SOUTHEAST OF MASIRAH (OMAN). IT IS VERY LIKELY TO MOVE SOUTHWESTWARDS ACROSS WESTCENTRAL ARABIAN SEA DURING NEXT 36 HOURS. IT IS VERY LIKELY TO WEAKEN INTO A DEEP DEPRESSION DURING NEXT 12 HOURS AND FURTHER INTO A DEPRESSION DURING SUBSEQUENT 06 HOURS.

FORECAST TRACK AND INTENSITY ARE GIVEN IN THE FOLLOWING TABLE:

DATE/TIME(IST)	POSITION (LAT. °N/ LONG. °E)	MAXIMUM SUSTAINED SURFACE WIND SPEED (KMPH)	CATEGORY OF CYCLONIC DISTURBANCE
31.10.19/0900	17.5/60.0	65-75 GUSTING TO 85	CYCLONIC STORM
31.10.19/1200	17.3/59.8	60-70 GUSTING TO 80	CYCLONIC STORM
31.10.19/1800	17.0/59.4	50-60 GUSTING TO 70	DEEP DEPRESSION
01.11.19/0000	16.4/58.8	40-50 GUSTING TO 60	DEPRESSION
01.11.19/0600	15.8/58.2	30-40 GUSTING TO 50	DEPRESSION
01.11.19/1800	14.5/56.5	20-30 GUSTING TO 40	WELL MARKED LOW

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

(B)SEVERE CYCLONIC STORM MAHA (PRONOUNCED AS M'MAHA) OVER EASTCENTRAL ARABIAN SEA AND ADJOINING LAKSHADWEEP AREA

THE SEVERE CYCLONIC STORM MAHA (PRONOUNCED AS M'MAHA) OVER EASTCENTRAL ARABIAN SEA AND ADJOINING LAKSHADWEEP AREA MOVED NORTHWARDS WITH A SPEED OF 13 KMPH DURING PAST 06 HOURS, AND LAY CENTERED AT 0900 HRS UTC OF 31ST OCTOBER, 2019 NEAR LATITUDE 12.3°N AND LONGITUDE 72.8°E OVER EASTCENTRAL ARABIAN SEA AND ADJOINING LAKSHADWEEP AREA ABOUT 130 KM NORTH-NORTHEAST OF AMINIDIVI (LAKSHADWEEP), 200 KM NORTH-NORTHEAST OF KAVARATTI (LAKSHADWEEP), 100 KM NORTHEAST OF CHETLAT (LAKSHADWEEP) AND 340 KM WEST-NORTHWEST OF KOZHIKODE (KERALA). IT IS VERY LIKELY TO MOVE NORTH-NORTHWESTWARDS DURING NEXT 06 HOURS. THEN, IT IS VERY LIKELY TO MOVE NORTHWESTWARDS DURING SUBSEQUENT 06 HOURS AND THEREAFTER MOVE WEST-NORTHWESTWARDS. IT IS VERY LIKELY TO INTENSIFY INTO A VERY SEVERE CYCLONIC STORM OVER EASTCENTRAL ARABIAN SEA DURING NEXT 24 HOURS.

FORECAST TRACK AND INTENSITY ARE GIVEN IN THE FOLLOWING TABLE:

DATE/TIME(IST)	POSITION (LAT. °N/ LONG. °E)	MAXIMUM SUSTAINED SURFACE WIND SPEED (KMPH)	CATEGORY OF CYCLONIC DISTURBANCE
31.10.19/0900	12.3/72.8	95-105 GUSTING TO 115	SEVERE CYCLONIC STORM
31.10.19/1200	12.8/72.2	100-110 GUSTING TO 120	SEVERE CYCLONIC STORM
31.10.19/1800	13.6/71.7	110-120 GUSTING TO 135	SEVERE CYCLONIC STORM
01.11.19/0000	14.3/71.2	120-130 GUSTING TO 145	VERY SEVERE CYCLONIC STORM
01.11.19/0600	14.7/70.6	120-130 GUSTING TO 145	VERY SEVERE CYCLONIC STORM
01.11.19/1800	15.8/69.2	130-140 GUSTING TO 155	VERY SEVERE CYCLONIC STORM
02.11.19/0600	16.4/68.1	130-140 GUSTING TO 155	VERY SEVERE CYCLONIC STORM
02.11.19/1800	16.9/67.0	135-145 GUSTING TO 165	VERY SEVERE CYCLONIC STORM
03.11.19/0600	17.2/65.8	140-150 GUSTING TO 170	VERY SEVERE CYCLONIC STORM
03.11.19/1800	17.2/64.4	145-155 GUSTING TO 175	VERY SEVERE CYCLONIC STORM
04.11.19/0600	17.4/63.0	150-160 GUSTING TO 180	VERY SEVERE CYCLONIC STORM
04.11.19/1800	17.6/61.7	150-160 GUSTING TO 180	VERY SEVERE CYCLONIC STORM

REMARKS (A):

AS PER THE SATELLITE IMAGERY AT 0900 UTC OF 31ST OCTOBER, 2019, THE CURRENT INTENSITY OF THE SYSTEM IS T 2.0/2.5. ASSOCIATED BROKEN LOW TO MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION LIES OVER WESTCENTRAL ARABIAN SEA BETWEEN LAT 14.0°N TO 17.0°N AND LONG 58.0°E TO 62.0°E. THE MINIMUM CTT IS MINUS 93 DEG C.

THE ESTIMATED MAXIMUM SUSTAINED WIND SPEED IS 35 KNOTS GUSTING TO 45 KNOTS. THE ESTIMATED CENTRAL PRESSURE IS 996 HPA. THE SEA CONDITION IS VERY HIGH AROUND THE SYSTEM CENTRE.

THE MJO LIES IN THE PHASE 4 WITH AMPLITUDE LESS THAN 1. IT WILL ENTER INTO PHASE 5 FROM 01ST NOVEMBER WITH AMPLITUDE LESS THAN 1 AND REMAIN THERE FOR NEXT 4-5 DAYS. THE LOW LEVEL RELATIVE VORTICITY FURTHER REDUCED AND IS ABOUT $100 \times 10^{-5} \text{ SEC}^{-1}$ AROUND THE SYSTEM CENTRE. THE LOWER LEVEL CONVERGENCE IS ABOUT $10 \times 10^{-5} \text{ S}^{-1}$ TO THE SOUTHEAST OF THE SYSTEM CENTRE AND THE UPPER LEVEL DIVERGENCE IS ABOUT $20 \times 10^{-5} \text{ S}^{-1}$ TO THE SOUTH OF THE SYSTEM CENTRE. THE VERTICAL WIND SHEAR IS LOW (05-10 KNOTS) OVER THE SYSTEM AREA. SEA SURFACE TEMPERATURE IS AROUND 26-28°C OVER THE SYSTEM AREA. TROPICAL

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

CYCLONE HEAT POTENTIAL AROUND THE SYSTEM CENTER OVER WESTCENTRAL ARABIAN SEA IS 20-40 KJ/CM² AND ALSO ALONG THE FORECAST TRACK.

TOTAL PRECIPITABLE WATER IMAGERIES INDICATE CONTINUED INCREASE IN DRY AIR INCURSION IN ALL THE SECTORS OF THE SYSTEM. ALL THESE UNFAVOURABLE ENVIRONMENTAL, DYNAMIC AND THERMODYNAMIC CONDITIONS CAUSING THE SYSTEM TO WEAKEN CONTINUOUSLY. THE SYSTEM IS MOST LIKELY TO MOVE IN A WEST-SOUTHWESTWARD DIRECTION ACROSS WEST CENTRAL ARABIAN SEA AND WEAKEN INTO A WELL MARKED LOW PRESSURE AREA BY 1800 UTC OF 01ST NOVEMBER. MAJORITY OF NUMERICAL MODELS AGREE WITH THE ABOVE INFERENCE.

REMARKS (B):

AS PER THE SATELLITE IMAGERY AT 0900 UTC OF 31ST OCTOBER, 2019, THE CURRENT INTENSITY OF THE SYSTEM IS T 3.0. ASSOCIATED SCATTERED LOW TO MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION LIES OVER LAKSHADWEEP SOUTHEAST ADJOINING EASTCENTRAL ARABIAN SEA AREAS BETWEEN LAT 10.0^N TO 14.0^N AND LONG 69.0^E TO 74.0^E. THE MINIMUM CTT IS MINUS 93⁰C.

THE ESTIMATED MAXIMUM SUSTAINED WIND SPEED IS 55 KNOTS GUSTING TO 65 KNOTS. THE ESTIMATED CENTRAL PRESSURE IS 994 HPA. THE SEA CONDITION IS VERY HIGH AROUND THE SYSTEM CENTRE. AT 0900 UTC, AMINIDIVI (43311) REPORTED MEAN SEA LEVEL PRESSURE 1005.9 HPA AND WIND 270⁰ /39 KNOTS.

THE LOW LEVEL RELATIVE VORTICITY CONTINUES TO REMAIN ABOUT 200 X10⁻⁵ SEC⁻¹ TO THE SOUTH OF THE SYSTEM CENTRE. POSITIVE VORTICITY FIELD IS SEEN UPTO 500 HPA LEVEL. THE RIDGE OVER THE SYSTEM AREA RUNS ROUGHLY ALONG 18⁰N. THE LOWER LEVEL CONVERGENCE IS ABOUT 20 X10⁻⁵S⁻¹ TO THE NORTHEAST OF THE SYSTEM CENTRE AND THE UPPER LEVEL DIVERGENCE IS ABOUT 30 X10⁻⁵S⁻¹ AROUND THE SYSTEM CENTRE. THE VERTICAL WIND SHEAR IS LOW TO MODERATE (10-15 KNOTS) OVER THE SYSTEM AREA. SEA SURFACE TEMPERATURE IS AROUND 28-30⁰C AROUND THE SYSTEM AREA AND SHOWS GRADUAL REDUCTION IN THE FORECAST DIRECTION . TROPICAL CYCLONE HEAT POTENTIAL IS AROUND 70-90 KJ/CM² OVER THE THE SYSTEM AREA AND DECREASES IN THE FORECAST DIRCTION OF THE SYSTEM.

AS THE SYSTEM IS LYING IN A FAVOURABLE ENVIRONMENT, IT IS LIKELY TO INTENSIFY FURTHER INTO A VERY SEVERE CYCLONIC STORM DURING NEXT 24 HOURS. MOST OF THE NWP MODELS ARE IN AGREEMENT WITH THIS OBSERVATION.

(RK JENAMANI)
SCIENTIST-F, RSMC, NEW DELHI

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

SAT : INSAT-3D IMG

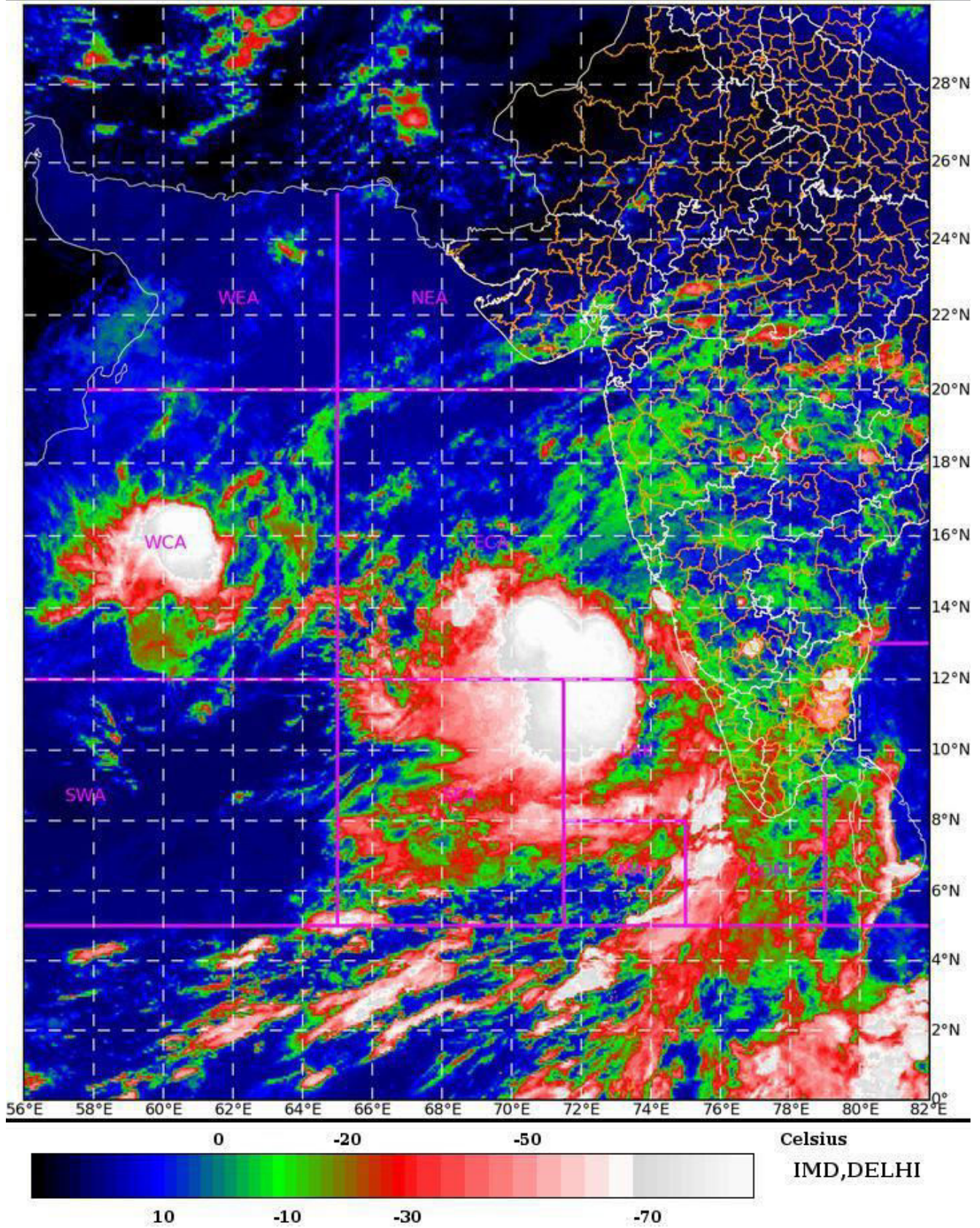
31-10-2019/(1000 to 1026) GMT

IMG_TIR1_TEMP 10.8 um

31-10-2019/(1530 to 1556) IST

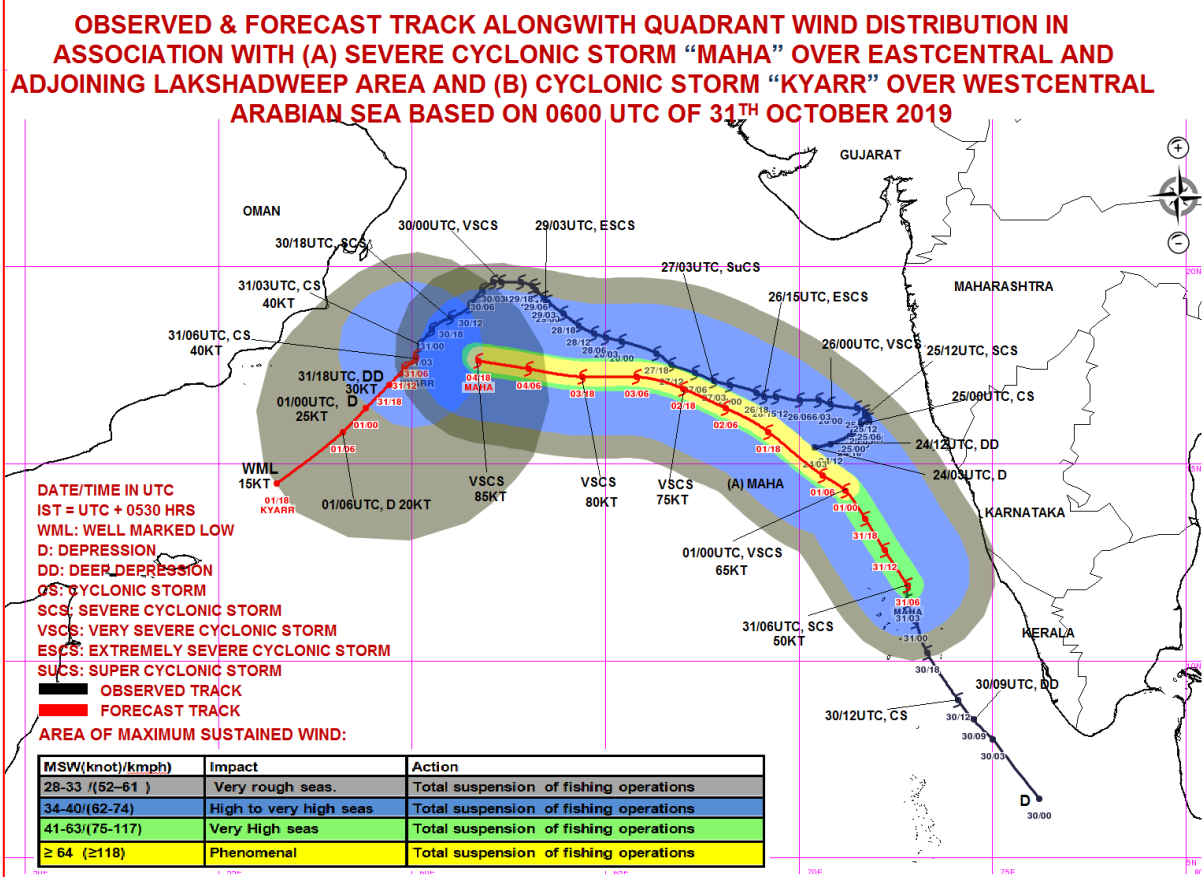
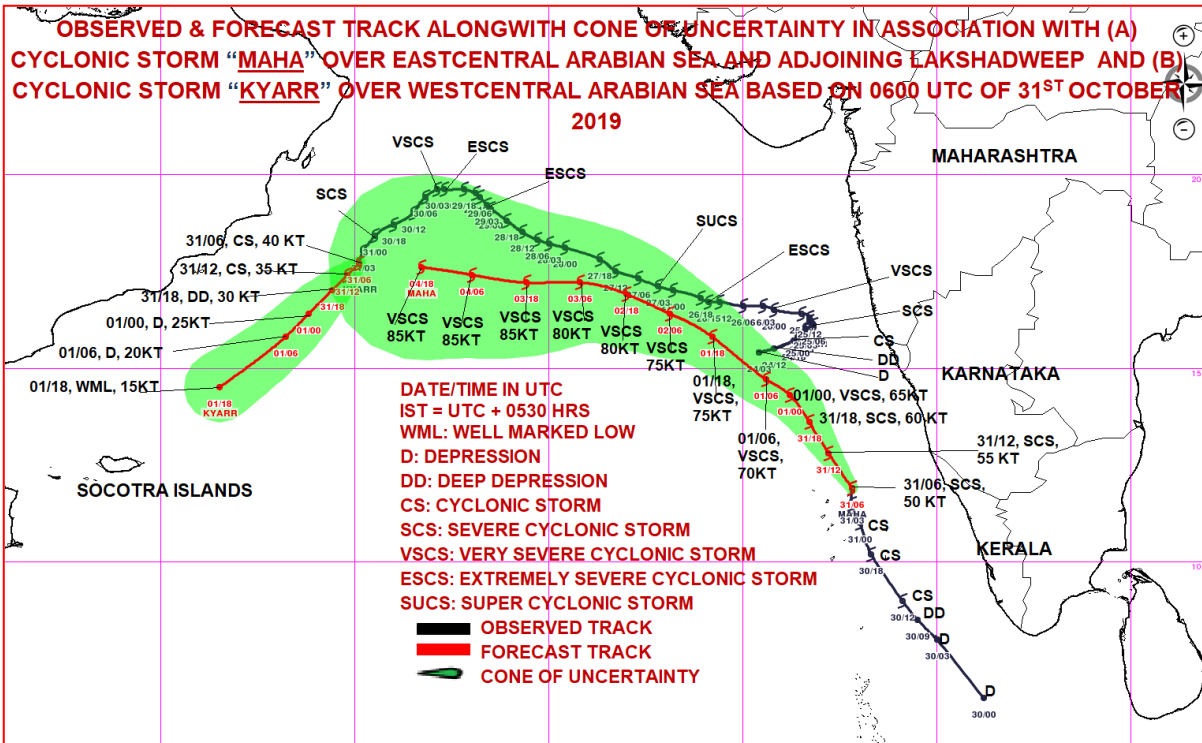


ARABIAN_SEA



PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%



PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%



**REGIONAL SPECIALISED METEOROLOGICAL CENTRE-TROPICAL CYCLONES, NEW DELHI
TROPICAL CYCLONE ADVISORY BULLETIN NO. 53 & TROPICAL CYCLONE ADVISORY
BULLETIN NO. 09**

FROM: RSMC –TROPICAL CYCLONES, NEW DELHI

**TO: STORM WARNING CENTRE, NAYPYI TAW (MYANMAR)
STORM WARNING CENTRE, BANGKOK (THAILAND)
STORM WARNING CENTRE, COLOMBO (SRILANKA)
STORM WARNING CENTRE, DHAKA (BANGLADESH)
STORM WARNING CENTRE, KARACHI (PAKISTAN)
METEOROLOGICAL OFFICE, MALE (MALDIVES)
OMAN METEOROLOGICAL DEPARTMENT, MUSCAT (THROUGH RTH JEDDAH)
YEMEN METEOROLOGICAL SERVICES, REPUBLIC OF YEMEN (THROUGH RTH JEDDAH)
NATIONAL CENTRE FOR METEOROLOGY, UAE (THROUGH RTH JEDDAH)
PRESIDENCY OF METEOROLOGY AND ENVIRONMENT, SAUDI ARABIA (THROUGH RTH JEDDAH)
IRAN METEOROLOGICAL ORGANISATION, (THROUGH RTH JEDDAH)
QATAR METEOROLOGICAL DEPARTMENT (THROUGH RTH JEDDAH)**

TROPICAL CYCLONE ADVISORY No. 53 & TROPICAL CYCLONE ADVISORY NO. 09 FOR NORTH INDIAN OCEAN (THE BAY OF BENGAL AND ARABIAN SEA) VALID FOR NEXT 120 HOURS ISSUED AT 1400 UTC OF 31.10.2019 BASED ON 1200 UTC OF 31.10.2019.

**SUB: (A) CYCLONIC STORM 'KYARR' (PRONOUNCED AS KYARR) OVER WESTCENTRAL ARABIAN SEA
(B) SEVERE CYCLONIC STORM MAHA (PRONOUNCED AS M'MAHA) OVER EASTCENTRAL ARABIAN SEA AND ADJOINING LAKSHADWEEP AREA**

(A) CYCLONIC STORM 'KYARR' (PRONOUNCED AS KYARR) OVER WESTCENTRAL ARABIAN SEA

THE **CYCLONIC STORM 'KYARR'** OVER WESTCENTRAL ARABIAN SEA MOVED SOUTH-SOUTHWESTWARDS WITH A SPEED OF 07 KMPH DURING PAST 06 HRS AND LAY CENTRED AT 1730 HRS IST OF 31ST OCTOBER, 2019 OVER WESTCENTRAL ARABIAN SEA NEAR LATITUDE 17.4°N AND LONGITUDE 59.9°E, ABOUT 1380 KM WEST-SOUTHWEST OF MUMBAI (43003), 620 KM EAST-NORTHEAST OF SALALAH (41316) AND 380 KM SOUTH-SOUTHEAST OF MASIRAH (41288). IT IS VERY LIKELY TO MOVE SOUTHWESTWARDS ACROSS WESTCENTRAL ARABIAN SEA DURING NEXT 24 HOURS. IT IS VERY LIKELY TO WEAKEN INTO A DEEP DEPRESSION DURING NEXT 06 HOURS AND FURTHER INTO A DEPRESSION DURING SUBSEQUENT 06 HOURS.

FORECAST TRACK AND INTENSITY ARE GIVEN IN THE FOLLOWING TABLE:

DATE/TIME(UTC)	POSITION (LAT. °N/ LONG. °E)	MAXIMUM SUSTAINED SURFACE WIND SPEED (KMPH)	CATEGORY OF CYCLONIC DISTURBANCE
31.10.19/1200	17.4/59.9	60-70 GUSTING TO 80	CYCLONIC STORM
31.10.19/1800	17.0/59.6	50-60 GUSTING TO 70	DEEP DEPRESSION
01.11.19/0000	16.4/59.2	40-50 GUSTING TO 60	DEPRESSION
01.11.19/0600	15.8/58.7	30-40 GUSTING TO 50	DEPRESSION

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

(B)SEVERE CYCLONIC STORM MAHA (PRONOUNCED AS M'MAHA) OVER EASTCENTRAL ARABIAN SEA AND ADJOINING LAKSHADWEEP AREA

THE SEVERE CYCLONIC STORM MAHA (PRONOUNCED AS M'MAHA) OVER EASTCENTRAL ARABIAN SEA AND ADJOINING LAKSHADWEEP AREA MOVED NORTHNORTHWESTWARDS WITH A SPEED OF 18 KMPH DURING PAST 06 HOURS, CROSSED LAKSHADWEEP ISLANDS AND LAY CENTERED AT 1200 HRS UTC OF 31ST OCTOBER, 2019 NEAR LATITUDE 12.8°N AND LONGITUDE 72.4°E OVER EASTCENTRAL ARABIAN SEA AND ADJOINING LAKSHADWEEP AREA ABOUT 190 KM NORTHNORTHEAST OF AMINIDIVI (43311) AND 400 KM WEST-NORTHWEST OF KOZHIKODE (43314). IT IS VERY LIKELY TO MOVE NORTH-NORTHWESTWARDS DURING NEXT 06 HOURS. THEN, IT IS VERY LIKELY TO MOVE NORTHWESTWARDS DURING SUBSEQUENT 06 HOURS AND THEREAFTER MOVE WEST-NORTHWESTWARDS. IT IS VERY LIKELY TO INTENSIFY INTO A VERY SEVERE CYCLONIC STORM OVER EASTCENTRAL ARABIAN SEA DURING NEXT 24 HOURS.

FORECAST TRACK AND INTENSITY ARE GIVEN IN THE FOLLOWING TABLE:

DATE/TIME(UTC)	POSITION (LAT. °N/ LONG. °E)	MAXIMUM SUSTAINED SURFACE WIND SPEED (KMPH)	CATEGORY OF CYCLONIC DISTURBANCE
31.10.19/1200	12.8/72.4	90-100 GUSTING TO 110	SEVERE CYCLONIC STORM
31.10.19/1800	13.6/71.7	100-110 GUSTING TO 120	SEVERE CYCLONIC STORM
01.11.19/0000	14.3/71.2	110-120 GUSTING TO 135	SEVERE CYCLONIC STORM
01.11.19/0600	14.7/70.6	120-130 GUSTING TO 145	VERY SEVERE CYCLONIC STORM
01.11.19/1200	15.3/69.9	120-130 GUSTING TO 145	VERY SEVERE CYCLONIC STORM
02.11.19/0000	16.1/68.7	130-140 GUSTING TO 155	VERY SEVERE CYCLONIC STORM
02.11.19/1200	16.6/67.6	130-140 GUSTING TO 155	VERY SEVERE CYCLONIC STORM
03.11.19/0000	17.0/66.4	135-145 GUSTING TO 160	VERY SEVERE CYCLONIC STORM
03.11.19/1200	17.2/65.1	135-145 GUSTING TO 160	VERY SEVERE CYCLONIC STORM
04.11.19/0000	17.3/63.7	145-155 GUSTING TO 170	VERY SEVERE CYCLONIC STORM
04.11.19/1200	17.5/62.3	145-155 GUSTING TO 170	VERY SEVERE CYCLONIC STORM
05.11.19/0000	17.7/60.9	150-160 GUSTING TO 175	VERY SEVERE CYCLONIC STORM

REMARKS (A):

AS PER THE SATELLITE IMAGERY AT 1200 UTC OF 31ST OCTOBER, 2019, THE CURRENT INTENSITY OF THE SYSTEM IS T 2.0/2.5. ASSOCIATED BROKEN LOW TO MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION LIES OVER WESTCENTRAL ARABIAN SEA BETWEEN LAT 14.5°N TO 17.2°N AND LONG 59.0°E TO 62.0°E. THE MINIMUM CTT IS MINUS 93 DEG C.

THE ESTIMATED MAXIMUM SUSTAINED WIND SPEED IS 35 KNOTS GUSTING TO 45 KNOTS. THE ESTIMATED CENTRAL PRESSURE IS 996 HPA. THE SEA CONDITION IS VERY HIGH AROUND THE SYSTEM CENTRE.

THE MJO LIES IN THE PHASE 4 WITH AMPLITUDE LESS THAN 1. IT WILL ENTER INTO PHASE 5 FROM 01ST NOVEMBER WITH AMPLITUDE LESS THAN 1 AND REMAIN THERE FOR NEXT 4-5 DAYS. THE LOW LEVEL RELATIVE VORTICITY FURTHER REDUCED AND IS ABOUT $100 \times 10^{-5} \text{ SEC}^{-1}$ AROUND THE SYSTEM CENTRE. THE LOWER LEVEL CONVERGENCE IS ABOUT $10 \times 10^{-5} \text{ S}^{-1}$ TO THE SOUTHEAST OF THE SYSTEM CENTRE AND THE UPPER LEVEL DIVERGENCE IS ABOUT $20 \times 10^{-5} \text{ S}^{-1}$ TO THE SOUTH OF THE SYSTEM CENTRE. THE VERTICAL WIND SHEAR IS LOW (05-10 KNOTS) OVER THE SYSTEM AREA. SEA SURFACE TEMPERATURE IS AROUND 26-28°C OVER THE SYSTEM AREA. TROPICAL CYCLONE HEAT POTENTIAL AROUND THE SYSTEM CENTER OVER WESTCENTRAL ARABIAN SEA IS 20-40 KJ/CM² AND ALSO ALONG THE FORECAST TRACK.

TOTAL PRECIPITABLE WATER IMAGERIES INDICATE CONTINUED INCREASE IN DRY AIR INCURSION IN ALL THE SECTORS OF THE SYSTEM. ALL THESE UNFAVOURABLE ENVIRONMENTAL, DYNAMIC AND THERMODYNAMIC CONDITIONS CAUSING THE SYSTEM TO WEAKEN CONTINUOUSLY. THE SYSTEM IS MOST LIKELY TO MOVE IN A WEST-SOUTHWESTWARD DIRECTION ACROSS WEST CENTRAL ARABIAN SEA AND WEAKEN

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

INTO A WELL MARKED LOW PRESSURE AREA BY 1800 UTC OF 01ST NOVEMBER. MAJORITY OF NUMERICAL MODELS AGREE WITH THE ABOVE INFERENCE.

REMARKS (B):

AS PER THE SATELLITE IMAGERY AT 1200 UTC OF 31ST OCTOBER, 2019, THE CURRENT INTENSITY OF THE SYSTEM IS T 3.0. ASSOCIATED SCATTERED LOW TO MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION LIES OVER LAKSHADWEEP SOUTHEAST ADJOINING EASTCENTRAL ARABIAN SEA AREAS BETWEEN LAT 10.0⁰N TO 14.0⁰N AND LONG 69.0⁰E TO 73.5⁰E. THE MINIMUM CTT IS MINUS 93⁰C.

THE ESTIMATED MAXIMUM SUSTAINED WIND SPEED IS 55 KNOTS GUSTING TO 65 KNOTS. THE ESTIMATED CENTRAL PRESSURE IS 994 HPA. THE SEA CONDITION IS VERY HIGH AROUND THE SYSTEM CENTRE. AT 1200 UTC, AMINIDIVI (43311) REPORTED MEAN SEA LEVEL PRESSURE 1006.2 HPA AND WIND 270⁰ /32 KNOTS.

THE LOW LEVEL RELATIVE VORTICITY CONTINUES TO REMAIN ABOUT $200 \times 10^{-5} \text{ SEC}^{-1}$ TO THE SOUTH OF THE SYSTEM CENTRE. POSITIVE VORTICITY FIELD IS SEEN UPTO 500 HPA LEVEL. THE RIDGE OVER THE SYSTEM AREA RUNS ROUGHLY ALONG 18⁰N. THE LOWER LEVEL CONVERGENCE IS ABOUT $20 \times 10^{-5} \text{ S}^{-1}$ TO THE NORTHEAST OF THE SYSTEM CENTRE AND THE UPPER LEVEL DIVERGENCE IS ABOUT $30 \times 10^{-5} \text{ S}^{-1}$ AROUND THE SYSTEM CENTRE. THE VERTICAL WIND SHEAR IS LOW TO MODERATE (10-15 KNOTS) OVER THE SYSTEM AREA. SEA SURFACE TEMPERATURE IS AROUND 28-30⁰C AROUND THE SYSTEM AREA AND SHOWS GRADUAL REDUCTION IN THE FORECAST DIRECTION . TROPICAL CYCLONE HEAT POTENTIAL IS AROUND 70-90 KJ/CM² OVER THE THE SYSTEM AREA AND DECREASES IN THE FORECAST DIRCTION OF THE SYSTEM.

AS THE SYSTEM IS LYING IN A FAVOURABLE ENVIRONMENT, IT IS LIKELY TO INTENSIFY FURTHER INTO A VERY SEVERE CYCLONIC STORM DURING NEXT 24 HOURS. MOST OF THE NWP MODELS ARE IN AGREEMENT WITH THIS OBSERVATION.

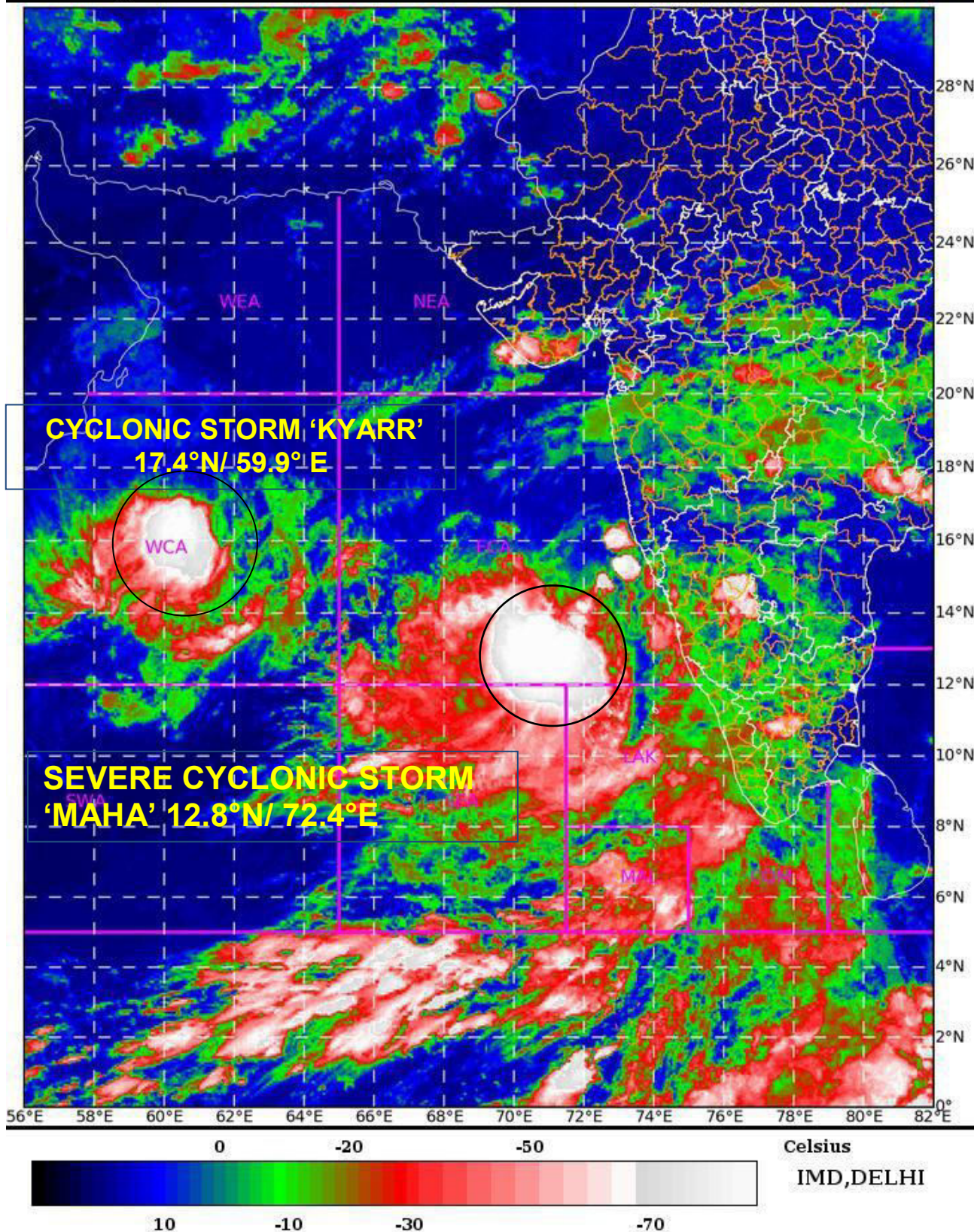
(RK JENAMANI)
SCIENTIST-F, RSMC, NEW DELHI

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

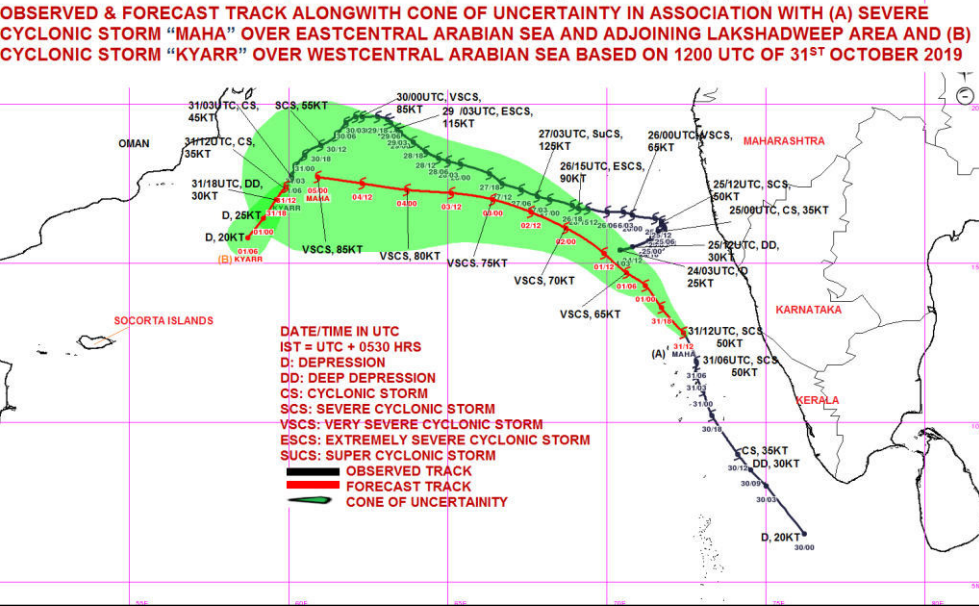
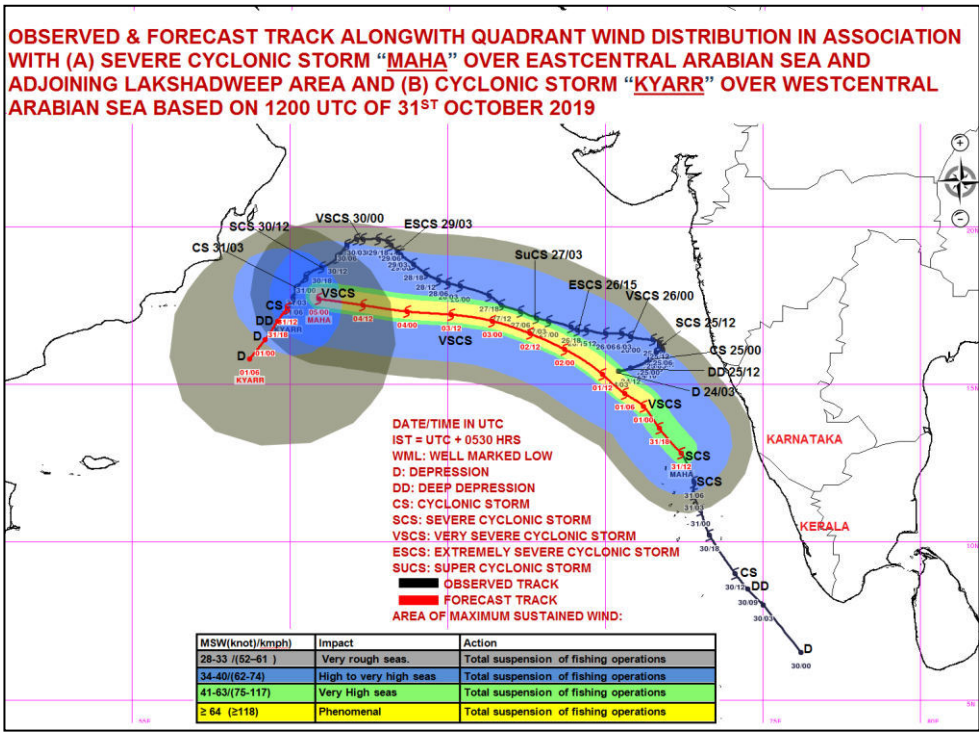


ARABIAN SEA



PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%



PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)
 NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%



**REGIONAL SPECIALISED METEOROLOGICAL CENTRE-TROPICAL CYCLONES, NEW DELHI
TROPICAL CYCLONE ADVISORY BULLETIN NO. 54 & TROPICAL CYCLONE ADVISORY
BULLETIN NO. 10**

FROM: RSMC –TROPICAL CYCLONES, NEW DELHI

**TO: STORM WARNING CENTRE, NAYPYI TAW (MYANMAR)
STORM WARNING CENTRE, BANGKOK (THAILAND)
STORM WARNING CENTRE, COLOMBO (SRILANKA)
STORM WARNING CENTRE, DHAKA (BANGLADESH)
STORM WARNING CENTRE, KARACHI (PAKISTAN)
METEOROLOGICAL OFFICE, MALE (MALDIVES)
OMAN METEOROLOGICAL DEPARTMENT, MUSCAT (THROUGH RTH JEDDAH)
YEMEN METEOROLOGICAL SERVICES, REPUBLIC OF YEMEN (THROUGH RTH JEDDAH)
NATIONAL CENTRE FOR METEOROLOGY, UAE (THROUGH RTH JEDDAH)
PRESIDENCY OF METEOROLOGY AND ENVIRONMENT, SAUDI ARABIA (THROUGH RTH JEDDAH)
IRAN METEOROLOGICAL ORGANISATION, (THROUGH RTH JEDDAH)
QATAR METEOROLOGICAL DEPARTMENT (THROUGH RTH JEDDAH)**

TROPICAL CYCLONE ADVISORY No. 54 & TROPICAL CYCLONE ADVISORY NO. 10 FOR NORTH INDIAN OCEAN (THE BAY OF BENGAL AND ARABIAN SEA) VALID FOR NEXT 120 HOURS ISSUED AT 1700 UTC OF 31.10.2019 BASED ON 1500 UTC OF 31.10.2019.

**SUB: (A) CYCLONIC STORM 'KYARR' (PRONOUNCED AS KYARR) WEAKENED INTO A DEEP DEPRESSION OVER WESTCENTRAL ARABIAN SEA
(B) SEVERE CYCLONIC STORM 'MAHA' (PRONOUNCED AS M'MAHA) OVER EASTCENTRAL ARABIAN SEA AND ADJOINING LAKSHADWEEP AREA**

(A) CYCLONIC STORM 'KYARR' (PRONOUNCED AS KYARR) WEAKENED INTO A DEEP DEPRESSION OVER WESTCENTRAL ARABIAN SEA

THE **CYCLONIC STORM 'KYARR'** OVER WESTCENTRAL ARABIAN SEA MOVED SOUTH-SOUTHWESTWARDS WITH A SPEED OF 09 KMPH DURING PAST 06 HRS, WEAKENED INTO A DEEP DEPRESSION AND LAY CENTRED AT 1500 HOURS UTC OF 31ST OCTOBER, 2019 OVER WESTCENTRAL ARABIAN SEA NEAR LATITUDE 17.2°N AND LONGITUDE 59.6°E, ABOUT 1410 KM WEST-SOUTHWEST OF MUMBAI (43003), 580 KM EAST-NORTHEAST OF SALALAH (41316) AND 390 KM SOUTH-SOUTHEAST OF MASIRAH (41288). IT IS VERY LIKELY TO MOVE SOUTHWESTWARDS ACROSS WESTCENTRAL ARABIAN SEA DURING NEXT 24 HOURS. IT IS VERY LIKELY TO WEAKEN FURTHER INTO A DEPRESSION DURING NEXT 12 HOURS.

FORECAST TRACK AND INTENSITY ARE GIVEN IN THE FOLLOWING TABLE:

DATE/TIME(UTC)	POSITION (LAT. °N/ LONG. °E)	MAXIMUM SUSTAINED SURFACE WIND SPEED (KMPH)	CATEGORY OF CYCLONIC DISTURBANCE
31.10.19/1500	17.2/59.6	55-65 GUSTING TO 75	DEEP DEPRESSION
31.10.19/1800	17.0/59.3	50-60 GUSTING TO 70	DEEP DEPRESSION
01.11.19/0000	16.4/59.0	40-50 GUSTING TO 60	DEPRESSION
01.11.19/0600	15.8/58.7	35-45 GUSTING TO 55	DEPRESSION

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

(B)SEVERE CYCLONIC STORM MAHA (PRONOUNCED AS M'MAHA) OVER EASTCENTRAL ARABIAN SEA AND ADJOINING LAKSHADWEEP AREA

THE SEVERE CYCLONIC STORM MAHA (PRONOUNCED AS M'MAHA) OVER EASTCENTRAL ARABIAN SEA AND ADJOINING LAKSHADWEEP AREA MOVED NORTHNORTHWESTWARDS WITH A SPEED OF 21 KMPH DURING PAST 06 HOURS, CROSSED LAKSHADWEEP ISLANDS AND LAY CENTERED AT 1500 HRS UTC OF 31ST OCTOBER, 2019 NEAR LATITUDE 13.3°N AND LONGITUDE 72.2°E OVER EASTCENTRAL ARABIAN SEA AND ADJOINING LAKSHADWEEP AREA ABOUT 250 KM NORTHNORTHEAST OF AMINIDIVI (43311) AND 450 KM WEST-NORTHWEST OF KOZHIKODE (43314). IT IS VERY LIKELY TO MOVE NORTH-NORTHWESTWARDS DURING NEXT 06 HOURS. THEN, IT IS VERY LIKELY TO MOVE NORTHWESTWARDS DURING SUBSEQUENT 06 HOURS AND THEREAFTER MOVE WEST-NORTHWESTWARDS. IT IS VERY LIKELY TO INTENSIFY INTO A VERY SEVERE CYCLONIC STORM OVER EASTCENTRAL ARABIAN SEA DURING NEXT 24 HOURS.

FORECAST TRACK AND INTENSITY ARE GIVEN IN THE FOLLOWING TABLE:

DATE/TIME(UTC)	POSITION (LAT. °N/ LONG. °E)	MAXIMUM SUSTAINED SURFACE WIND SPEED (KMPH)	CATEGORY OF CYCLONIC DISTURBANCE
31.10.19/1500	13.3/72.2	95-105 GUSTING TO 115	SEVERE CYCLONIC STORM
31.10.19/1800	13.6/71.7	100-110 GUSTING TO 120	SEVERE CYCLONIC STORM
01.11.19/0000	14.3/71.2	105-115 GUSTING TO 125	SEVERE CYCLONIC STORM
01.11.19/0600	14.7/70.6	110-120 GUSTING TO 130	VERY SEVERE CYCLONIC STORM
01.11.19/1200	15.3/69.9	120-130 GUSTING TO 145	VERY SEVERE CYCLONIC STORM
02.11.19/0000	16.1/68.7	125-135 GUSTING TO 150	VERY SEVERE CYCLONIC STORM
02.11.19/1200	16.6/67.6	130-140 GUSTING TO 155	VERY SEVERE CYCLONIC STORM
03.11.19/0000	17.0/66.4	135-145 GUSTING TO 160	VERY SEVERE CYCLONIC STORM
03.11.19/1200	17.2/65.1	140-150 GUSTING TO 165	VERY SEVERE CYCLONIC STORM
04.11.19/0000	17.3/63.7	145-155 GUSTING TO 170	VERY SEVERE CYCLONIC STORM
04.11.19/1200	17.5/62.3	145-155 GUSTING TO 170	VERY SEVERE CYCLONIC STORM
05.11.19/0000	17.7/60.9	150-160 GUSTING TO 175	VERY SEVERE CYCLONIC STORM

REMARKS (A):

AS PER THE SATELLITE IMAGERY AT 1500 UTC OF 31ST OCTOBER, 2019, THE CURRENT INTENSITY OF THE SYSTEM IS T 2.0/2.5. ASSOCIATED BROKEN LOW TO MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION LIES OVER WESTCENTRAL ARABIAN SEA BETWEEN LAT 15.5°N TO 16.5°N AND LONG 60.5°E TO 61.5°E. THE MINIMUM CTT IS MINUS 93 DEG C.

THE ESTIMATED MAXIMUM SUSTAINED WIND SPEED IS 30 KNOTS GUSTING TO 35 KNOTS. THE ESTIMATED CENTRAL PRESSURE IS 996 HPA. THE SEA CONDITION IS VERY HIGH AROUND THE SYSTEM CENTRE.

THE MJO LIES IN THE PHASE 4 WITH AMPLITUDE LESS THAN 1. IT WILL ENTER INTO PHASE 5 FROM 01ST NOVEMBER WITH AMPLITUDE LESS THAN 1 AND REMAIN THERE FOR NEXT 4-5 DAYS. THE LOW LEVEL RELATIVE VORTICITY FURTHER REDUCED AND IS ABOUT $100 \times 10^{-5} \text{ SEC}^{-1}$ AROUND THE SYSTEM CENTRE. THE LOWER LEVEL CONVERGENCE IS ABOUT $10 \times 10^{-5} \text{ S}^{-1}$ TO THE SOUTHEAST OF THE SYSTEM CENTRE AND THE UPPER LEVEL DIVERGENCE IS ABOUT $10 \times 10^{-5} \text{ S}^{-1}$ TO THE SOUTH OF THE SYSTEM CENTRE. THE VERTICAL WIND SHEAR IS LOW (05-10 KNOTS) OVER THE SYSTEM AREA. SEA SURFACE TEMPERATURE IS AROUND 26-28°C OVER THE SYSTEM AREA. TROPICAL CYCLONE HEAT POTENTIAL AROUND THE SYSTEM CENTER OVER WESTCENTRAL ARABIAN SEA IS 20-40 KJ/CM² AND ALSO ALONG THE FORECAST TRACK.

TOTAL PRECIPITABLE WATER IMAGERIES INDICATE CONTINUED INCREASE IN DRY AIR INCURSION IN ALL THE SECTORS OF THE SYSTEM. ALL THESE UNFAVOURABLE ENVIRONMENTAL, DYNAMIC AND THERMODYNAMIC CONDITIONS CAUSING THE SYSTEM TO WEAKEN CONTINUOUSLY. THE SYSTEM IS MOST LIKELY TO MOVE IN A WEST-SOUTHWESTWARD DIRECTION ACROSS WEST CENTRAL ARABIAN SEA AND WEAKEN

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

INTO A DEPRESSION BY 0000 UTC OF 01ST NOVEMBER. MAJORITY OF NUMERICAL MODELS AGREE WITH THE ABOVE INFERENCE.

REMARKS (B):

AS PER THE SATELLITE IMAGERY AT 1500 UTC OF 31ST OCTOBER, 2019, THE CURRENT INTENSITY OF THE SYSTEM IS T 3.0. ASSOCIATED SCATTERED LOW TO MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION LIES OVER LAKSHADWEEP SOUTHEAST ADJOINING EASTCENTRAL ARABIAN SEA AREAS BETWEEN LAT 12.5⁰N TO 14.0⁰N AND LONG 69.0⁰E TO 73.572.0⁰E. THE MINIMUM CTT IS MINUS 93⁰C.

THE ESTIMATED MAXIMUM SUSTAINED WIND SPEED IS 55 KNOTS GUSTING TO 65 KNOTS. THE ESTIMATED CENTRAL PRESSURE IS 994 HPA. THE SEA CONDITION IS VERY HIGH AROUND THE SYSTEM CENTRE. AT 1500 UTC, AMINIDIVI (43311) REPORTED MEAN SEA LEVEL PRESSURE 1008.3 HPA AND WIND 270⁰ /24 KNOTS.

THE LOW LEVEL RELATIVE VORTICITY CONTINUES TO REMAIN ABOUT $200 \times 10^{-5} \text{ SEC}^{-1}$ TO THE SOUTH OF THE SYSTEM CENTRE. POSITIVE VORTICITY FIELD IS SEEN UPTO 500 HPA LEVEL. THE RIDGE OVER THE SYSTEM AREA RUNS ROUGHLY ALONG 18⁰N. THE LOWER LEVEL CONVERGENCE IS ABOUT $20 \times 10^{-5} \text{ S}^{-1}$ TO THE NORTHEAST OF THE SYSTEM CENTRE AND THE UPPER LEVEL DIVERGENCE IS ABOUT $30 \times 10^{-5} \text{ S}^{-1}$ AROUND THE SYSTEM CENTRE. THE VERTICAL WIND SHEAR IS LOW TO MODERATE (10-15 KNOTS) OVER THE SYSTEM AREA. SEA SURFACE TEMPERATURE IS AROUND 28-30⁰C AROUND THE SYSTEM AREA AND SHOWS GRADUAL REDUCTION IN THE FORECAST DIRECTION . TROPICAL CYCLONE HEAT POTENTIAL IS AROUND 70-90 KJ/CM² OVER THE THE SYSTEM AREA AND DECREASES IN THE FORECAST DIRCTION OF THE SYSTEM.

AS THE SYSTEM IS LYING IN A FAVOURABLE ENVIRONMENT, IT IS LIKELY TO INTENSIFY FURTHER INTO A VERY SEVERE CYCLONIC STORM DURING NEXT 24 HOURS. MOST OF THE NWP MODELS ARE IN AGREEMENT WITH THIS OBSERVATION.

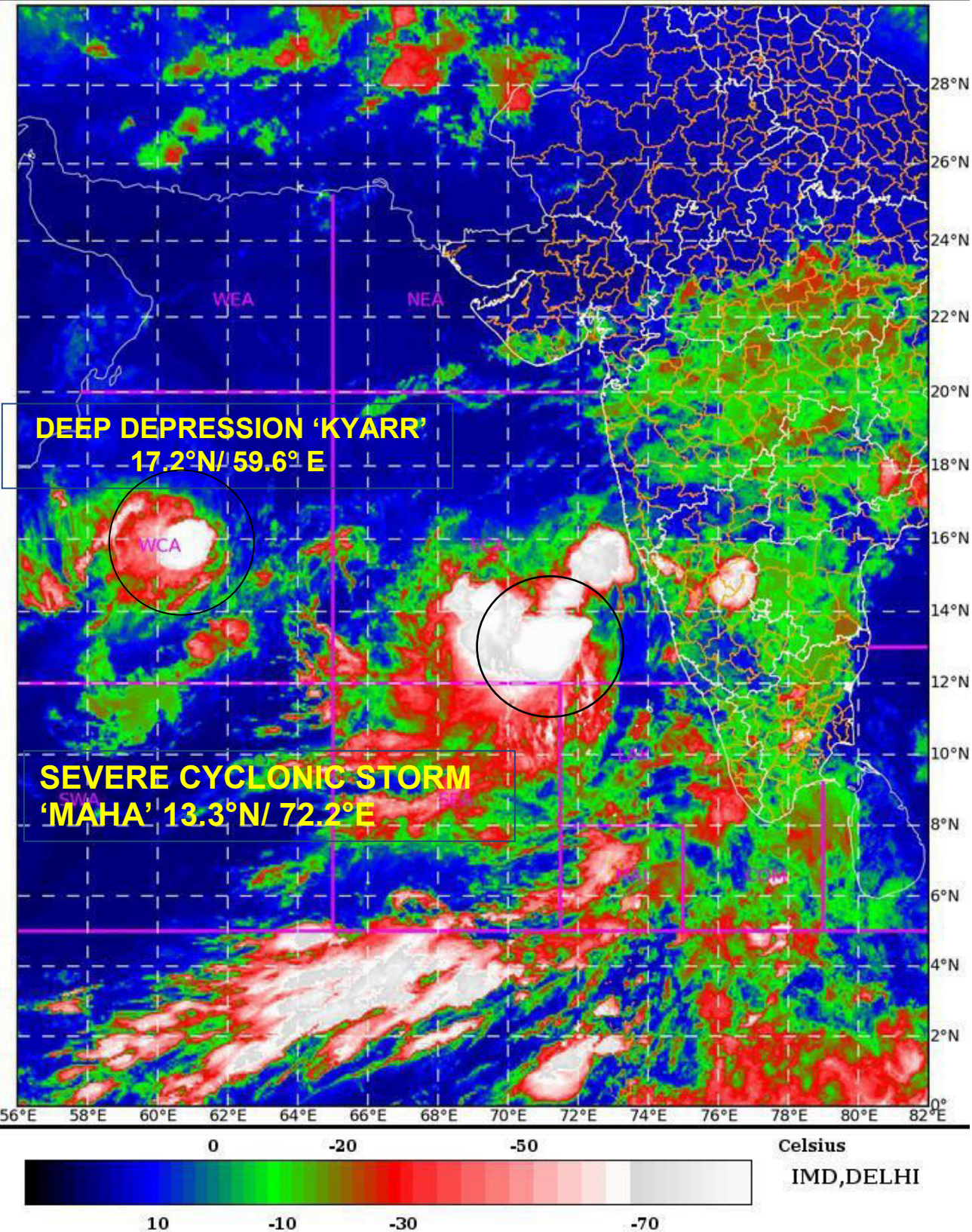
(D.R PATTANIK)
SCIENTIST-E, RSMC, NEW DELHI

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

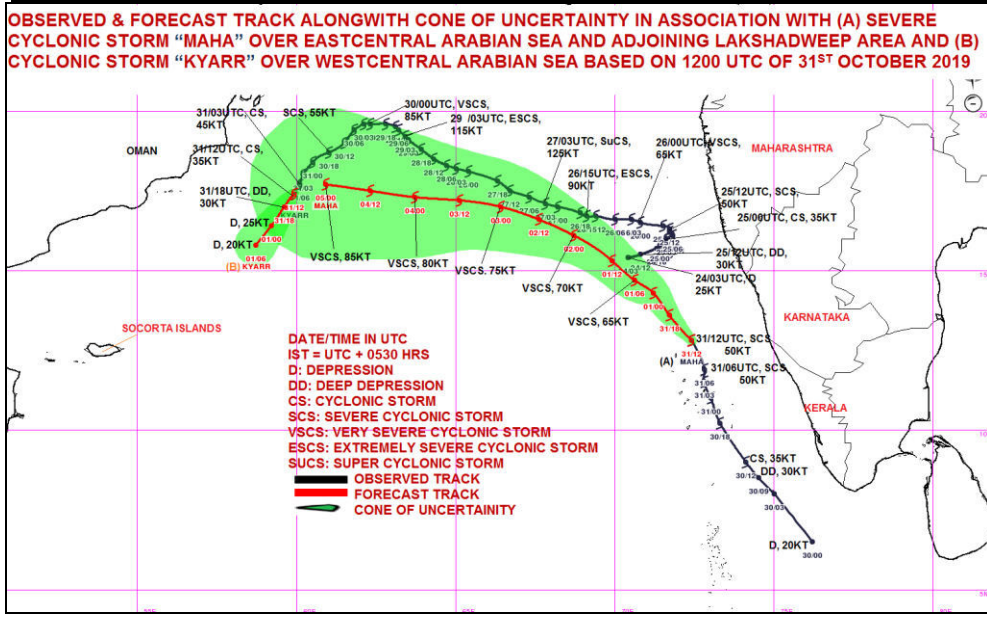
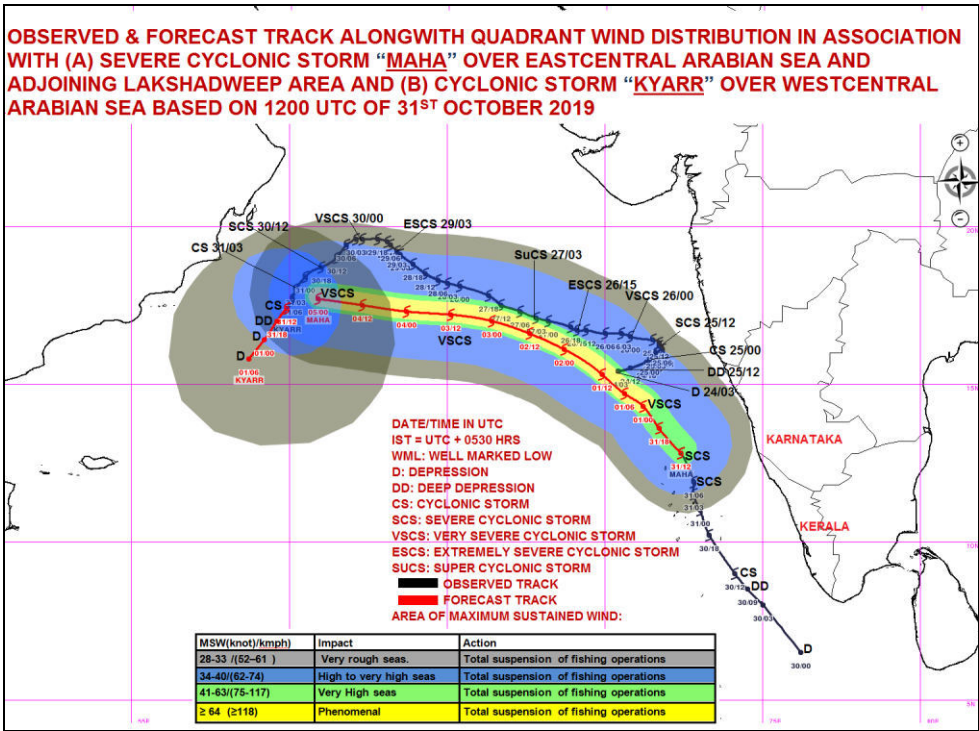


ARABIAN_SEA



PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%



PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)
 NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%



**REGIONAL SPECIALISED METEOROLOGICAL CENTRE-TROPICAL CYCLONES, NEW DELHI
TROPICAL CYCLONE ADVISORY BULLETIN NO. 55 & TROPICAL CYCLONE ADVISORY
BULLETIN NO. 11**

FROM: RSMC –TROPICAL CYCLONES, NEW DELHI

**TO: STORM WARNING CENTRE, NAYPYI TAW (MYANMAR)
STORM WARNING CENTRE, BANGKOK (THAILAND)
STORM WARNING CENTRE, COLOMBO (SRILANKA)
STORM WARNING CENTRE, DHAKA (BANGLADESH)
STORM WARNING CENTRE, KARACHI (PAKISTAN)
METEOROLOGICAL OFFICE, MALE (MALDIVES)
OMAN METEOROLOGICAL DEPARTMENT, MUSCAT (THROUGH RTH JEDDAH)
YEMEN METEOROLOGICAL SERVICES, REPUBLIC OF YEMEN (THROUGH RTH JEDDAH)
NATIONAL CENTRE FOR METEOROLOGY, UAE (THROUGH RTH JEDDAH)
PRESIDENCY OF METEOROLOGY AND ENVIRONMENT, SAUDI ARABIA (THROUGH RTH JEDDAH)
IRAN METEOROLOGICAL ORGANISATION, (THROUGH RTH JEDDAH)
QATAR METEOROLOGICAL DEPARTMENT (THROUGH RTH JEDDAH)**

TROPICAL CYCLONE ADVISORY No. 55 & TROPICAL CYCLONE ADVISORY NO. 11 FOR NORTH INDIAN OCEAN (THE BAY OF BENGAL AND ARABIAN SEA) VALID FOR NEXT 120 HOURS ISSUED AT 2100 UTC OF 31.10.2019 BASED ON 1800 UTC OF 31.10.2019.

**SUB: (A) DEEP DEPRESSION OVER WESTCENTRAL ARABIAN SEA
(B) SEVERE CYCLONIC STORM 'MAHA' (PRONOUNCED AS M'MAHA) OVER EASTCENTRAL ARABIAN SEA AND ADJOINING LAKSHADWEEP AREA**

(A) DEEP DEPRESSION OVER WESTCENTRAL ARABIAN SEA

THE **DEEP DEPRESSION** OVER WESTCENTRAL ARABIAN SEA MOVED SOUTH-SOUTHWESTWARDS WITH A SPEED OF 09 KMPH DURING PAST 06 HRS AND LAY CENTRED AT 1800 HOURS UTC OF 31ST OCTOBER, 2019 OVER WESTCENTRAL ARABIAN SEA NEAR LATITUDE 16.8°N AND LONGITUDE 59.6°E, ABOUT 1420 KM WEST-SOUTHWEST OF MUMBAI (43003), 590 KM EAST-NORTHEAST OF SALALAH (41316) AND 430 KM SOUTH-SOUTHEAST OF MASIRAH (41288). IT IS VERY LIKELY TO MOVE SOUTHWESTWARDS ACROSS WESTCENTRAL ARABIAN SEA DURING NEXT 24 HOURS. IT IS VERY LIKELY TO WEAKEN FURTHER INTO A DEPRESSION DURING NEXT 12 HOURS.

FORECAST TRACK AND INTENSITY ARE GIVEN IN THE FOLLOWING TABLE:

DATE/TIME(UTC)	POSITION (LAT. °N/ LONG. °E)	MAXIMUM SUSTAINED SURFACE WIND SPEED (KMPH)	CATEGORY OF CYCLONIC DISTURBANCE
31.10.19/1800	16.8/59.6	55-65 gusting to 75	Deep Depression
01.11.19/0000	16.4/59.2	50-60 gusting to 70	Deep Depression
01.11.19/0600	16.0/58.9	45-55 gusting to 65	Depression
01.11.19/1200	15.6/58.6	40-50 gusting to 60	Depression
01.11.19/1800	15.0/58.3	40-50 gusting to 60	Depression
02.11.19/0600	14.4/58.0	30-40 gusting to 50	Depression

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

(B) SEVERE CYCLONIC STORM MAHA (PRONOUNCED AS M'MAHA) OVER EASTCENTRAL ARABIAN SEA AND ADJOINING LAKSHADWEEP AREA

THE SEVERE CYCLONIC STORM MAHA (PRONOUNCED AS M'MAHA) OVER EASTCENTRAL ARABIAN SEA AND ADJOINING LAKSHADWEEP AREA MOVED NORTH-NORTHWESTWARDS WITH A SPEED OF 17 KMPH DURING PAST 06 HOURS, AND LAY CENTERED AT 1800 HRS UTC OF 31ST OCTOBER, 2019 NEAR LATITUDE 13.7°N AND LONGITUDE 72.1°E OVER EASTCENTRAL ARABIAN SEA AND ADJOINING LAKSHADWEEP AREA ABOUT 290 KM NORTHNORTHEAST OF AMINIDIVI (43311) AND 470 KM WEST-NORTHWEST OF KOZHIKODE (43314). IT IS VERY LIKELY TO MOVE NORTH-NORTHWESTWARDS DURING NEXT 06 HOURS. THEN, IT IS VERY LIKELY TO MOVE NORTHWESTWARDS DURING SUBSEQUENT 06 HOURS AND THEREAFTER MOVE WEST-NORTHWESTWARDS. IT IS VERY LIKELY TO INTENSIFY INTO A VERY SEVERE CYCLONIC STORM OVER EASTCENTRAL ARABIAN SEA DURING NEXT 24 HOURS.

FORECAST TRACK AND INTENSITY ARE GIVEN IN THE FOLLOWING TABLE:

DATE/TIME(UTC)	POSITION (LAT. °N/ LONG. °E)	MAXIMUM SUSTAINED SURFACE WIND SPEED (KMPH)	CATEGORY OF CYCLONIC DISTURBANCE
31.10.19/1800	13.7/72.1	95-105 GUSTING TO 115	SEVERE CYCLONIC STORM
01.11.19/0000	14.4/71.5	105-115 GUSTING TO 125	SEVERE CYCLONIC STORM
01.11.19/0600	14.9/71.0	110-120 GUSTING TO 130	VERY SEVERE CYCLONIC STORM
01.11.19/1200	15.4/70.4	120-130 GUSTING TO 145	VERY SEVERE CYCLONIC STORM
01.11.19/1800	15.9/69.8	125-135 GUSTING TO 150	VERY SEVERE CYCLONIC STORM
02.11.19/0600	16.3/68.5	130-140 GUSTING TO 155	VERY SEVERE CYCLONIC STORM
02.11.19/1800	16.8/67.5	130-140 GUSTING TO 155	VERY SEVERE CYCLONIC STORM
03.11.19/0600	17.1/66.4	135-145 GUSTING TO 160	VERY SEVERE CYCLONIC STORM
03.11.19/1800	17.3/65.3	140-150 GUSTING TO 165	VERY SEVERE CYCLONIC STORM
04.11.19/0600	17.4/63.5	145-155 GUSTING TO 170	VERY SEVERE CYCLONIC STORM
04.11.19/1800	17.7/62.0	145-155 GUSTING TO 170	VERY SEVERE CYCLONIC STORM
05.11.19/0600	17.8/60.8	150-160 GUSTING TO 175	VERY SEVERE CYCLONIC STORM
05.11.19/1800	17.9/59.7	150-160 GUSTING TO 175	VERY SEVERE CYCLONIC STORM

REMARKS (A):

AS PER THE SATELLITE IMAGERY AT 1800 UTC OF 31ST OCTOBER, 2019, THE CURRENT INTENSITY OF THE SYSTEM IS T 2.0/2.5. ASSOCIATED BROKEN LOW TO MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION LIES OVER WESTCENTRAL ARABIAN SEA BETWEEN LAT 14.5°N TO 16.5°N AND LONG 59.5°E TO 61.5°E. THE MINIMUM CTT IS MINUS 93 DEG C.

THE ESTIMATED MAXIMUM SUSTAINED WIND SPEED IS 30 KNOTS GUSTING TO 35 KNOTS. THE ESTIMATED CENTRAL PRESSURE IS 996 HPA. THE SEA CONDITION IS VERY HIGH AROUND THE SYSTEM CENTRE.

THE MJO LIES IN THE PHASE 4 WITH AMPLITUDE LESS THAN 1. IT WILL ENTER INTO PHASE 5 FROM 01ST NOVEMBER WITH AMPLITUDE LESS THAN 1 AND REMAIN THERE FOR NEXT 4-5 DAYS. THE LOW LEVEL RELATIVE VORTICITY FURTHER REDUCED AND IS ABOUT $100 \times 10^{-5} \text{ SEC}^{-1}$ AROUND THE SYSTEM CENTRE. THE LOWER LEVEL CONVERGENCE IS ABOUT $10 \times 10^{-5} \text{ S}^{-1}$ TO THE SOUTHEAST OF THE SYSTEM CENTRE AND THE UPPER LEVEL DIVERGENCE IS ABOUT $10 \times 10^{-5} \text{ S}^{-1}$ TO THE SOUTH OF THE SYSTEM CENTRE. THE VERTICAL WIND SHEAR IS LOW (05-10 KNOTS) OVER THE SYSTEM AREA. SEA SURFACE TEMPERATURE IS AROUND 26-28°C OVER THE SYSTEM AREA. TROPICAL CYCLONE HEAT POTENTIAL AROUND THE SYSTEM CENTER OVER WESTCENTRAL ARABIAN SEA IS 20-40 KJ/CM² AND ALSO ALONG THE FORECAST TRACK.

TOTAL PRECIPITABLE WATER IMAGERIES INDICATE CONTINUED INCREASE IN DRY AIR INCURSION IN ALL THE SECTORS OF THE SYSTEM. ALL THESE UNFAVOURABLE

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

ENVIRONMENTAL, DYNAMIC AND THERMODYNAMIC CONDITIONS CAUSING THE SYSTEM TO WEAKEN CONTINUOUSLY. THE SYSTEM IS MOST LIKELY TO MOVE IN A WEST-SOUTHWESTWARD DIRECTION ACROSS WEST CENTRAL ARABIAN SEA AND WEAKEN INTO A DEPRESSION BY 0600 UTC OF 01ST NOVEMBER. MAJORITY OF NUMERICAL MODELS AGREE WITH THE ABOVE INFERENCE.

REMARKS (B):

AS PER THE SATELLITE IMAGERY AT 1800 UTC OF 31ST OCTOBER, 2019, THE CURRENT INTENSITY OF THE SYSTEM IS T 3.0. ASSOCIATED SCATTERED LOW TO MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION LIES OVER LAKSHADWEEP SOUTHEAST ADJOINING EASTCENTRAL ARABIAN SEA AREAS BETWEEN LAT 12.0⁰N TO 14.5⁰N AND LONG 68.5⁰E TO 72.5⁰E. THE MINIMUM CTT IS MINUS 93⁰C.

THE ESTIMATED MAXIMUM SUSTAINED WIND SPEED IS 55 KNOTS GUSTING TO 65 KNOTS. THE ESTIMATED CENTRAL PRESSURE IS 994 HPA. THE SEA CONDITION IS VERY HIGH AROUND THE SYSTEM CENTRE. AT 1800 UTC, AMINIDIVI (43311) REPORTED MEAN SEA LEVEL PRESSURE 1008.7 HPA AND WIND 230⁰ /18 KNOTS.

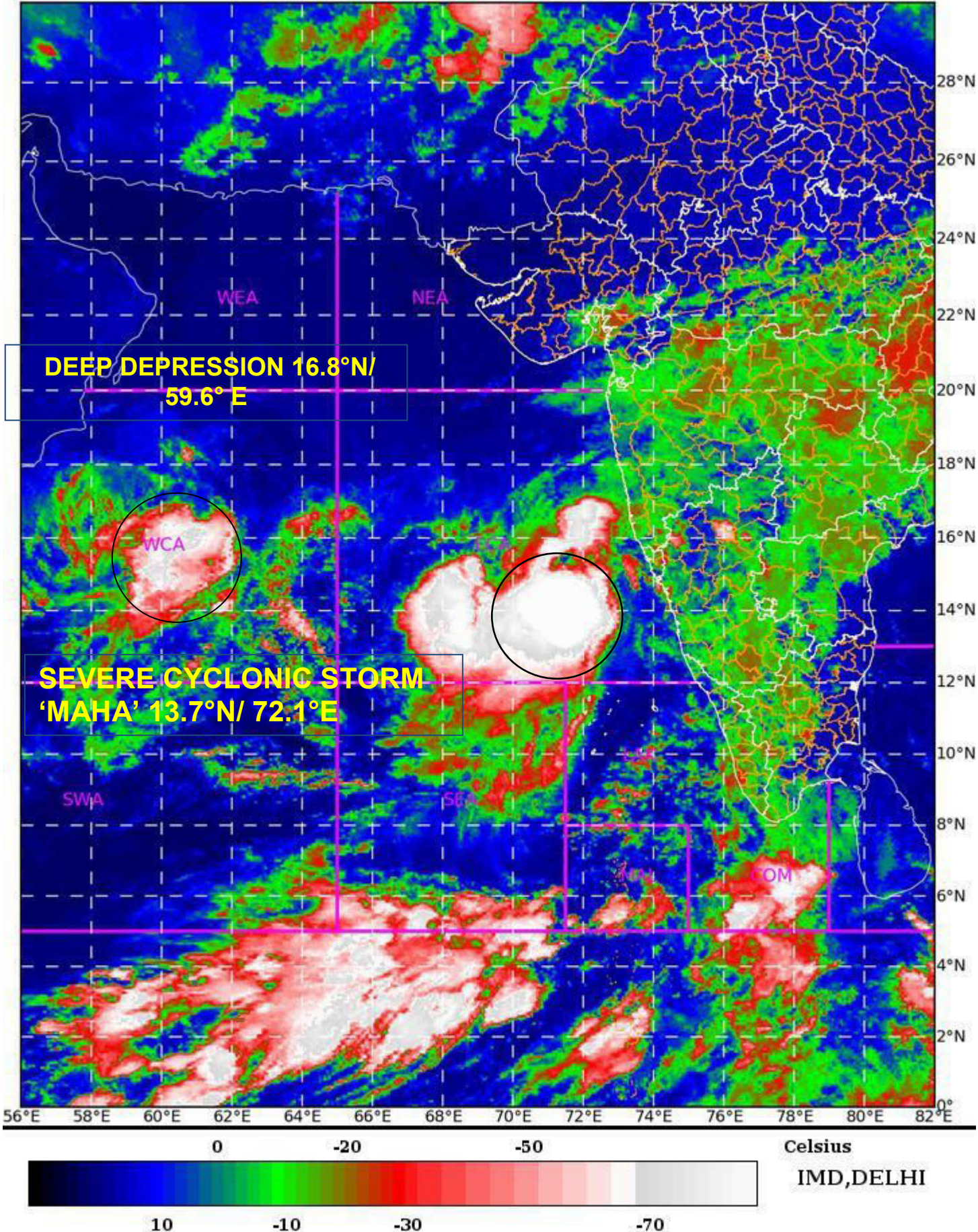
THE LOW LEVEL RELATIVE VORTICITY CONTINUES TO REMAIN ABOUT $200 \times 10^{-5} \text{ SEC}^{-1}$ TO THE SOUTH OF THE SYSTEM CENTRE. POSITIVE VORTICITY FIELD IS SEEN UPTO 500 HPA LEVEL. THE RIDGE OVER THE SYSTEM AREA RUNS ROUGHLY ALONG 18⁰N. THE LOWER LEVEL CONVERGENCE IS ABOUT $20 \times 10^{-5} \text{ S}^{-1}$ TO THE NORTHEAST OF THE SYSTEM CENTRE AND THE UPPER LEVEL DIVERGENCE IS ABOUT $30 \times 10^{-5} \text{ S}^{-1}$ AROUND THE SYSTEM CENTRE. THE VERTICAL WIND SHEAR IS LOW TO MODERATE (10-15 KNOTS) OVER THE SYSTEM AREA. SEA SURFACE TEMPERATURE IS AROUND 28-30⁰C AROUND THE SYSTEM AREA AND SHOWS GRADUAL REDUCTION IN THE FORECAST DIRECTION . TROPICAL CYCLONE HEAT POTENTIAL IS AROUND 70-90 KJ/CM² OVER THE THE SYSTEM AREA AND DECREASES IN THE FORECAST DIRCTION OF THE SYSTEM.

AS THE SYSTEM IS LYING IN A FAVOURABLE ENVIRONMENT, IT IS LIKELY TO INTENSIFY FURTHER INTO A VERY SEVERE CYCLONIC STORM DURING NEXT 24 HOURS. MOST OF THE NWP MODELS ARE IN AGREEMENT WITH THIS OBSERVATION.

(D.R PATTANIK)
SCIENTIST-E, RSMC, NEW DELHI

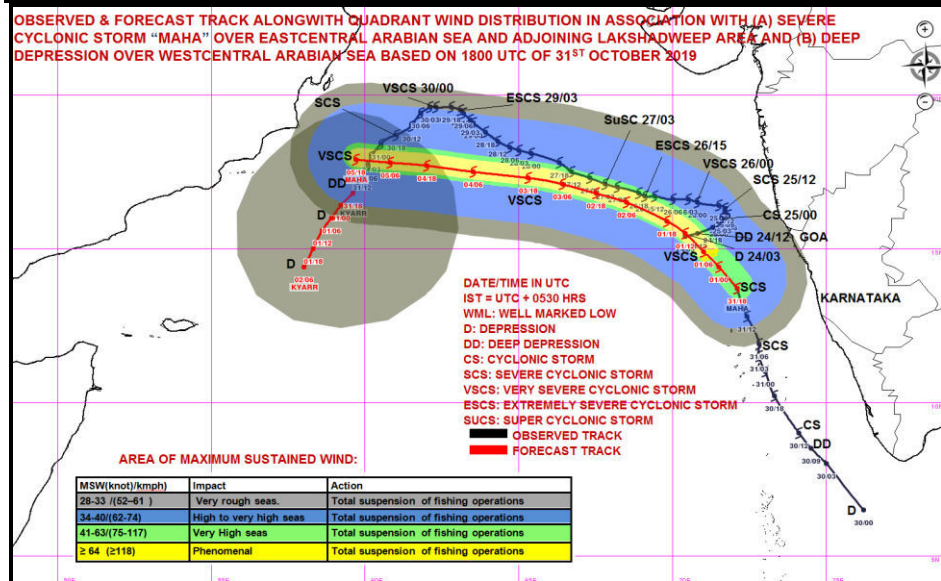
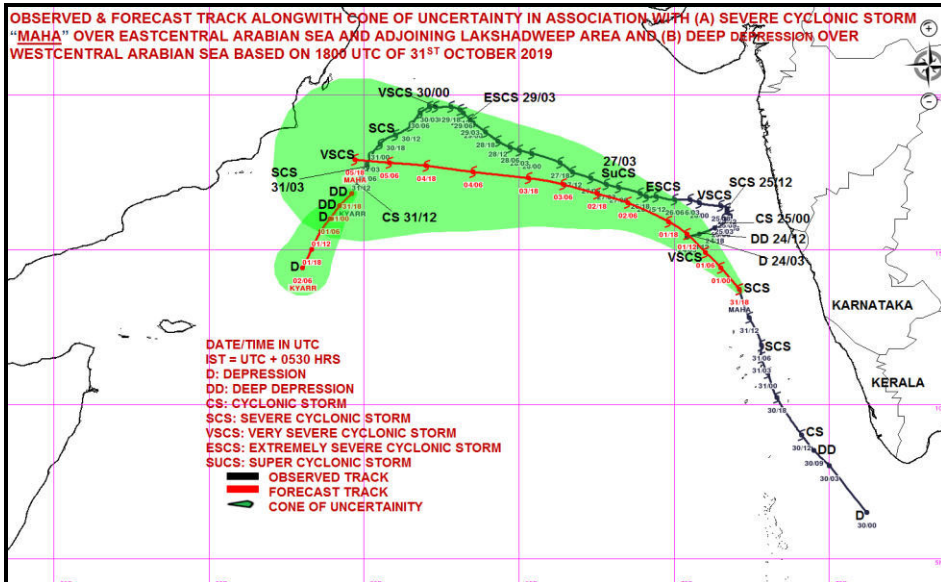
PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%



PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%



PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)
NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%



**REGIONAL SPECIALISED METEOROLOGICAL CENTRE-TROPICAL CYCLONES, NEW DELHI
TROPICAL CYCLONE ADVISORY BULLETIN NO. 56 & TROPICAL CYCLONE ADVISORY
BULLETIN NO. 12**

FROM: RSMC –TROPICAL CYCLONES, NEW DELHI

**TO: STORM WARNING CENTRE, NAYPYI TAW (MYANMAR)
STORM WARNING CENTRE, BANGKOK (THAILAND)
STORM WARNING CENTRE, COLOMBO (SRILANKA)
STORM WARNING CENTRE, DHAKA (BANGLADESH)
STORM WARNING CENTRE, KARACHI (PAKISTAN)
METEOROLOGICAL OFFICE, MALE (MALDIVES)
OMAN METEOROLOGICAL DEPARTMENT, MUSCAT (THROUGH RTH JEDDAH)
YEMEN METEOROLOGICAL SERVICES, REPUBLIC OF YEMEN (THROUGH RTH JEDDAH)
NATIONAL CENTRE FOR METEOROLOGY, UAE (THROUGH RTH JEDDAH)
PRESIDENCY OF METEOROLOGY AND ENVIRONMENT, SAUDI ARABIA (THROUGH RTH JEDDAH)
IRAN METEOROLOGICAL ORGANISATION, (THROUGH RTH JEDDAH)
QATAR METEOROLOGICAL DEPARTMENT (THROUGH RTH JEDDAH)**

TROPICAL CYCLONE ADVISORY No. 56 & TROPICAL CYCLONE ADVISORY NO. 12 FOR NORTH INDIAN OCEAN (THE BAY OF BENGAL AND ARABIAN SEA) VALID FOR NEXT 120 HOURS ISSUED AT 2330 UTC OF 31.10.2019 BASED ON 2100 UTC OF 31.10.2019.

**SUB: (A) DEEP DEPRESSION OVER WESTCENTRAL ARABIAN SEA
(B) SEVERE CYCLONIC STORM 'MAHA' (PRONOUNCED AS M'MAHA) OVER EASTCENTRAL ARABIAN SEA AND ADJOINING LAKSHADWEEP AREA**

(A) DEEP DEPRESSION OVER WESTCENTRAL ARABIAN SEA

THE DEEP DEPRESSION OVER WESTCENTRAL ARABIAN SEA MOVED WEST-SOUTHWESTWARDS WITH A SPEED OF 09 KMPH DURING PAST 06 HRS AND LAY CENTRED AT 2100 HOURS UTC OF 31ST OCTOBER OVER WESTCENTRAL ARABIAN SEA NEAR LATITUDE 16.7°N AND LONGITUDE 59.5°E, ABOUT 1430 KM WEST-SOUTHWEST OF MUMBAI (43003), 580 KM EAST-NORTHEAST OF SALALAH (41316) AND 440 KM SOUTH-SOUTHEAST OF MASIRAH (41288). IT IS VERY LIKELY TO MOVE SOUTHWESTWARDS ACROSS WESTCENTRAL ARABIAN SEA DURING NEXT 24 HOURS. IT IS VERY LIKELY TO WEAKEN FURTHER INTO A DEPRESSION DURING NEXT 12 HOURS.

FORECAST TRACK AND INTENSITY ARE GIVEN IN THE FOLLOWING TABLE:

DATE/TIME(UTC)	POSITION (LAT. °N/ LONG. °E)	MAXIMUM SUSTAINED SURFACE WIND SPEED (KMPH)	CATEGORY OF CYCLONIC DISTURBANCE
31.10.19/2100	16.7/59.5	55-65 gusting to 75	Deep Depression
01.11.19/0000	16.4/59.2	50-60 gusting to 70	Deep Depression
01.11.19/0600	16.0/58.9	45-55 gusting to 65	Depression
01.11.19/1200	15.6/58.6	40-50 gusting to 60	Depression
01.11.19/1800	15.0/58.3	40-50 gusting to 60	Depression
02.11.19/0600	14.4/58.0	30-40 gusting to 50	Depression

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

(B) SEVERE CYCLONIC STORM MAHA (PRONOUNCED AS M'MAHA) OVER EASTCENTRAL ARABIAN SEA AND ADJOINING LAKSHADWEEP AREA

THE SEVERE CYCLONIC STORM MAHA (PRONOUNCED AS M'MAHA) OVER EASTCENTRAL ARABIAN SEA AND ADJOINING LAKSHADWEEP AREA MOVED NORTH-NORTHWESTWARDS WITH A SPEED OF 17 KMPH DURING PAST 06 HOURS, AND LAY CENTERED AT 2100 HRS UTC OF 31ST OCTOBER, 2019 NEAR LATITUDE 13.9°N AND LONGITUDE 72.0°E OVER EASTCENTRAL ARABIAN SEA AND ADJOINING LAKSHADWEEP AREA 320 KM NORTH-NORTHWEST OF AMINIDIVI (43311), AND 500 KM NORTHWEST OF KOZHIKODE (43314). IT IS VERY LIKELY TO MOVE NORTH-NORTHWESTWARDS DURING NEXT 06 HOURS. THEN, IT IS VERY LIKELY TO MOVE NORTHWESTWARDS DURING SUBSEQUENT 06 HOURS AND THEREAFTER MOVE WEST-NORTHWESTWARDS. IT IS VERY LIKELY TO INTENSIFY INTO A VERY SEVERE CYCLONIC STORM OVER EASTCENTRAL ARABIAN SEA DURING NEXT 24 HOURS.

FORECAST TRACK AND INTENSITY ARE GIVEN IN THE FOLLOWING TABLE:

DATE/TIME(UTC)	POSITION (LAT. °N/ LONG. °E)	MAXIMUM SUSTAINED SURFACE WIND SPEED (KMPH)	CATEGORY OF CYCLONIC DISTURBANCE
31.10.19/2100	13.9/72.0	95-105 GUSTING TO 115	SEVERE CYCLONIC STORM
01.11.19/0000	14.4/71.5	105-115 GUSTING TO 125	SEVERE CYCLONIC STORM
01.11.19/0600	14.9/71.0	110-120 GUSTING TO 130	VERY SEVERE CYCLONIC STORM
01.11.19/1200	15.4/70.4	120-130 GUSTING TO 145	VERY SEVERE CYCLONIC STORM
01.11.19/1800	15.9/69.8	125-135 GUSTING TO 150	VERY SEVERE CYCLONIC STORM
02.11.19/0600	16.3/68.5	130-140 GUSTING TO 155	VERY SEVERE CYCLONIC STORM
02.11.19/1800	16.8/67.5	130-140 GUSTING TO 155	VERY SEVERE CYCLONIC STORM
03.11.19/0600	17.1/66.4	135-145 GUSTING TO 160	VERY SEVERE CYCLONIC STORM
03.11.19/1800	17.3/65.3	140-150 GUSTING TO 165	VERY SEVERE CYCLONIC STORM
04.11.19/0600	17.4/63.5	145-155 GUSTING TO 170	VERY SEVERE CYCLONIC STORM
04.11.19/1800	17.7/62.0	145-155 GUSTING TO 170	VERY SEVERE CYCLONIC STORM
05.11.19/0600	17.8/60.8	150-160 GUSTING TO 175	VERY SEVERE CYCLONIC STORM
05.11.19/1800	17.9/59.7	150-160 GUSTING TO 175	VERY SEVERE CYCLONIC STORM

REMARKS (A):

AS PER THE SATELLITE IMAGERY AT 2100 UTC OF 31ST OCTOBER, 2019, THE CURRENT INTENSITY OF THE SYSTEM IS T 1.5/2.0. ASSOCIATED BROKEN LOW TO MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION LIES OVER WESTCENTRAL ARABIAN SEA BETWEEN LAT 14.5°N TO 16.5°N AND LONG 59.5°E TO 61.5°E. THE MINIMUM CTT IS MINUS 93 DEG C.

THE ESTIMATED MAXIMUM SUSTAINED WIND SPEED IS 30 KNOTS GUSTING TO 35 KNOTS. THE ESTIMATED CENTRAL PRESSURE IS 996 HPA. THE SEA CONDITION IS VERY HIGH AROUND THE SYSTEM CENTRE.

THE MJO LIES IN THE PHASE 4 WITH AMPLITUDE LESS THAN 1. IT WILL ENTER INTO PHASE 5 FROM 01ST NOVEMBER WITH AMPLITUDE LESS THAN 1 AND REMAIN THERE FOR NEXT 4-5 DAYS. THE LOW LEVEL RELATIVE VORTICITY FURTHER REDUCED AND IS ABOUT $100 \times 10^{-5} \text{ SEC}^{-1}$ AROUND THE SYSTEM CENTRE. THE LOWER LEVEL CONVERGENCE IS ABOUT $10 \times 10^{-5} \text{ S}^{-1}$ TO THE SOUTHEAST OF THE SYSTEM CENTRE AND THE UPPER LEVEL DIVERGENCE IS ABOUT $10 \times 10^{-5} \text{ S}^{-1}$ TO THE SOUTH OF THE SYSTEM CENTRE. THE VERTICAL WIND SHEAR IS LOW (05-10 KNOTS) OVER THE SYSTEM AREA. SEA SURFACE TEMPERATURE IS AROUND 26-28°C OVER THE SYSTEM AREA. TROPICAL CYCLONE HEAT POTENTIAL AROUND THE SYSTEM CENTER OVER WESTCENTRAL ARABIAN SEA IS 20-40 KJ/CM² AND ALSO ALONG THE FORECAST TRACK.

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

TOTAL PRECIPITABLE WATER IMAGERIES INDICATE CONTINUED INCREASE IN DRY AIR INCURSION IN ALL THE SECTORS OF THE SYSTEM. ALL THESE UNFAVOURABLE ENVIRONMENTAL, DYNAMIC AND THERMODYNAMIC CONDITIONS CAUSING THE SYSTEM TO WEAKEN CONTINUOUSLY. THE SYSTEM IS MOST LIKELY TO MOVE IN A WEST-SOUTHWESTWARD DIRECTION ACROSS WEST CENTRAL ARABIAN SEA AND WEAKEN INTO A DEPRESSION BY 0600 UTC OF 01ST NOVEMBER. MAJORITY OF NUMERICAL MODELS AGREE WITH THE ABOVE INFERENCE.

REMARKS (B):

AS PER THE SATELLITE IMAGERY AT 2100 UTC OF 31ST OCTOBER, 2019, THE CURRENT INTENSITY OF THE SYSTEM IS T 3.5. ASSOCIATED SCATTERED LOW TO MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION LIES OVER LAKSHADWEEP SOUTHEAST ADJOINING EASTCENTRAL ARABIAN SEA AREAS BETWEEN LAT 12.0⁰N TO 14.5⁰N AND LONG 68.0⁰E TO 72.5⁰E. THE MINIMUM CTT IS MINUS 93⁰C.

THE ESTIMATED MAXIMUM SUSTAINED WIND SPEED IS 55 KNOTS GUSTING TO 65 KNOTS. THE ESTIMATED CENTRAL PRESSURE IS 994 HPA. THE SEA CONDITION IS VERY HIGH AROUND THE SYSTEM CENTRE. AT 2100 UTC, AMINIDIVI (43311) REPORTED MEAN SEA LEVEL PRESSURE 1007.3 HPA AND WIND 270⁰ /12 KNOTS.

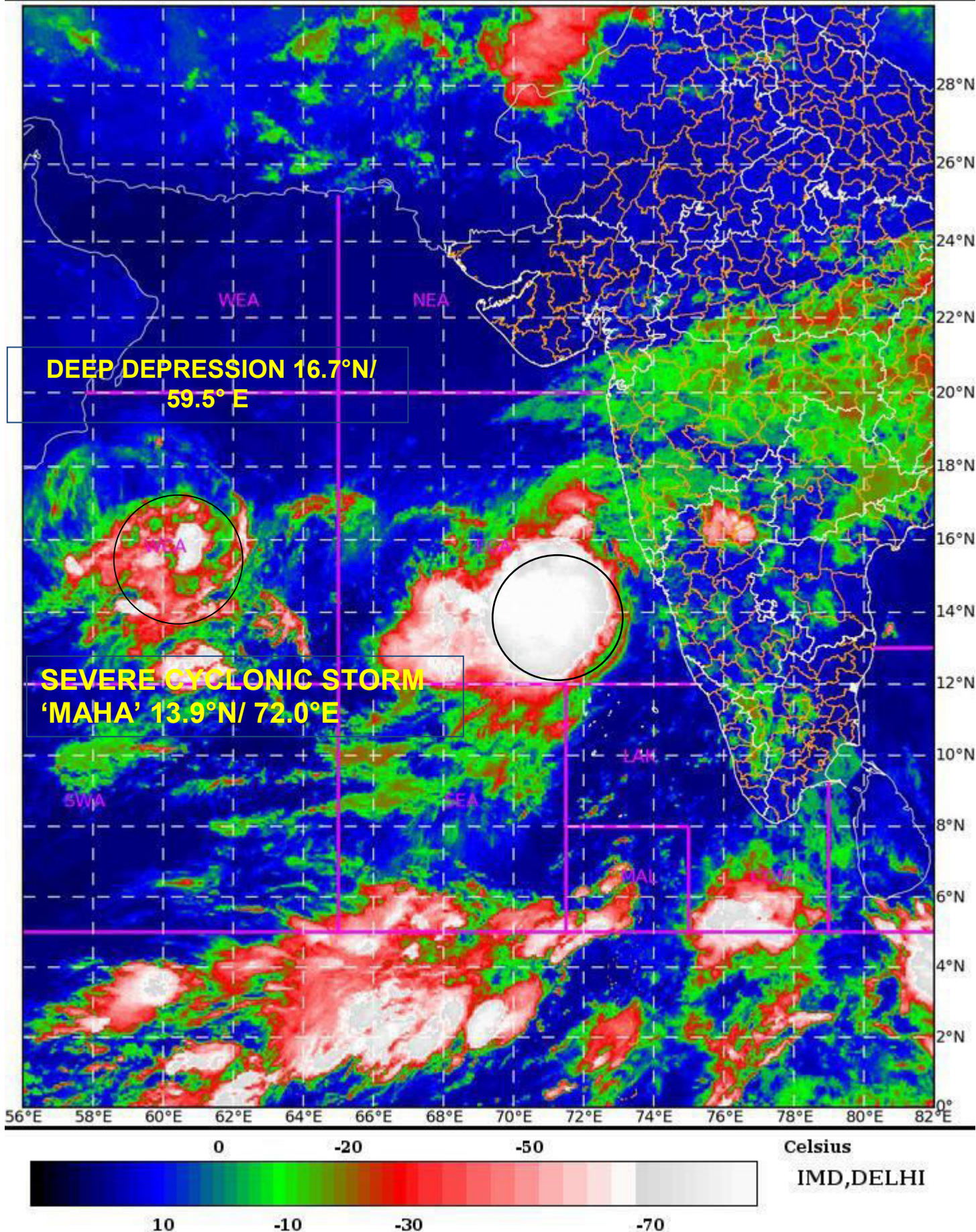
THE LOW LEVEL RELATIVE VORTICITY CONTINUES TO REMAIN ABOUT $200 \times 10^{-5} \text{ SEC}^{-1}$ TO THE SOUTH OF THE SYSTEM CENTRE. POSITIVE VORTICITY FIELD IS SEEN UPTO 500 HPA LEVEL. THE RIDGE OVER THE SYSTEM AREA RUNS ROUGHLY ALONG 18⁰N. THE LOWER LEVEL CONVERGENCE IS ABOUT $10 \times 10^{-5} \text{ S}^{-1}$ TO THE NORTHEAST OF THE SYSTEM CENTRE AND THE UPPER LEVEL DIVERGENCE IS ABOUT $20 \times 10^{-5} \text{ S}^{-1}$ AROUND THE SYSTEM CENTRE. THE VERTICAL WIND SHEAR IS LOW TO MODERATE (10-15 KNOTS) OVER THE SYSTEM AREA. SEA SURFACE TEMPERATURE IS AROUND 28-30⁰C AROUND THE SYSTEM AREA AND SHOWS GRADUAL REDUCTION IN THE FORECAST DIRECTION . TROPICAL CYCLONE HEAT POTENTIAL IS AROUND 70-90 KJ/CM² OVER THE THE SYSTEM AREA AND DECREASES IN THE FORECAST DIRCTION OF THE SYSTEM.

AS THE SYSTEM IS LYING IN A FAVOURABLE ENVIRONMENT, IT IS LIKELY TO INTENSIFY FURTHER INTO A VERY SEVERE CYCLONIC STORM DURING NEXT 24 HOURS. MOST OF THE NWP MODELS ARE IN AGREEMENT WITH THIS OBSERVATION.

(D.R PATTANIK)
SCIENTIST-E, RSMC, NEW DELHI

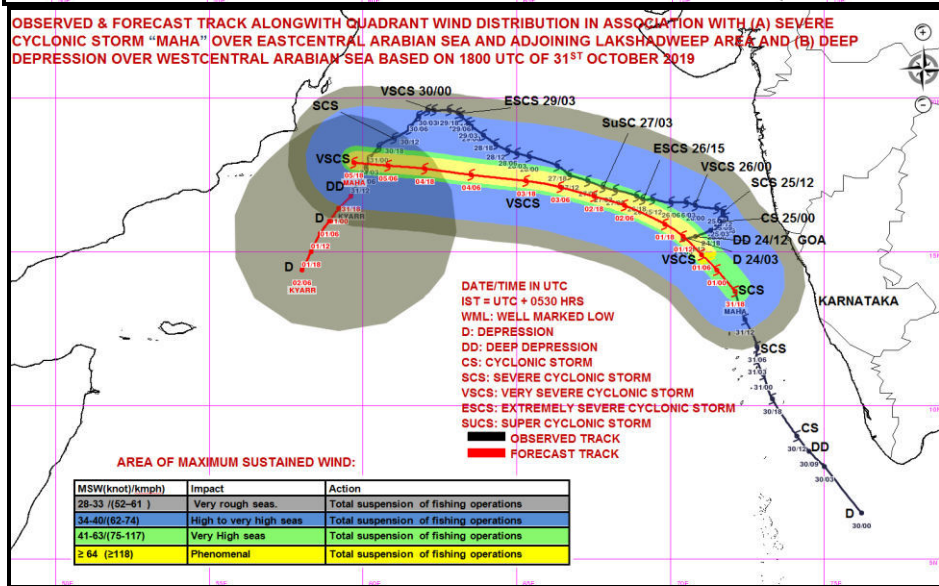
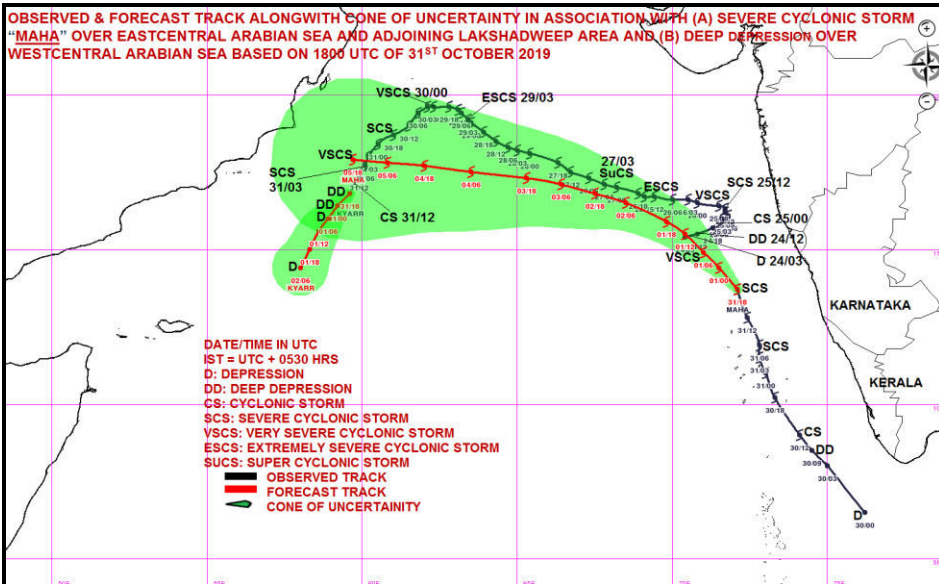
PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%



PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%



PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)
NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%



**REGIONAL SPECIALISED METEOROLOGICAL CENTRE-TROPICAL CYCLONES, NEW DELHI
TROPICAL CYCLONE ADVISORY BULLETIN NO. 57 & TROPICAL CYCLONE ADVISORY
BULLETIN NO. 13**

FROM: RSMC –TROPICAL CYCLONES, NEW DELHI

**TO: STORM WARNING CENTRE, NAYPYI TAW (MYANMAR)
STORM WARNING CENTRE, BANGKOK (THAILAND)
STORM WARNING CENTRE, COLOMBO (SRILANKA)
STORM WARNING CENTRE, DHAKA (BANGLADESH)
STORM WARNING CENTRE, KARACHI (PAKISTAN)
METEOROLOGICAL OFFICE, MALE (MALDIVES)
OMAN METEOROLOGICAL DEPARTMENT, MUSCAT (THROUGH RTH JEDDAH)
YEMEN METEOROLOGICAL SERVICES, REPUBLIC OF YEMEN (THROUGH RTH JEDDAH)
NATIONAL CENTRE FOR METEOROLOGY, UAE (THROUGH RTH JEDDAH)
PRESIDENCY OF METEOROLOGY AND ENVIRONMENT, SAUDI ARABIA (THROUGH RTH JEDDAH)
IRAN METEOROLOGICAL ORGANISATION, (THROUGH RTH JEDDAH)
QATAR METEOROLOGICAL DEPARTMENT (THROUGH RTH JEDDAH)**

**TROPICAL CYCLONE ADVISORY No. 57 & TROPICAL CYCLONE ADVISORY NO. 13 FOR NORTH
INDIAN OCEAN (THE BAY OF BENGAL AND ARABIAN SEA) VALID FOR NEXT 120 HOURS ISSUED
AT 0330 UTC OF 01.11.2019 BASED ON 0000 UTC OF 01.11.2019.**

**SUB: (A) DEPRESSION OVER WESTCENTRAL ARABIAN SEA
(B) SEVERE CYCLONIC STORM 'MAHA' (PRONOUNCED AS M'MAHA) OVER EASTCENTRAL
ARABIAN SEA**

(A) DEPRESSION OVER WESTCENTRAL ARABIAN SEA

THE DEEP DEPRESSION OVER WESTCENTRAL ARABIAN SEA MOVED SOUTHWESTWARDS WITH A SPEED OF 06 KMPH DURING PAST 06 HRS, WEAKENED INTO A DEPRESSION AND LAY CENTRED AT 0000 UTC OF 01ST NOVEMBER 2019 OVER WESTCENTRAL ARABIAN SEA NEAR LATITUDE 16.4°N AND LONGITUDE 59.5°E, ABOUT 1440 KM WEST-SOUTHWEST OF MUMBAI (43003), 580 KM EAST-NORTHEAST OF SALALAH (41316) AND 470 KM SOUTH-SOUTHEAST OF MASIRAH (41288). IT IS VERY LIKELY TO MOVE SOUTHWESTWARDS ACROSS WESTCENTRAL ARABIAN SEA DURING NEXT 12 HOURS. IT IS VERY LIKELY TO WEAKEN FURTHER INTO A WELL MARKED LOW PRESSURE AREA DURING NEXT 12 HOURS.

FORECAST TRACK AND INTENSITY ARE GIVEN IN THE FOLLOWING TABLE:

DATE/TIME(UTC)	POSITION (LAT. °N/ LONG. °E)	MAXIMUM SUSTAINED SURFACE WIND SPEED (KMPH)	CATEGORY OF CYCLONIC DISTURBANCE
01.11.19/0000	16.4/59.5	45-55 gusting to 65	Depression
01.11.19/0600	16.1/59.4	40-50 gusting to 60	Depression
01.11.19/1200	15.8/59.3	15-25 gusting to 35	Well Marked Low Pressure Area

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

(B) SEVERE CYCLONIC STORM MAHA (PRONOUNCED AS M'MAHA) OVER EASTCENTRAL ARABIAN SEA

THE SEVERE CYCLONIC STORM MAHA (PRONOUNCED AS M'MAHA) OVER EASTCENTRAL ARABIAN SEA AND ADJOINING LAKSHADWEEP AREA MOVED NORTH-NORTHWESTWARDS WITH A SPEED OF 17 KMPH DURING PAST 06 HOURS, AND LAY CENTERED AT 0000 UTC OF 01ST NOVEMBER, 2019 NEAR LATITUDE 14.6°N AND LONGITUDE 71.7°E OVER EASTCENTRAL ARABIAN SEA, 400 KM NORTH-NORTHWEST OF AMINIDIVI (43311), AND 390 KM WEST-NORTHWEST OF MANGALURU (43284). IT IS VERY LIKELY TO MOVE NORTH-NORTHWESTWARDS DURING NEXT 06 HOURS. THEN, IT IS VERY LIKELY TO MOVE NORTHWESTWARDS DURING SUBSEQUENT 06 HOURS AND THEREAFTER MOVE WEST-NORTHWESTWARDS. IT IS VERY LIKELY TO INTENSIFY INTO A VERY SEVERE CYCLONIC STORM OVER EASTCENTRAL ARABIAN SEA DURING NEXT 12 HOURS.

FORECAST TRACK AND INTENSITY ARE GIVEN IN THE FOLLOWING TABLE:

DATE/TIME(UTC)	POSITION (LAT. °N/ LONG. °E)	MAXIMUM SUSTAINED SURFACE WIND SPEED (KMPH)	CATEGORY OF CYCLONIC DISTURBANCE
01.11.19/0000	14.6/71.7	100-110 gusting to 120	Severe Cyclonic Storm
01.11.19/0600	15.2/71.2	110-120 gusting to 130	Severe Cyclonic Storm
01.11.19/1200	15.8/70.4	120-130 gusting to 145	Very Severe Cyclonic Storm
01.11.19/1800	16.3/69.8	125-135 gusting to 150	Very Severe Cyclonic Storm
02.11.19/0000	16.8/69.3	130-140 gusting to 155	Very Severe Cyclonic Storm
02.11.19/1200	17.3/68.3	135-145 gusting to 160	Very Severe Cyclonic Storm
03.11.19/0000	17.7/67.5	140-150 gusting to 165	Very Severe Cyclonic Storm
03.11.19/1200	18.0/66.7	145-155 gusting to 170	Very Severe Cyclonic Storm
04.11.19/0000	18.2/65.8	145-155 gusting to 170	Very Severe Cyclonic Storm
04.11.19/1200	18.4/65.1	150-160 gusting to 175	Very Severe Cyclonic Storm
05.11.19/0000	18.6/64.6	145-155 gusting to 170	Very Severe Cyclonic Storm
05.11.19/1200	18.8/64.0	140-150 gusting to 165	Very Severe Cyclonic Storm
06.11.19/0000	19.0/63.5	135-145 gusting to 160	Very Severe Cyclonic Storm

REMARKS (A):

AS PER THE SATELLITE IMAGERY AT 0000 UTC OF 01ST NOVEMBER, 2019, THE CURRENT INTENSITY OF THE SYSTEM IS T 1.5/2.0. ASSOCIATED BROKEN LOW TO MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION LIES OVER WESTCENTRAL ARABIAN SEA BETWEEN LAT 14.5°N TO 17.0°N AND LONG 59.5°E TO 61.0°E. THE MINIMUM CTT IS MINUS 93 DEG C.

THE ESTIMATED MAXIMUM SUSTAINED WIND SPEED IS 25 KNOTS GUSTING TO 30 KNOTS. THE ESTIMATED CENTRAL PRESSURE IS 1000 HPA. THE SEA CONDITION IS ROUGH TO VERY ROUGH AROUND THE SYSTEM CENTRE.

THE MJO LIES IN THE PHASE 5 WITH AMPLITUDE CLOSE TO 1. IT IS LIKELY TO REMAIN IN THE SAME PHASE DURING NEXT 3-4 DAYS, AND WILL ENTER INTO PHASE 6 SUBSEQUENTLY WITH AMPLITUDE LESS THAN 1 AND WILL REMAIN THERE FOR NEXT 4-5 DAYS. THE LOW LEVEL RELATIVE VORTICITY FURTHER REDUCED AND IS ABOUT $100 \times 10^{-5} \text{ SEC}^{-1}$ AROUND THE SYSTEM CENTRE. THE LOWER LEVEL CONVERGENCE IS ABOUT $10 \times 10^{-5} \text{ S}^{-1}$ OVER SYSTEM CENTRE AND THE UPPER LEVEL DIVERGENCE IS ABOUT $10 \times 10^{-5} \text{ S}^{-1}$ TO THE SOUTHWEST OF THE SYSTEM CENTRE. THE VERTICAL WIND SHEAR IS LOW (05-10 KNOTS) OVER THE SYSTEM AREA. SEA SURFACE TEMPERATURE IS AROUND 26-28°C OVER THE SYSTEM AREA. TROPICAL CYCLONE HEAT POTENTIAL AROUND THE SYSTEM CENTER OVER WESTCENTRAL ARABIAN SEA IS 20-40 KJ/CM² AND ALSO ALONG THE FORECAST TRACK.

TOTAL PRECIPITABLE WATER IMAGERIES INDICATE CONTINUED INCREASE IN DRY AIR INCURSION IN ALL THE SECTORS OF THE SYSTEM. ALL THESE UNFAVOURABLE

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

ENVIRONMENTAL, DYNAMIC AND THERMODYNAMIC CONDITIONS CAUSING THE SYSTEM TO WEAKEN CONTINUOUSLY. THE SYSTEM IS MOST LIKELY TO MOVE IN A WEST-SOUTHWESTWARD DIRECTION ACROSS WEST CENTRAL ARABIAN SEA AND WEAKEN INTO A WELL MARKED LOW PRESURE AREA BY 1200 UTC OF 01ST NOVEMBER. MAJORITY OF NUMERICAL MODELS AGREE WITH THE ABOVE INFERENCE.

REMARKS (B):

AS PER THE SATELLITE IMAGERY AT 0000 UTC OF 01ST NOVEMBER, 2019, THE CURRENT INTENSITY OF THE SYSTEM IS T 3.5. ASSOCIATED SCATTERED LOW TO MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION LIES OVER SOUTHEAST ADJOINING EASTCENTRAL ARABIAN SEA AREAS BETWEEN LAT 12.0⁰N TO 15.5⁰N AND LONG 67.5⁰E TO 72.0⁰E. THE MINIMUM CTT IS MINUS 93⁰C.

THE ESTIMATED MAXIMUM SUSTAINED WIND SPEED IS 55 KNOTS GUSTING TO 65 KNOTS. THE ESTIMATED CENTRAL PRESSURE IS 994 HPA. THE SEA CONDITION IS VERY HIGH AROUND THE SYSTEM CENTRE. AT 2100 UTC, AMINIDIVI (43311) REPORTED MEAN SEA LEVEL PRESSURE 1008.0 HPA AND WIND 230⁰ /13 KNOTS.

THE LOW LEVEL RELATIVE VORTICITY CONTINUES TO REMAIN ABOUT $150 \times 10^{-5} \text{ SEC}^{-1}$ TO THE SOUTH OF THE SYSTEM CENTRE. POSITIVE VORTICITY FIELD IS SEEN UPTO 500 HPA LEVEL. THE RIDGE OVER THE SYSTEM AREA RUNS ROUGHLY ALONG 18⁰N. THE LOWER LEVEL CONVERGENCE IS ABOUT $20 \times 10^{-5} \text{ S}^{-1}$ TO THE NORTHEAST OF THE SYSTEM CENTRE AND THE UPPER LEVEL DIVERGENCE IS ABOUT $30 \times 10^{-5} \text{ S}^{-1}$ AROUND THE SYSTEM CENTRE. THE VERTICAL WIND SHEAR IS LOW (05-10 KNOTS) OVER THE SYSTEM AREA. SEA SURFACE TEMPERATURE IS AROUND 28-30⁰C AROUND THE SYSTEM AREA AND SHOWS GRADUAL REDUCTION IN THE FORECAST DIRECTION . TROPICAL CYCLONE HEAT POTENTIAL IS AROUND 70-90 KJ/CM² OVER THE THE SYSTEM AREA AND DECREASES IN THE FORECAST DIRCTION OF THE SYSTEM.

AS THE SYSTEM IS LYING IN A FAVOURABLE ENVIRONMENT, IT IS LIKELY TO INTENSIFY FURTHER INTO A VERY SEVERE CYCLONIC STORM DURING NEXT 12 HOURS. MOST OF THE NWP MODELS ARE IN AGREEMENT WITH THIS OBSERVATION.

(D.R PATTANIK)
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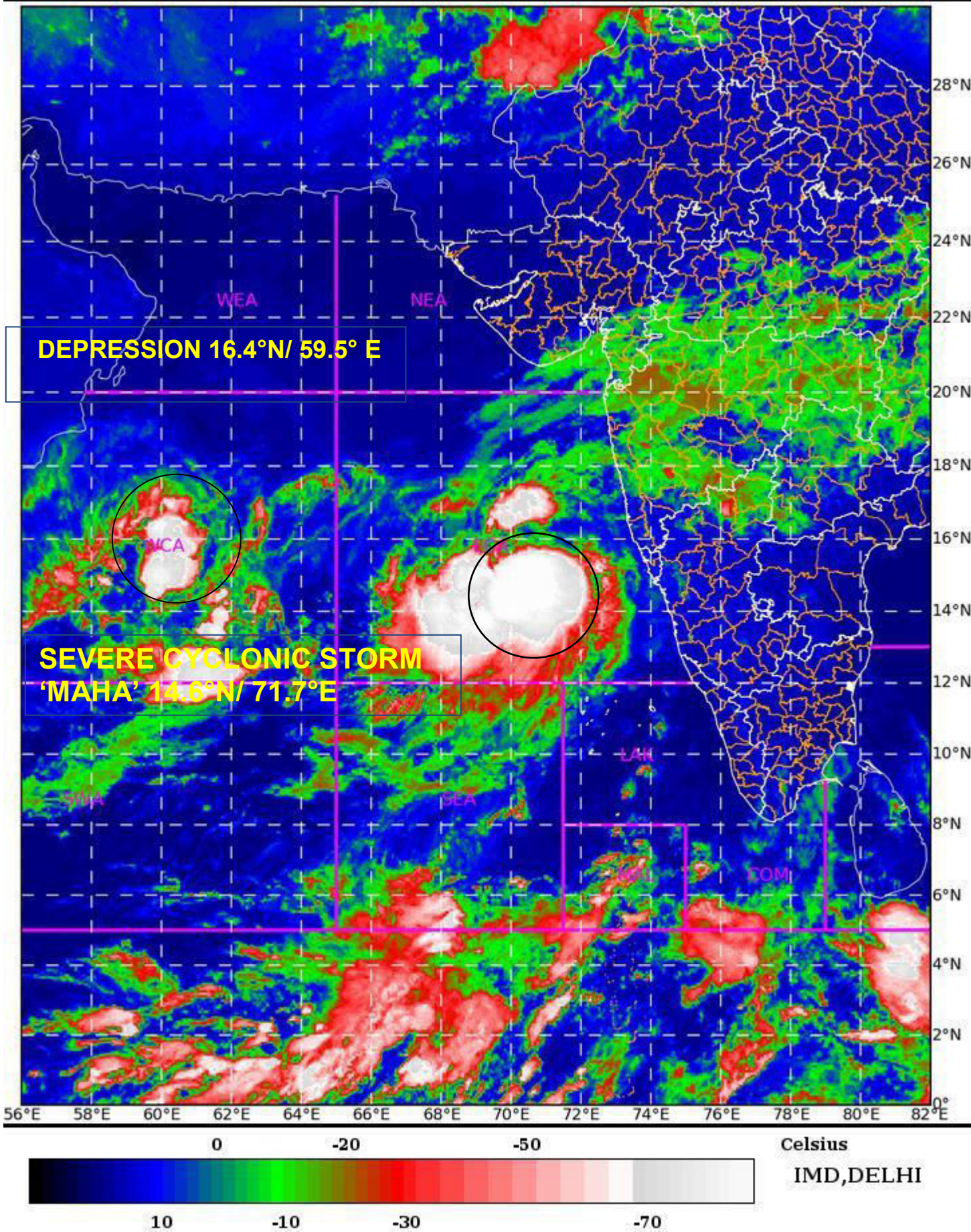
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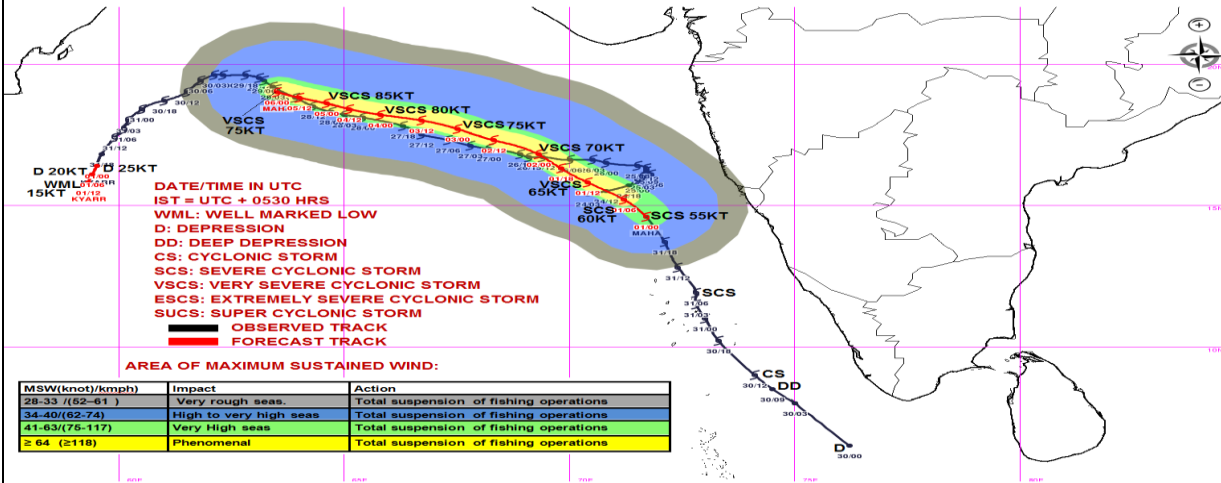
ARABIAN_SEA



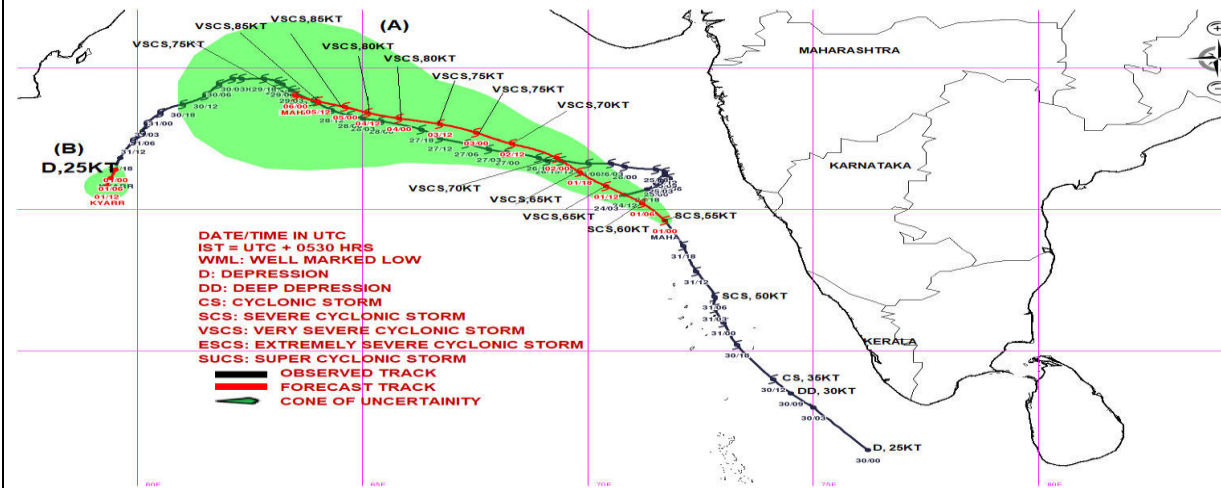
PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

OBSERVED & FORECAST TRACK ALONGWITH QUADRANT WIND DISTRIBUTION IN ASSOCIATION WITH (A) SEVERE CYCLONIC STORM "MAHA" OVER EASTCENTRAL ARABIAN SEA AND (B) DEPRESSION OVER WESTCENTRAL ARABIAN SEA BASED ON 0000 UTC OF 1ST NOVEMBER 2019



OBSERVED & FORECAST TRACK ALONGWITH CONE OF UNCERTAINTY IN ASSOCIATION WITH (A) SEVERE CYCLONIC STORM "MAHA" OVER EASTCENTRAL ARABIAN SEA AND (B) DEPRESSION OVER WESTCENTRAL ARABIAN SEA BASED ON 0000 UTC OF 01ST NOVEMBER 2019



PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%



**REGIONAL SPECIALISED METEOROLOGICAL CENTRE-TROPICAL CYCLONES, NEW DELHI
TROPICAL CYCLONE ADVISORY BULLETIN NO. 58 & TROPICAL CYCLONE ADVISORY
BULLETIN NO. 14**

FROM: RSMC –TROPICAL CYCLONES, NEW DELHI

**TO: STORM WARNING CENTRE, NAYPYI TAW (MYANMAR)
STORM WARNING CENTRE, BANGKOK (THAILAND)
STORM WARNING CENTRE, COLOMBO (SRILANKA)
STORM WARNING CENTRE, DHAKA (BANGLADESH)
STORM WARNING CENTRE, KARACHI (PAKISTAN)
METEOROLOGICAL OFFICE, MALE (MALDIVES)
OMAN METEOROLOGICAL DEPARTMENT, MUSCAT (THROUGH RTH JEDDAH)
YEMEN METEOROLOGICAL SERVICES, REPUBLIC OF YEMEN (THROUGH RTH JEDDAH)
NATIONAL CENTRE FOR METEOROLOGY, UAE (THROUGH RTH JEDDAH)
PRESIDENCY OF METEOROLOGY AND ENVIRONMENT, SAUDI ARABIA (THROUGH RTH JEDDAH)
IRAN METEOROLOGICAL ORGANISATION, (THROUGH RTH JEDDAH)
QATAR METEOROLOGICAL DEPARTMENT (THROUGH RTH JEDDAH)**

TROPICAL CYCLONE ADVISORY No. 58 & TROPICAL CYCLONE ADVISORY NO. 14 FOR NORTH INDIAN OCEAN (THE BAY OF BENGAL AND ARABIAN SEA) VALID FOR NEXT 120 HOURS ISSUED AT 0600 UTC OF 01.11.2019 BASED ON 0300 UTC OF 01.11.2019.

**SUB: (A) DEPRESSION OVER WESTCENTRAL ARABIAN SEA
(B) SEVERE CYCLONIC STORM 'MAHA' (PRONOUNCED AS M'MAHA) OVER EASTCENTRAL ARABIAN SEA**

(A) DEPRESSION OVER WESTCENTRAL ARABIAN SEA

THE DEPRESSION OVER WESTCENTRAL ARABIAN SEA MOVED SOUTHWESTWARDS WITH A SPEED OF 11 KMPH DURING PAST 6 HOURS AND LAY CENTRED AT 0300 UTC OF 01ST NOVEMBER, 2019 OVER WESTCENTRAL ARABIAN SEA NEAR LATITUDE 16.3°N AND LONGITUDE 59.0°E, ABOUT 1490 KM WEST-SOUTHWEST OF MUMBAI (43003), 540 KM EAST-NORTHEAST OF SALALAH (41316) AND 480 KM SOUTH-SOUTHEAST OF MASIRAH (41288). IT IS VERY LIKELY TO MOVE SOUTHWESTWARDS ACROSS WESTCENTRAL ARABIAN SEA AND WEAKEN INTO A WELL MARKED LOW PRESSURE AREA DURING NEXT 12 HOURS.

FORECAST TRACK AND INTENSITY ARE GIVEN IN THE FOLLOWING TABLE:

DATE/ TIME(UTC)	POSITION (LAT. °N/ LONG. °E)	MAXIMUM SUSTAINED SURFACE WIND SPEED (KMPH)	CATEGORY OF CYCLONIC DISTURBANCE
01.11.19/0300	16.3/59.0	45-55 GUSTING TO 65	DEPRESSION
01.11.19/0600	16.1/58.7	40-50 GUSTING TO 60	DEPRESSION
01.11.19/1200	15.7/58.1	15-25 GUSTING TO 35	WELL MARKED LOW PRESSURE AREA

(B) SEVERE CYCLONIC STORM MAHA (PRONOUNCED AS M'MAHA) OVER EASTCENTRAL ARABIAN SEA

THE SEVERE CYCLONIC STORM MAHA (PRONOUNCED AS M'MAHA) OVER EASTCENTRAL ARABIAN SEA AND ADJOINING LAKSHADWEEP AREA MOVED NORTHWESTWARDS WITH A SPEED OF 24 KMPH DURING PAST 06 HOURS, AND LAY CENTERED AT 0300 UTC OF 01ST NOVEMBER, 2019 NEAR LATITUDE 14.8°N AND

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

LONGITUDE 71.0°E OVER EASTCENTRAL ARABIAN SEA ABOUT 450 KM NORTH-NORTHWEST OF AMINIDIVI (43311), 460 KM NORTH-NORTHWEST OF MANGALURU (43284) AND 310 KM SOUTH-SOUTHWEST OF GOA (43192). IT IS VERY LIKELY TO MOVE NORTHWESTWARDS DURING NEXT 06 HOURS AND THEREAFTER MOVE WEST-NORTHWESTWARDS TILL 5TH NOVEMBER MORNING AND RECURVE NORTHEASTWARDS SUBSEQUENTLY. IT IS VERY LIKELY TO INTENSIFY INTO A VERY SEVERE CYCLONIC STORM OVER EASTCENTRAL ARABIAN SEA DURING NEXT 12 HOURS.

FORECAST TRACK AND INTENSITY ARE GIVEN IN THE FOLLOWING TABLE:

DATE/ TIME(UTC)	POSITION (LAT. °N/ LONG. °E)	MAXIMUM SUSTAINED SURFACE WIND SPEED (KMPH)	CATEGORY OF CYCLONIC DISTURBANCE
01.11.19/0300	14.8/71.0	100-110 GUSTING TO 125	SEVERE CYCLONIC STORM
01.11.19/0600	15.2/70.5	105-115 GUSTING TO 130	SEVERE CYCLONIC STORM
01.11.19/1200	15.7/70.1	115-125 GUSTING TO 140	VERY SEVERE CYCLONIC STORM
01.11.19/1800	16.1/69.6	115-125 GUSTING TO 140	VERY SEVERE CYCLONIC STORM
02.11.19/0000	16.5/69.1	125-135 GUSTING TO 150	VERY SEVERE CYCLONIC STORM
02.11.19/1200	17.1/68.3	125-135 GUSTING TO 150	VERY SEVERE CYCLONIC STORM
03.11.19/0000	17.5/67.5	135-145 GUSTING TO 160	VERY SEVERE CYCLONIC STORM
03.11.19/1200	17.8/66.7	135-145 GUSTING TO 160	VERY SEVERE CYCLONIC STORM
04.11.19/0000	18.0/65.4	145-155 GUSTING TO 170	VERY SEVERE CYCLONIC STORM
04.11.19/1200	18.4/64.3	145-155 GUSTING TO 170	VERY SEVERE CYCLONIC STORM
05.11.19/0000	18.8/64.0	155-165 GUSTING TO 180	VERY SEVERE CYCLONIC STORM
05.11.19/1200	19.3/64.5	145-155 GUSTING TO 170	VERY SEVERE CYCLONIC STORM
06.11.19/0000	19.8/65.5	135-145 GUSTING TO 160	VERY SEVERE CYCLONIC STORM

REMARKS (A):

AS PER THE SATELLITE IMAGERY AT 0300 UTC OF 01ST NOVEMBER, 2019, THE CURRENT INTENSITY OF THE SYSTEM IS T 1.5/2.0. ASSOCIATED BROKEN LOW TO MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION LIES OVER WESTCENTRAL ARABIAN SEA BETWEEN LAT 13.5°N TO 17.0°N AND LONG 58.5°E TO 61.0°E. THE MINIMUM CTT IS MINUS 92 DEG C.

THE ESTIMATED MAXIMUM SUSTAINED WIND SPEED IS 25 KNOTS GUSTING TO 30 KNOTS. THE ESTIMATED CENTRAL PRESSURE IS 1002 HPA. THE SEA CONDITION IS ROUGH TO VERY ROUGH AROUND THE SYSTEM CENTRE.

THE MJO LIES IN THE PHASE 5 WITH AMPLITUDE CLOSE TO 1. IT IS LIKELY TO REMAIN IN THE SAME PHASE DURING NEXT 3-4 DAYS, AND WILL ENTER INTO PHASE 6 SUBSEQUENTLY WITH AMPLITUDE LESS THAN 1 AND WILL REMAIN THERE FOR NEXT 4-5 DAYS. THE LOW LEVEL RELATIVE VORTICITY FURTHER REDUCED AND IS ABOUT 100 X10⁻⁵ SEC⁻¹ AROUND THE SYSTEM CENTRE. THE LOWER LEVEL CONVERGENCE IS ABOUT 5 X10⁻⁵S⁻¹ OVER SYSTEM CENTRE AND THE UPPER LEVEL DIVERGENCE IS ABOUT 10 X10⁻⁵S⁻¹ TO THE SOUTHEAST OF THE SYSTEM CENTRE. THE VERTICAL WIND SHEAR IS LOW (05-10 KNOTS) OVER THE SYSTEM AREA. SEA SURFACE TEMPERATURE IS AROUND 26-28°C OVER THE SYSTEM AREA. TROPICAL CYCLONE HEAT POTENTIAL AROUND THE SYSTEM CENTER OVER WESTCENTRAL ARABIAN SEA IS 20-40 KJ/CM².

ALL THE ENVIRONMENTAL, DYNAMIC AND THERMODYNAMIC CONDITIONS UNFAVOURABLE AND THUS CAUSING THE WEAKENING OF THE SYSTEM. THE SYSTEM IS MOST LIKELY TO CONTINUE TO MOVE IN A SOUTHWESTWARD DIRECTION ACROSS WEST CENTRAL ARABIAN SEA AND WEAKEN INTO A WELL MARKED LOW PRESURE AREA DURING NEXT 12 HOURS. MAJORITY OF NUMERICAL MODELS AGREE WITH THE ABOVE INFERENCE.

REMARKS (B):

AS PER THE SATELLITE IMAGERY AT 0300 UTC OF 01ST NOVEMBER, 2019, THE CURRENT INTENSITY OF THE SYSTEM IS T 3.5. ASSOCIATED SCATTERED LOW TO MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION LIES OVER SOUTHEAST AND ADJOINING EASTCENTRAL ARABIAN SEA BETWEEN LAT 12.5°N TO 16.0°N AND LONG 67.0°E TO 72.0°E. THE MINIMUM CTT IS MINUS 93°C.

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

THE ESTIMATED MAXIMUM SUSTAINED WIND SPEED IS 55 KNOTS GUSTING TO 65 KNOTS. THE ESTIMATED CENTRAL PRESSURE IS 994 HPA. THE SEA CONDITION IS VERY HIGH AROUND THE SYSTEM CENTRE. AT 0300 UTC, AMINIDIVI (43311) REPORTED MEAN SEA LEVEL PRESSURE 1009.5 HPA AND WIND 230° /04 KNOTS.

THE LOW LEVEL RELATIVE VORTICITY CONTINUES TO REMAIN ABOUT $150 \times 10^{-5} \text{ SEC}^{-1}$ TO THE SOUTH OF THE SYSTEM CENTRE. THE RIDGE OVER THE SYSTEM AREA RUNS ROUGHLY ALONG 17°N. THE LOWER LEVEL CONVERGENCE IS ABOUT $20 \times 10^{-5} \text{ S}^{-1}$ TO THE SOUTHWEST OF THE SYSTEM CENTRE AND THE UPPER LEVEL DIVERGENCE IS ABOUT $30 \times 10^{-5} \text{ S}^{-1}$ TO THE SOUTHWEST OF THE SYSTEM CENTRE. THE VERTICAL WIND SHEAR IS LOW (05-10 KNOTS) OVER THE SYSTEM AREA. SEA SURFACE TEMPERATURE IS AROUND 28-30°C AROUND THE SYSTEM AREA AND SHOWS GRADUAL REDUCTION IN THE FORECAST DIRECTION. TROPICAL CYCLONE HEAT POTENTIAL IS AROUND 70-90 KJ/CM² OVER THE THE SYSTEM AREA AND DECREASES IN THE FORECAST DIRCTION OF THE SYSTEM.

AS THE SYSTEM IS LYING IN A FAVOURABLE ENVIRONMENT, IT IS LIKELY TO INTENSIFY FURTHER INTO A VERY SEVERE CYCLONIC STORM DURING NEXT 12 HOURS. MOST OF THE NWP MODELS ARE IN AGREEMENT WITH THIS OBSERVATION. AS THE SYSTEM IS BEING STEERED BY THE SOUTHERN PERIPHERY WINDS OF THE ANTICYCLONE LOCATED TO THE NORTHEAST OF THE SYSTEM, IT IS MOVING IN NORTHWEST DIRECTION. THIS MOVEMENT IS LIKELY TO CONTINUE FOR NEXT 6 HOURS AND THEN UNDER THE STEERING OF EAST- NORTHEAST WINDS IT IS LIKELY TO MOVE WEST-NORTHWESTWARDS TILL 0000 UTC OF 5TH NOVEMBER. MAJORITY OF THE NUMERICAL MODELS SUGGEST THE SYSTEM TO RECURVE NORTHEASTWARDS THEREAFTER.

(NEETHA K GOPAL)
SCIENTIST-E, RSMC, NEW DELHI

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

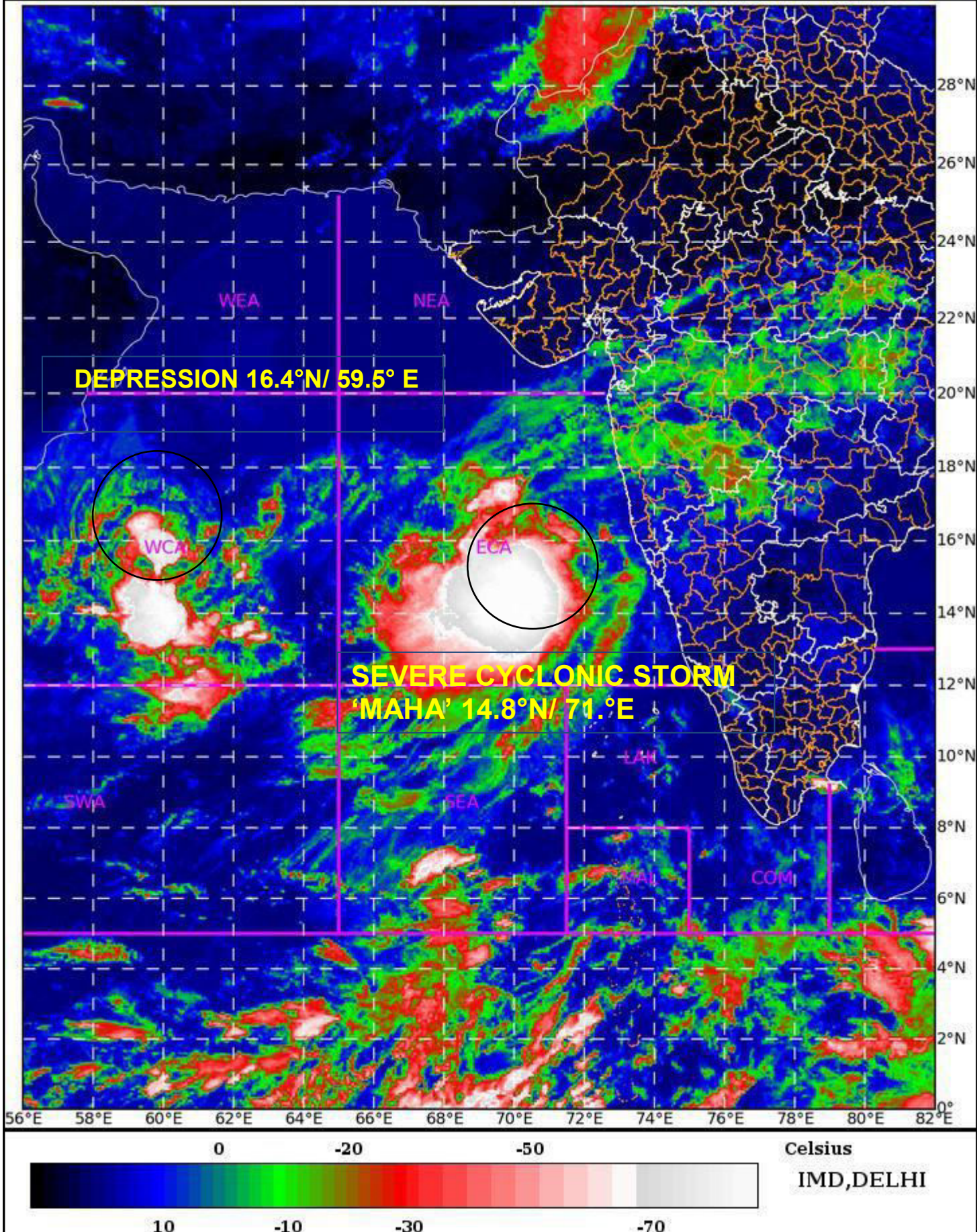
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01-11-2019/(0500 to 0526) GMT

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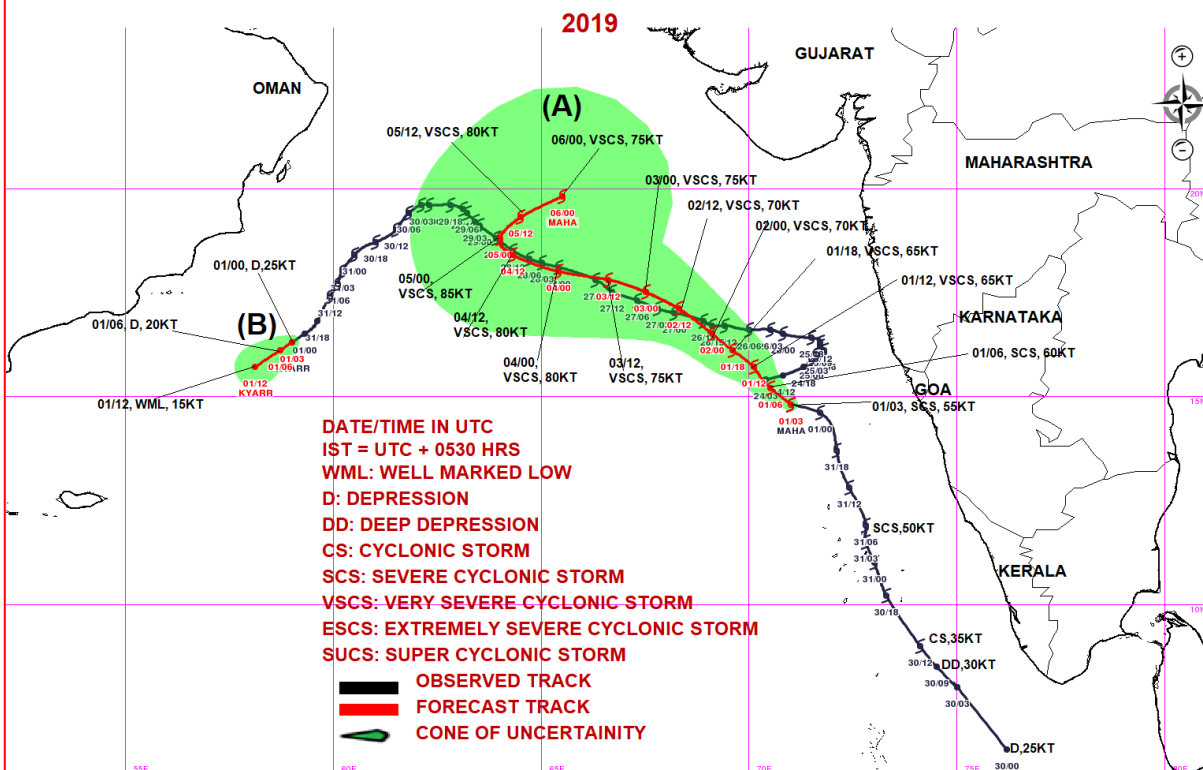
01-11-2019/(1030 to 1056) IST

ARABIAN_SEA

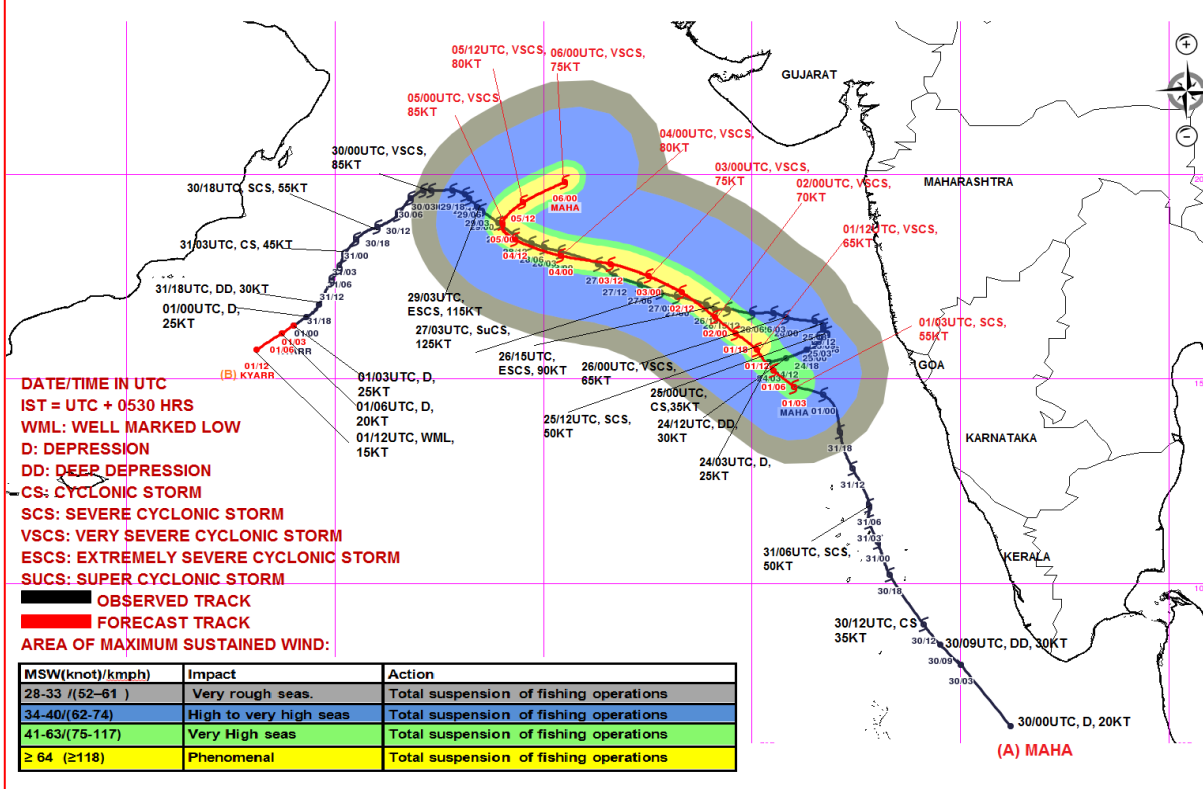


PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)
NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

OBSERVED & FORECAST TRACK ALONGWITH CONE OF UNCERTAINTY IN ASSOCIATION WITH (A) SEVERE CYCLONIC STORM "MAHA" OVER EASTCENTRAL ARABIAN SEA AND (B) DEPRESSION OVER WESTCENTRAL ARABIAN SEA BASED ON 0300 UTC OF 01ST NOVEMBER 2019



OBSERVED & FORECAST TRACK ALONGWITH QUADRANT WIND DISTRIBUTION IN ASSOCIATION WITH (A) SEVERE CYCLONIC STORM "MAHA" OVER EASTCENTRAL ARABIAN SEA AND (B) DEPRESSION OVER WESTCENTRAL ARABIAN SEA BASED ON 0300 UTC OF 1ST NOVEMBER 2019



PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%



**REGIONAL SPECIALISED METEOROLOGICAL CENTRE-TROPICAL CYCLONES, NEW DELHI
TROPICAL CYCLONE ADVISORY BULLETIN NO. 59 & TROPICAL CYCLONE ADVISORY
BULLETIN NO. 15**

FROM: RSMC –TROPICAL CYCLONES, NEW DELHI

**TO: STORM WARNING CENTRE, NAYPYI TAW (MYANMAR)
STORM WARNING CENTRE, BANGKOK (THAILAND)
STORM WARNING CENTRE, COLOMBO (SRILANKA)
STORM WARNING CENTRE, DHAKA (BANGLADESH)
STORM WARNING CENTRE, KARACHI (PAKISTAN)
METEOROLOGICAL OFFICE, MALE (MALDIVES)
OMAN METEOROLOGICAL DEPARTMENT, MUSCAT (THROUGH RTH JEDDAH)
YEMEN METEOROLOGICAL SERVICES, REPUBLIC OF YEMEN (THROUGH RTH JEDDAH)
NATIONAL CENTRE FOR METEOROLOGY, UAE (THROUGH RTH JEDDAH)
PRESIDENCY OF METEOROLOGY AND ENVIRONMENT, SAUDI ARABIA (THROUGH RTH JEDDAH)
IRAN METEOROLOGICAL ORGANISATION, (THROUGH RTH JEDDAH)
QATAR METEOROLOGICAL DEPARTMENT (THROUGH RTH JEDDAH)**

**TROPICAL CYCLONE ADVISORY No. 59 & TROPICAL CYCLONE ADVISORY NO. 15 FOR NORTH
INDIAN OCEAN (THE BAY OF BENGAL AND ARABIAN SEA) VALID FOR NEXT 120 HOURS ISSUED
AT 0900 UTC OF 01.11.2019 BASED ON 0600 UTC OF 01.11.2019.**

**SUB: (A) DEPRESSION OVER WESTCENTRAL ARABIAN SEA
(B) SEVERE CYCLONIC STORM 'MAHA' (PRONOUNCED AS M'MAHA) OVER EASTCENTRAL
ARABIAN SEA**

(A) DEPRESSION OVER WESTCENTRAL ARABIAN SEA

THE DEPRESSION OVER WESTCENTRAL ARABIAN SEA MOVED SOUTHWESTWARDS WITH A SPEED OF 16 KMPH DURING PAST 06 HOURS AND LAY CENTRED AT 0600 UTC OF THE 01ST NOVEMBER, 2019 OVER WESTCENTRAL ARABIAN SEA NEAR LATITUDE 16.0°N AND LONGITUDE 58.7°E, ABOUT 1530 KM WEST-SOUTHWEST OF MUMBAI (43003), 510 KM EAST-NORTHEAST OF SALALAH(41316) AND 510 KM SOUTH-SOUTHEAST OF MASIRAH (41288). IT IS VERY LIKELY TO MOVE SOUTHWESTWARDS ACROSS WESTCENTRAL ARABIAN SEA AND WEAKEN INTO A WELL MARKED LOW PRESSURE AREA DURING NEXT 12 HOURS.

(B)SEVERE CYCLONIC STORM MAHA (PRONOUNCED AS M'MAHA) OVER EASTCENTRAL ARABIAN SEA

THE SEVERE CYCLONIC STORM MAHA (PRONOUNCED AS M'MAHA) OVER EASTCENTRAL ARABIAN SEA CONTINUED TO MOVE NORTHWESTWARDS WITH A SPEED OF 24 KMPH DURING PAST 06 HOURS, AND LAY CENTERED AT 0600 HRS UTC OF 01ST NOVEMBER, 2019, OVER EASTCENTRAL ARABIAN SEA NEAR LATITUDE 15.2°N AND LONGITUDE 70.5°E ABOUT 640 KM SOUTH OF VERAVAL (GUJARAT), 530 KM NORTH-NORTHWEST OF MANGALURU (KARNATAKA) AND 350 KM WEST-SOUTHWEST OF GOA. IT IS VERY LIKELY TO MOVE NORTHWESTWARDS DURING NEXT 24 HOURS, WEST-NORTHWESTWARDS DURING 02ND TO 04TH NOVEMBER AND RECURVE EAST-NORTHEASTWARDS TOWARDS SOUTH GUJARAT COAST THEREAFTER. IT IS VERY LIKELY TO INTENSIFY INTO A VERY SEVERE CYCLONIC STORM OVER EASTCENTRAL ARABIAN SEA DURING NEXT 24 HOURS.

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

FORECAST TRACK AND INTENSITY ARE GIVEN IN THE FOLLOWING TABLE:

DATE/TIME(UTC)	POSITION (LAT. °N/ LONG. °E)	MAXIMUM SUSTAINED SURFACE WIND SPEED (KMPH)	CATEGORY OF CYCLONIC DISTURBANCE
01.11.19/0600	15.2/70.5	100-110 GUSTING TO 125	SEVERE CYCLONIC STORM
01.11.19/1200	15.7/70.1	110-120 GUSTING TO 135	SEVERE CYCLONIC STORM
01.11.19/1800	16.1/69.6	110-120 GUSTING TO 135	SEVERE CYCLONIC STORM
02.11.19/0000	16.5/69.1	120-130 GUSTING TO 145	VERY SEVERE CYCLONIC STORM
02.11.19/0600	17.0/68.7	120-130 GUSTING TO 145	VERY SEVERE CYCLONIC STORM
02.11.19/1800	17.7/67.9	130-140 GUSTING TO 155	VERY SEVERE CYCLONIC STORM
03.11.19/0600	18.0/67.1	140-150 GUSTING TO 165	VERY SEVERE CYCLONIC STORM
03.11.19/1800	18.2/66.3	150-160 GUSTING TO 175	VERY SEVERE CYCLONIC STORM
04.11.19/0600	18.5/65.6	160-170 GUSTING TO 185	VERY SEVERE CYCLONIC STORM
04.11.19/1800	19.0/65.0	160-170 GUSTING TO 185	VERY SEVERE CYCLONIC STORM
05.11.19/0600	19.4/65.1	150-160 GUSTING TO 175	VERY SEVERE CYCLONIC STORM
05.11.19/1800	19.7/66.0	150-160 GUSTING TO 175	VERY SEVERE CYCLONIC STORM
06.11.19/0600	20.0/67.4	140-150 GUSTING TO 165	VERY SEVERE CYCLONIC STORM

REMARKS (A):

AS PER THE SATELLITE IMAGERY AT 0600 UTC OF 01ST NOVEMBER, 2019, THE CURRENT INTENSITY OF THE SYSTEM IS T 1.0/1.5. ASSOCIATED BROKEN LOW TO MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION LIES OVER WESTCENTRAL ARABIAN SEA BETWEEN LAT 13.0°N TO 16.8°N AND LONG 58.0°E TO 61.0°E. THE MINIMUM CTT IS MINUS 93 DEG C.

THE ESTIMATED MAXIMUM SUSTAINED WIND SPEED IS 25 KNOTS GUSTING TO 30 KNOTS. THE ESTIMATED CENTRAL PRESSURE IS 1002 HPA. THE SEA CONDITION IS ROUGH TO VERY ROUGH AROUND THE SYSTEM CENTRE. A SHIP (DJDS2) LOCATED NEAR LAT. 13.0°N / 57.1°E REPORTED MEAN SEA LEVEL PRESSURE 1009.0 HPA, SST 28.8°C AND WIND 250°/22.9 KNOTS.

THE MJO LIES IN THE PHASE 5 WITH AMPLITUDE CLOSE TO 1. IT IS LIKELY TO REMAIN IN THE SAME PHASE DURING NEXT 3-4 DAYS, AND WILL ENTER INTO PHASE 6 SUBSEQUENTLY WITH AMPLITUDE LESS THAN 1 AND WILL REMAIN THERE FOR NEXT 4-5 DAYS. THE LOW LEVEL RELATIVE VORTICITY FURTHER REDUCED AND IS ABOUT $100 \times 10^{-5} \text{ SEC}^{-1}$ AROUND THE SYSTEM CENTRE. THE LOWER LEVEL CONVERGENCE IS ABOUT $5 \times 10^{-5} \text{ S}^{-1}$ OVER SYSTEM CENTRE AND THE UPPER LEVEL DIVERGENCE IS ABOUT $10 \times 10^{-5} \text{ S}^{-1}$ TO THE SOUTHEAST OF THE SYSTEM CENTRE. THE VERTICAL WIND SHEAR IS LOW (05-10 KNOTS) OVER THE SYSTEM AREA. SEA SURFACE TEMPERATURE IS AROUND 26-28°C OVER THE SYSTEM AREA. TROPICAL CYCLONE HEAT POTENTIAL AROUND THE SYSTEM CENTER OVER WESTCENTRAL ARABIAN SEA IS 20-40 KJ/CM².

ALL THE ENVIRONMENTAL, DYNAMIC AND THERMODYNAMIC CONDITIONS UNFAVOURABLE AND THUS CAUSING THE WEAKENING OF THE SYSTEM. THE SYSTEM IS MOST LIKELY TO CONTINUE TO MOVE IN A SOUTHWESTWARD DIRECTION ACROSS WEST CENTRAL ARABIAN SEA AND WEAKEN INTO A WELL MARKED LOW PRESURE AREA DURING NEXT 12 HOURS. MAJORITY OF NUMERICAL MODELS AGREE WITH THE ABOVE INFERENCE.

REMARKS (B):

AS PER THE SATELLITE IMAGERY AT 0600 UTC OF 01ST NOVEMBER, 2019, THE CURRENT INTENSITY OF THE SYSTEM IS T 3.5. ASSOCIATED SCATTERED LOW TO MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION LIES OVER SOUTHEAST AND ADJOINING EASTCENTRAL ARABIAN SEA BETWEEN LAT 12.5°N TO 16.0°N AND LONG 67.0°E TO 72.0°E. THE MINIMUM CTT IS MINUS 93°C.

THE ESTIMATED MAXIMUM SUSTAINED WIND SPEED IS 55 KNOTS GUSTING TO 65 KNOTS. THE ESTIMATED CENTRAL PRESSURE IS 994 HPA. THE SEA CONDITION IS VERY HIGH AROUND THE SYSTEM CENTRE. A BUOY (23451) LOCATED NEAR LAT. 14.2°N /

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

68.2°E REPORTED MEAN SEA LEVEL PRESSURE 1005.5 HPA, SST 27.8°C AND WIND 060⁰/19 KNOTS. ANOTHER BUOY (23451) LOCATED NEAR LAT. 12.1°N / 68.1°E REPORTED MEAN SEA LEVEL PRESSURE 1009.5 HPA, SST 28.6°C AND WIND 230⁰/17 KNOTS.

THE LOW LEVEL RELATIVE VORTICITY CONTINUES TO REMAIN ABOUT $150 \times 10^{-5} \text{ SEC}^{-1}$ TO THE SOUTHWEST OF THE SYSTEM CENTRE. THE RIDGE OVER THE SYSTEM AREA RUNS ROUGHLY ALONG 17⁰N. THE LOWER LEVEL CONVERGENCE IS ABOUT $20 \times 10^{-5} \text{ S}^{-1}$ TO THE SOUTHWEST OF THE SYSTEM CENTRE AND THE UPPER LEVEL DIVERGENCE IS ABOUT $30 \times 10^{-5} \text{ S}^{-1}$ TO THE SOUTHWEST OF THE SYSTEM CENTRE. THE VERTICAL WIND SHEAR IS LOW (05-10 KNOTS) OVER THE SYSTEM AREA. SEA SURFACE TEMPERATURE IS AROUND 28-30°C AROUND THE SYSTEM AREA AND SHOWS GRADUAL REDUCTION IN THE FORECAST DIRECTION. TROPICAL CYCLONE HEAT POTENTIAL IS AROUND 70-90 KJ/CM² OVER THE THE SYSTEM AREA AND DECREASES IN THE FORECAST DIRCTION OF THE SYSTEM.

AS THE SYSTEM IS LYING IN A FAVOURABLE ENVIRONMENT, IT IS LIKELY TO INTENSIFY FURTHER INTO A VERY SEVERE CYCLONIC STORM DURING NEXT 24 HOURS. MOST OF THE NWP MODELS ARE IN AGREEMENT WITH THIS OBSERVATION. AS THE SYSTEM IS BEING STEERED BY THE SOUTHERN PERIPHERY WINDS OF THE ANTICYCLONE LOCATED TO THE NORTHEAST OF THE SYSTEM, IT IS MOVING IN NORTHWEST DIRECTION. THIS MOVEMENT IS LIKELY TO CONTINUE FOR NEXT 24 HOURS AND THEN UNDER THE STEERING OF EAST- NORTHEAST WINDS IT IS LIKELY TO MOVE WEST-NORTHWESTWARDS TILL 0000 UTC OF 5TH NOVEMBER. MAJORITY OF THE NUMERICAL MODELS SUGGEST THE SYSTEM TO RECURVE NORTHEASTWARDS THEREAFTER.

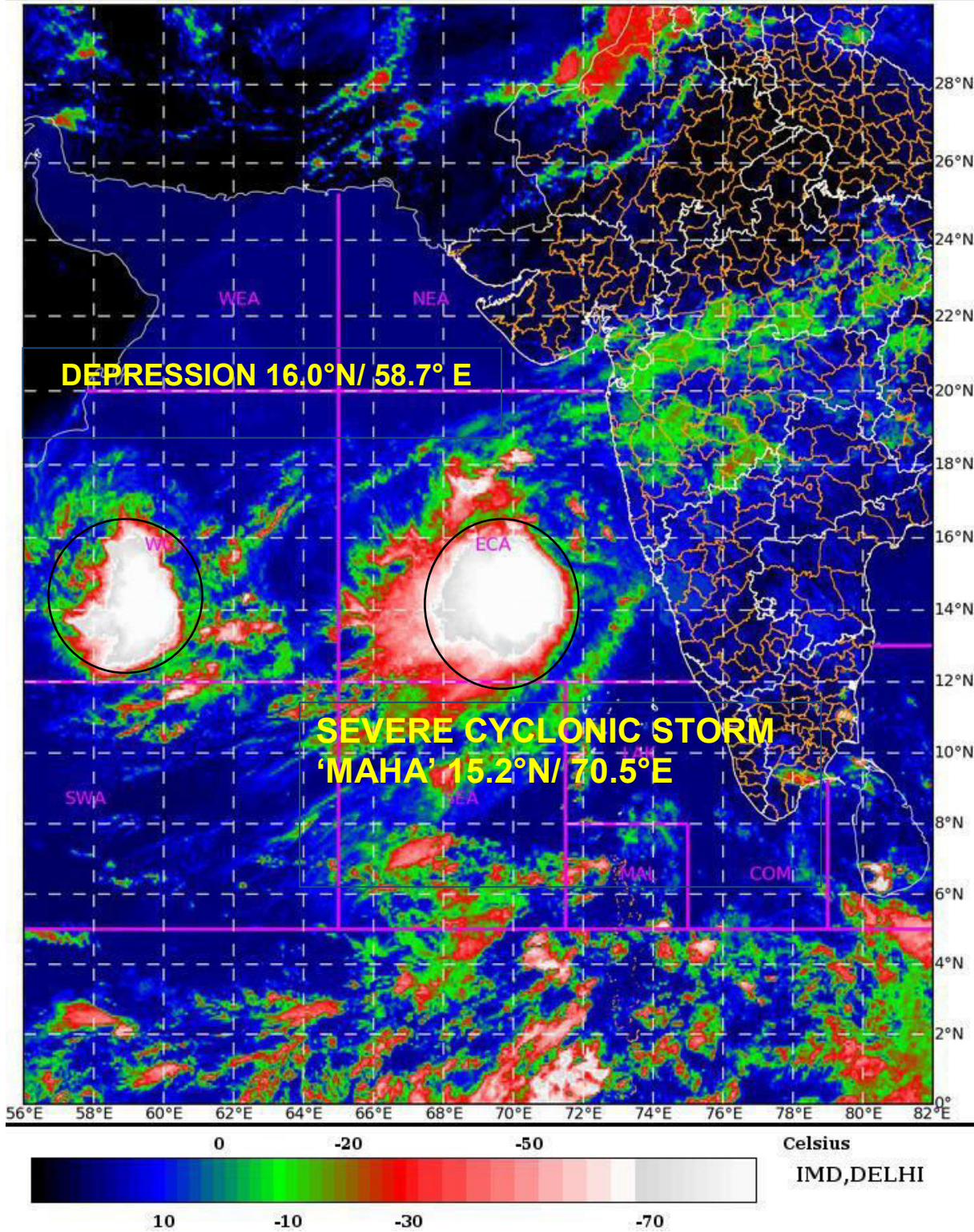
(RK JENAMANI)
SCIENTIST-F, RSMC, NEW DELHI

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%



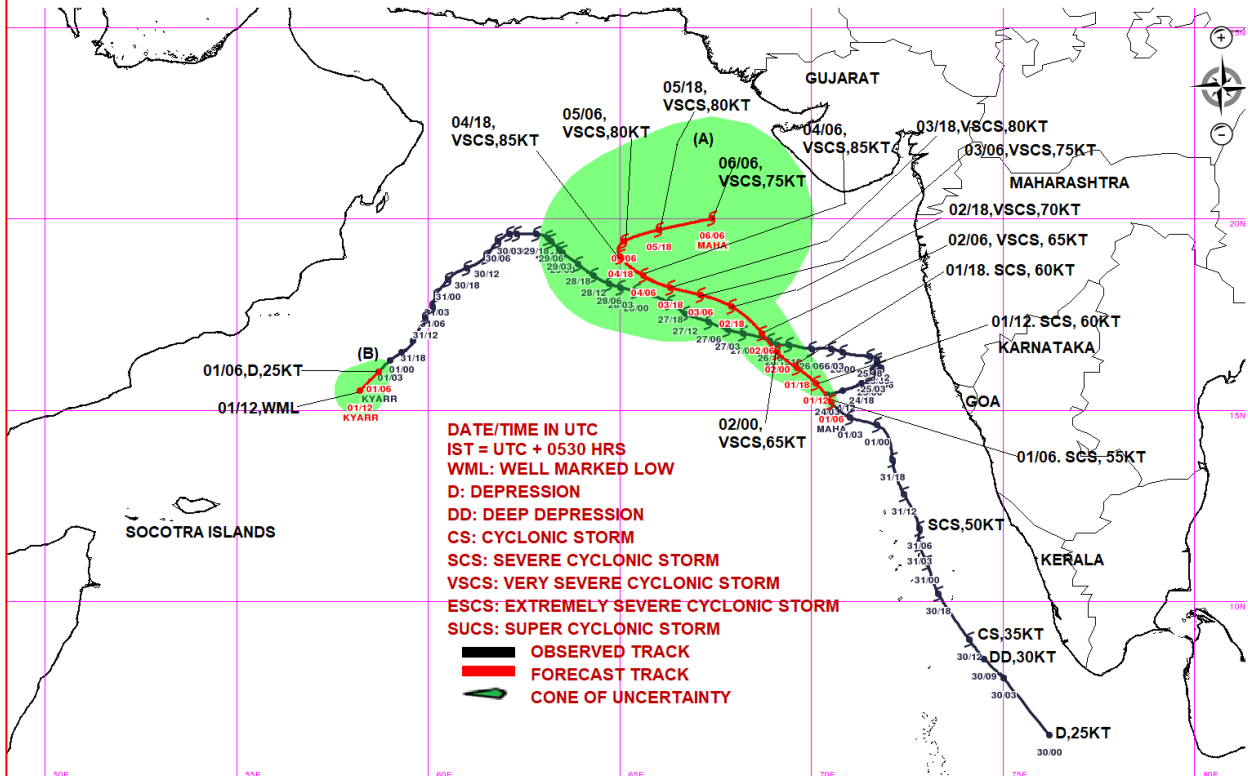
ARABIAN_SEA



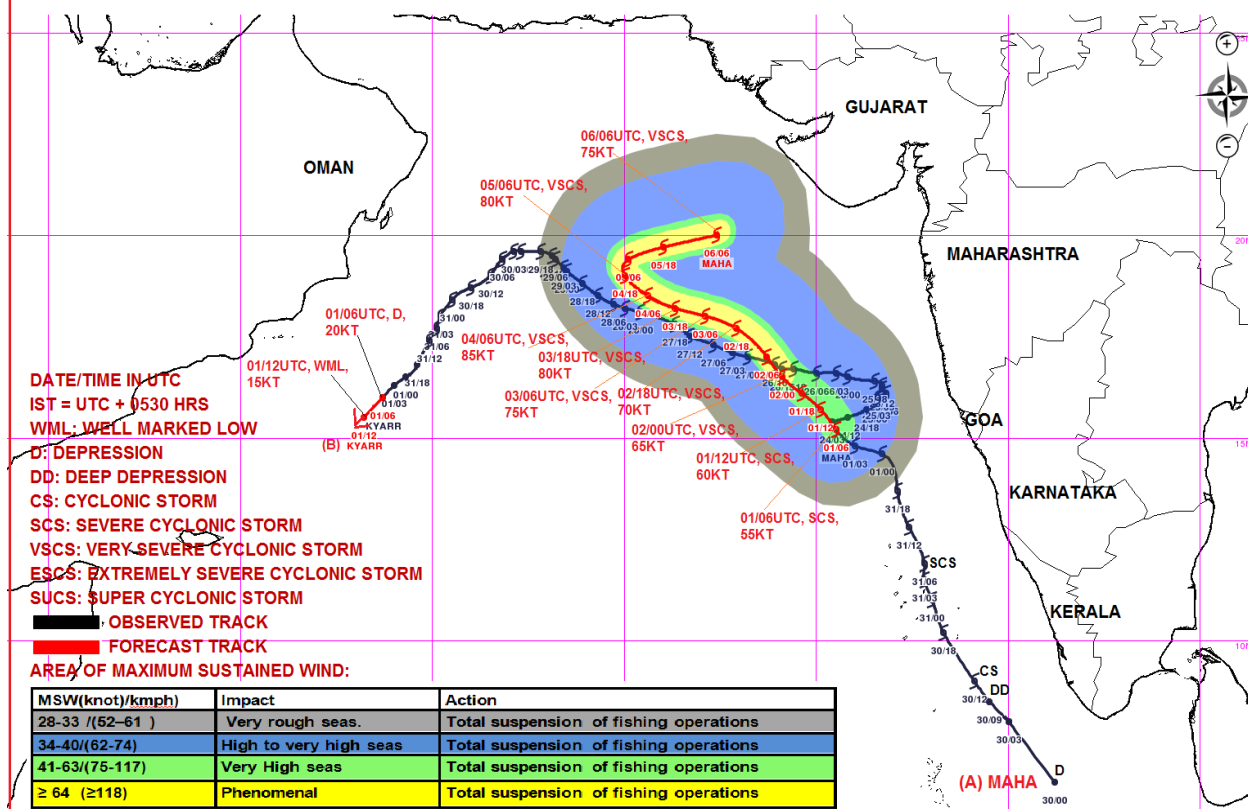
PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

OBSERVED & FORECAST TRACK ALONGWITH CONE OF UNCERTAINTY IN ASSOCIATION WITH (A) SEVERE CYCLONIC STORM "MAHA" OVER EASTCENTRAL ARABIAN SEA AND (B) DEPRESSION OVER WESTCENTRAL ARABIAN SEA BASED ON 0600 UTC OF 01ST NOVEMBER 2019



OBSERVED & FORECAST TRACK ALONGWITH QUADRANT WIND DISTRIBUTION IN ASSOCIATION WITH (A) SEVERE CYCLONIC STORM "MAHA" OVER EASTCENTRAL ARABIAN SEA AND (B) DEPRESSION OVER WESTCENTRAL ARABIAN SEA BASED ON 0600 UTC OF 1ST NOVEMBER 2019



PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%



**REGIONAL SPECIALISED METEOROLOGICAL CENTRE-TROPICAL CYCLONES, NEW DELHI
TROPICAL CYCLONE ADVISORY BULLETIN NO. 60 & TROPICAL CYCLONE ADVISORY
BULLETIN NO. 16**

FROM: RSMC –TROPICAL CYCLONES, NEW DELHI

**TO: STORM WARNING CENTRE, NAYPYI TAW (MYANMAR)
STORM WARNING CENTRE, BANGKOK (THAILAND)
STORM WARNING CENTRE, COLOMBO (SRILANKA)
STORM WARNING CENTRE, DHAKA (BANGLADESH)
STORM WARNING CENTRE, KARACHI (PAKISTAN)
METEOROLOGICAL OFFICE, MALE (MALDIVES)
OMAN METEOROLOGICAL DEPARTMENT, MUSCAT (THROUGH RTH JEDDAH)
YEMEN METEOROLOGICAL SERVICES, REPUBLIC OF YEMEN (THROUGH RTH JEDDAH)
NATIONAL CENTRE FOR METEOROLOGY, UAE (THROUGH RTH JEDDAH)
PRESIDENCY OF METEOROLOGY AND ENVIRONMENT, SAUDI ARABIA (THROUGH RTH JEDDAH)
IRAN METEOROLOGICAL ORGANISATION, (THROUGH RTH JEDDAH)
QATAR METEOROLOGICAL DEPARTMENT (THROUGH RTH JEDDAH)**

**TROPICAL CYCLONE ADVISORY No. 60 & TROPICAL CYCLONE ADVISORY NO. 16 FOR NORTH
INDIAN OCEAN (THE BAY OF BENGAL AND ARABIAN SEA) VALID FOR NEXT 120 HOURS ISSUED
AT 0900 UTC OF 01.11.2019 BASED ON 0900 UTC OF 01.11.2019.**

**SUB: (A) DEPRESSION OVER WESTCENTRAL ARABIAN SEA
(B) SEVERE CYCLONIC STORM 'MAHA' (PRONOUNCED AS M'MAHA) OVER EASTCENTRAL
ARABIAN SEA**

(A) DEPRESSION OVER WESTCENTRAL ARABIAN SEA

THE DEPRESSION OVER WESTCENTRAL ARABIAN SEA MOVED SOUTHWESTWARDS WITH A SPEED OF 14 KMPH DURING PAST 06 HOURS AND LAY CENTRED AT 0900 UTC OF 01ST NOVEMBER, 2019 OVER WESTCENTRAL ARABIAN SEA NEAR LATITUDE 15.8°N AND LONGITUDE 58.4°E, ABOUT 1570 KM WEST-SOUTHWEST OF MUMBAI (43003), 490 KM EAST-NORTHEAST OF SALALAH(41316) AND 540 KM SOUTH-SOUTHEAST OF MASIRAH (41288). IT IS VERY LIKELY TO MOVE SOUTHWESTWARDS ACROSS WESTCENTRAL ARABIAN SEA AND WEAKEN INTO A WELL MARKED LOW PRESSURE AREA DURING NEXT 06 HOURS.

(B) SEVERE CYCLONIC STORM MAHA (PRONOUNCED AS M'MAHA) OVER EASTCENTRAL ARABIAN SEA

THE SEVERE CYCLONIC STORM MAHA (PRONOUNCED AS M'MAHA) OVER EASTCENTRAL ARABIAN SEA MOVED NORTHWESTWARDS WITH A SPEED OF 21 KMPH DURING PAST 06 HOURS, AND LAY CENTERED AT 0900 HRS UTC OF 01ST NOVEMBER, 2019, OVER EASTCENTRAL ARABIAN SEA NEAR LATITUDE 15.4°N AND LONGITUDE 70.0°E ABOUT 610 KM SOUTH OF VERAVAL (GUJARAT), 590 KM NORTH-NORTHWEST OF MANGALURU (KARNATAKA) AND 410 KM WEST OF GOA. IT IS VERY LIKELY TO MOVE NORTHWESTWARDS DURING NEXT 24 HOURS, WEST-NORTHWESTWARDS DURING 02ND TO 04TH NOVEMBER AND RECURVE EAST-NORTHEASTWARDS TOWARDS SOUTH GUJARAT COAST THEREAFTER. IT IS VERY LIKELY TO INTENSIFY INTO A VERY SEVERE CYCLONIC STORM OVER EASTCENTRAL ARABIAN SEA DURING NEXT 24 HOURS.

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

FORECAST TRACK AND INTENSITY ARE GIVEN IN THE FOLLOWING TABLE:

DATE/TIME(UTC)	POSITION (LAT. °N/ LONG. °E)	MAXIMUM SUSTAINED SURFACE WIND SPEED (KMPH)	CATEGORY OF CYCLONIC DISTURBANCE
01.11.19/0900	15.4/70.0	100-110 GUSTING TO 125	SEVERE CYCLONIC STORM
01.11.19/1200	15.7/69.7	110-120 GUSTING TO 135	SEVERE CYCLONIC STORM
01.11.19/1800	16.1/69.3	110-120 GUSTING TO 135	SEVERE CYCLONIC STORM
02.11.19/0000	16.5/68.9	120-130 GUSTING TO 145	VERY SEVERE CYCLONIC STORM
02.11.19/0600	17.0/68.6	120-130 GUSTING TO 145	VERY SEVERE CYCLONIC STORM
02.11.19/1800	17.7/67.9	130-140 GUSTING TO 155	VERY SEVERE CYCLONIC STORM
03.11.19/0600	18.0/67.1	140-150 GUSTING TO 165	VERY SEVERE CYCLONIC STORM
03.11.19/1800	18.2/66.3	150-160 GUSTING TO 175	VERY SEVERE CYCLONIC STORM
04.11.19/0600	18.5/65.6	160-170 GUSTING TO 185	VERY SEVERE CYCLONIC STORM
04.11.19/1800	19.0/65.0	160-170 GUSTING TO 185	VERY SEVERE CYCLONIC STORM
05.11.19/0600	19.4/65.1	150-160 GUSTING TO 175	VERY SEVERE CYCLONIC STORM
05.11.19/1800	19.7/66.0	150-160 GUSTING TO 175	VERY SEVERE CYCLONIC STORM
06.11.19/0600	20.0/67.4	140-150 GUSTING TO 165	VERY SEVERE CYCLONIC STORM

REMARKS (A):

AS PER THE SATELLITE IMAGERY AT 0900 UTC OF 01ST NOVEMBER, 2019, THE CURRENT INTENSITY OF THE SYSTEM IS T 1.0/1.5. ASSOCIATED BROKEN LOW TO MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION LIES OVER WESTCENTRAL ARABIAN SEA BETWEEN LAT 12.0°N TO 16.5°N AND LONG 56.0°E TO 60.5°E. THE MINIMUM CTT IS MINUS 93 DEG C.

THE ESTIMATED MAXIMUM SUSTAINED WIND SPEED IS 25 KNOTS GUSTING TO 30 KNOTS. THE ESTIMATED CENTRAL PRESSURE IS 1002 HPA. THE SEA CONDITION IS ROUGH TO VERY ROUGH AROUND THE SYSTEM CENTRE. AT 0900 UTC SALALAH (41316) REPORTED MEAN SEA LEVEL PRESSURE 1007.8 HPA AND WIND 010⁰/19 KNOTS.

THE MJO LIES IN THE PHASE 5 WITH AMPLITUDE CLOSE TO 1. IT IS LIKELY TO REMAIN IN THE SAME PHASE DURING NEXT 3-4 DAYS, AND WILL ENTER INTO PHASE 6 SUBSEQUENTLY WITH AMPLITUDE LESS THAN 1 AND WILL REMAIN THERE FOR NEXT 4-5 DAYS. THE LOW LEVEL RELATIVE VORTICITY FURTHER REDUCED AND IS ABOUT $100 \times 10^{-5} \text{ SEC}^{-1}$ TO THE SOUTHWEST OF THE SYSTEM CENTRE. THE LOWER LEVEL CONVERGENCE IS ABOUT $10 \times 10^{-5} \text{ S}^{-1}$ TO THE SOUTHWEST OF THE SYSTEM CENTRE AND THE UPPER LEVEL DIVERGENCE IS ABOUT $10 \times 10^{-5} \text{ S}^{-1}$ OVER THE SYSTEM CENTRE. THE VERTICAL WIND SHEAR IS LOW (10-15 KNOTS) OVER THE SYSTEM AREA. SEA SURFACE TEMPERATURE IS AROUND 26-28°C OVER THE SYSTEM AREA. TROPICAL CYCLONE HEAT POTENTIAL AROUND THE SYSTEM CENTER OVER WESTCENTRAL ARABIAN SEA IS 20-40 KJ/CM².

ALL THE ENVIRONMENTAL, DYNAMIC AND THERMODYNAMIC CONDITIONS ARE UNFAVOURABLE AND THUS CAUSING THE WEAKENING OF THE SYSTEM. THE SYSTEM IS MOST LIKELY TO CONTINUE TO MOVE IN A SOUTHWESTWARD DIRECTION ACROSS WEST CENTRAL ARABIAN SEA AND WEAKEN INTO A WELL MARKED LOW PRESURE AREA DURING NEXT 12 HOURS. MAJORITY OF NUMERICAL MODELS AGREE WITH THE ABOVE INFERENCE.

REMARKS (B):

AS PER THE SATELLITE IMAGERY AT 0900 UTC OF 01ST NOVEMBER, 2019, THE CURRENT INTENSITY OF THE SYSTEM IS T 3.5. ASSOCIATED SCATTERED LOW TO MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION LIES OVER SOUTHEAST AND ADJOINING EASTCENTRAL ARABIAN SEA BETWEEN LAT 12.5°N TO 16.0°N AND LONG 67.0°E TO 72.0°E. THE MINIMUM CTT IS MINUS 93°C.

THE ESTIMATED MAXIMUM SUSTAINED WIND SPEED IS 55 KNOTS GUSTING TO 65 KNOTS. THE ESTIMATED CENTRAL PRESSURE IS 994 HPA. THE SEA CONDITION IS VERY HIGH AROUND THE SYSTEM CENTRE. A BUOY (23451) LOCATED NEAR LAT. 14.9°N /

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

69.2°E REPORTED MEAN SEA LEVEL PRESSURE 1002.3 HPA, SST 27.8°C AND WIND 060⁰/23 KNOTS. ANOTHER BUOY (23452) LOCATED NEAR LAT. 12.2°N / 68.7°E REPORTED MEAN SEA LEVEL PRESSURE 1007.1 HPA, SST 27.9°C AND WIND 230⁰/16 KNOTS.

THE LOW LEVEL RELATIVE VORTICITY CONTINUES TO REMAIN ABOUT $150 \times 10^{-5} \text{ SEC}^{-1}$ TO THE SOUTHEAST OF THE SYSTEM CENTRE. THE RIDGE OVER THE SYSTEM AREA RUNS ROUGHLY ALONG 17⁰N. THE LOWER LEVEL CONVERGENCE IS ABOUT $20 \times 10^{-5} \text{ S}^{-1}$ TO THE SOUTHWEST OF THE SYSTEM CENTRE AND THE UPPER LEVEL DIVERGENCE DECREASED AND IS ABOUT $10 \times 10^{-5} \text{ S}^{-1}$ OVER THE SYSTEM AREA. THE VERTICAL WIND SHEAR IS LOW (05-10 KNOTS) OVER THE SYSTEM AREA. SEA SURFACE TEMPERATURE IS AROUND 28-30°C AROUND THE SYSTEM AREA AND SHOWS GRADUAL REDUCTION IN THE FORECAST DIRECTION. TROPICAL CYCLONE HEAT POTENTIAL IS AROUND 70-90 KJ/CM² OVER THE THE SYSTEM AREA AND DECREASES IN THE FORECAST DIRCTION OF THE SYSTEM.

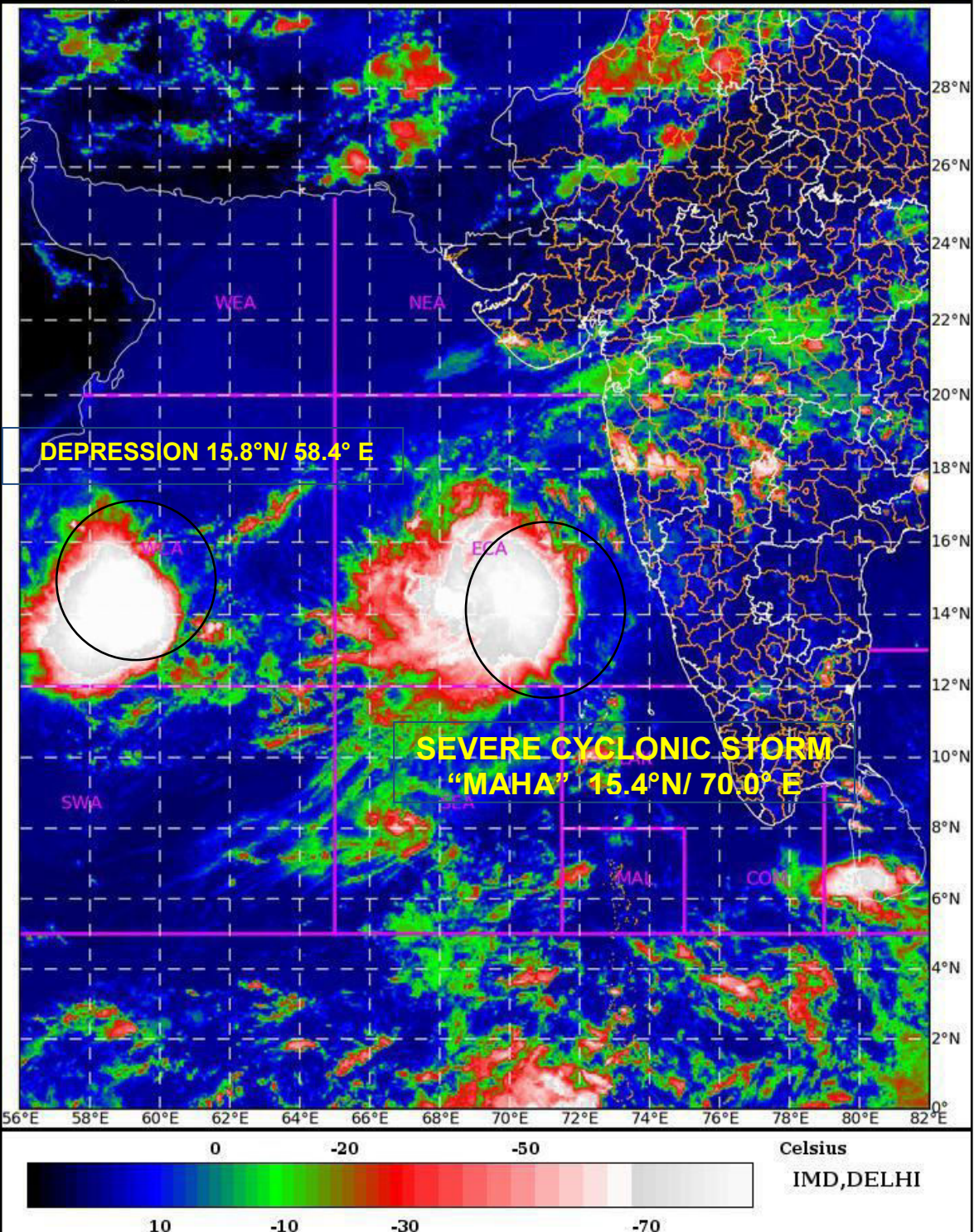
AS THE SYSTEM IS LYING IN A FAVOURABLE ENVIRONMENT, IT IS LIKELY TO INTENSIFY FURTHER INTO A VERY SEVERE CYCLONIC STORM DURING NEXT 24 HOURS. MOST OF THE NWP MODELS ARE IN AGREEMENT WITH THIS OBSERVATION. AS THE SYSTEM IS BEING STEERED BY THE SOUTHERN PERIPHERY WINDS OF THE ANTICYCLONE LOCATED TO THE NORTHEAST OF THE SYSTEM, IT IS MOVING IN NORTHWEST DIRECTION. THIS MOVEMENT IS LIKELY TO CONTINUE FOR NEXT 24 HOURS AND THEN UNDER THE STEERING OF EAST- NORTHEAST WINDS IT IS LIKELY TO MOVE WEST-NORTHWESTWARDS TILL 0000 UTC OF 5TH NOVEMBER. MAJORITY OF THE NUMERICAL MODELS SUGGEST THE SYSTEM TO RECURVE NORTHEASTWARDS THEREAFTER.

(SUNITHA DEVI)
SCIENTIST-E, RSMC, NEW DELHI

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

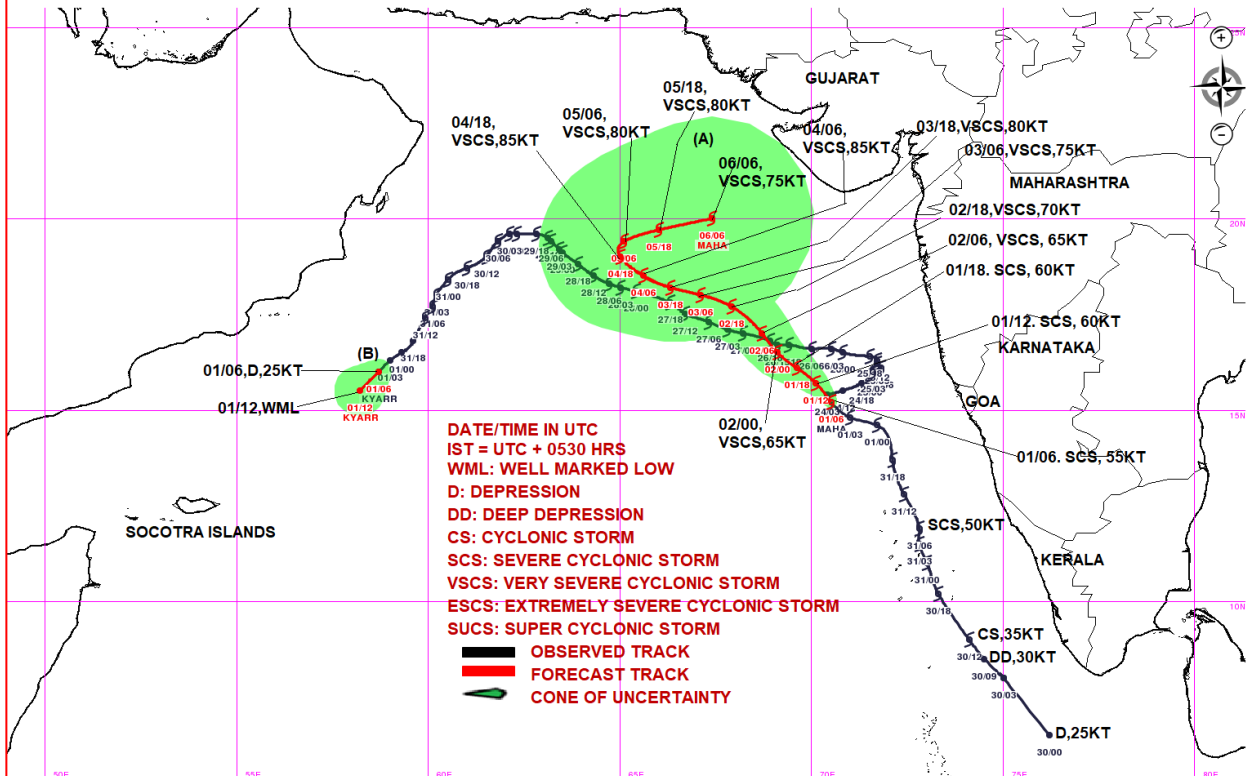
NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

SAT : INSAT-3D IMG 01-11-2019/(1100 to 1126) GMT
IMG_TIR1_TEMP 10.8 um 01-11-2019/(1630 to 1656) IST
ARABIAN_SEA

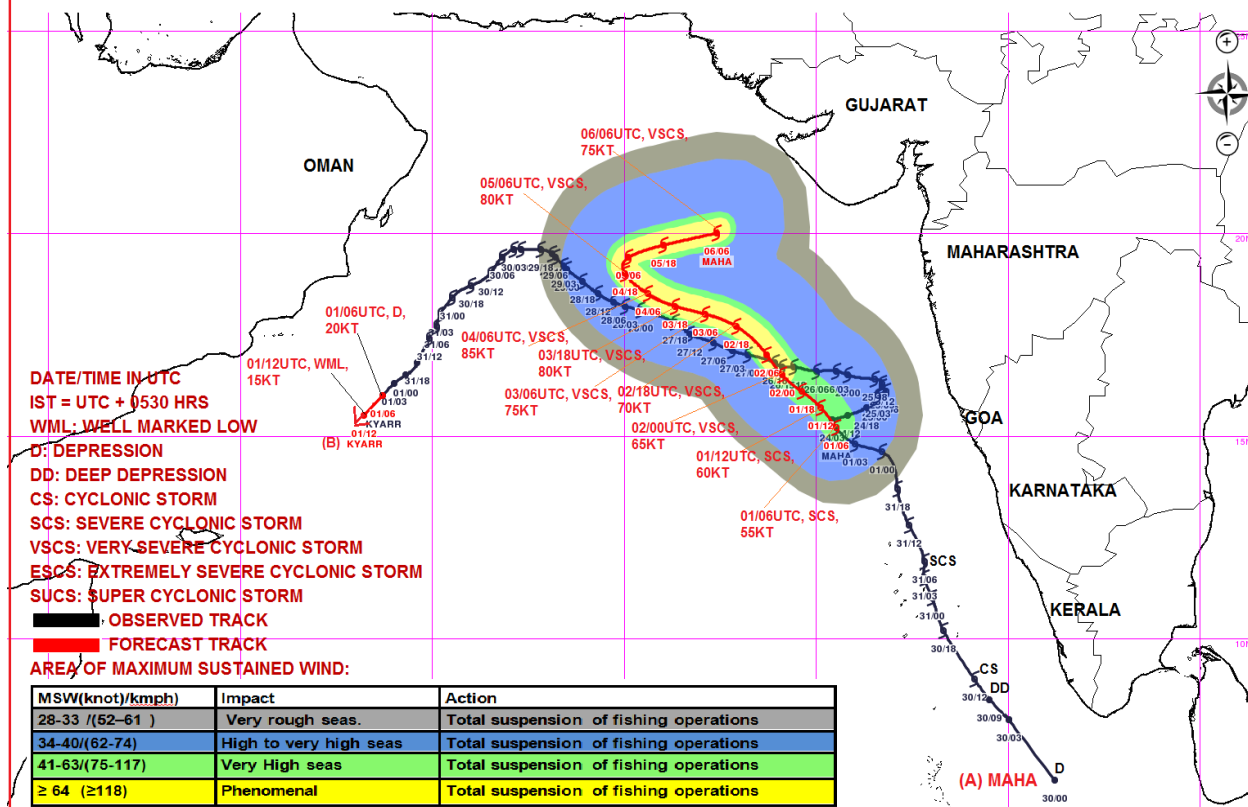


PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)
NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

OBSERVED & FORECAST TRACK ALONGWITH CONE OF UNCERTAINTY IN ASSOCIATION WITH (A) SEVERE CYCLONIC STORM "MAHA" OVER EASTCENTRAL ARABIAN SEA AND (B) DEPRESSION OVER WESTCENTRAL ARABIAN SEA BASED ON 0600 UTC OF 01ST NOVEMBER 2019



OBSERVED & FORECAST TRACK ALONGWITH QUADRANT WIND DISTRIBUTION IN ASSOCIATION WITH (A) SEVERE CYCLONIC STORM "MAHA" OVER EASTCENTRAL ARABIAN SEA AND (B) DEPRESSION OVER WESTCENTRAL ARABIAN SEA BASED ON 0600 UTC OF 1ST NOVEMBER 2019



PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%



**REGIONAL SPECIALISED METEOROLOGICAL CENTRE-TROPICAL CYCLONES, NEW DELHI
TROPICAL CYCLONE ADVISORY BULLETIN NO. 61 & TROPICAL CYCLONE ADVISORY
BULLETIN NO. 17**

FROM: RSMC –TROPICAL CYCLONES, NEW DELHI

**TO: STORM WARNING CENTRE, NAYPYI TAW (MYANMAR)
STORM WARNING CENTRE, BANGKOK (THAILAND)
STORM WARNING CENTRE, COLOMBO (SRILANKA)
STORM WARNING CENTRE, DHAKA (BANGLADESH)
STORM WARNING CENTRE, KARACHI (PAKISTAN)
METEOROLOGICAL OFFICE, MALE (MALDIVES)
OMAN METEOROLOGICAL DEPARTMENT, MUSCAT (THROUGH RTH JEDDAH)
YEMEN METEOROLOGICAL SERVICES, REPUBLIC OF YEMEN (THROUGH RTH JEDDAH)
NATIONAL CENTRE FOR METEOROLOGY, UAE (THROUGH RTH JEDDAH)
PRESIDENCY OF METEOROLOGY AND ENVIRONMENT, SAUDI ARABIA (THROUGH RTH JEDDAH)
IRAN METEOROLOGICAL ORGANISATION, (THROUGH RTH JEDDAH)
QATAR METEOROLOGICAL DEPARTMENT (THROUGH RTH JEDDAH)**

TROPICAL CYCLONE ADVISORY No. 61 & TROPICAL CYCLONE ADVISORY NO. 17 FOR NORTH INDIAN OCEAN (THE BAY OF BENGAL AND ARABIAN SEA) VALID FOR NEXT 120 HOURS ISSUED AT 1500 UTC OF 01.11.2019 BASED ON 1200 UTC OF 01.11.2019.

**SUB: (A) DEPRESSION OVER WESTCENTRAL ARABIAN SEA
(B) SEVERE CYCLONIC STORM 'MAHA' (PRONOUNCED AS M'MAHA) OVER EASTCENTRAL ARABIAN SEA**

(A) DEPRESSION OVER WESTCENTRAL ARABIAN SEA

THE DEPRESSION OVER WESTCENTRAL ARABIAN SEA MOVED WEST-SOUTHWESTWARDS WITH A SPEED OF 24 KMPH DURING PAST 06 HOURS AND LAY CENTRED AT 1200 UTC OF 01ST NOVEMBER, 2019 OVER WESTCENTRAL ARABIAN SEA NEAR LATITUDE 15.4°N AND LONGITUDE 57.5°E, ABOUT 1670 KM WEST-SOUTHWEST OF MUMBAI (43003), 420 KM EAST-SOUTHEAST OF SALALAH(41316) AND 600 KM SOUTH-SOUTHEAST OF MASIRAH (41288). IT IS VERY LIKELY TO MOVE SOUTHWESTWARDS ACROSS WESTCENTRAL ARABIAN SEA, MAINTAINING THE INTENSITY OF A DEPRESSION DURING NEXT 12 HOURS AND WEAKEN INTO A WELL MARKED LOW PRESSURE AREA SUBSEQUENTLY.

(B) SEVERE CYCLONIC STORM MAHA (PRONOUNCED AS M'MAHA) OVER EASTCENTRAL ARABIAN SEA

THE SEVERE CYCLONIC STORM MAHA (PRONOUNCED AS M'MAHA) OVER EASTCENTRAL ARABIAN SEA MOVED WEST-NORTHWESTWARDS WITH A SPEED OF 19 KMPH DURING PAST 06 HOURS, AND LAY CENTERED AT 1200 UTC OF 01ST NOVEMBER, 2019, OVER EASTCENTRAL ARABIAN SEA NEAR LATITUDE 15.6°N AND LONGITUDE 69.5°E ABOUT 590 KM SOUTH OF VERAVAL (GUJARAT), 590 KM NORTH-NORTHWEST OF MANGALURU (KARNATAKA) AND 460 KM WEST OF GOA. IT IS VERY LIKELY TO MOVE NORTHWESTWARDS DURING NEXT 24 HOURS, WEST-NORTHWESTWARDS DURING 02ND TO 04TH NOVEMBER AND RECURVE EAST-NORTHEASTWARDS TOWARDS SOUTH GUJARAT COAST THEREAFTER. IT IS VERY LIKELY TO INTENSIFY INTO A VERY SEVERE CYCLONIC STORM OVER EASTCENTRAL ARABIAN SEA DURING NEXT 24 HOURS.

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

FORECAST TRACK AND INTENSITY ARE GIVEN IN THE FOLLOWING TABLE:

DATE/TIME(UTC)	POSITION (LAT. °N/ LONG. °E)	MAXIMUM SUSTAINED SURFACE WIND SPEED (KMPH)	CATEGORY OF CYCLONIC DISTURBANCE
01.11.19/1200	15.6/69.5	90-100 GUSTING TO 115	SEVERE CYCLONIC STORM
01.11.19/1800	16.1/69.0	95-105 GUSTING TO 120	SEVERE CYCLONIC STORM
02.11.19/0000	16.6/68.6	100-110 GUSTING TO 125	SEVERE CYCLONIC STORM
02.11.19/0600	17.0/68.2	110-120 GUSTING TO 135	SEVERE CYCLONIC STORM
02.11.19/1200	17.4/67.9	115-125 GUSTING TO 140	VERY SEVERE CYCLONIC STORM
03.11.19/0000	17.8/67.5	130-140 GUSTING TO 155	VERY SEVERE CYCLONIC STORM
03.11.19/1200	18.1/66.7	140-150 GUSTING TO 165	VERY SEVERE CYCLONIC STORM
04.11.19/0000	18.3/66.0	145-155 GUSTING TO 170	VERY SEVERE CYCLONIC STORM
04.11.19/1200	18.7/65.2	150-160 GUSTING TO 175	VERY SEVERE CYCLONIC STORM
05.11.19/0000	19.1/65.0	150-160 GUSTING TO 175	VERY SEVERE CYCLONIC STORM
05.11.19/1200	19.6/65.5	140-150 GUSTING TO 165	VERY SEVERE CYCLONIC STORM
06.11.19/0000	19.8/66.7	130-140 GUSTING TO 155	VERY SEVERE CYCLONIC STORM
06.11.19/1200	20.2/67.9	120-130 GUSTING TO 145	VERY SEVERE CYCLONIC STORM

REMARKS (A):

AS PER THE SATELLITE IMAGERY AT 1200 UTC OF 01ST NOVEMBER, 2019, THE CURRENT INTENSITY OF THE SYSTEM IS T 1.0/1.5. ASSOCIATED BROKEN LOW TO MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION LIES OVER WESTCENTRAL ARABIAN SEA BETWEEN LAT 12.0°N TO 16.5°N AND LONG 56.0°E TO 60.5°E. THE MINIMUM CTT IS MINUS 93 DEG C.

THE ESTIMATED MAXIMUM SUSTAINED WIND SPEED IS 25 KNOTS GUSTING TO 30 KNOTS. THE ESTIMATED CENTRAL PRESSURE IS 1002 HPA. THE SEA CONDITION IS ROUGH TO VERY ROUGH AROUND THE SYSTEM CENTRE. AT 0900 UTC SALALAH (41316) REPORTED MEAN SEA LEVEL PRESSURE 1007.8 HPA AND WIND 010°/19 KNOTS.

THE MJO LIES IN THE PHASE 5 WITH AMPLITUDE CLOSE TO 1. IT IS LIKELY TO REMAIN IN THE SAME PHASE DURING NEXT 3-4 DAYS, AND WILL ENTER INTO PHASE 6 SUBSEQUENTLY WITH AMPLITUDE LESS THAN 1 AND WILL REMAIN THERE FOR NEXT 4-5 DAYS. THE LOW LEVEL RELATIVE VORTICITY FURTHER REDUCED AND IS ABOUT $100 \times 10^{-5} \text{ SEC}^{-1}$ TO THE SOUTHWEST OF THE SYSTEM CENTRE. THE LOWER LEVEL CONVERGENCE IS ABOUT $10 \times 10^{-5} \text{ S}^{-1}$ TO THE SOUTHWEST OF THE SYSTEM CENTRE AND THE UPPER LEVEL DIVERGENCE IS ABOUT $10 \times 10^{-5} \text{ S}^{-1}$ OVER THE SYSTEM CENTRE. THE VERTICAL WIND SHEAR IS LOW (10-15 KNOTS) OVER THE SYSTEM AREA. SEA SURFACE TEMPERATURE IS AROUND 26-28°C OVER THE SYSTEM AREA. TROPICAL CYCLONE HEAT POTENTIAL AROUND THE SYSTEM CENTER OVER WESTCENTRAL ARABIAN SEA IS 20-40 KJ/CM².

ALL THE ENVIRONMENTAL, DYNAMIC AND THERMODYNAMIC CONDITIONS ARE UNFAVOURABLE AND THUS CAUSING THE WEAKENING OF THE SYSTEM. THE SYSTEM IS MOST LIKELY TO CONTINUE TO MOVE IN A SOUTHWESTWARD DIRECTION ACROSS WEST CENTRAL ARABIAN SEA AND WEAKEN INTO A WELL MARKED LOW PRESURE AREA DURING NEXT 12 HOURS. MAJORITY OF NUMERICAL MODELS AGREE WITH THE ABOVE INFERENCE.

REMARKS (B):

AS PER THE SATELLITE IMAGERY AT 1200 UTC OF 01ST NOVEMBER, 2019, THE CURRENT INTENSITY OF THE SYSTEM IS T 3.5. ASSOCIATED SCATTERED LOW TO MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION LIES OVER EASTCENTRAL AND ADJOINING SOUTHEAST ARABIAN SEA BETWEEN LAT 12.0°N TO 16.0°N AND LONG 66.0°E TO 71.5°E. THE MINIMUM CTT IS MINUS 93°C.

THE ESTIMATED MAXIMUM SUSTAINED WIND SPEED IS 50 KNOTS GUSTING TO 60 KNOTS. THE ESTIMATED CENTRAL PRESSURE IS 994 HPA. THE SEA CONDITION IS VERY HIGH AROUND THE SYSTEM CENTRE. AT 1200 UTC, A BUOY (23451) LOCATED NEAR LAT.

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

14.9°N / 69.0°E REPORTED MEAN SEA LEVEL PRESSURE 1002.0 HPA, SST 27.8°C AND WIND 080⁰/19 KNOTS.

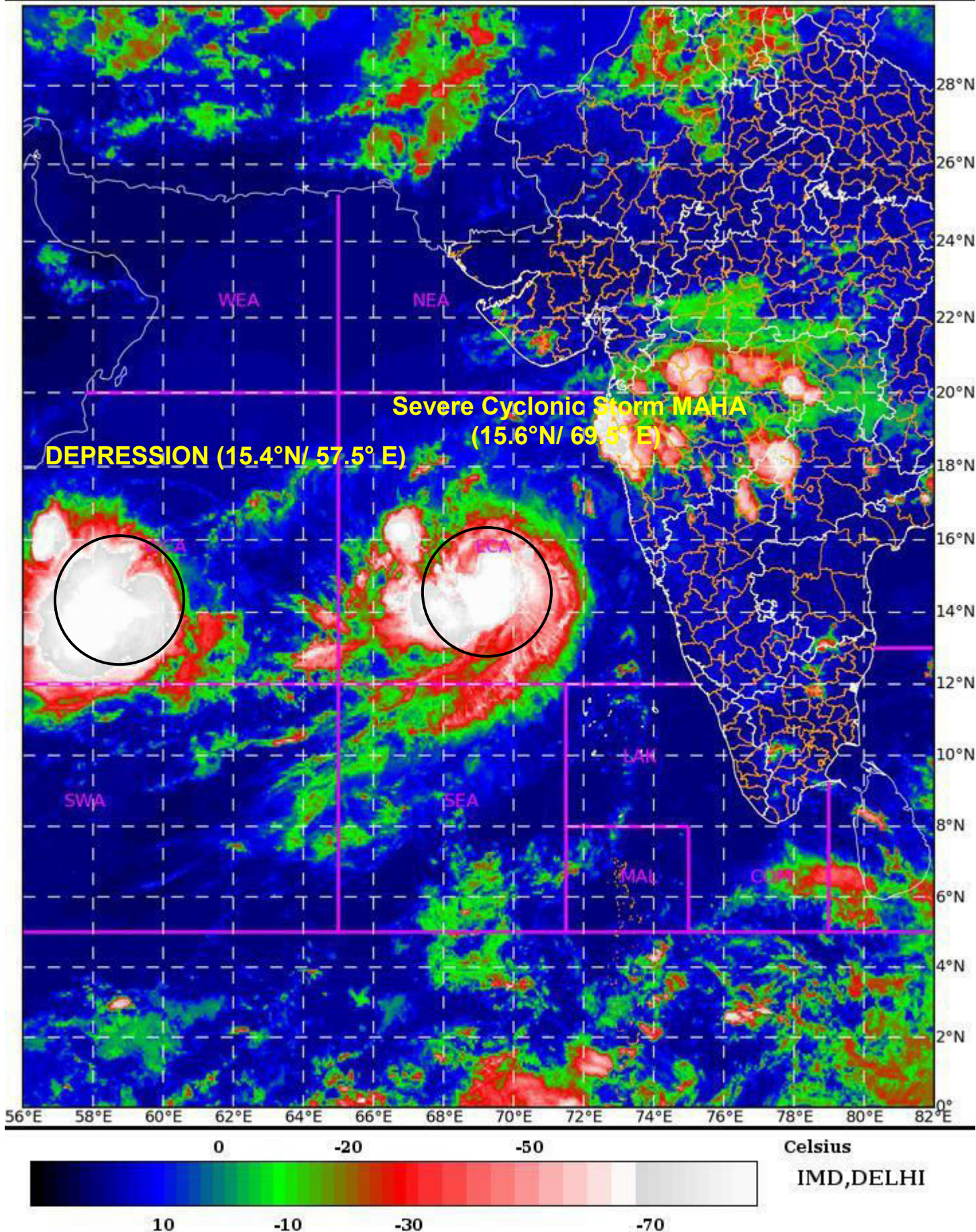
THE LOW LEVEL RELATIVE VORTICITY CONTINUES TO REMAIN ABOUT $150 \times 10^{-5} \text{ SEC}^{-1}$ TO THE SOUTHEAST OF THE SYSTEM CENTRE. THE RIDGE OVER THE SYSTEM AREA RUNS ROUGHLY ALONG 17⁰N. THE LOWER LEVEL CONVERGENCE IS ABOUT $20 \times 10^{-5} \text{ S}^{-1}$ TO THE SOUTHEAST OF THE SYSTEM CENTRE AND THE UPPER LEVEL DIVERGENCE HAS FURTHER DECREASED AND IS ABOUT $05 \times 10^{-5} \text{ S}^{-1}$ OVER THE SYSTEM AREA. THE VERTICAL WIND SHEAR IS LOW (05-10 KNOTS) OVER THE SYSTEM AREA. SEA SURFACE TEMPERATURE IS AROUND 28-30°C AROUND THE SYSTEM AREA AND SHOWS GRADUAL REDUCTION IN THE FORECAST DIRECTION. TROPICAL CYCLONE HEAT POTENTIAL IS AROUND 70-90 KJ/CM² OVER THE THE SYSTEM AREA AND DECREASES IN THE FORECAST DIRECTION OF THE SYSTEM.

AS THE SYSTEM IS LYING IN A FAVOURABLE ENVIRONMENT, IT IS LIKELY TO INTENSIFY FURTHER INTO A VERY SEVERE CYCLONIC STORM DURING NEXT 24 HOURS. MOST OF THE NWP MODELS ARE IN AGREEMENT WITH THIS OBSERVATION. AS THE SYSTEM IS BEING STEERED BY THE SOUTHERN PERIPHERY WINDS OF THE ANTICYCLONE LOCATED TO THE NORTHEAST OF THE SYSTEM, IT IS MOVING IN NORTHWEST DIRECTION. THIS MOVEMENT IS LIKELY TO CONTINUE FOR NEXT 24 HOURS AND THEN UNDER THE STEERING OF EAST- NORTHEAST WINDS IT IS LIKELY TO MOVE WEST-NORTHWESTWARDS TILL 0000 UTC OF 5TH NOVEMBER. MAJORITY OF THE NUMERICAL MODELS SUGGEST THE SYSTEM TO RECURVE NORTHEASTWARDS THEREAFTER.

(SUNITHA DEVI)
SCIENTIST-E, RSMC, NEW DELHI

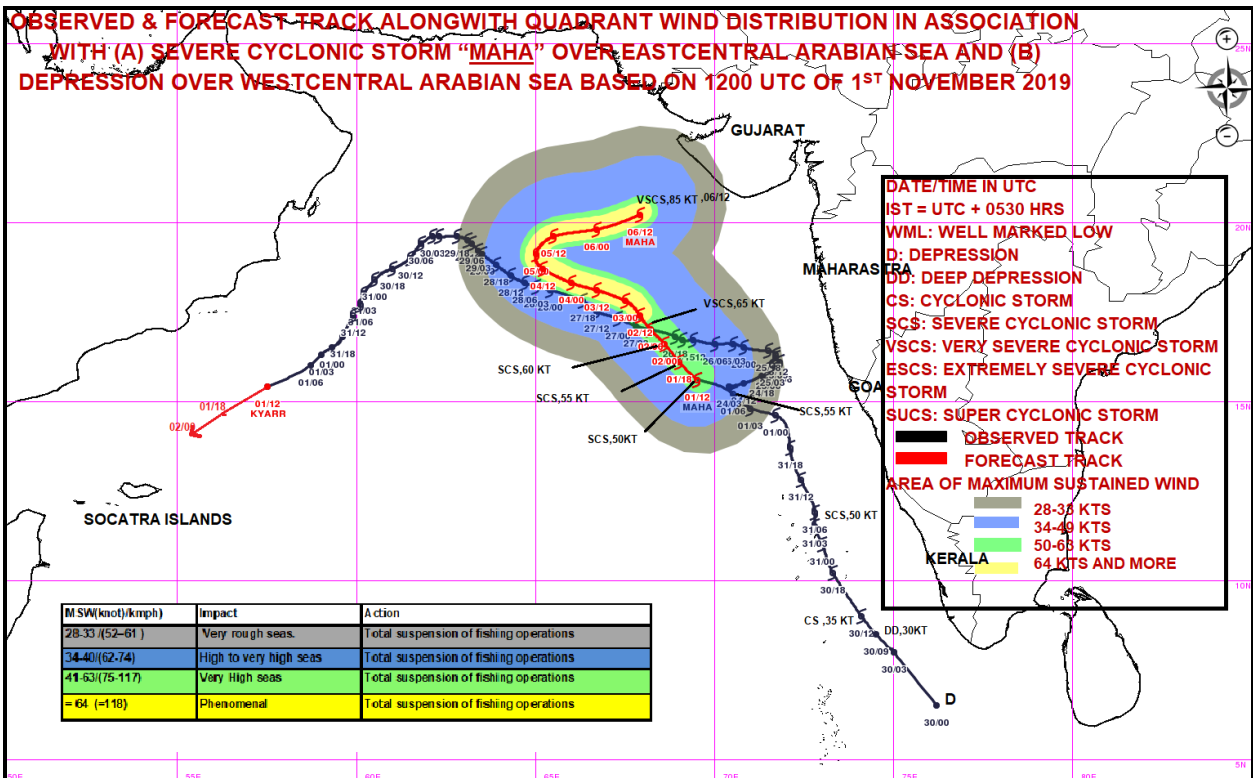
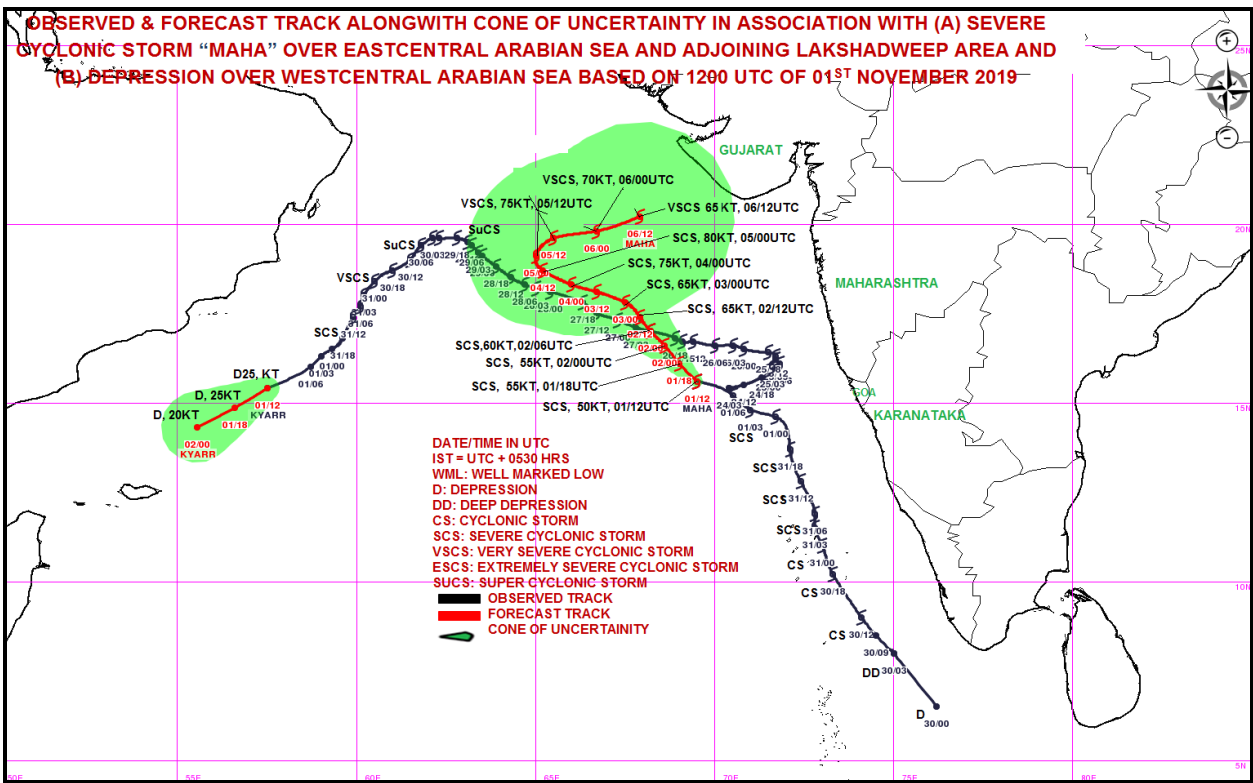
PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%



PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%



PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)
NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%



**REGIONAL SPECIALISED METEOROLOGICAL CENTRE-TROPICAL CYCLONES, NEW DELHI
TROPICAL CYCLONE ADVISORY BULLETIN NO. 62 & TROPICAL CYCLONE ADVISORY
BULLETIN NO. 18**

FROM: RSMC –TROPICAL CYCLONES, NEW DELHI

**TO: STORM WARNING CENTRE, NAYPYI TAW (MYANMAR)
STORM WARNING CENTRE, BANGKOK (THAILAND)
STORM WARNING CENTRE, COLOMBO (SRILANKA)
STORM WARNING CENTRE, DHAKA (BANGLADESH)
STORM WARNING CENTRE, KARACHI (PAKISTAN)
METEOROLOGICAL OFFICE, MALE (MALDIVES)
OMAN METEOROLOGICAL DEPARTMENT, MUSCAT (THROUGH RTH JEDDAH)
YEMEN METEOROLOGICAL SERVICES, REPUBLIC OF YEMEN (THROUGH RTH JEDDAH)
NATIONAL CENTRE FOR METEOROLOGY, UAE (THROUGH RTH JEDDAH)
PRESIDENCY OF METEOROLOGY AND ENVIRONMENT, SAUDI ARABIA (THROUGH RTH JEDDAH)
IRAN METEOROLOGICAL ORGANISATION, (THROUGH RTH JEDDAH)
QATAR METEOROLOGICAL DEPARTMENT (THROUGH RTH JEDDAH)**

TROPICAL CYCLONE ADVISORY No. 62 & TROPICAL CYCLONE ADVISORY NO. 18 FOR NORTH INDIAN OCEAN (THE BAY OF BENGAL AND ARABIAN SEA) VALID FOR NEXT 120 HOURS ISSUED AT 1700 UTC OF 01.11.2019 BASED ON 1500 UTC OF 01.11.2019.

**SUB: (A) DEPRESSION OVER WESTCENTRAL ARABIAN SEA
(B) SEVERE CYCLONIC STORM 'MAHA' (PRONOUNCED AS M'MAHA) OVER EASTCENTRAL ARABIAN SEA**

(A) DEPRESSION OVER WESTCENTRAL ARABIAN SEA

THE DEPRESSION OVER WESTCENTRAL ARABIAN SEA MOVED WEST-SOUTHWESTWARDS WITH A SPEED OF 23 KMPH DURING PAST 06 HOURS AND LAY CENTRED AT 1500 UTC OF 01ST NOVEMBER, 2019 OVER WESTCENTRAL ARABIAN SEA NEAR LATITUDE 15.0°N AND LONGITUDE 57.4°E, ABOUT 1700 KM WEST-SOUTHWEST OF MUMBAI (43003), 420 KM EAST-SOUTHEAST OF SALALAH(41316) AND 650 KM SOUTH-SOUTHEAST OF MASIRAH (41288). IT IS VERY LIKELY TO MOVE SOUTHWESTWARDS ACROSS WESTCENTRAL ARABIAN SEA, MAINTAINING THE INTENSITY OF A DEPRESSION DURING NEXT 12 HOURS AND WEAKEN INTO A WELL MARKED LOW PRESSURE AREA SUBSEQUENTLY.

(B) SEVERE CYCLONIC STORM MAHA (PRONOUNCED AS M'MAHA) OVER EASTCENTRAL ARABIAN SEA

THE SEVERE CYCLONIC STORM MAHA (PRONOUNCED AS M'MAHA) OVER EASTCENTRAL ARABIAN SEA MOVED WEST-NORTHWESTWARDS WITH A SPEED OF 15 KMPH DURING PAST 06 HOURS, AND LAY CENTERED AT 1500 UTC OF 01ST NOVEMBER, 2019, OVER EASTCENTRAL ARABIAN SEA NEAR LATITUDE 15.7°N AND LONGITUDE 69.2°E ABOUT 590 KM SOUTH-SOUTHWEST OF VERAVAL (GUJARAT) AND 490 KM WEST OF GOA. IT IS VERY LIKELY TO MOVE NORTHWESTWARDS DURING NEXT 24 HOURS, WEST-NORTHWESTWARDS DURING 02ND TO 04TH NOVEMBER AND RECURVE EAST-NORTHEASTWARDS TOWARDS SOUTH GUJARAT COAST THEREAFTER. IT IS VERY LIKELY TO INTENSIFY INTO A VERY SEVERE CYCLONIC STORM OVER EASTCENTRAL ARABIAN SEA DURING NEXT 24 HOURS.

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

FORECAST TRACK AND INTENSITY ARE GIVEN IN THE FOLLOWING TABLE:

DATE/TIME(UTC)	POSITION (LAT. °N/ LONG. °E)	MAXIMUM SUSTAINED SURFACE WIND SPEED (KMPH)	CATEGORY OF CYCLONIC DISTURBANCE
01.11.19/1500	15.7/69.2	90-100 GUSTING TO 115	SEVERE CYCLONIC STORM
01.11.19/1800	16.1/69.0	95-105 GUSTING TO 120	SEVERE CYCLONIC STORM
02.11.19/0000	16.6/68.6	100-110 GUSTING TO 125	SEVERE CYCLONIC STORM
02.11.19/0600	17.0/68.2	110-120 GUSTING TO 135	SEVERE CYCLONIC STORM
02.11.19/1200	17.4/67.9	115-125 GUSTING TO 140	VERY SEVERE CYCLONIC STORM
03.11.19/0000	17.8/67.5	130-140 GUSTING TO 155	VERY SEVERE CYCLONIC STORM
03.11.19/1200	18.1/66.7	140-150 GUSTING TO 165	VERY SEVERE CYCLONIC STORM
04.11.19/0000	18.3/66.0	145-155 GUSTING TO 170	VERY SEVERE CYCLONIC STORM
04.11.19/1200	18.7/65.2	150-160 GUSTING TO 175	VERY SEVERE CYCLONIC STORM
05.11.19/0000	19.1/65.0	150-160 GUSTING TO 175	VERY SEVERE CYCLONIC STORM
05.11.19/1200	19.6/65.5	140-150 GUSTING TO 165	VERY SEVERE CYCLONIC STORM
06.11.19/0000	19.8/66.7	130-140 GUSTING TO 155	VERY SEVERE CYCLONIC STORM
06.11.19/1200	20.2/67.9	120-130 GUSTING TO 145	VERY SEVERE CYCLONIC STORM

REMARKS (A):

AS PER THE SATELLITE IMAGERY AT 1500 UTC OF 01ST NOVEMBER, 2019, THE CURRENT INTENSITY OF THE SYSTEM IS T 1.0/1.5. ASSOCIATED BROKEN LOW TO MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION LIES OVER WESTCENTRAL ARABIAN SEA BETWEEN LAT 12.0°N TO 15.5°N AND LONG 55.5°E TO 60.0°E. THE MINIMUM CTT IS MINUS 93 DEG C.

THE ESTIMATED MAXIMUM SUSTAINED WIND SPEED IS 25 KNOTS GUSTING TO 30 KNOTS. THE ESTIMATED CENTRAL PRESSURE IS 1002 HPA. THE SEA CONDITION IS ROUGH TO VERY ROUGH AROUND THE SYSTEM CENTRE. AT 1500 UTC SALALAH (41316) REPORTED MEAN SEA LEVEL PRESSURE 1008.9 HPA AND WIND 010°/02 KNOTS.

THE MJO LIES IN THE PHASE 5 WITH AMPLITUDE CLOSE TO 1. IT IS LIKELY TO REMAIN IN THE SAME PHASE DURING NEXT 3-4 DAYS, AND WILL ENTER INTO PHASE 6 SUBSEQUENTLY WITH AMPLITUDE LESS THAN 1 AND WILL REMAIN THERE FOR NEXT 4-5 DAYS. THE LOW LEVEL RELATIVE VORTICITY FURTHER REDUCED AND IS ABOUT $100 \times 10^{-5} \text{ SEC}^{-1}$ TO THE SOUTHWEST OF THE SYSTEM CENTRE. THE LOWER LEVEL CONVERGENCE IS ABOUT $10 \times 10^{-5} \text{ S}^{-1}$ TO THE SOUTHWEST OF THE SYSTEM CENTRE AND THE UPPER LEVEL DIVERGENCE IS ABOUT $10 \times 10^{-5} \text{ S}^{-1}$ OVER THE SYSTEM CENTRE. THE VERTICAL WIND SHEAR IS LOW (10-15 KNOTS) OVER THE SYSTEM AREA. SEA SURFACE TEMPERATURE IS AROUND 26-28°C OVER THE SYSTEM AREA. TROPICAL CYCLONE HEAT POTENTIAL AROUND THE SYSTEM CENTER OVER WESTCENTRAL ARABIAN SEA IS 20-40 KJ/CM².

ALL THE ENVIRONMENTAL, DYNAMIC AND THERMODYNAMIC CONDITIONS ARE UNFAVOURABLE AND THUS CAUSING THE WEAKENING OF THE SYSTEM. THE SYSTEM IS MOST LIKELY TO CONTINUE TO MOVE IN A SOUTHWESTWARD DIRECTION ACROSS WEST CENTRAL ARABIAN SEA AND WEAKEN INTO A WELL MARKED LOW PRESURE AREA DURING NEXT 12 HOURS. MAJORITY OF NUMERICAL MODELS AGREE WITH THE ABOVE INFERENCE.

REMARKS (B):

AS PER THE SATELLITE IMAGERY AT 1500 UTC OF 01ST NOVEMBER, 2019, THE CURRENT INTENSITY OF THE SYSTEM IS T 3.5. ASSOCIATED SCATTERED LOW TO MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION LIES OVER EASTCENTRAL AND ADJOINING SOUTHEAST ARABIAN SEA BETWEEN LAT 13.0°N TO 16.0°N AND LONG 67.0°E TO 70.5°E. THE MINIMUM CTT IS MINUS 93°C.

THE ESTIMATED MAXIMUM SUSTAINED WIND SPEED IS 50 KNOTS GUSTING TO 60 KNOTS. THE ESTIMATED CENTRAL PRESSURE IS 994 HPA. THE SEA CONDITION IS VERY HIGH AROUND THE SYSTEM CENTRE. AT 1500 UTC, A BUOY (23451) LOCATED NEAR LAT.

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

14.9°N / 68.9°E REPORTED MEAN SEA LEVEL PRESSURE 1003.3 HPA, SST 27.8°C AND WIND 350⁰/18 KNOTS.

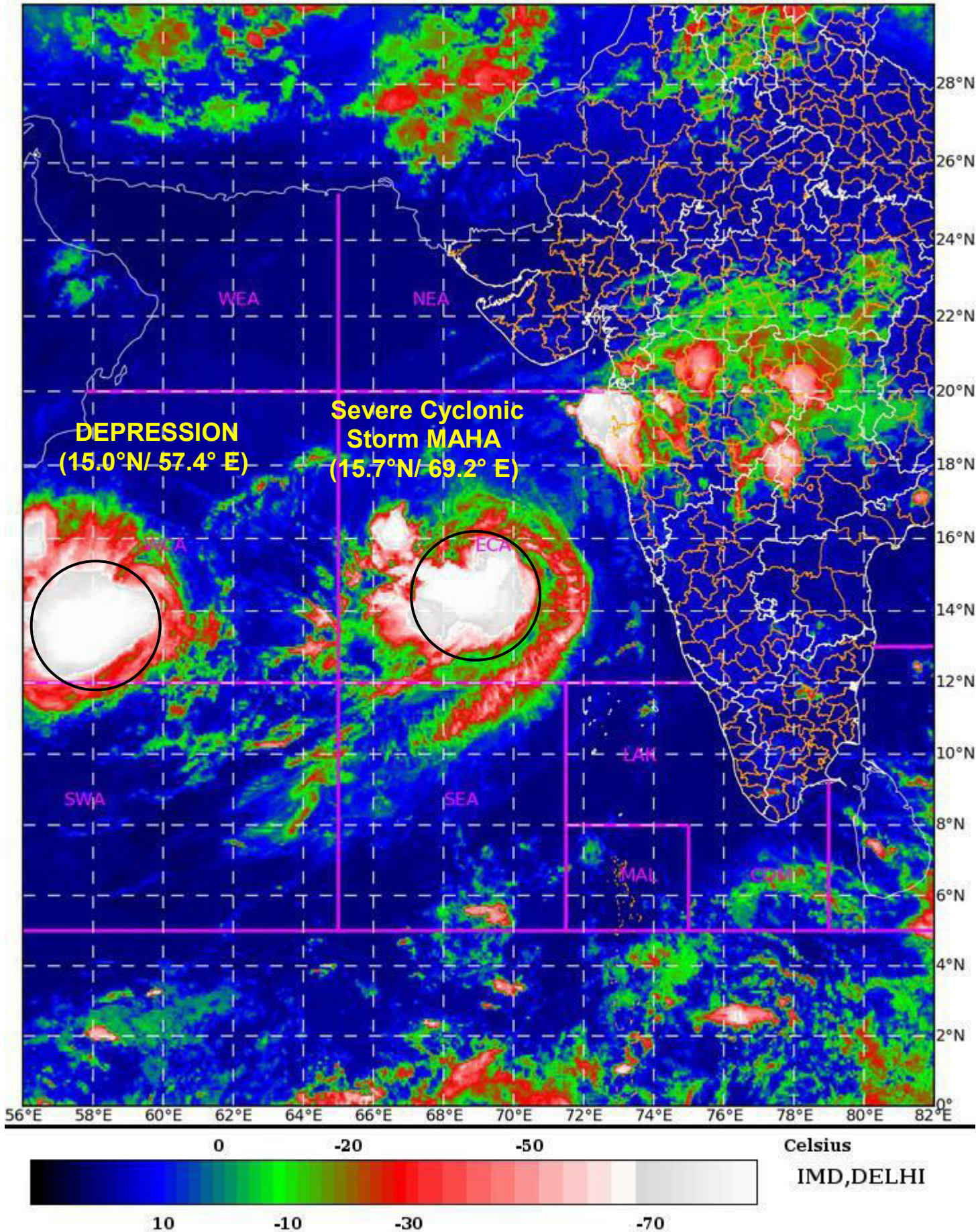
THE LOW LEVEL RELATIVE VORTICITY CONTINUES TO REMAIN ABOUT $150 \times 10^{-5} \text{ SEC}^{-1}$ TO THE SOUTHEAST OF THE SYSTEM CENTRE. THE RIDGE OVER THE SYSTEM AREA RUNS ROUGHLY ALONG 17⁰N. THE LOWER LEVEL CONVERGENCE IS ABOUT $20 \times 10^{-5} \text{ S}^{-1}$ TO THE SOUTHEAST OF THE SYSTEM CENTRE AND THE UPPER LEVEL DIVERGENCE IS ABOUT $05 \times 10^{-5} \text{ S}^{-1}$ OVER THE SYSTEM AREA. THE VERTICAL WIND SHEAR IS LOW (05-10 KNOTS) OVER THE SYSTEM AREA. SEA SURFACE TEMPERATURE IS AROUND 28-30°C AROUND THE SYSTEM AREA AND SHOWS GRADUAL REDUCTION IN THE FORECAST DIRECTION. TROPICAL CYCLONE HEAT POTENTIAL IS AROUND 70-90 KJ/CM² OVER THE THE SYSTEM AREA AND DECREASES IN THE FORECAST DIRECTION OF THE SYSTEM.

AS THE SYSTEM IS LYING IN A FAVOURABLE ENVIRONMENT, IT IS LIKELY TO INTENSIFY FURTHER INTO A VERY SEVERE CYCLONIC STORM DURING NEXT 24 HOURS. MOST OF THE NWP MODELS ARE IN AGREEMENT WITH THIS OBSERVATION. AS THE SYSTEM IS BEING STEERED BY THE SOUTHERN PERIPHERY WINDS OF THE ANTICYCLONE LOCATED TO THE NORTHEAST OF THE SYSTEM, IT IS MOVING IN NORTHWEST DIRECTION. THIS MOVEMENT IS LIKELY TO CONTINUE FOR NEXT 24 HOURS AND THEN UNDER THE STEERING OF EAST- NORTHEAST WINDS IT IS LIKELY TO MOVE WEST-NORTHWESTWARDS TILL 0000 UTC OF 5TH NOVEMBER. MAJORITY OF THE NUMERICAL MODELS SUGGEST THE SYSTEM TO RECURVE NORTHEASTWARDS THEREAFTER.

(V R DURAI)
SCIENTIST-E, RSMC, NEW DELHI

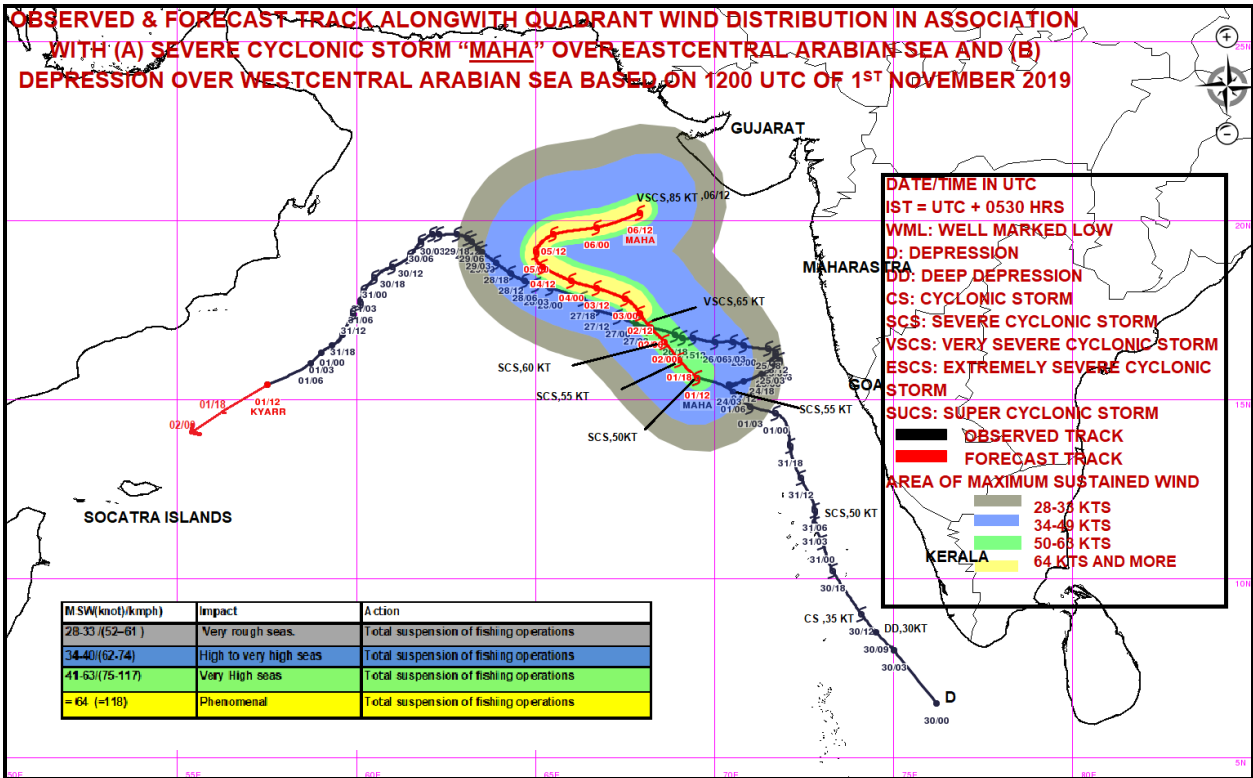
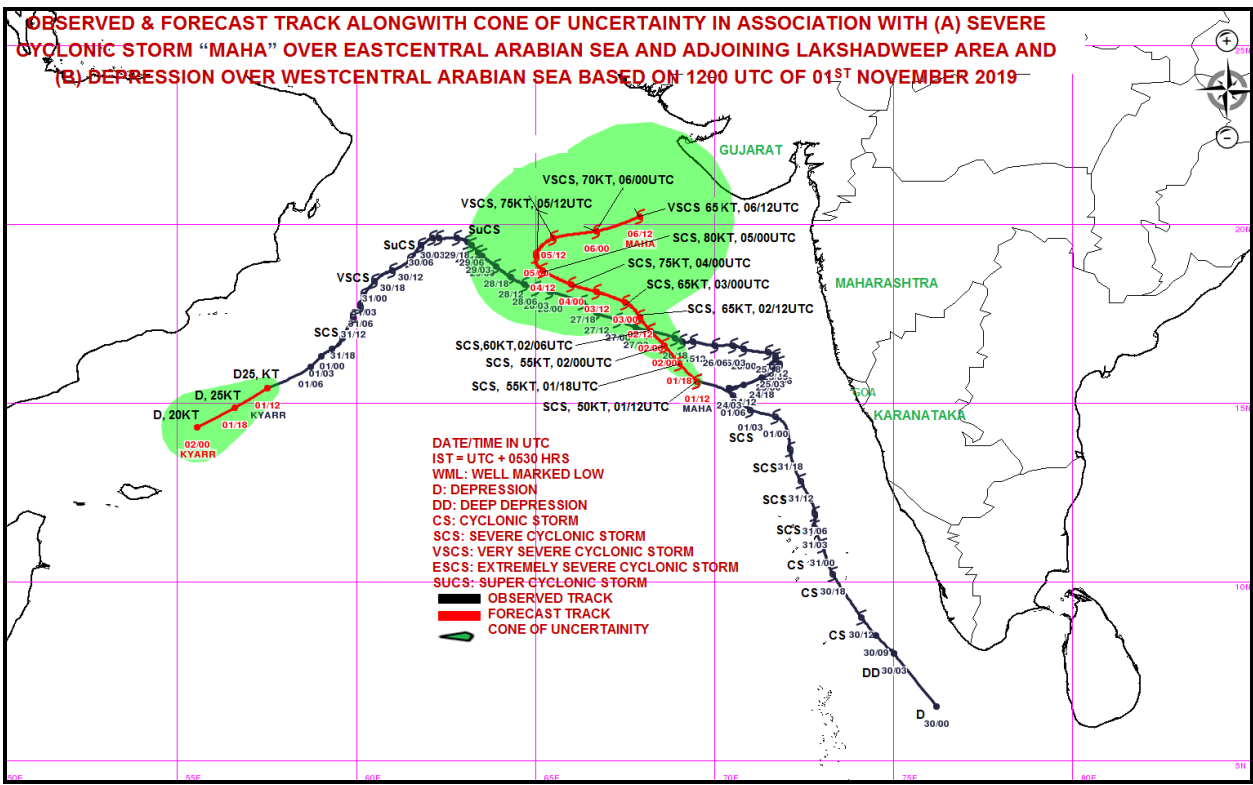
PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%



PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%



PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)
NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%



**REGIONAL SPECIALISED METEOROLOGICAL CENTRE-TROPICAL CYCLONES, NEW DELHI
TROPICAL CYCLONE ADVISORY BULLETIN NO. 63 & TROPICAL CYCLONE ADVISORY
BULLETIN NO. 19**

FROM: RSMC –TROPICAL CYCLONES, NEW DELHI

**TO: STORM WARNING CENTRE, NAYPYI TAW (MYANMAR)
STORM WARNING CENTRE, BANGKOK (THAILAND)
STORM WARNING CENTRE, COLOMBO (SRILANKA)
STORM WARNING CENTRE, DHAKA (BANGLADESH)
STORM WARNING CENTRE, KARACHI (PAKISTAN)
METEOROLOGICAL OFFICE, MALE (MALDIVES)
OMAN METEOROLOGICAL DEPARTMENT, MUSCAT (THROUGH RTH JEDDAH)
YEMEN METEOROLOGICAL SERVICES, REPUBLIC OF YEMEN (THROUGH RTH JEDDAH)
NATIONAL CENTRE FOR METEOROLOGY, UAE (THROUGH RTH JEDDAH)
PRESIDENCY OF METEOROLOGY AND ENVIRONMENT, SAUDI ARABIA (THROUGH RTH JEDDAH)
IRAN METEOROLOGICAL ORGANISATION, (THROUGH RTH JEDDAH)
QATAR METEOROLOGICAL DEPARTMENT (THROUGH RTH JEDDAH)**

TROPICAL CYCLONE ADVISORY No. 63 & TROPICAL CYCLONE ADVISORY NO. 19 FOR NORTH INDIAN OCEAN (THE BAY OF BENGAL AND ARABIAN SEA) VALID FOR NEXT 120 HOURS ISSUED AT 2100 UTC OF 01.11.2019 BASED ON 1800 UTC OF 01.11.2019.

**SUB: (A) DEPRESSION OVER WESTCENTRAL ARABIAN SEA
(B) SEVERE CYCLONIC STORM 'MAHA' (PRONOUNCED AS M'MAHA) OVER EASTCENTRAL ARABIAN SEA**

(A) DEPRESSION OVER WESTCENTRAL ARABIAN SEA

THE DEPRESSION OVER WESTCENTRAL ARABIAN SEA MOVED WEST-SOUTHWESTWARDS WITH A SPEED OF 19 KMPH DURING PAST 06 HOURS AND LAY CENTRED AT 1800 UTC OF 01ST NOVEMBER, 2019 OVER WESTCENTRAL ARABIAN SEA NEAR LATITUDE 14.5°N AND LONGITUDE 57.0°E, ABOUT 1760 KM WEST-SOUTHWEST OF MUMBAI (43003), 420 KM EAST-SOUTHEAST OF SALALAH(41316) AND 710 KM SOUTH-SOUTHEAST OF MASIRAH (41288). IT IS VERY LIKELY TO MOVE SOUTHWESTWARDS ACROSS WESTCENTRAL ARABIAN SEA, MAINTAINING THE INTENSITY OF A DEPRESSION DURING NEXT 06 HOURS AND WEAKEN INTO A WELL MARKED LOW PRESSURE AREA SUBSEQUENTLY.

(B) SEVERE CYCLONIC STORM MAHA (PRONOUNCED AS M'MAHA) OVER EASTCENTRAL ARABIAN SEA

THE SEVERE CYCLONIC STORM MAHA (PRONOUNCED AS M'MAHA) OVER EASTCENTRAL ARABIAN SEA MOVED WEST-NORTHWESTWARDS WITH A SPEED OF 09 KMPH DURING PAST 06 HOURS, AND LAY CENTERED AT 1800 UTC OF 01ST NOVEMBER, 2019, OVER EASTCENTRAL ARABIAN SEA NEAR LATITUDE 15.9°N AND LONGITUDE 69.1°E ABOUT 570 KM SOUTH-SOUTHWEST OF VERAVAL (GUJARAT) AND 500 KM WEST-NORTHWEST OF GOA. IT IS VERY LIKELY TO MOVE NORTHWESTWARDS DURING NEXT 24 HOURS, WEST-NORTHWESTWARDS TILL 04TH NOVEMBER AND RECURVE EAST-NORTHEASTWARDS TOWARDS SOUTH GUJARAT COAST THEREAFTER. IT IS VERY LIKELY TO INTENSIFY INTO A VERY SEVERE CYCLONIC STORM OVER EASTCENTRAL ARABIAN SEA DURING NEXT 24 HOURS.

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

FORECAST TRACK AND INTENSITY ARE GIVEN IN THE FOLLOWING TABLE:

DATE/TIME(UTC)	POSITION (LAT. °N/ LONG. °E)	MAXIMUM SUSTAINED SURFACE WIND SPEED (KMPH)	CATEGORY OF CYCLONIC DISTURBANCE
01.11.19/1800	15.9/69.1	90-100 GUSTING TO 110	SEVERE CYCLONIC STORM
02.11.19/0000	16.6/68.6	95-105 GUSTING TO 115	SEVERE CYCLONIC STORM
02.11.19/0600	16.9/68.2	110-120 GUSTING TO 135	SEVERE CYCLONIC STORM
02.11.19/1200	17.3/67.8	120-130 GUSTING TO 145	VERY SEVERE CYCLONIC STORM
02.11.19/1800	17.5/67.4	130-140 GUSTING TO 155	VERY SEVERE CYCLONIC STORM
03.11.19/0600	17.8/66.5	140-150 GUSTING TO 165	VERY SEVERE CYCLONIC STORM
03.11.19/1800	18.0/65.7	145-155 GUSTING TO 170	VERY SEVERE CYCLONIC STORM
04.11.19/0600	18.3/64.5	150-160 GUSTING TO 175	VERY SEVERE CYCLONIC STORM
04.11.19/1800	18.7/64.0	150-160 GUSTING TO 175	VERY SEVERE CYCLONIC STORM
05.11.19/0600	19.1/64.3	140-150 GUSTING TO 165	VERY SEVERE CYCLONIC STORM
05.11.19/1800	19.4/65.1	130-140 GUSTING TO 155	VERY SEVERE CYCLONIC STORM
06.11.19/0600	19.6/66.5	120-130 GUSTING TO 145	VERY SEVERE CYCLONIC STORM
06.11.19/1800	19.9/67.9	120-130 GUSTING TO 145	VERY SEVERE CYCLONIC STORM

REMARKS (A):

AS PER THE SATELLITE IMAGERY AT 1800 UTC OF 01ST NOVEMBER, 2019, THE CURRENT INTENSITY OF THE SYSTEM IS T 1.0/1.5. ASSOCIATED BROKEN LOW TO MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION LIES OVER WESTCENTRAL ARABIAN SEA BETWEEN LAT 11.5⁰N TO 14.5⁰N AND LONG 55.5⁰E TO 60.0⁰E. THE MINIMUM CTT IS MINUS 93 DEG C.

THE ESTIMATED MAXIMUM SUSTAINED WIND SPEED IS 25 KNOTS GUSTING TO 30 KNOTS. THE ESTIMATED CENTRAL PRESSURE IS 1002 HPA. THE SEA CONDITION IS ROUGH TO VERY ROUGH AROUND THE SYSTEM CENTRE. AT 1800 UTC SALALAH (41316) REPORTED MEAN SEA LEVEL PRESSURE 1009.6 HPA AND WIND 230⁰/07 KNOTS.

THE MJO LIES IN THE PHASE 5 WITH AMPLITUDE CLOSE TO 1. IT IS LIKELY TO REMAIN IN THE SAME PHASE DURING NEXT 3-4 DAYS, AND WILL ENTER INTO PHASE 6 SUBSEQUENTLY WITH AMPLITUDE LESS THAN 1 AND WILL REMAIN THERE FOR NEXT 4-5 DAYS. THE LOW LEVEL RELATIVE VORTICITY IS ABOUT $150 \times 10^{-5} \text{ SEC}^{-1}$ TO THE SOUTHWEST OF THE SYSTEM CENTRE. THE LOWER LEVEL CONVERGENCE IS ABOUT $10 \times 10^{-5} \text{ S}^{-1}$ TO THE SOUTHWEST OF THE SYSTEM CENTRE AND THE UPPER LEVEL DIVERGENCE IS ABOUT $20 \times 10^{-5} \text{ S}^{-1}$ OVER THE SYSTEM CENTRE. THE VERTICAL WIND SHEAR IS LOW (10-15 KNOTS) OVER THE SYSTEM AREA. SEA SURFACE TEMPERATURE IS AROUND 26-28°C OVER THE SYSTEM AREA. TROPICAL CYCLONE HEAT POTENTIAL AROUND THE SYSTEM CENTER OVER WESTCENTRAL ARABIAN SEA IS 20-40 KJ/CM².

ALL THE ENVIRONMENTAL, DYNAMIC AND THERMODYNAMIC CONDITIONS ARE UNFAVOURABLE AND THUS CAUSING THE WEAKENING OF THE SYSTEM. THE SYSTEM IS MOST LIKELY TO CONTINUE TO MOVE IN A SOUTHWESTWARD DIRECTION ACROSS WEST CENTRAL ARABIAN SEA AND WEAKEN INTO A WELL MARKED LOW PRESURE AREA DURING NEXT 12 HOURS. MAJORITY OF NUMERICAL MODELS AGREE WITH THE ABOVE INFERENCE.

REMARKS (B):

AS PER THE SATELLITE IMAGERY AT 1800 UTC OF 01ST NOVEMBER, 2019, THE CURRENT INTENSITY OF THE SYSTEM IS T 3.5. ASSOCIATED SCATTERED LOW TO MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION LIES OVER EASTCENTRAL AND ADJOINING SOUTHEAST ARABIAN SEA BETWEEN LAT 13.0⁰N TO 16.0⁰N AND LONG 66.0⁰E TO 70.5⁰E. THE MINIMUM CTT IS MINUS 93⁰C.

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

THE ESTIMATED MAXIMUM SUSTAINED WIND SPEED IS 50 KNOTS GUSTING TO 60 KNOTS. THE ESTIMATED CENTRAL PRESSURE IS 992 HPA. THE SEA CONDITION IS VERY HIGH AROUND THE SYSTEM CENTRE. AT 1800 UTC, A BUOY (23451) LOCATED NEAR LAT. 14.8°N / 69.1°E REPORTED MEAN SEA LEVEL PRESSURE 1004.0 HPA, SST 27.8°C AND WIND 330⁰/16 KNOTS.

THE LOW LEVEL RELATIVE VORTICITY CONTINUES TO REMAIN ABOUT $150 \times 10^{-5} \text{ SEC}^{-1}$ TO THE SOUTHEAST OF THE SYSTEM CENTRE. THE RIDGE OVER THE SYSTEM AREA RUNS ROUGHLY ALONG 17⁰N. THE LOWER LEVEL CONVERGENCE IS ABOUT $20 \times 10^{-5} \text{ S}^{-1}$ TO THE SOUTHEAST OF THE SYSTEM CENTRE AND THE UPPER LEVEL DIVERGENCE IS ABOUT $05 \times 10^{-5} \text{ S}^{-1}$ OVER THE SYSTEM AREA. THE VERTICAL WIND SHEAR IS LOW (05-10 KNOTS) OVER THE SYSTEM AREA. SEA SURFACE TEMPERATURE IS AROUND 28-30°C AROUND THE SYSTEM AREA AND SHOWS GRADUAL REDUCTION IN THE FORECAST DIRECTION. TROPICAL CYCLONE HEAT POTENTIAL IS AROUND 70-90 KJ/CM² OVER THE THE SYSTEM AREA AND DECREASES IN THE FORECAST DIRECTION OF THE SYSTEM.

AS THE SYSTEM IS LYING IN A FAVOURABLE ENVIRONMENT, IT IS LIKELY TO INTENSIFY FURTHER INTO A VERY SEVERE CYCLONIC STORM DURING NEXT 24 HOURS. MOST OF THE NWP MODELS ARE IN AGREEMENT WITH THIS OBSERVATION. AS THE SYSTEM IS BEING STEERED BY THE SOUTHERN PERIPHERY WINDS OF THE ANTICYCLONE LOCATED TO THE NORTHEAST OF THE SYSTEM, IT IS MOVING IN NORTHWEST DIRECTION. THIS MOVEMENT IS LIKELY TO CONTINUE FOR NEXT 24 HOURS AND THEN UNDER THE STEERING OF EAST- NORTHEAST WINDS IT IS LIKELY TO MOVE WEST-NORTHWESTWARDS TILL 0000 UTC OF 5TH NOVEMBER. MAJORITY OF THE NUMERICAL MODELS SUGGEST THE SYSTEM TO RECURVE NORTHEASTWARDS THEREAFTER.

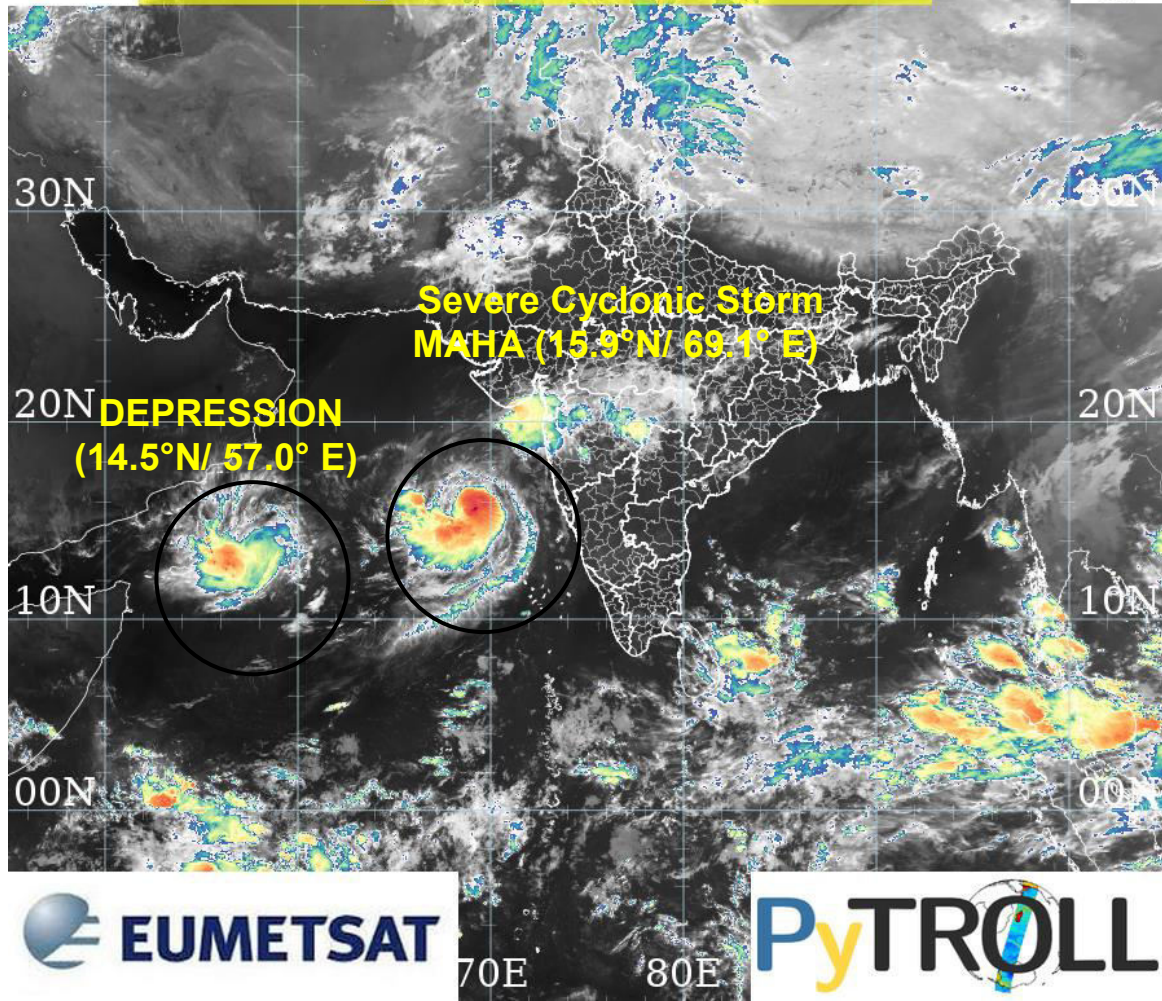
(V R DURAI)
SCIENTIST-E, RSMC, NEW DELHI

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

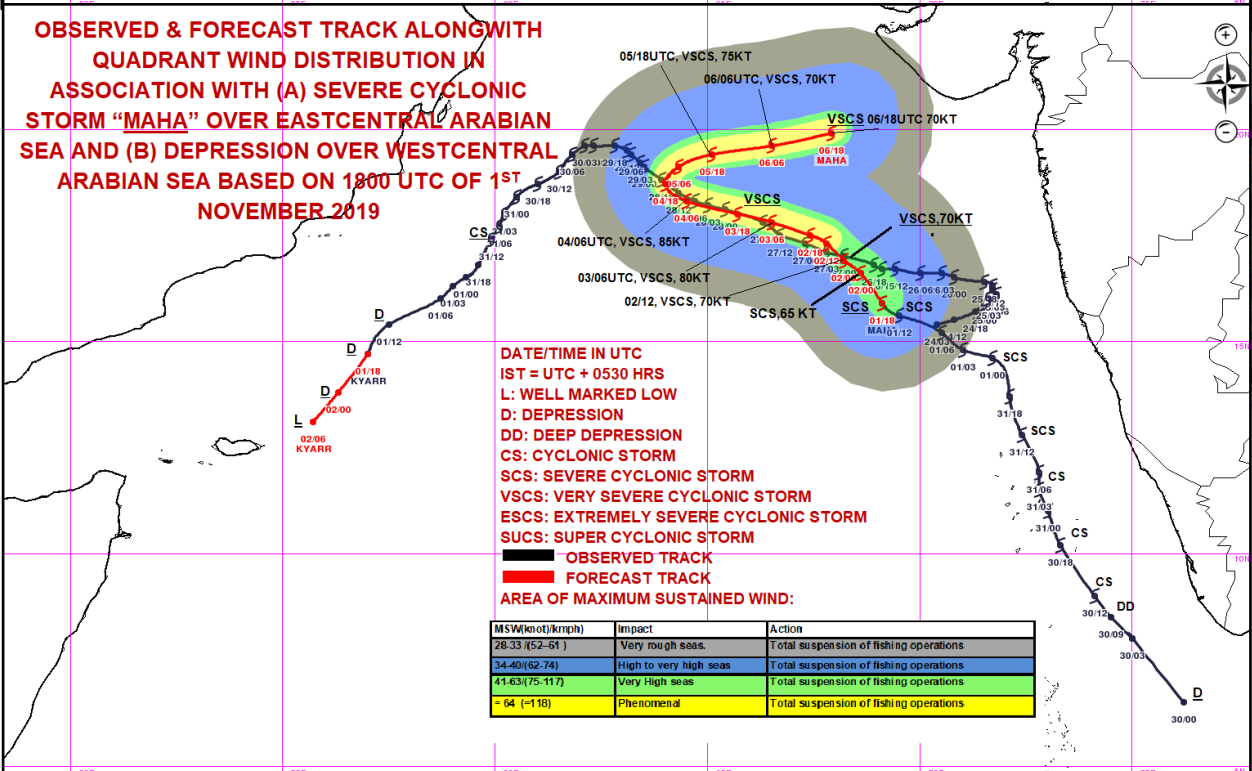
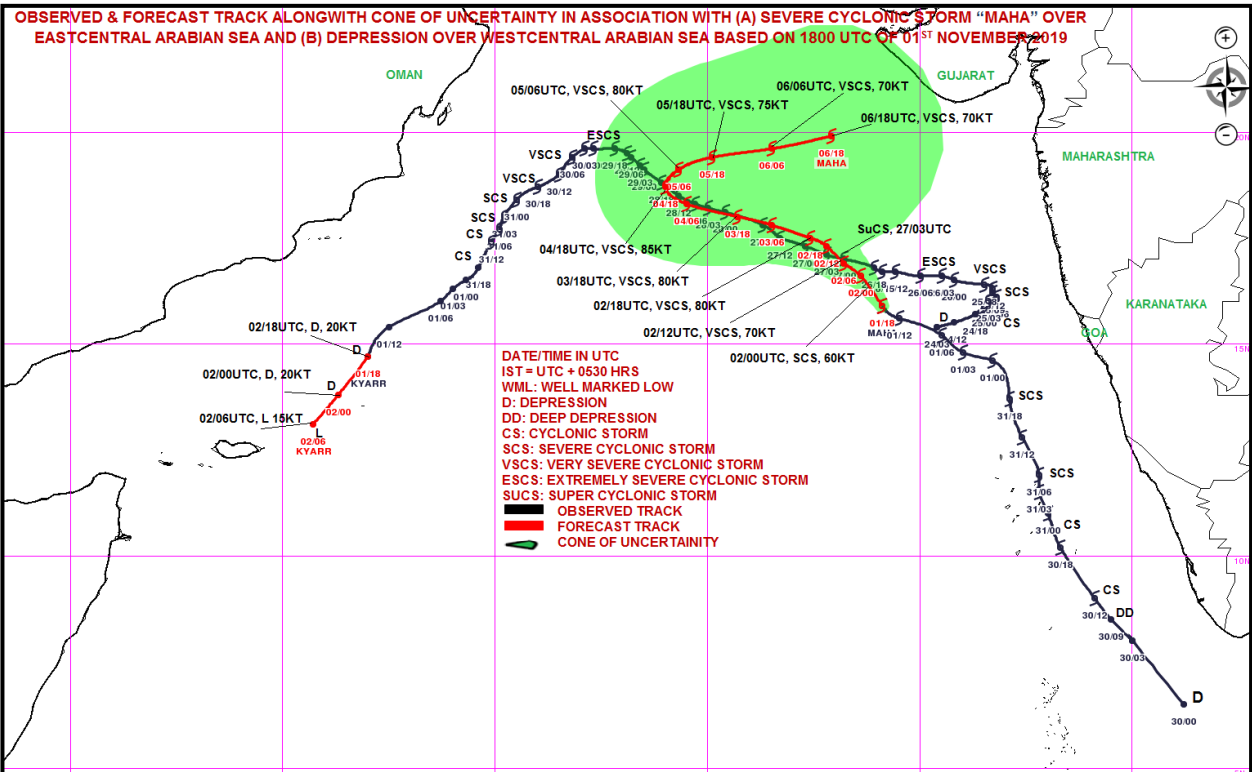


MSG-1: SEVIRI [colorized_ir_clouds]
20191101_1915UTC



PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%



**PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)
NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%**



**REGIONAL SPECIALISED METEOROLOGICAL CENTRE-TROPICAL CYCLONES, NEW DELHI
TROPICAL CYCLONE ADVISORY BULLETIN NO. 64 & TROPICAL CYCLONE ADVISORY
BULLETIN NO. 20**

FROM: RSMC –TROPICAL CYCLONES, NEW DELHI

**TO: STORM WARNING CENTRE, NAYPYI TAW (MYANMAR)
STORM WARNING CENTRE, BANGKOK (THAILAND)
STORM WARNING CENTRE, COLOMBO (SRILANKA)
STORM WARNING CENTRE, DHAKA (BANGLADESH)
STORM WARNING CENTRE, KARACHI (PAKISTAN)
METEOROLOGICAL OFFICE, MALE (MALDIVES)
OMAN METEOROLOGICAL DEPARTMENT, MUSCAT (THROUGH RTH JEDDAH)
YEMEN METEOROLOGICAL SERVICES, REPUBLIC OF YEMEN (THROUGH RTH JEDDAH)
NATIONAL CENTRE FOR METEOROLOGY, UAE (THROUGH RTH JEDDAH)
PRESIDENCY OF METEOROLOGY AND ENVIRONMENT, SAUDI ARABIA (THROUGH RTH JEDDAH)
IRAN METEOROLOGICAL ORGANISATION, (THROUGH RTH JEDDAH)
QATAR METEOROLOGICAL DEPARTMENT (THROUGH RTH JEDDAH)**

TROPICAL CYCLONE ADVISORY No. 64 & TROPICAL CYCLONE ADVISORY NO. 20 FOR NORTH INDIAN OCEAN (THE BAY OF BENGAL AND ARABIAN SEA) VALID FOR NEXT 120 HOURS ISSUED AT 0000 UTC OF 02.11.2019 BASED ON 2100 UTC OF 01.11.2019.

**SUB: (A) DEPRESSION OVER WESTCENTRAL ARABIAN SEA
(B) SEVERE CYCLONIC STORM 'MAHA' (PRONOUNCED AS M'MAHA) OVER EASTCENTRAL ARABIAN SEA**

(A) DEPRESSION OVER WESTCENTRAL ARABIAN SEA

THE DEPRESSION OVER WESTCENTRAL ARABIAN SEA MOVED WEST-SOUTHWESTWARDS WITH A SPEED OF 25 KMPH DURING PAST 06 HOURS AND LAY CENTRED AT 2100 UTC OF 01ST NOVEMBER, 2019 OVER WESTCENTRAL ARABIAN SEA NEAR LATITUDE 14.0°N AND LONGITUDE 56.4°E, ABOUT 1840 KM WEST-SOUTHWEST OF MUMBAI (43003), 420 KM EAST-SOUTHEAST OF SALALAH(41316) AND 790 KM SOUTH-SOUTHEAST OF MASIRAH (41288). IT IS VERY LIKELY TO MOVE SOUTHWESTWARDS ACROSS WESTCENTRAL ARABIAN SEA, MAINTAINING THE INTENSITY OF A DEPRESSION DURING NEXT 03 HOURS AND WEAKEN INTO A WELL MARKED LOW PRESSURE AREA SUBSEQUENTLY.

(B) SEVERE CYCLONIC STORM MAHA (PRONOUNCED AS M'MAHA) OVER EASTCENTRAL ARABIAN SEA

THE SEVERE CYCLONIC STORM MAHA (PRONOUNCED AS M'MAHA) OVER EASTCENTRAL ARABIAN SEA MOVED WEST-NORTHWESTWARDS WITH A SPEED OF 12 KMPH DURING PAST 06 HOURS, AND LAY CENTERED AT 2100 UTC OF 01ST NOVEMBER, 2019, OVER EASTCENTRAL ARABIAN SEA NEAR LATITUDE 16.2°N AND LONGITUDE 68.8°E ABOUT 550 KM SOUTH-SOUTHWEST OF VERAVAL (GUJARAT) AND 540 KM WEST-NORTHWEST OF GOA. IT IS VERY LIKELY TO MOVE NORTHWESTWARDS DURING NEXT 24 HOURS, WEST-NORTHWESTWARDS TILL 04TH NOVEMBER AND RECURVE EAST-NORTHEASTWARDS TOWARDS SOUTH GUJARAT COAST THEREAFTER. IT IS VERY LIKELY TO INTENSIFY INTO A VERY SEVERE CYCLONIC STORM OVER EASTCENTRAL ARABIAN SEA DURING NEXT 24 HOURS.

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

FORECAST TRACK AND INTENSITY ARE GIVEN IN THE FOLLOWING TABLE:

DATE/TIME(UTC)	POSITION (LAT. °N/ LONG. °E)	MAXIMUM SUSTAINED SURFACE WIND SPEED (KMPH)	CATEGORY OF CYCLONIC DISTURBANCE
01.11.19/2100	16.2/68.8	90-100 GUSTING TO 110	SEVERE CYCLONIC STORM
02.11.19/0000	16.6/68.6	95-105 GUSTING TO 115	SEVERE CYCLONIC STORM
02.11.19/0600	16.9/68.2	110-120 GUSTING TO 135	SEVERE CYCLONIC STORM
02.11.19/1200	17.3/67.8	120-130 GUSTING TO 145	VERY SEVERE CYCLONIC STORM
02.11.19/1800	17.5/67.4	130-140 GUSTING TO 155	VERY SEVERE CYCLONIC STORM
03.11.19/0600	17.8/66.5	140-150 GUSTING TO 165	VERY SEVERE CYCLONIC STORM
03.11.19/1800	18.0/65.7	145-155 GUSTING TO 170	VERY SEVERE CYCLONIC STORM
04.11.19/0600	18.3/64.5	150-160 GUSTING TO 175	VERY SEVERE CYCLONIC STORM
04.11.19/1800	18.7/64.0	150-160 GUSTING TO 175	VERY SEVERE CYCLONIC STORM
05.11.19/0600	19.1/64.3	140-150 GUSTING TO 165	VERY SEVERE CYCLONIC STORM
05.11.19/1800	19.4/65.1	130-140 GUSTING TO 155	VERY SEVERE CYCLONIC STORM
06.11.19/0600	19.6/66.5	120-130 GUSTING TO 145	VERY SEVERE CYCLONIC STORM
06.11.19/1800	19.9/67.9	120-130 GUSTING TO 145	VERY SEVERE CYCLONIC STORM

REMARKS (A):

AS PER THE SATELLITE IMAGERY AT 2100 UTC OF 01ST NOVEMBER, 2019, THE CURRENT INTENSITY OF THE SYSTEM IS T 1.0/1.5. ASSOCIATED BROKEN LOW TO MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION LIES OVER WESTCENTRAL ARABIAN SEA BETWEEN LAT 11.5⁰N TO 14.5⁰N AND LONG 55.5⁰E TO 60.0⁰E. THE MINIMUM CTT IS MINUS 93 DEG C.

THE ESTIMATED MAXIMUM SUSTAINED WIND SPEED IS 25 KNOTS GUSTING TO 30 KNOTS. THE ESTIMATED CENTRAL PRESSURE IS 1002 HPA. THE SEA CONDITION IS ROUGH TO VERY ROUGH AROUND THE SYSTEM CENTRE. AT 2100 UTC SALALAH (41316) REPORTED MEAN SEA LEVEL PRESSURE 1009.0 HPA AND WIND 320⁰/05 KNOTS.

THE MJO LIES IN THE PHASE 5 WITH AMPLITUDE CLOSE TO 1. IT IS LIKELY TO REMAIN IN THE SAME PHASE DURING NEXT 3-4 DAYS, AND WILL ENTER INTO PHASE 6 SUBSEQUENTLY WITH AMPLITUDE LESS THAN 1 AND WILL REMAIN THERE FOR NEXT 4-5 DAYS. THE LOW LEVEL RELATIVE VORTICITY IS ABOUT $150 \times 10^{-5} \text{ SEC}^{-1}$ TO THE SOUTHWEST OF THE SYSTEM CENTRE. THE LOWER LEVEL CONVERGENCE IS ABOUT $10 \times 10^{-5} \text{ S}^{-1}$ TO THE SOUTHWEST OF THE SYSTEM CENTRE AND THE UPPER LEVEL DIVERGENCE IS ABOUT $20 \times 10^{-5} \text{ S}^{-1}$ OVER THE SYSTEM CENTRE. THE VERTICAL WIND SHEAR IS LOW (10-15 KNOTS) OVER THE SYSTEM AREA. SEA SURFACE TEMPERATURE IS AROUND 26-28°C OVER THE SYSTEM AREA. TROPICAL CYCLONE HEAT POTENTIAL AROUND THE SYSTEM CENTER OVER WESTCENTRAL ARABIAN SEA IS 20-40 KJ/CM².

ALL THE ENVIRONMENTAL, DYNAMIC AND THERMODYNAMIC CONDITIONS ARE UNFAVOURABLE AND THUS CAUSING THE WEAKENING OF THE SYSTEM. THE SYSTEM IS MOST LIKELY TO CONTINUE TO MOVE IN A SOUTHWESTWARD DIRECTION ACROSS WEST CENTRAL ARABIAN SEA AND WEAKEN INTO A WELL MARKED LOW PRESURE AREA DURING NEXT 12 HOURS. MAJORITY OF NUMERICAL MODELS AGREE WITH THE ABOVE INFERENCE.

REMARKS (B):

AS PER THE SATELLITE IMAGERY AT 2100 UTC OF 01ST NOVEMBER, 2019, THE CURRENT INTENSITY OF THE SYSTEM IS T 3.5. ASSOCIATED SCATTERED LOW TO MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION LIES OVER EASTCENTRAL AND ADJOINING SOUTHEAST ARABIAN SEA BETWEEN LAT 13.0⁰N TO 16.0⁰N AND LONG 66.0⁰E TO 70.5⁰E. THE MINIMUM CTT IS MINUS 93⁰C.

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

THE ESTIMATED MAXIMUM SUSTAINED WIND SPEED IS 50 KNOTS GUSTING TO 60 KNOTS. THE ESTIMATED CENTRAL PRESSURE IS 992 HPA. THE SEA CONDITION IS VERY HIGH AROUND THE SYSTEM CENTRE. AT 2100 UTC, A BUOY (23451) LOCATED NEAR LAT. 14.8°N / 68.9°E REPORTED MEAN SEA LEVEL PRESSURE 1002.9 HPA, SST 27.8°C AND WIND 330⁰/24 KNOTS.

THE LOW LEVEL RELATIVE VORTICITY IS ABOUT $150 \times 10^{-5} \text{ SEC}^{-1}$ TO THE SOUTH OF THE SYSTEM CENTRE. THE RIDGE OVER THE SYSTEM AREA RUNS ROUGHLY ALONG 17°N. THE LOWER LEVEL CONVERGENCE IS ABOUT $10 \times 10^{-5} \text{ S}^{-1}$ TO THE NORTHEAST OF THE SYSTEM CENTRE AND THE UPPER LEVEL DIVERGENCE IS ABOUT $20 \times 10^{-5} \text{ S}^{-1}$ TO THE SOUTH OF THE SYSTEM AREA. THE VERTICAL WIND SHEAR IS LOW (05-10 KNOTS) OVER THE SYSTEM AREA. SEA SURFACE TEMPERATURE IS AROUND 28-30°C AROUND THE SYSTEM AREA AND SHOWS GRADUAL REDUCTION IN THE FORECAST DIRECTION. TROPICAL CYCLONE HEAT POTENTIAL IS AROUND 70-90 KJ/CM² OVER THE THE SYSTEM AREA AND DECREASES IN THE FORECAST DIRECTION OF THE SYSTEM.

AS THE SYSTEM IS LYING IN A FAVOURABLE ENVIRONMENT, IT IS LIKELY TO INTENSIFY FURTHER INTO A VERY SEVERE CYCLONIC STORM DURING NEXT 24 HOURS. MOST OF THE NWP MODELS ARE IN AGREEMENT WITH THIS OBSERVATION. AS THE SYSTEM IS BEING STEERED BY THE SOUTHERN PERIPHERY WINDS OF THE ANTICYCLONE LOCATED TO THE NORTHEAST OF THE SYSTEM, IT IS MOVING IN NORTHWEST DIRECTION. THIS MOVEMENT IS LIKELY TO CONTINUE FOR NEXT 24 HOURS AND THEN UNDER THE STEERING OF EAST- NORTHEAST WINDS IT IS LIKELY TO MOVE WEST-NORTHWESTWARDS TILL 0000 UTC OF 5TH NOVEMBER. MAJORITY OF THE NUMERICAL MODELS SUGGEST THE SYSTEM TO RECURVE NORTHEASTWARDS THEREAFTER.

(V R DURAI)
SCIENTIST-E, RSMC, NEW DELHI

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

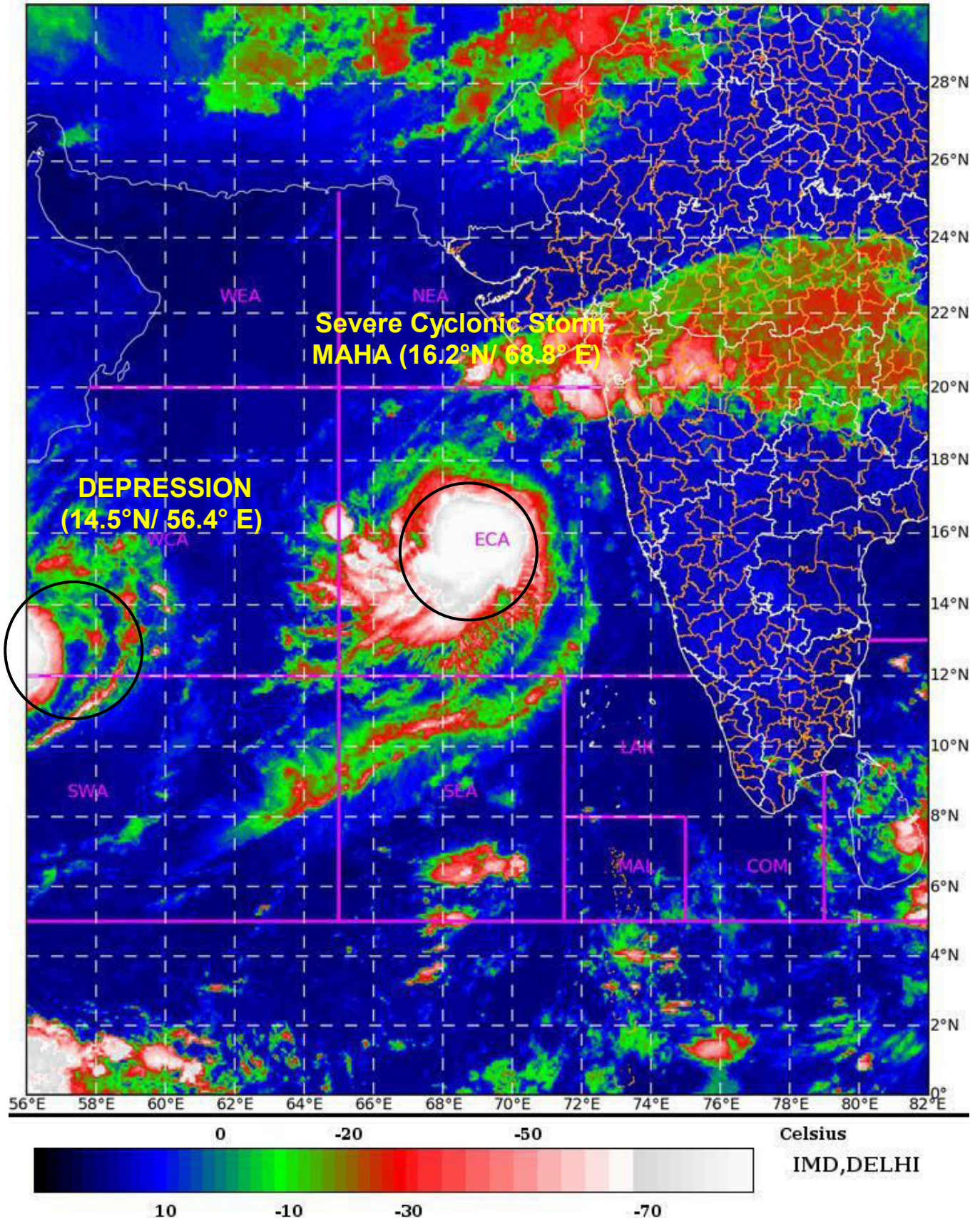
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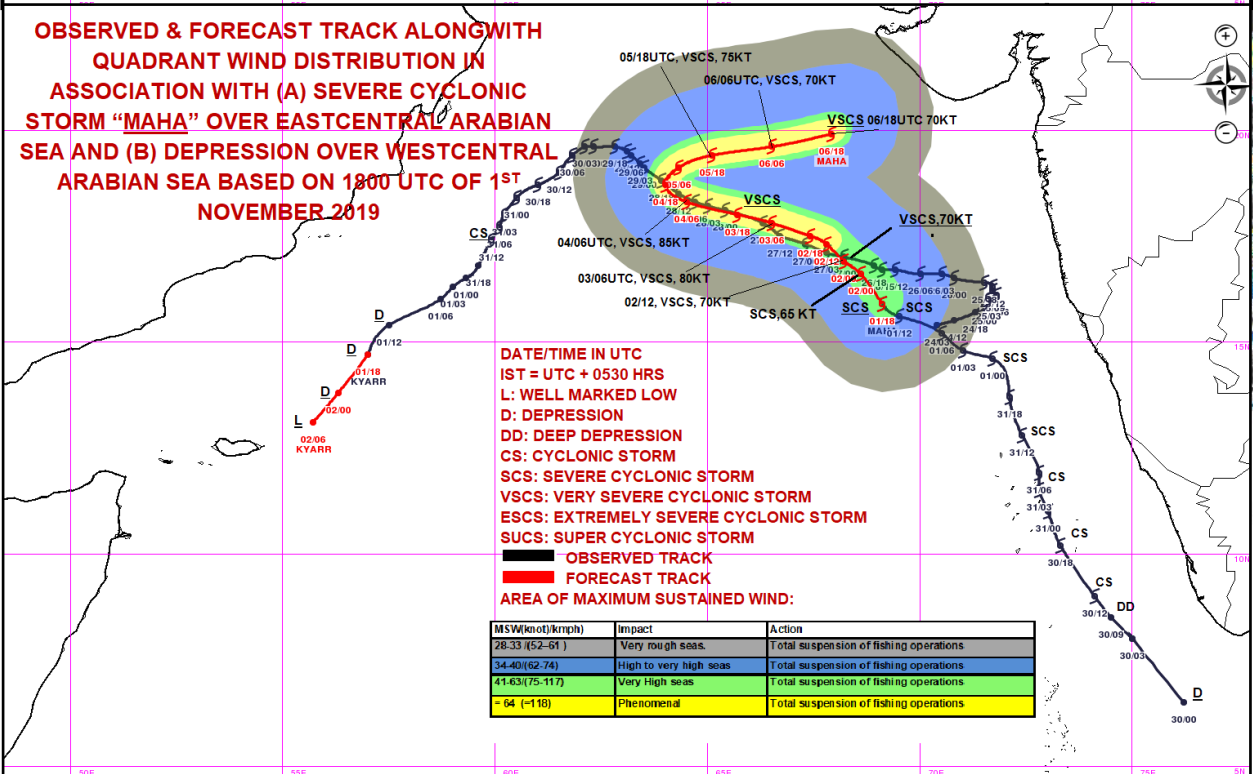
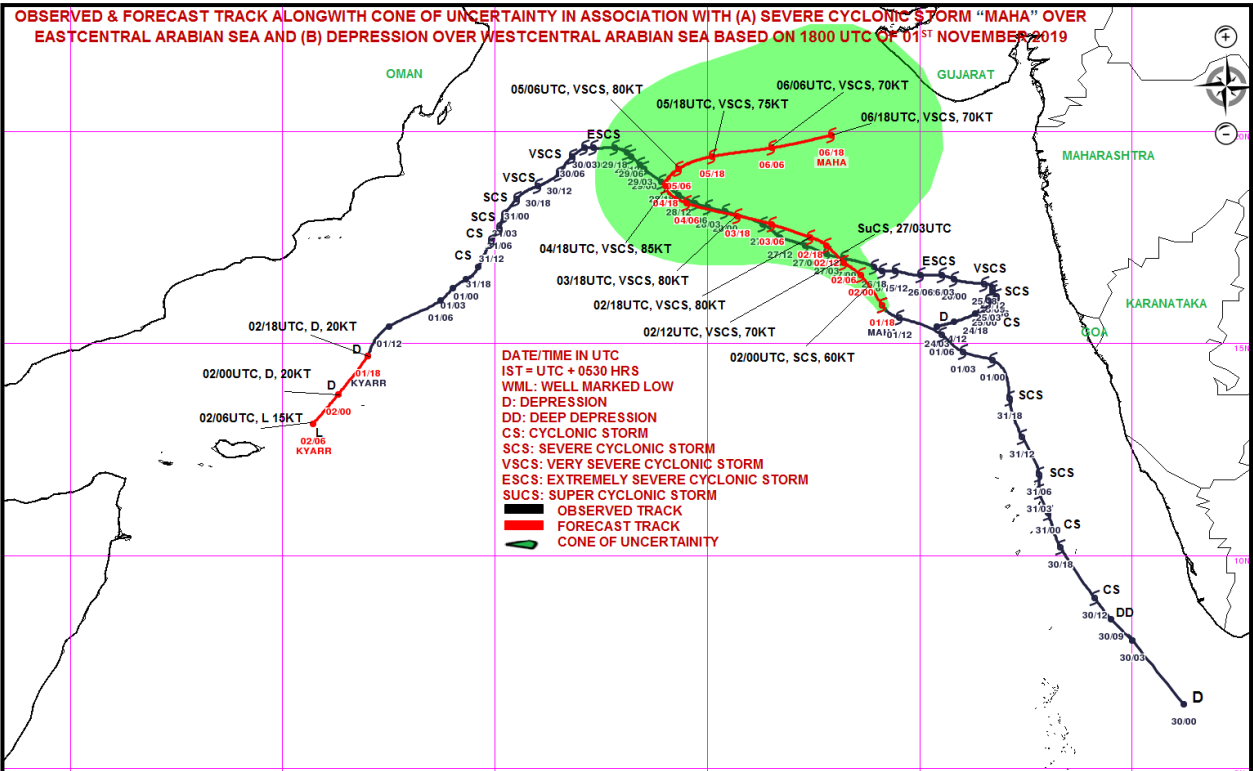
01-11-2019/(2300 to 2326) GMT

IMG_TIR1_TEMP 10.8 um

02-11-2019/(0430 to 0456) IST

ARABIAN SEA





PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%



**REGIONAL SPECIALISED METEOROLOGICAL CENTRE-TROPICAL CYCLONES, NEW DELHI
TROPICAL CYCLONE ADVISORY BULLETIN NO. 65 & TROPICAL CYCLONE ADVISORY
BULLETIN NO. 21**

FROM: RSMC –TROPICAL CYCLONES, NEW DELHI

**TO: STORM WARNING CENTRE, NAYPYI TAW (MYANMAR)
STORM WARNING CENTRE, BANGKOK (THAILAND)
STORM WARNING CENTRE, COLOMBO (SRILANKA)
STORM WARNING CENTRE, DHAKA (BANGLADESH)
STORM WARNING CENTRE, KARACHI (PAKISTAN)
METEOROLOGICAL OFFICE, MALE (MALDIVES)
OMAN METEOROLOGICAL DEPARTMENT, MUSCAT (THROUGH RTH JEDDAH)
YEMEN METEOROLOGICAL SERVICES, REPUBLIC OF YEMEN (THROUGH RTH JEDDAH)
NATIONAL CENTRE FOR METEOROLOGY, UAE (THROUGH RTH JEDDAH)
PRESIDENCY OF METEOROLOGY AND ENVIRONMENT, SAUDI ARABIA (THROUGH RTH JEDDAH)
IRAN METEOROLOGICAL ORGANISATION, (THROUGH RTH JEDDAH)
QATAR METEOROLOGICAL DEPARTMENT (THROUGH RTH JEDDAH)**

TROPICAL CYCLONE ADVISORY No. 65 & TROPICAL CYCLONE ADVISORY NO. 21 FOR NORTH INDIAN OCEAN (THE BAY OF BENGAL AND ARABIAN SEA) VALID FOR NEXT 120 HOURS ISSUED AT 0300 UTC OF 02.11.2019 BASED ON 0000 UTC OF 02.11.2019.

**SUB: (A) DEPRESSION OVER WESTCENTRAL ARABIAN SEA
(B) SEVERE CYCLONIC STORM 'MAHA' (PRONOUNCED AS M'MAHA) OVER EASTCENTRAL ARABIAN SEA**

(A) DEPRESSION OVER WESTCENTRAL ARABIAN SEA

THE DEPRESSION OVER WESTCENTRAL ARABIAN SEA MOVED WEST-SOUTHWESTWARDS WITH A SPEED OF 25 KMPH DURING PAST 06 HOURS, AND LAY CENTRED AT 000 UTC OF 02ND NOVEMBER, 2019 OVER WESTCENTRAL ARABIAN SEA NEAR LATITUDE 13.7°N AND LONGITUDE 55.8°E, ABOUT 240 KM EAST-NORTHEAST OF SOCOTRA ISLAND (41494) AND 550 KM EAST-NORTHEAST OF BEREEDA (SOMALIA) . IT IS VERY LIKELY TO MOVE WEST-SOUTHWESTWARDS ACROSS WESTCENTRAL ARABIAN SEA AND SOCOTRA ISLANDS TOWARDS SOMALIA COAST DURING NEXT 24 HOURS.

FORECAST TRACK AND INTENSITY ARE GIVEN IN THE FOLLOWING TABLE:

DATE/TIME(IST)	POSITION (LAT. °N/ LONG. °E)	MAXIMUM SUSTAINED SURFACE WIND SPEED (KMPH)	CATEGORY OF CYCLONIC DISTURBANCE
02.11.19/0000	13.7/55.8	40-50 GUSTING TO 60	DEPRESSION
02.11.19/0600	12.9/54.4	40-50 GUSTING TO 60	DEPRESSION
02.11.19/1200	12.2/53.0	35-45 GUSTING TO 55	DEPRESSION
02.11.19/1800	11.4/51.5	35-45 GUSTING TO 55	DEPRESSION

AS PER THE SATELLITE IMAGERY AT 0000 UTC OF 02ND NOVEMBER, 2019, THE CURRENT INTENSITY OF THE SYSTEM IS T 1.0/1.5. ASSOCIATED BROKEN LOW TO MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION LIES OVER WESTCENTRAL ARABIAN SEA, SOCOTRA ISLANDS & ADJOINING AREAS OF GULF OF ADEN BETWEEN LAT 10°N TO 14°N AND LONG 52°E TO 57°E. THE MINIMUM CTT IS MINUS 93 DEG C.

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

THE ESTIMATED MAXIMUM SUSTAINED WIND SPEED IS 25 KNOTS GUSTING TO 35 KNOTS. THE ESTIMATED CENTRAL PRESSURE IS 1002 HPA. THE SEA CONDITION IS ROUGH TO VERY ROUGH AROUND THE SYSTEM CENTRE OVER WESTCENTRAL ARABIAN SEA, SOCOTRA ISLANDS, ALONG AND OFF NORTH SOMALIA COAST & ADJOINING AREAS OF GULF OF ADEN AND SOUTH WEST ARABIAN SEA. AT 0000 UTC SHIP CENTRED NEAR 13.8°N AND LONG 55.1°E REPORTED MEAN SEA LEVEL PRESSURE 1005.0 HPA AND WIND 50⁰/32 KNOTS, ANOTHER SHIP CENTRED NEAR 16.5°N AND LONG 56.3°E REPORTED MEAN SEA LEVEL PRESSURE 1008.0 HPA AND WIND 50⁰/35 KNOTS.

(B) SEVERE CYCLONIC STORM MAHA (PRONOUNCED AS M'MAHA) OVER EASTCENTRAL ARABIAN SEA

THE SEVERE CYCLONIC STORM MAHA (PRONOUNCED AS M'MAHA) OVER EASTCENTRAL ARABIAN SEA MOVED FURTHER WEST-NORTHWESTWARDS WITH A SPEED OF 13 KMPH DURING PAST 06 HOURS, AND LAY CENTERED AT 0000 HRS IST OF TODAY, THE 02ND NOVEMBER, 2019 OVER EASTCENTRAL ARABIAN SEA NEAR LATITUDE 16.3°N AND LONGITUDE 68.5°E, ABOUT 550 KM SOUTH-SOUTHWEST OF VERAVAL (GUJARAT) AND 570 KM WEST-NORTHWEST OF GOA. IT IS VERY LIKELY TO MOVE WEST-NORTHWESTWARDS TILL 04TH NOVEMBER AND RECURVE EAST-NORTHEASTWARDS TOWARDS SOUTH GUJARAT COAST THEREAFTER. IT IS VERY LIKELY TO INTENSIFY INTO A VERY SEVERE CYCLONIC STORM OVER EASTCENTRAL ARABIAN SEA DURING NEXT 48 HOURS. HOWEVER, AFTER THE RECURVATURE, IT IS VERY LIKELY TO WEAKEN GRADUALLY WHILE MOVING EAST-NORTHEASTWARDS TOWARDS SOUTH GUJARAT COAST.

FORECAST TRACK AND INTENSITY ARE GIVEN IN THE FOLLOWING TABLE:

DATE/TIME(IST)	POSITION (LAT. °N/ LONG. °E)	MAXIMUM SUSTAINED SURFACE WIND SPEED (KMPH)	CATEGORY OF CYCLONIC DISTURBANCE
02.11.19/0000	16.3/68.5	90-100 GUSTING TO 110	SEVERE CYCLONIC STORM
02.11.19/0600	16.6/68.2	90-100 GUSTING TO 110	SEVERE CYCLONIC STORM
02.11.19/1200	17.0/67.8	100-110 GUSTING TO 120	SEVERE CYCLONIC STORM
02.11.19/1800	17.2/67.4	100-110 GUSTING TO 120	SEVERE CYCLONIC STORM
03.11.19/0000	17.5/66.6	110-120 GUSTING TO 135	SEVERE CYCLONIC STORM
03.11.19/1200	17.8/65.5	110-120 GUSTING TO 135	SEVERE CYCLONIC STORM
04.11.19/0000	18.0/64.2	125-135 GUSTING TO 150	VERY SEVERE CYCLONIC STORM
04.11.19/1200	18.2/63.1	135-145 GUSTING TO 160	VERY SEVERE CYCLONIC STORM
05.11.19/0000	18.7/62.9	155-165 GUSTING TO 180	VERY SEVERE CYCLONIC STORM
05.11.19/1200	19.2/63.1	155-165 GUSTING TO 180	VERY SEVERE CYCLONIC STORM
06.11.19/0000	19.4/64.5	125-135 GUSTING TO 145	VERY SEVERE CYCLONIC STORM
06.11.19/1200	19.7/66.5	120-130 GUSTING TO 145	VERY SEVERE CYCLONIC STORM
07.11.19/0000	20.0/69.0	110-120 GUSTING TO 135	SEVERE CYCLONIC STORM

AS PER THE SATELLITE IMAGERY AT 0000 UTC OF 01ST NOVEMBER, 2019, THE CURRENT INTENSITY OF THE SYSTEM IS T 3.5. ASSOCIATED SCATTERED LOW TO MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION LIES OVER EASTCENTRAL AND ADJOINING ARABIAN SEA BETWEEN LAT 13.5°N TO 17.0°N AND LONG 65.0°E TO 70.5°E. THE MINIMUM CTT IS MINUS 93°C.

THE ESTIMATED MAXIMUM SUSTAINED WIND SPEED IS 50 KNOTS GUSTING TO 60 KNOTS. THE ESTIMATED CENTRAL PRESSURE IS 992 HPA. THE SEA CONDITION IS VERY HIGH AROUND THE SYSTEM CENTRE. AT 0000 UTC, A BUOY (23451) LOCATED NEAR LAT. 14.9°N / 69.0°E REPORTED MEAN SEA LEVEL PRESSURE 1003.2 HPA, SST 27.8°C AND WIND 300⁰/24 KNOTS.

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

REMARKS (A):

THE MJO LIES IN THE PHASE 5 WITH AMPLITUDE CLOSE TO 1. IT IS LIKELY TO REMAIN IN THE SAME PHASE DURING NEXT 3-4 DAYS, AND WILL ENTER INTO PHASE 6 SUBSEQUENTLY WITH AMPLITUDE LESS THAN 1 AND WILL REMAIN THERE FOR NEXT 4-5 DAYS. THE LOW LEVEL RELATIVE VORTICITY IS ABOUT $150 \times 10^{-5} \text{ SEC}^{-1}$ TO THE SOUTHWEST OF THE SYSTEM CENTRE. THE LOWER LEVEL CONVERGENCE IS ABOUT $10 \times 10^{-5} \text{ S}^{-1}$ TO THE SOUTHWEST OF THE SYSTEM CENTRE AND THE UPPER LEVEL DIVERGENCE IS ABOUT $20 \times 10^{-5} \text{ S}^{-1}$ OVER THE SYSTEM CENTRE. THE VERTICAL WIND SHEAR IS LOW (10-15 KNOTS) OVER THE SYSTEM AREA. SEA SURFACE TEMPERATURE IS AROUND 26-28°C OVER THE SYSTEM AREA. TROPICAL CYCLONE HEAT POTENTIAL AROUND THE SYSTEM CENTER OVER WESTCENTRAL ARABIAN SEA IS 20-40 KJ/CM².

REMARKS (B):

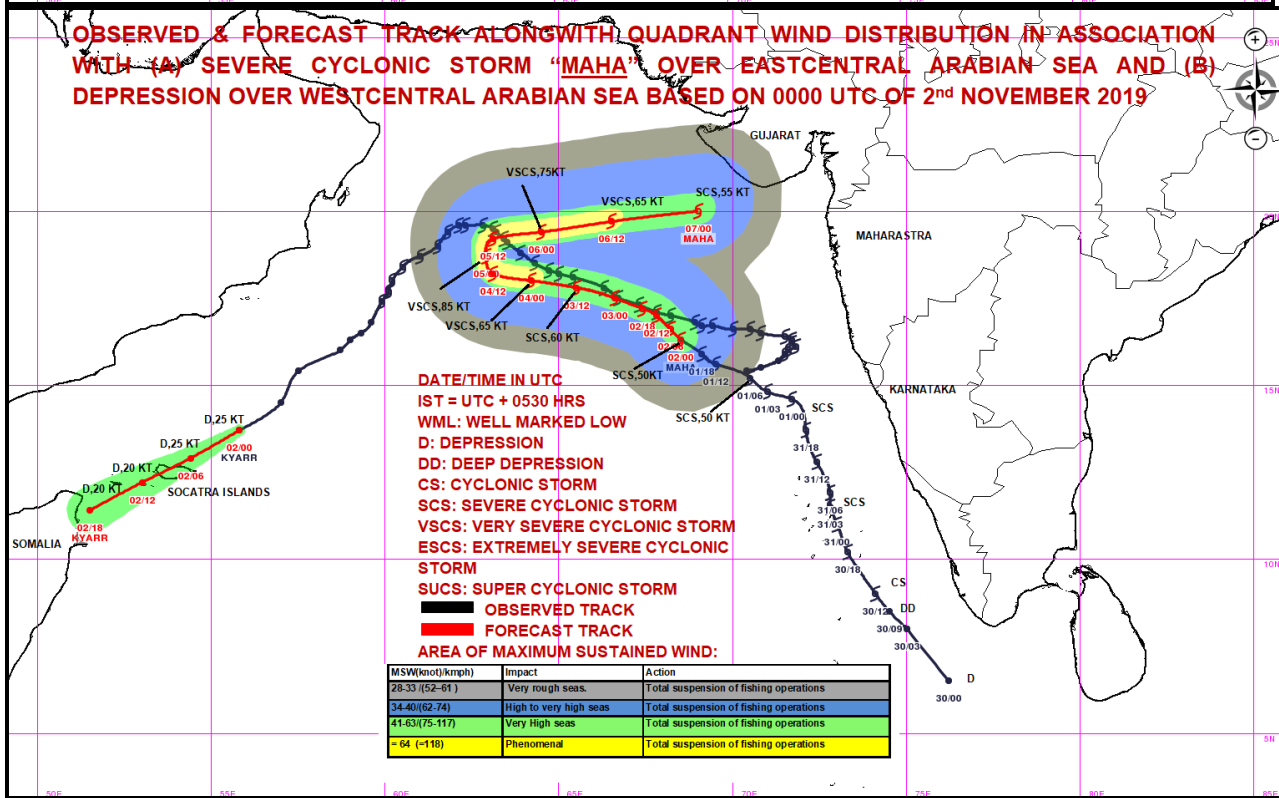
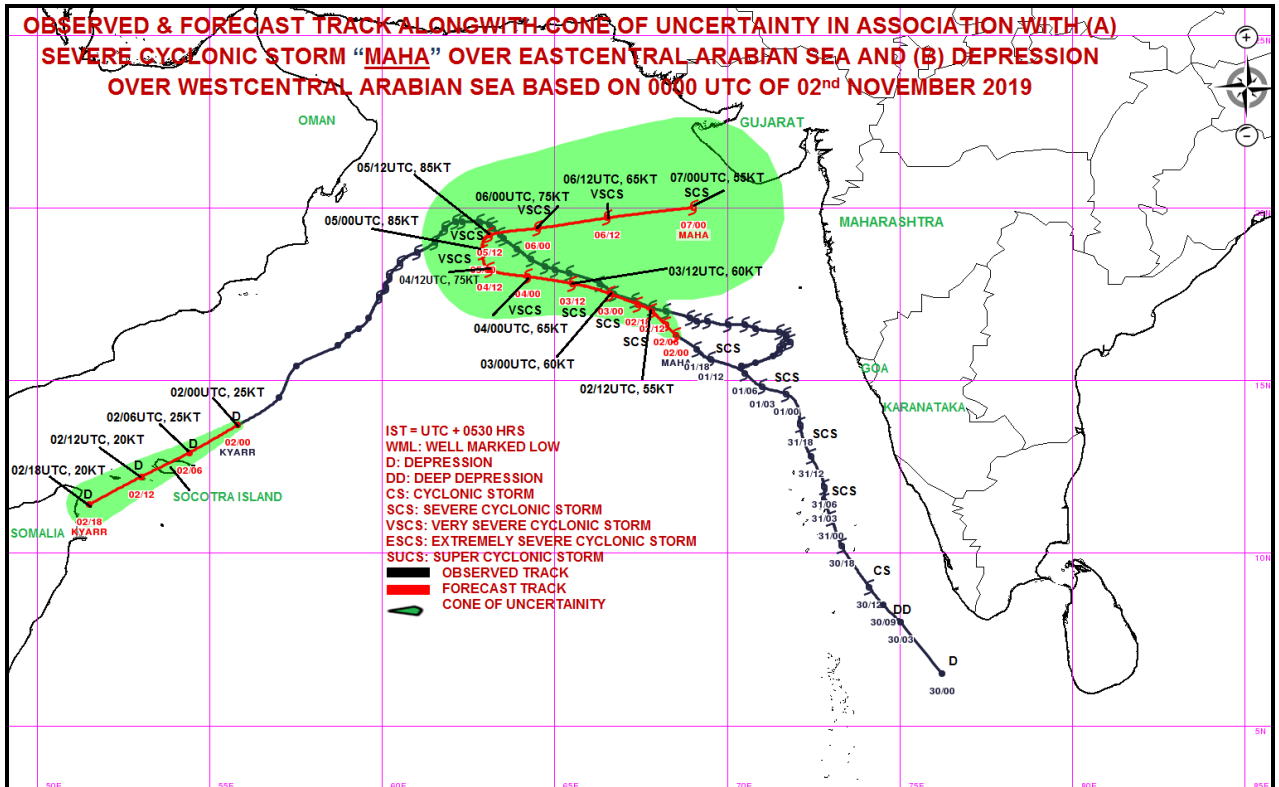
THE LOW LEVEL RELATIVE VORTICITY IS ABOUT $150 \times 10^{-5} \text{ SEC}^{-1}$ TO THE SOUTH OF THE SYSTEM CENTRE. THE RIDGE OVER THE SYSTEM AREA RUNS ROUGHLY ALONG 17°N. THE LOWER LEVEL CONVERGENCE IS ABOUT $10 \times 10^{-5} \text{ S}^{-1}$ TO THE NORTHEAST OF THE SYSTEM CENTRE AND THE UPPER LEVEL DIVERGENCE IS ABOUT $20 \times 10^{-5} \text{ S}^{-1}$ TO THE SOUTH OF THE SYSTEM AREA. THE VERTICAL WIND SHEAR IS LOW (05-10 KNOTS) OVER THE SYSTEM AREA. SEA SURFACE TEMPERATURE IS AROUND 28-30°C AROUND THE SYSTEM AREA AND SHOWS GRADUAL REDUCTION IN THE FORECAST DIRECTION. TROPICAL CYCLONE HEAT POTENTIAL IS AROUND 70-90 KJ/CM² OVER THE THE SYSTEM AREA AND DECREASES IN THE FORECAST DIRECTION OF THE SYSTEM.

AS THE SYSTEM IS LYING IN A FAVOURABLE ENVIRONMENT, IT IS LIKELY TO INTENSIFY FURTHER INTO A VERY SEVERE CYCLONIC STORM DURING NEXT 24 HOURS. MOST OF THE NWP MODELS ARE IN AGREEMENT WITH THIS OBSERVATION. AS THE SYSTEM IS BEING STEERED BY THE SOUTHERN PERIPHERY WINDS OF THE ANTICYCLONE LOCATED TO THE NORTHEAST OF THE SYSTEM, IT IS MOVING IN NORTHWEST DIRECTION. THIS MOVEMENT IS LIKELY TO CONTINUE FOR NEXT 24 HOURS AND THEN UNDER THE STEERING OF EAST- NORTHEAST WINDS IT IS LIKELY TO MOVE WEST-NORTHWESTWARDS TILL 0000 UTC OF 5TH NOVEMBER. MAJORITY OF THE NUMERICAL MODELS SUGGEST THE SYSTEM TO RECURVE NORTHEASTWARDS THEREAFTER.

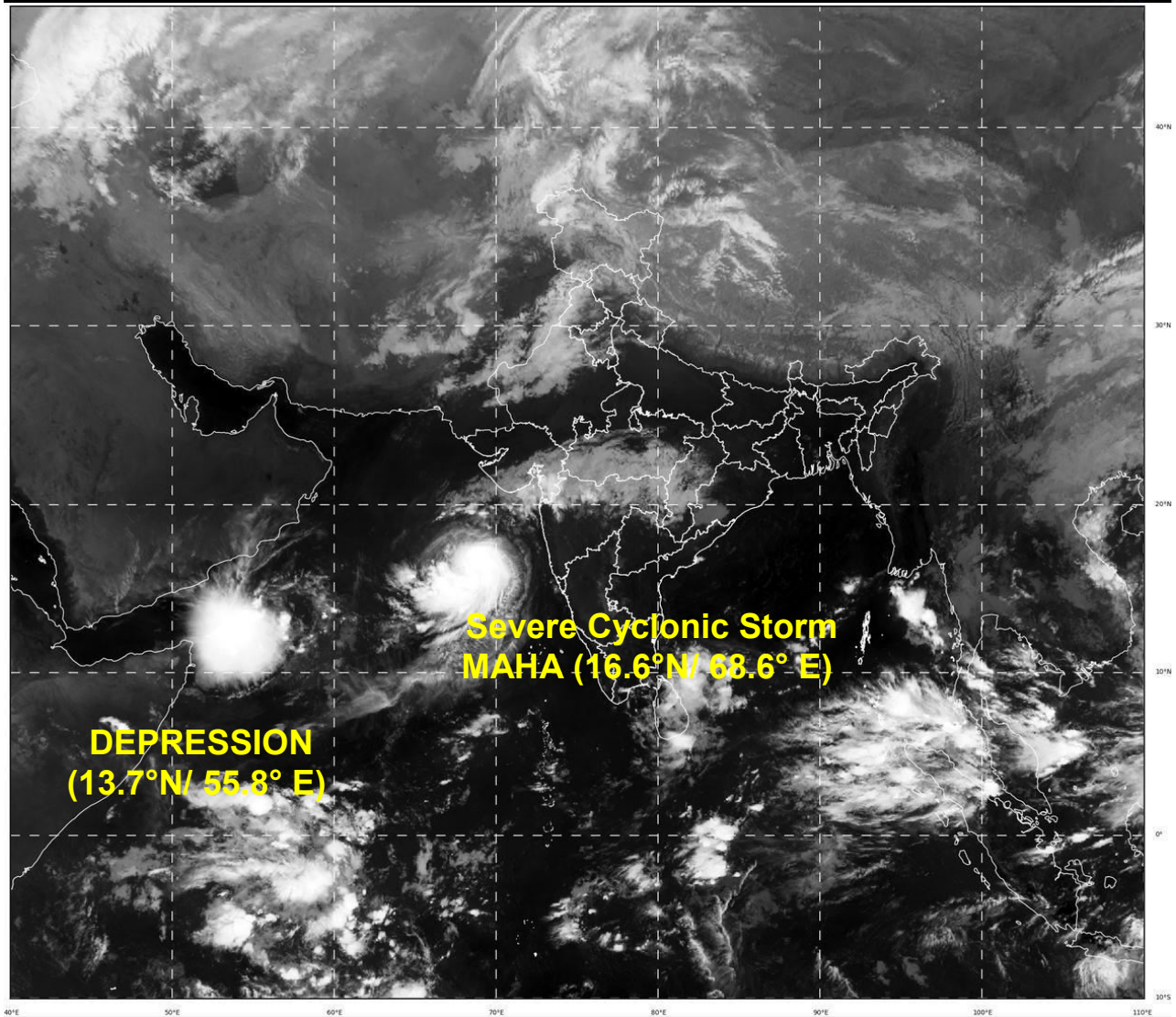
(V R DURAI)
SCIENTIST-E, RSMC, NEW DELHI

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%



PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)
NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%



IMD, DELHI

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)
NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%



**REGIONAL SPECIALISED METEOROLOGICAL CENTRE-TROPICAL CYCLONES, NEW DELHI
TROPICAL CYCLONE ADVISORY BULLETIN NO. 66 & TROPICAL CYCLONE ADVISORY
BULLETIN NO. 22**

FROM: RSMC –TROPICAL CYCLONES, NEW DELHI

**TO: STORM WARNING CENTRE, NAYPYI TAW (MYANMAR)
STORM WARNING CENTRE, BANGKOK (THAILAND)
STORM WARNING CENTRE, COLOMBO (SRILANKA)
STORM WARNING CENTRE, DHAKA (BANGLADESH)
STORM WARNING CENTRE, KARACHI (PAKISTAN)
METEOROLOGICAL OFFICE, MALE (MALDIVES)
OMAN METEOROLOGICAL DEPARTMENT, MUSCAT (THROUGH RTH JEDDAH)
YEMEN METEOROLOGICAL SERVICES, REPUBLIC OF YEMEN (THROUGH RTH JEDDAH)
NATIONAL CENTRE FOR METEOROLOGY, UAE (THROUGH RTH JEDDAH)
PRESIDENCY OF METEOROLOGY AND ENVIRONMENT, SAUDI ARABIA (THROUGH RTH JEDDAH)
IRAN METEOROLOGICAL ORGANISATION, (THROUGH RTH JEDDAH)
QATAR METEOROLOGICAL DEPARTMENT (THROUGH RTH JEDDAH)**

TROPICAL CYCLONE ADVISORY No. 66 & TROPICAL CYCLONE ADVISORY NO. 22 FOR NORTH INDIAN OCEAN (THE BAY OF BENGAL AND ARABIAN SEA) VALID FOR NEXT 120 HOURS ISSUED AT 0600 UTC OF 02.11.2019 BASED ON 0300 UTC OF 02.11.2019.

**SUB: (A) DEPRESSION OVER WESTCENTRAL ARABIAN SEA
(B) SEVERE CYCLONIC STORM 'MAHA' (PRONOUNCED AS M'MAHA) OVER EASTCENTRAL ARABIAN SEA**

(A) DEPRESSION OVER WESTCENTRAL ARABIAN SEA

THE DEPRESSION OVER WESTCENTRAL ARABIAN SEA MOVED WEST-SOUTHWESTWARDS WITH A SPEED OF 26 KMPH DURING PAST 06 HOURS AND LAY CENTRED AT 0300 UTC OF 02ND NOVEMBER, 2019 OVER WESTCENTRAL ARABIAN SEA NEAR LATITUDE 13.5°N AND LONGITUDE 55.0°E, ABOUT 150 KM EAST-NORTHEAST OF SOCOTRA ISLAND (41494) AND 460 KM EAST-NORTHEAST OF BEREEDA (SOMALIA). IT IS VERY LIKELY TO MOVE WEST-SOUTHWESTWARDS TOWARDS SOMALIA COAST ACROSS SOCOTRA ISLAND DURING NEXT 24 HOURS AND WEAKEN INTO A WELL MARKED LOW PRESSURE AREA THEREAFTER.

FORECAST TRACK AND INTENSITY ARE GIVEN IN THE FOLLOWING TABLE:

DATE/TIME(IST)	POSITION (LAT. °N/ LONG. °E)	MAXIMUM SUSTAINED SURFACE WIND SPEED (KMPH)	CATEGORY OF CYCLONIC DISTURBANCE
02.11.19/0300	13.5/55.0	40-50 GUSTING TO 60	DEPRESSION
02.11.19/0600	13.0/54.2	40-50 GUSTING TO 60	DEPRESSION
02.11.19/1200	12.2/53.0	35-45 GUSTING TO 55	DEPRESSION
02.11.19/1800	11.4/51.5	35-45 GUSTING TO 55	DEPRESSION

AS PER THE SATELLITE IMAGERY AT 0300 UTC OF 02ND NOVEMBER, 2019, THE CURRENT INTENSITY OF THE SYSTEM IS T 1.0/1.5. ASSOCIATED BROKEN LOW TO MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION LIES OVER WESTCENTRAL ARABIAN SEA, SOCOTRA ISLANDS & ADJOINING AREAS OF GULF OF ADEN BETWEEN LAT

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

9.0°N TO 15.0°N AND LONG 51°E TO 58.0°E. THE MINIMUM CTT IS MINUS 93 DEG C.

THE ESTIMATED MAXIMUM SUSTAINED WIND SPEED IS 25 KNOTS GUSTING TO 35 KNOTS. THE ESTIMATED CENTRAL PRESSURE IS 1002 HPA. THE SEA CONDITION IS ROUGH TO VERY ROUGH AROUND THE SYSTEM CENTRE OVER WESTCENTRAL ARABIAN SEA, SOCOTRA ISLANDS,ALONG AND OFF NORTH SOMALIA COAST & ADJOINING AREAS OF GULF OF ADEN AND SOUTH WEST ARABIAN SEA.

(B) SEVERE CYCLONIC STORM MAHA (PRONOUNCED AS M'MAHA) OVER EASTCENTRAL ARABIAN SEA

THE SEVERE CYCLONIC STORM MAHA (PRONOUNCED AS M'MAHA) OVER EASTCENTRAL ARABIAN SEA MOVED FURTHER WEST-NORTHWESTWARDS WITH A SPEED OF 10 KMPH DURING PAST 06 HOURS, AND LAY CENTERED AT 0300 UTC OF 02ND NOVEMBER, 2019 OVER EASTCENTRAL ARABIAN SEA NEAR LATITUDE 16.4°N AND LONGITUDE 68.3°E, ABOUT 540 KM SOUTH-SOUTHWEST OF VERAVAL (42909) AND 550 KM SOUTH-SOUTHWEST OF DIU(42914). IT IS VERY LIKELY TO MOVE WEST-NORTHWESTWARDS TILL 04TH NOVEMBER AND RECURVE EAST-NORTHEASTWARDS TOWARDS SOUTH GUJARAT COAST THEREAFTER. IT IS VERY LIKELY TO INTENSIFY INTO A VERY SEVERE CYCLONIC STORM OVER EASTCENTRAL ARABIAN SEA DURING NEXT 48 HOURS. HOWEVER, AFTER THE RE-CURVATURE, IT IS VERY LIKELY TO WEAKEN GRADUALLY WHILE MOVING EAST-NORTHEASTWARDS TOWARDS SOUTH GUJARAT COAST.

FORECAST TRACK AND INTENSITY ARE GIVEN IN THE FOLLOWING TABLE:

DATE/TIME(IST)	POSITION (LAT. °N/ LONG. °E)	MAXIMUM SUSTAINED SURFACE WIND SPEED (KMPH)	CATEGORY OF CYCLONIC DISTURBANCE
02.11.19/0300	16.4/68.3	90-100 GUSTING TO 110	SEVERE CYCLONIC STORM
02.11.19/0600	16.6/68.0	90-100 GUSTING TO 110	SEVERE CYCLONIC STORM
02.11.19/1200	16.9/67.7	100-110 GUSTING TO 120	SEVERE CYCLONIC STORM
02.11.19/1800	17.1/67.4	100-110 GUSTING TO 120	SEVERE CYCLONIC STORM
03.11.19/0000	17.5/66.6	110-120 GUSTING TO 135	SEVERE CYCLONIC STORM
03.11.19/1200	17.8/65.5	110-120 GUSTING TO 135	SEVERE CYCLONIC STORM
04.11.19/0000	18.0/64.2	125-135 GUSTING TO 150	VERY SEVERE CYCLONIC STORM
04.11.19/1200	18.2/63.1	135-145 GUSTING TO 160	VERY SEVERE CYCLONIC STORM
05.11.19/0000	18.7/62.9	155-165 GUSTING TO 180	VERY SEVERE CYCLONIC STORM
05.11.19/1200	19.2/63.1	155-165 GUSTING TO 180	VERY SEVERE CYCLONIC STORM
06.11.19/0000	19.4/64.5	125-135 GUSTING TO 145	VERY SEVERE CYCLONIC STORM
06.11.19/1200	19.7/66.5	120-130 GUSTING TO 145	VERY SEVERE CYCLONIC STORM
07.11.19/0000	20.0/69.0	110-120 GUSTING TO 135	SEVERE CYCLONIC STORM

AS PER THE SATELLITE IMAGERY AT 0300 UTC OF 02ST NOVEMBER, 2019, THE CURRENT INTENSITY OF THE SYSTEM IS T 3.5. ASSOCIATED SCATTERED LOW TO MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION LIES OVER EASTCENTRAL AND ADJOINING SOUTH EAST ARABIAN SEA BETWEEN LAT 12.5°N TO 18.0°N AND LONG 65.0°E TO 71.0°E. THE MINIMUM CTT IS MINUS 93°C.

THE ESTIMATED MAXIMUM SUSTAINED WIND SPEED IS 50 KNOTS GUSTING TO 60 KNOTS. THE ESTIMATED CENTRAL PRESSURE IS 992 HPA. THE SEA CONDITION IS VERY HIGH AROUND THE SYSTEM CENTRE. AT 0300 UTC, A BUOY (23451) LOCATED NEAR LAT. 14.9°N / 69.0°E REPORTED MEAN SEA LEVEL PRESSURE 1006.4 HPA, SST 27.8°C AND WIND 310°/23 KNOTS.

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

REMARKS (A):

THE MJO LIES IN THE PHASE 5 WITH AMPLITUDE CLOSE TO 1. IT IS LIKELY TO REMAIN IN THE SAME PHASE DURING NEXT 3-4 DAYS, AND WILL ENTER INTO PHASE 6 SUBSEQUENTLY WITH AMPLITUDE LESS THAN 1 AND WILL REMAIN THERE FOR NEXT 4-5 DAYS. THE LOW LEVEL RELATIVE VORTICITY IS ABOUT $150 \times 10^{-5} \text{ SEC}^{-1}$ TO THE SOUTHWEST OF THE SYSTEM CENTRE. THE LOWER LEVEL CONVERGENCE IS ABOUT $10 \times 10^{-5} \text{ S}^{-1}$ TO THE SOUTHWEST OF THE SYSTEM CENTRE AND THE UPPER LEVEL DIVERGENCE IS ABOUT $20 \times 10^{-5} \text{ S}^{-1}$ OVER THE SYSTEM CENTRE. THE VERTICAL WIND SHEAR IS LOW (10-15 KNOTS) OVER THE SYSTEM AREA. SEA SURFACE TEMPERATURE IS AROUND 26-28°C OVER THE SYSTEM AREA. TROPICAL CYCLONE HEAT POTENTIAL AROUND THE SYSTEM CENTER OVER WESTCENTRAL ARABIAN SEA IS 20-40 KJ/CM².

REMARKS (B):

THE LOW LEVEL RELATIVE VORTICITY IS ABOUT $150 \times 10^{-5} \text{ SEC}^{-1}$ TO THE SOUTH OF THE SYSTEM CENTRE. THE RIDGE OVER THE SYSTEM AREA RUNS ROUGHLY ALONG 17°N. THE LOWER LEVEL CONVERGENCE IS ABOUT $10 \times 10^{-5} \text{ S}^{-1}$ TO THE NORTHEAST OF THE SYSTEM CENTRE AND THE UPPER LEVEL DIVERGENCE IS ABOUT $20 \times 10^{-5} \text{ S}^{-1}$ TO THE SOUTH OF THE SYSTEM AREA. THE VERTICAL WIND SHEAR IS LOW (05-10 KNOTS) OVER THE SYSTEM AREA. SEA SURFACE TEMPERATURE IS AROUND 28-30°C AROUND THE SYSTEM AREA AND SHOWS GRADUAL REDUCTION IN THE FORECAST DIRECTION. TROPICAL CYCLONE HEAT POTENTIAL IS AROUND 20-40 KJ/CM² OVER THE THE SYSTEM AREA AND DECREASES IN THE FORECAST DIRECTION OF THE SYSTEM.

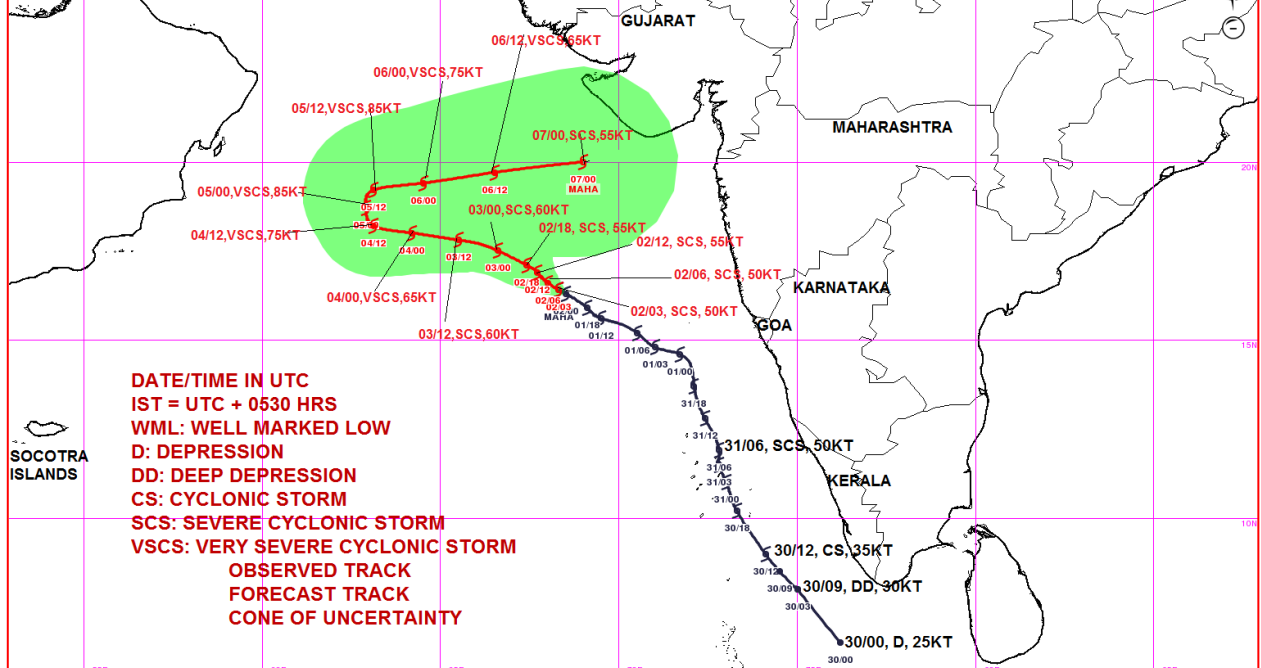
MOST OF THE NWP MODELS ARE IN AGREEMENT WITH THIS OBSERVATION. AS THE SYSTEM IS BEING STEERED BY THE SOUTHERN PERIPHERY WINDS OF THE ANTICYCLONE LOCATED TO THE NORTHEAST OF THE SYSTEM, IT IS MOVING IN WEST-NORTHWEST DIRECTION. THIS MOVEMENT IS LIKELY TO CONTINUE TILL 4TH NOVEMBER. THEN IT IS LIKELY TO ENTER IN TO COL REGION, MOVE NEARLY NORTHWARDS FOR A BRIEF PERIOD AND LIKELY TO COME UNDER THE INFLUENCE OF AN APPROACHING MID-LATITUDE WESTERLY TROUGH FROM 5TH NOVEMBER. AS A RESULT THE SYSTEM IS VERY LIKELY TO RE-CURVE EAST-NORTHEASTWARDS FROM 5TH NOVEMBER. DURING THIS PERIOD, THE SYSTEM IS ALSO LIKEY TO WEAKEN GRADUALLY UNDER THE INFLUENCE OF INCREASED VERTICAL WIND SHEAR. MAJORITY OF THE NUMERICAL MODELS ARE IN AGREEMENT WITH THIS CONCLUSION.

(SUNITHA DEVI.S)
SCIENTIST-E, RSMC, NEW DELHI

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

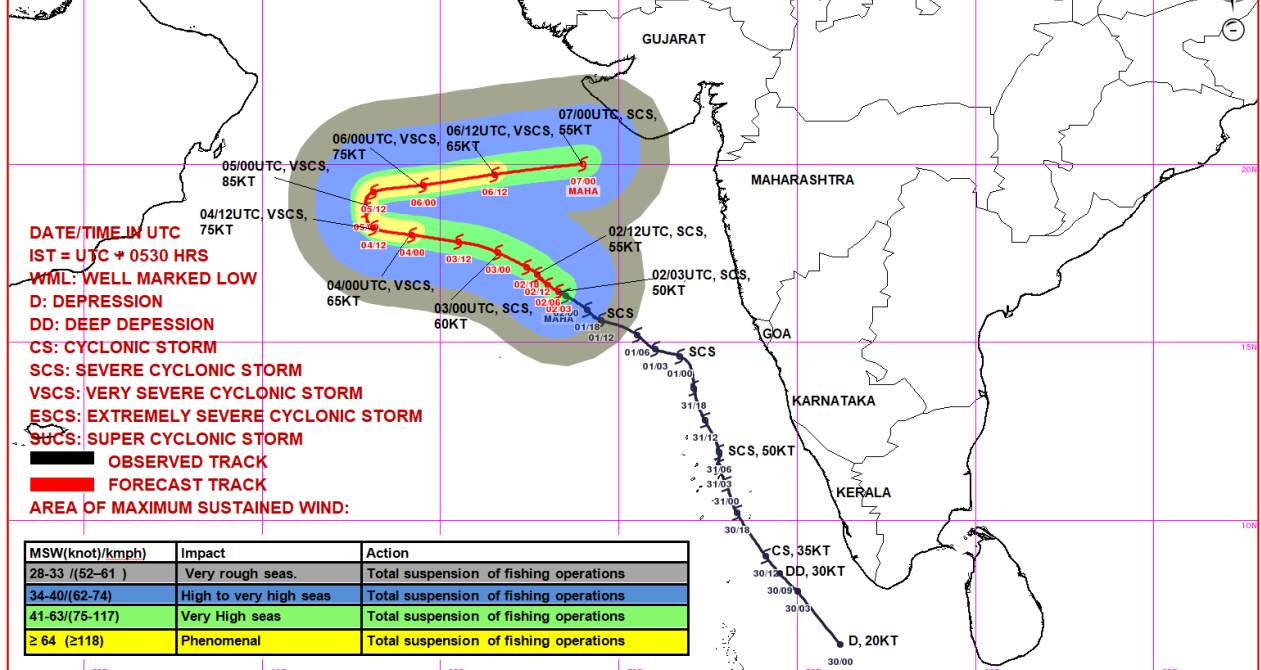
NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

OBSERVED & FORECAST TRACK ALONGWITH CONE OF UNCERTAINTY IN ASSOCIATION WITH SEVERE CYCLONIC STORM "MAHA" OVER EASTCENTRAL ARABIAN SEA BASED ON 0300 UTC OF 02nd NOVEMBER 2019



DATE/TIME IN UTC
 IST = UTC + 0530 HRS
 WML: WELL MARKED LOW
 D: DEPRESSION
 DD: DEEP DEPRESSION
 CS: CYCLONIC STORM
 SCS: SEVERE CYCLONIC STORM
 VSCS: VERY SEVERE CYCLONIC STORM
 OBSERVED TRACK
 FORECAST TRACK
 CONE OF UNCERTAINTY

OBSERVED & FORECAST TRACK ALONGWITH QUADRANT WIND DISTRIBUTION IN ASSOCIATION WITH SEVERE CYCLONIC STORM "MAHA" OVER EASTCENTRAL ARABIAN SEA BASED ON 0300 UTC OF 2nd NOVEMBER 2019

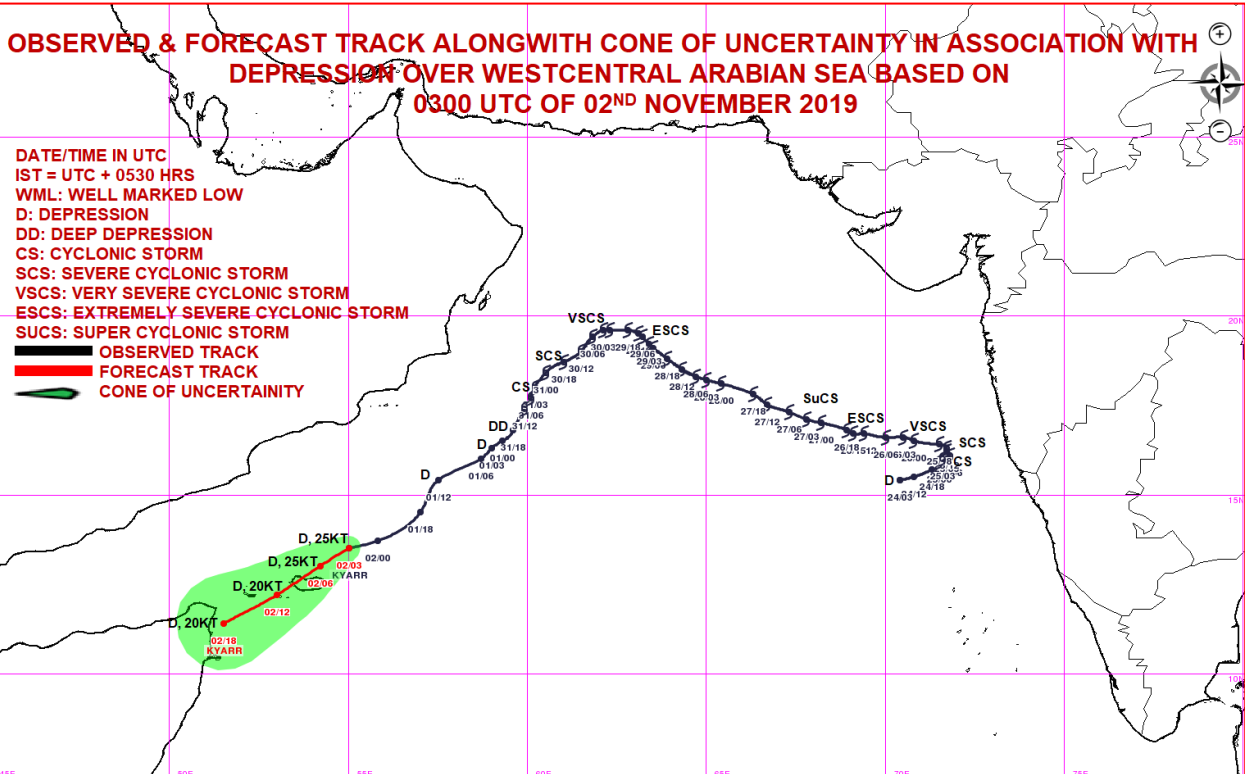


DATE/TIME IN UTC
 IST = UTC + 0530 HRS
 WML: WELL MARKED LOW
 D: DEPRESSION
 DD: DEEP DEPRESSION
 CS: CYCLONIC STORM
 SCS: SEVERE CYCLONIC STORM
 VSCS: VERY SEVERE CYCLONIC STORM
 ESCS: EXTREMELY SEVERE CYCLONIC STORM
 SSCS: SUPER CYCLONIC STORM
 — OBSERVED TRACK
 — FORECAST TRACK
 AREA OF MAXIMUM SUSTAINED WIND:

MSW(knot)/kmph	Impact	Action
28-33 (52-61)	Very rough seas.	Total suspension of fishing operations
34-40 (62-74)	High to very high seas	Total suspension of fishing operations
41-63 (75-117)	Very High seas	Total suspension of fishing operations
≥ 64 (≥118)	Phenomenal	Total suspension of fishing operations

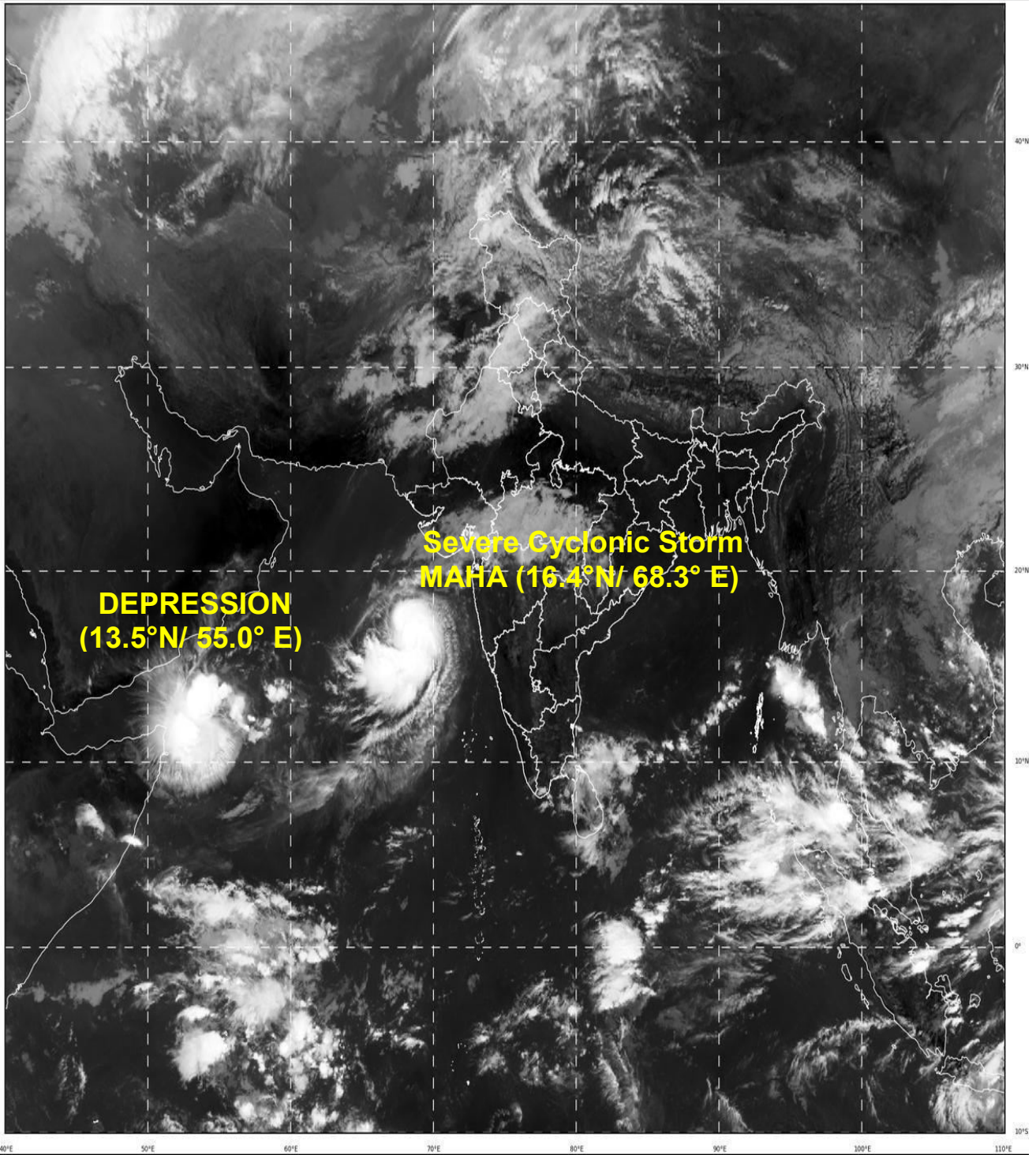
PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%



PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%



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927



IMD,DELHI

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)
NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%



**REGIONAL SPECIALISED METEOROLOGICAL CENTRE-TROPICAL CYCLONES, NEW DELHI
TROPICAL CYCLONE ADVISORY BULLETIN NO. 67 & TROPICAL CYCLONE ADVISORY
BULLETIN NO. 23**

FROM: RSMC –TROPICAL CYCLONES, NEW DELHI

**TO: STORM WARNING CENTRE, NAYPYI TAW (MYANMAR)
STORM WARNING CENTRE, BANGKOK (THAILAND)
STORM WARNING CENTRE, COLOMBO (SRILANKA)
STORM WARNING CENTRE, DHAKA (BANGLADESH)
STORM WARNING CENTRE, KARACHI (PAKISTAN)
METEOROLOGICAL OFFICE, MALE (MALDIVES)
OMAN METEOROLOGICAL DEPARTMENT, MUSCAT (THROUGH RTH JEDDAH)
YEMEN METEOROLOGICAL SERVICES, REPUBLIC OF YEMEN (THROUGH RTH JEDDAH)
NATIONAL CENTRE FOR METEOROLOGY, UAE (THROUGH RTH JEDDAH)
PRESIDENCY OF METEOROLOGY AND ENVIRONMENT, SAUDI ARABIA (THROUGH RTH JEDDAH)
IRAN METEOROLOGICAL ORGANISATION, (THROUGH RTH JEDDAH)
QATAR METEOROLOGICAL DEPARTMENT (THROUGH RTH JEDDAH)**

TROPICAL CYCLONE ADVISORY No. 67 & TROPICAL CYCLONE ADVISORY NO. 23 FOR NORTH INDIAN OCEAN (THE BAY OF BENGAL AND ARABIAN SEA) VALID FOR NEXT 120 HOURS ISSUED AT 0900 UTC OF 02.11.2019 BASED ON 0600 UTC OF 02.11.2019.

**SUB: (A) DEPRESSION OVER WESTCENTRAL ARABIAN SEA
(B) SEVERE CYCLONIC STORM 'MAHA' (PRONOUNCED AS M'MAHA) OVER EASTCENTRAL ARABIAN SEA**

(A) DEPRESSION OVER WESTCENTRAL ARABIAN SEA

THE DEPRESSION OVER WESTCENTRAL ARABIAN SEA MOVED WEST-SOUTHWESTWARDS WITH A SPEED OF 32 KMPH DURING PAST 06 HOURS AND LAY CENTRED AT 0600 UTC OF 02ND NOVEMBER, 2019 OVER WESTCENTRAL ARABIAN SEA NEAR LATITUDE 13.1°N AND LONGITUDE 54.1°E, ABOUT 50 KM EAST-NORTHEAST OF SOCOTRA ISLAND (41494) AND 350 KM EAST-NORTHEAST OF BEREEDA (SOMALIA). IT IS VERY LIKELY TO MOVE WEST-SOUTHWESTWARDS TOWARDS SOMALIA COAST ACROSS SOCOTRA ISLAND DURING NEXT 12 HOURS AND WEAKEN INTO A WELL MARKED LOW PRESSURE AREA THEREAFTER.

FORECAST TRACK AND INTENSITY ARE GIVEN IN THE FOLLOWING TABLE:

DATE/TIME(IST)	POSITION (LAT. °N/ LONG. °E)	MAXIMUM SUSTAINED SURFACE WIND SPEED (KMPH)	CATEGORY OF CYCLONIC DISTURBANCE
02.11.19/0600	13.1/54.1	40-50 GUSTING TO 60	DEPRESSION
02.11.19/1200	12.5/53.0	30-40 GUSTING TO 50	DEPRESSION
02.11.19/1800	11.9/51.5	30-40 GUSTING TO 50	DEPRESSION

AS PER THE SATELLITE IMAGERY AT 0600 UTC OF 02ND NOVEMBER, 2019, THE CURRENT INTENSITY OF THE SYSTEM IS T 1.0/1.5. ASSOCIATED BROKEN LOW TO MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION LIES OVER WESTCENTRAL ARABIAN SEA, SOCOTRA ISLANDS & ADJOINING AREAS OF GULF OF ADEN BETWEEN LAT 9.0°N TO 15.0°N AND LONG 51°E TO 58.0°E. THE MINIMUM CTT IS MINUS 93 DEG C.

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

THE ESTIMATED MAXIMUM SUSTAINED WIND SPEED IS 25 KNOTS GUSTING TO 35 KNOTS. THE ESTIMATED CENTRAL PRESSURE IS 1002 HPA. THE SEA CONDITION IS ROUGH TO VERY ROUGH AROUND THE SYSTEM CENTRE OVER WESTCENTRAL ARABIAN SEA, SOCOTRA ISLANDS, ALONG AND OFF NORTH SOMALIA COAST & ADJOINING AREAS OF GULF OF ADEN AND SOUTH WEST ARABIAN SEA.

(B) SEVERE CYCLONIC STORM MAHA (PRONOUNCED AS M'MAHA) OVER EASTCENTRAL ARABIAN SEA

THE SEVERE CYCLONIC STORM MAHA (PRONOUNCED AS M'MAHA) OVER EASTCENTRAL ARABIAN SEA MOVED FURTHER WEST-NORTHWESTWARDS WITH A SPEED OF 06 KMPH DURING PAST 06 HOURS, AND LAY CENTERED AT 0300 UTC OF 02ND NOVEMBER, 2019 OVER EASTCENTRAL ARABIAN SEA NEAR LATITUDE 16.5°N AND LONGITUDE 68.2°E, ABOUT 540 KM SOUTH-SOUTHWEST OF VERAVAL (42909) AND 550 KM SOUTH-SOUTHWEST OF DIU (42914). IT IS VERY LIKELY TO MOVE WEST-NORTHWESTWARDS TILL 04TH NOVEMBER AND RECURVE EAST-NORTHEASTWARDS TOWARDS SOUTH GUJARAT AND ADJOINING NORTH MAHARASHTRA COASTS THEREAFTER. IT IS VERY LIKELY TO INTENSIFY INTO A VERY SEVERE CYCLONIC STORM OVER EASTCENTRAL ARABIAN SEA DURING NEXT 24 HOURS. HOWEVER, AFTER THE RE-CURVATURE, IT IS VERY LIKELY TO WEAKEN GRADUALLY WHILE MOVING EAST-NORTHEASTWARDS.

FORECAST TRACK AND INTENSITY ARE GIVEN IN THE FOLLOWING TABLE:

DATE/TIME(IST)	POSITION (LAT. °N/ LONG. °E)	MAXIMUM SUSTAINED SURFACE WIND SPEED (KMPH)	CATEGORY OF CYCLONIC DISTURBANCE
02.11.19/0600	16.5/68.2	90-100 GUSTING TO 110	SEVERE CYCLONIC STORM
02.11.19/1200	16.9/67.7	90-100 GUSTING TO 110	SEVERE CYCLONIC STORM
02.11.19/1800	17.0/67.1	100-110 GUSTING TO 120	SEVERE CYCLONIC STORM
03.11.19/0000	17.0/66.6	110-120 GUSTING TO 135	SEVERE CYCLONIC STORM
03.11.19/1600	17.6/66.0	120-130 GUSTING TO 145	VERY SEVERE CYCLONIC STORM
03.11.19/1800	17.9/64.9	130-140 GUSTING TO 155	VERY SEVERE CYCLONIC STORM
04.11.19/0600	18.1/63.6	140-150 GUSTING TO 165	VERY SEVERE CYCLONIC STORM
04.11.19/1800	18.5/63.0	150-160 GUSTING TO 175	VERY SEVERE CYCLONIC STORM
05.11.19/0600	18.9/63.0	150-160 GUSTING TO 175	VERY SEVERE CYCLONIC STORM
05.11.19/1800	19.4/64.0	130-140 GUSTING TO 150	VERY SEVERE CYCLONIC STORM
06.11.19/0600	19.4/66.0	100-110 GUSTING TO 120	SEVERE CYCLONIC STORM
06.11.19/1800	19.9/68.2	90-100 GUSTING TO 110	SEVERE CYCLONIC STORM
07.11.19/0600	20.1/70.2	70-80 GUSTING TO 90	CYCLONIC STORM

AS PER THE SATELLITE IMAGERY AT 0600 UTC OF 02ST NOVEMBER, 2019, THE CURRENT INTENSITY OF THE SYSTEM IS T 3.5/3.5. ASSOCIATED SCATTERED LOW TO MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION LIES OVER EASTCENTRAL AND ADJOINING SOUTH EAST ARABIAN SEA BETWEEN LAT 12.5°N TO 18.0°N AND LONG 65.0°E TO 71.0°E. THE MINIMUM CTT IS MINUS 93°C.

THE ESTIMATED MAXIMUM SUSTAINED WIND SPEED IS 50 KNOTS GUSTING TO 60 KNOTS. THE ESTIMATED CENTRAL PRESSURE IS 992 HPA. THE SEA CONDITION IS VERY HIGH AROUND THE SYSTEM CENTRE. AT 0600 UTC, A BUOY (23451) LOCATED NEAR LAT. 15.2°N / 69.0°E REPORTED MEAN SEA LEVEL PRESSURE 1007.8 HPA, SST 27.8°C AND WIND 260°/18KNOTS.

REMARKS (A):

THE MJO LIES IN THE PHASE 5 WITH AMPLITUDE CLOSE TO 1. IT IS LIKELY TO REMAIN IN THE SAME PHASE DURING NEXT 3-4 DAYS, AND WILL ENTER INTO PHASE 6 SUBSEQUENTLY WITH AMPLITUDE LESS THAN 1 AND WILL REMAIN THERE FOR NEXT 4-5 DAYS. THE LOW LEVEL RELATIVE VORTICITY IS ABOUT 150 X10⁻⁵ SEC⁻¹ TO THE SOUTHWEST OF THE SYSTEM CENTRE. THE LOWER LEVEL CONVERGENCE IS ABOUT 10

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

10^{-5}S^{-1} TO THE SOUTHWEST OF THE SYSTEM CENTRE AND THE UPPER LEVEL DIVERGENCE IS ABOUT $20 \times 10^{-5} \text{S}^{-1}$ OVER THE SYSTEM CENTRE. THE VERTICAL WIND SHEAR IS LOW (10-15 KNOTS) OVER THE SYSTEM AREA. SEA SURFACE TEMPERATURE IS AROUND 26-28°C OVER THE SYSTEM AREA. TROPICAL CYCLONE HEAT POTENTIAL AROUND THE SYSTEM CENTER OVER WESTCENTRAL ARABIAN SEA IS 20-40 KJ/CM².

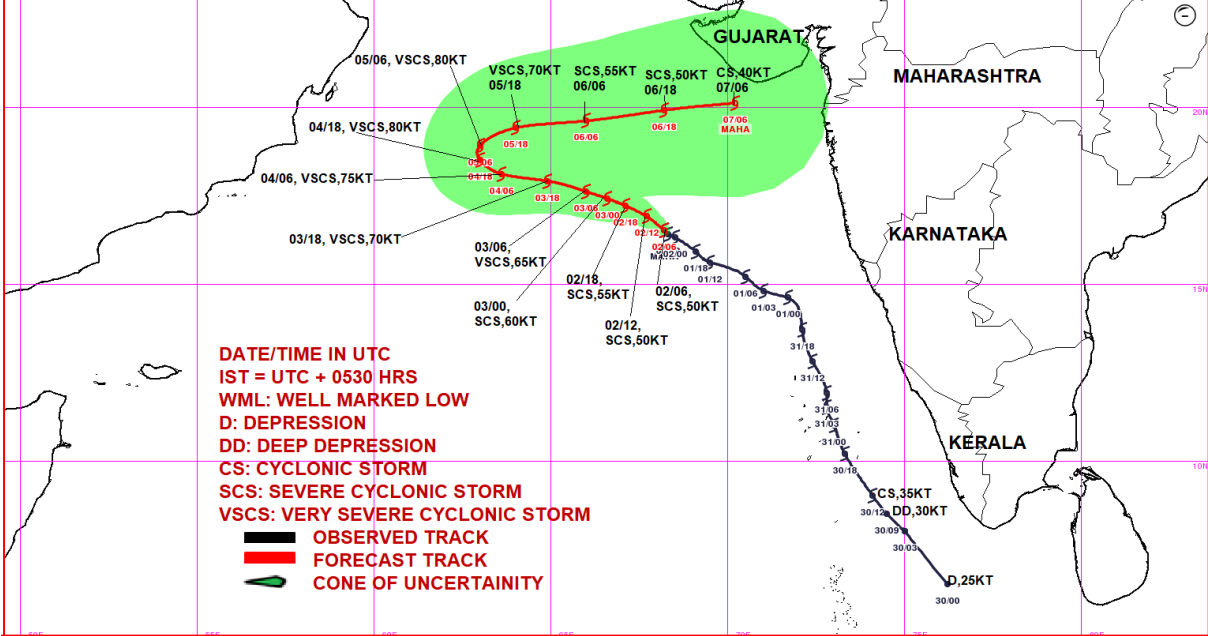
REMARKS (B):

THE LOW LEVEL RELATIVE VORTICITY IS ABOUT $150 \times 10^{-5} \text{SEC}^{-1}$ TO THE SOUTH OF THE SYSTEM CENTRE. THE RIDGE OVER THE SYSTEM AREA RUNS ROUGHLY ALONG 17°N. THE LOWER LEVEL CONVERGENCE IS ABOUT $10 \times 10^{-5} \text{S}^{-1}$ TO THE NORTHEAST OF THE SYSTEM CENTRE AND THE UPPER LEVEL DIVERGENCE IS ABOUT $20 \times 10^{-5} \text{S}^{-1}$ TO THE SOUTH OF THE SYSTEM AREA. THE VERTICAL WIND SHEAR IS LOW (05-10 KNOTS) OVER THE SYSTEM AREA. SEA SURFACE TEMPERATURE IS AROUND 28-30°C AROUND THE SYSTEM AREA AND SHOWS GRADUAL REDUCTION IN THE FORECAST DIRECTION. TROPICAL CYCLONE HEAT POTENTIAL IS AROUND 20-40 KJ/CM² OVER THE THE SYSTEM AREA AND DECREASES IN THE FORECAST DIRECTION OF THE SYSTEM.

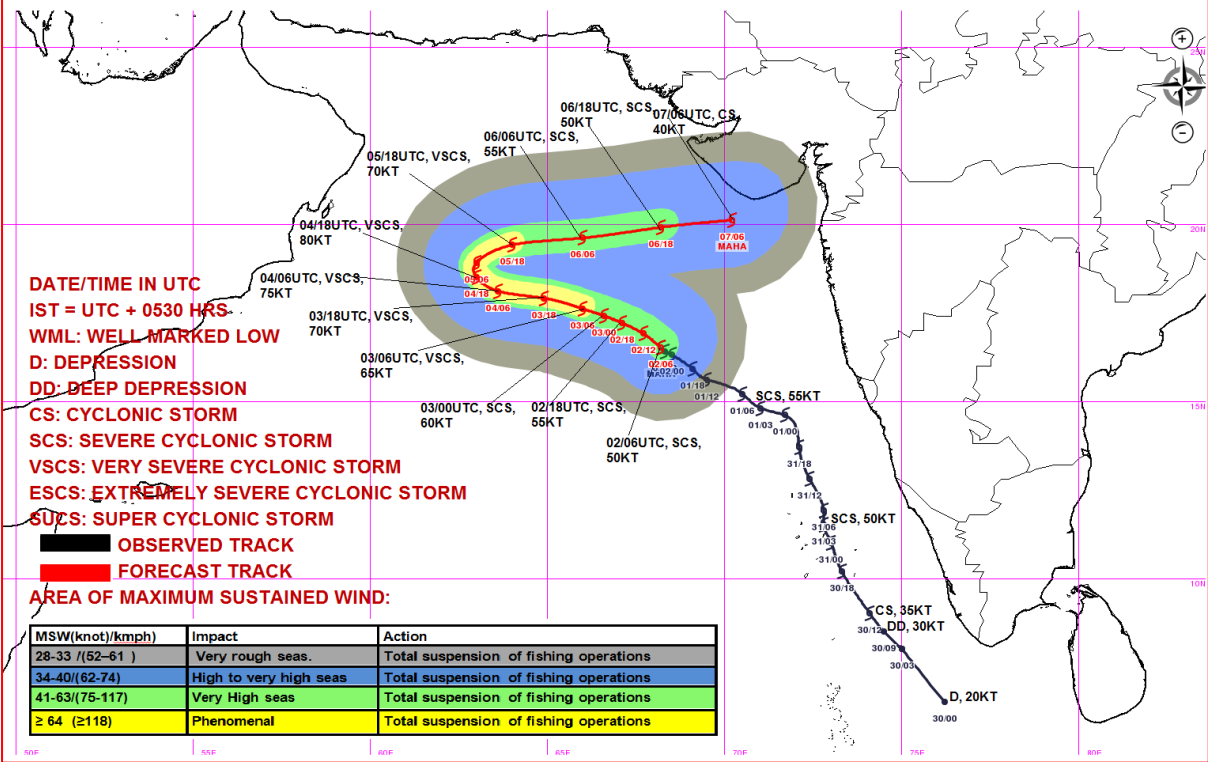
MOST OF THE NWP MODELS ARE IN AGREEMENT WITH THIS OBSERVATION. AS THE SYSTEM IS BEING STEERED BY THE SOUTHERN PERIPHERY WINDS OF THE ANTICYCLONE LOCATED TO THE NORTHEAST OF THE SYSTEM, IT IS MOVING IN WEST-NORTHWEST DIRECTION. THIS MOVEMENT IS LIKELY TO CONTINUE TILL 4TH NOVEMBER. THEN IT IS LIKELY TO ENTER IN TO COL REGION, MOVE NEARLY NORTHWARDS FOR A BRIEF PERIOD AND LIKELY TO COME UNDER THE INFLUENCE OF AN APPROACHING MID-LATITUDE WESTERLY TROUGH FROM 5TH NOVEMBER. AS A RESULT THE SYSTEM IS VERY LIKELY TO RE-CURVE EAST-NORTHEASTWARDS FROM 5TH NOVEMBER. DURING THIS PERIOD, THE SYSTEM IS ALSO LIKEY TO WEAKEN GRADUALLY UNDER THE INFLUENCE OF INCREASED VERTICAL WIND SHEAR. MAJORITY OF THE NUMERICAL MODELS ARE IN AGREEMENT WITH THIS CONCLUSION.

(SUNITHA DEVI.S)
SCIENTIST-E, RSMC, NEW DELHI

OBSERVED & FORECAST TRACK ALONG WITH CONE OF UNCERTAINTY IN ASSOCIATION WITH SEVERE CYCLONIC STORM "MAHA" OVER EASTCENTRAL ARABIAN SEA BASED ON 0600 UTC OF 02ND NOVEMBER 2019

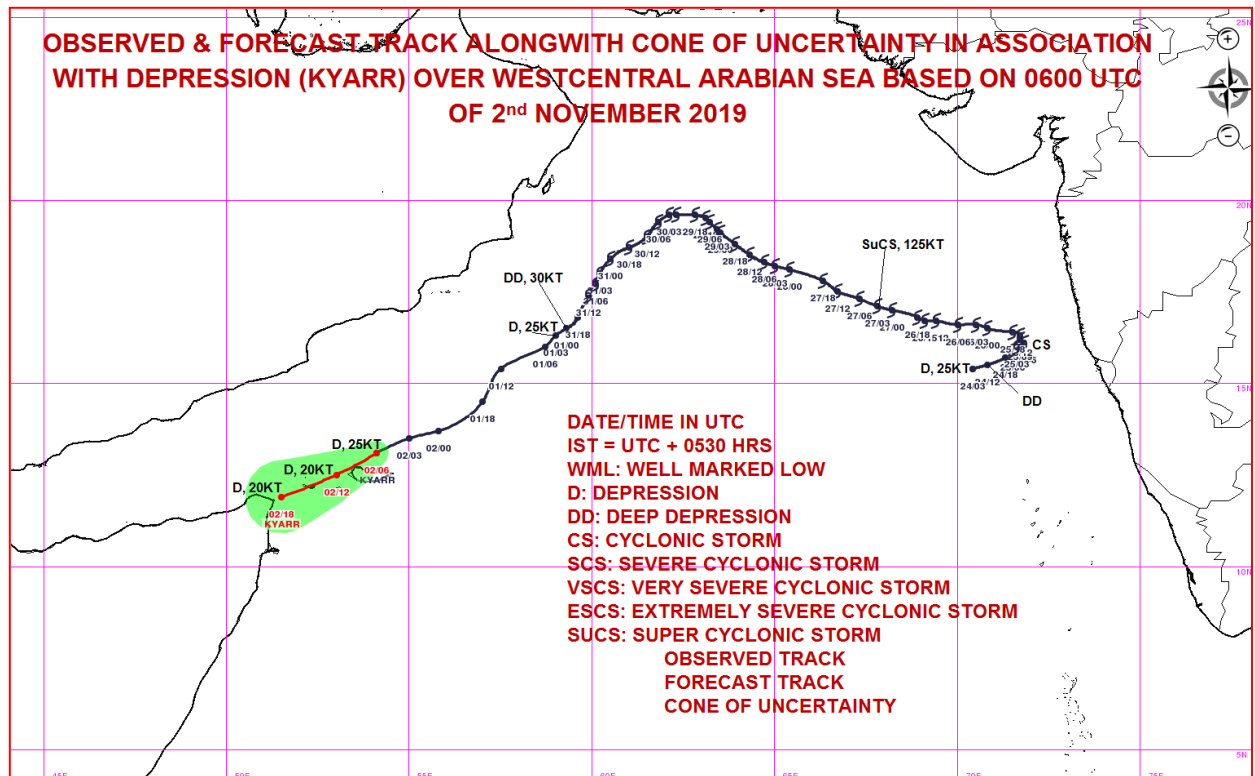


OBSERVED & FORECAST TRACK ALONG WITH QUADRANT WIND DISTRIBUTION IN ASSOCIATION WITH SEVERE CYCLONIC STORM "MAHA" OVER EASTCENTRAL ARABIAN SEA BASED ON 0600 UTC OF 2ND NOVEMBER 2019



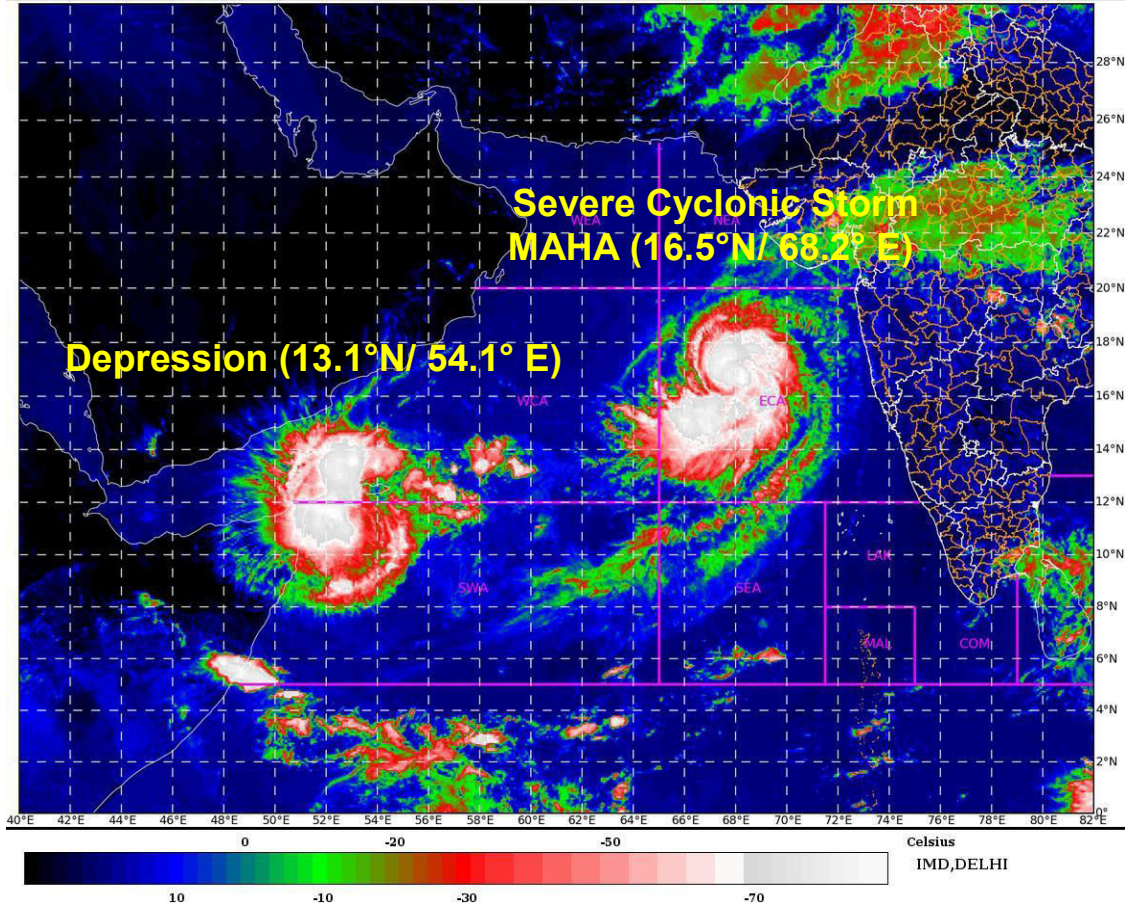
PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%



PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%



PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)
NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%



**REGIONAL SPECIALISED METEOROLOGICAL CENTRE-TROPICAL CYCLONES, NEW DELHI
TROPICAL CYCLONE ADVISORY BULLETIN NO. 68 & TROPICAL CYCLONE ADVISORY
BULLETIN NO. 24**

FROM: RSMC –TROPICAL CYCLONES, NEW DELHI

**TO: STORM WARNING CENTRE, NAYPYI TAW (MYANMAR)
STORM WARNING CENTRE, BANGKOK (THAILAND)
STORM WARNING CENTRE, COLOMBO (SRILANKA)
STORM WARNING CENTRE, DHAKA (BANGLADESH)
STORM WARNING CENTRE, KARACHI (PAKISTAN)
METEOROLOGICAL OFFICE, MALE (MALDIVES)
OMAN METEOROLOGICAL DEPARTMENT, MUSCAT (THROUGH RTH JEDDAH)
YEMEN METEOROLOGICAL SERVICES, REPUBLIC OF YEMEN (THROUGH RTH JEDDAH)
NATIONAL CENTRE FOR METEOROLOGY, UAE (THROUGH RTH JEDDAH)
PRESIDENCY OF METEOROLOGY AND ENVIRONMENT, SAUDI ARABIA (THROUGH RTH JEDDAH)
IRAN METEOROLOGICAL ORGANISATION, (THROUGH RTH JEDDAH)
QATAR METEOROLOGICAL DEPARTMENT (THROUGH RTH JEDDAH)**

TROPICAL CYCLONE ADVISORY No. 68 & TROPICAL CYCLONE ADVISORY NO. 24 FOR NORTH INDIAN OCEAN (THE BAY OF BENGAL AND ARABIAN SEA) VALID FOR NEXT 120 HOURS ISSUED AT 1130 UTC OF 02.11.2019 BASED ON 0900 UTC OF 02.11.2019.

**SUB: (A) DEPRESSION OVER WESTCENTRAL ARABIAN SEA
(B) SEVERE CYCLONIC STORM 'MAHA' (PRONOUNCED AS M'MAHA) OVER EASTCENTRAL ARABIAN SEA**

(A) DEPRESSION OVER WESTCENTRAL ARABIAN SEA

THE DEPRESSION OVER WESTCENTRAL ARABIAN SEA MOVED WEST-SOUTHWESTWARDS WITH A SPEED OF 27 KMPH DURING PAST 06 HOURS AND LAY CENTRED AT 0900 UTC OF TODAY, THE 02ND NOVEMBER, 2019 OVER WESTCENTRAL ARABIAN SEA NEAR LATITUDE 12.5°N AND LONGITUDE 53.8°E, CLOSE TO SOCOTRA ISLAND(41494) AND 300 KM EAST-NORTHEAST OF BEREEDA (SOMALIA). IT IS VERY LIKELY TO MOVE WEST-SOUTHWESTWARDS TOWARDS SOMALIA COAST ACROSS SOCOTRA ISLAND DURING NEXT 12 HOURS AND WEAKEN INTO A WELL MARKED LOW PRESSURE AREA THEREAFTER.

FORECAST TRACK AND INTENSITY ARE GIVEN IN THE FOLLOWING TABLE:

DATE/TIME(UTC)	POSITION (LAT. °N/ LONG. °E)	MAXIMUM SUSTAINED SURFACE WIND SPEED (KMPH)	CATEGORY OF CYCLONIC DISTURBANCE
02.11.19/0900	12.5/53.8	40-50 GUSTING TO 60	DEPRESSION
02.11.19/1200	11.9/51.5	30-40 GUSTING TO 50	DEPRESSION
02.11.19/1800	11.3/51.3	30-40 GUSTING TO 50	DEPRESSION

AS PER THE SATELLITE IMAGERY AT 0900 UTC OF 02ND NOVEMBER, 2019, THE CURRENT INTENSITY OF THE SYSTEM IS T 1.0/1.5. ASSOCIATED BROKEN LOW TO MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION LIES OVER WESTCENTRAL

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

AND ADJOINING SOUTHWEST ARABIAN SEA BETWEEN LAT 8.0°N TO 14.0°N AND LONG 50°E TO 60.0°E. THE MINIMUM CTT IS MINUS 93 DEG C.

THE ESTIMATED MAXIMUM SUSTAINED WIND SPEED IS 25 KNOTS GUSTING TO 35 KNOTS. THE ESTIMATED CENTRAL PRESSURE IS 1002 HPA. THE SEA CONDITION IS ROUGH TO VERY ROUGH AROUND THE SYSTEM CENTRE OVER WESTCENTRAL ARABIAN SEA, SOCOTRA ISLANDS, ALONG AND OFF NORTH SOMALIA COAST & ADJOINING AREAS OF GULF OF ADEN AND SOUTH WEST ARABIAN SEA.

(B) SEVERE CYCLONIC STORM MAHA (PRONOUNCED AS M'MAHA) OVER EASTCENTRAL ARABIAN SEA

THE SEVERE CYCLONIC STORM MAHA (PRONOUNCED AS M'MAHA) OVER EASTCENTRAL ARABIAN SEA MOVED NORTHWESTWARDS WITH A SPEED OF 10 KMPH DURING PAST 06 HOURS, AND LAY CENTERED AT 0900 UTC OF TODAY, THE 02ND NOVEMBER, 2019 OVER EASTCENTRAL ARABIAN SEA NEAR LATITUDE 16.8°N AND LONGITUDE 67.9°E, ABOUT 520 KM SOUTH-SOUTHWEST OF VERAVAL (42909) AND 540 KM SOUTH-SOUTHWEST OF DIU(42914). IT IS VERY LIKELY TO MOVE WEST-NORTHWESTWARDS TILL 04TH NOVEMBER AND RECURVE EAST-NORTHEASTWARDS TOWARDS SOUTH GUJARAT AND ADJOINING NORTH MAHARASHTRA COASTS THEREAFTER. IT IS VERY LIKELY TO INTENSIFY INTO A VERY SEVERE CYCLONIC STORM OVER EASTCENTRAL ARABIAN SEA DURING NEXT 24 HOURS. HOWEVER, AFTER THE RE-CURVATURE, IT IS VERY LIKELY TO WEAKEN GRADUALLY WHILE MOVING EAST-NORTHEASTWARDS.

FORECAST TRACK AND INTENSITY ARE GIVEN IN THE FOLLOWING TABLE:

DATE/TIME(UTC)	POSITION (LAT. °N/ LONG. °E)	MAXIMUM SUSTAINED SURFACE WIND SPEED (KMPH)	CATEGORY OF CYCLONIC DISTURBANCE
02.11.19/0900	16.8/67.9	90-100 GUSTING TO 110	SEVERE CYCLONIC STORM
02.11.19/1200	17.0/67.7	90-100 GUSTING TO 110	SEVERE CYCLONIC STORM
02.11.19/1800	17.1/67.1	100-110 GUSTING TO 120	SEVERE CYCLONIC STORM
03.11.19/0000	17.1/66.6	110-120 GUSTING TO 135	SEVERE CYCLONIC STORM
03.11.19/0600	17.6/66.0	120-130 GUSTING TO 145	VERY SEVERE CYCLONIC STORM
03.11.19/1800	17.9/64.9	130-140 GUSTING TO 155	VERY SEVERE CYCLONIC STORM
04.11.19/0600	18.1/63.6	140-150 GUSTING TO 165	VERY SEVERE CYCLONIC STORM
04.11.19/1800	18.5/63.0	150-160 GUSTING TO 175	VERY SEVERE CYCLONIC STORM
05.11.19/0600	18.9/63.0	150-160 GUSTING TO 175	VERY SEVERE CYCLONIC STORM
05.11.19/1800	19.4/64.0	130-140 GUSTING TO 155	VERY SEVERE CYCLONIC STORM
06.11.19/0600	19.6/66.0	100-110 GUSTING TO 120	SEVERE CYCLONIC STORM
06.11.19/1800	19.9/68.2	90-100 GUSTING TO 110	SEVERE CYCLONIC STORM
07.11.19/0600	20.1/70.2	70-80 GUSTING TO 90	CYCLONIC STORM

AS PER THE SATELLITE IMAGERY AT 0900 UTC OF 02ST NOVEMBER, 2019, THE CURRENT INTENSITY OF THE SYSTEM IS T 3.5/3.5 WITH CURVED BAND PATTERN. ASSOCIATED SCATTERED LOW TO MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION LIES OVER EASTCENTRAL AND ADJOINING SOUTH EAST ARABIAN SEA BETWEEN LAT 13.5°N TO 18.0°N AND LONG 65.0°E TO 69.0°E. THE MINIMUM CTT IS MINUS 93°C.

THE ESTIMATED MAXIMUM SUSTAINED WIND SPEED IS 50 KNOTS GUSTING TO 60 KNOTS. THE ESTIMATED CENTRAL PRESSURE IS 992 HPA. THE SEA CONDITION IS VERY HIGH AROUND THE SYSTEM CENTRE. AT 0900 UTC, A BUOY (23451) LOCATED NEAR LAT. 14.5°N / 69.1°E REPORTED MEAN SEA LEVEL PRESSURE 1006.5 HPA, SST 27.8°C AND WIND 220°/12KNOTS AND ANOTHER BUOY (23456) LOCATED NEAR LAT. 18.2°N / 67.3°E REPORTED MEAN SEA LEVEL PRESSURE 1006.0 HPA, SST 26.8°C AND WIND 240°/18KNOTS.

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

REMARKS (A):

THE MJO LIES IN THE PHASE 5 WITH AMPLITUDE CLOSE TO 1. IT IS LIKELY TO REMAIN IN THE SAME PHASE DURING NEXT 3-4 DAYS, AND WILL ENTER INTO PHASE 6 SUBSEQUENTLY WITH AMPLITUDE LESS THAN 1 AND WILL REMAIN THERE FOR NEXT 4-5 DAYS. THE LOW LEVEL RELATIVE VORTICITY IS ABOUT $150 \times 10^{-5} \text{ SEC}^{-1}$ TO THE SOUTHWEST OF THE SYSTEM CENTRE. THE LOWER LEVEL CONVERGENCE IS ABOUT $10 \times 10^{-5} \text{ S}^{-1}$ TO THE SOUTHWEST OF THE SYSTEM CENTRE AND THE UPPER LEVEL DIVERGENCE IS ABOUT $20 \times 10^{-5} \text{ S}^{-1}$ OVER THE SYSTEM CENTRE. THE VERTICAL WIND SHEAR IS LOW (10-15 KNOTS) OVER THE SYSTEM AREA. SEA SURFACE TEMPERATURE IS AROUND 26-28°C OVER THE SYSTEM AREA. TROPICAL CYCLONE HEAT POTENTIAL AROUND THE SYSTEM CENTER OVER WESTCENTRAL ARABIAN SEA IS 20-40 KJ/CM².

REMARKS (B):

THE LOW LEVEL RELATIVE VORTICITY IS ABOUT $150 \times 10^{-5} \text{ SEC}^{-1}$ TO THE SOUTH OF THE SYSTEM CENTRE. THE RIDGE OVER THE SYSTEM AREA RUNS ROUGHLY ALONG 17°N. THE LOWER LEVEL CONVERGENCE IS ABOUT $10 \times 10^{-5} \text{ S}^{-1}$ TO THE NORTHEAST OF THE SYSTEM CENTRE AND THE UPPER LEVEL DIVERGENCE IS ABOUT $30 \times 10^{-5} \text{ S}^{-1}$ TO THE SOUTH OF THE SYSTEM AREA. THE VERTICAL WIND SHEAR IS LOW (05-10 KNOTS) OVER THE SYSTEM AREA. SEA SURFACE TEMPERATURE IS AROUND 28-30°C AROUND THE SYSTEM AREA AND SHOWS GRADUAL REDUCTION IN THE FORECAST DIRECTION. TROPICAL CYCLONE HEAT POTENTIAL IS AROUND 60-80 KJ/CM² AROUND THE SYSTEM CENTER AND DECREASES TO < 50 KJ/CM² AT NORTHWEST IN THE FORECAST DIRECTION OF THE SYSTEM.

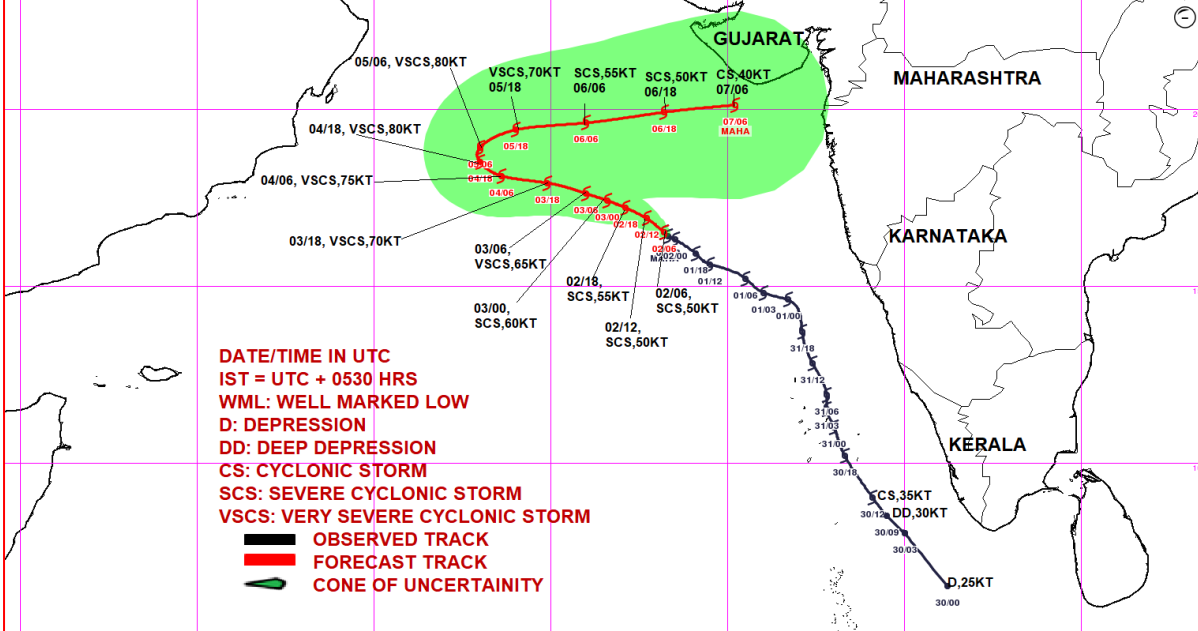
MOST OF THE NWP MODELS ARE IN AGREEMENT WITH THIS OBSERVATION. AS THE SYSTEM IS BEING STEERED BY THE SOUTHERN PERIPHERY WINDS OF THE ANTICYCLONE LOCATED TO THE NORTHEAST OF THE SYSTEM, IT IS MOVING IN WEST-NORTHWEST DIRECTION. THIS MOVEMENT IS LIKELY TO CONTINUE TILL 4TH NOVEMBER. THEN IT IS LIKELY TO ENTER INTO COL REGION, MOVE NEARLY NORTHWARDS FOR A BRIEF PERIOD AND LIKELY TO COME UNDER THE INFLUENCE OF AN APPROACHING MID-LATITUDE WESTERLY TROUGH FROM 5TH NOVEMBER. AS A RESULT THE SYSTEM IS VERY LIKELY TO RE-CURVE EAST-NORTHEASTWARDS FROM 5TH NOVEMBER. DURING THIS PERIOD, THE SYSTEM IS ALSO LIKELY TO WEAKEN GRADUALLY UNDER THE INFLUENCE OF INCREASED VERTICAL WIND SHEAR. MAJORITY OF THE NUMERICAL MODELS ARE IN AGREEMENT WITH THIS CONCLUSION.

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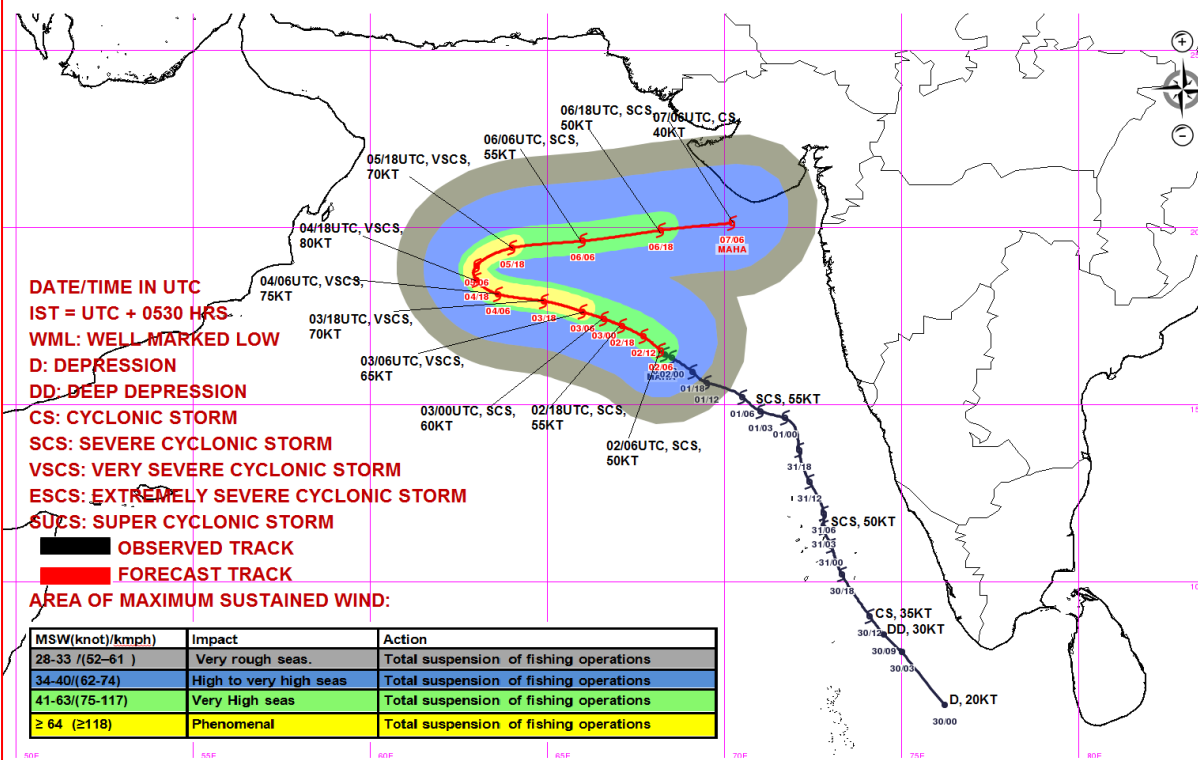
PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

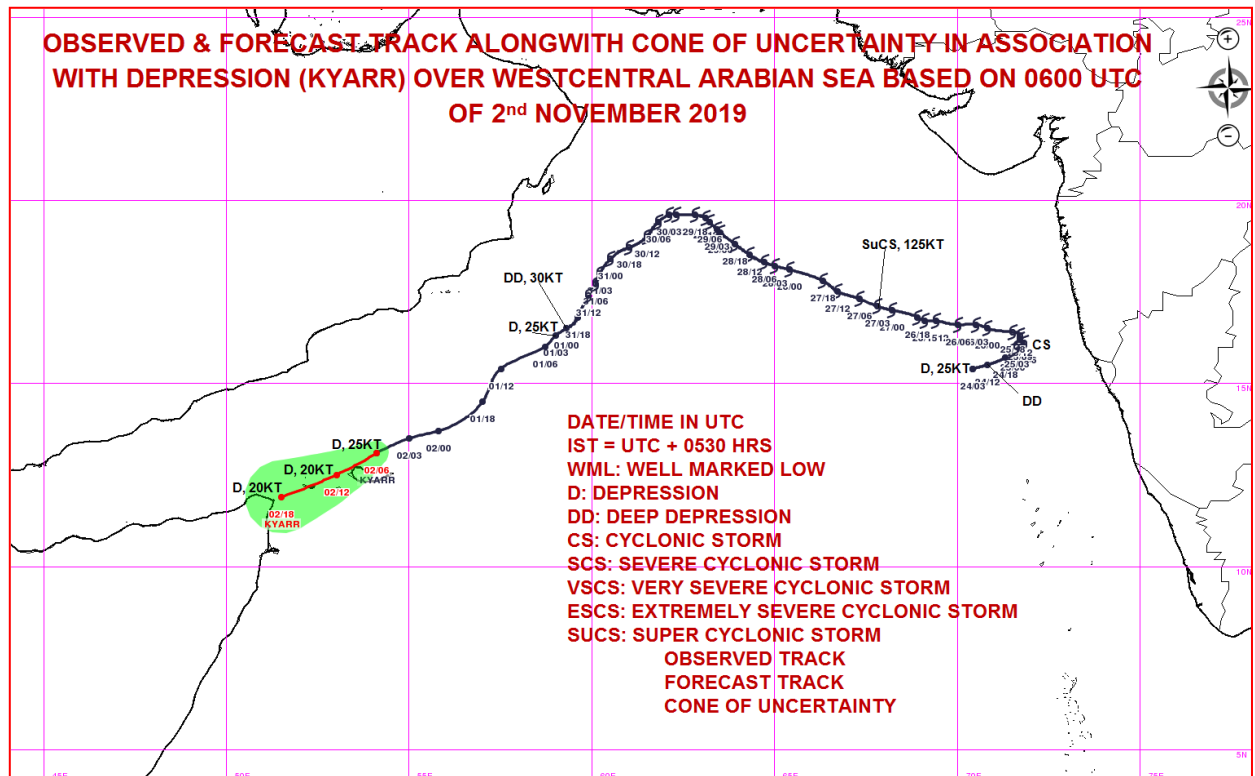
OBSERVED & FORECAST TRACK ALONGWITH CONE OF UNCERTAINTY IN ASSOCIATION WITH SEVERE CYCLONIC STORM "MAHA" OVER EASTCENTRAL ARABIAN SEA BASED ON 0600 UTC OF 02ND NOVEMBER 2019



OBSERVED & FORECAST TRACK ALONGWITH QUADRANT WIND DISTRIBUTION IN ASSOCIATION WITH SEVERE CYCLONIC STORM "MAHA" OVER EASTCENTRAL ARABIAN SEA BASED ON 0600 UTC OF 2ND NOVEMBER 2019

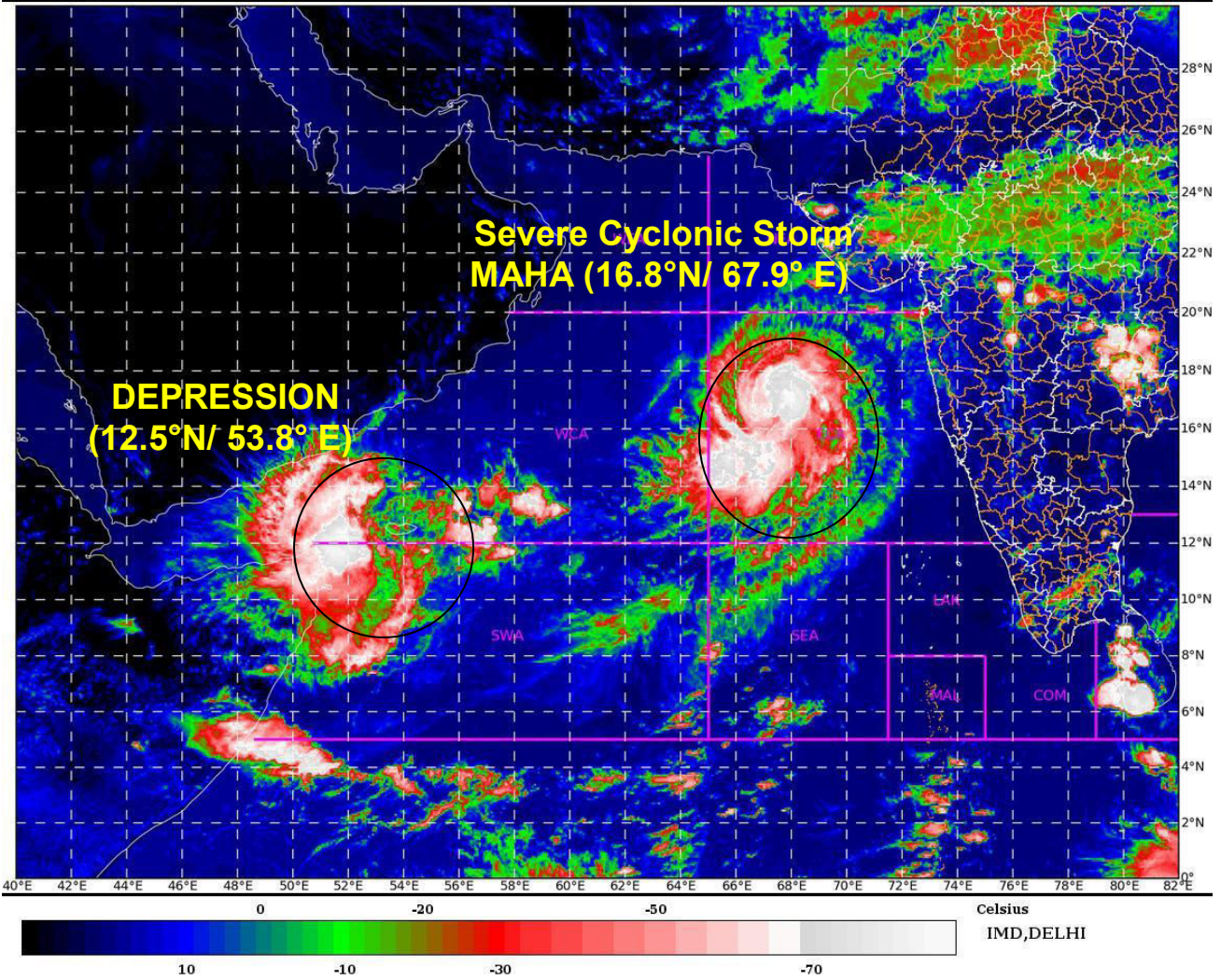


PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)
NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%



PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%



PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)
NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%



**REGIONAL SPECIALISED METEOROLOGICAL CENTRE-TROPICAL CYCLONES, NEW DELHI
TROPICAL CYCLONE ADVISORY BULLETIN NO. 69 & TROPICAL CYCLONE ADVISORY
BULLETIN NO. 25**

FROM: RSMC –TROPICAL CYCLONES, NEW DELHI

**TO: STORM WARNING CENTRE, NAYPYI TAW (MYANMAR)
STORM WARNING CENTRE, BANGKOK (THAILAND)
STORM WARNING CENTRE, COLOMBO (SRILANKA)
STORM WARNING CENTRE, DHAKA (BANGLADESH)
STORM WARNING CENTRE, KARACHI (PAKISTAN)
METEOROLOGICAL OFFICE, MALE (MALDIVES)
OMAN METEOROLOGICAL DEPARTMENT, MUSCAT (THROUGH RTH JEDDAH)
YEMEN METEOROLOGICAL SERVICES, REPUBLIC OF YEMEN (THROUGH RTH JEDDAH)
NATIONAL CENTRE FOR METEOROLOGY, UAE (THROUGH RTH JEDDAH)
PRESIDENCY OF METEOROLOGY AND ENVIRONMENT, SAUDI ARABIA (THROUGH RTH JEDDAH)
IRAN METEOROLOGICAL ORGANISATION, (THROUGH RTH JEDDAH)
QATAR METEOROLOGICAL DEPARTMENT (THROUGH RTH JEDDAH)**

TROPICAL CYCLONE ADVISORY No. 69 & TROPICAL CYCLONE ADVISORY NO. 25 FOR NORTH INDIAN OCEAN (THE BAY OF BENGAL AND ARABIAN SEA) VALID FOR NEXT 120 HOURS ISSUED AT 1500 UTC OF 02.11.2019 BASED ON 1200 UTC OF 02.11.2019.

**SUB: (A) DEPRESSION OVER WESTCENTRAL AND ADJOINING SOUTHWEST ARABIAN SEA
(B) SEVERE CYCLONIC STORM 'MAHA' (PRONOUNCED AS M'MAHA) OVER EASTCENTRAL ARABIAN SEA**

(A) DEPRESSION OVER WESTCENTRAL AND ADJOINING SOUTHWEST ARABIAN SEA

THE DEPRESSION OVER WESTCENTRAL ARABIAN SEA MOVED WEST-SOUTHWESTWARDS WITH A SPEED OF 23 KMPH DURING PAST 06 HOURS AND LAY CENTRED AT 1200 UTC OF TODAY, THE 02ND NOVEMBER, 2019 OVER WESTCENTRAL AND ADJOINING SOUTHWEST ARABIAN SEA NEAR LATITUDE 12.5°N AND LONGITUDE 53.0°E, ABOUT 100 KM WEST OF SOCOTRA ISLAND(41494) AND 220 KM EAST-NORTHEAST OF BEREEDA (SOMALIA). IT IS VERY LIKELY TO MOVE WEST-SOUTHWESTWARDS TOWARDS SOMALIA COAST AND WEAKEN INTO A WELL MARKED LOW PRESSURE AREA DURING NEXT 06 HOURS.

AS PER THE SATELLITE IMAGERY AT 1200 UTC OF 02ND NOVEMBER, 2019, THE CURRENT INTENSITY OF THE SYSTEM IS T 1.0/1.5. ASSOCIATED BROKEN LOW TO MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION LIES OVER WESTCENTRAL AND ADJOINING SOUTHWEST ARABIAN SEA BETWEEN LAT 10.5°N TO 16.5°N AND LONG 47°E TO 53.0°E. THE MINIMUM CTT IS MINUS 93 DEG C.

THE ESTIMATED MAXIMUM SUSTAINED WIND SPEED IS 20 KNOTS GUSTING TO 30 KNOTS. THE ESTIMATED CENTRAL PRESSURE IS 1004 HPA. THE SEA CONDITION IS ROUGH TO VERY ROUGH AROUND THE SYSTEM CENTRE OVER WESTCENTRAL ARABIAN SEA, SOCOTRA ISLANDS, ALONG AND OFF NORTH SOMALIA COAST & ADJOINING AREAS OF GULF OF ADEN AND SOUTH WEST ARABIAN SEA.

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

(B) SEVERE CYCLONIC STORM MAHA (PRONOUNCED AS M'MAHA) OVER EASTCENTRAL ARABIAN SEA

THE SEVERE CYCLONIC STORM MAHA (PRONOUNCED AS M'MAHA) OVER EASTCENTRAL ARABIAN SEA MOVED NORTHWESTWARDS WITH A SPEED OF 14 KMPH DURING PAST 06 HOURS, AND LAY CENTERED AT 1200 UTC OF TODAY, THE 02ND NOVEMBER, 2019 OVER EASTCENTRAL ARABIAN SEA NEAR LATITUDE 17.0°N AND LONGITUDE 67.6°E, ABOUT 520 KM SOUTH-SOUTHWEST OF VERAVAL (42909) AND 540 KM SOUTH-SOUTHWEST OF DIU(42914). IT IS VERY LIKELY TO MOVE WEST-NORTHWESTWARDS TILL 04TH NOVEMBER AND RECURVE EAST-NORTHEASTWARDS TOWARDS SOUTH GUJARAT AND ADJOINING NORTH MAHARASHTRA COASTS THEREAFTER. IT IS VERY LIKELY TO INTENSIFY INTO A VERY SEVERE CYCLONIC STORM OVER EASTCENTRAL ARABIAN SEA DURING NEXT 12 HOURS. HOWEVER, AFTER THE RE-CURVATURE, IT IS VERY LIKELY TO WEAKEN GRADUALLY WHILE MOVING EAST-NORTHEASTWARDS.

FORECAST TRACK AND INTENSITY ARE GIVEN IN THE FOLLOWING TABLE:

DATE/TIME(UTC)	POSITION (LAT. °N/ LONG. °E)	MAXIMUM SUSTAINED SURFACE WIND SPEED (KMPH)	CATEGORY OF CYCLONIC DISTURBANCE
02.11.19/1200	17.0/67.6	95-105 GUSTING TO 115	SEVERE CYCLONIC STORM
02.11.19/1800	17.2/67.1	105-115 GUSTING TO 125	SEVERE CYCLONIC STORM
03.11.19/0000	17.4/66.6	115-125 GUSTING TO 140	VERY SEVERE CYCLONIC STORM
03.11.19/0600	17.6/66.0	130-140 GUSTING TO 155	VERY SEVERE CYCLONIC STORM
03.11.19/1200	17.8/65.5	140-150 GUSTING TO 165	VERY SEVERE CYCLONIC STORM
04.11.19/0000	18.0/64.2	150-160 GUSTING TO 175	VERY SEVERE CYCLONIC STORM
04.11.19/1200	18.3/63.3	160-170 GUSTING TO 185	VERY SEVERE CYCLONIC STORM
05.11.19/0000	18.7/62.7	160-170 GUSTING TO 185	VERY SEVERE CYCLONIC STORM
05.11.19/1200	19.2/63.5	150-160 GUSTING TO 175	VERY SEVERE CYCLONIC STORM
06.11.19/0000	19.5/64.9	130-140 GUSTING TO 155	SEVERE CYCLONIC STORM
06.11.19/1200	19.8/66.5	110-120 GUSTING TO 135	SEVERE CYCLONIC STORM
07.11.19/0000	20.0/68.3	95-105 GUSTING TO 115	SEVERE CYCLONIC STORM
07.11.19/1200	20.2/70.2	70-80 GUSTING TO 90	CYCLONIC STORM

AS PER THE SATELLITE IMAGERY AT 1200 UTC OF 02ST NOVEMBER, 2019, THE CURRENT INTENSITY OF THE SYSTEM IS T 3.5/3.5 WITH TIGHTLY WRAPPED CURVED BANDS AND CIRRUS OVERCAST DEVELOPMENT NEAR CENTRE. ASSOCIATED SCATTERED LOW TO MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION LIES OVER EASTCENTRAL AND ADJOINING SOUTH EAST ARABIAN SEA BETWEEN LAT 13.5°N TO 18.0°N AND LONG 63.5°E TO 69.5°E. THE MINIMUM CTT IS MINUS 93°C.

THE ESTIMATED MAXIMUM SUSTAINED WIND SPEED IS 50 KNOTS GUSTING TO 60 KNOTS. THE ESTIMATED CENTRAL PRESSURE IS 990 HPA. THE SEA CONDITION IS VERY HIGH AROUND THE SYSTEM CENTRE. AT 1200 UTC, A BUOY (23451) LOCATED NEAR LAT. 14.5°N / 69.0°E REPORTED MEAN SEA LEVEL PRESSURE 1007.3 HPA, SST 27.8°C AND WIND 260°/19KNOTS AND ANOTHER BUOY (23456) LOCATED NEAR LAT. 18.4°N / 67.4°E REPORTED MEAN SEA LEVEL PRESSURE 1005.6 HPA, SST 26.8°C AND WIND 240°/14KNOTS.

REMARKS (A):

THE MJO LIES IN THE PHASE 5 WITH AMPLITUDE CLOSE TO 1. IT IS LIKELY TO REMAIN IN THE SAME PHASE DURING NEXT 3-4 DAYS, AND WILL ENTER INTO PHASE 6 SUBSEQUENTLY WITH AMPLITUDE LESS THAN 1 AND WILL REMAIN THERE FOR NEXT 4-5 DAYS. THE LOW LEVEL RELATIVE VORTICITY IS ABOUT $150 \times 10^{-5} \text{ SEC}^{-1}$ TO THE SOUTHWEST OF THE SYSTEM CENTRE. THE LOWER LEVEL CONVERGENCE IS ABOUT 10

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

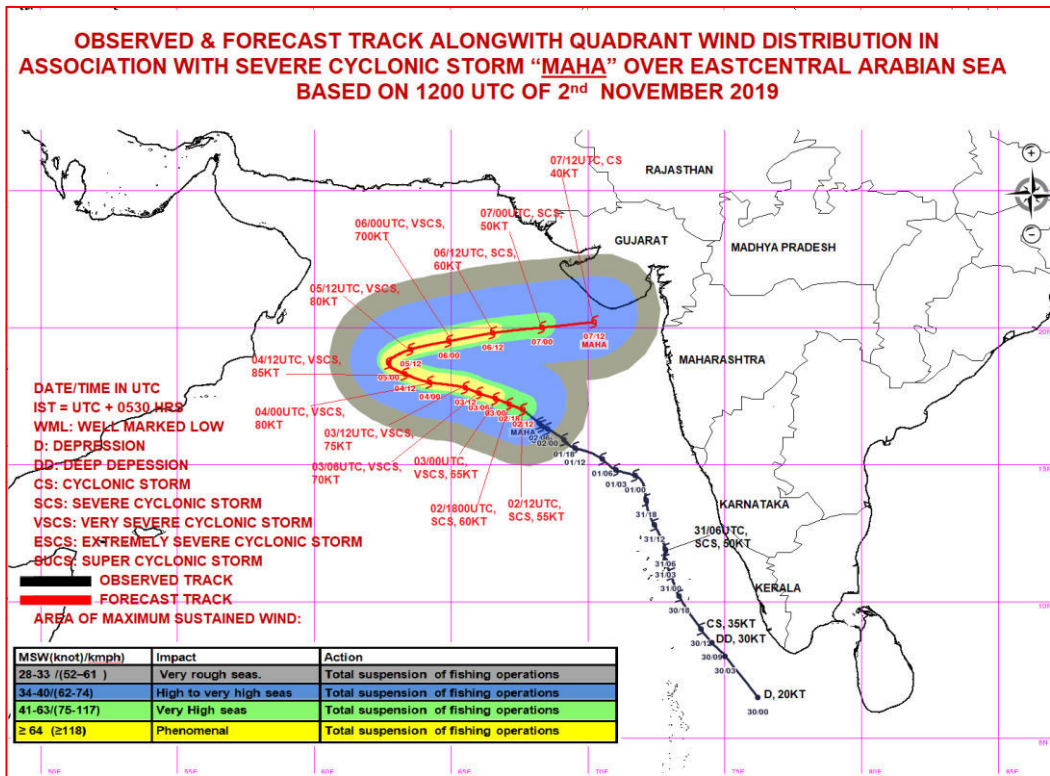
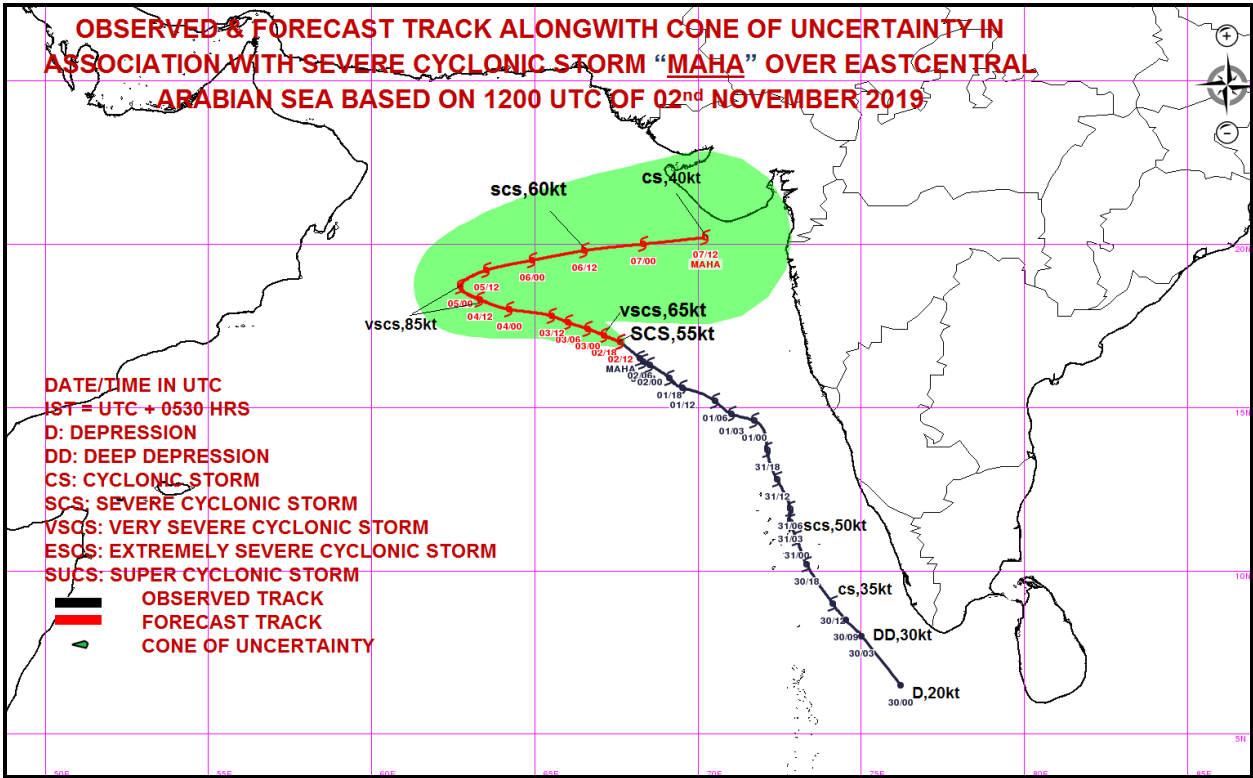
$\times 10^{-5} \text{S}^{-1}$ TO THE SOUTHWEST OF THE SYSTEM CENTRE AND THE UPPER LEVEL DIVERGENCE IS ABOUT $20 \times 10^{-5} \text{S}^{-1}$ OVER THE SYSTEM CENTRE. THE VERTICAL WIND SHEAR IS LOW (10-15 KNOTS) OVER THE SYSTEM AREA. SEA SURFACE TEMPERATURE IS AROUND 26-28°C OVER THE SYSTEM AREA. TROPICAL CYCLONE HEAT POTENTIAL AROUND THE SYSTEM CENTER OVER WESTCENTRAL ARABIAN SEA IS 20-40 KJ/CM².

REMARKS (B):

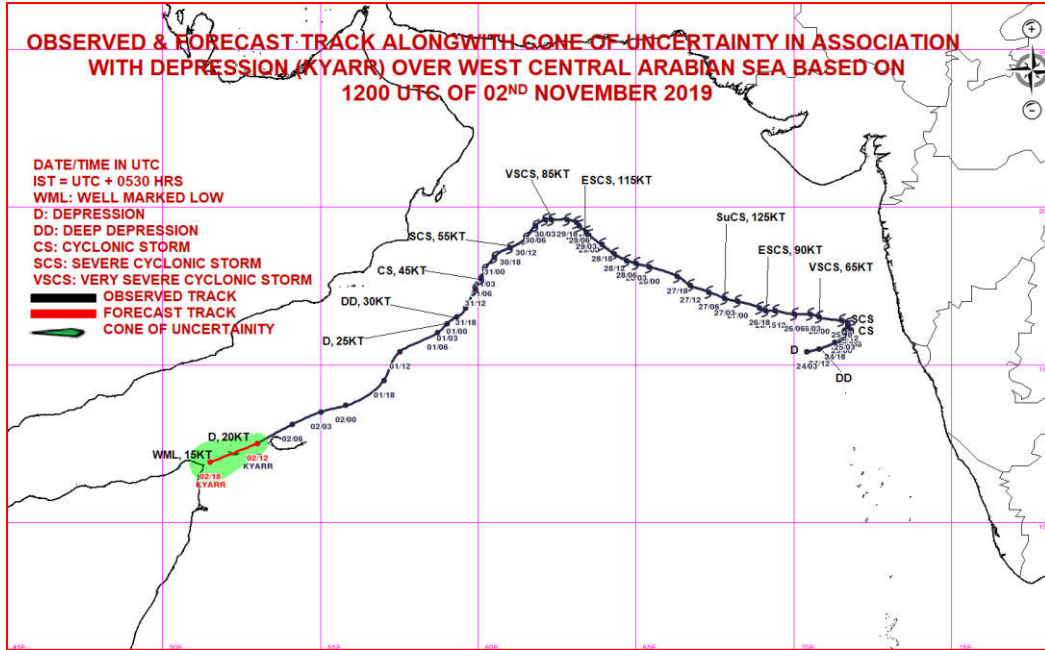
THE LOW LEVEL RELATIVE VORTICITY IS ABOUT $150 \times 10^{-5} \text{SEC}^{-1}$ TO THE SOUTH OF THE SYSTEM CENTRE. THE RIDGE OVER THE SYSTEM AREA RUNS ROUGHLY ALONG 17°N. THE LOWER LEVEL CONVERGENCE IS ABOUT $10 \times 10^{-5} \text{S}^{-1}$ TO THE SOUTHWEST OF THE SYSTEM CENTRE AND THE UPPER LEVEL DIVERGENCE IS ABOUT $30 \times 10^{-5} \text{S}^{-1}$ TO THE SOUTH OF THE SYSTEM AREA. THE VERTICAL WIND SHEAR IS LOW (05-10 KNOTS) OVER THE SYSTEM AREA. SEA SURFACE TEMPERATURE IS AROUND 28-30°C AROUND THE SYSTEM AREA AND SHOWS GRADUAL REDUCTION IN THE FORECAST DIRECTION. TROPICAL CYCLONE HEAT POTENTIAL IS AROUND 60-80 KJ/CM² AROUND THE SYSTEM CENTER AND DECREASES TO < 50 KJ/CM² AT NORTHWEST IN THE FORECAST DIRECTION OF THE SYSTEM.

MOST OF THE NWP MODELS ARE IN AGREEMENT WITH THIS OBSERVATION. AS THE SYSTEM IS BEING STEERED BY THE SOUTHERN PERIPHERY WINDS OF THE ANTICYCLONE LOCATED TO THE NORTHEAST OF THE SYSTEM, IT IS MOVING IN WEST-NORTHWEST DIRECTION. THIS MOVEMENT IS LIKELY TO CONTINUE TILL 4TH NOVEMBER. THEN IT IS LIKELY TO ENTER IN TO COL REGION, MOVE NEARLY NORTHWARDS FOR A BRIEF PERIOD AND LIKELY TO COME UNDER THE INFLUENCE OF AN APPROACHING MID-LATITUDE WESTERLY TROUGH FROM 5TH NOVEMBER. AS A RESULT THE SYSTEM IS VERY LIKELY TO RE-CURVE EAST-NORTHEASTWARDS FROM 5TH NOVEMBER. DURING THIS PERIOD, THE SYSTEM IS ALSO LIKEY TO WEAKEN GRADUALLY UNDER THE INFLUENCE OF INCREASED VERTICAL WIND SHEAR. MAJORITY OF THE NUMERICAL MODELS ARE IN AGREEMENT WITH THIS CONCLUSION.

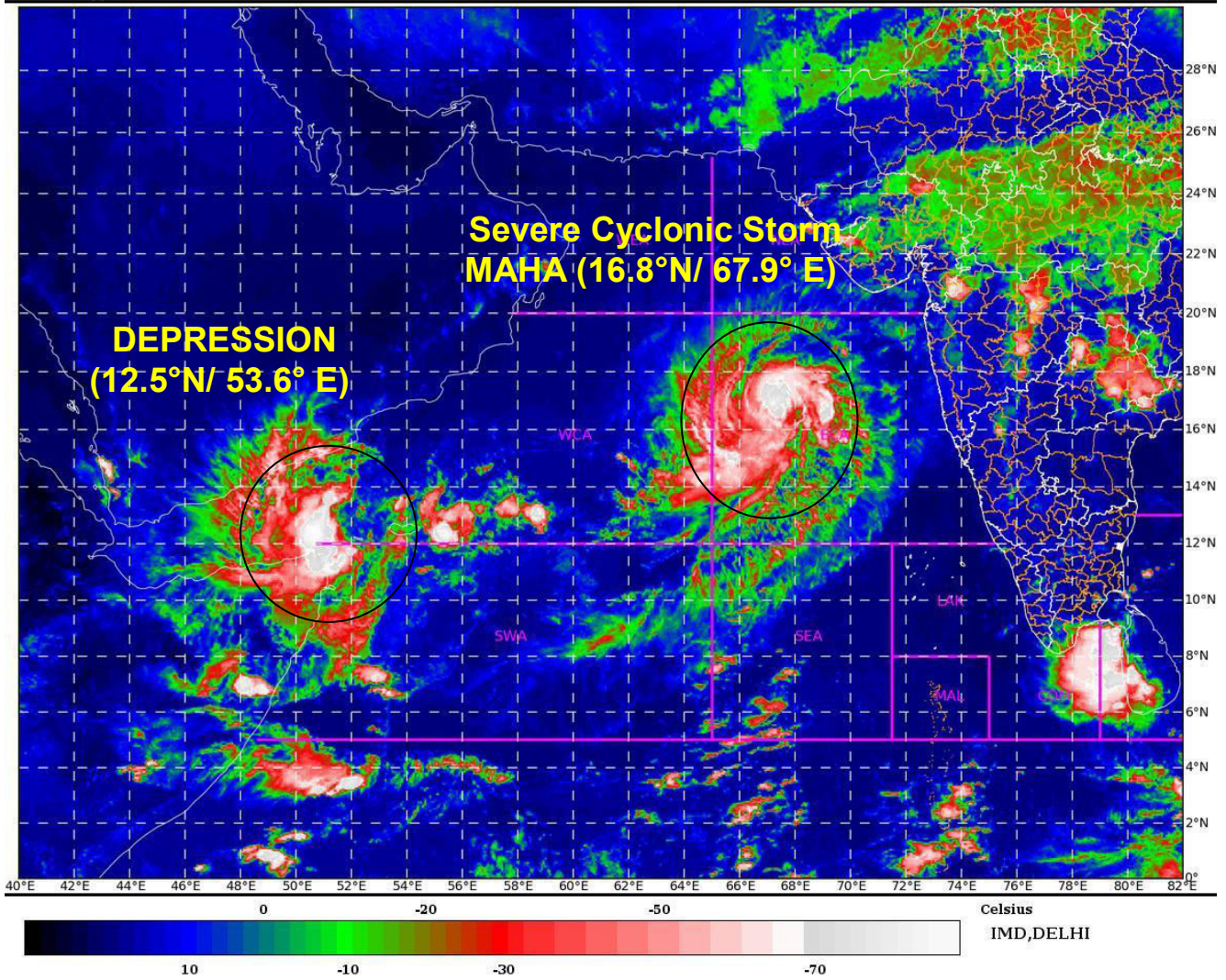
(RK JENAMANI)
SCIENTIST-F, RSMC, NEW DELHI



PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)
NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%



PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)
NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%



PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)
NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%



**REGIONAL SPECIALISED METEOROLOGICAL CENTRE-TROPICAL CYCLONES, NEW DELHI
TROPICAL CYCLONE ADVISORY BULLETIN NO. 70 & TROPICAL CYCLONE ADVISORY
BULLETIN NO. 26**

FROM: RSMC –TROPICAL CYCLONES, NEW DELHI

**TO: STORM WARNING CENTRE, NAYPYI TAW (MYANMAR)
STORM WARNING CENTRE, BANGKOK (THAILAND)
STORM WARNING CENTRE, COLOMBO (SRILANKA)
STORM WARNING CENTRE, DHAKA (BANGLADESH)
STORM WARNING CENTRE, KARACHI (PAKISTAN)
METEOROLOGICAL OFFICE, MALE (MALDIVES)
OMAN METEOROLOGICAL DEPARTMENT, MUSCAT (THROUGH RTH JEDDAH)
YEMEN METEOROLOGICAL SERVICES, REPUBLIC OF YEMEN (THROUGH RTH JEDDAH)
NATIONAL CENTRE FOR METEOROLOGY, UAE (THROUGH RTH JEDDAH)
PRESIDENCY OF METEOROLOGY AND ENVIRONMENT, SAUDI ARABIA (THROUGH RTH JEDDAH)
IRAN METEOROLOGICAL ORGANISATION, (THROUGH RTH JEDDAH)
QATAR METEOROLOGICAL DEPARTMENT (THROUGH RTH JEDDAH)**

TROPICAL CYCLONE ADVISORY No. 70 & TROPICAL CYCLONE ADVISORY NO. 26 FOR NORTH INDIAN OCEAN (THE BAY OF BENGAL AND ARABIAN SEA) VALID FOR NEXT 120 HOURS ISSUED AT 1700 UTC OF 02.11.2019 BASED ON 1500 UTC OF 02.11.2019.

**SUB: (A) DEPRESSION OVER WESTCENTRAL AND ADJOINING SOUTHWEST ARABIAN SEA
(B) SEVERE CYCLONIC STORM 'MAHA' (PRONOUNCED AS M'MAHA) OVER EASTCENTRAL ARABIAN SEA**

(A) DEPRESSION OVER WESTCENTRAL AND ADJOINING SOUTHWEST ARABIAN SEA

THE DEPRESSION OVER WESTCENTRAL ARABIAN SEA MOVED WEST-SOUTHWESTWARDS WITH A SPEED OF 25 KMPH DURING PAST 06 HOURS AND LAY CENTRED AT 1500 UTC OF TODAY, THE 02ND NOVEMBER, 2019 OVER WESTCENTRAL AND ADJOINING SOUTHWEST ARABIAN SEA NEAR LATITUDE 12.0°N AND LONGITUDE 52.5°E, ABOUT 170 KM WEST-SOUTHWEST OF SOCOTRA ISLAND(41494) AND 160 KM EAST-NORTHEAST OF BEREEDA (SOMALIA). IT IS VERY LIKELY TO MOVE WEST-SOUTHWESTWARDS TOWARDS SOMALIA COAST AND WEAKEN INTO A WELL MARKED LOW PRESSURE AREA DURING NEXT 03 HOURS.

AS PER THE SATELLITE IMAGERY AT 1500 UTC OF 02ND NOVEMBER, 2019, THE CURRENT INTENSITY OF THE SYSTEM IS T 1.0. ASSOCIATED BROKEN LOW TO MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION LIES OVER WESTCENTRAL AND ADJOINING SOUTHWEST ARABIAN SEA BETWEEN LAT 10.0°N TO 14.0°N AND LONG 48.0°E TO 52.0°E. THE MINIMUM CTT IS MINUS 70 DEG C.

THE ESTIMATED MAXIMUM SUSTAINED WIND SPEED IS 20 KNOTS GUSTING TO 30 KNOTS. THE ESTIMATED CENTRAL PRESSURE IS 1010 HPA. THE SEA CONDITION IS ROUGH AROUND THE SYSTEM CENTRE OVER WESTCENTRAL ADJOINING SOUTHWEST ARABIAN SEA, SOCOTRA ISLANDS, ALONG AND OFF NORTH SOMALIA COAST & ADJOINING AREAS OF GULF OF ADEN AND SOUTH WEST ARABIAN SEA.

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

(B) SEVERE CYCLONIC STORM MAHA (PRONOUNCED AS M'MAHA) OVER EASTCENTRAL ARABIAN SEA

THE SEVERE CYCLONIC STORM MAHA (PRONOUNCED AS M'MAHA) OVER EASTCENTRAL ARABIAN SEA MOVED WEST- NORTHWESTWARDS WITH A SPEED OF 12 KMPH DURING PAST 06 HOURS, AND LAY CENTERED AT 1500 UTC OF TODAY, THE 02ND NOVEMBER, 2019 OVER EASTCENTRAL ARABIAN SEA NEAR LATITUDE 17.1°N AND LONGITUDE 67.3°E, ABOUT 530 KM SOUTH-SOUTHWEST OF VERAVAL (42909) AND 550 KM SOUTHWEST OF DIU(42914). IT IS VERY LIKELY TO MOVE WEST-NORTHWESTWARDS TILL 04TH NOVEMBER AND RECURVE EAST-NORTHEASTWARDS TOWARDS SOUTH GUJARAT AND ADJOINING NORTH MAHARASHTRA COASTS THEREAFTER. IT IS VERY LIKELY TO INTENSIFY INTO A VERY SEVERE CYCLONIC STORM OVER EASTCENTRAL ARABIAN SEA DURING NEXT 12 HOURS. HOWEVER, AFTER THE RE-CURVATURE, IT IS VERY LIKELY TO WEAKEN GRADUALLY WHILE MOVING EAST-NORTHEASTWARDS.

FORECAST TRACK AND INTENSITY ARE GIVEN IN THE FOLLOWING TABLE:

DATE/TIME(UTC)	POSITION (LAT. °N/ LONG. °E)	MAXIMUM SUSTAINED SURFACE WIND SPEED (KMPH)	CATEGORY OF CYCLONIC DISTURBANCE
02.11.19/1500	17.1/67.3	95-105 GUSTING TO 115	SEVERE CYCLONIC STORM
02.11.19/1800	17.2/67.1	105-115 GUSTING TO 125	SEVERE CYCLONIC STORM
03.11.19/0000	17.4/66.6	115-125 GUSTING TO 140	VERY SEVERE CYCLONIC STORM
03.11.19/0600	17.6/66.0	130-140 GUSTING TO 155	VERY SEVERE CYCLONIC STORM
03.11.19/1200	17.8/65.5	140-150 GUSTING TO 165	VERY SEVERE CYCLONIC STORM
04.11.19/0000	18.0/64.2	150-160 GUSTING TO 175	VERY SEVERE CYCLONIC STORM
04.11.19/1200	18.3/63.3	160-170 GUSTING TO 185	VERY SEVERE CYCLONIC STORM
05.11.19/0000	18.7/62.7	160-170 GUSTING TO 185	VERY SEVERE CYCLONIC STORM
05.11.19/1200	19.2/63.5	150-160 GUSTING TO 175	VERY SEVERE CYCLONIC STORM
06.11.19/0000	19.5/64.9	130-140 GUSTING TO 155	SEVERE CYCLONIC STORM
06.11.19/1200	19.8/66.5	110-120 GUSTING TO 135	SEVERE CYCLONIC STORM
07.11.19/0000	20.0/68.3	95-105 GUSTING TO 115	SEVERE CYCLONIC STORM
07.11.19/1200	20.2/70.2	70-80 GUSTING TO 90	CYCLONIC STORM

AS PER THE SATELLITE IMAGERY AT 1500 UTC OF 02ST NOVEMBER, 2019, THE CURRENT INTENSITY OF THE SYSTEM IS T 3.5/3.5. ASSOCIATED SCATTERED LOW TO MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION LIES OVER EASTCENTRAL AND ADJOINING SOUTH EAST ARABIAN SEA BETWEEN LAT 14.0°N TO 18.0°N AND LONG 64.0°E TO 69.5°E. THE MINIMUM CTT IS MINUS 78°C.

THE ESTIMATED MAXIMUM SUSTAINED WIND SPEED IS 50 KNOTS GUSTING TO 60 KNOTS. THE ESTIMATED CENTRAL PRESSURE IS 990 HPA. THE SEA CONDITION IS VERY HIGH AROUND THE SYSTEM CENTRE. AT 1500 UTC, A BUOY (23451) LOCATED NEAR LAT. 14.5°N / 69.0°E REPORTED MEAN SEA LEVEL PRESSURE 1009.8 HPA, SST 27.7°C AND WIND 290°/16 KNOTS AND ANOTHER BUOY (23456) LOCATED NEAR LAT. 18.4°N / 67.4°E REPORTED MEAN SEA LEVEL PRESSURE 1007.3 HPA, SST 26.7°C AND WIND 260°/18KNOTS.

REMARKS (A):

THE MJO LIES IN THE PHASE 5 WITH AMPLITUDE CLOSE TO 1. IT IS LIKELY TO REMAIN IN THE SAME PHASE DURING NEXT 3-4 DAYS, AND WILL ENTER INTO PHASE 6 SUBSEQUENTLY WITH AMPLITUDE LESS THAN 1 AND WILL REMAIN THERE FOR NEXT 4-5 DAYS. THE LOW LEVEL RELATIVE VORTICITY IS ABOUT $100 \times 10^{-5} \text{ SEC}^{-1}$ TO THE SOUTHWEST OF THE SYSTEM CENTRE. THE LOWER LEVEL CONVERGENCE IS ABOUT $05 \times 10^{-5} \text{ S}^{-1}$ TO THE SOUTHEAST OF THE SYSTEM CENTRE AND THE UPPER LEVEL DIVERGENCE IS ABOUT $10 \times 10^{-5} \text{ S}^{-1}$ OVER THE SYSTEM CENTRE. THE VERTICAL WIND SHEAR IS LOW (10-15 KNOTS) OVER THE SYSTEM AREA. SEA SURFACE TEMPERATURE IS AROUND 26-28°C OVER THE SYSTEM AREA. TROPICAL CYCLONE HEAT POTENTIAL AROUND THE SYSTEM CENTER OVER WESTCENTRAL ARABIAN SEA IS 20-40 KJ/CM².

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

REMARKS (B):

THE LOW LEVEL RELATIVE VORTICITY IS ABOUT $150 \times 10^{-5} \text{ SEC}^{-1}$ TO THE SOUTH OF THE SYSTEM CENTRE. THE RIDGE OVER THE SYSTEM AREA RUNS ROUGHLY ALONG 17°N . THE LOWER LEVEL CONVERGENCE IS ABOUT $10 \times 10^{-5} \text{ S}^{-1}$ TO THE SOUTHWEST OF THE SYSTEM CENTRE AND THE UPPER LEVEL DIVERGENCE IS ABOUT $30 \times 10^{-5} \text{ S}^{-1}$ TO THE SOUTH OF THE SYSTEM AREA. THE VERTICAL WIND SHEAR IS LOW (05-10 KNOTS) OVER THE SYSTEM AREA. SEA SURFACE TEMPERATURE IS AROUND $28\text{-}30^{\circ}\text{C}$ AROUND THE SYSTEM AREA AND SHOWS GRADUAL REDUCTION IN THE FORECAST DIRECTION. TROPICAL CYCLONE HEAT POTENTIAL IS AROUND $60\text{-}80 \text{ KJ/CM}^2$ AROUND THE SYSTEM CENTER AND DECREASES TO $< 50 \text{ KJ/CM}^2$ AT NORTHWEST IN THE FORECAST DIRECTION OF THE SYSTEM.

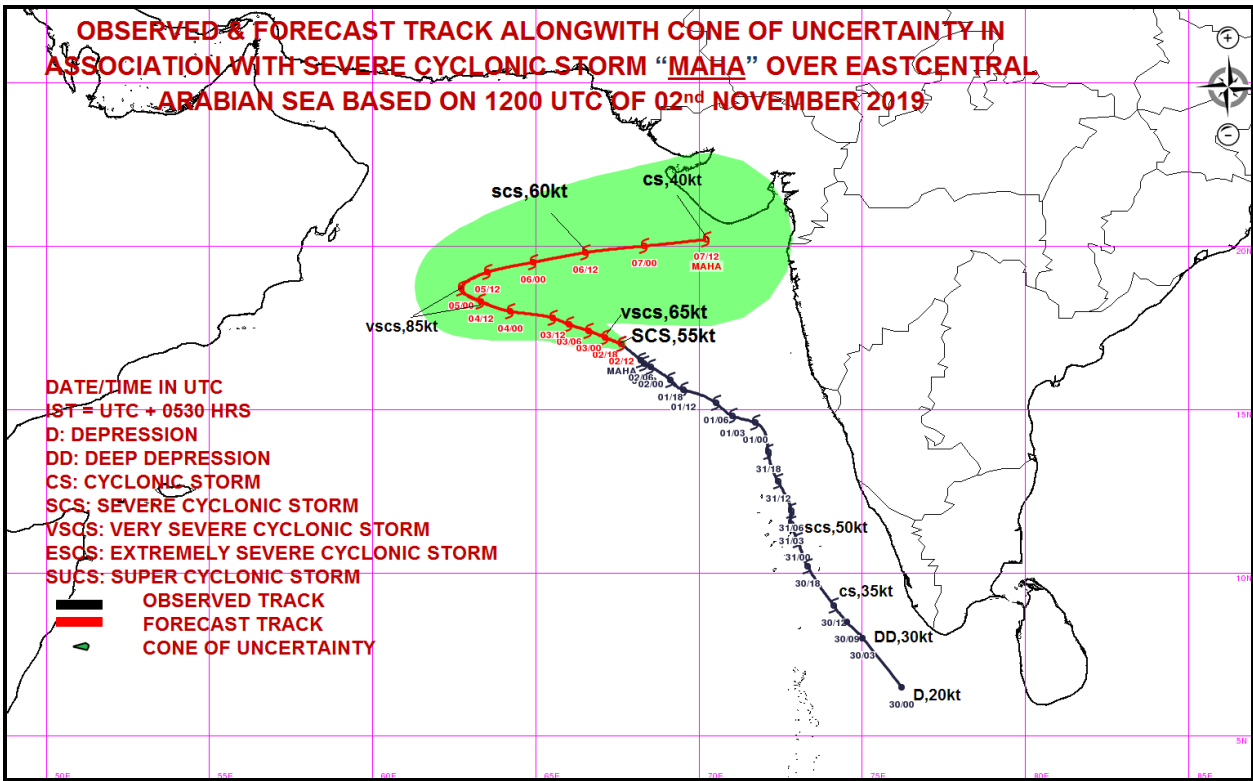
AS AN ANTICYCLONE LOCATED TO THE NORTHEAST OF THE SYSTEM, THE SYSTEM IS BEING STEERED BY THE SOUTHERN PERIPHERY WINDS, IT IS MOVING IN WEST-NORTHWEST DIRECTION. THIS MOVEMENT IS LIKELY TO CONTINUE TILL 4^{TH} NOVEMBER. THEN IT IS LIKELY TO ENTER IN TO COL REGION, MOVE NEARLY NORTHWARDS FOR A BRIEF PERIOD AND LIKELY TO COME UNDER THE INFLUENCE OF AN APPROACHING MID-LATITUDE WESTERLY TROUGH FROM 5^{TH} NOVEMBER. AS A RESULT THE SYSTEM IS VERY LIKELY TO RE-CURVE EAST-NORTHEASTWARDS FROM 5^{TH} NOVEMBER. DURING THIS PERIOD, THE SYSTEM IS ALSO LIKELY TO WEAKEN GRADUALLY UNDER THE INFLUENCE OF INCREASED VERTICAL WIND SHEAR. MAJORITY OF THE NUMERICAL MODELS ARE IN AGREEMENT WITH THIS CONCLUSION.

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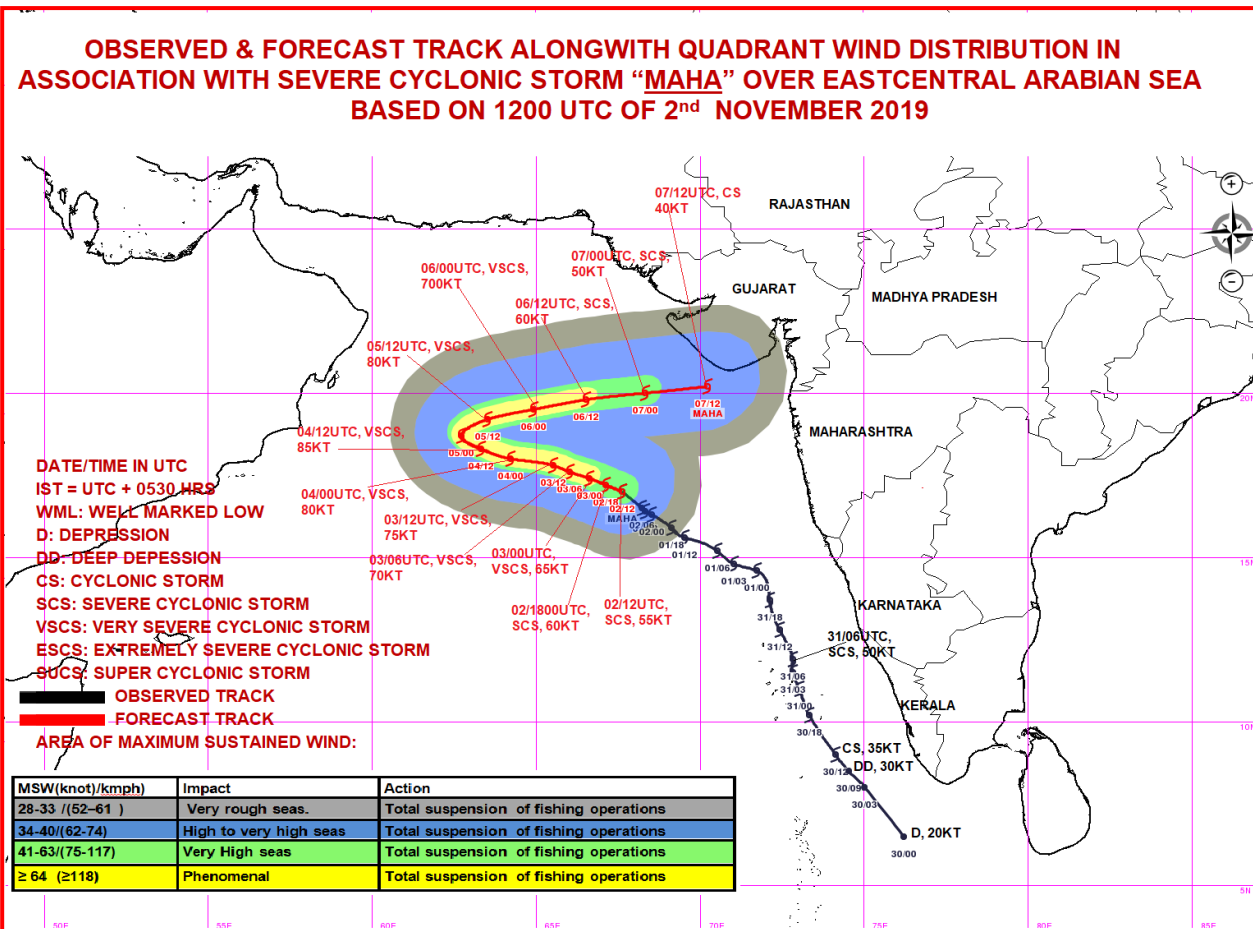
PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

OBSERVED & FORECAST TRACK ALONGWITH CONE OF UNCERTAINTY IN ASSOCIATION WITH SEVERE CYCLONIC STORM "MAHA" OVER EASTCENTRAL ARABIAN SEA BASED ON 1200 UTC OF 02nd NOVEMBER 2019



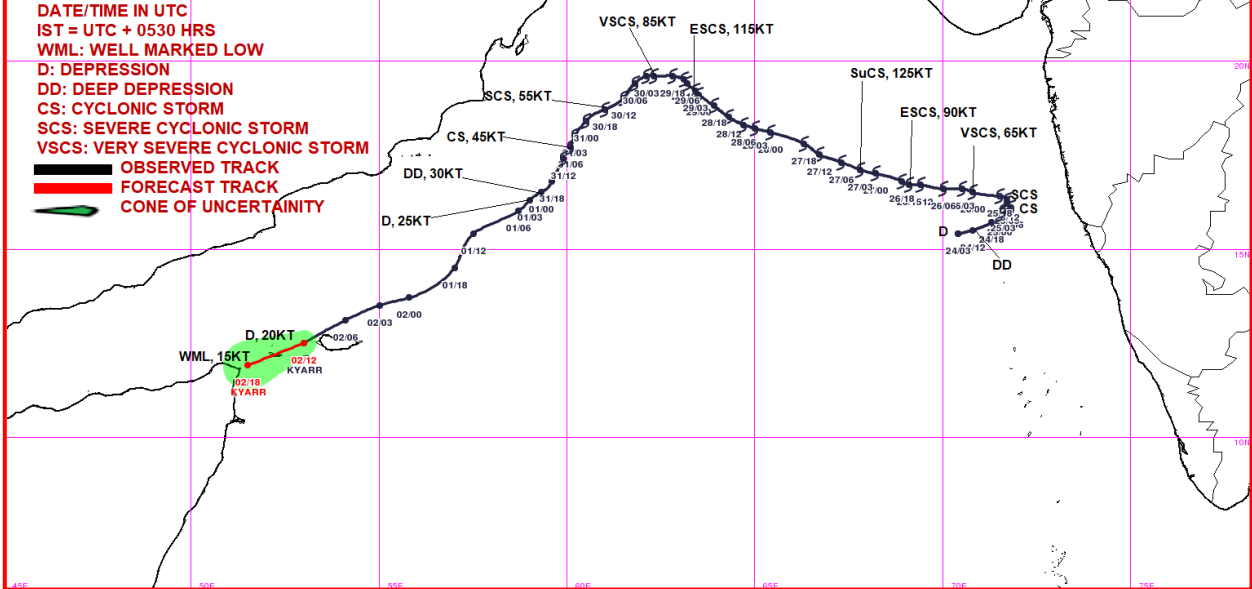
OBSERVED & FORECAST TRACK ALONGWITH QUADRANT WIND DISTRIBUTION IN ASSOCIATION WITH SEVERE CYCLONIC STORM "MAHA" OVER EASTCENTRAL ARABIAN SEA BASED ON 1200 UTC OF 2nd NOVEMBER 2019



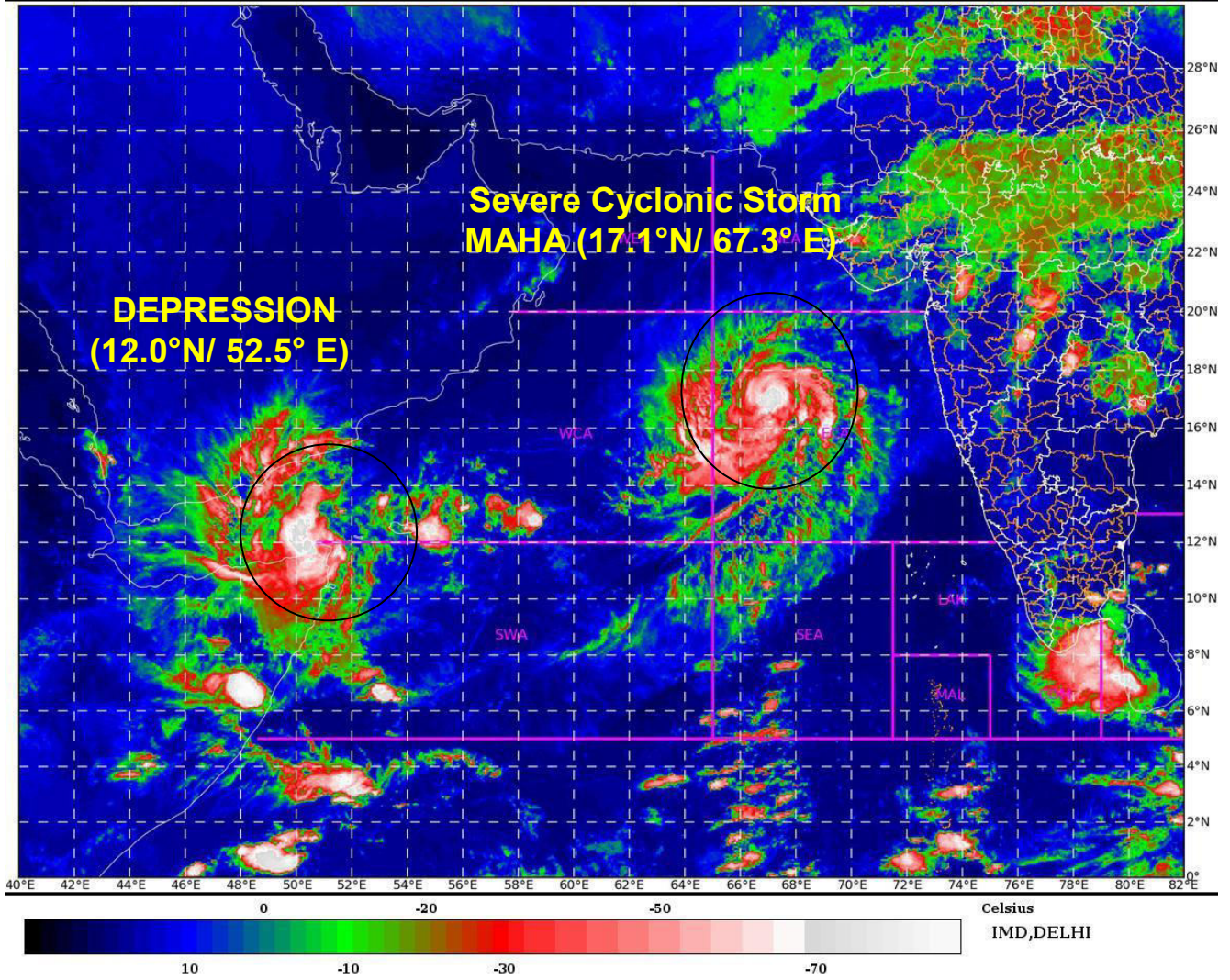
PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

OBSERVED & FORECAST TRACK ALONGWITH CONE OF UNCERTAINTY IN ASSOCIATION WITH DEPRESSION (KYARR) OVER WEST CENTRAL ARABIAN SEA BASED ON 1200 UTC OF 02ND NOVEMBER 2019



PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)
NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%



PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)
NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%



**REGIONAL SPECIALISED METEOROLOGICAL CENTRE-TROPICAL CYCLONES, NEW DELHI
TROPICAL CYCLONE ADVISORY BULLETIN NO. 71 & TROPICAL CYCLONE ADVISORY
BULLETIN NO. 27**

FROM: RSMC –TROPICAL CYCLONES, NEW DELHI

**TO: STORM WARNING CENTRE, NAYPYI TAW (MYANMAR)
STORM WARNING CENTRE, BANGKOK (THAILAND)
STORM WARNING CENTRE, COLOMBO (SRILANKA)
STORM WARNING CENTRE, DHAKA (BANGLADESH)
STORM WARNING CENTRE, KARACHI (PAKISTAN)
METEOROLOGICAL OFFICE, MALE (MALDIVES)
OMAN METEOROLOGICAL DEPARTMENT, MUSCAT (THROUGH RTH JEDDAH)
YEMEN METEOROLOGICAL SERVICES, REPUBLIC OF YEMEN (THROUGH RTH JEDDAH)
NATIONAL CENTRE FOR METEOROLOGY, UAE (THROUGH RTH JEDDAH)
PRESIDENCY OF METEOROLOGY AND ENVIRONMENT, SAUDI ARABIA (THROUGH RTH JEDDAH)
IRAN METEOROLOGICAL ORGANISATION, (THROUGH RTH JEDDAH)
QATAR METEOROLOGICAL DEPARTMENT (THROUGH RTH JEDDAH)**

TROPICAL CYCLONE ADVISORY No. 71 & TROPICAL CYCLONE ADVISORY NO. 27 FOR NORTH INDIAN OCEAN (THE BAY OF BENGAL AND ARABIAN SEA) VALID FOR NEXT 120 HOURS ISSUED AT 2100 UTC OF 02.11.2019 BASED ON 1800 UTC OF 02.11.2019.

SUB:

- (A) SEVERE CYCLONIC STORM 'MAHA' (PRONOUNCED AS M'MAHA) OVER EASTCENTRAL ARABIAN SEA**
- (B) DEPRESSION WEAKENED INTO A WELL MARKED LOW PRESSURE AREA OVER WESTCENTRAL AND ADJOINING SOUTHWEST ARABIAN SEA**

(A) SEVERE CYCLONIC STORM MAHA (PRONOUNCED AS M'MAHA) OVER EASTCENTRAL ARABIAN SEA

THE SEVERE CYCLONIC STORM MAHA (PRONOUNCED AS M'MAHA) OVER EASTCENTRAL ARABIAN SEA MOVED WEST- NORTHWESTWARDS WITH A SPEED OF 11 KMPH DURING PAST 06 HOURS, AND LAY CENTERED AT 1800 UTC OF 02ND NOVEMBER, 2019 OVER EASTCENTRAL ARABIAN SEA NEAR LATITUDE 17.2°N AND LONGITUDE 67.0°E, ABOUT 540 KM SOUTH-SOUTHWEST OF VERAVAL (42909) AND 570 KM SOUTHWEST OF DIU (42914). IT IS VERY LIKELY TO MOVE WEST-NORTHWESTWARDS TILL 04TH NOVEMBER AND RECURVE EAST-NORTHEASTWARDS TOWARDS SOUTH GUJARAT AND ADJOINING NORTH MAHARASHTRA COASTS THEREAFTER. IT IS VERY LIKELY TO INTENSIFY INTO A VERY SEVERE CYCLONIC STORM OVER EASTCENTRAL ARABIAN SEA DURING NEXT 06 HOURS. HOWEVER, AFTER THE RE-CURVATURE, IT IS VERY LIKELY TO WEAKEN GRADUALLY WHILE MOVING EAST-NORTHEASTWARDS.

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

FORECAST TRACK AND INTENSITY ARE GIVEN IN THE FOLLOWING TABLE:

DATE/TIME(UTC)	POSITION (LAT. °N/ LONG. °E)	MAXIMUM SUSTAINED SURFACE WIND SPEED (KMPH)	CATEGORY OF CYCLONIC DISTURBANCE
02.11.19/1800	17.2/67.0	105-115 GUSTING TO 125	SEVERE CYCLONIC STORM
03.11.19/0000	17.4/66.6	120-130 GUSTING TO 145	VERY SEVERE CYCLONIC STORM
03.11.19/0600	17.6/66.0	130-140 GUSTING TO 155	VERY SEVERE CYCLONIC STORM
03.11.19/1200	17.8/65.5	140-150 GUSTING TO 165	VERY SEVERE CYCLONIC STORM
03.11.19/1800	17.9/64.9	150-160 GUSTING TO 175	VERY SEVERE CYCLONIC STORM
04.11.19/0600	18.2/63.9	160-170 GUSTING TO 185	VERY SEVERE CYCLONIC STORM
04.11.19/1800	18.6/63.0	160-170 GUSTING TO 185	VERY SEVERE CYCLONIC STORM
05.11.19/0600	19.1/63.1	150-160 GUSTING TO 175	VERY SEVERE CYCLONIC STORM
05.11.19/1800	19.5/64.3	130-140 GUSTING TO 155	VERY SEVERE CYCLONIC STORM
06.11.19/0600	19.7/65.7	120-130 GUSTING TO 145	VERY SEVERE CYCLONIC STORM
06.11.19/1800	19.9/67.1	110-120 GUSTING TO 135	SEVERE CYCLONIC STORM
07.11.19/0600	20.1/68.7	90-100 GUSTING TO 110	SEVERE CYCLONIC STORM
07.11.19/1800	20.3/70.2	60-70 GUSTING TO 80	CYCLONIC STORM

AS PER THE SATELLITE IMAGERY AT 1800 UTC OF 02ST NOVEMBER, 2019, THE CURRENT INTENSITY OF THE SYSTEM IS T 3.5/3.5. ASSOCIATED SCATTERED LOW TO MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION LIES OVER EASTCENTRAL AND ADJOINING SOUTH EAST ARABIAN SEA BETWEEN LAT 15.0°N TO 18.0°N AND LONG 65.0°E TO 69.0°E. THE MINIMUM CTT IS MINUS 84°C.

THE ESTIMATED MAXIMUM SUSTAINED WIND SPEED IS 60 KNOTS GUSTING TO 70 KNOTS. THE ESTIMATED CENTRAL PRESSURE IS 988 HPA. THE SEA CONDITION IS VERY HIGH AROUND THE SYSTEM CENTRE. AT 1800 UTC, A BUOY (23451) LOCATED NEAR LAT. 14.5°N / 69.0°E REPORTED MEAN SEA LEVEL PRESSURE 1010.2 HPA, SST 27.8°C AND WIND 290°/18 KNOTS, ANOTHER BUOY (23456) LOCATED NEAR LAT. 18.4°N / 67.4°E REPORTED MEAN SEA LEVEL PRESSURE 1007.3 HPA, SST 26.7°C AND WIND 260°/18KNOTS AND A SHIP LOCATED NEAR LAT. 17.4°N / 72.8°E REPORTED MEAN SEA LEVEL PRESSURE 1014.1 HPA AND WIND 180°/10 KNOTS.

REMARKS (A):

THE LOW LEVEL RELATIVE VORTICITY IS ABOUT $200 \times 10^{-5} \text{ SEC}^{-1}$ TO THE SOUTH OF THE SYSTEM CENTRE. THE RIDGE OVER THE SYSTEM AREA RUNS ROUGHLY ALONG 17°N. THE LOWER LEVEL CONVERGENCE IS ABOUT $20 \times 10^{-5} \text{ S}^{-1}$ TO THE SOUTHWEST OF THE SYSTEM CENTRE AND THE UPPER LEVEL DIVERGENCE IS ABOUT $20 \times 10^{-5} \text{ S}^{-1}$ TO THE SOUTH OF THE SYSTEM AREA. THE VERTICAL WIND SHEAR IS LOW (05-10 KNOTS) OVER THE SYSTEM AREA. SEA SURFACE TEMPERATURE IS AROUND 28-30°C AROUND THE SYSTEM AREA AND SHOWS GRADUAL REDUCTION IN THE FORECAST DIRECTION. TROPICAL CYCLONE HEAT POTENTIAL IS AROUND 60-80 KJ/CM² AROUND THE SYSTEM CENTER AND DECREASES TO < 50 KJ/CM² AT NORTHWEST IN THE FORECAST DIRECTION OF THE SYSTEM.

AS AN ANTICYCLONE LOCATED TO THE NORTHEAST OF THE SYSTEM, THE SYSTEM IS BEING STEERED BY THE SOUTHERN PERIPHERY WINDS, IT IS MOVING IN WEST-NORTHWEST DIRECTION. THIS MOVEMENT IS LIKELY TO CONTINUE TILL 4TH NOVEMBER. THEN IT IS LIKELY TO ENTER IN TO COL REGION, MOVE NEARLY NORTHWARDS FOR A BRIEF PERIOD AND LIKELY TO COME UNDER THE INFLUENCE OF AN APPROACHING MID-LATITUDE WESTERLY TROUGH FROM 5TH NOVEMBER. AS A RESULT THE SYSTEM IS VERY LIKELY TO RE-CURVE EAST-NORTHEASTWARDS FROM 5TH NOVEMBER. DURING THIS PERIOD, THE SYSTEM IS ALSO LIKEY TO WEAKEN GRADUALLY UNDER THE INFLUENCE OF INCREASED VERTICAL WIND SHEAR. MAJORITY OF THE NUMERICAL MODELS ARE IN AGREEMENT WITH THIS CONCLUSION.

(B) DEPRESSION WEAKENED INTO A WELL MARKED LOW PRESSURE AREA OVER WESTCENTRAL AND ADJOINING SOUTHWEST ARABIAN SEA

THE DEPRESSION OVER WESTCENTRAL ARABIAN SEA MOVED WEST-SOUTHWESTWARDS DURING PAST 06 HOURS, WEAKENED INTO A WELL MARKED LOW PRESSURE AREA AND LAY CENTRED AT 1800 UTC OF 02ND NOVEMBER, 2019 OVER WESTCENTRAL AND ADJOINING SOUTHWEST ARABIAN SEA OFF NORTH SOMALIA COAST. IT IS VERY LIKELY TO MOVE WEST-SOUTHWESTWARDS ALONG & OFF SOMALIA COAST.

THIS IS LAST UPDATE IN ASSOCIATION WITH THIS SYSTEM.

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

REMARKS (B):

AS PER THE SATELLITE IMAGERY AT 1800 UTC OF 02ND NOVEMBER, 2019, LOWEST CLOUD TOP TEMPERATURE OVER THE SYSTEM IS -65°C. ASSOCIATED BROKEN LOW TO MEDIUM CLOUDS WITH EMBEDDED MODERATE TO INTENSE CONVECTION LIES OVER WESTCENTRAL ARABIAN SEA BETWEEN LAT 10.0⁰N TO 14.0⁰N AND LONG 46.0⁰E TO 51.0⁰E NEAR SOMALIA COAST AND GULF OF ADEN.

THE ESTIMATED MAXIMUM SUSTAINED WIND SPEED IS 15 KNOTS GUSTING TO 20 KNOTS. THE ESTIMATED CENTRAL PRESSURE IS 1010 HPA. THE SEA CONDITION IS ROUGH AROUND THE SYSTEM CENTRE OVER WESTCENTRAL ADJOINING SOUTHWEST ARABIAN SEA, SOCOTRA ISLANDS, ALONG AND OFF NORTH SOMALIA COAST & ADJOINING AREAS OF GULF OF ADEN AND SOUTH WEST ARABIAN SEA.

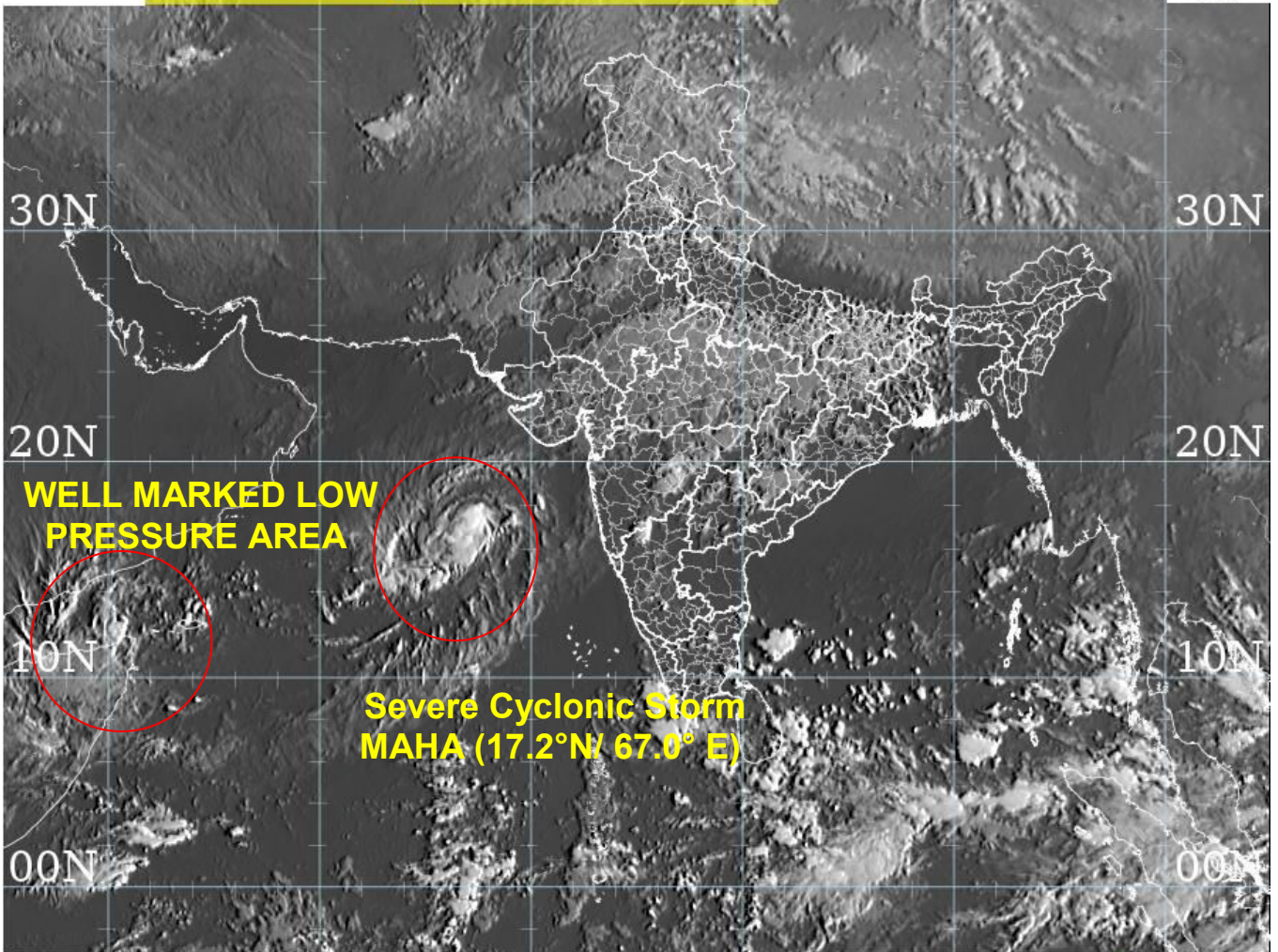
**(ANANDA KUMAR DAS)
SCIENTIST-E, RSMC, NEW DELHI**

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%



60E 70E 80E 90E 10
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70E

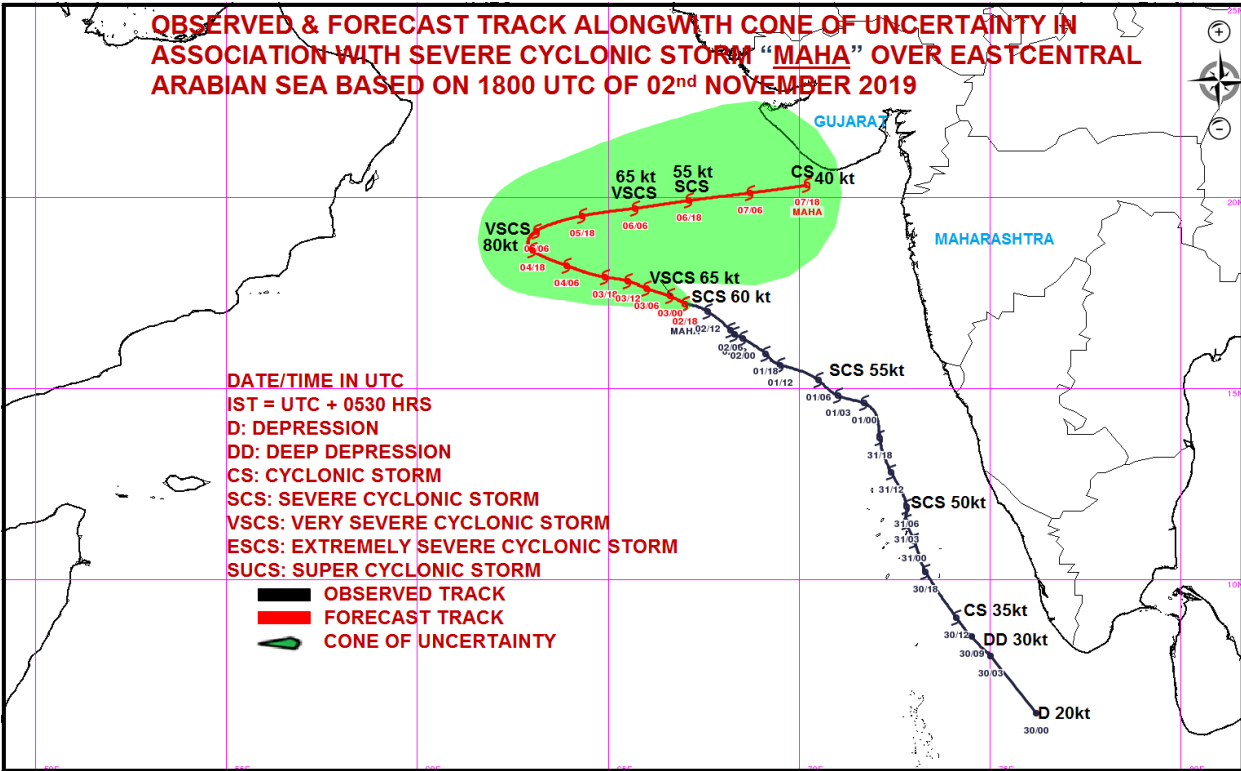
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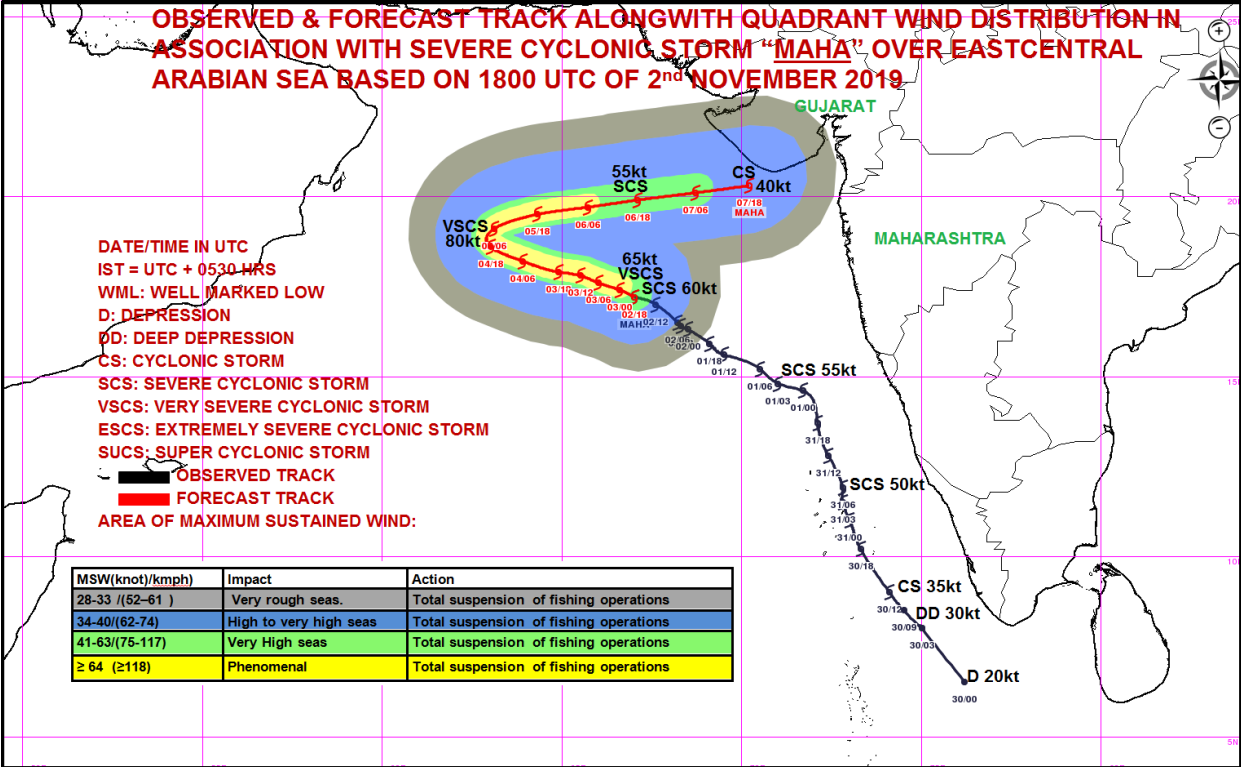
PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

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OBSERVED & FORECAST TRACK ALONGWITH CONE OF UNCERTAINTY IN ASSOCIATION WITH SEVERE CYCLONIC STORM "MAHA" OVER EASTCENTRAL ARABIAN SEA BASED ON 1800 UTC OF 02nd NOVEMBER 2019

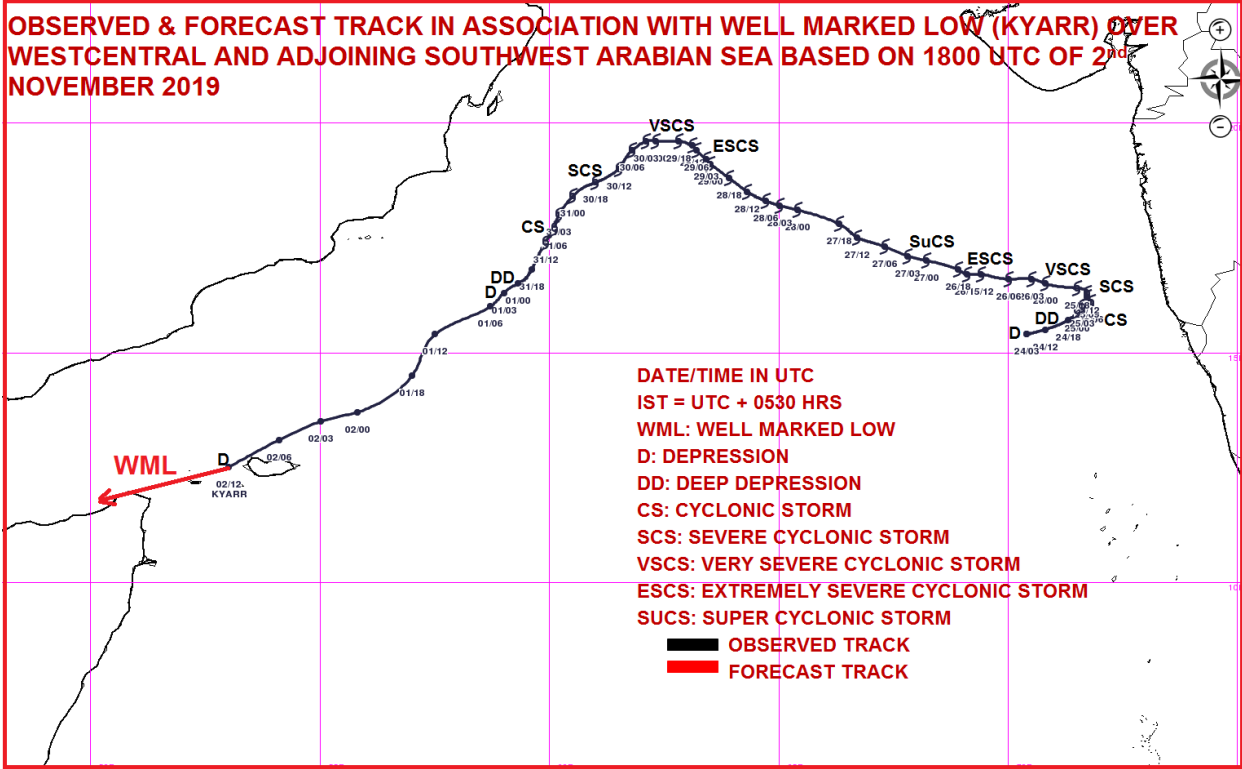


OBSERVED & FORECAST TRACK ALONGWITH QUADRANT WIND DISTRIBUTION IN ASSOCIATION WITH SEVERE CYCLONIC STORM "MAHA" OVER EASTCENTRAL ARABIAN SEA BASED ON 1800 UTC OF 2nd NOVEMBER 2019



PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%



PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%