REGIONAL SPECIALISED METEOROLOGICAL CENTRE-TROPICAL CYCLONES, NEW DELHI

TROPICAL WEATHER OUTLOOK

DEMS-RSMC TROPICAL CYCLONES NEW DELHI DATED 07.12.2018

TROPICAL WEATHER OUTLOOK FOR NORTH INDIAN OCEAN (THE BAY OF BENGAL AND ARABIAN SEA) VALID FOR NEXT 120 HOURS ISSUED AT 0600 UTC OF 07.12.2018 BASED ON 0300 UTC OF 07.12.2018.

BAY OF BENGAL:

A LOW PRESSURE AREA IS LIKELY TO DEVELOP OVER SOUTHEAST BAY OF BENGAL AND ADJOINING EQUATORIAL INDIAN OCEAN DURING NEXT 48 HOURS. IT IS LIKELY TO BECOME MORE MARKED THEREAFTER.

SCATTERED LOW AND MEDIUM CLOUDS WITH EMBEDDED INTENSE CONVECTION LAY OVER SOUTHEAST AND ADJOINING EASTCENTRAL BAY OF BENGAL AND ANDAMAN SEA.

PROBABILITY OF CYCLOGENESIS DURING NEXT 120 HRS:

24 HOURS	24-48 HOURS	48-72 HOURS	72-96 HOURS	96-120 HOURS
NIL	NIL	NIL	LOW	LOW

ARABIAN SEA:

SCATTERED LOW AND MEDIUM CLOUDS WITH EMBEDDED MODERATE TO INTENSE CONVECTION LAY OVER SOUTH ARABIAN SEA SOUTH OF LATITUDE 7.5N.

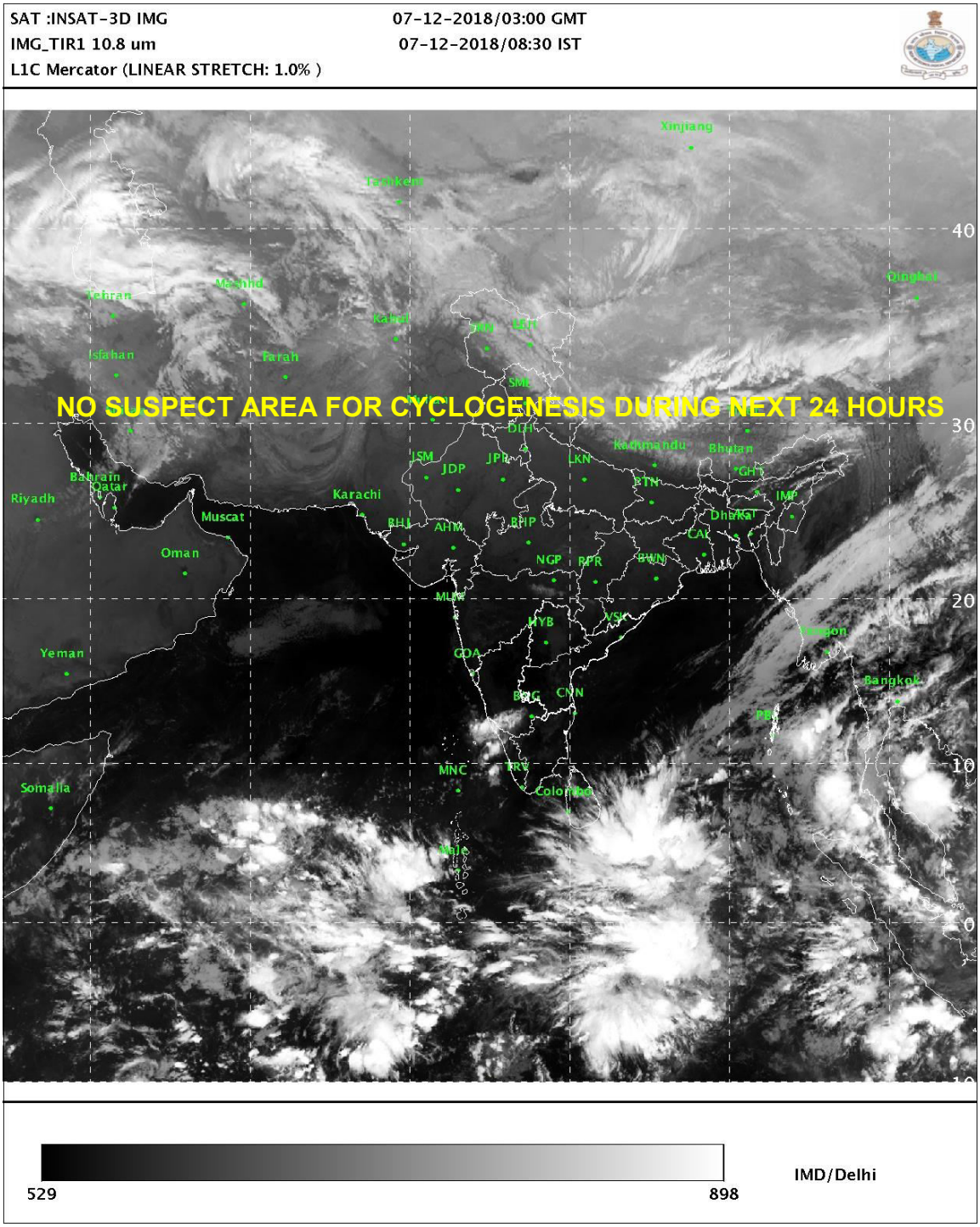
PROBABILITY OF CYCLOGENESIS DURING NEXT 120 HRS:

24 HOURS	24-48 HOURS	48-72 HOURS	72-96 HOURS	96-120 HOURS
NIL	NIL	NIL	NIL	NIL

REMARKS: NIL

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 WEATHER OUTLOOK

DEMS-RSMC TROPICAL CYCLONES NEW DELHI DATED 08.12.2018

TROPICAL WEATHER OUTLOOK FOR NORTH INDIAN OCEAN (THE BAY OF BENGAL AND ARABIAN SEA) VALID FOR NEXT 120 HOURS ISSUED AT 0600 UTC OF 08.12.2018 BASED ON 0300 UTC OF 08.12.2018.

BAY OF BENGAL:

A LOW PRESSURE AREA IS LIKELY TO DEVELOP OVER SOUTHEAST BAY OF BENGAL AND ADJOINING EQUATORIAL INDIAN OCEAN DURING NEXT 24 HOURS. IT IS LIKELY TO BECOME MORE MARKED THEREAFTER.

BROKEN LOW AND MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION LAY OVER CENTRAL PARTS OF SOUTH BAY OF BENGAL ADJOINING INDIAN OCEAN BETWEEN LATTITUDE 2.0^0N TO 7.0^0N LONGITUDE 83.0^0E TO 88.0^0E IN ASSOCIATION WITH LOW LEVEL CIRCULATION OVER THE AREA.

SCATTERED LOW AND MEDIUM CLOUDS WITH EMBEDDED MODERATE TO INTENSE CONVECTION LAY OVER SOUTH BAY OF BENGAL.

PROBABILITY OF CYCLOGENESIS DURING NEXT 120 HRS:

24 HOURS	24-48 HOURS	48-72 HOURS	72-96 HOURS	96-120 HOURS
NIL	NIL	LOW	MODERATE	HIGH

ARABIAN SEA:

SCATTERED LOW AND MEDIUM CLOUDS WITH EMBEDDED MODERATE TO INTENSE CONVECTION LAY OVER COMORIN & SOUTHEAST ARABIAN SEA SOUTH OF LATITUDE 8.0^0N.

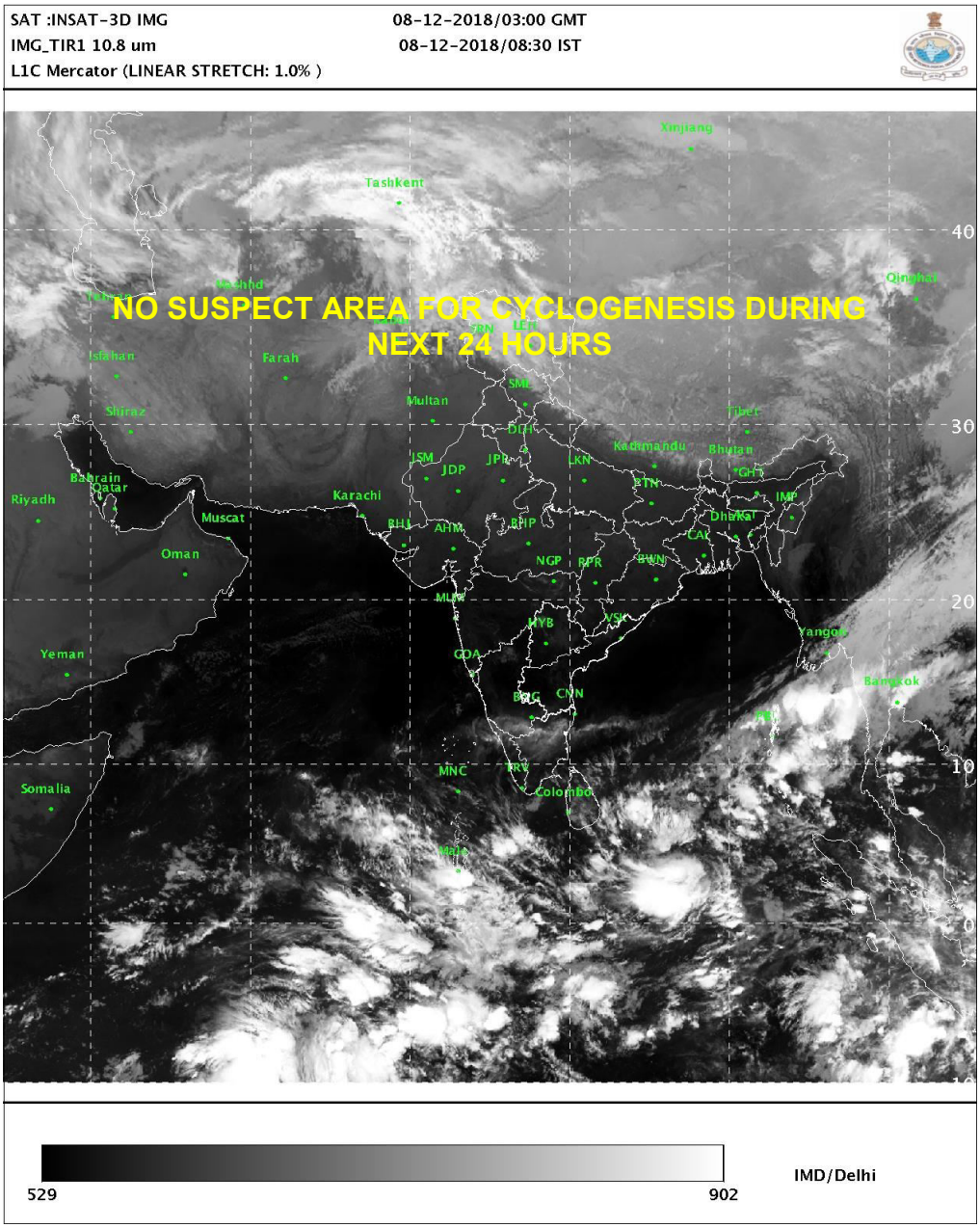
PROBABILITY OF CYCLOGENESIS DURING NEXT 120 HRS:

24 HOURS	24-48 HOURS	48-72 HOURS	72-96 HOURS	96-120 HOURS
NIL	NIL	NIL	NIL	NIL

REMARKS: NIL

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 WEATHER OUTLOOK

DEMS-RSMC TROPICAL CYCLONES NEW DELHI DATED 09.12.2018

TROPICAL WEATHER OUTLOOK FOR NORTH INDIAN OCEAN (THE BAY OF BENGAL AND ARABIAN SEA) VALID FOR NEXT 120 HOURS ISSUED AT 0600 UTC OF 09.12.2018 BASED ON 0300 UTC OF 09.12.2018.

BAY OF BENGAL:

A LOW PRESSURE AREA IS LIKELY TO DEVELOP OVER EQUATORIAL INDIAN OCEAN AND ADJOINING CENTRAL PART OF SOUTH BAY OF BENGAL DURING NEXT 24 HOURS. IT IS LIKELY TO BECOME MORE MARKED THEREAFTER.

SCATTERED LOW AND MEDIUM CLOUDS WITH EMBEDDED MODERATE TO INTENSE CONVECTION LAY OVER CENTRAL PARTS OF SOUTH BAY OF BENGAL ADJOINING INDIAN OCEAN BETWEEN LATTITUDE 2.5^0N TO 9.5^0N LONGITUDE 84.5^0E TO 91.5^0E IN ASSOCIATION WITH LOW LEVEL CIRCULATION OVER THE AREA.

SCATTERED LOW AND MEDIUM CLOUDS WITH EMBEDDED MODERATE TO INTENSE CONVECTION LAY OVER SOUTH BAY OF BENGAL AND ANDAMAN SEA.

PROBABILITY OF CYCLOGENESIS DURING NEXT 120 HRS:

24 HOURS	24-48 HOURS	48-72 HOURS	72-96 HOURS	96-120 HOURS
NIL	NIL	NIL	LOW	MODERATE

ARABIAN SEA:

SCATTERED LOW AND MEDIUM CLOUDS WITH EMBEDDED ISOLATED WEAK TO MODERATE CONVECTION LAY OVER SOUTH ARABIAN SEA SOUTH OF LATITUDE 9.5^0N.

PROBABILITY OF CYCLOGENESIS DURING NEXT 120 HRS:

24 HOURS	24-48 HOURS	48-72 HOURS	72-96 HOURS	96-120 HOURS
NIL	NIL	NIL	NIL	NIL

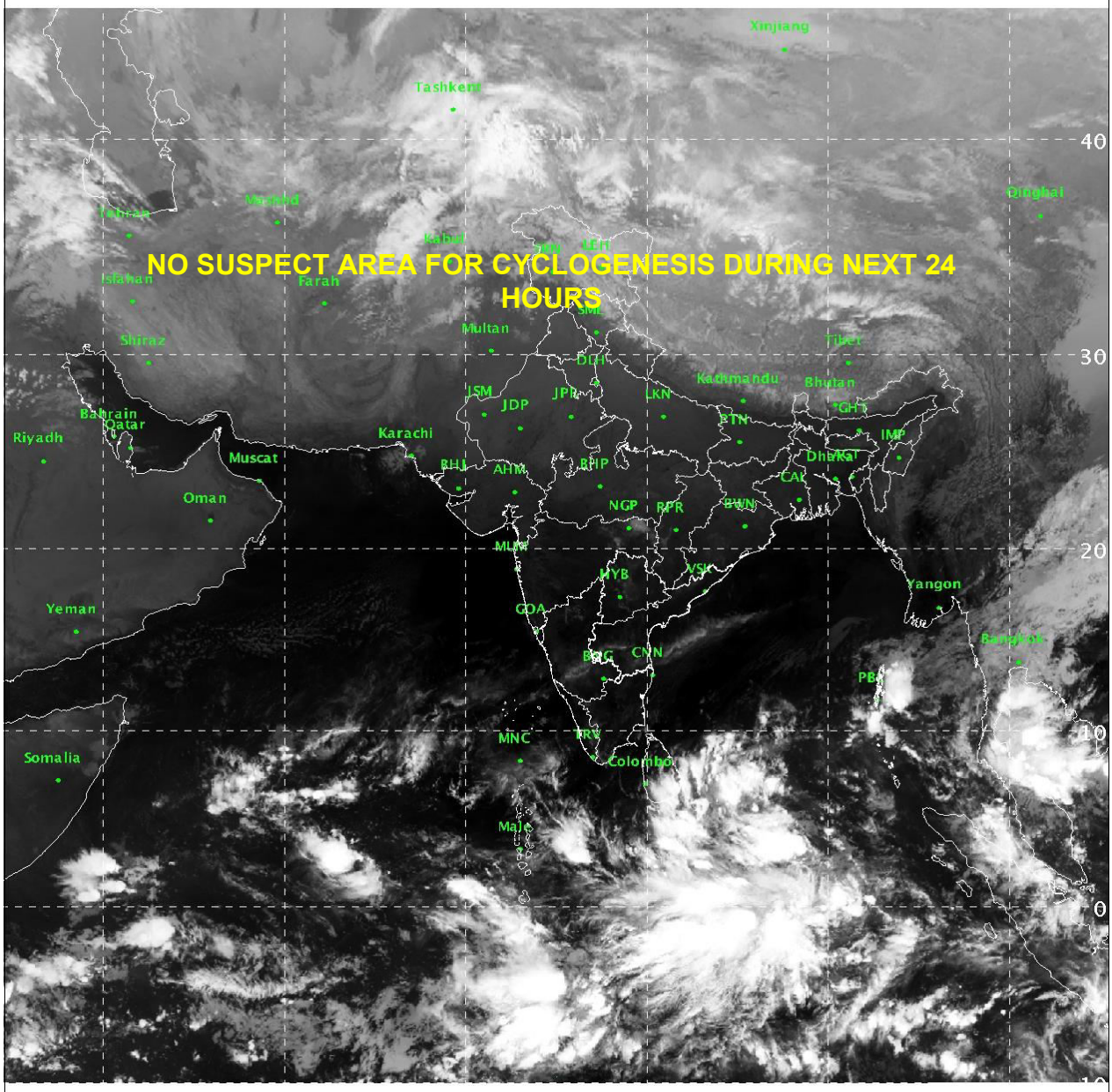
REMARKS: NIL

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
IMG_TIR1 10.8 um
L1C Mercator (LINEAR STRETCH: 1.0%)

09-12-2018/03:00 GMT
09-12-2018/08:30 IST



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 WEATHER OUTLOOK

DEMS-RSMC TROPICAL CYCLONES NEW DELHI DATED 10.12.2018

TROPICAL WEATHER OUTLOOK FOR NORTH INDIAN OCEAN (THE BAY OF BENGAL AND ARABIAN SEA) VALID FOR NEXT 120 HOURS ISSUED AT 0600 UTC OF 10.12.2018 BASED ON 0300 UTC OF 10.12.2018.

BAY OF BENGAL:

A LOW PRESSURE AREA (LPA) FORMED OVER EQUATORIAL INDIAN OCEAN (EIO) AND ADJOINING CENTRAL PARTS OF SOUTH BAY OF BENGAL (BOB) UNDER THE INFLUENCE OF TROUGH OF LOW AT MEAN SEA LEVEL OVER THE SAME REGION AT 1200 UTC OF YESTERDAY, THE 9TH DECEMBER, 2018. IT PERSISTED OVER THE SAME REGION AT 0300 UTC OF TODAY, THE 10TH DECEMBER, 2018.

IT IS LIKELY TO BECOME MORE MARKED DURING NEXT 48 HOURS. IT IS LIKELY TO INTENSIFY FURTHER INTO A DEPRESSION DURING SUSEQUENT 24 HOURS AND MOVE TOWARDS NORTH TAMILNADU AND ADJOING SOUTH ANDHRA PRADESH COASTS.

AS PER SATELLITE IMAGERY BASED ON 0300 UTC OF TODAY, THE 10TH DECEMBER, BROKEN LOW AND MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION LAY OVER CENTRAL PARTS OF SOUTH BOB AND ADJOINING EIO BETWEEN LATITUDE 3.0˚N & 8.0°N AND LONGITUDE 82.0˚E & 88.0°E IN ASSOCIATION WITH THE CYCLONIC CIRCULATION OVER THE AREA. BROKEN LOW AND MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION ALSO LAY OVER SOUTHWEST BOB AND ANDAMAN SEA. SCATTERED LOW AND MEDIUM CLOUDS WITH EMBEDDED MODERATE TO INTENSE CONVECTION LAY OVER SOUTHEAST BOB.

PROBABILITY OF CYCLOGENESIS DURING NEXT 120 HRS:

24 HOURS	24-48 HOURS	48-72 HOURS	72-96 HOURS	96-120 HOURS
NIL	LOW	MODERATE	HIGH	HIGH

ARABIAN SEA:

SCATTERED LOW AND MEDIUM CLOUDS WITH EMBEDDED ISOLATED WEAK TO MODERATE CONVECTION LAY OVER SOUTHEAST ARABIAN SEA AND COMORIN AREA.

PROBABILITY OF CYCLOGENESIS DURING NEXT 120 HRS:

24 HOURS	24-48 HOURS	48-72 HOURS	72-96 HOURS	96-120 HOURS
NIL	NIL	NIL	NIL	NIL

REMARKS: NIL

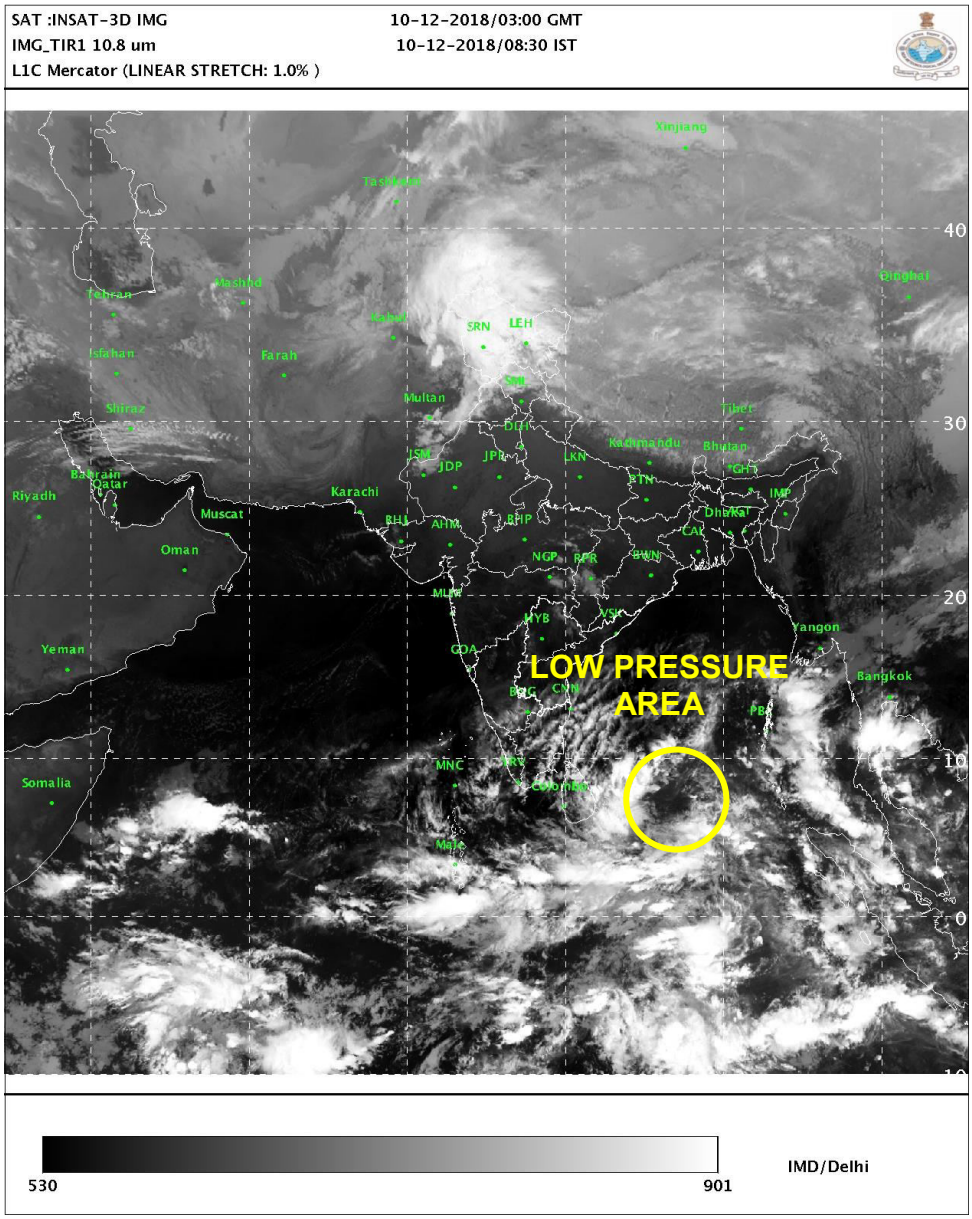
THE MADDEN JULIAN OSCILLATION (MJO) INDEX IS CURRENTLY IN PHASE 3 WITH AMPLITUDE MORE THAN 1. IT WILL CONTINUE IN SAME PHASE WITH AMPLITUDE GREATER THAN 1 FOR NEXT 4 DAYS. THEREAFTER IT WILL MOVE TO PHASE 4 WITH AMPLITUDE REMAINING MORE THAN 1. HENCE, MJO PHASE WILL BE FAVOURABLE FOR ENHANCEMENT OF CONVECTION & CYCLOGENESIS OVER BOB REGION.

CONSIDERING THE ENVIRONMENTAL CONDITIONS, THE SEA SURFACE TEMPERATURE (SST) IS 29-31˚C OVER SOUTHWEST BOB AND ADJOINING EIO REGION. IT IS DECREASING SLIGHTLY BECOMING 27-28˚C TOWARDS WEST OF 82°E AND NORTH OF 8˚N. THE TROPICAL CYCLONE HEAT POTENTIAL IS MORE THAN 100 KJ/CM^2 OVER SOUTHWEST BOB AND ADJOINING EQUATORIAL INDIAN OCEAN. IT IS AROUND 70-80 KJ/CM^2 OVER MAJOR PARTS OF SOUTH BOB AND ADJOINING EIO. HOWEVER, IT IS LESS THAN 40 KJ/CM^2 OVER WESTERN PARTS OF BOB ALONG THE EAST COAST OF INDIA AND SRILANKA.

THE LOW LEVEL RELATIVE VORTICITY IS EAST-WEST ORIENTED AND IS AROUND 60-80 X10^{-6}SEC^{-1} OVER SOUTHWEST BOB AND ADJOINING EIO AND IS EXTENDING UPTO 500 HPA LEVEL THE

LOWER LEVEL CONVERGENCE AND UPPER LEVEL DIVERGENCE ARE ABOUT 15 $X10^{-5}SEC^{-1}$ AND 20 $X10^{-5}SEC^{-1}$ OVER SOUTHWEST BOB & ADJOINING EIO. THE VERTICAL WIND SHEAR IS HIGH (20-25 KT) OVER SOUTHWEST BOB & ADJOINING EIO. THE UPPER TROPOSPHERIC RIDGE RUNS ALONG 11°N.

MANY OF THE NUMERICAL MODELS INCLUDING ECMWF, IMD GLOBAL FORECAST SYSTEM (GFS), NCEP GFS, GLOBAL ENSEMBLE FORECATING SYSTEM (GEFS) SUGGEST FORMATION OF DEPRESSION AROUND 13^{TH}. THESE MODELS ARE ALSO INDICATING FURTHER INTENSIFICATION OF THE SYSTEM AND MOVEMENT TOWARDS NORTH-TAMILNADU-SOUTH ANDHRA PRADESH COASTS. THE GENESIS POTENTIAL PARAMETER INDEX DEVELOPED BY IMD INDICATES POTENTIAL ZONE FOR CYCLOGENESIS OVER SOUTHWEST BOB DURING NEXT 5 DAYS.



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 WEATHER OUTLOOK

DEMS-RSMC TROPICAL CYCLONES NEW DELHI DATED 11.12.2018

TROPICAL WEATHER OUTLOOK FOR NORTH INDIAN OCEAN (THE BAY OF BENGAL AND ARABIAN SEA) VALID FOR NEXT 120 HOURS ISSUED AT 0600 UTC OF 11.12.2018 BASED ON 0300 UTC OF 11.12.2018.

BAY OF BENGAL:

YESTERDAY'S LOW PRESSURE AREA (LPA) OVER EQUATORIAL INDIAN OCEAN (EIO) AND ADJOINING CENTRAL PARTS OF SOUTH BAY OF BENGAL (BOB) LAY AS A WELL MARKED LOW PRESSURE AREA (WML) OVER CENTRAL PARTS OF SOUTH BOB AND ADJOINING EIO. .

IT IS LIKELY TO CONCENTRATE INTO A DEPRESSION DURING NEXT 24 HOURS AND INTENSIFY FURTHER INTO A DEEP DEPRESSION DURING SUBSEQUENT 24 HOURS. IT IS VERY LIKELY TO MOVE TOWARDS SOUTH ANDHRA PRADESH AND ADJOINING NORTH TAMILNADU COASTS DURING NEXT 72 HOURS.

AS PER SATELLITE IMAGERY BASED ON 0300 UTC OF TODAY, THE 11TH DECEMBER, BROKEN LOW AND MEDIUM CLOUDS WITH EMBEDDED MODERATE TO INTENSE CONVECTION LAY OVER CENTRAL PARTS OF SOUTH BOB AND ADJOINING EIO BETWEEN LATITUDE 2.0˚N & 11.0°N AND LONGITUDE 80.5˚E & 88.5°E IN ASSOCIATION WITH THE CYCLONIC CIRCULATION OVER THE AREA.

BROKEN LOW AND MEDIUM CLOUDS WITH EMBEDDED MODERATE TO INTENSE CONVECTION ALSO LAY OVER SOUTH BOB AND ANDAMAN SEA. AND ALSO WEAK TO MODERATE CONVECTION LAY OVER CENTRAL BOB.

PROBABILITY OF CYCLOGENESIS DURING NEXT 120 HRS:

24 HOURS	24-48 HOURS	48-72 HOURS	72-96 HOURS	96-120 HOURS
LOW	MODERATE	HIGH	HIGH	HIGH

ARABIAN SEA:

SCATTERED LOW AND MEDIUM CLOUDS WITH EMBEDDED ISOLATED MODERATE TO INTENSE CONVECTION LAY OVER SOUTHWEST ARABIAN SEA AND ALSO WEAK TO MODETATE CONCECTION LAY OVER SOUTHEAST ARABIAN SEA & COMORIN AREA.

PROBABILITY OF CYCLOGENESIS DURING NEXT 120 HRS:

24 HOURS	24-48 HOURS	48-72 HOURS	72-96 HOURS	96-120 HOURS
NIL	NIL	NIL	NIL	NIL

REMARKS: NIL

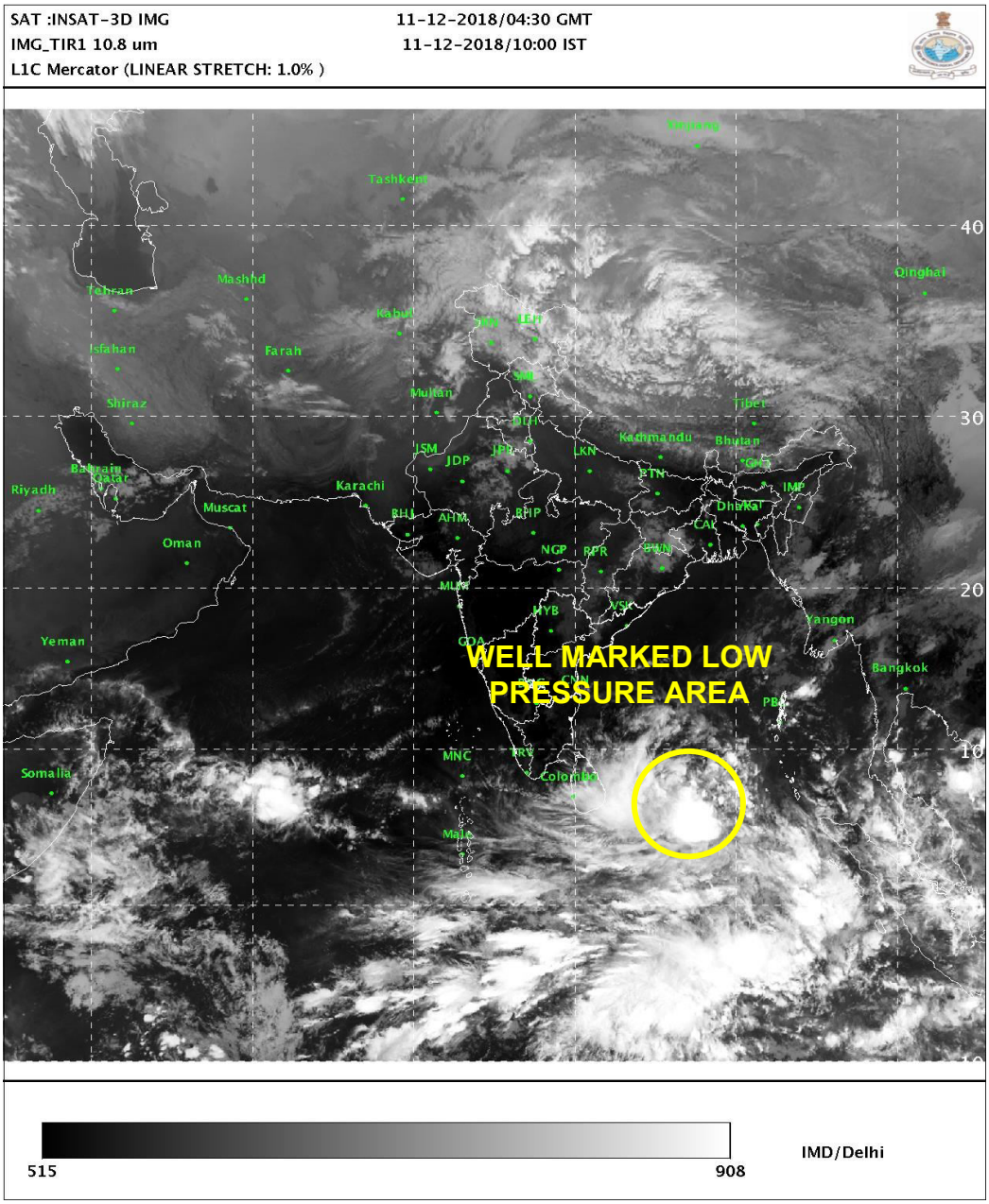
THE MADDEN JULIAN OSCILLATION (MJO) INDEX LIES CURRENTLY IN PHASE 3 WITH AMPLITUDE MORE THAN 1. IT WILL CONTINUE IN SAME PHASE WITH AMPLITUDE GREATER THAN 1 FOR NEXT 3 DAYS. THEREAFTER IT WILL MOVE TO PHASE 4 WITH AMPLITUDE REMAINING MORE THAN 1. HENCE, MJO PHASE WILL BE FAVOURABLE FOR ENHANCEMENT OF CONVECTION & CYCLOGENESIS OVER BOB REGION.

CONSIDERING THE ENVIRONMENTAL CONDITIONS, THE SEA SURFACE TEMPERATURE (SST) IS 29-31˚C OVER SOUTHWEST BOB AND ADJOINING EIO REGION. IT IS DECREASING SLIGHTLY BECOMING 27-28˚C TOWARDS WEST OF 82°E AND NORTH OF 8˚N. THE TROPICAL CYCLONE HEAT POTENTIAL IS MORE THAN 100 KJ/CM^2 OVER SOUTHWEST BOB AND ADJOINING EQUATORIAL INDIAN OCEAN. IT IS AROUND 70-80 KJ/CM^2 OVER MAJOR PARTS OF SOUTH BOB AND ADJOINING EIO. HOWEVER, IT IS LESS THAN 40 KJ/CM^2 OVER WESTERN PARTS OF BOB ALONG THE EAST COAST OF INDIA AND SRILANKA.

THE LOW LEVEL RELATIVE VORTICITY HAS INCREASED DURING PAST 24 HOURS, IS CIRCULARLY ORIENTED AND IS AROUND 100 X10^{-6}SEC^{-1} OVER SOUTHWEST BOB AND ADJOINING EIO AND IS

EXTENDING UPTO 200 HPA LEVEL. THE LOWER LEVEL CONVERGENCE AND UPPER LEVEL DIVERGENCE HAVE INCREASED IN PAST 24 HOURS AND ARE ABOUT 20 $X10^{-5}SEC^{-1}$ AND 30 $X10^{-5}SEC^{-1}$ OVER SOUTHWEST BOB & ADJOINING EIO. THE VERTICAL WIND SHEAR IS HIGH (25-30 KT) OVER SOUTHWEST BOB & ADJOINING EIO. IT IS DECREASING SLIGHTLY BECOMING 20-25 KT TOWARDS TAMILNADU-ANDHRA PRADESH COASTS. THE UPPER TROPOSPHERIC RIDGE RUNS ALONG 10°N.

MOST OF THE NUMERICAL MODELS INCLUDING ECMWF, IMD GLOBAL FORECAST SYSTEM (GFS), NCEP GFS, GLOBAL ENSEMBLE FORECATING SYSTEM (GEFS), NCMRWF UNIFIED MODEL (NCUM) SUGGEST FORMATION OF DEPRESSION AROUND 12TH. THESE MODELS ARE ALSO INDICATING FURTHER INTENSIFICATION OF THE SYSTEM AND MOVEMENT TOWARDS SOUTH ANDHRA PRADESH AND ADJOINING NORTH-TAMILNADU COASTS. HOWEVER, MODELS ARE NOT UNANIMOUS ABOUT THE INTENSITY OF THE SYSTEM AT THE TIME OF LANDFALL. MODELS LIKE ECMWF AND NCUM ARE INDICATING THE SYSTEM TO WEAKEN BEFORE LANDFALL AND GFS GROUP OF MODELS ARE MAINTAINING INTENSITY OF CYCLONIC STORM DURING LANDFALL. THE GENESIS POTENTIAL PARAMETER INDEX DEVELOPED BY IMD INDICATES POTENTIAL ZONE FOR CYCLOGENESIS OVER SOUTHWEST BOB DURING NEXT 5 DAYS.



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 WEATHER OUTLOOK

DEMS-RSMC TROPICAL CYCLONES NEW DELHI DATED 12.12.2018

TROPICAL WEATHER OUTLOOK FOR NORTH INDIAN OCEAN (THE BAY OF BENGAL AND ARABIAN SEA) VALID FOR NEXT 120 HOURS ISSUED AT 0600 UTC OF 12.12.2018 BASED ON 0300 UTC OF 12.12.2018.

BAY OF BENGAL:

YESTERDAY'S WELL MARKED LOW PRESSURE AREA (WML) OVER CENTRAL PARTS OF SOUTH BOB AND ADJOINING EQUATORIAL INDIAN OCEAN (EIO) LAY OVER SOUTHEAST BOB AND ADJOINING EIO AT 0300 UTC OF TODAY, THE 12TH DECEMBER, 2018. .

IT IS VERY LIKELY TO CONCENTRATE INTO A DEPRESSION DURING NEXT 24 HOURS AND INTENSIFY FURTHER INTO A DEEP DEPRESSION DURING SUBSEQUENT 24 HOURS. IT IS VERY LIKELY TO MOVE TOWARDS SOUTH ANDHRA PRADESH AND ADJOINING NORTH TAMILNADU COASTS DURING NEXT 72 HOURS.

AS PER SATELLITE IMAGERY BASED ON 0300 UTC OF TODAY, THE 12TH DECEMBER, INTENSITY OF THE SYSTEM IS T 1.0. BROKEN LOW AND MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION LAY OVER SOUTHEAST BOB AND ADJOINING EIO BETWEEN LATITUDE 3.0˚N & 10.0°N AND LONGITUDE 84.0˚E & 91.0°E IN ASSOCIATION WITH THE CYCLONIC CIRCULATION OVER THE AREA. MINIMUM CLOUD TOP TEMPERATURE IS -93˚C.

BROKEN LOW AND MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION LAY OVER SOUTHEAST BAY OF BENGAL. SCATTERED LOW AND MEDIUM CLOUDS WITH EMBEDDED MODERATE TO INTENSE CONVECTION LAY OVER SOUTHWEST & EASTCENTRAL BAY OF BENGAL AND ANDAMAN SEA.

PROBABILITY OF CYCLOGENESIS DURING NEXT 120 HRS:

24 HOURS	24-48 HOURS	48-72 HOURS	72-96 HOURS	96-120 HOURS
MODERATE	HIGH	HIGH	HIGH	-

ARABIAN SEA:

SCATTERED LOW AND MEDIUM CLOUDS WITH EMBEDDED WEAK TO MODERATE CONVECTION LAY OVER SOUTH ARABIAN SEA SOUTH OF LATITUDE 10.00N & COMORIN REGION.

PROBABILITY OF CYCLOGENESIS DURING NEXT 120 HRS:

24 HOURS	24-48 HOURS	48-72 HOURS	72-96 HOURS	96-120 HOURS
NIL	NIL	NIL	NIL	NIL

REMARKS: NIL

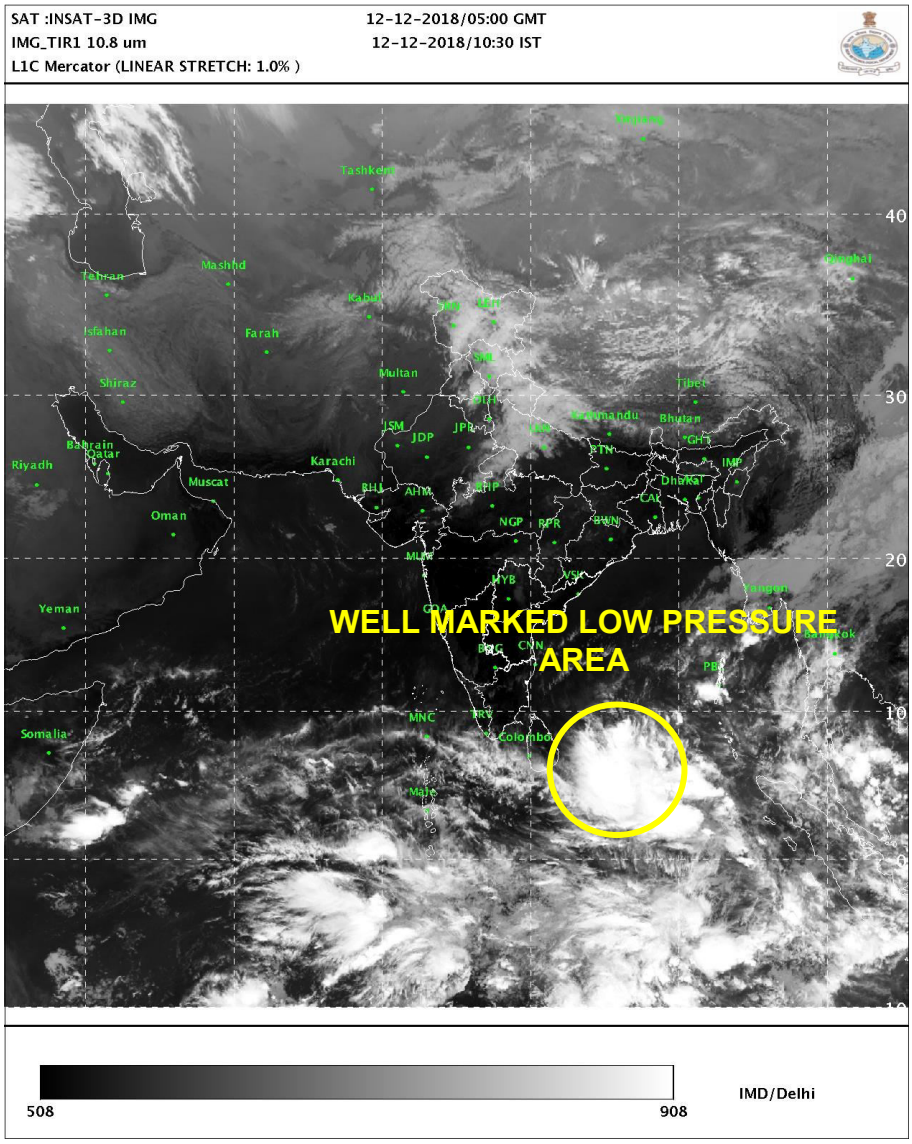
THE MADDEN JULIAN OSCILLATION (MJO) INDEX LIES CURRENTLY IN PHASE 3 WITH AMPLITUDE MORE THAN 1. IT WILL CONTINUE IN SAME PHASE WITH AMPLITUDE GREATER THAN 1 FOR NEXT 2 DAYS. THEREAFTER IT WILL MOVE TO PHASE 4 WITH AMPLITUDE REMAINING MORE THAN 1. HENCE, MJO PHASE WILL BE FAVOURABLE FOR ENHANCEMENT OF CONVECTION & CYCLOGENESIS OVER BOB REGION.

CONSIDERING THE ENVIRONMENTAL CONDITIONS, THE SEA SURFACE TEMPERATURE (SST) IS 29-31˚C OVER SOUTHEAST BOB AND ADJOINING AREAS. IT IS DECREASING SLIGHTLY BECOMING 26-27˚C TOWARDS WEST OF 82°E AND NORTH OF 8˚N. THE TROPICAL CYCLONE HEAT POTENTIAL IS MORE THAN 100 KJ/CM^2 OVER CENTRAL PARTS OF SOUTH BOB AND ADJOINING EIO. IT IS AROUND 60-80 KJ/CM^2 OVER REMAINING PARTS OF SOUTHEAST BOB. HOWEVER, IT IS LESS THAN 40 KJ/CM^2 OVER WESTERN PARTS OF BOB ALONG THE EAST COAST OF INDIA AND SRILANKA.

THE LOW LEVEL RELATIVE VORTICITY IS AROUND 100 X10^{-6}SEC^{-1} OVER THE REGION IN ASSOCIATION WITH THE SYSTEM AND IS EXTENDING UPTO 200 HPA LEVEL. THE LOWER LEVEL

CONVERGENCE AND UPPER LEVEL DIVERGENCE ARE ABOUT 20 $X10^{-5}SEC^{-1}$ EACH OVER CENTRAL PARTS OF SOUTH BOB AND ADJOINING EIO IN ASSOCIATION WITH THE SYSTEM. THE VERTICAL WIND SHEAR IS HIGH (20-30 KT) OVER SOUTHWEST BOB & ADJOINING EIO. IT IS DECREASING SLIGHTLY BECOMING 20-25 KT TOWARDS TAMILNADU COAST AND INCREASING TOWARDS ANDHRA PRADESH COAST. THE UPPER TROPOSPHERIC RIDGE RUNS ALONG 11°N.

MOST OF THE NUMERICAL MODELS INCLUDING ECMWF, IMD GLOBAL FORECAST SYSTEM (GFS), NCEP GFS, GLOBAL ENSEMBLE FORECATING SYSTEM (GEFS), NCMRWF UNIFIED MODEL (NCUM) AND NCMRWF ENSEMBLE PREDICTION SYSTEM (NEPS) SUGGEST FORMATION OF DEPRESSION DURING NEXT 24 HOURS. MOST OF THE MODELS ARE ALSO INDICATING FURTHER INTENSIFICATION OF THE SYSTEM INTO A CYCLONIC STORM BY 15TH AND MOVEMENT TOWARDS SOUTH ANDHRA PRADESH AND ADJOINING NORTH-TAMILNADU COASTS DURING NEXT 72 HOURS. HOWEVER, MODELS DIFFER FROM EACH OTHER W.R.T LANDFALL POINT RANGING FROM NORTH TAMILNADU TO CENTRAL ANDHRA PRADESH COASTS (12°N TO 16°N) AND LANDFALL TIME RANGING FROM 16/0000 UTC TO 17/0000 UTC. SIMILARLY, THERE IS ALSO SLIGHT VARIATION ABOUT THE INTENSITY OF THE SYSTEM AT THE TIME OF LANDFALL. MODELS LIKE ECMWF AND GFS GROUP OF MODELS ARE INDICATING THE SYSTEM TO MAINTAIN INTENSITY OF CYCLONIC STORM DURING LANDFALL. WHILE MODELS LIKE NCUM IS INDICATING WEAKENING OF SYSTEM TO A DEEP DEPRESSION AT THE TIME OF LANDFALL. THE GENESIS POTENTIAL PARAMETER INDEX DEVELOPED BY IMD INDICATES POTENTIAL ZONE FOR CYCLOGENESIS OVER CENTRAL PARTS OF SOUTH BOB WITH MOVEMENT TOWARDS ANDHRA PRADESH-TAMILNADU COASTS DURING NEXT 4 DAYS.



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 WEATHER OUTLOOK (MODIFIED)

DEMS-RSMC TROPICAL CYCLONES NEW DELHI DATED 13.12.2018

TROPICAL WEATHER OUTLOOK FOR NORTH INDIAN OCEAN (THE BAY OF BENGAL AND ARABIAN SEA) VALID FOR NEXT 120 HOURS ISSUED AT 0300 UTC OF 13.12.2018 BASED ON 0000 UTC OF 13.12.2018.

DEPRESSION OVER SOUTHEAST BAY OF BENGAL: PRE-CYCLONE WATCH FOR ANDHRA PRADESH COAST

THE WELL MARKED LOW PRESSURE AREA OVER SOUTH EAST BAY OF BENGAL AND ADJOINING EQUATORIAL INDIAN OCEAN HAS INTENSIFIED INTO A DEPRESSION AND LAY CENTERED AT 0000 UTC OF TODAY, THE 13TH DECEMBER OVER SOUTHEAST BAY OF BENGAL NEAR LATITUDE 6.5°N AND LONGITUDE 88.7 °E ABOUT 850 KM EAST SOUTHEAST OF TRICONMALEE (43418), 1170 KM SOUTHEAST OF CHENNAI (43278) AND 1350 KM SOUTH SOUTHEAST OF MACHILIPATNAM (43185). IT IS VERY LIKELY TO INTENSIFY FURTHER INTO A DEEP DEPRESSION DURING NEXT 12 HOURS AND INTO A CYCLONIC STORM DURING THE SUBSEQUENT 24 HOURS. IT IS VERY LIKELY TO MOVE WEST-NORTHWESTWARDS TOWARDS SOUTH ANDHRA PRADESH AND ADJOINING NORTH TAMIL NADU COASTS DURING NEXT 72 HOURS.

FORECAST TRACK AND INTENSITY ARE GIVEN IN THE FOLLOWING TABLE:

Date/Time(UTC)	Position (Lat. ^{0}N/ long. ^{0}E	Maximum sustained surface wind speed (Kmph)	Category of cyclonic disturbance
13.12.18/0000	6.5/88.7	40-50 gusting to 65	Depression
13.12.18/0600	7.0/88.4	45-55 gusting to 65	Depression
13.12.18/1200	7.5/88.0	50-60 gusting to 70	Deep Depression
13.12.18/1800	8.0/87.5	55-65 gusting to 75	Deep Depression
14.12.18/0000	8.5/87.0	60-70 gusting to 80	Cyclonic Storm
14.12.18/1200	9.5/85.7	70-80 gusting to 90	Cyclonic Storm
15.12.18/0000	10.8/84.4	80-90 gusting to 100	Cyclonic Storm
15.12.18/1200	12.2/83.2	90-100 gusting to 110	Severe Cyclonic Storm
16.12.18/0000	13.6/82.2	100-110 gusting to 120	Severe Cyclonic Storm

REMARKS:

AS PER THE SATELLITE IMAGERY BASED ON 0000 UTC OF TODAY, THE 13TH DECEMBER 2018, THE INTENSITY OF THE SYSTEM IS T1.5. BROKEN LOW AND MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION LAY OVER SOUTH EAST BAY AND ADJOINING INDIAN OCEAN BETWEEN LATITUDE 4.0 TO 12.5 N AND LONGITUDE 82.0 TO 93.5 E. MINIMUM CLOUD TOP TEMPERATURE IS MINUS 93°C.

THE MADDEN JULIAN OSCILLATION (MJO) INDEX LIES CURRENTLY IN PHASE 3 WITH AMPLITUDE MORE THAN 1. IT WILL CONTINUE IN SAME PHASE WITH AMPLITUDE GREATER THAN 1 FOR NEXT 2 DAYS. THEREAFTER IT WILL MOVE TO PHASE 4 WITH AMPLITUDE REMAINING MORE THAN 1. HENCE, MJO PHASE WILL BE FAVOURABLE FOR ENHANCEMENT OF CONVECTION & CYCLOGENESIS OVER BOB REGION.

CONSIDERING THE ENVIRONMENTAL CONDITIONS, THE SEA SURFACE TEMPERATURE (SST) IS 29-31°C OVER SOUTHEAST BOB AND ADJOINING AREAS. IT IS DECREASING SLIGHTLY BECOMING 26-27°C TOWARDS WEST OF 82°E AND NORTH OF 8°N. THE TROPICAL CYCLONE HEAT POTENTIAL IS MORE THAN 100 KJ/CM^2 OVER CENTRAL PARTS OF SOUTH BOB AND ADJOINING EIO. IT IS AROUND 60-80 KJ/CM^2 OVER REMAINING PARTS OF SOUTHEAST BOB. HOWEVER, IT IS LESS THAN 40 KJ/CM^2 OVER WESTERN PARTS OF BOB ALONG THE EAST COAST OF INDIA AND SRILANKA.THE

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

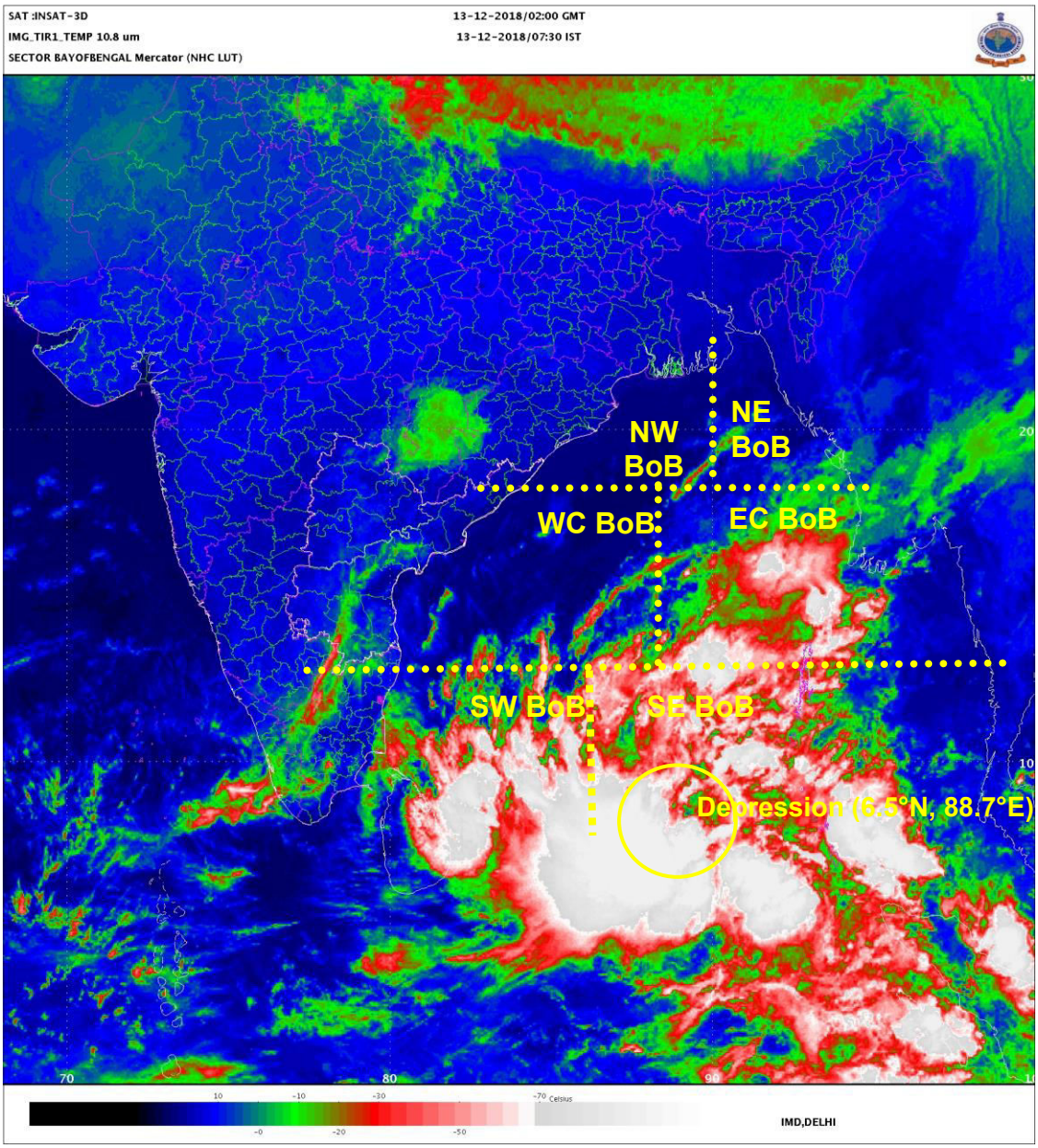
NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

LOWER LEVEL CONVERGENCE ($50x10^{-5}$ $SECOND^{-1}$), LOWER LEVEL VORTICITY($130x10^{-6}$ $SECOND^{-1}$), UPPER LEVEL DIVERGENCE ($60x10^{-5}$ $SECOND^{-1}$) AND LOW VERTICAL WIND SHEAR (10-15 KNOTS). THE UPPER TROPOSPHERIC RIDGE RUNS ALONG 11°N.

MOST OF THE NUMERICAL MODELS INCLUDING ECMWF, IMD GLOBAL FORECAST SYSTEM (GFS), NCEP GFS, GLOBAL ENSEMBLE FORECATING SYSTEM (GEFS), NCMRWF UNIFIED MODEL (NCUM) AND NCMRWF ENSEMBLE PREDICTION SYSTEM (NEPS) SUGGEST FURTHER INTENSIFICATION OF THE SYSTEM INTO A CYCLONIC STORM BY 14^{TH} AND MOVE TOWARDS ANDHRA PRADESH COAST DURING NEXT 72 HOURS. SIMILARLY, THERE IS ALSO SLIGHT VARIATION ABOUT THE INTENSITY OF THE SYSTEM AT THE TIME OF LANDFALL. THE GENESIS POTENTIAL PARAMETER INDEX INDICATES POTENTIAL ZONE FOR CYCLOGENESIS OVER CENTRAL PARTS OF SOUTH BOB WITH MOVEMENT TOWARDS ANDHRA PRADESH- COASTS DURING NEXT 3 DAYS.

(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%



PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)
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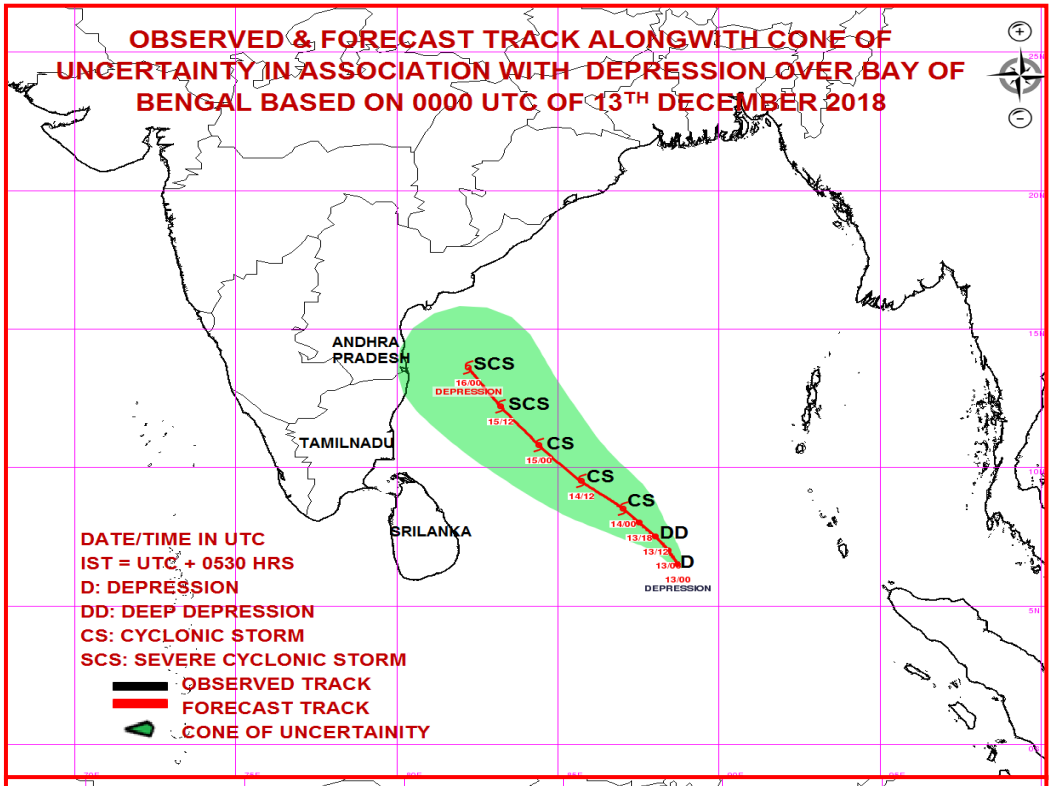
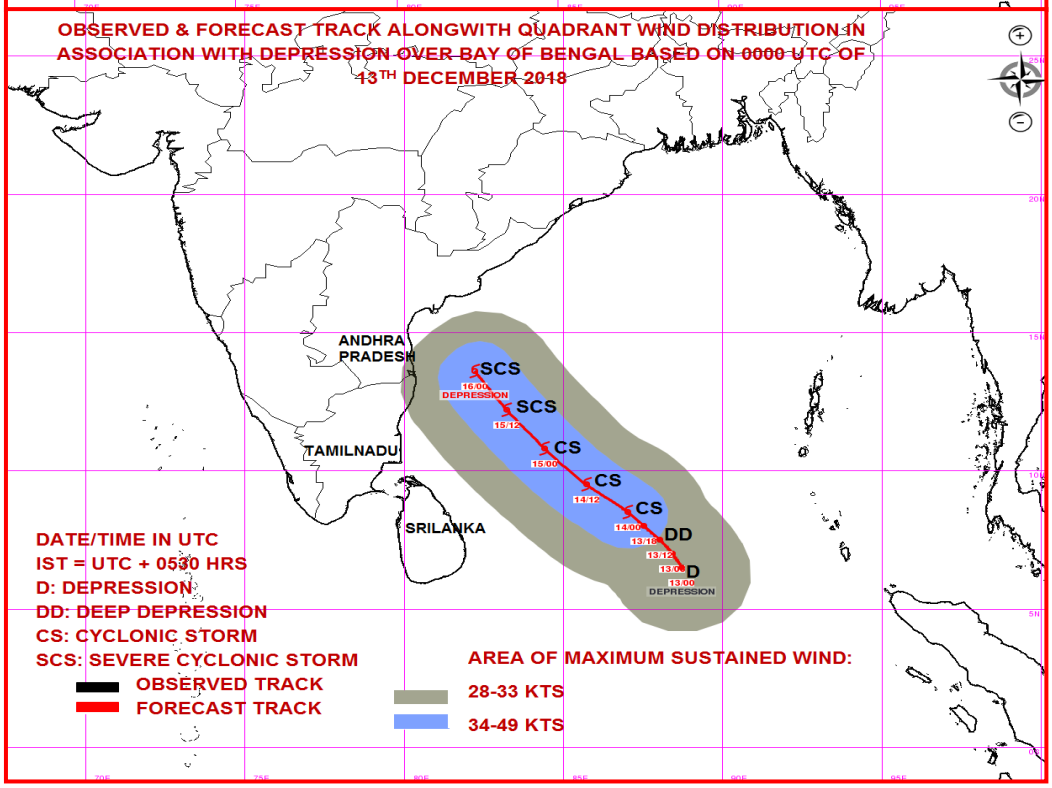




PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)
NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

REGIONAL SPECIALISED METEOROLOGICAL CENTRE-TROPICAL CYCLONES, NEW DELHI

SPECIAL TROPICAL WEATHER OUTLOOK

DEMS-RSMC TROPICAL CYCLONES NEW DELHI DATED 13.12.2018

TROPICAL WEATHER OUTLOOK FOR NORTH INDIAN OCEAN (THE BAY OF BENGAL AND ARABIAN SEA) VALID FOR NEXT 120 HOURS ISSUED AT 0600 UTC OF 13.12.2018 BASED ON 0300 UTC OF 13.12.2018.

DEPRESSION OVER SOUTHEAST BAY OF BENGAL

THE DEPRESSION OVER SOUTHEAST BAY OF BENGAL MOVED NORTH-NORTHWESTWARDS WITH A SPEED OF 08 KMPH DURING PAST 03 HOURS AND LAY CENTRED AT 0300 UTC OF TODAY, THE 13TH DECEMBER, 2018 OVER SOUTHEAST BAY OF BENGAL NEAR LATITUDE 6.7°N AND LONGITUDE 88.6°E, ABOUT 830 KM EAST-SOUTHEAST OF TRINCOMALEE (43418), (SRI LANKA), 1150 KM SOUTHEAST OF CHENNAI (43278) (TAMIL NADU) AND 1330 KM SOUTH-SOUTHEAST OF MACHILIPATNAM (43185) (ANDHRA PRADESH). IT IS VERY LIKELY TO INTENSIFY FURTHER INTO A DEEP DEPRESSION DURING NEXT 12 HOURS AND INTO A CYCLONIC STORM DURING THE SUBSEQUENT 24 HOURS. IT IS VERY LIKELY TO MOVE NORTHWESTWARDS TOWARDS ANDHRA PRADESH & ADJOINING NORTH TAMIL NADU COAST DURING NEXT 72 HOURS.

FORECAST TRACK AND INTENSITY ARE GIVEN IN THE FOLLOWING TABLE:

DATE/TIME (UTC)	POSITION (LAT. ^{0}N/ LONG. ^{0}E)	MAXIMUM SUSTAINED SURFACE WIND SPEED (KMPH)	CATEGORY OF CYCLONIC DISTURBANCE
13.12.18/0300	6.7/88.6	40-50 GUSTING TO 65	DEPRESSION
13.12.18/0600	7.0/88.4	45-55 GUSTING TO 65	DEPRESSION
13.12.18/1200	7.5/88.0	50-60 GUSTING TO 70	DEEP DEPRESSION
13.12.18/1800	8.0/87.5	55-65 GUSTING TO 75	DEEP DEPRESSION
14.12.18/0000	8.5/87.0	60-70 GUSTING TO 80	CYCLONIC STORM
14.12.18/1200	9.5/85.7	70-80 GUSTING TO 90	CYCLONIC STORM
15.12.18/0000	10.8/84.4	80-90 GUSTING TO 100	CYCLONIC STORM
15.12.18/1200	12.2/83.2	90-100 GUSTING TO 110	SEVERE CYCLONIC STORM
16.12.18/0530	13.6/82.2	100-110 GUSTING TO 120	SEVERE CYCLONIC STORM

REMARKS:

AS PER THE SATELLITE IMAGERY OF 0300 UTC ON 13TH DECEMBER THE INTENSITY OF THE VORTEX IS T1.5 OVER SE BAY & N/HOOD. ASSTD BROKEN LOW TO MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION OVER SE BAY OF BENGAL AND ADJOINING INDIAN OCEAN BETWEEN LATITUDE 4.5°N TO 10.5°N AND LONG 83.0°E TO 91.5°E (.) MINIMUM CLOUD TOP TEMPERATURE IS MINUS 93.1° C.

AT 0300 UTC OF 13TH DECEMBER, A SHIP LOCATED AT 13.5°N/84.2°E REPORTED A MEAN SEA LEVEL PRESSURE OF 1013.9 HPA AND MEAN SURFACE WIND SPEED OF 040°/ 14 KNOTS. ANOTHER SHIP LOCATED AT 06°N/91.5°E REPORTED A MEAN SEA LEVEL PRESSURE OF 1008.6 HPA AND MEAN SURFACE WIND SPEED OF 160°/ 21 KNOTS.

THE MADDEN JULIAN OSCILLATION (MJO) INDEX LIES CURRENTLY IN PHASE 3 WITH AMPLITUDE MORE THAN 1. IT WILL CONTINUE IN SAME PHASE WITH AMPLITUDE GREATER THAN 1 FOR NEXT 2 DAYS. THEREAFTER IT WILL MOVE TO PHASE 4 WITH AMPLITUDE REMAINING MORE THAN 1. HENCE, MJO PHASE WILL BE FAVOURABLE FOR ENHANCEMENT OF CONVECTION &

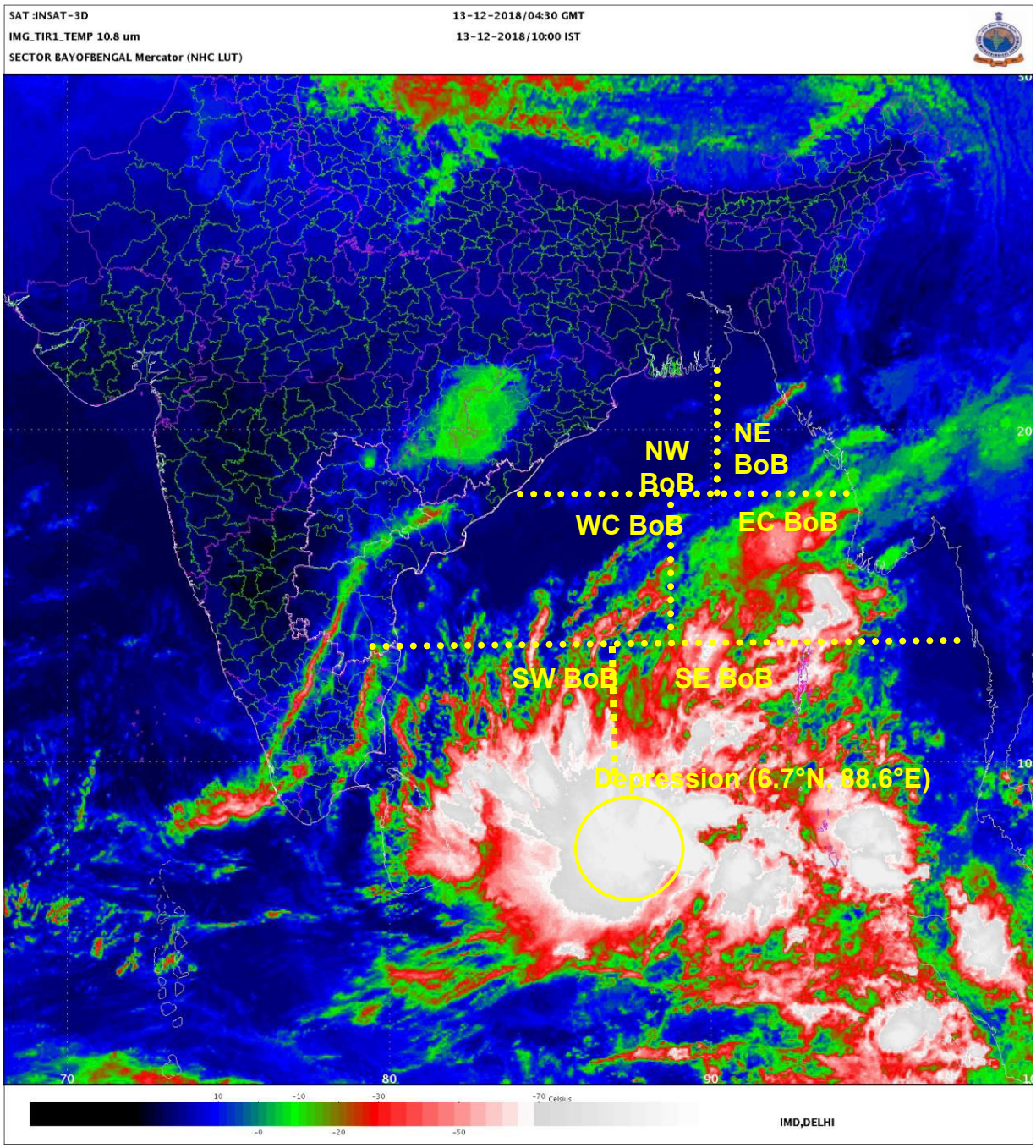
CYCLOGENESIS OVER BAY OF BENGAL REGION.

CONSIDERING THE ENVIRONMENTAL CONDITIONS, THE SEA SURFACE TEMPERATURE (SST) IS 29-30˚C OVER SOUTHEAST BOB AND ADJOINING AREAS. IT IS DECREASING SLIGHTLY BECOMING 26-27˚C TOWARDS WEST OF 82°E AND NORTH OF 8˚N. THE TROPICAL CYCLONE HEAT POTENTIAL IS MORE THAN 100 KJ/CM^2 OVER CENTRAL PARTS OF SOUTH BOB AND ADJOINING EIO. IT IS AROUND 60-80 KJ/CM^2 OVER REMAINING PARTS OF SOUTHEAST BOB. HOWEVER, IT IS LESS THAN 40 KJ/CM^2 OVER WESTERN PARTS OF BOB ALONG THE EAST COAST OF INDIA AND SRILANKA.THE LOWER LEVEL CONVERGENCE IS (40x10^{-5} SECOND^{-1}), LOWER LEVEL VORTICITY(150x10^{-6} SECOND^{-1}), UPPER LEVEL DIVERGENCE (50x10^{-5} SECOND^{-1}) AND LOW VERTICAL WIND SHEAR (10-15 KNOTS) OVER THE SYSTEM AREA. IT IS HIGH TO THE NORTH AND WEST OF THE SYSTEM AREA. THE UPPER TROPOSPHERIC RIDGE RUNS ALONG 11°N.

MOST OF THE NUMERICAL MODELS INCLUDING ECMWF, IMD GLOBAL FORECAST SYSTEM (GFS), NCEP GFS, GLOBAL ENSEMBLE FORECATING SYSTEM (GEFS), NCMRWF UNIFIED MODEL (NCUM) AND NCMRWF ENSEMBLE PREDICTION SYSTEM (NEPS) SUGGEST FURTHER INTENSIFICATION OF THE SYSTEM INTO A CYCLONIC STORM BY 14TH AND MOVE TOWARDS ANDHRA PRADESH COAST DURING NEXT 72 HOURS. SIMILARLY, THERE IS ALSO SLIGHT VARIATION ABOUT THE INTENSITY OF THE SYSTEM AT THE TIME OF LANDFALL. THE GENESIS POTENTIAL PARAMETER INDEX INDICATES POTENTIAL ZONE FOR CYCLOGENESIS OVER CENTRAL PARTS OF SOUTH BOB WITH MOVEMENT TOWARDS ANDHRA PRADESH- COASTS DURING NEXT 3 DAYS.

(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)
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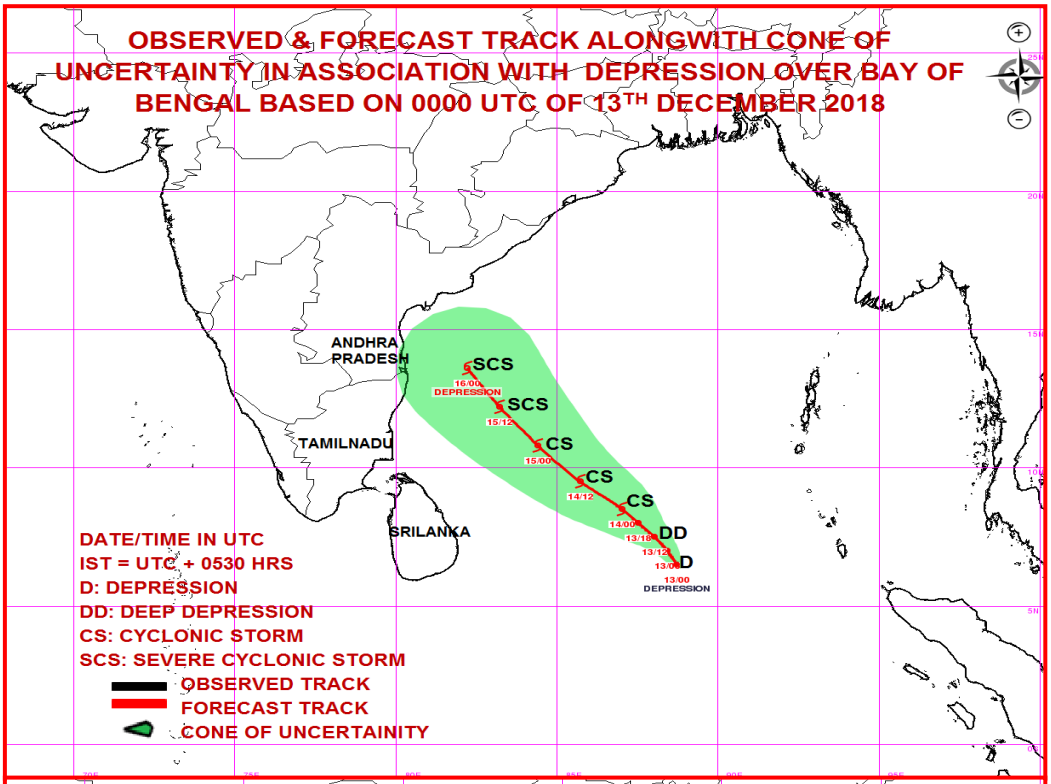

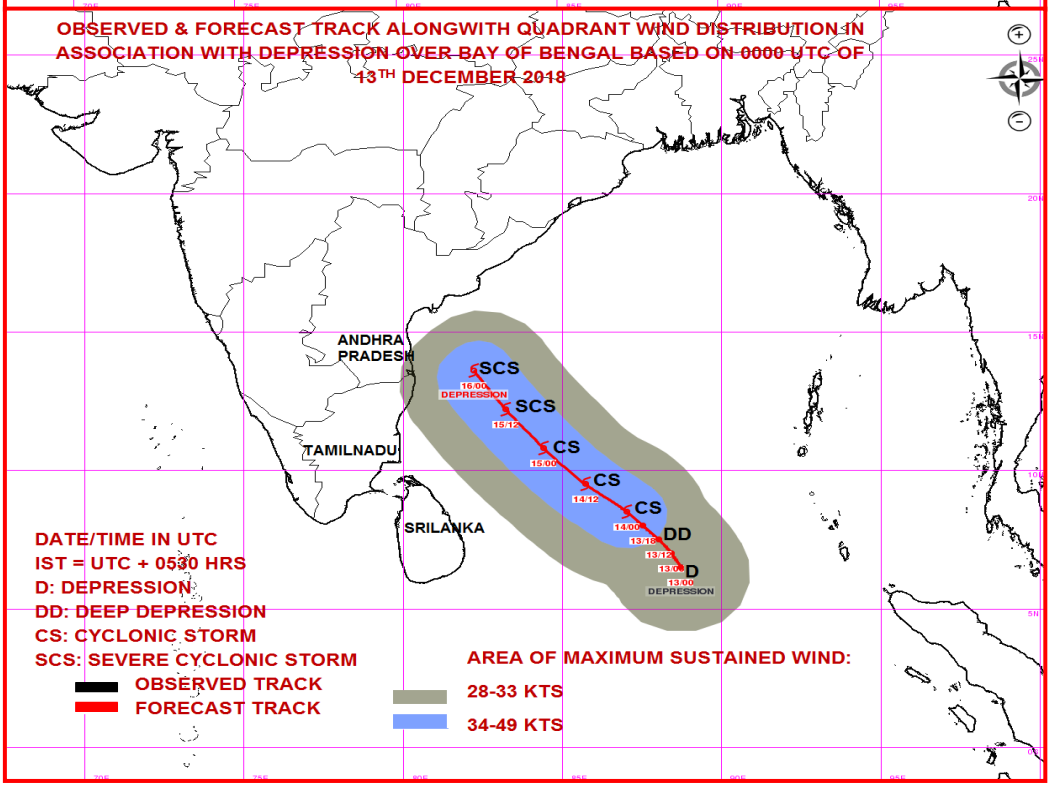

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)
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REGIONAL SPECIALISED METEOROLOGICAL CENTRE-TROPICAL CYCLONES, NEW DELHI

SPECIAL TROPICAL WEATHER OUTLOOK

DEMS-RSMC TROPICAL CYCLONES NEW DELHI DATED 13.12.2018

TROPICAL WEATHER OUTLOOK FOR NORTH INDIAN OCEAN (THE BAY OF BENGAL AND ARABIAN SEA) VALID FOR NEXT 120 HOURS ISSUED AT 1500 UTC OF 13.12.2018 BASED ON 1200 UTC OF 13.12.2018.

DEPRESSION OVER SOUTHEAST BAY OF BENGAL

THE DEPRESSION OVER SOUTHEAST BAY OF BENGAL MOVED NORTH-NORTHWESTWARDS WITH A SPEED OF 11 KMPH DURING PAST 06 HOURS AND LAY CENTRED AT 1200 UTC OF TODAY, THE 13TH DECEMBER, 2018 OVER SOUTHEAST BAY OF BENGAL NEAR LATITUDE 7.3°N AND LONGITUDE 88.2°E, ABOUT 780 KM SOUTHEAST OF TRINCOMALEE (43418) (SRI LANKA), 1080 KM SOUTH-SOUTHEAST OF CHENNAI (43278) (TAMIL NADU) AND 1250 KM SOUTH-SOUTHEAST OF MACHILIPATNAM (43185) (ANDHRA PRADESH). IT IS VERY LIKELY TO INTENSIFY FURTHER INTO A DEEP DEPRESSION DURING NEXT 12 HOURS AND INTO A CYCLONIC STORM DURING THE SUBSEQUENT 12 HOURS. IT IS VERY LIKELY TO MOVE NORTHWESTWARDS TOWARDS ANDHRA PRADESH COAST DURING NEXT 72 HOURS.

FORECAST TRACK AND INTENSITY ARE GIVEN IN THE FOLLOWING TABLE:

DATE/TIME (UTC)	POSITION (LAT. ^{0}N/ LONG. ^{0}E)	MAXIMUM SUSTAINED SURFACE WIND SPEED (KMPH)	CATEGORY OF CYCLONIC DISTURBANCE
13.12.18/1200	7.3/88.2	45-55 GUSTING TO 65	DEPRESSION
13.12.18/1800	7.7/87.7	50-60 GUSTING TO 70	DEEP DEPRESSION
14.12.18/0000	8.1/87.2	55-65 GUSTING TO 75	DEEP DEPRESSION
14.12.18/0600	8.5/86.5	60-70 GUSTING TO 80	CYCLONIC STORM
14.12.18/1200	9.0/85.7	65-75 GUSTING TO 85	CYCLONIC STORM
15.12.18/0000	10.1/84.6	70-80 GUSTING TO 90	CYCLONIC STORM
15.12.18/1200	11.4/83.5	80-90 GUSTING TO 100	CYCLONIC STORM
16.12.18/0000	12.9/82.6	90-100 GUSTING TO 110	SEVERE CYCLONIC STORM
16.12.18/1200	14.1/81.8	100-110 GUSTING TO 120	SEVERE CYCLONIC STORM

AS PER THE SATELLITE IMAGERY OF 1200 UTC ON 13TH DECEMBER THE INTENSITY OF THE VORTEX IS T 1.5 OVER SE BAY & N/HOOD. ASSOCIATED BROKEN LOW TO MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION OVER SE BAY OF BENGAL AND ADJOINING INDIAN OCEAN BETWEEN LATITUDE 4.5°N TO 11.5°N AND LONG 82.0°E TO 91.5°E (.) MINIMUM CLOUD TOP TEMPERATURE IS MINUS 93.1° C.

THE ESTIMATED CENTRAL PRESSURE IS ABOUT 1003 HPA AND THE MAXIMUM SUSTAINED SURFACE WIND SPEED IS 25 KNOTS GUSTING TO 35 KNOTS. STATE OF SEA IS ROUGH TO VERY ROUGH AROUND THE SYSTEM CENTRE.

AT 1200 UTC OF 13TH DECEMBER, A SHIP LOCATED AT 6.4°N/91.5°E REPORTED A MEAN SEA LEVEL PRESSURE OF 1006.6 HPA AND MEAN SURFACE WIND SPEED OF 140°/ 08 KNOTS.

REMARKS:

THE MADDEN JULIAN OSCILLATION (MJO) INDEX LIES CURRENTLY IN PHASE 3 WITH AMPLITUDE MORE THAN 1. IT WILL CONTINUE IN SAME PHASE WITH AMPLITUDE GREATER THAN 1 FOR NEXT 2 DAYS. THEREAFTER IT WILL MOVE TO PHASE 4 WITH AMPLITUDE REMAINING MORE THAN 1. HENCE, MJO PHASE WILL BE FAVOURABLE FOR ENHANCEMENT OF CONVECTION & INTENSIFICATION OF THE SYSTEM.

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

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

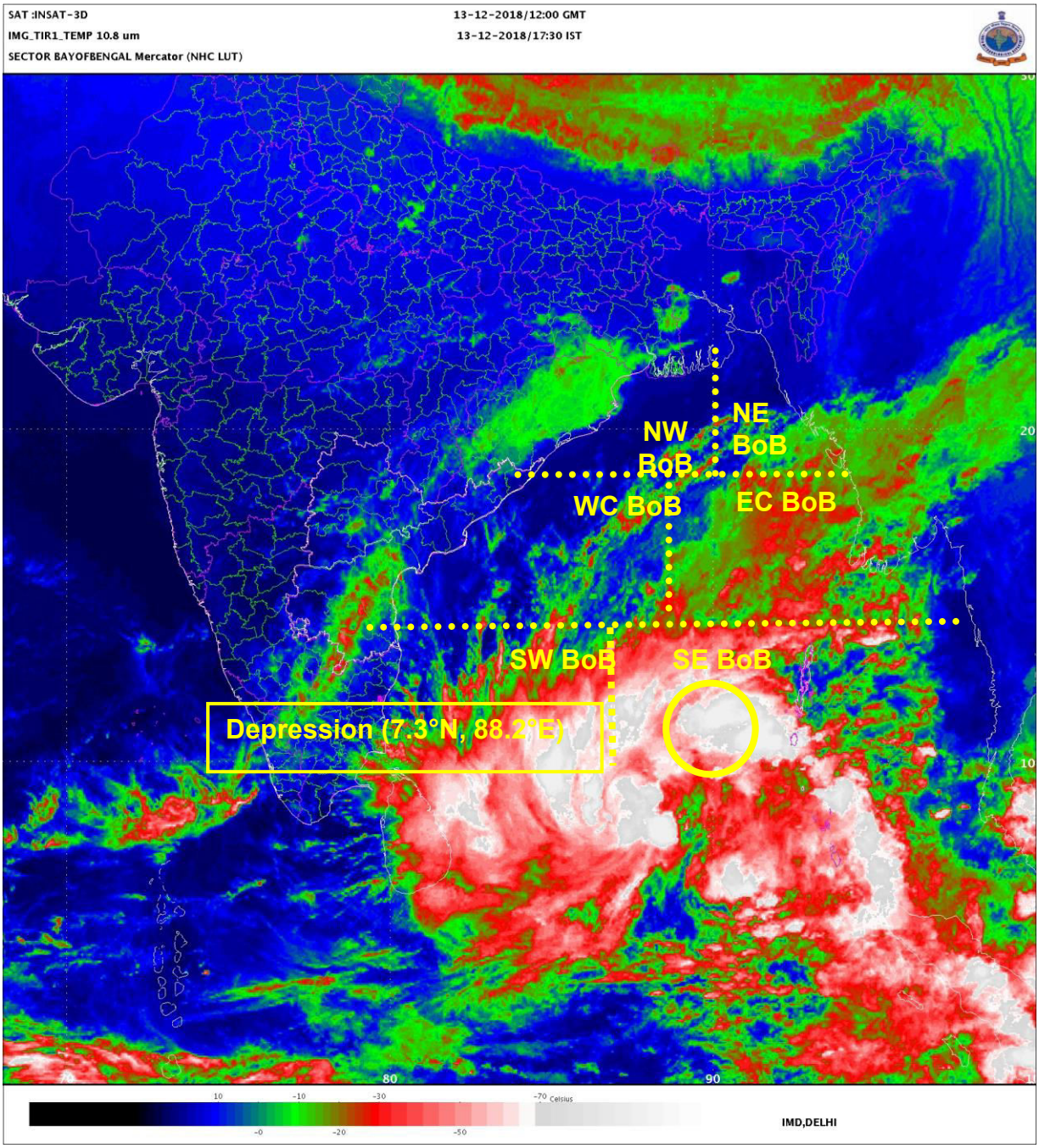
CONSIDERING THE ENVIRONMENTAL CONDITIONS, THE SEA SURFACE TEMPERATURE (SST) IS 29-30˚C OVER SOUTHEAST BOB AND ADJOINING AREAS. IT IS DECREASING SLIGHTLY BECOMING 26-27˚C TOWARDS WEST OF 82°E AND NORTH OF 8˚N. THE TROPICAL CYCLONE HEAT POTENTIAL IS MORE THAN 100 KJ/CM^2 OVER CENTRAL PARTS OF SOUTH BOB AND ADJOINING EIO. IT IS AROUND 60-80 KJ/CM^2 OVER REMAINING PARTS OF SOUTHEAST BOB. HOWEVER, IT IS LESS THAN 40 KJ/CM^2 OVER WESTERN PARTS OF BOB ALONG THE EAST COAST OF INDIA AND SRILANKA.THE LOWER LEVEL CONVERGENCE IS ($20x10^{-5}$ $SECOND^{-1}$), LOWER LEVEL VORTICITY($150x10^{-6}$ $SECOND^{-1}$), UPPER LEVEL DIVERGENCE ($20x10^{-5}$ $SECOND^{-1}$) AND LOW VERTICAL WIND SHEAR (10-15 KNOTS) OVER THE SYSTEM AREA. IT IS HIGH TO THE NORTH WEST OF THE SYSTEM AREA. HOWEVER, THE WIND SHEAR SHOWS A DECREASING TENDENCY.

THE UPPER TROPOSPHERIC RIDGE RUNS ALONG 12°N. THE SYSTEM IS BEING GUIDED BY THE ANTICYCLONE OVER SOUTHEAST ASIA, AND HENCE WILL HAVE MORE NORTHWARD COMPONENT OF MOVEMENT AS IT APPROACHES THE COAST. AS PER THE MODEL FORECAST A DEEP TROUGH IN UPPER TROPOSPHERIC WESTERLIES IS APPROACHING THE INDIAN REGION AND WILL LIE ALONG 70 E AT 200 HPA ON 17^{TH} DECEMBER. IT IS LIKELY TO LEAD TO RECURVATURE OF THE SYSTEM TO NORTHEAST DIRECTION AFTER LANDFALL OVER ANDHRA PRADESH COAST.

MOST OF THE NUMERICAL MODELS INCLUDING ECMWF, IMD GLOBAL FORECAST SYSTEM (GFS), NCEP GFS, GLOBAL ENSEMBLE FORECATING SYSTEM (GEFS), NCMRWF UNIFIED MODEL (NCUM) AND NCMRWF ENSEMBLE PREDICTION SYSTEM (NEPS) SUGGEST FURTHER INTENSIFICATION OF THE SYSTEM INTO A CYCLONIC STORM BY 14^{TH} AND MOVE TOWARDS ANDHRA PRADESH COAST DURING NEXT 72 HOURS. SIMILARLY, THERE IS ALSO SLIGHT VARIATION ABOUT THE INTENSITY OF THE SYSTEM AT THE TIME OF LANDFALL. THE GENESIS POTENTIAL PARAMETER INDEX INDICATES POTENTIAL ZONE FOR INTENSIFICATION INTO CYCLONIC STORM OVER CENTRAL PARTS OF SOUTH BOB.

(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)
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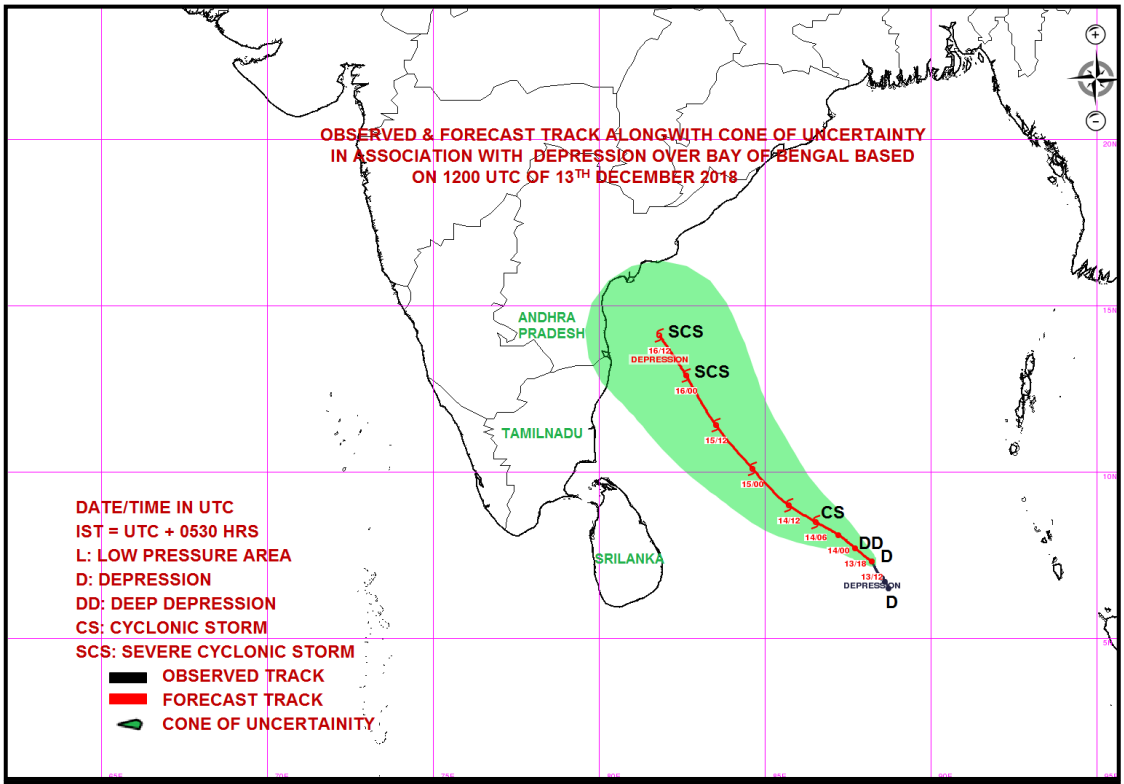

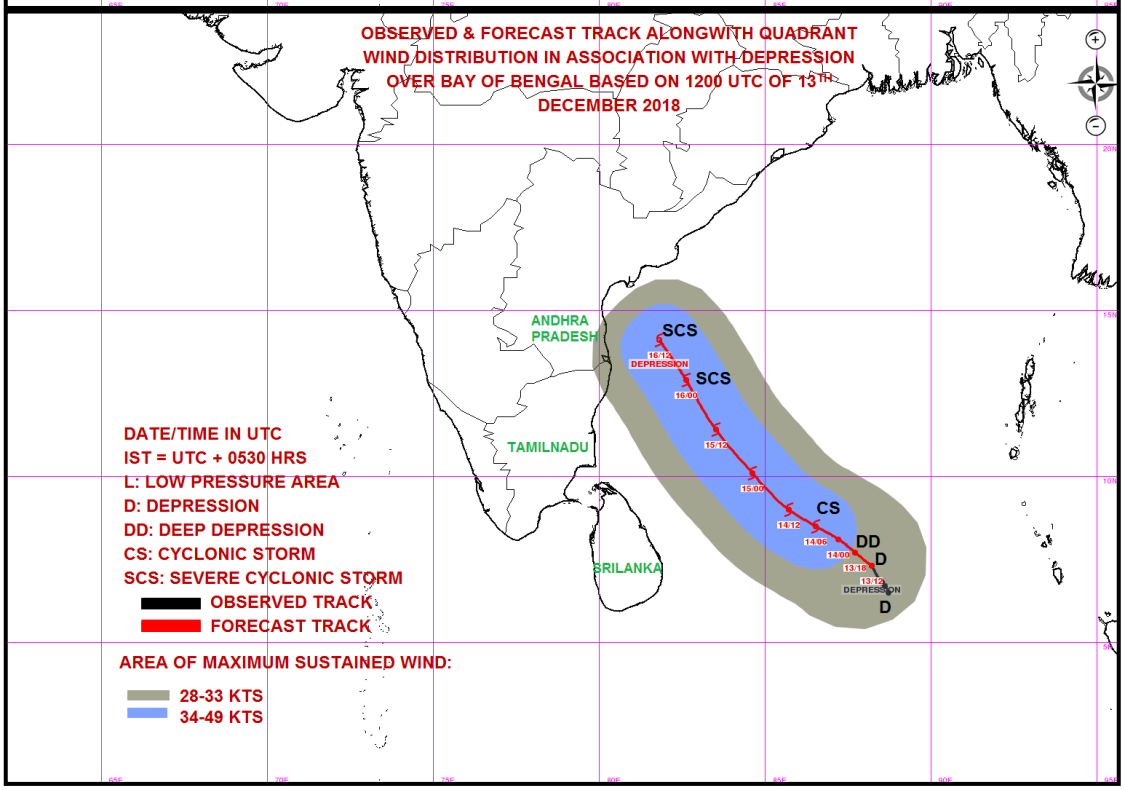

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)
NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

REGIONAL SPECIALISED METEOROLOGICAL CENTRE-TROPICAL CYCLONES, NEW DELHI

SPECIAL TROPICAL WEATHER OUTLOOK

DEMS-RSMC TROPICAL CYCLONES NEW DELHI DATED 13.12.2018

SPECIAL TROPICAL WEATHER OUTLOOK FOR NORTH INDIAN OCEAN (THE BAY OF BENGAL AND ARABIAN SEA) VALID FOR NEXT 120 HOURS ISSUED AT 1930 UTC OF 13.12.2018 BASED ON 1800 UTC OF 13.12.2018.

DEPRESSION INTENSIFIED INTO DEEP DEPRESSION OVER SOUTHEAST BAY OF BENGAL

THE DEPRESSION OVER SOUTHEAST BAY OF BENGAL MOVED NORTH-NORTHWESTWARDS WITH A SPEED OF 07 KMPH DURING PAST 06 HOURS, INTENSIFIED INTO A DEEP DEPRESSION AND LAY CENTRED AT 1800 UTC OF 13TH DECEMBER, 2018 OVER SOUTHEAST BAY OF BENGAL NEAR LATITUDE 7.6°N AND LONGITUDE 88.0°E, ABOUT 750 KM EAST-SOUTHEAST OF TRINCOMALEE (SRI LANKA), 1040 KM SOUTH-SOUTHEAST OF CHENNAI (TAMIL NADU) AND 1210 KM SOUTH-SOUTHEAST OF MACHILIPATNAM (ANDHRA PRADESH). IT IS VERY LIKELY TO INTENSIFY FURTHER INTO A CYCLONIC STORM DURING NEXT 24 HOURS AND INTO A SEVERE CYCLONIC STORM IN SUBSEQUENT 24 HOURS. IT IS VERY LIKELY TO MOVE NORTHWESTWARDS TOWARDS ANDHRA PRADESH COAST DURING NEXT 72 HOURS.

FORECAST TRACK AND INTENSITY ARE GIVEN IN THE FOLLOWING TABLE:

Date/Time(UTC)	Position (Lat. ^{0}N/ long. ^{0}E	Maximum sustained surface wind speed (Kmph)	Category of cyclonic disturbance
13.12.18/1800	7.6/88.0	50-60 gusting to 70	Deep Depression
14.12.18/0000	8.1/87.2	55-65 gusting to 75	Deep Depression
14.12.18/0600	8.5/86.5	60-70 gusting to 80	Cyclonic Storm
14.12.18/1200	9.0/85.7	65-75 gusting to 85	Cyclonic Storm
14.12.18/1800	9.5/85.0	70-80 gusting to 90	Cyclonic Storm
15.12.18/0600	10.7/84.1	75-85 gusting to 95	Cyclonic Storm
15.12.18/1800	12.1/83.1	90-100 gusting to 110	Severe Cyclonic Storm
16.12.18/0600	13.5/82.2	95-105 gusting to 115	Severe Cyclonic Storm
16.12.18/1800	14.9/81.3	90-100 gusting to 110	Severe Cyclonic Storm

AS PER THE SATELLITE IMAGERY OF 1500 UTC ON 13TH DECEMBER THE INTENSITY OF THE VORTEX IS T 2.0 OVER SE BAY & N/HOOD. ASSOCIATED BROKEN LOW TO MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION OVER AREA BETWEEN LATITUDE 7.0°N TO 11.0°N AND LONG 84.0°E TO 90.0°E (.) MINIMUM CLOUD TOP TEMPERATURE IS MINUS 93.1° C.

THE ESTIMATED CENTRAL PRESSURE IS ABOUT 1002 HPA AND THE MAXIMUM SUSTAINED SURFACE WIND SPEED IS 30 KNOTS GUSTING TO 40 KNOTS. STATE OF SEA IS VERY ROUGH AROUND THE SYSTEM CENTRE.

AT 1500 UTC OF 13TH DECEMBER, A SHIP LOCATED AT 6.1°N/90.2°E REPORTED A MEAN SEA LEVEL PRESSURE OF 1010.0 HPA AND MEAN SURFACE WIND SPEED OF 220°/ 16 KNOTS AND ANOTHER SHIP LOCATED AT 6.7°N/91.4°E REPORTED A MEAN SEA LEVEL PRESSURE OF 1008.3 HPA AND MEAN SURFACE WIND SPEED OF 170°/ 21 KNOTS.

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

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

REMARKS:

THE MADDEN JULIAN OSCILLATION (MJO) INDEX LIES CURRENTLY IN PHASE 3 WITH AMPLITUDE MORE THAN 1. IT WILL CONTINUE IN SAME PHASE WITH AMPLITUDE GREATER THAN 1 FOR NEXT 2 DAYS. THEREAFTER IT WILL MOVE TO PHASE 4 WITH AMPLITUDE REMAINING MORE THAN 1. HENCE, MJO PHASE WILL BE FAVOURABLE FOR ENHANCEMENT OF CONVECTION & INTENSIFICATION OF THE SYSTEM.

CONSIDERING THE ENVIRONMENTAL CONDITIONS, THE SEA SURFACE TEMPERATURE (SST) IS 29-30˚C OVER SOUTHEAST BOB AND ADJOINING AREAS. IT IS DECREASING SLIGHTLY BECOMING 26-27˚C TOWARDS WEST OF 82°E AND NORTH OF 8˚N. THE TROPICAL CYCLONE HEAT POTENTIAL IS MORE THAN 100 KJ/CM^2 OVER CENTRAL PARTS OF SOUTH BOB AND ADJOINING EIO. IT IS AROUND 60-80 KJ/CM^2 OVER REMAINING PARTS OF SOUTHEAST BOB. HOWEVER, IT IS LESS THAN 40 KJ/CM^2 OVER WESTERN PARTS OF BOB ALONG THE EAST COAST OF INDIA AND SRILANKA.THE LOWER LEVEL CONVERGENCE IS (30x10^{-5} SECOND^{-1}), LOWER LEVEL VORTICITY(150x10^{-6} SECOND ^{1}), UPPER LEVEL DIVERGENCE (40x10^{-5} SECOND^{-1}) AND LOW VERTICAL WIND SHEAR (20-25 KNOTS) OVER THE SYSTEM AREA. IT IS HIGH TO THE NORTH WEST OF THE SYSTEM AREA. HOWEVER, THE WIND SHEAR SHOWS A INCREASING TENDENCY ALONG THE FORECAST TRACK.

THE UPPER TROPOSPHERIC RIDGE RUNS ALONG 12°N. THE SYSTEM IS BEING GUIDED BY THE ANTICYCLONE OVER SOUTHEAST ASIA, AND HENCE WILL HAVE MORE NORTHWARD COMPONENT OF MOVEMENT AS IT APPROACHES THE COAST. AS PER THE MODEL FORECAST A DEEP TROUGH IN UPPER TROPOSPHERIC WESTERLIES IS APPROACHING THE INDIAN REGION AND WILL LIE ALONG 70 E AT 200 HPA ON 17TH DECEMBER. IT IS LIKELY TO LEAD TO RECURVATURE OF THE SYSTEM TO NORTHEAST DIRECTION AFTER LANDFALL OVER ANDHRA PRADESH COAST.

MOST OF THE NUMERICAL MODELS INCLUDING ECMWF, IMD GLOBAL FORECAST SYSTEM (GFS), NCEP GFS, GLOBAL ENSEMBLE FORECATING SYSTEM (GEFS), NCMRWF UNIFIED MODEL (NCUM) AND NCMRWF ENSEMBLE PREDICTION SYSTEM (NEPS) SUGGEST FURTHER INTENSIFICATION OF THE SYSTEM INTO A CYCLONIC STORM BY 14TH AND MOVE TOWARDS ANDHRA PRADESH COAST DURING NEXT 72 HOURS. SIMILARLY, THERE IS ALSO SLIGHT VARIATION ABOUT THE INTENSITY OF THE SYSTEM AT THE TIME OF LANDFALL. THE GENESIS POTENTIAL PARAMETER INDEX INDICATES POTENTIAL ZONE FOR INTENSIFICATION INTO CYCLONIC STORM OVER CENTRAL PARTS OF SOUTH BOB.

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

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)
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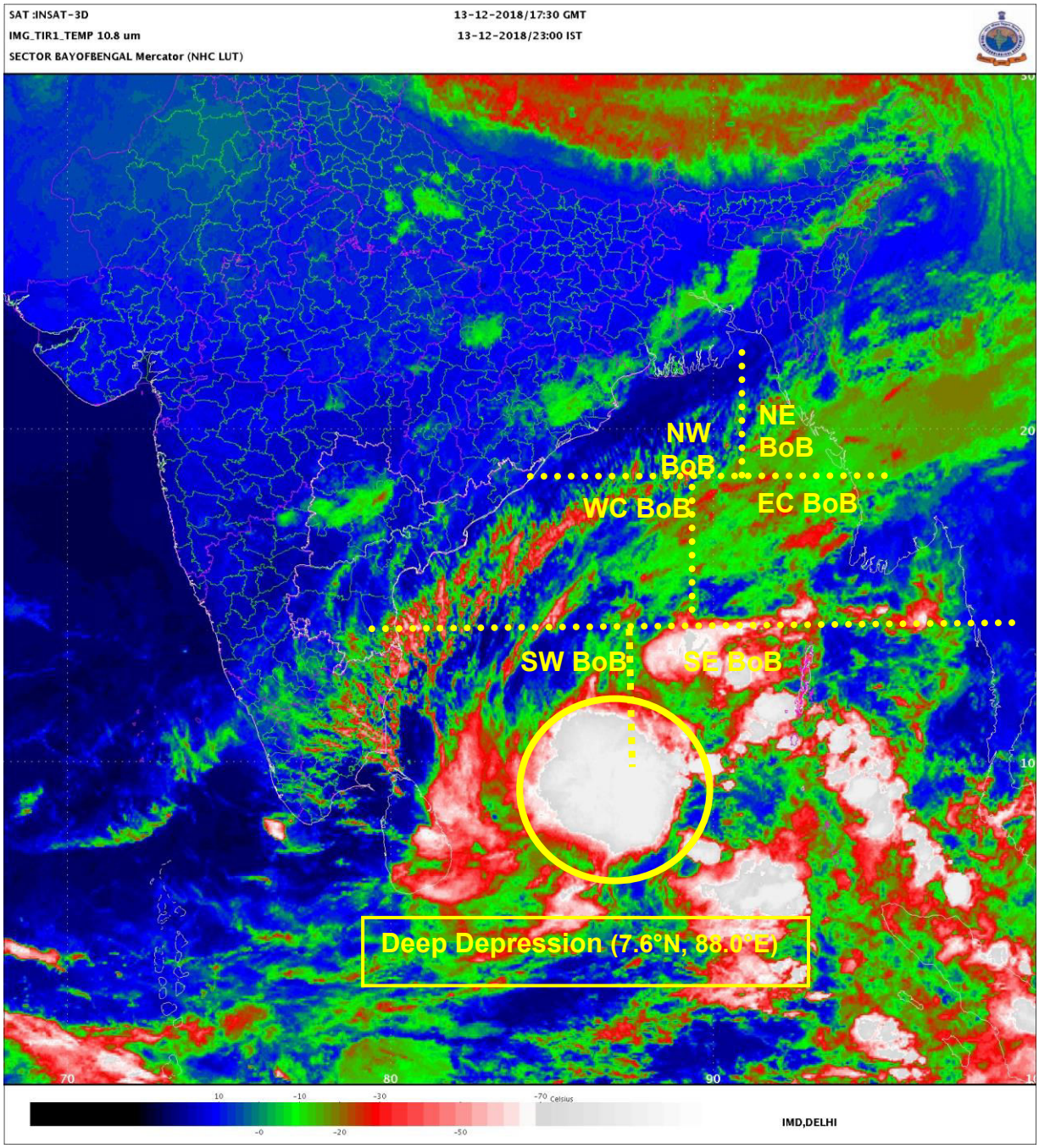

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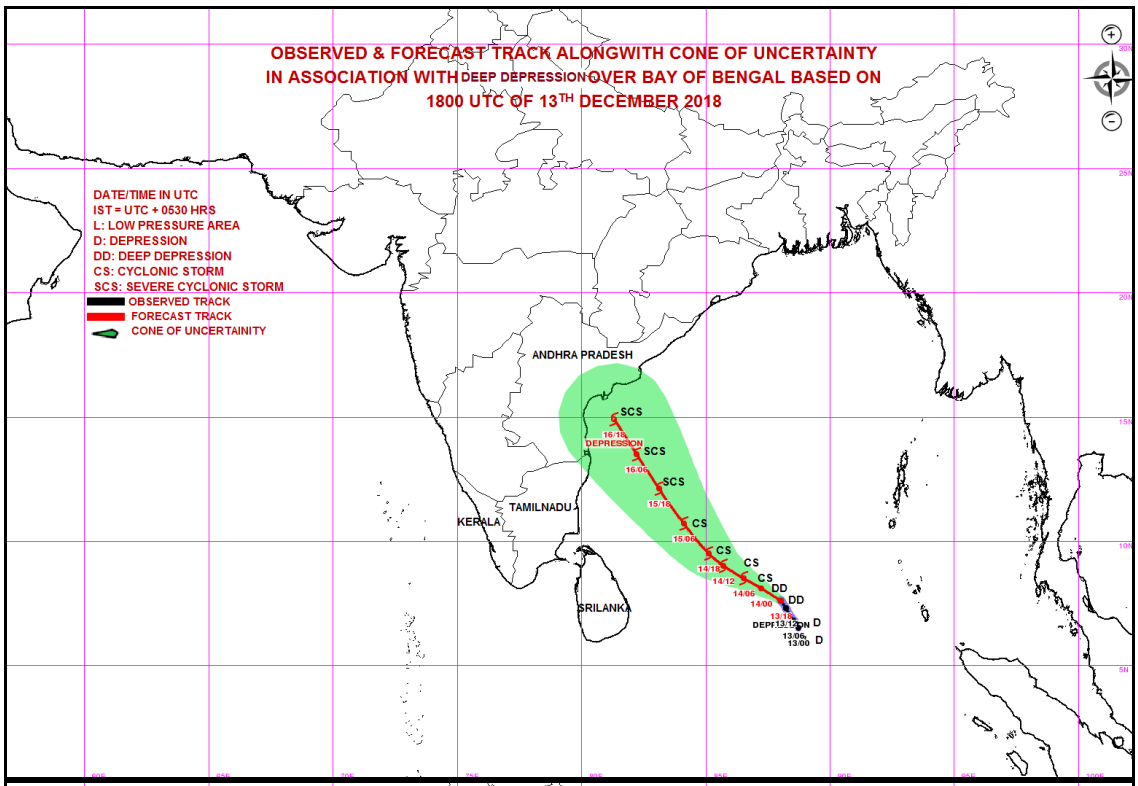

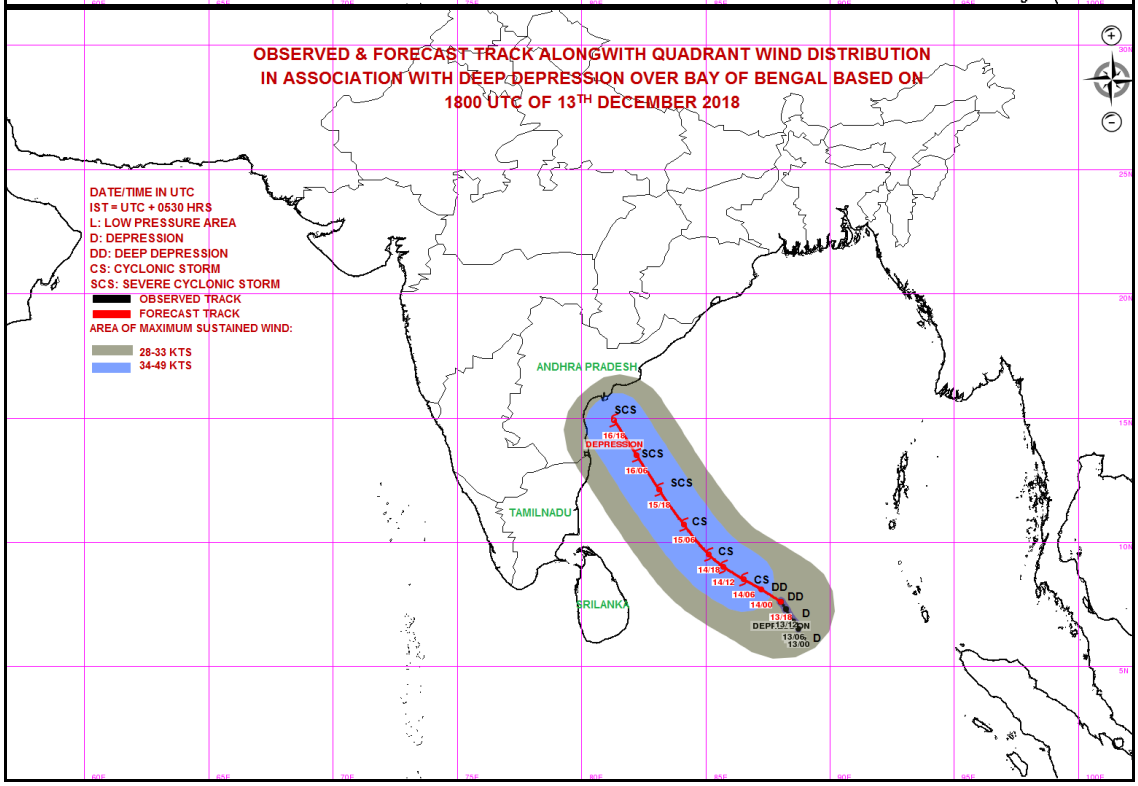

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)
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REGIONAL SPECIALISED METEOROLOGICAL CENTRE-TROPICAL CYCLONES, NEW DELHI

SPECIAL TROPICAL WEATHER OUTLOOK

DEMS-RSMC TROPICAL CYCLONES NEW DELHI DATED 13.12.2018

SPECIAL TROPICAL WEATHER OUTLOOK FOR NORTH INDIAN OCEAN (THE BAY OF BENGAL AND ARABIAN SEA) VALID FOR NEXT 120 HOURS ISSUED AT 0300 UTC OF 14.12.2018 BASED ON 0000 UTC OF 14.12.2018.

DEEP DEPRESSION OVER SOUTHEAST BAY OF BENGAL

THE DEEP DEPRESSION OVER SOUTHEAST BAY OF BENGAL MOVED NORTH-NORTHWESTWARDS WITH A SPEED OF 13 KMPH DURING PAST 06 HOURS AND LAY CENTRED AT 0000 UTC OF 14TH DECEMBER, 2018 OVER SOUTHEAST BAY OF BENGAL NEAR LATITUDE 8.2°N AND LONGITUDE 87.6°E, ABOUT 700 KM EAST-SOUTHEAST OF TRINCOMALEE (SRI LANKA), 960 KM EAST-SOUTHEAST OF CHENNAI (TAMIL NADU) AND 1130 KM SOUTH-SOUTHEAST OF MACHILIPATNAM (ANDHRA PRADESH). IT IS VERY LIKELY TO INTENSIFY FURTHER INTO A CYCLONIC STORM DURING NEXT 12 HOURS AND INTO A SEVERE CYCLONIC STORM IN SUBSEQUENT 36 HOURS. IT IS VERY LIKELY TO MOVE NORTH-NORTHWESTWARDS AND CROSS ANDHRA PRADESH COAST BETWEEN ONGOLE AND KAKINADA DURING 17TH DECEMBER AFTERNOON.

FORECAST TRACK AND INTENSITY ARE GIVEN IN THE FOLLOWING TABLE:

Date/Time(UTC)	Position (Lat. ^{0}N/ long. ^{0}E	Maximum sustained surface wind speed (Kmph)	Category of cyclonic disturbance
14.12.18/0000	8.2/87.6	50-60 gusting to 70	Deep Depression
14.12.18/0600	8.8/87.0	55-65 gusting to 75	Deep Depression
14.12.18/1200	9.4/86.2	60-70 gusting to 80	Cyclonic Storm
14.12.18/1800	10.0/85.6	65-75 gusting to 85	Cyclonic Storm
15.12.18/0000	10.6/85.1	70-80 gusting to 90	Cyclonic Storm
15.12.18/1200	11.8/84.2	80-90 gusting to 100	Cyclonic Storm
16.12.18/0000	13.0/83.2	85-95 gusting to 105	Severe Cyclonic Storm
16.12.18/1200	14.2/82.4	90-100 gusting to 110	Severe Cyclonic Storm
17.12.18/0000	15.4/82.0	85-95 gusting to 105	Severe Cyclonic Storm
17.12.18/1200	16.5/81.5	80-90 gusting to 100	Cyclonic Storm
18.12.18/0000	17.5/81.2	65-75 gusting to 85	Cyclonic Storm

AS PER THE SATELLITE IMAGERY OF 0000 UTC ON 14TH DECEMBER THE INTENSITY OF THE VORTEX IS T 2.0 OVER SE BAY & N/HOOD. ASSOCIATED BROKEN LOW TO MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION OVER AREA BETWEEN LATITUDE 7.0°N TO 14.0°N AND LONG 83.0°E TO 90.0°E (.) MINIMUM CLOUD TOP TEMPERATURE IS MINUS 93.1° C.

THE ESTIMATED CENTRAL PRESSURE IS ABOUT 1002 HPA AND THE MAXIMUM SUSTAINED SURFACE WIND SPEED IS 30 KNOTS GUSTING TO 40 KNOTS. STATE OF SEA IS VERY ROUGH AROUND THE SYSTEM CENTRE.

AT 0000 UTC OF 14TH DECEMBER, A SHIP LOCATED AT 6.5°N/91.3°E REPORTED A MEAN SEA LEVEL PRESSURE OF 1006.9 HPA AND MEAN SURFACE WIND SPEED OF 200°/ 17 KNOTS AND ANOTHER SHIP LOCATED AT 3.2°N/91.3°E REPORTED A MEAN SEA LEVEL PRESSURE OF 1013.0 HPA AND MEAN SURFACE WIND SPEED OF 200°/ 19 KNOTS.

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

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

REMARKS:

THE MADDEN JULIAN OSCILLATION (MJO) INDEX LIES CURRENTLY IN PHASE 3 WITH AMPLITUDE MORE THAN 1. IT WILL CONTINUE IN SAME PHASE WITH AMPLITUDE GREATER THAN 1 FOR NEXT 24 HOURS. THEREAFTER IT WILL MOVE TO PHASE 4 WITH AMPLITUDE REMAINING MORE THAN 1. HENCE, MJO PHASE WILL BE FAVOURABLE FOR ENHANCEMENT OF CONVECTION & INTENSIFICATION OF THE SYSTEM.

CONSIDERING THE ENVIRONMENTAL CONDITIONS, THE SEA SURFACE TEMPERATURE (SST) IS 29-30˚C OVER SOUTHEAST BOB AND ADJOINING AREAS. IT IS DECREASING SLIGHTLY BECOMING 26-27˚C TOWARDS WEST OF 82°E AND NORTH OF 8˚N. THE TROPICAL CYCLONE HEAT POTENTIAL IS MORE THAN 100 KJ/CM^2 OVER CENTRAL PARTS OF SOUTH BOB AND ADJOINING EIO. IT IS AROUND 60-80 KJ/CM^2 OVER REMAINING PARTS OF SOUTHEAST BOB. HOWEVER, IT IS LESS THAN 40 KJ/CM^2 OVER WESTERN PARTS OF BOB ALONG THE EAST COAST OF INDIA AND SRILANKA.THE LOWER LEVEL CONVERGENCE IS (40x10^{-5} SECOND^{-1}) TOWARDS WEST OF THE SYSTEM CENTER, LOWER LEVEL VORTICITY(150x10^{-6} SECOND ^{1}) TOWARDS SOUTHWEST OF SYSTEM CENTER, UPPER LEVEL DIVERGENCE (30x10^{-5} SECOND^{-1}) TOWARDS WEST OF THE SYSTEM CENTER AND VERTICAL WIND SHEAR (20-25 KNOTS) OVER THE SYSTEM AREA AND ALONG THE FORECAST TRACK. THE WIND SHEAR SHOWS A DECREASING TENDENCY ALONG THE FORECAST TRACK.

THE UPPER TROPOSPHERIC RIDGE RUNS ALONG 13°N. THE SYSTEM IS BEING GUIDED BY THE ANTICYCLONE OVER SOUTHEAST ASIA, AND HENCE WILL HAVE MORE NORTHWARD COMPONENT OF MOVEMENT AS IT APPROACHES THE COAST. AS PER THE MODEL FORECAST A DEEP TROUGH IN UPPER TROPOSPHERIC WESTERLIES IS APPROACHING THE INDIAN REGION AND WILL LIE ALONG 70 E AT 200 HPA ON 17TH DECEMBER. IT IS LIKELY TO LEAD TO RECURVATURE OF THE SYSTEM TO NORTHEAST DIRECTION AFTER LANDFALL OVER ANDHRA PRADESH COAST.

MOST OF THE NUMERICAL MODELS INCLUDING ECMWF, IMD GLOBAL FORECAST SYSTEM (GFS), NCEP GFS, GLOBAL ENSEMBLE FORECATING SYSTEM (GEFS), NCMRWF UNIFIED MODEL (NCUM) AND NCMRWF ENSEMBLE PREDICTION SYSTEM (NEPS) SUGGEST FURTHER INTENSIFICATION OF THE SYSTEM INTO A CYCLONIC STORM BY 14TH AND MOVE TOWARDS ANDHRA PRADESH COAST DURING NEXT 72 HOURS. SIMILARLY, THERE IS ALSO SLIGHT VARIATION ABOUT THE INTENSITY OF THE SYSTEM AT THE TIME OF LANDFALL. THE GENESIS POTENTIAL PARAMETER INDEX INDICATES POTENTIAL ZONE FOR INTENSIFICATION INTO CYCLONIC STORM OVER CENTRAL PARTS OF SOUTH BOB.

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

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)
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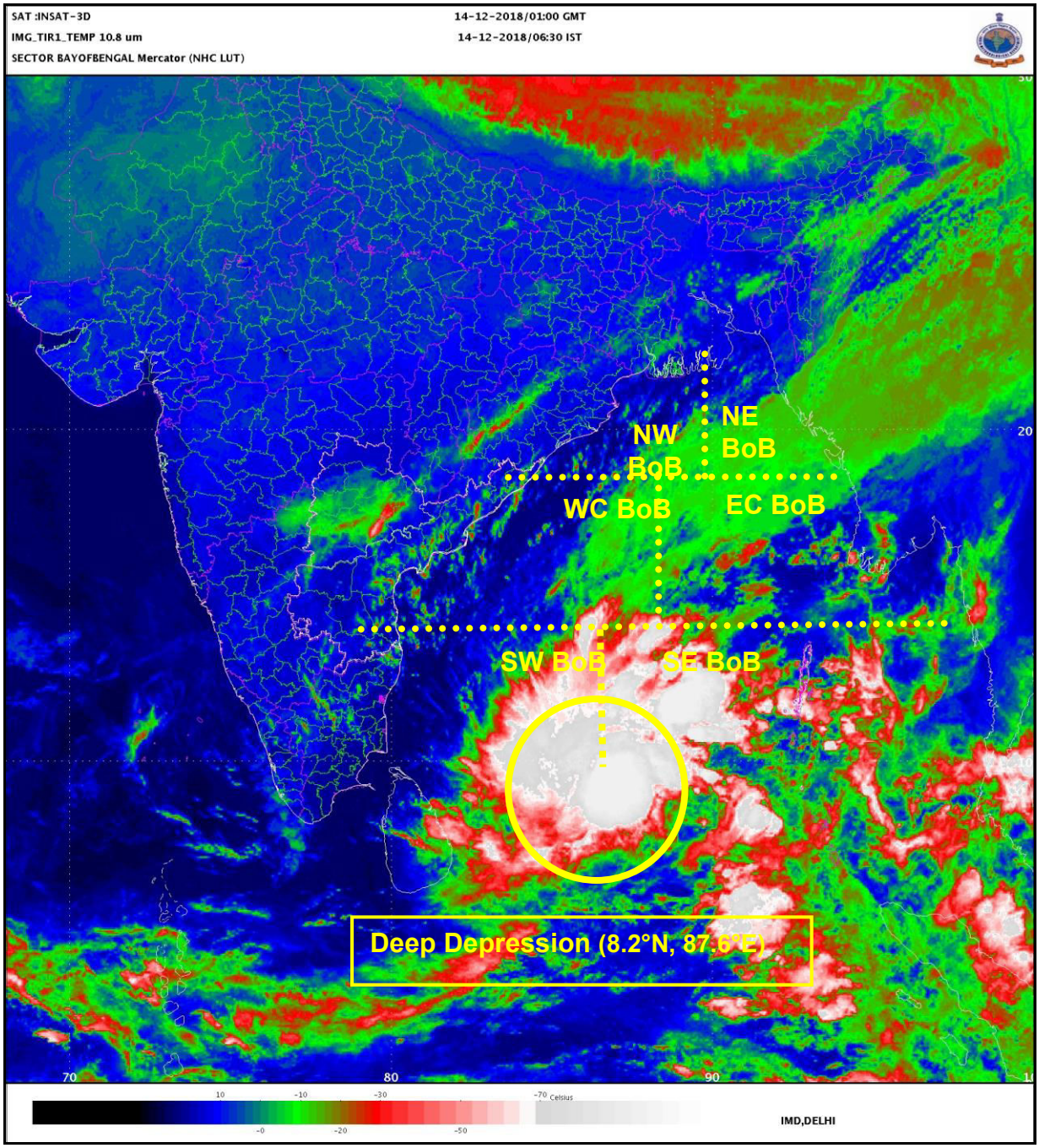

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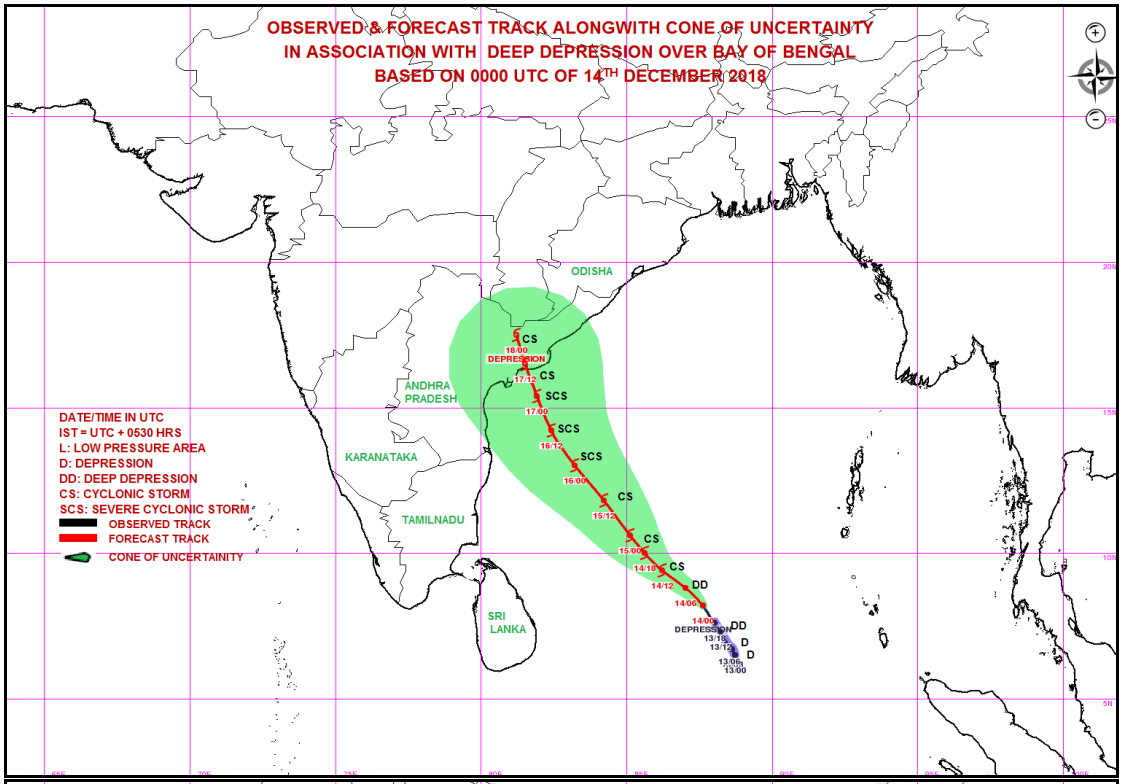

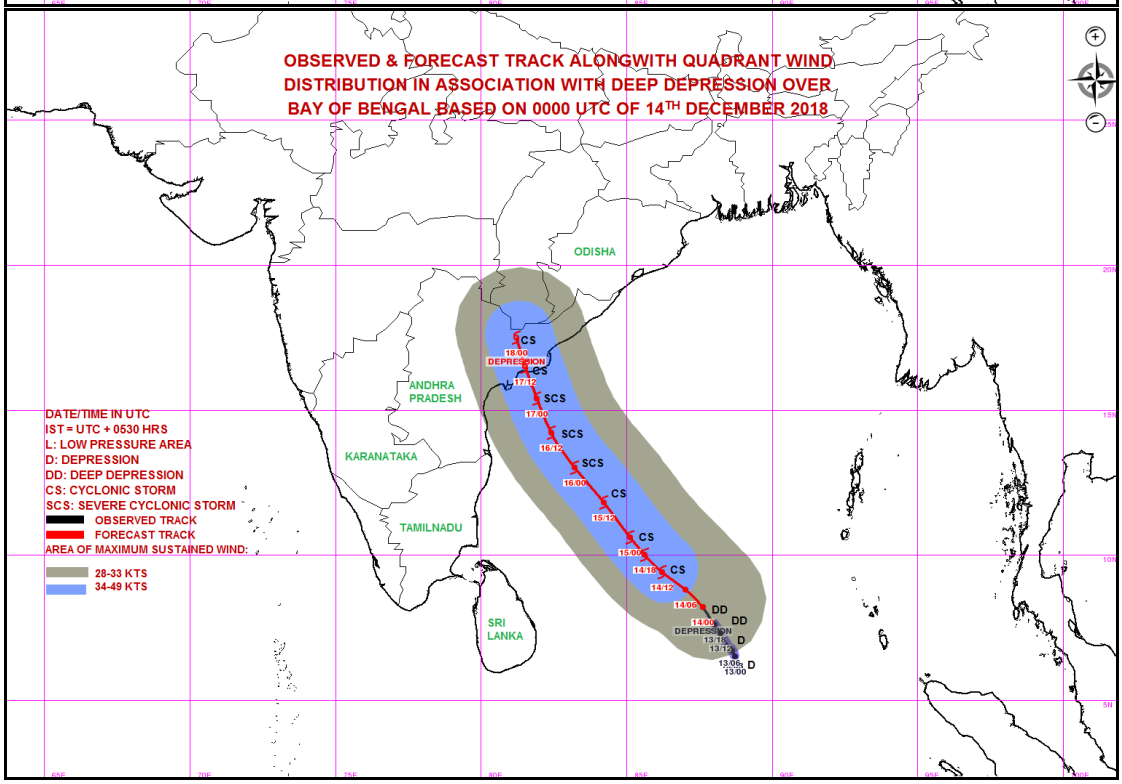

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)
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REGIONAL SPECIALISED METEOROLOGICAL CENTRE-TROPICAL CYCLONES, NEW DELHI

SPECIAL TROPICAL WEATHER OUTLOOK

DEMS-RSMC TROPICAL CYCLONES NEW DELHI DATED 14.12.2018

SPECIAL TROPICAL WEATHER OUTLOOK FOR NORTH INDIAN OCEAN (THE BAY OF BENGAL AND ARABIAN SEA) VALID FOR NEXT 120 HOURS ISSUED AT 0600 UTC OF 14.12.2018 BASED ON 0300 UTC OF 14.12.2018.

DEEP DEPRESSION OVER SOUTHEAST BAY OF BENGAL

THE DEEP DEPRESSION OVER SOUTHEAST BAY OF BENGAL MOVED FURTHER NORTH-NORTHWESTWARDS WITH A SPEED OF 12 KMPH DURING PAST 06 HOURS AND LAY CENTRED AT 0300 UTC OF 14TH DECEMBER, 2018 OVER SOUTHEAST BAY OF BENGAL NEAR LATITUDE 8.5°N AND LONGITUDE 87.4°E, ABOUT 670 KM EAST OF TRINCOMALEE (43418) (SRI LANKA), 930 KM EAST-SOUTHEAST OF CHENNAI (43278) (TAMIL NADU) AND 1090 KM SOUTHEAST OF MACHILIPATNAM (43185) (ANDHRA PRADESH). IT IS VERY LIKELY TO INTENSIFY FURTHER INTO A CYCLONIC STORM DURING NEXT 12 HOURS AND INTO A SEVERE CYCLONIC STORM IN SUBSEQUENT 36 HOURS. IT IS VERY LIKELY TO MOVE NORTH-NORTHWESTWARDS AND CROSS ANDHRA PRADESH COAST BETWEEN ONGOLE (43221) AND KAKINADA (43189) DURING 0900-1200 UTC ON 17TH DECEMBER.

FORECAST TRACK AND INTENSITY ARE GIVEN IN THE FOLLOWING TABLE:

DATE/ TIME(UTC)	POSITION (LAT. ^{0}N/ LONG. ^{0}E)	MAXIMUM SUSTAINED SURFACE WIND SPEED (KMPH)	CATEGORY OF CYCLONIC DISTURBANCE
14.12.18/0300	8.5/87.4	50-60 GUSTING TO 70	DEEP DEPRESSION
14.12.18/0600	8.8/87.0	55-65 GUSTING TO 75	DEEP DEPRESSION
14.12.18/1200	9.4/86.2	60-70 GUSTING TO 80	CYCLONIC STORM
14.12.18/1800	10.0/85.6	65-75 GUSTING TO 85	CYCLONIC STORM
15.12.18/0000	10.6/85.1	70-80 GUSTING TO 90	CYCLONIC STORM
15.12.18/1200	11.8/84.2	80-90 GUSTING TO 100	CYCLONIC STORM
16.12.18/0000	13.0/83.2	85-95 GUSTING TO 105	SEVERE CYCLONIC STORM
16.12.18/1200	14.2/82.4	90-100 GUSTING TO 110	SEVERE CYCLONIC STORM
17.12.18/0000	15.4/82.0	85-95 GUSTING TO 105	SEVERE CYCLONIC STORM
17.12.18/1200	16.5/81.5	80-90 GUSTING TO 100	CYCLONIC STORM
18.12.18/0000	17.5/81.2	65-75 GUSTING TO 85	CYCLONIC STORM

AS PER THE SATELLITE IMAGERY OF 0300 UTC ON 14TH DECEMBER THE INTENSITY OF THE VORTEX OVER SE BAY & N/HOOD IS T 2.0. ASSOCIATED BROKEN LOW TO MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION OVER AREA BETWEEN LATITUDE 7.5°N TO 14.5°N AND LONG 82.0°E TO 91.0°E (.) MINIMUM CLOUD TOP TEMPERATURE IS MINUS 93.1° C.

THE ESTIMATED CENTRAL PRESSURE IS ABOUT 1002 HPA AND THE MAXIMUM SUSTAINED SURFACE WIND SPEED IS 30 KNOTS GUSTING TO 40 KNOTS. STATE OF SEA IS VERY ROUGH AROUND THE SYSTEM CENTRE.

AT 0300 UTC OF 14TH DECEMBER, A SHIP LOCATED AT 6.1°N/90.2°E REPORTED A MEAN SEA LEVEL PRESSURE OF 1009.5 HPA. A BOUY LOCATED AT 13.4°N/84.2°E REPORTED A MEAN SEA LEVEL PRESSURE OF 1013.4 HPA AND MEAN SURFACE WIND SPEED OF 060°/ 15 KNOTS.

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

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

REMARKS:

THE MADDEN JULIAN OSCILLATION (MJO) INDEX LIES CURRENTLY IN PHASE 4 WITH AMPLITUDE MORE THAN 1. IT WILL CONTINUE IN SAME PHASE WITH AMPLITUDE GREATER THAN 1 FOR NEXT 3-4 HOURS. HENCE, MJO PHASE WILL BE FAVOURABLE FOR ENHANCEMENT OF CONVECTION & INTENSIFICATION OF THE SYSTEM.

CONSIDERING THE ENVIRONMENTAL CONDITIONS, THE SEA SURFACE TEMPERATURE (SST) IS 29-30˚C OVER SOUTHEAST BOB AND ADJOINING AREAS. IT IS DECREASING SLIGHTLY BECOMING 26-27˚C TOWARDS WEST OF 83°E AND NORTH OF 12˚N. THE TROPICAL CYCLONE HEAT POTENTIAL IS MORE THAN 100 KJ/CM^2 OVER CENTRAL PARTS OF SOUTH BOB AND ADJOINING EIO. IT IS AROUND 60-80 KJ/CM^2 OVER REMAINING PARTS OF SOUTHEAST BOB. HOWEVER, IT IS LESS THAN 40 KJ/CM^2 OVER WESTERN PARTS OF BOB ALONG THE EAST COAST OF INDIA AND SRILANKA.THE LOWER LEVEL CONVERGENCE IS ($40x10^{-5}$ SECOND^{-1}) TOWARDS WEST OF THE SYSTEM CENTER, LOWER LEVEL VORTICITY($150x10^{-6}$ SECOND ^{1}) TOWARDS SOUTHWEST OF SYSTEM CENTER, UPPER LEVEL DIVERGENCE ($40x10^{-5}$ SECOND^{-1}) TOWARDS WEST OF THE SYSTEM CENTER AND VERTICAL WIND SHEAR (20-25 KNOTS) OVER THE SYSTEM AREA AND ALONG THE FORECAST TRACK. THE WIND SHEAR SHOWS A DECREASING TENDENCY ALONG THE FORECAST TRACK.

THE UPPER TROPOSPHERIC RIDGE RUNS ALONG 13°N. THE SYSTEM IS BEING GUIDED BY THE ANTICYCLONE OVER SOUTHEAST ASIA, AND HENCE WILL HAVE MORE NORTHWARD COMPONENT OF MOVEMENT AS IT APPROACHES THE COAST. AS PER THE MODEL FORECAST A DEEP TROUGH IN UPPER TROPOSPHERIC WESTERLIES IS APPROACHING THE INDIAN REGION AND WILL LIE ALONG 70 E AT 200 HPA ON 17TH DECEMBER. IT IS LIKELY TO LEAD TO RECURVATURE OF THE SYSTEM TO NORTHEAST DIRECTION AFTER LANDFALL OVER ANDHRA PRADESH COAST.

MOST OF THE NUMERICAL MODELS INCLUDING ECMWF, IMD GLOBAL FORECAST SYSTEM (GFS), NCEP GFS, GLOBAL ENSEMBLE FORECATING SYSTEM (GEFS), NCMRWF UNIFIED MODEL (NCUM) AND NCMRWF ENSEMBLE PREDICTION SYSTEM (NEPS) SUGGEST FURTHER INTENSIFICATION OF THE SYSTEM INTO A CYCLONIC STORM DURING NEXT 12 HOURS AND INTO A SEVERE CYCLONIC STORM DURING SUBSEQUENT 24 HOURS AND MOVE TOWARDS ANDHRA PRADESH COAST DURING NEXT 72 HOURS. SIMILARLY, THERE IS ALSO SLIGHT VARIATION ABOUT THE INTENSITY OF THE SYSTEM AT THE TIME OF LANDFALL.

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

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)
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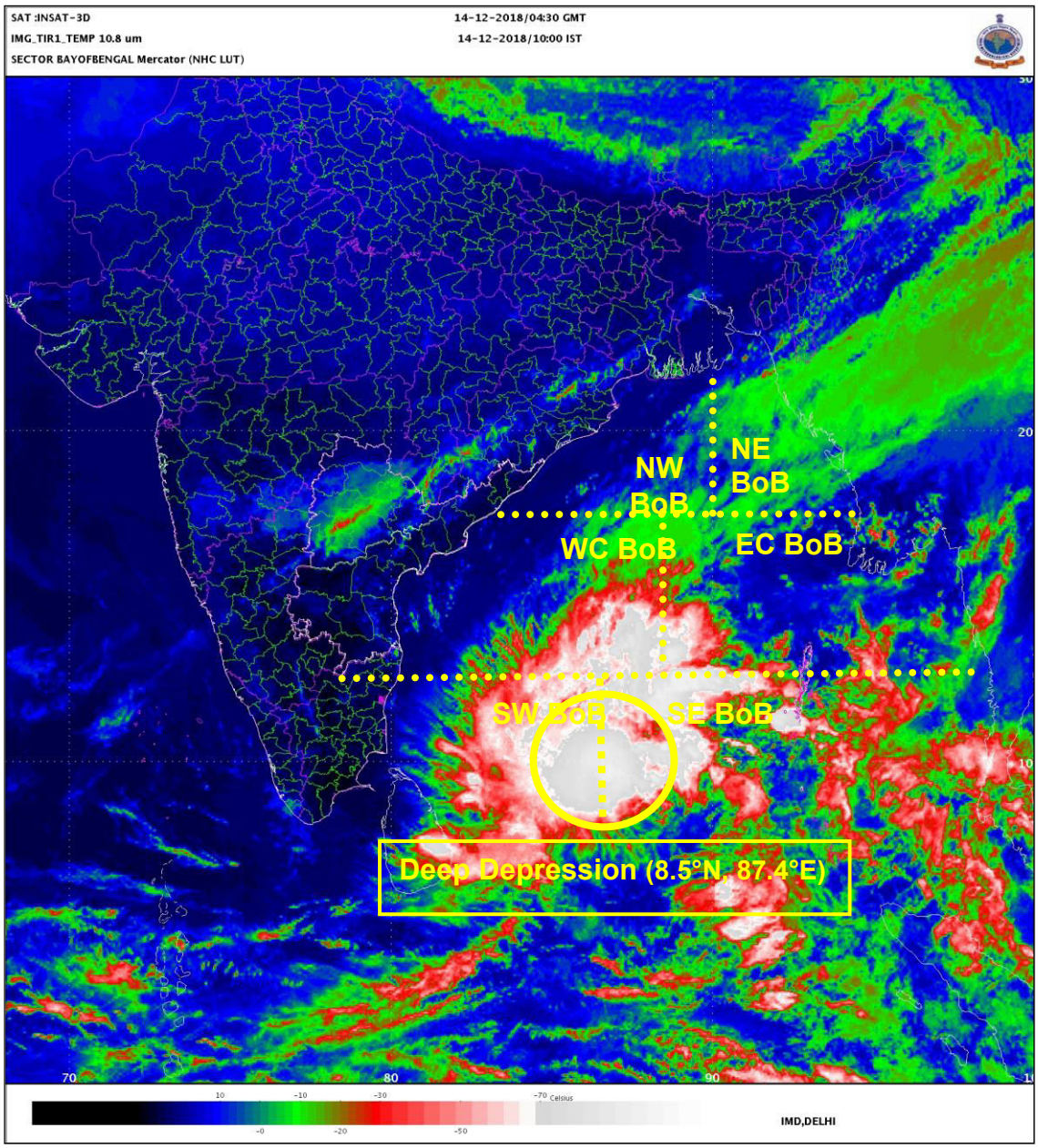

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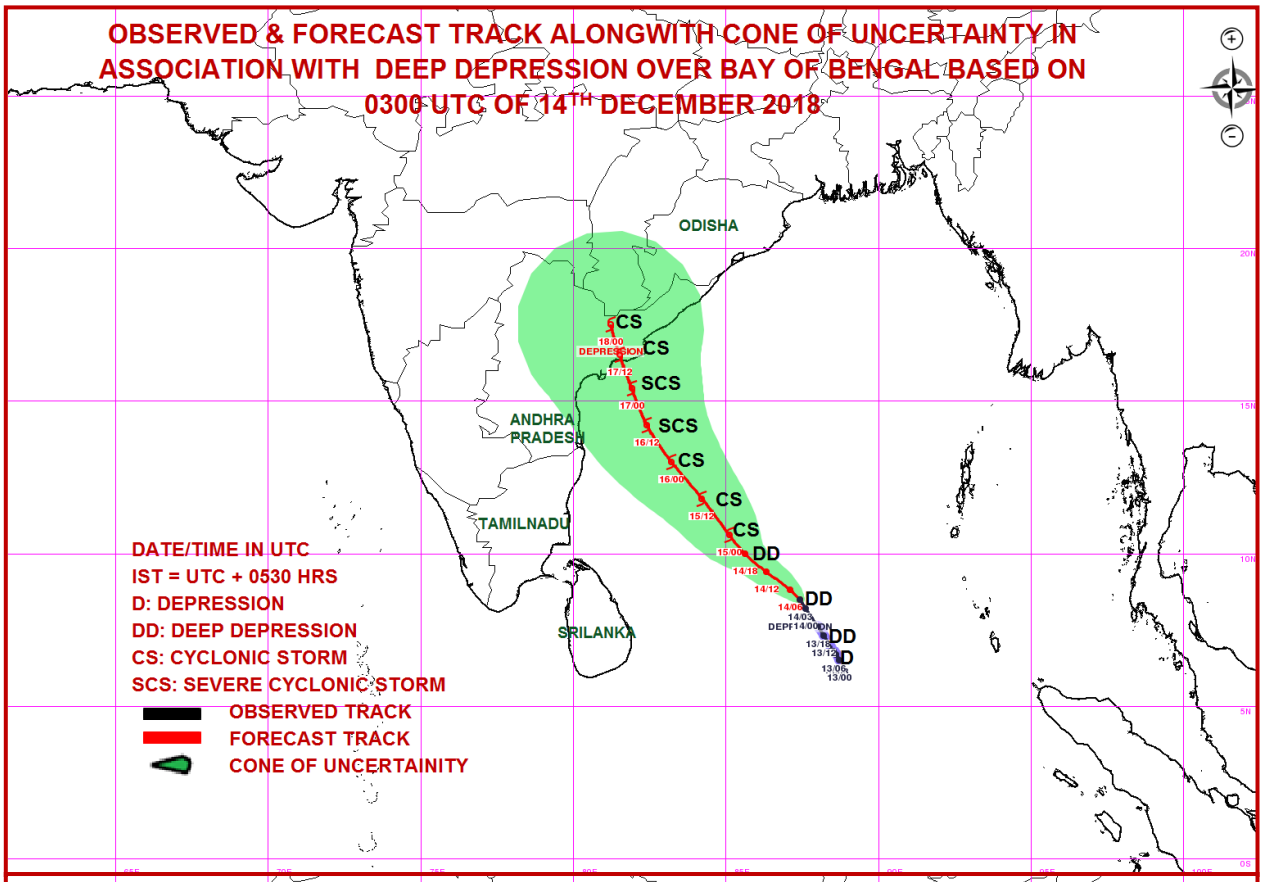

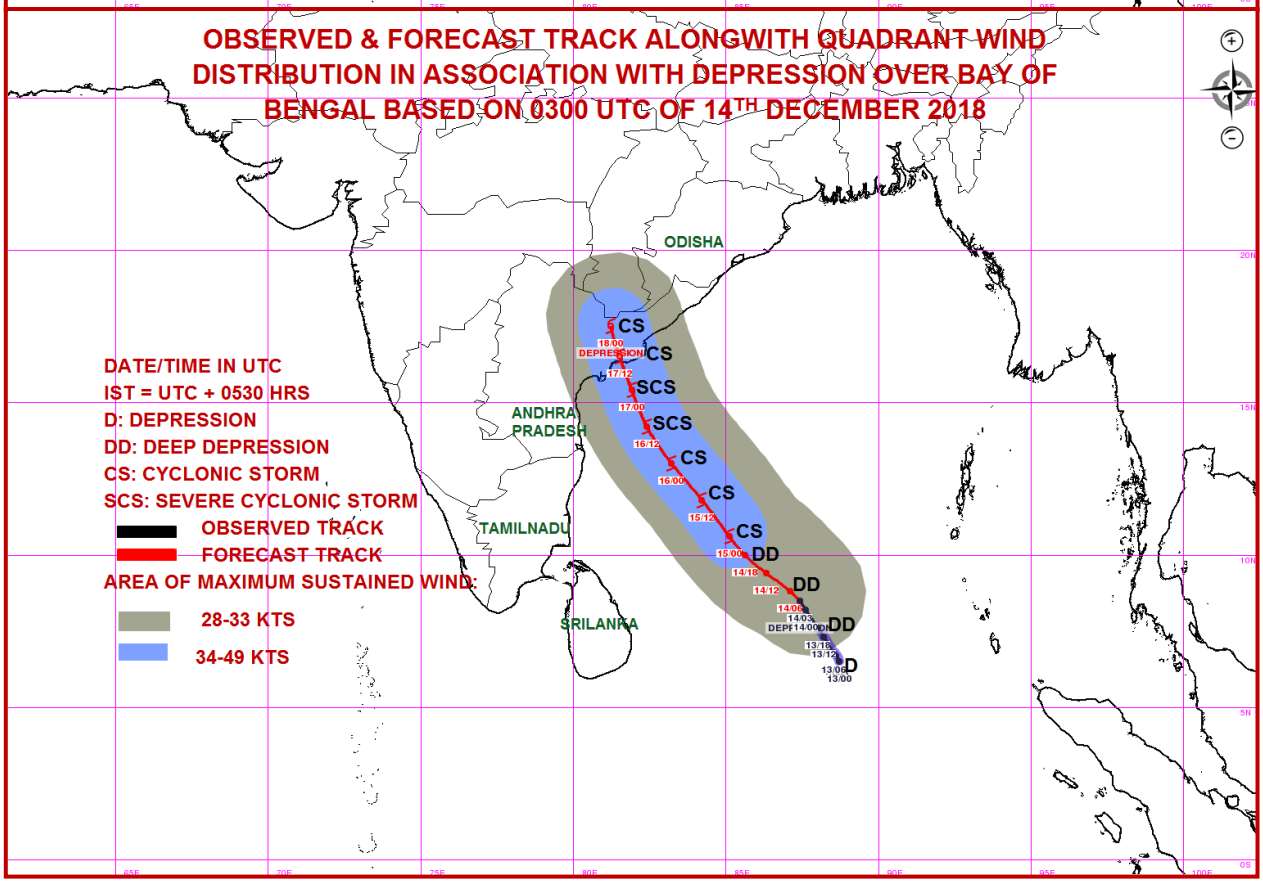

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REGIONAL SPECIALISED METEOROLOGICAL CENTRE-TROPICAL CYCLONES, NEW DELHI

SPECIAL TROPICAL WEATHER OUTLOOK

DEMS-RSMC TROPICAL CYCLONES NEW DELHI DATED 14.12.2018

SPECIAL TROPICAL WEATHER OUTLOOK FOR NORTH INDIAN OCEAN (THE BAY OF BENGAL AND ARABIAN SEA) VALID FOR NEXT 120 HOURS ISSUED AT 0900 UTC OF 14.12.2018 BASED ON 0600 UTC OF 14.12.2018.

DEEP DEPRESSION OVER SOUTHEAST BAY OF BENGAL

THE DEEP DEPRESSION OVER SOUTHEAST BAY OF BENGAL REMAINED PRACTICALLY STATIONARY AND LAY CENTRED AT 0600 UTC OF 14TH DECEMBER, 2018 OVER SOUTHEAST BAY OF BENGAL NEAR LATITUDE 8.5°N AND LONGITUDE 87.4°E, ABOUT 670 KM EAST OF TRINCOMALEE (43418) (SRI LANKA), 930 KM EAST-SOUTHEAST OF CHENNAI (43278) (TAMIL NADU) AND 1090 KM SOUTHEAST OF MACHILIPATNAM (43185) (ANDHRA PRADESH). IT IS VERY LIKELY TO INTENSIFY FURTHER INTO A CYCLONIC STORM DURING NEXT 24 HOURS AND INTO A SEVERE CYCLONIC STORM IN SUBSEQUENT 24 HOURS. IT IS VERY LIKELY TO MOVE NORTH-NORTHWESTWARDS AND CROSS ANDHRA PRADESH COAST BETWEEN ONGOLE (43221) AND KAKINADA (43189) DURING 0900-1200 UTC ON 17TH DECEMBER 2018.

FORECAST TRACK AND INTENSITY ARE GIVEN IN THE FOLLOWING TABLE:

DATE/TIME (UTC)	POSITION (LAT. ^{0}N/ LONG.^{0}E)	MAXIMUM SUSTAINED SURFACE WIND SPEED (KMPH)	CATEGORY OF CYCLONIC DISTURBANCE
14.12.18/0600	8.5/87.4	50-60 GUSTING TO 70	DEEP DEPRESSION
14.12.18/1200	8.8/87.1	55-65 GUSTING TO 75	DEEP DEPRESSION
14.12.18/1800	9.4/86.4	55-65 GUSTING TO 75	DEEP DEPRESSION
15.12.18/0000	10.0/85.4	60-70 GUSTING TO 80	CYCLONIC STORM
15.12.18/0600	11.2/84.5	65-75 GUSTING TO 85	CYCLONIC STORM
15.12.18/1800	12.4/83.7	75-85 GUSTING TO 95	CYCLONIC STORM
16.12.18/0600	13.6/82.8	80-90 GUSTING TO 100	CYCLONIC STORM
16.12.18/1800	14.6/82.2	90-100 GUSTING TO 110	SEVERE CYCLONIC STORM
17.12.18/0600	15.9/81.7	80-90 GUSTING TO 100	CYCLONIC STORM
17.12.18/1800	17.0/82.0	65-75 GUSTING TO 85	CYCLONIC STORM

AS PER THE SATELLITE IMAGERY OF 0600 UTC ON 14TH DECEMBER THE INTENSITY OF THE VORTEX OVER SE BAY & N/HOOD IS C.I 1.5. ASSOCIATED BROKEN LOW TO MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION OVER AREA BETWEEN LATITUDE 8.0°N TO 15.5°N AND LONG 82.0°E TO 92.0°E (.) MINIMUM CLOUD TOP TEMPERATURE IS MINUS 93.1° C. IT ALSO INDICATES SLIGHT DISORGANISATION OF CLOUDS.

THE ESTIMATED CENTRAL PRESSURE IS ABOUT 1002 HPA AND THE MAXIMUM SUSTAINED SURFACE WIND SPEED IS 30 KNOTS GUSTING TO 40 KNOTS. STATE OF SEA IS VERY ROUGH AROUND THE SYSTEM CENTRE.

AT 0600 UTC OF 14TH DECEMBER, A SHIP LOCATED AT 6.1°N/89.1°E REPORTED A MEAN SEA LEVEL PRESSURE OF 1008.7 HPA AND MEAN SURFACE WIND SPEED OF 220°/ 11 KNOTS. ANOTHER SHIP LOCATED AT 6.0°N/87°E REPORTED A MEAN SEA LEVEL PRESSURE OF 1008.7 HPA AND MEAN SURFACE WIND SPEED OF 300°/ 30 KNOTS.

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

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REMARKS:

THE MADDEN JULIAN OSCILLATION (MJO) INDEX LIES CURRENTLY IN PHASE 4 WITH AMPLITUDE MORE THAN 1. IT WILL CONTINUE IN SAME PHASE WITH AMPLITUDE GREATER THAN 1 FOR NEXT 3-4 HOURS. HENCE, MJO PHASE WILL BE FAVOURABLE FOR ENHANCEMENT OF CONVECTION & INTENSIFICATION OF THE SYSTEM.

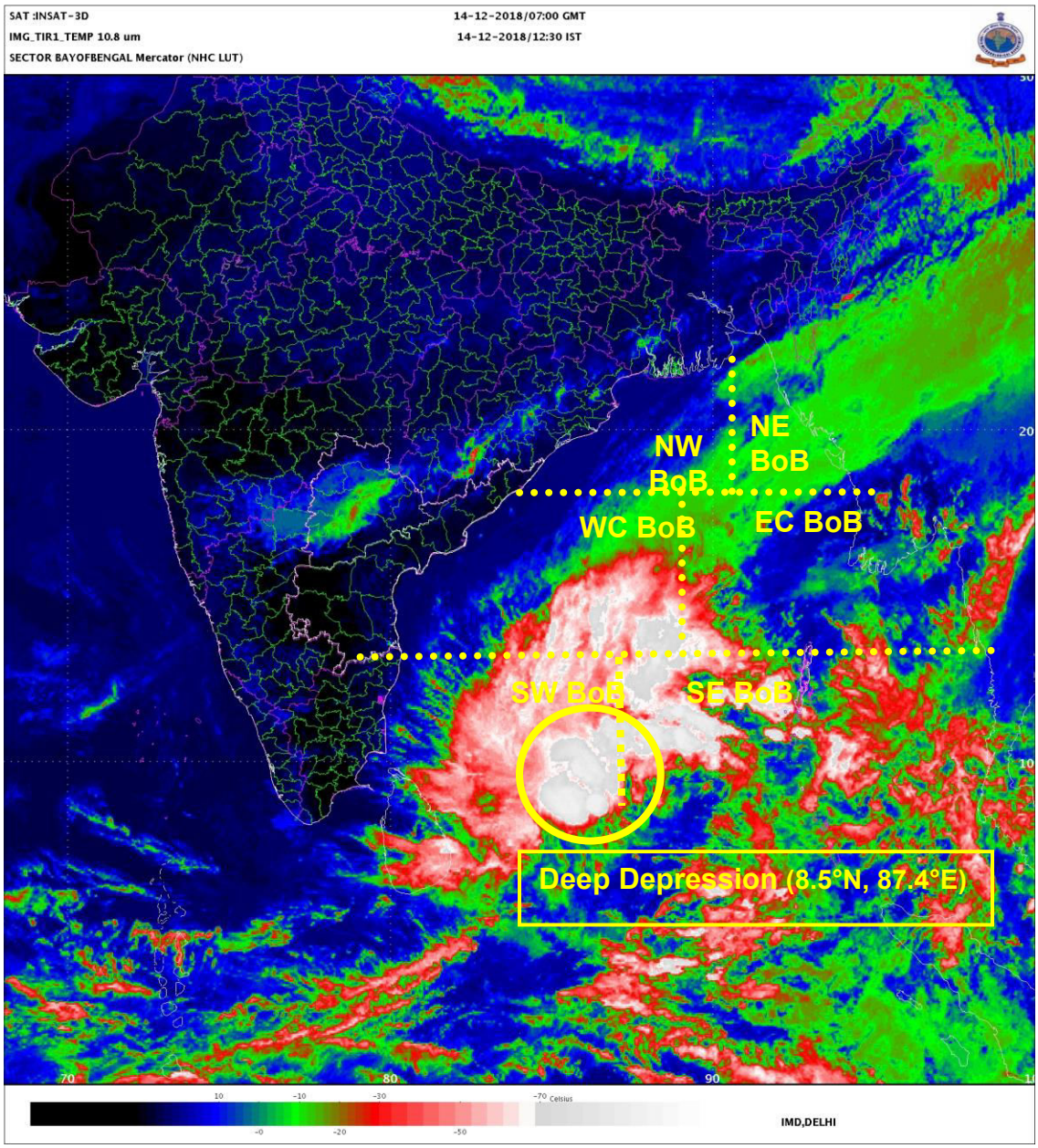
CONSIDERING THE ENVIRONMENTAL CONDITIONS, THE SEA SURFACE TEMPERATURE (SST) IS 29-30˚C OVER SOUTHEAST BOB AND ADJOINING AREAS. IT IS DECREASING SLIGHTLY BECOMING 26-27˚C TOWARDS WEST OF 83°E AND NORTH OF 12˚N. THE TROPICAL CYCLONE HEAT POTENTIAL IS MORE THAN 100 KJ/CM^2 OVER CENTRAL PARTS OF SOUTH BOB AND ADJOINING EIO. IT IS AROUND 60-80 KJ/CM^2 OVER REMAINING PARTS OF SOUTHEAST BOB. HOWEVER, IT IS LESS THAN 40 KJ/CM^2 OVER WESTERN PARTS OF BOB ALONG THE EAST COAST OF INDIA AND SRILANKA. THE LOWER LEVEL CONVERGENCE IS ($40x10^{-5}$ SECOND^{-1}) TOWARDS WEST OF THE SYSTEM CENTER, LOWER LEVEL VORTICITY($150x10^{-6}$ SECOND ^{1}) TOWARDS SOUTHWEST OF SYSTEM CENTER, UPPER LEVEL DIVERGENCE ($40x10^{-5}$ SECOND^{-1}) TOWARDS WEST OF THE SYSTEM CENTER AND VERTICAL WIND SHEAR (20-25 KNOTS) OVER THE SYSTEM AREA AND ALONG THE FORECAST TRACK. THE WIND SHEAR SHOWS A DECREASING TENDENCY ALONG THE FORECAST TRACK. LATEST TOTAL PRECIPITABLE WATER IMAGERY INDICATES WARM AND MOIST AIR FEEDING INTO THE CORE OF THE SYSTEM.

THE UPPER TROPOSPHERIC RIDGE RUNS ALONG 13°N. THE SYSTEM IS BEING GUIDED BY THE ANTICYCLONE OVER SOUTHEAST ASIA, AND HENCE WILL HAVE MORE NORTHWARD COMPONENT OF MOVEMENT AS IT APPROACHES THE COAST. AS PER THE MODEL FORECAST A DEEP TROUGH IN UPPER TROPOSPHERIC WESTERLIES IS APPROACHING THE INDIAN REGION AND WILL LIE AT 200 HPA ALONG 70 E TO THE NORTH OF 25° NORTH ON 17TH DECEMBER. IT IS LIKELY TO LEAD TO RECURVATURE OF THE SYSTEM TO NORTHEAST DIRECTION AFTER LANDFALL OVER ANDHRA PRADESH COAST.

MOST OF THE NUMERICAL MODELS INCLUDING ECMWF, IMD GLOBAL FORECAST SYSTEM (GFS), NCEP GFS, GLOBAL ENSEMBLE FORECATING SYSTEM (GEFS), NCMRWF UNIFIED MODEL (NCUM) AND NCMRWF ENSEMBLE PREDICTION SYSTEM (NEPS) SUGGEST FURTHER INTENSIFICATION OF THE SYSTEM INTO A CYCLONIC STORM DURING NEXT 12 HOURS AND INTO A SEVERE CYCLONIC STORM DURING SUBSEQUENT 24 HOURS AND MOVE TOWARDS ANDHRA PRADESH COAST DURING NEXT 72 HOURS. SIMILARLY, THERE IS ALSO SLIGHT VARIATION ABOUT THE INTENSITY OF THE SYSTEM AT THE TIME OF LANDFALL.

(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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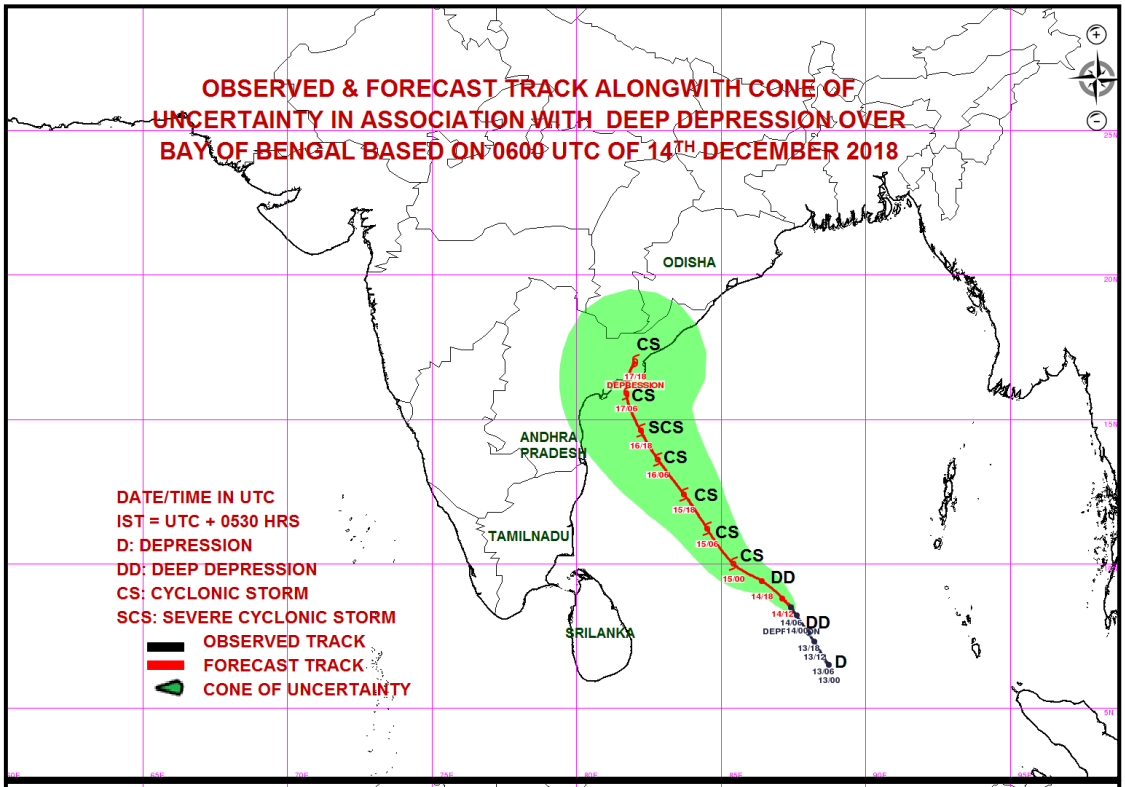

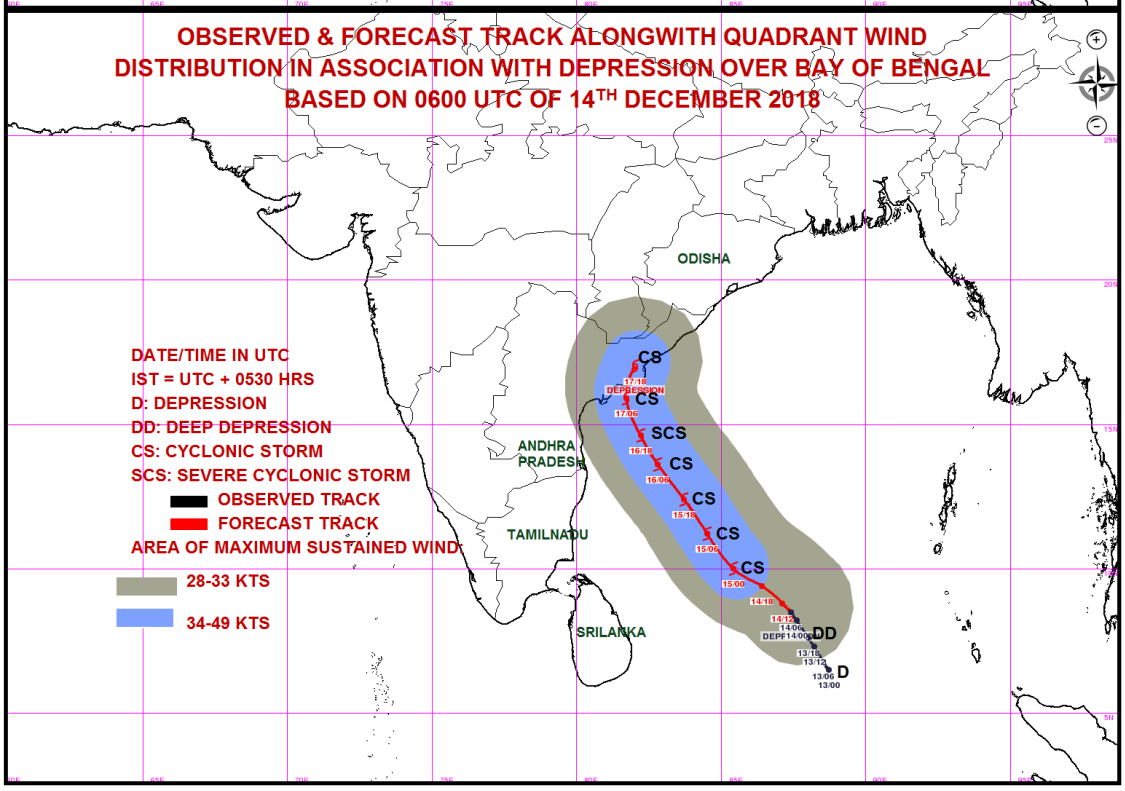

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)
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REGIONAL SPECIALISED METEOROLOGICAL CENTRE-TROPICAL CYCLONES, NEW DELHI

SPECIAL TROPICAL WEATHER OUTLOOK

DEMS-RSMC TROPICAL CYCLONES NEW DELHI DATED 14.12.2018

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 14.12.2018 BASED ON 1200 UTC OF 14.12.2018.

DEEP DEPRESSION OVER SOUTHEAST AND ADJOINING SOUTHWEST BAY OF BENGAL

THE DEEP DEPRESSION OVER SOUTHEAST BAY OF BENGAL MOVED WEST-NORTHWESTWARDS WITH A SPEED OF 11 KMPH DURING PAST 06 HOURS AND LAY CENTRED AT 1200 UTC OF 14TH DECEMBER, 2018 OVER SOUTHEAST & ADJOINING SOUTHWEST BAY OF BENGAL NEAR LATITUDE 8.6°N AND LONGITUDE 86.8°E, ABOUT 610 KM EAST OF TRINCOMALEE (43418) (SRI LANKA), 870 KM EAST-SOUTHEAST OF CHENNAI (43278) (TAMIL NADU) AND 1040 KM SOUTH-SOUTHEAST OF MACHILIPATNAM (43185) (ANDHRA PRADESH). IT IS VERY LIKELY TO INTENSIFY FURTHER INTO A CYCLONIC STORM DURING NEXT 12 HOURS AND INTO A SEVERE CYCLONIC STORM IN SUBSEQUENT 24 HOURS. IT IS VERY LIKELY TO MOVE NORTH-NORTHWESTWARDS AND CROSS ANDHRA PRADESH COAST BETWEEN ONGOLE (43221) AND KAKINADA (43189) DURING 0900-1200 UTC ON 17TH DECEMBER.

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
14.12.18/1200	8.6/86.8	55-65 GUSTING TO 75	DEEP DEPRESSION
14.12.18/1800	8.9/86.3	55-65 GUSTING TO 75	DEEP DEPRESSION
15.12.18/0000	9.5/85.4	60-70 GUSTING TO 80	CYCLONIC STORM
15.12.18/0600	10.3/84.5	65-75 GUSTING TO 85	CYCLONIC STORM
15.12.18/1200	11.1/83.9	75-85 GUSTING TO 95	CYCLONIC STORM
16.12.18/0000	12.4/83.1	80-90 GUSTING TO 100	CYCLONIC STORM
16.12.18/1200	13.8/82.5	90-100 GUSTING TO 110	SEVERE CYCLONIC STORM
17.12.18/0000	15.2/81.9	80-90 GUSTING TO 100	CYCLONIC STORM
17.12.18/1200	16.4/81.8	65-75 GUSTING TO 85	CYCLONIC STORM
18.12.18/0000	17.0/82.0	60-70 GUSTING TO 80	CYCLONIC STORM

AS PER THE SATELLITE IMAGERY OF 1200 UTC ON 14TH DECEMBER THE INTENSITY OF THE SYSTEM OVER SE BAY & N/HOOD IS C.I 2.0. ASSOCIATED BROKEN LOW TO MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION OVER AREA BETWEEN LATITUDE 8.0°N TO 15.5°N AND LONG 83.0°E TO 91.0°E (.) MINIMUM CLOUD TOP TEMPERATURE IS MINUS 93.1° C.

THE ESTIMATED CENTRAL PRESSURE IS ABOUT 1002 HPA AND THE MAXIMUM SUSTAINED SURFACE WIND SPEED IS 30 KNOTS GUSTING TO 40 KNOTS. STATE OF SEA IS VERY ROUGH AROUND THE SYSTEM CENTRE.

AT 1200 UTC OF 14TH DECEMBER, A SHIP LOCATED AT 1.3°N/88.8°E REPORTED A MEAN SEA LEVEL PRESSURE OF 1010.0 HPA AND MEAN SURFACE WIND SPEED OF 260°/ 25 KNOTS.

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

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

REMARKS:

THE MADDEN JULIAN OSCILLATION (MJO) INDEX LIES CURRENTLY IN PHASE 4 WITH AMPLITUDE MORE THAN 1. IT WILL CONTINUE IN SAME PHASE WITH AMPLITUDE GREATER THAN 1 FOR NEXT 3-4 HOURS. HENCE, MJO PHASE WILL BE FAVOURABLE FOR ENHANCEMENT OF CONVECTION & INTENSIFICATION OF THE SYSTEM.

CONSIDERING THE ENVIRONMENTAL CONDITIONS, THE SEA SURFACE TEMPERATURE (SST) IS 29-30˚C OVER SOUTHEAST BOB AND ADJOINING AREAS. IT IS DECREASING SLIGHTLY BECOMING 26-27˚C TOWARDS WEST OF 83°E AND NORTH OF 12˚N. THE TROPICAL CYCLONE HEAT POTENTIAL IS MORE THAN 100 KJ/CM^2 OVER CENTRAL PARTS OF SOUTH BOB AND ADJOINING EIO. IT IS AROUND 60-80 KJ/CM^2 OVER REMAINING PARTS OF SOUTHEAST BOB. HOWEVER, IT IS LESS THAN 40 KJ/CM^2 OVER WESTERN PARTS OF BOB ALONG THE EAST COAST OF INDIA AND SRILANKA. THE LOWER LEVEL CONVERGENCE IS (50x10^{-5} SECOND^{-1}) TOWARDS NORTHWEST OF THE SYSTEM CENTER, LOWER LEVEL VORTICITY IS (150x10^{-6} SECOND ^{1}) TOWARDS SOUTHWEST OF SYSTEM CENTER, UPPER LEVEL DIVERGENCE (30x10^{-5} SECOND^{-1}) TOWARDS NORTHWEST OF THE SYSTEM CENTER AND VERTICAL WIND SHEAR (20-25 KNOTS) OVER THE SYSTEM AREA AND ALONG THE FORECAST TRACK. THE TOTAL PRECIPITABLE WATER IMAGERY INDICATES WARM AND MOIST AIR FEEDING INTO THE CORE OF THE SYSTEM.

THE UPPER TROPOSPHERIC RIDGE RUNS ALONG 15°N. THE SYSTEM IS BEING GUIDED BY THE ANTICYCLONE OVER SOUTHEAST ASIA, AND HENCE WILL HAVE MORE NORTHWARD COMPONENT OF MOVEMENT AS IT APPROACHES THE COAST. AS PER THE MODEL FORECAST A DEEP TROUGH IN UPPER TROPOSPHERIC WESTERLIES IS APPROACHING THE INDIAN REGION AND WILL LIE AT 200 HPA ALONG 70 E TO THE NORTH OF 25° NORTH ON 17TH DECEMBER. IT IS LIKELY TO LEAD TO RECURVATURE OF THE SYSTEM TO NORTHEAST DIRECTION AFTER LANDFALL OVER ANDHRA PRADESH COAST.

MOST OF THE NUMERICAL MODELS INCLUDING ECMWF, IMD GLOBAL FORECAST SYSTEM (GFS), NCEP GFS, GLOBAL ENSEMBLE FORECATING SYSTEM (GEFS), NCMRWF UNIFIED MODEL (NCUM) AND NCMRWF ENSEMBLE PREDICTION SYSTEM (NEPS) SUGGEST FURTHER INTENSIFICATION OF THE SYSTEM INTO A CYCLONIC STORM DURING NEXT 12 HOURS AND INTO A SEVERE CYCLONIC STORM DURING SUBSEQUENT 24 HOURS AND MOVE TOWARDS ANDHRA PRADESH COAST DURING NEXT 72 HOURS. SIMILARLY, THERE IS ALSO SLIGHT VARIATION ABOUT THE INTENSITY OF THE SYSTEM AT THE TIME OF LANDFALL.

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SCIENTIST-E, RSMC, NEW DELHI

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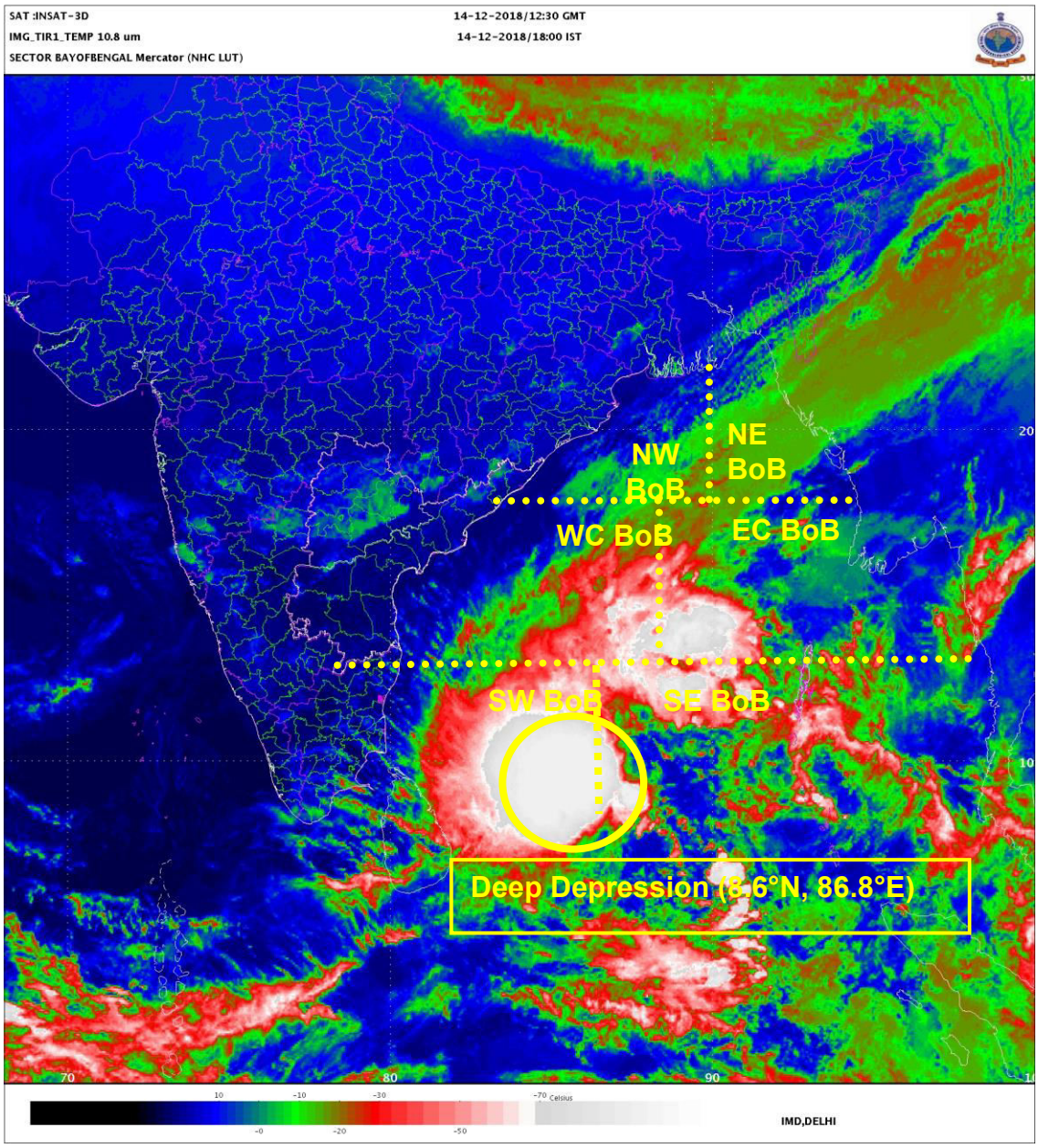

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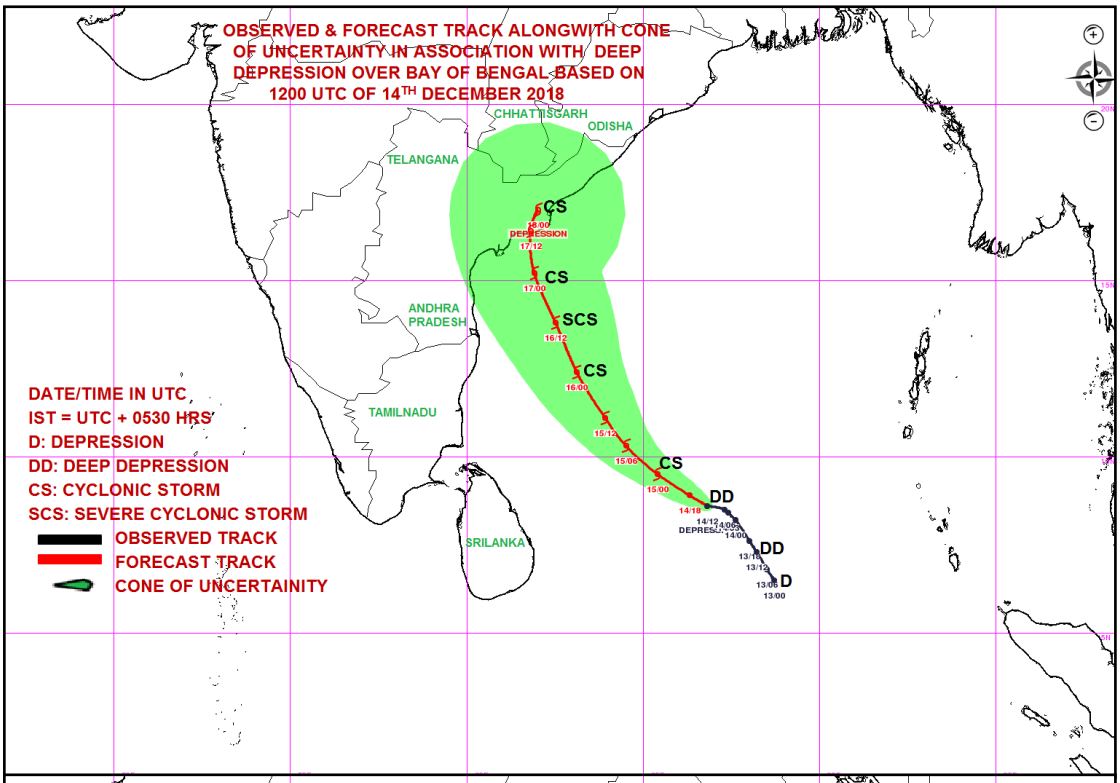

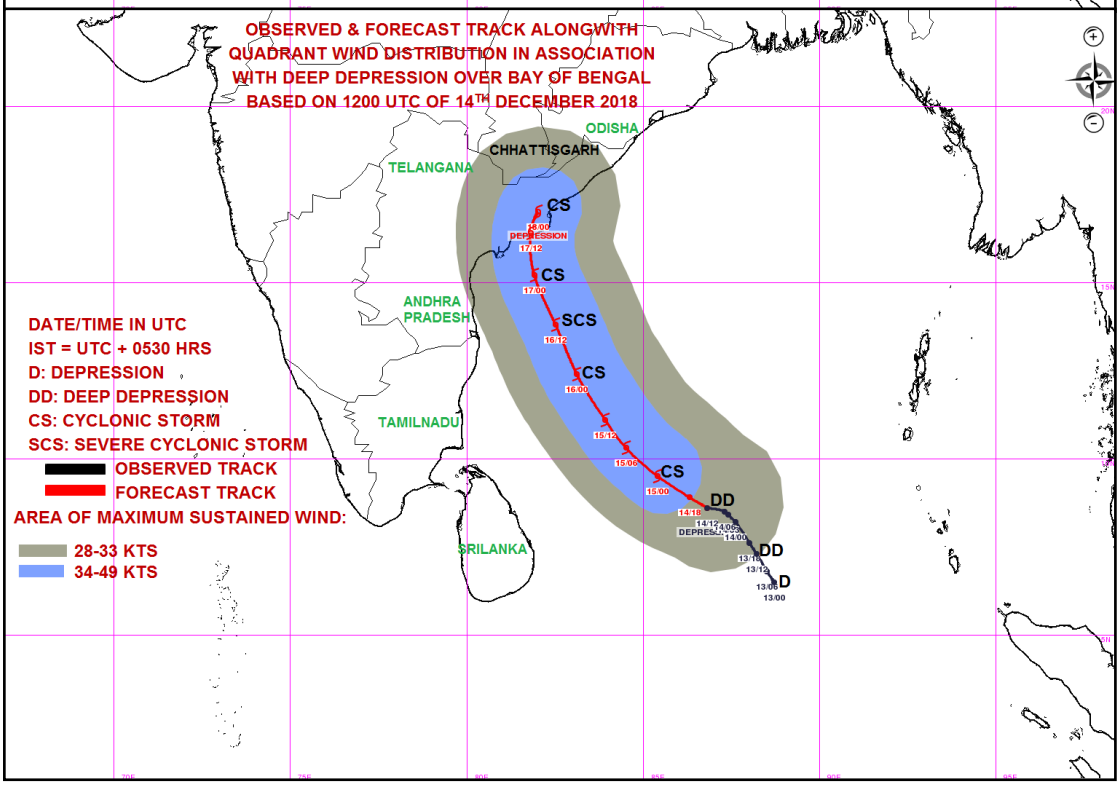

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REGIONAL SPECIALISED METEOROLOGICAL CENTRE-TROPICAL CYCLONES, NEW DELHI

SPECIAL TROPICAL WEATHER OUTLOOK

DEMS-RSMC TROPICAL CYCLONES NEW DELHI DATED 14.12.2018

SPECIAL TROPICAL WEATHER OUTLOOK FOR NORTH INDIAN OCEAN (THE BAY OF BENGAL AND ARABIAN SEA) VALID FOR NEXT 96 HOURS ISSUED AT 2000 UTC OF 14.12.2018 BASED ON 1800 UTC OF 14.12.2018.

DEEP DEPRESSION OVER SOUTHEAST AND ADJOINING SOUTHWEST BAY OF BENGAL

THE DEEP DEPRESSION OVER SOUTHEAST BAY OF BENGAL MOVED WEST-NORTHWESTWARDS WITH A SPEED OF 11 KMPH DURING PAST 06 HOURS AND LAY CENTRED AT 1800 UTC OF 14TH DECEMBER, 2018 OVER SOUTHEAST & ADJOINING SOUTHWEST BAY OF BENGAL NEAR LATITUDE 8.8°N AND LONGITUDE 86.2°E, ABOUT 540 KM EAST OF TRINCOMALEE (43418) (SRI LANKA), 800 KM EAST-SOUTHEAST OF CHENNAI (43278) (TAMIL NADU) AND 990 KM SOUTH-SOUTHEAST OF MACHILIPATNAM (43185) (ANDHRA PRADESH). IT IS VERY LIKELY TO INTENSIFY FURTHER INTO A CYCLONIC STORM DURING NEXT 12 HOURS AND INTO A SEVERE CYCLONIC STORM IN SUBSEQUENT 24 HOURS. IT IS VERY LIKELY TO MOVE NORTH-NORTHWESTWARDS AND CROSS ANDHRA PRADESH COAST BETWEEN ONGOLE (43221) AND KAKINADA (43189) DURING 0900-1200 UTC ON 17TH DECEMBER.

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
14.12.18/1800	8.8/86.2	55-65 GUSTING TO 75	DEEP DEPRESSION
15.12.18/0000	9.4/85.5	60-70 GUSTING TO 80	CYCLONIC STORM
15.12.18/0600	10.2/84.8	60-70 GUSTING TO 80	CYCLONIC STORM
15.12.18/1200	11.1/84.1	65-75 GUSTING TO 85	CYCLONIC STORM
15.12.18/1800	11.8/83.6	75-85 GUSTING TO 95	CYCLONIC STORM
16.12.18/0600	12.9/83.0	80-90 GUSTING TO 100	CYCLONIC STORM
16.12.18/1800	14.3/82.3	90-100 GUSTING TO 110	SEVERE CYCLONIC STORM
17.12.18/0600	15.8/81.8	80-90 GUSTING TO 100	CYCLONIC STORM
17.12.18/1800	17.0/82.0	60-70 GUSTING TO 80	CYCLONIC STORM
18.12.18/0600	17.5/82.5	55-65 GUSTING TO 75	DEEP DEPRESSION

AS PER THE SATELLITE IMAGERY OF 1700 UTC ON 14TH DECEMBER THE INTENSITY OF THE SYSTEM OVER SE BAY & N/HOOD IS C.I 2.0. ASSOCIATED BROKEN LOW TO MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION OVER AREA BETWEEN LATITUDE 8.0°N TO 13.5°N AND LONG 81.0°E TO 88.0°E (.) MINIMUM CLOUD TOP TEMPERATURE IS MINUS 93.1° C.

THE ESTIMATED CENTRAL PRESSURE IS ABOUT 1002 HPA AND THE MAXIMUM SUSTAINED SURFACE WIND SPEED IS 30 KNOTS GUSTING TO 40 KNOTS. STATE OF SEA IS VERY ROUGH AROUND THE SYSTEM CENTRE.

AT 1200 UTC OF 14TH DECEMBER, A SHIP LOCATED AT 1.3°N/88.8°E REPORTED A MEAN SEA LEVEL PRESSURE OF 1010.0 HPA AND MEAN SURFACE WIND SPEED OF 260°/ 25 KNOTS.

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

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REMARKS:

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(S D KOTAL)
SCIENTIST-E, RSMC, NEW DELHI

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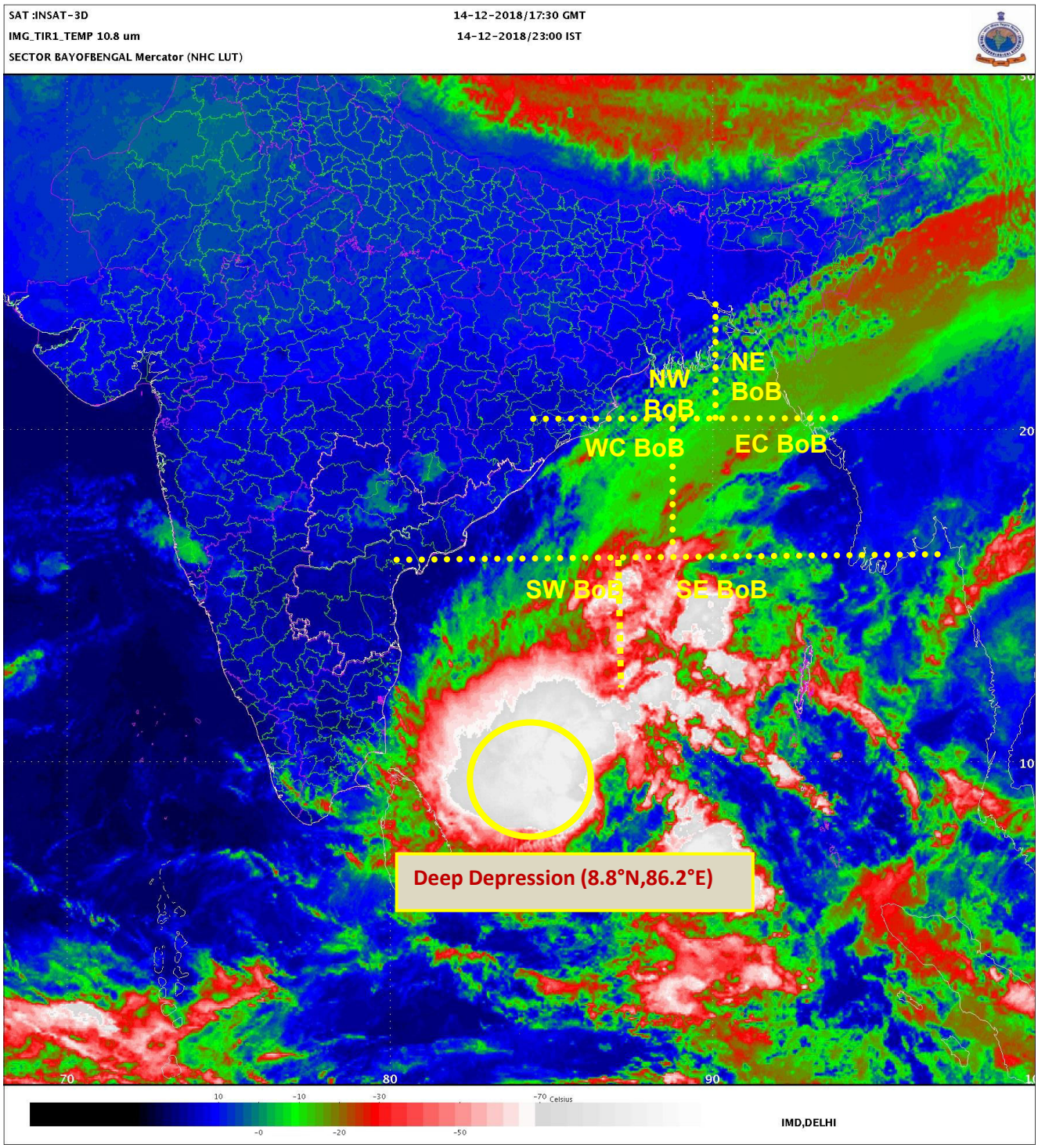

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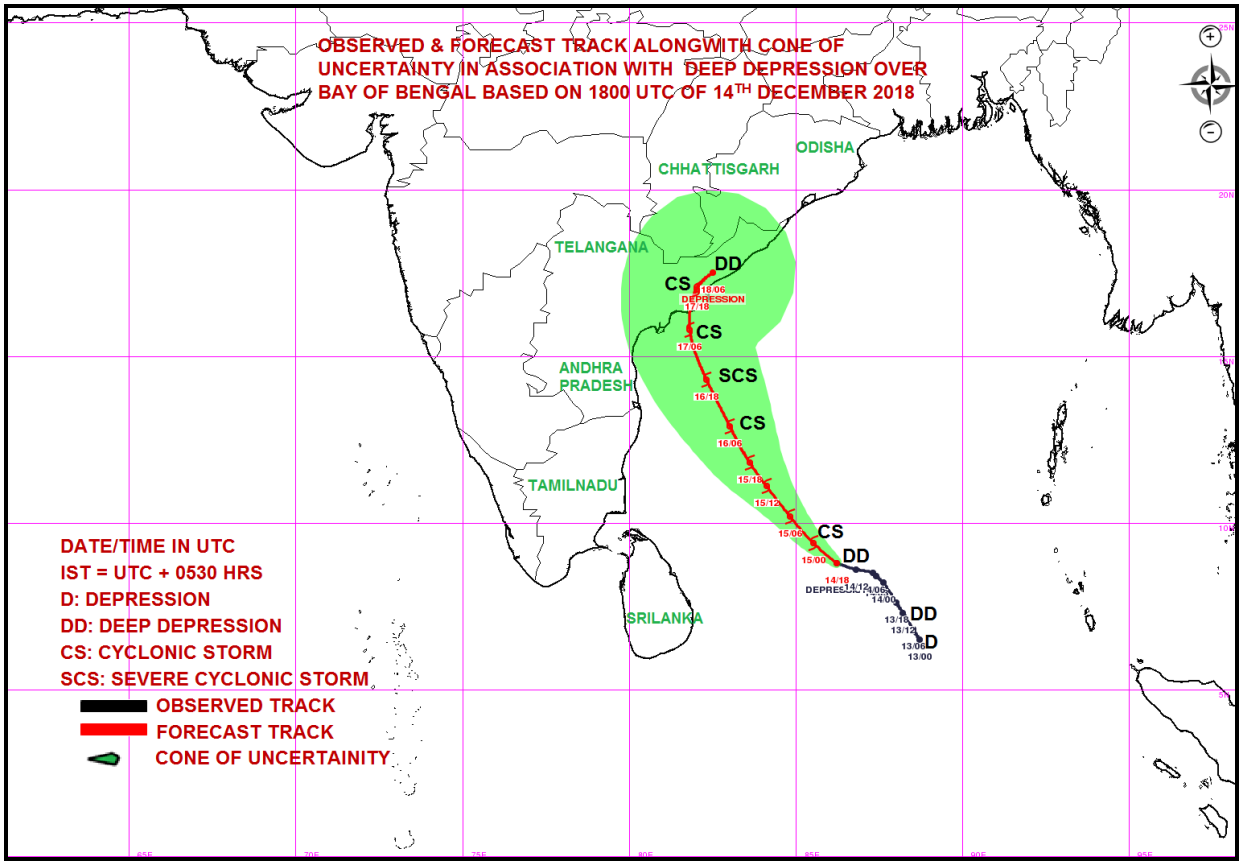

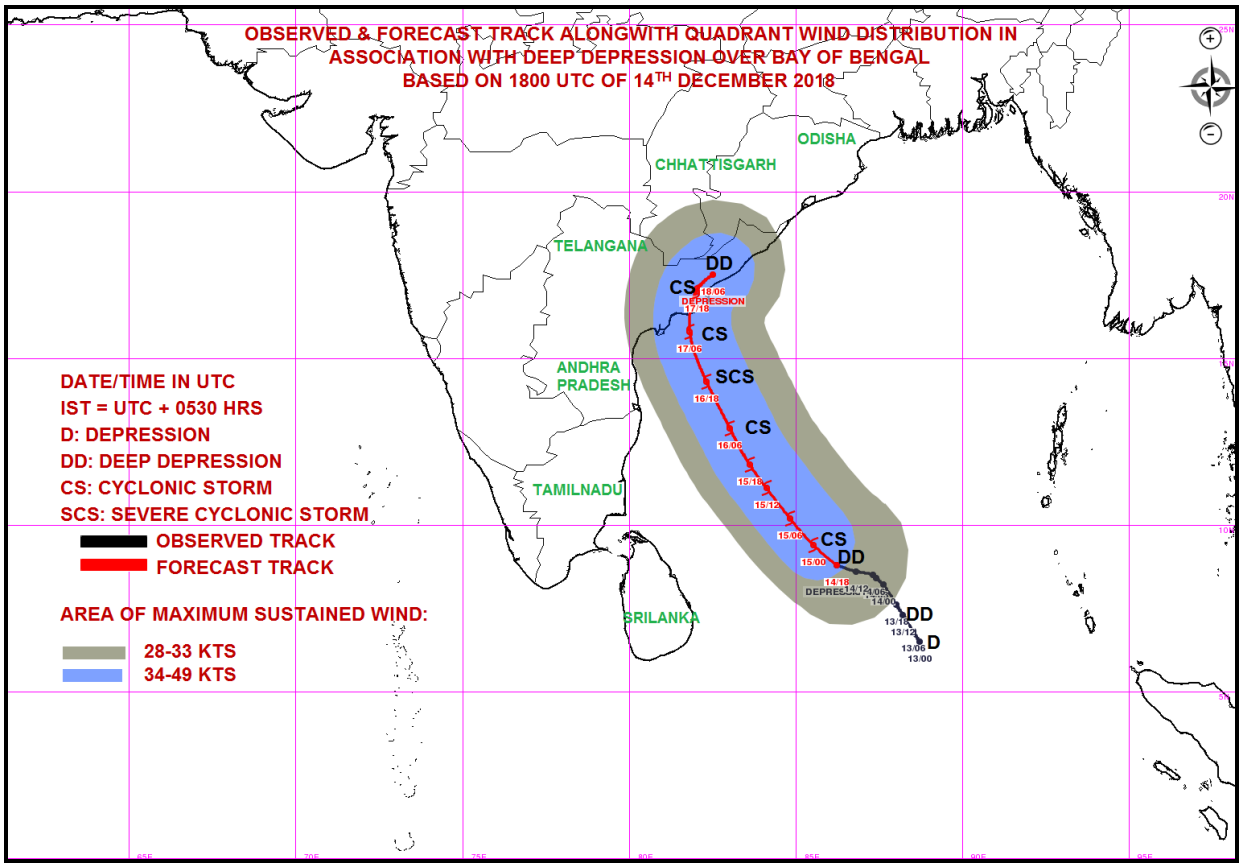

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REGIONAL SPECIALISED METEOROLOGICAL CENTRE-TROPICAL CYCLONES, NEW DELHI

SPECIAL TROPICAL WEATHER OUTLOOK

DEMS-RSMC TROPICAL CYCLONES NEW DELHI DATED 15.12.2018

SPECIAL TROPICAL WEATHER OUTLOOK FOR NORTH INDIAN OCEAN (THE BAY OF BENGAL AND ARABIAN SEA) VALID FOR NEXT 96 HOURS ISSUED AT 0600 UTC OF 15.12.2018 BASED ON 0300 UTC OF 15.12.2018.

DEEP DEPRESSION OVER SOUTHWEST AND ADJOINING SOUTHEAST BAY OF BENGAL

THE DEEP DEPRESSION OVER SOUTHEAST BAY OF BENGAL MOVED FURTHER WEST-NORTHWESTWARDS WITH A SPEED OF 13 KMPH DURING PAST 06 HOURS AND LAY CENTRED AT 0300 UTC OF 15TH DECEMBER, 2018 OVER SOUTHWEST & ADJOINING SOUTHEAST BAY OF BENGAL NEAR LATITUDE 9.2°N AND LONGITUDE 85.2°E, ABOUT 440 KM EAST-NORTHEAST OF TRINCOMALEE (43418) (SRI LANKA), 690 KM SOUTHEAST OF CHENNAI (43278) (TAMIL NADU) AND 890 KM SOUTH-SOUTHEAST OF MACHILIPATNAM (43185) (ANDHRA PRADESH). IT IS VERY LIKELY TO INTENSIFY FURTHER INTO A CYCLONIC STORM DURING NEXT 24 HOURS AND INTO A SEVERE CYCLONIC STORM IN SUBSEQUENT 24 HOURS. IT IS VERY LIKELY TO MOVE NORTH-NORTHWESTWARDS AND CROSS ANDHRA PRADESH COAST BETWEEN ONGOLE (43221) AND KAKINADA (43189) DURING 0900-1200 UTC ON 17TH DECEMBER.

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
15.12.18/0300	9.2/85.2	55-65 GUSTING TO 75	DEEP DEPRESSION
15.12.18/0600	9.4/84.8	55-65 GUSTING TO 75	DEEP DEPRESSION
15.12.18/1200	9.9/84.1	60-70 GUSTING TO 80	CYCLONIC STORM
15.12.18/1800	10.9/83.4	70-80 GUSTING TO 90	CYCLONIC STORM
16.12.18/0000	12.1/82.7	80-90 GUSTING TO 100	CYCLONIC STORM
16.12.18/1200	13.6/82.2	90-100 GUSTING TO 110	SEVERE CYCLONIC STORM
17.12.18/0000	15.0/81.9	90-100 GUSTING TO 110	SEVERE CYCLONIC STORM
17.12.18/1200	16.4/82.0	80-90 GUSTING TO 100	CYCLONIC STORM
18.12.18/0000	17.2/82.3	60-70 GUSTING TO 80	CYCLONIC STORM
18.12.18/1200	17.8/82.9	45-55 GUSTING TO 65	DEPRESSION

AS PER THE SATELLITE IMAGERY OF 0300 UTC ON 15TH DECEMBER THE INTENSITY OF THE SYSTEM OVER SE BAY & N/HOOD IS C.I 2.0. ASSOCIATED BROKEN LOW TO MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION OVER AREA BETWEEN LATITUDE 8.5°N TO 15.0°N AND LONG 82.0°E TO 92.0°E (.) MINIMUM CLOUD TOP TEMPERATURE IS MINUS 93.1° C.

THE ESTIMATED CENTRAL PRESSURE IS ABOUT 1002 HPA AND THE MAXIMUM SUSTAINED SURFACE WIND SPEED IS 30 KNOTS GUSTING TO 40 KNOTS. STATE OF SEA IS VERY ROUGH AROUND THE SYSTEM CENTRE.

REMARKS:

THE MADDEN JULIAN OSCILLATION (MJO) INDEX LIES CURRENTLY IN PHASE 4 WITH AMPLITUDE MORE THAN 1. IT WILL CONTINUE IN SAME PHASE WITH AMPLITUDE GREATER THAN 1 FOR NEXT 3-4 DAYS. HENCE, MJO PHASE WILL BE FAVOURABLE FOR

ENHANCEMENT OF CONVECTION & INTENSIFICATION OF THE SYSTEM.

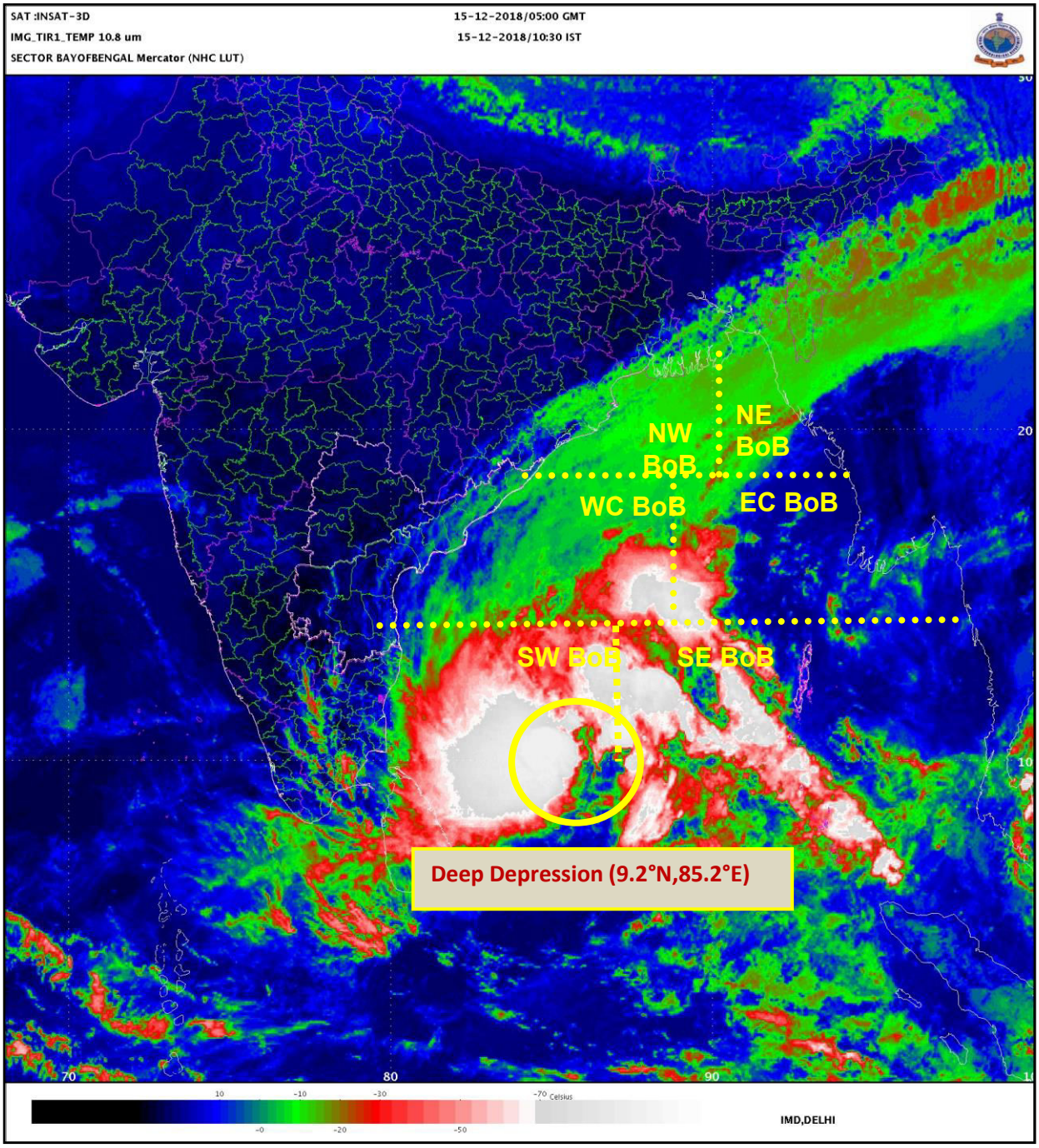
CONSIDERING THE ENVIRONMENTAL CONDITIONS, THE SEA SURFACE TEMPERATURE (SST) IS 28-29˚C AROUND THE SYSTEM AREA. IT IS DECREASING SLIGHTLY BECOMING 26-28˚C TOWARDS WEST OF 83°E AND NORTH OF 12˚N. THE TROPICAL CYCLONE HEAT POTENTIAL IS AROUND 60-80 KJ/CM^2 OVER THE SYSTEM AREA. HOWEVER, IT IS LESS THAN 40 KJ/CM^2 OVER WESTERN PARTS OF BOB ALONG THE EAST COAST OF INDIA AND SRILANKA. THE LOWER LEVEL CONVERGENCE IS ($50x10^{-5}$ $SECOND^{-1}$) TOWARDS NORTHWEST OF THE SYSTEM CENTER, LOWER LEVEL VORTICITY HAS INCREASED AND IS ($200x10^{-6}$ SECOND ^{1}) AROUND THE SYSTEM CENTER, UPPER LEVEL DIVERGENCE ($40x10^{-5}$ $SECOND^{-1}$) TOWARDS NORTHWEST OF THE SYSTEM CENTER AND VERTICAL WIND SHEAR (20-25 KNOTS) OVER THE SYSTEM AREA AND ALONG THE FORECAST TRACK. THE TOTAL PRECIPITABLE WATER IMAGERY INDICATES WARM AND MOIST AIR FEEDING INTO THE CORE OF THE SYSTEM.

THE UPPER TROPOSPHERIC RIDGE RUNS ALONG 15°N. THE SYSTEM IS BEING GUIDED BY THE ANTICYCLONE OVER SOUTHEAST ASIA, AND HENCE WILL HAVE MORE NORTHWARD COMPONENT OF MOVEMENT AS IT APPROACHES THE COAST. AS PER THE MODEL FORECAST A DEEP TROUGH IN UPPER TROPOSPHERIC WESTERLIES IS APPROACHING THE INDIAN REGION AND WILL LIE AT 200 HPA ROUGHLY ALONG 68° E TO THE NORTH OF 25° NORTH ON 17^{TH} DECEMBER. IT IS LIKELY TO LEAD TO RECURVATURE OF THE SYSTEM TO NORTHEAST DIRECTION AFTER LANDFALL OVER ANDHRA PRADESH COAST.

MOST OF THE NUMERICAL MODELS INCLUDING ECMWF, IMD GLOBAL FORECAST SYSTEM (GFS), NCEP GFS, GLOBAL ENSEMBLE FORECATING SYSTEM (GEFS), NCMRWF UNIFIED MODEL (NCUM) AND NCMRWF ENSEMBLE PREDICTION SYSTEM (NEPS) SUGGEST FURTHER INTENSIFICATION OF THE SYSTEM INTO A CYCLONIC STORM DURING NEXT 24 HOURS AND INTO A SEVERE CYCLONIC STORM DURING SUBSEQUENT 24 HOURS AND MOVE TOWARDS ANDHRA PRADESH COAST DURING NEXT 72 HOURS. SIMILARLY, THERE IS ALSO SLIGHT VARIATION ABOUT THE INTENSITY OF THE SYSTEM AT THE TIME OF LANDFALL.

(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)
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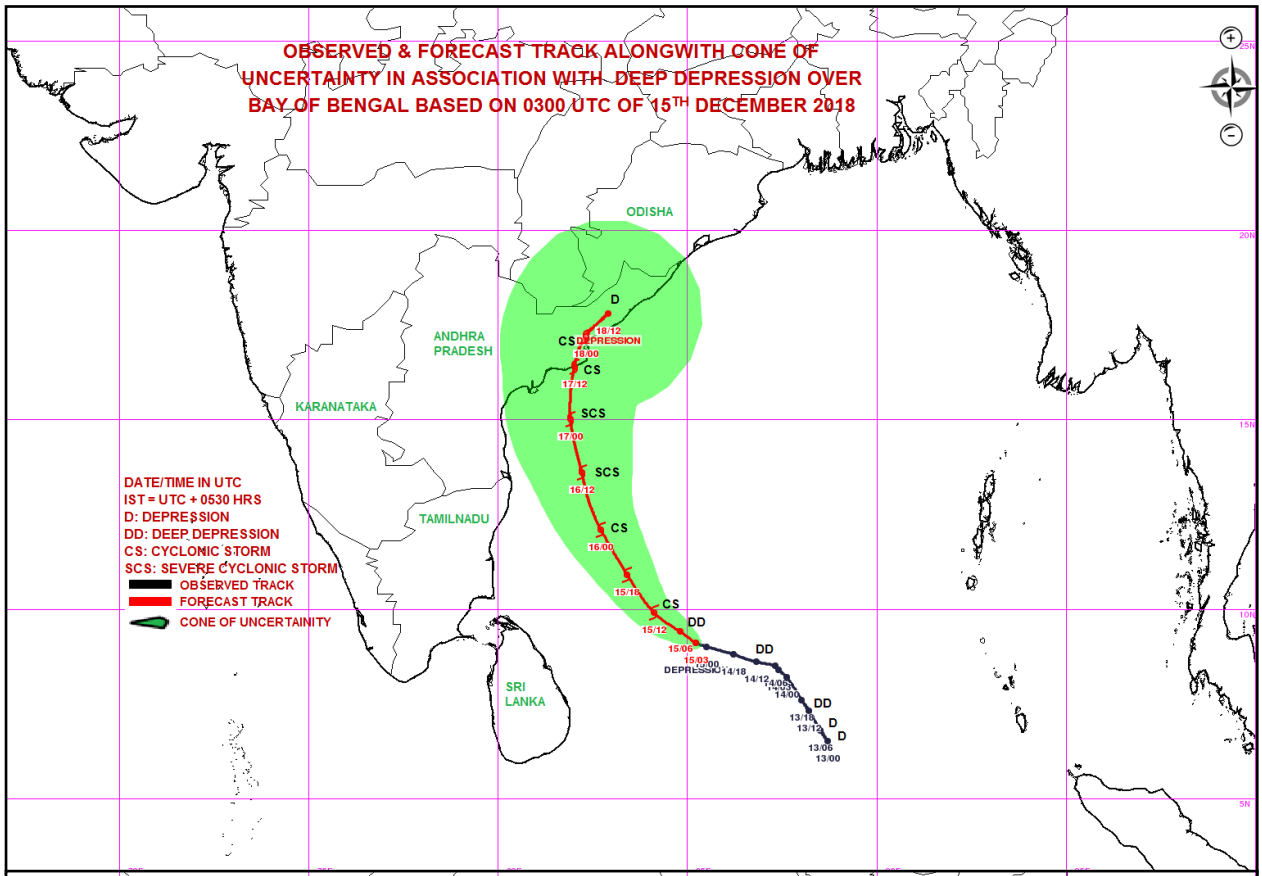
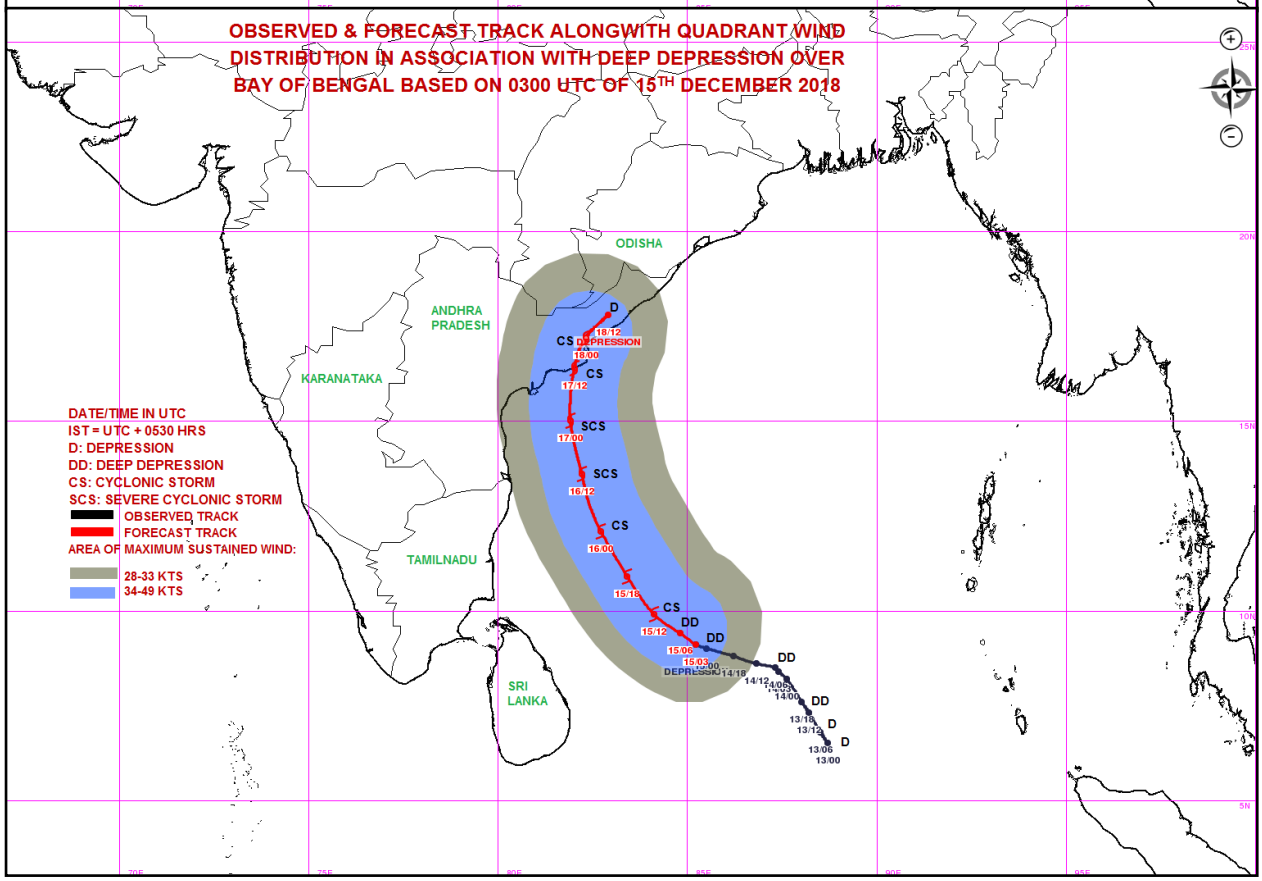




PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)
NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

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 1500 UTC OF 15.12.2018 BASED ON 1200 UTC OF 15.12.2018.

DEEP DEPRESSION OVER SOUTHWEST & ADJOINING SOUTHEAST BAY OF BENGAL INTENSIFIED INTO A CYCLONIC STORM 'PHETHAI' OVER SOUTHWEST BAY OF BENGAL:

THE DEEP DEPRESSION OVER SOUTHWEST & ADJOINING SOUTHEAST BAY OF BENGAL MOVED NORTH-NORTHWESTWARDS WITH A SPEED OF 17 KMPH DURING PAST 06 HOURS, INTENSIFIED INTO A CYCLONIC STORM **'PHETHAI (PRONOUNCED AS PAY-TI)'** AND LAY CENTRED AT 1200 UTC OF 15TH DECEMBER, 2018 OVER SOUTHWEST BAY OF BENGAL NEAR LATITUDE 10.3°N AND LONGITUDE 84.9°E, ABOUT 440 KM EAST-NORTHEAST OF TRINCOMALEE (43418) (SRI LANKA), 590 KM EAST-SOUTHEAST OF CHENNAI (43278) (TAMIL NADU) AND 770 KM SOUTH-SOUTHEAST OF MACHILIPATNAM (43185) (ANDHRA PRADESH). IT IS VERY LIKELY TO INTENSIFY FURTHER INTO A SEVERE CYCLONIC STORM DURING NEXT 24 HOURS. IT IS VERY LIKELY TO MOVE NORTH-NORTHWESTWARDS AND CROSS ANDHRA PRADESH COAST BETWEEN MACHILIPATNAM AND KAKINADA DURING 17TH DECEMBER AFTERNOON.

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
15.12.18/1200	10.3/84.9	60-70 gusting to 80	Cyclonic Storm
15.12.18/1800	11.0/84.4	65-75 gusting to 85	Cyclonic Storm
16.12.18/0000	11.8/83.7	75-85 gusting to 95	Cyclonic Storm
16.12.18/0600	12.4/83.2	80-90 gusting to 100	Cyclonic Storm
16.12.18/1200	13.3/82.7	90-100 gusting to 110	Severe Cyclonic Storm
17.12.18/0000	15.0/82.1	90-100 gusting to 110	Severe Cyclonic Storm
17.12.18/1200	16.4/82.1	75-85 gusting to 95	Cyclonic Storm
18.12.18/0000	17.5/82.6	60-70 gusting to 80	Cyclonic Storm
18.12.18/1200	18.3/83.4	45-55 gusting to 65	Depression

AS PER THE SATELLITE IMAGERY OF 1200 UTC ON 15TH DECEMBER THE INTENSITY OF THE SYSTEM OVER SW BAY & N/HOOD IS T 2.5, ASSOCIATED BROKEN LOW TO MEDIUM

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

CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION OVER AREA BETWEEN LATITUDE 8.5°N TO 15.0°N AND LONG 82.0°E TO 92.0°E (.) MINIMUM CLOUD TOP TEMPERATURE IS MINUS 93.1° C.

THE ESTIMATED CENTRAL PRESSURE IS ABOUT 1000 HPA AND THE MAXIMUM SUSTAINED SURFACE WIND SPEED IS 35 KNOTS GUSTING TO 45 KNOTS. STATE OF SEA IS HIGH AROUND THE SYSTEM CENTRE.

REMARKS:

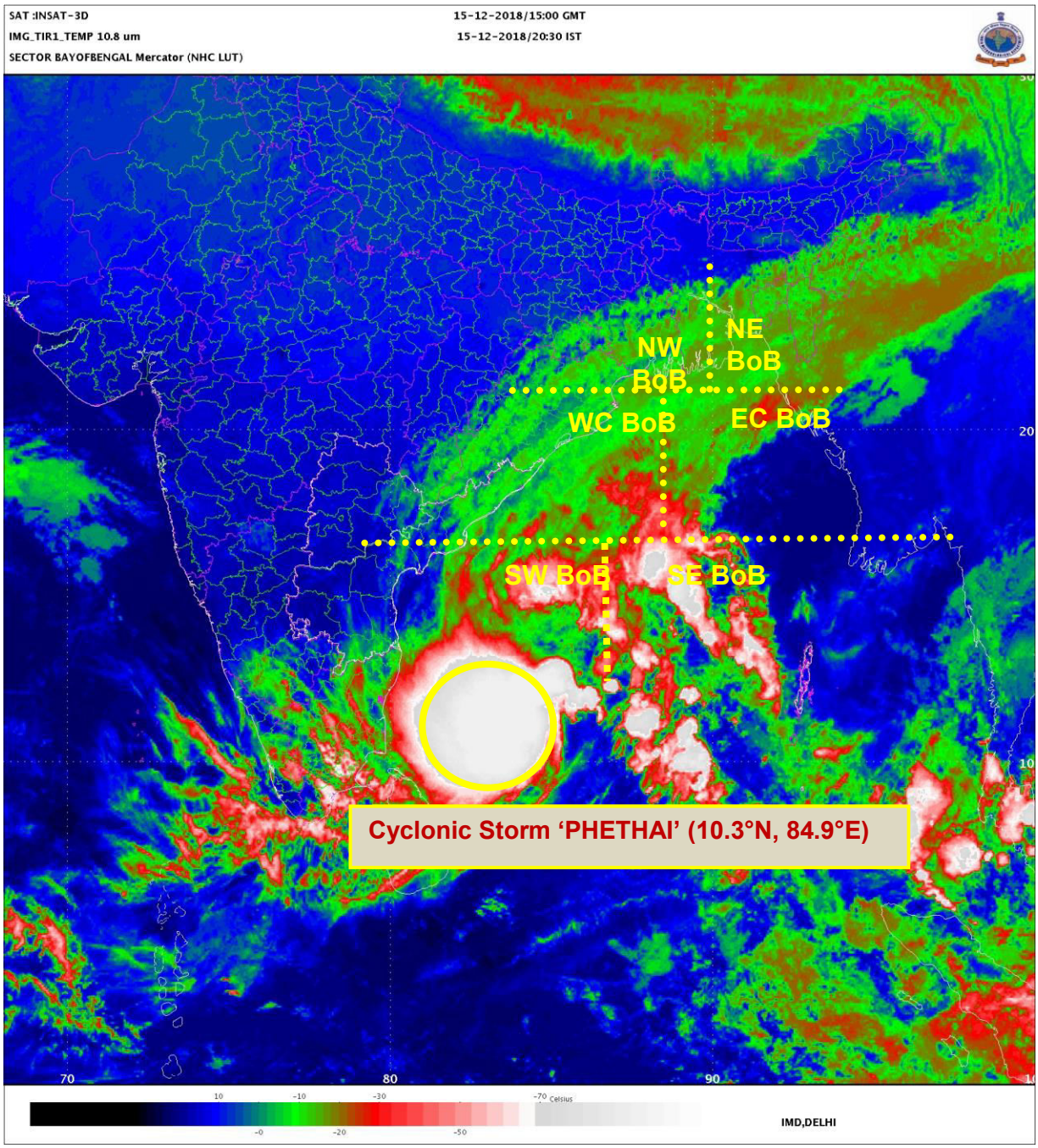
THE MADDEN JULIAN OSCILLATION (MJO) INDEX LIES CURRENTLY IN PHASE 4 WITH AMPLITUDE MORE THAN 1. IT WILL CONTINUE IN SAME PHASE WITH AMPLITUDE GREATER THAN 1 FOR NEXT 4-5 DAYS. HENCE, MJO PHASE WILL BE FAVOURABLE FOR ENHANCEMENT OF CONVECTION & INTENSIFICATION OF THE SYSTEM.

CONSIDERING THE ENVIRONMENTAL CONDITIONS, THE SEA SURFACE TEMPERATURE (SST) IS 28-29˚C AROUND THE SYSTEM AREA. IT IS DECREASING SLIGHTLY BECOMING 26-28˚C TOWARDS WESTCENTRAL BAY OF BENGAL AND ALONG & OFF ANDHRA PRADESH COAST. THE TROPICAL CYCLONE HEAT POTENTIAL IS AROUND 60-80 KJ/CM^2 OVER THE SYSTEM AREA. HOWEVER, IT IS LESS THAN 40 KJ/CM^2 OVER WESTERN PARTS OF BOB ALONG THE EAST COAST OF INDIA. THE LOWER LEVEL CONVERGENCE IS 60x10^{-5} SECOND^{-1} TOWARDS NORTH-NORTHWEST OF THE SYSTEM CENTER. LOWER LEVEL VORTICITY IS 200x10^{-6} SECOND ^{1} AROUND THE SYSTEM CENTER. UPPER LEVEL DIVERGENCE IS 20x10^{-5} SECOND^{-1} TOWARDS NORTH-NORTHWEST OF THE SYSTEM CENTER AND VERTICAL WIND SHEAR (15-20 KNOTS) OVER THE SYSTEM AREA AND INCREASES ALONG THE FORECAST TRACK. THE TOTAL PRECIPITABLE WATER IMAGERY INDICATES WARM AND MOIST AIR FEEDING INTO THE CORE OF THE SYSTEM FROM SOUTHEAST SECTOR AND DRY & COLD AIR PREVAILS OVER PENINSULAR INDIA. ALL THESE MAY LEAD TO INTENSIFICATION OF THE SYSTEM INTO SEVERE CYCLONIC STORM DURING NEXT 24 HOURS.

THE UPPER TROPOSPHERIC RIDGE RUNS ALONG 16°N. THE SYSTEM IS BEING GUIDED BY THE ANTICYCLONE OVER SOUTHEAST ASIA, AND HENCE WILL HAVE MORE NORTHWARD COMPONENT OF MOVEMENT AS IT APPROACHES THE COAST. AS PER THE MODEL FORECAST A DEEP TROUGH IN UPPER TROPOSPHERIC WESTERLIES IS APPROACHING THE INDIAN REGION. IT IS LIKELY TO LEAD TO RECURVATURE OF THE SYSTEM TO NORTHEAST AFTER LANDFALL OVER ANDHRA PRADESH COAST. FURTHER UNDER THE COMBIND EFFECT OF ANTICYCLONE AND ABOVE TROUGH THE UPPER LEVEL WINDS ARE EXPECTED TO INCREASE OVER NORTHEAST COAST OF INDIA. IT MAY LEAD TO INCREASE IN WIND SHEAR OVER THE REGION. HENCE THERE IS POSSIBILITIES OF WEAKENING OF THE SYSTEM SLIGHTLY ON 17TH DECEMBER BEFORE LANDFALL DUE TO DRY & COLD AIR ADVECTION FROM NORTHWEST AND COLDER SST & LOWER OCEAN HEAT CONTENT AND HIGH WIND SHEAR. LATEST SCATTEROMETER WIND SUGGEST WIND SPEED OF 30-40 KNOT WINDS ARE HIGHER IN THE NORTHERN SECTOR. MOST OF THE NWP MODEL GUIDENCE AGREE WITH ABOVE ANALYSIS.

(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)
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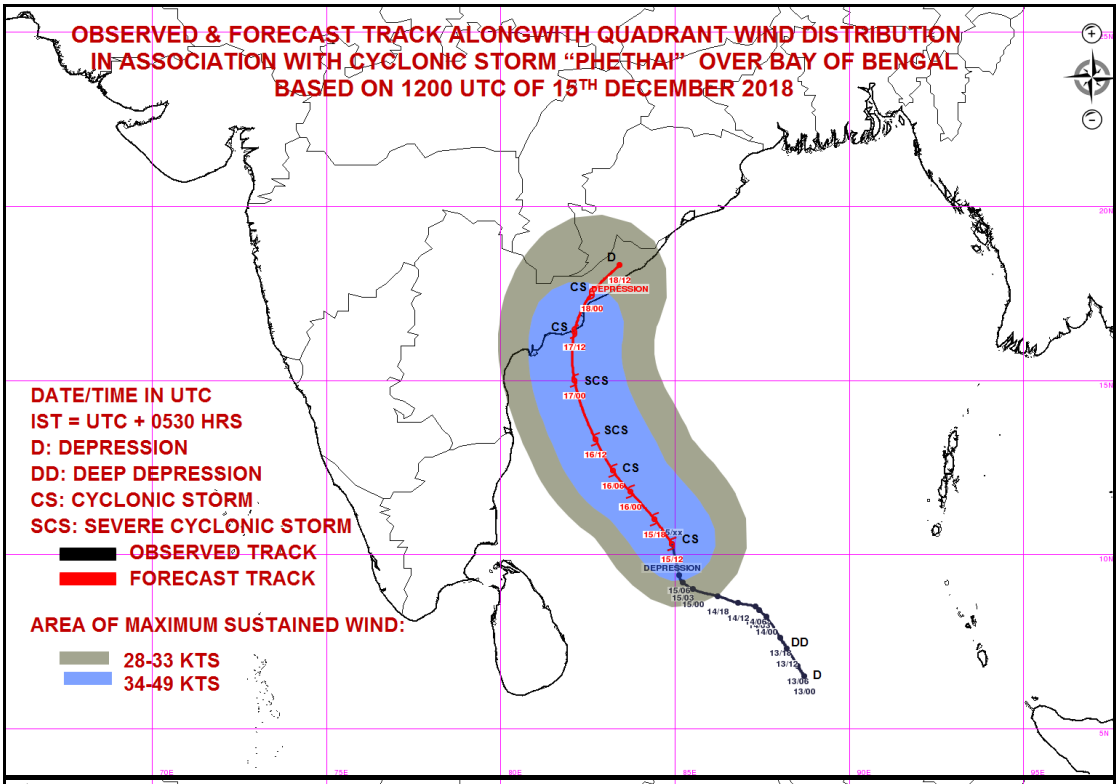
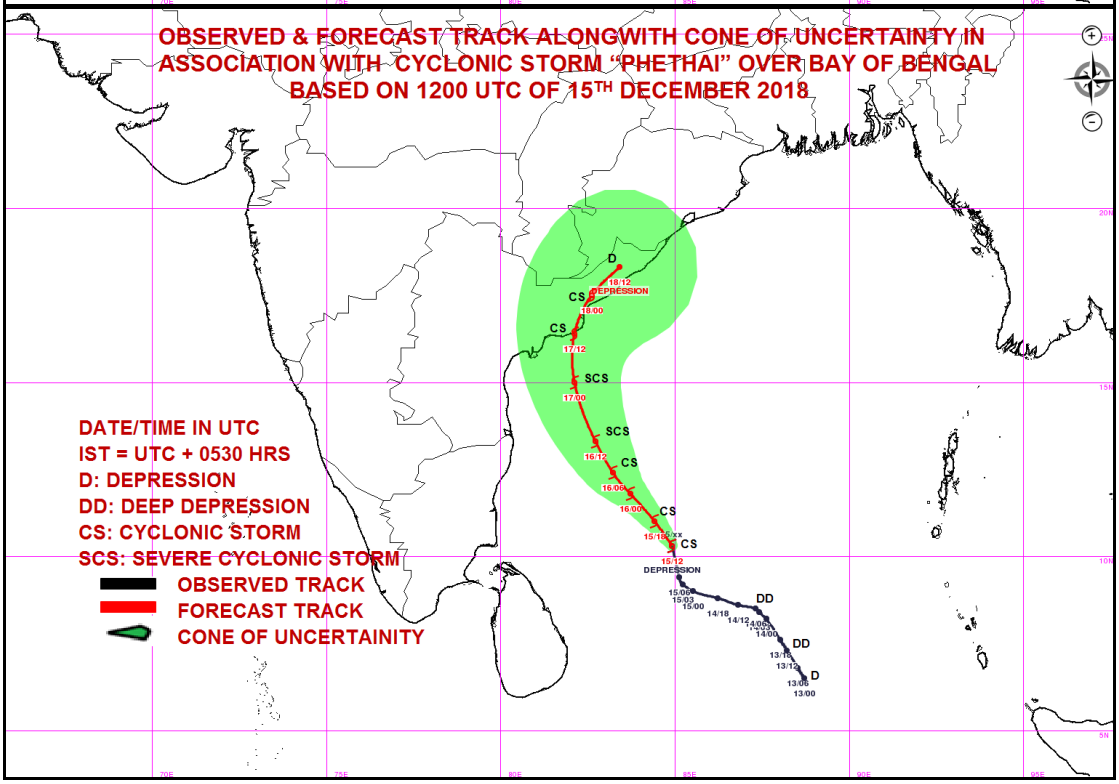




PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

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

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 1800 UTC OF 15.12.2018 BASED ON 1500 UTC OF 15.12.2018.

CYCLONIC STORM 'PHETHAI' OVER SOUTHWEST BAY OF BENGAL:

THE CYCLONIC STORM '**PHETHAI (PRONOUNCED AS PAY-TI)**' OVER SOUTHWEST BAY OF BENGAL MOVED FURTHER NORTH-NORTHWESTWARDS WITH A SPEED OF 17 KMPH DURING PAST 06 HOURS AND LAY CENTRED AT 1500 UTC OF 15TH DECEMBER, 2018 OVER SOUTHWEST BAY OF BENGAL NEAR LATITUDE 10.7°N AND LONGITUDE 84.7°E, ABOUT 440 KM EAST-NORTHEAST OF TRINCOMALEE (43418) (SRI LANKA), 550 KM SOUTHEAST OF CHENNAI (43278) (TAMIL NADU) AND 720 KM SOUTH-SOUTHEAST OF MACHILIPATNAM (43185) (ANDHRA PRADESH). IT IS VERY LIKELY TO INTENSIFY FURTHER INTO A SEVERE CYCLONIC STORM DURING NEXT 24 HOURS. IT IS VERY LIKELY TO MOVE NORTH-NORTHWESTWARDS AND CROSS ANDHRA PRADESH COAST BETWEEN MACHILIPATNAM AND KAKINADA DURING 17TH DECEMBER AFTERNOON.

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
15.12.18/1500	10.7/84.7	60-70 gusting to 80	Cyclonic Storm
15.12.18/1800	11.0/84.4	65-75 gusting to 85	Cyclonic Storm
16.12.18/0000	11.8/83.7	75-85 gusting to 95	Cyclonic Storm
16.12.18/0600	12.4/83.2	80-90 gusting to 100	Cyclonic Storm
16.12.18/1200	13.3/82.7	90-100 gusting to 110	Severe Cyclonic Storm
17.12.18/0000	15.0/82.1	90-100 gusting to 110	Severe Cyclonic Storm
17.12.18/1200	16.4/82.1	75-85 gusting to 95	Cyclonic Storm
18.12.18/0000	17.5/82.6	60-70 gusting to 80	Cyclonic Storm
18.12.18/1200	18.3/83.4	45-55 gusting to 65	Depression

AS PER THE SATELLITE IMAGERY OF 1500 UTC ON 15TH DECEMBER THE INTENSITY OF THE SYSTEM OVER SW BAY & N/HOOD IS T 2.5. ASSOCIATED BROKEN LOW TO MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION OVER AREA BETWEEN LATITUDE 8.5°N TO 15.0°N AND LONG 82.0°E TO 92.0°E (.) MINIMUM CLOUD TOP

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

TEMPERATURE IS MINUS 93.1° C.

THE ESTIMATED CENTRAL PRESSURE IS ABOUT 1000 HPA AND THE MAXIMUM SUSTAINED SURFACE WIND SPEED IS 35 KNOTS GUSTING TO 45 KNOTS. STATE OF SEA IS HIGH AROUND THE SYSTEM CENTRE.

REMARKS:

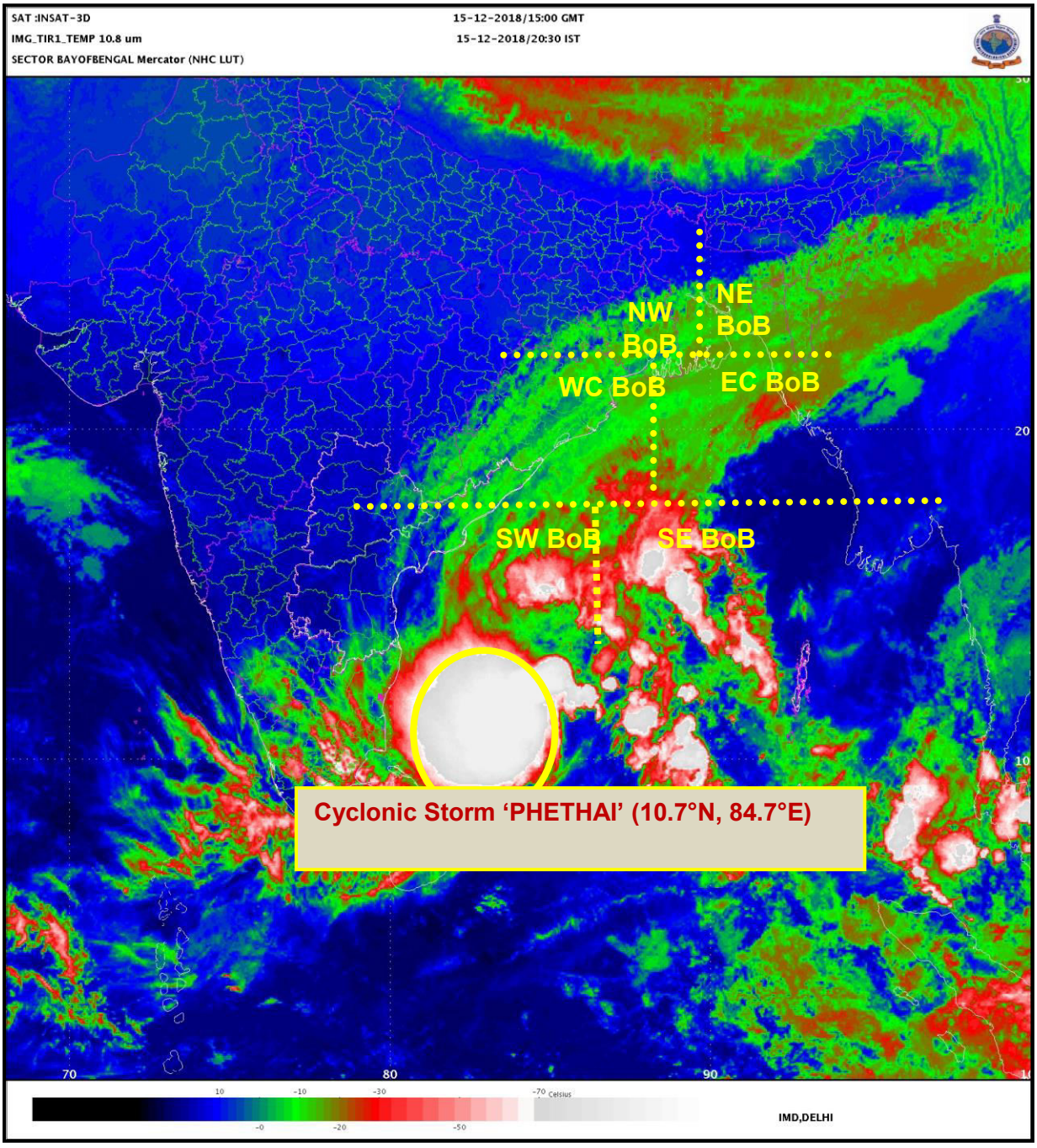
THE MADDEN JULIAN OSCILLATION (MJO) INDEX LIES CURRENTLY IN PHASE 4 WITH AMPLITUDE MORE THAN 1. IT WILL CONTINUE IN SAME PHASE WITH AMPLITUDE GREATER THAN 1 FOR NEXT 4-5 DAYS. HENCE, MJO PHASE WILL BE FAVOURABLE FOR ENHANCEMENT OF CONVECTION & INTENSIFICATION OF THE SYSTEM.

CONSIDERING THE ENVIRONMENTAL CONDITIONS, THE SEA SURFACE TEMPERATURE (SST) IS 28-29˚C AROUND THE SYSTEM AREA. IT IS DECREASING SLIGHTLY BECOMING 26-28˚C TOWARDS WESTCENTRAL BAY OF BENGAL AND ALONG & OFF ANDHRA PRADESH COAST. THE TROPICAL CYCLONE HEAT POTENTIAL IS AROUND 60-80 KJ/CM^2 OVER THE SYSTEM AREA. HOWEVER, IT IS LESS THAN 40 KJ/CM^2 OVER WESTERN PARTS OF BOB ALONG THE EAST COAST OF INDIA. THE LOWER LEVEL CONVERGENCE IS $60x10^{-5}$ $SECOND^{-1}$ TOWARDS NORTH-NORTHWEST OF THE SYSTEM CENTER. LOWER LEVEL VORTICITY IS $200x10^{-6}$ $SECOND^{1}$ AROUND THE SYSTEM CENTER. UPPER LEVEL DIVERGENCE IS $20x10^{-5}$ $SECOND^{-1}$ TOWARDS NORTH-NORTHWEST OF THE SYSTEM CENTER AND VERTICAL WIND SHEAR (15-20 KNOTS) OVER THE SYSTEM AREA AND INCREASES ALONG THE FORECAST TRACK. THE TOTAL PRECIPITABLE WATER IMAGERY INDICATES WARM AND MOIST AIR FEEDING INTO THE CORE OF THE SYSTEM FROM SOUTHEAST SECTOR AND DRY & COLD AIR PREVAILS OVER PENINSULAR INDIA. ALL THESE MAY LEAD TO INTENSIFICATION OF THE SYSTEM INTO SEVERE CYCLONIC STORM DURING NEXT 24 HOURS.

THE UPPER TROPOSPHERIC RIDGE RUNS ALONG 16°N. THE SYSTEM IS BEING GUIDED BY THE ANTICYCLONE OVER SOUTHEAST ASIA, AND HENCE WILL HAVE MORE NORTHWARD COMPONENT OF MOVEMENT AS IT APPROACHES THE COAST. AS PER THE MODEL FORECAST A DEEP TROUGH IN UPPER TROPOSPHERIC WESTERLIES IS APPROACHING THE INDIAN REGION. IT IS LIKELY TO LEAD TO RECURVATURE OF THE SYSTEM TO NORTHEAST AFTER LANDFALL OVER ANDHRA PRADESH COAST. FURTHER UNDER THE COMBIND EFFECT OF ANTICYCLONE AND ABOVE TROUGH THE UPPER LEVEL WINDS ARE EXPECTED TO INCREASE OVER NORTHEAST COAST OF INDIA. IT MAY LEAD TO INCREASE IN WIND SHEAR OVER THE REGION. HENCE THERE IS POSSIBILITIES OF WEAKENING OF THE SYSTEM SLIGHTLY ON 17^{TH} DECEMBER BEFORE LANDFALL DUE TO DRY & COLD AIR ADVECTION FROM NORTHWEST AND COLDER SST & LOWER OCEAN HEAT CONTENT AND HIGH WIND SHEAR. LATEST SCATTEROMETER WIND SUGGEST WIND SPEED OF 30-40 KNOT WINDS ARE HIGHER IN THE NORTHERN SECTOR. MOST OF THE NWP MODEL GUIDENCE AGREE WITH ABOVE ANALYSIS.

(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)
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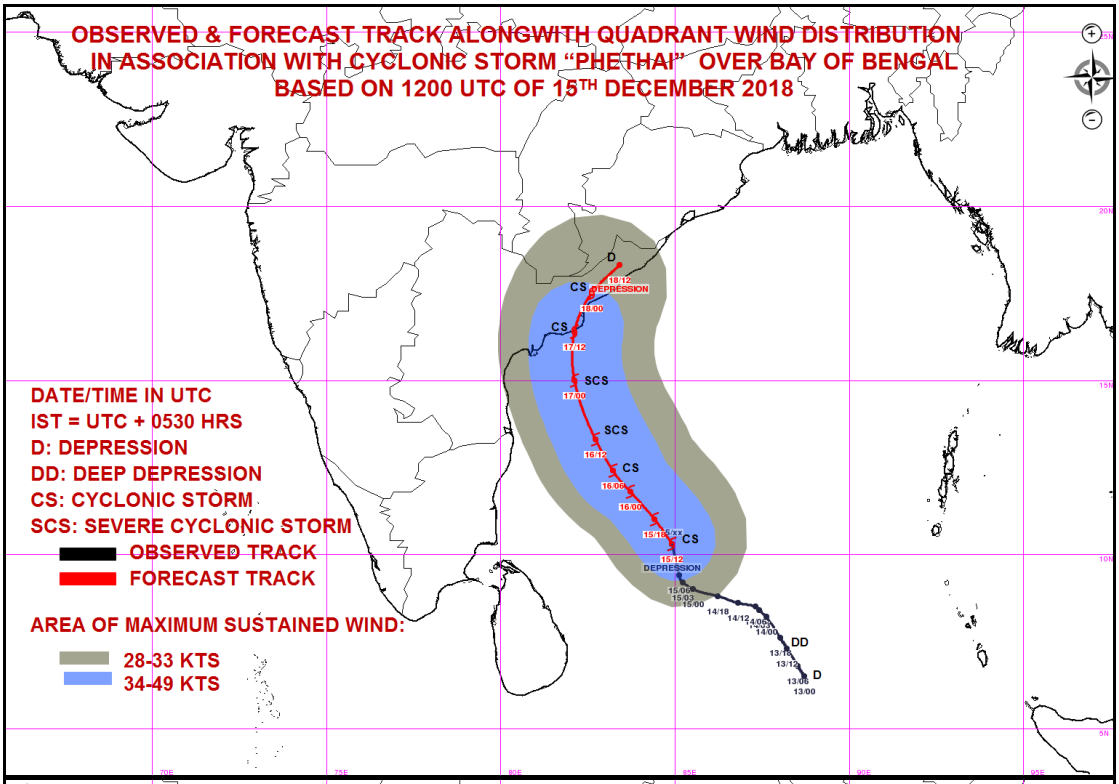
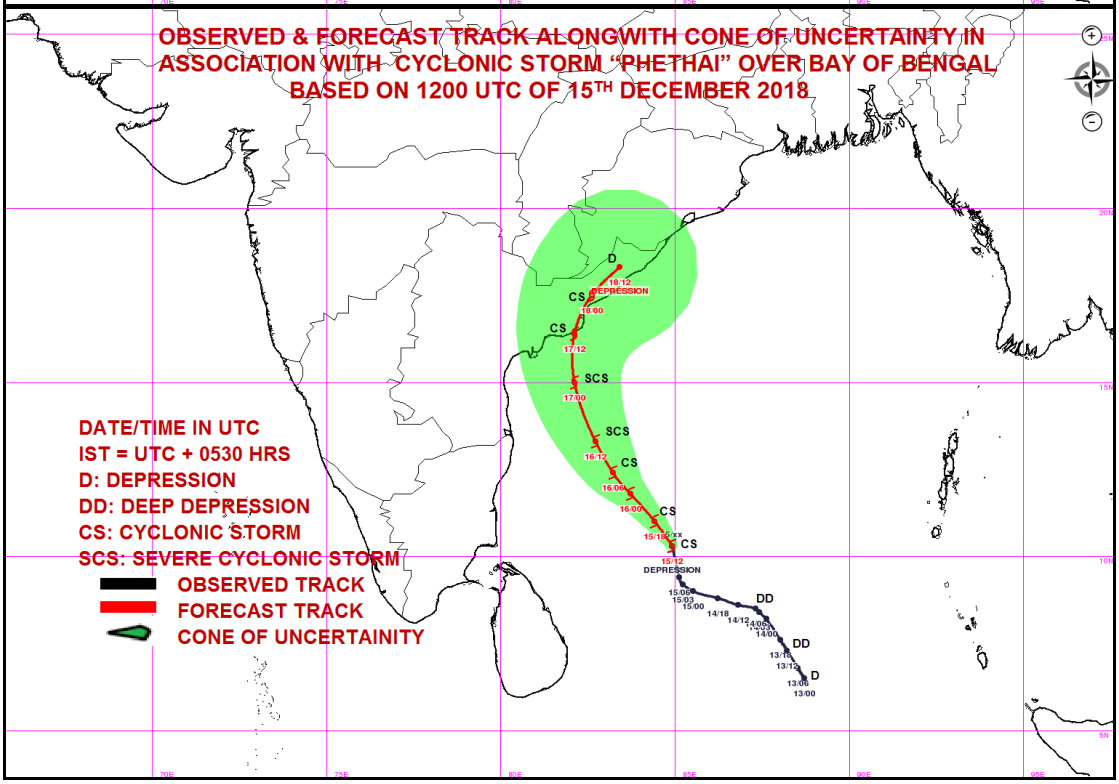




PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

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

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 2000 UTC OF 15.12.2018 BASED ON 1800 UTC OF 15.12.2018.

CYCLONIC STORM 'PHETHAI' OVER SOUTHWEST BAY OF BENGAL:

THE CYCLONIC STORM '**PHETHAI (PRONOUNCED AS PAY-TI)**' OVER SOUTHWEST BAY OF BENGAL MOVED FURTHER NORTH-NORTHWESTWARDS WITH A SPEED OF 13 KMPH DURING PAST 06 HOURS AND LAY CENTRED AT 1800 UTC OF 15TH DECEMBER, 2018 OVER SOUTHWEST BAY OF BENGAL NEAR LATITUDE 11.0°N AND LONGITUDE 84.7°E, ABOUT 460 KM EAST-NORTHEAST OF TRINCOMALEE (SRI LANKA), 530 KM SOUTHEAST OF CHENNAI (TAMIL NADU) AND 690 KM SOUTH-SOUTHEAST OF MACHILIPATNAM (ANDHRA PRADESH). IT IS VERY LIKELY TO INTENSIFY FURTHER INTO A SEVERE CYCLONIC STORM DURING NEXT 24 HOURS. IT IS VERY LIKELY TO MOVE NORTH-NORTHWESTWARDS AND CROSS ANDHRA PRADESH COAST BETWEEN MACHILIPATNAM AND KAKINADA DURING 17TH DECEMBER AFTERNOON.

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
15.12.18/1800	11.0/84.7	65-75 gusting to 85	Cyclonic Storm
16.12.18/0000	11.8/83.7	75-85 gusting to 95	Cyclonic Storm
16.12.18/0600	12.4/83.2	80-90 gusting to 100	Cyclonic Storm
16.12.18/1200	13.3/82.7	90-100 gusting to 110	Severe Cyclonic Storm
16.12.18/1800	14.1/82.4	90-100 gusting to 110	Severe Cyclonic Storm
17.12.18/0600	15.7/82.0	80-90 gusting to 100	Cyclonic Storm
17.12.18/1800	16.9/82.2	70-80 gusting to 90	Cyclonic Storm
18.12.18/0600	17.8/82.8	55-65 gusting to 75	Deep Depression
18.12.18/1800	18.6/83.6	45-55 gusting to 65	Depression

AS PER THE SATELLITE IMAGERY OF 1800 UTC ON 15TH DECEMBER THE INTENSITY OF THE SYSTEM OVER SW BAY & N/HOOD IS T 2.5. ASSOCIATED BROKEN LOW TO MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION OVER AREA

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

BETWEEN LATITUDE 8.5°N TO 13.5°N AND LONG 80.0°E TO 85.0°E (.) MINIMUM CLOUD TOP TEMPERATURE IS MINUS 93.0° C.

THE ESTIMATED CENTRAL PRESSURE IS ABOUT 1000 HPA AND THE MAXIMUM SUSTAINED SURFACE WIND SPEED IS 35 KNOTS GUSTING TO 45 KNOTS. STATE OF SEA IS HIGH AROUND THE SYSTEM CENTRE.

REMARKS:

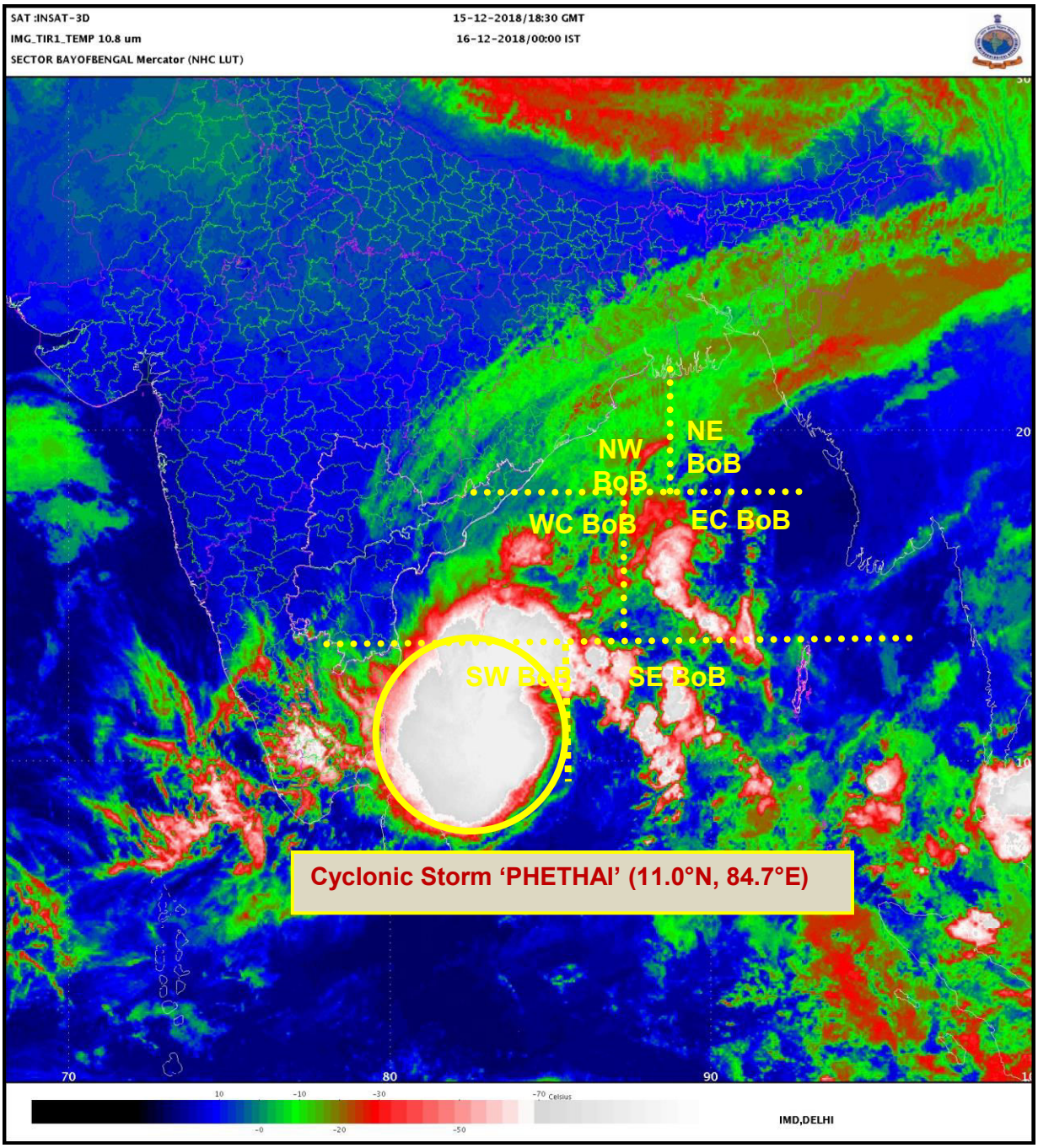
THE MADDEN JULIAN OSCILLATION (MJO) INDEX LIES CURRENTLY IN PHASE 4 WITH AMPLITUDE MORE THAN 1. IT WILL CONTINUE IN SAME PHASE WITH AMPLITUDE GREATER THAN 1 FOR NEXT 4-5 DAYS. HENCE, MJO PHASE WILL BE FAVOURABLE FOR ENHANCEMENT OF CONVECTION & INTENSIFICATION OF THE SYSTEM.

CONSIDERING THE ENVIRONMENTAL CONDITIONS, THE SEA SURFACE TEMPERATURE (SST) IS 28-29˚C AROUND THE SYSTEM AREA. IT IS DECREASING SLIGHTLY BECOMING 26-28˚C TOWARDS WESTCENTRAL BAY OF BENGAL AND ALONG & OFF ANDHRA PRADESH COAST. THE TROPICAL CYCLONE HEAT POTENTIAL IS AROUND 60-80 KJ/CM^2 OVER THE SYSTEM AREA. HOWEVER, IT IS LESS THAN 40 KJ/CM^2 OVER WESTERN PARTS OF BOB ALONG THE EAST COAST OF INDIA. THE LOWER LEVEL CONVERGENCE IS $60x10^{-5}$ $SECOND^{-1}$ TOWARDS NORTH-NORTHWEST OF THE SYSTEM CENTER. LOWER LEVEL VORTICITY IS $200x10^{-6}$ SECOND ^{1} AROUND THE SYSTEM CENTER. UPPER LEVEL DIVERGENCE IS $50x10^{-5}$ $SECOND^{-1}$ TOWARDS NORTH-NORTHWEST OF THE SYSTEM CENTER AND VERTICAL WIND SHEAR (15-20 KNOTS) OVER THE SYSTEM AREA AND INCREASES ALONG THE FORECAST TRACK. THE TOTAL PRECIPITABLE WATER IMAGERY INDICATES WARM AND MOIST AIR FEEDING INTO THE CORE OF THE SYSTEM FROM SOUTHEAST SECTOR AND DRY & COLD AIR PREVAILS OVER PENINSULAR INDIA. ALL THESE MAY LEAD TO INTENSIFICATION OF THE SYSTEM INTO SEVERE CYCLONIC STORM DURING NEXT 24 HOURS.

THE UPPER TROPOSPHERIC RIDGE RUNS ALONG 16°N. THE SYSTEM IS BEING GUIDED BY THE ANTICYCLONE OVER SOUTHEAST ASIA, AND HENCE WILL HAVE MORE NORTHWARD COMPONENT OF MOVEMENT AS IT APPROACHES THE COAST. AS PER THE MODEL FORECAST A DEEP TROUGH IN UPPER TROPOSPHERIC WESTERLIES IS APPROACHING THE INDIAN REGION. IT IS LIKELY TO LEAD TO RECURVATURE OF THE SYSTEM TO NORTHEAST AFTER LANDFALL OVER ANDHRA PRADESH COAST. FURTHER UNDER THE COMBIND EFFECT OF ANTICYCLONE AND ABOVE TROUGH THE UPPER LEVEL WINDS ARE EXPECTED TO INCREASE OVER NORTHEAST COAST OF INDIA. IT MAY LEAD TO INCREASE IN WIND SHEAR OVER THE REGION. HENCE THERE IS POSSIBILITIES OF WEAKENING OF THE SYSTEM SLIGHTLY ON 17^{TH} DECEMBER BEFORE LANDFALL DUE TO DRY & COLD AIR ADVECTION FROM NORTHWEST AND COLDER SST & LOWER OCEAN HEAT CONTENT AND HIGH WIND SHEAR. LATEST SCATTEROMETER WIND SUGGEST WIND SPEED OF 30-40 KNOT WINDS ARE HIGHER IN THE NORTHERN SECTOR. MOST OF THE NWP MODEL GUIDENCE AGREE WITH ABOVE ANALYSIS.

(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)
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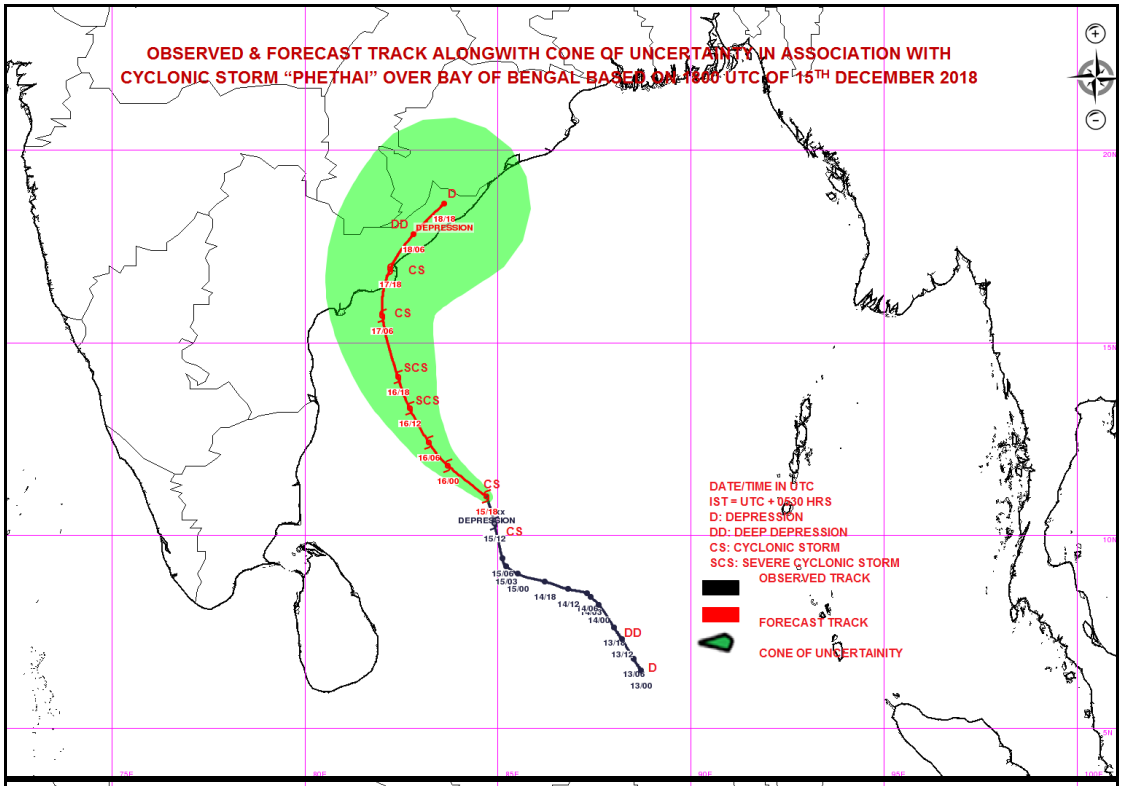
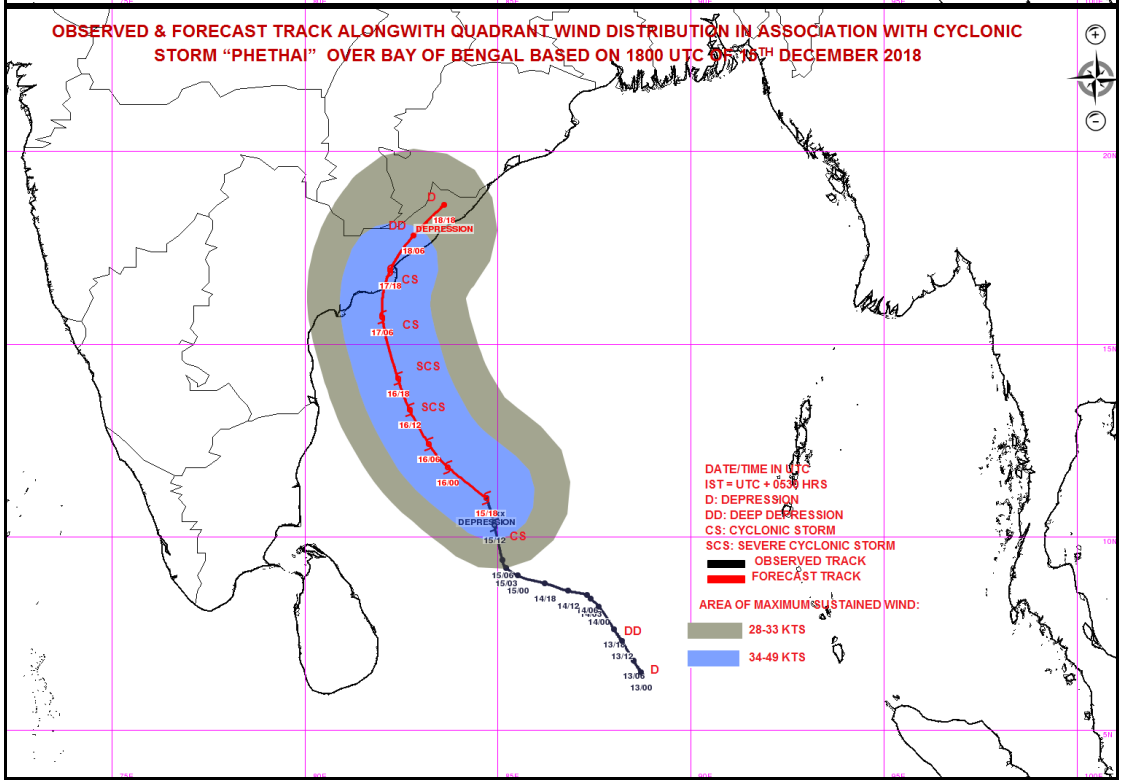




PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

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

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 0000 UTC OF 16.12.2018 BASED ON 2100 UTC OF 15.12.2018.

CYCLONIC STORM 'PHETHAI' OVER SOUTHWEST BAY OF BENGAL:

THE CYCLONIC STORM '**PHETHAI (PRONOUNCED AS PAY-TI)**' OVER SOUTHWEST BAY OF BENGAL MOVED FURTHER NORTH-NORTHWESTWARDS WITH A SPEED OF 17 KMPH DURING PAST 06 HOURS AND LAY CENTRED AT 2100 UTC OF 15TH DECEMBER, 2018 OVER SOUTHWEST BAY OF BENGAL NEAR LATITUDE 11.1°N AND LONGITUDE 84.5°E, ABOUT 450 KM EAST-NORTHEAST OF TRINCOMALEE (SRI LANKA), 510 KM SOUTHEAST OF CHENNAI (TAMIL NADU) AND 670 KM SOUTH-SOUTHEAST OF MACHILIPATNAM (ANDHRA PRADESH). IT IS VERY LIKELY TO INTENSIFY FURTHER INTO A SEVERE CYCLONIC STORM DURING NEXT 24 HOURS. IT IS VERY LIKELY TO MOVE NORTH-NORTHWESTWARDS AND CROSS ANDHRA PRADESH COAST BETWEEN MACHILIPATNAM AND KAKINADA DURING 17TH DECEMBER AFTERNOON.

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
15.12.18/2100	11.1/84.5	65-75 gusting to 85	Cyclonic Storm
16.12.18/0000	11.8/83.7	75-85 gusting to 95	Cyclonic Storm
16.12.18/0600	12.4/83.2	80-90 gusting to 100	Cyclonic Storm
16.12.18/1200	13.3/82.7	90-100 gusting to 110	Severe Cyclonic Storm
16.12.18/1800	14.1/82.4	90-100 gusting to 110	Severe Cyclonic Storm
17.12.18/0600	15.7/82.0	80-90 gusting to 100	Cyclonic Storm
17.12.18/1800	16.9/82.2	70-80 gusting to 90	Cyclonic Storm
18.12.18/0600	17.8/82.8	55-65 gusting to 75	Deep Depression
18.12.18/1800	18.6/83.6	45-55 gusting to 65	Depression

AS PER THE SATELLITE IMAGERY OF 2100 UTC ON 15TH DECEMBER THE INTENSITY OF THE SYSTEM OVER SW BAY & N/HOOD IS T 2.5. ASSOCIATED BROKEN LOW TO MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION OVER AREA

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

BETWEEN LATITUDE 8.5°N TO 13.5°N AND LONG 80.0°E TO 85.0°E (.) MINIMUM CLOUD TOP TEMPERATURE IS MINUS 93.0° C.

THE ESTIMATED CENTRAL PRESSURE IS ABOUT 1000 HPA AND THE MAXIMUM SUSTAINED SURFACE WIND SPEED IS 35 KNOTS GUSTING TO 45 KNOTS. STATE OF SEA IS HIGH AROUND THE SYSTEM CENTRE.

REMARKS:

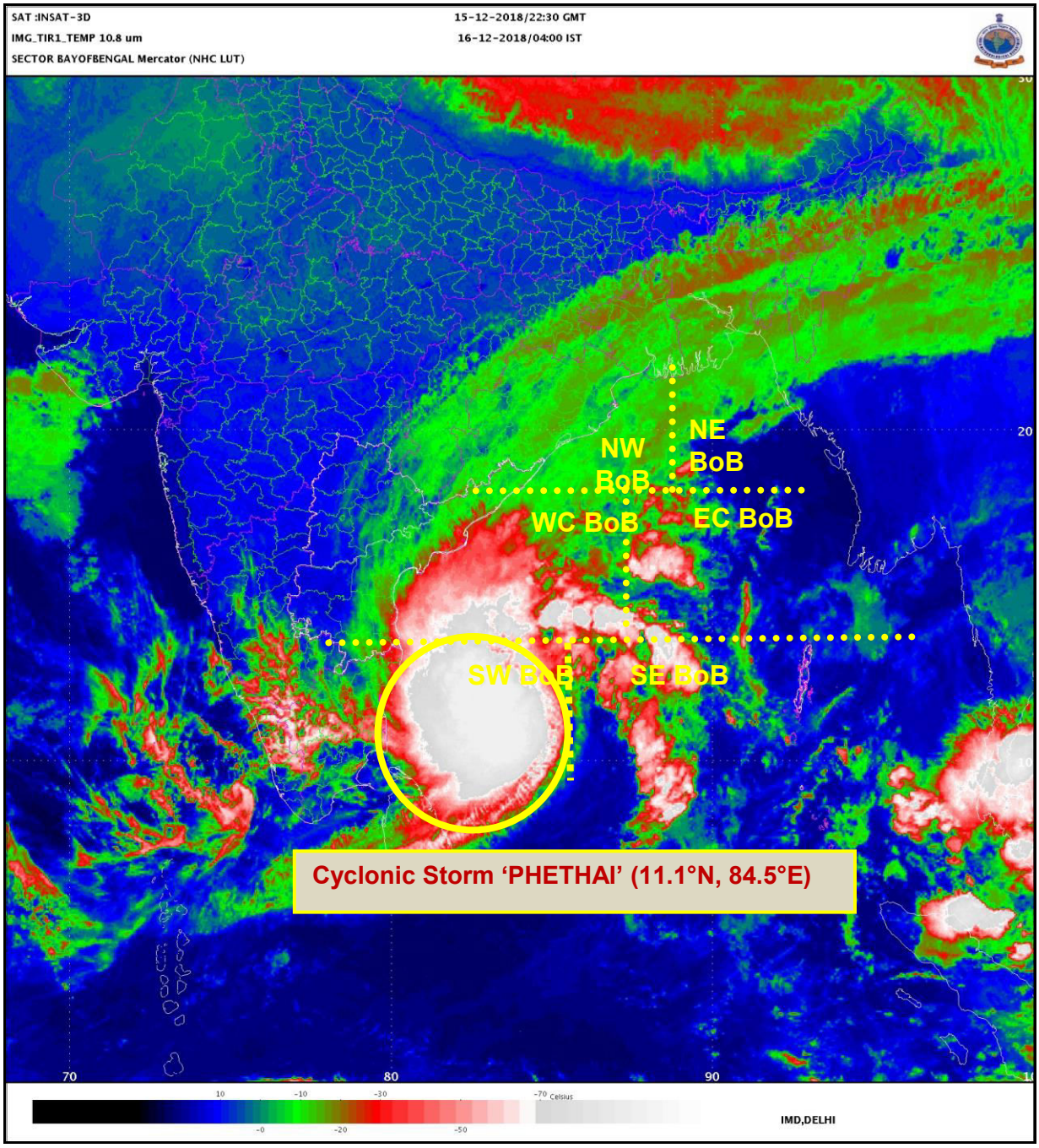
THE MADDEN JULIAN OSCILLATION (MJO) INDEX LIES CURRENTLY IN PHASE 4 WITH AMPLITUDE MORE THAN 1. IT WILL CONTINUE IN SAME PHASE WITH AMPLITUDE GREATER THAN 1 FOR NEXT 4-5 DAYS. HENCE, MJO PHASE WILL BE FAVOURABLE FOR ENHANCEMENT OF CONVECTION & INTENSIFICATION OF THE SYSTEM.

CONSIDERING THE ENVIRONMENTAL CONDITIONS, THE SEA SURFACE TEMPERATURE (SST) IS 28-29˚C AROUND THE SYSTEM AREA. IT IS DECREASING SLIGHTLY BECOMING 26-28˚C TOWARDS WESTCENTRAL BAY OF BENGAL AND ALONG & OFF ANDHRA PRADESH COAST. THE TROPICAL CYCLONE HEAT POTENTIAL IS AROUND 60-80 KJ/CM^2 OVER THE SYSTEM AREA. HOWEVER, IT IS LESS THAN 40 KJ/CM^2 OVER WESTERN PARTS OF BOB ALONG THE EAST COAST OF INDIA. THE LOWER LEVEL CONVERGENCE IS 40x10^{-5} SECOND^{-1} TOWARDS NORTH-NORTHWEST OF THE SYSTEM CENTER. LOWER LEVEL VORTICITY IS 200x10^{-6} SECOND ^{1} AROUND THE SYSTEM CENTER. UPPER LEVEL DIVERGENCE IS 50x10^{-5} SECOND^{-1} TOWARDS NORTH-NORTHWEST OF THE SYSTEM CENTER AND VERTICAL WIND SHEAR (10-15 KNOTS) OVER THE SYSTEM AREA AND INCREASES ALONG THE FORECAST TRACK. THE TOTAL PRECIPITABLE WATER IMAGERY INDICATES WARM AND MOIST AIR FEEDING INTO THE CORE OF THE SYSTEM FROM SOUTHEAST SECTOR AND DRY & COLD AIR PREVAILS OVER PENINSULAR INDIA. ALL THESE MAY LEAD TO INTENSIFICATION OF THE SYSTEM INTO SEVERE CYCLONIC STORM DURING NEXT 24 HOURS.

THE UPPER TROPOSPHERIC RIDGE RUNS ALONG 16°N. THE SYSTEM IS BEING GUIDED BY THE ANTICYCLONE OVER SOUTHEAST ASIA, AND HENCE WILL HAVE MORE NORTHWARD COMPONENT OF MOVEMENT AS IT APPROACHES THE COAST. AS PER THE MODEL FORECAST A DEEP TROUGH IN UPPER TROPOSPHERIC WESTERLIES IS APPROACHING THE INDIAN REGION. IT IS LIKELY TO LEAD TO RECURVATURE OF THE SYSTEM TO NORTHEAST AFTER LANDFALL OVER ANDHRA PRADESH COAST. FURTHER UNDER THE COMBIND EFFECT OF ANTICYCLONE AND ABOVE TROUGH THE UPPER LEVEL WINDS ARE EXPECTED TO INCREASE OVER NORTHEAST COAST OF INDIA. IT MAY LEAD TO INCREASE IN WIND SHEAR OVER THE REGION. HENCE THERE IS POSSIBILITIES OF WEAKENING OF THE SYSTEM SLIGHTLY ON 17TH DECEMBER BEFORE LANDFALL DUE TO DRY & COLD AIR ADVECTION FROM NORTHWEST AND COLDER SST & LOWER OCEAN HEAT CONTENT AND HIGH WIND SHEAR. LATEST SCATTEROMETER WIND SUGGEST WIND SPEED OF 30-40 KNOT WINDS ARE HIGHER IN THE NORTHERN SECTOR. MOST OF THE NWP MODEL GUIDENCE AGREE WITH ABOVE ANALYSIS.

(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)
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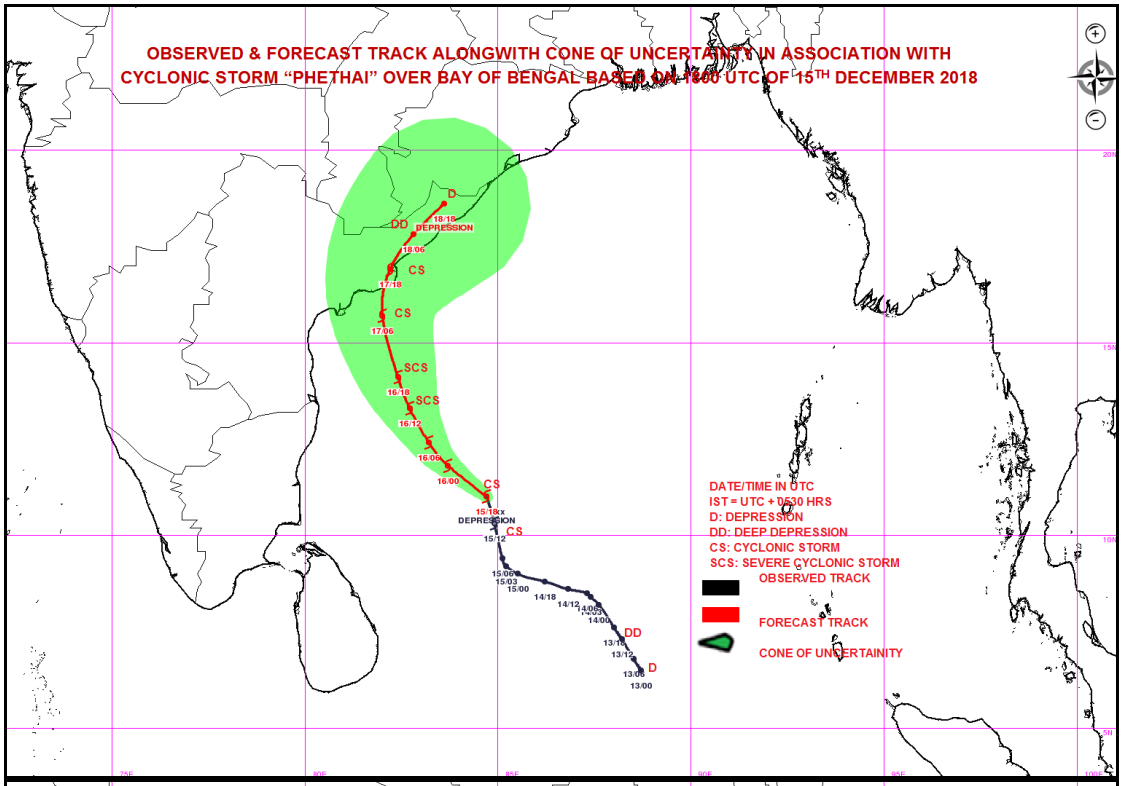
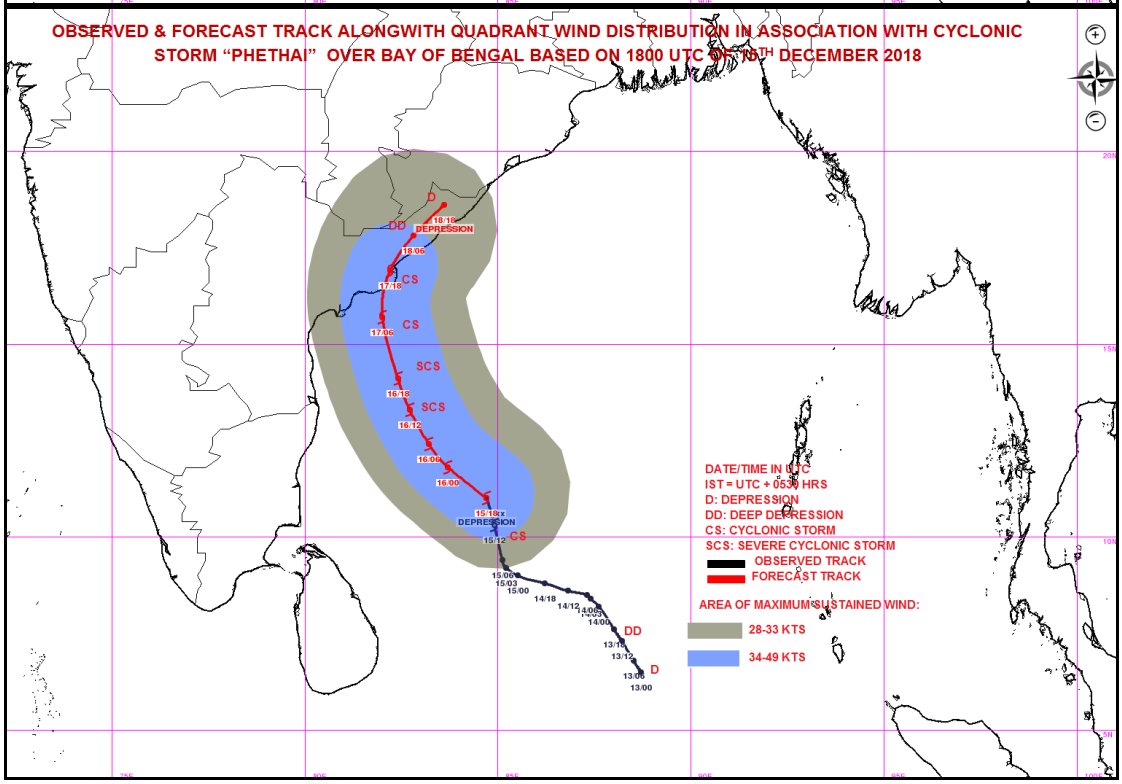




PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

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

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 0300 UTC OF 16.12.2018 BASED ON 0000 UTC OF 16.12.2018.

CYCLONIC STORM 'PHETHAI' OVER SOUTHWEST BAY OF BENGAL:

THE CYCLONIC STORM '**PHETHAI**' OVER SOUTHWEST BAY OF BENGAL MOVED FURTHER NORTH-NORTHWESTWARDS WITH A SPEED OF 07 KMPH DURING PAST 06 HOURS SLIGHTLY INTENSIFIED FURTHER AND LAY CENTRED AT 0000 UTC OF 16TH DECEMBER, 2018 OVER SOUTHWEST BAY OF BENGAL NEAR LATITUDE 11.3°N AND LONGITUDE 84.4°E, ABOUT 460 KM EAST-NORTHEAST OF TRINCOMALEE (SRI LANKA), 490 KM EAST SOUTHEAST OF CHENNAI (TAMIL NADU) , 640 KM SOUTH-SOUTHEAST OF MACHILIPATNAM (ANDHRA PRADESH) AND 670 KM SOUTH SOUTH EAST OF KAKINADA (ANDHRA PRADESH). IT IS VERY LIKELY TO MOVE NORTH-NORTHWESTWARDS AND CROSS ANDHRA PRADESH COAST BETWEEN MACHILIPATNAM AND KAKINADA DURING 17TH DECEMBER AFTERNOON. IT IS VERY LIKELY TO INTENSIFY FURTHER DURING NEXT 24 HOURS. HOWEVER, DUE TO UNFAVOURABLE ENVIRONMENTAL CONDITIONS, IT IS LIKELY TO WEAKEN SLIGHTLY BEFORE LANDFALL.

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
16.12.18/0000	11.3/84.4	80-90 gusting to 100	Cyclonic Storm
16.12.18/0600	12.1/83.7	85-95 gusting to 105	Cyclonic Storm
16.12.18/1200	13.0/83.0	90-100 gusting to 110	Severe Cyclonic Storm
16.12.18/1800	13.9/82.6	90-100 gusting to 110	Severe Cyclonic Storm
17.12.18/0000	14.9/82.4	80-90 gusting to 100	Cyclonic Storm
17.12.18/1200	16.4/82.3	70-80 gusting to 90	Cyclonic Storm
18.12.18/0000	17.8/82.8	55-65 gusting to 75	Deep Depression
18.12.18/1200	18.6/83.5	40-50 gusting to 60	Depression

AS PER THE SATELLITE IMAGERY OF 0000 UTC ON 16TH DECEMBER THE INTENSITY OF THE SYSTEM OVER SW BAY & N/HOOD IS T 3.0. ASSOCIATED BROKEN LOW TO MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION OVER AREA BETWEEN LATITUDE 8.5°N TO 14.5°N AND LONG 81.0°E TO 85.0°E (.) MINIMUM CLOUD TOP

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

TEMPERATURE IS MINUS 93.0° C.

THE ESTIMATED CENTRAL PRESSURE IS ABOUT 996 HPA AND THE MAXIMUM SUSTAINED SURFACE WIND SPEED IS 45 KNOTS GUSTING TO 55 KNOTS. STATE OF SEA IS HIGH AROUND THE SYSTEM CENTRE.

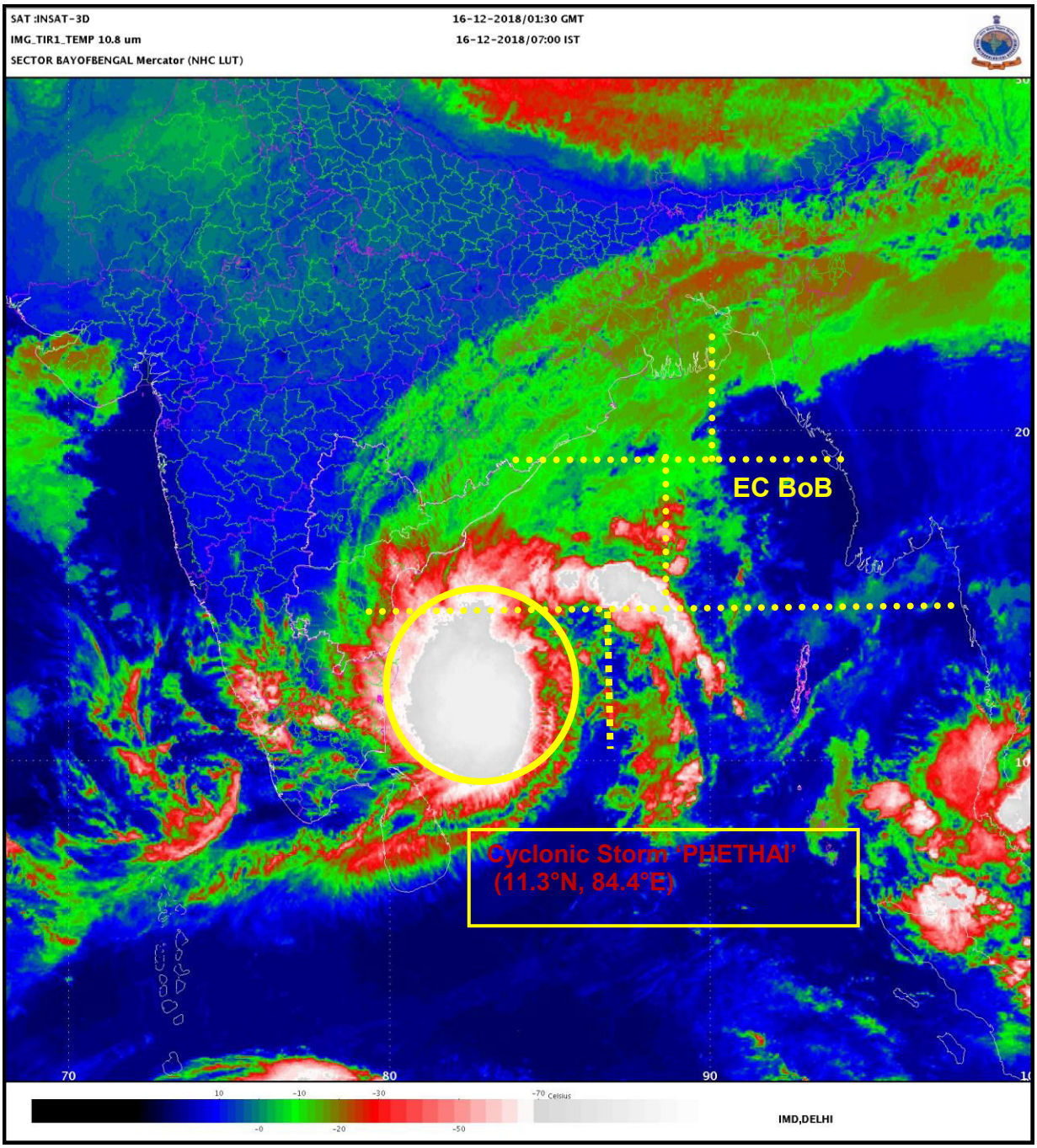
REMARKS:
THE MADDEN JULIAN OSCILLATION (MJO) INDEX LIES CURRENTLY IN PHASE 4 WITH AMPLITUDE MORE THAN 1. IT WILL CONTINUE IN SAME PHASE WITH AMPLITUDE GREATER THAN 1 FOR NEXT 4-5 DAYS. HENCE, MJO PHASE WILL BE FAVOURABLE FOR ENHANCEMENT OF CONVECTION & INTENSIFICATION OF THE SYSTEM.

CONSIDERING THE ENVIRONMENTAL CONDITIONS, THE SEA SURFACE TEMPERATURE (SST) IS 28-29˚C AROUND THE SYSTEM AREA. IT IS DECREASING SLIGHTLY BECOMING 26-28˚C TOWARDS WESTCENTRAL BAY OF BENGAL AND ALONG & OFF ANDHRA PRADESH COAST. THE TROPICAL CYCLONE HEAT POTENTIAL IS AROUND 35-50 KJ/CM^2 OVER THE SYSTEM AREA. HOWEVER, IT IS LESS THAN 35 KJ/CM^2 OVER WESTERN PARTS OF BOB ALONG THE EAST COAST OF INDIA. THE LOWER LEVEL CONVERGENCE IS $40x10^{-5}$ $SECOND^{-1}$ TOWARDS NORTH-NORTHWEST OF THE SYSTEM CENTER. LOWER LEVEL VORTICITY IS $200x10^{-6}$ $SECOND^{1}$ AROUND THE SYSTEM CENTER. UPPER LEVEL DIVERGENCE IS $30x10^{-5}$ $SECOND^{-1}$ TOWARDS NORTH-NORTHWEST OF THE SYSTEM CENTER AND VERTICAL WIND SHEAR (15-20 KNOTS) OVER THE SYSTEM AREA AND INCREASES ALONG THE FORECAST TRACK. THE TOTAL PRECIPITABLE WATER IMAGERY INDICATES WARM AND MOIST AIR FEEDING INTO THE CORE OF THE SYSTEM FROM SOUTHEAST SECTOR AND DRY & COLD AIR PREVAILS OVER PENINSULAR INDIA. ALL THESE MAY LEAD TO INTENSIFICATION OF THE SYSTEM INTO SEVERE CYCLONIC STORM DURING NEXT 24 HOURS.

THE UPPER TROPOSPHERIC RIDGE RUNS ALONG 17°N. THE SYSTEM IS BEING GUIDED BY THE ANTICYCLONE OVER SOUTHEAST ASIA, AND HENCE WILL HAVE MORE NORTHWARD COMPONENT OF MOVEMENT AS IT APPROACHES THE COAST. AS PER THE MODEL FORECAST A DEEP TROUGH IN UPPER TROPOSPHERIC WESTERLIES IS APPROACHING THE INDIAN REGION. IT IS LIKELY TO LEAD TO RECURVATURE OF THE SYSTEM TO NORTHEAST DURING AND AFTER LANDFALL OVER ANDHRA PRADESH COAST. FURTHER UNDER THE COMBIND EFFECT OF ANTICYCLONE AND ABOVE TROUGH THE UPPER LEVEL WINDS ARE EXPECTED TO INCREASE OVER NORTHEAST COAST OF INDIA. IT MAY LEAD TO INCREASE IN WIND SHEAR OVER THE REGION. HENCE THERE IS POSSIBILITIES OF WEAKENING OF THE SYSTEM ON 17^{TH} DECEMBER BEFORE LANDFALL DUE TO DRY & COLD AIR ADVECTION FROM NORTHWEST AND COLDER SST & LOWER OCEAN HEAT CONTENT AND HIGH WIND SHEAR. MOST OF THE NWP MODEL GUIDENCE AGREE WITH ABOVE ANALYSIS.

(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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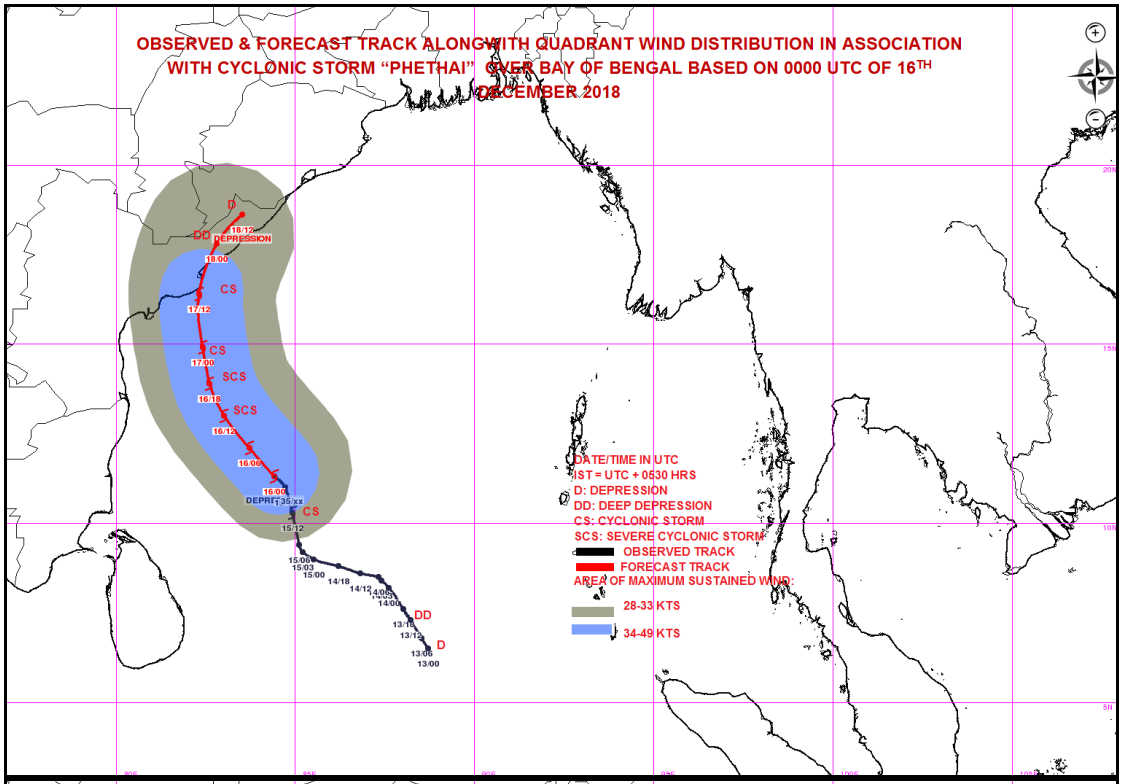
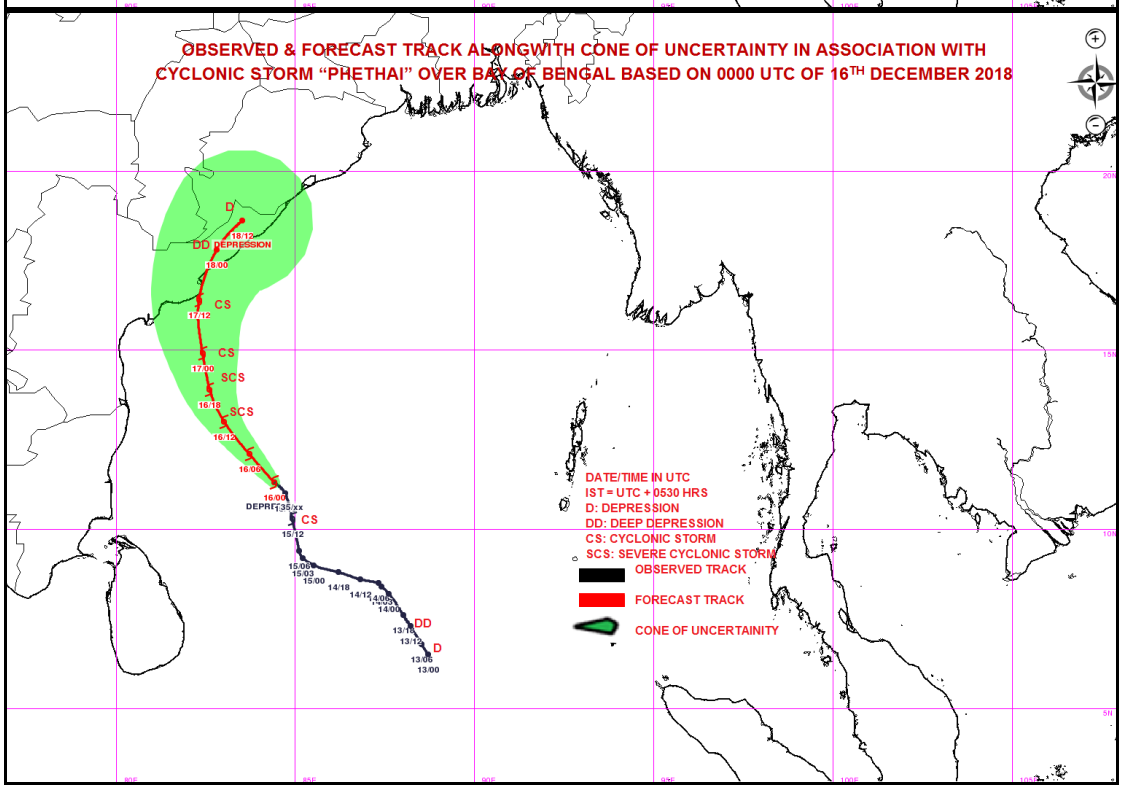




PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

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 0600 UTC OF 16.12.2018 BASED ON 0300 UTC OF 16.12.2018.

CYCLONIC STORM 'PHETHAI' OVER SOUTHWEST AND ADJOINING WESTCENTRAL BAY OF BENGAL:

THE CYCLONIC STORM '**PHETHAI**' OVER SOUTHWEST BAY OF BENGAL MOVED FURTHER NORTH-NORTHWESTWARDS WITH A SPEED OF 16 KMPH DURING PAST 06 HOURS AND LAY CENTRED AT 0300 UTC OF 16TH DECEMBER, 2018 OVER SOUTHWEST & ADJOINING WESTCENTRAL BAY OF BENGAL NEAR LATITUDE 11.8°N AND LONGITUDE 84.0°E, ABOUT 460 KM NORTHEAST OF TRINCOMALEE (43418) (SRI LANKA), 430 KM EAST-SOUTHEAST OF CHENNAI (43278) (TAMIL NADU), 560 KM SOUTH-SOUTHEAST OF MACHILIPATNAM (43185) (ANDHRA PRADESH) AND 600 KM SOUTH-SOUTHEAST KAKINADA (43189) (ANDHRA PRADESH). IT IS VERY LIKELY TO INTENSIFY FURTHER INTO A SEVERE CYCLONIC STORM DURING NEXT 24 HOURS. IT IS VERY LIKELY TO MOVE NORTH-NORTHWESTWARDS AND CROSS ANDHRA PRADESH COAST BETWEEN MACHILIPATNAM (43185) AND KAKINADA (43189) DURING 0900-1200 UTC ON 17TH DECEMBER. HOWEVER, DUE TO UNFAVOURABLE ENVIRONMENTAL CONDITIONS, IT IS LIKELY TO WEAKEN SLIGHTLY BEFORE LANDFALL.

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
16.12.18/0300	11.8/84.0	80-90 GUSTING TO 100	CYCLONIC STORM
16.12.18/0600	12.1/83.7	85-95 GUSTING TO 105	CYCLONIC STORM
16.12.18/1200	13.0/83.0	90-100 GUSTING TO 110	SEVERE CYCLONIC STORM
16.12.18/1800	13.9/82.6	90-100 GUSTING TO 110	SEVERE CYCLONIC STORM
17.12.18/0000	14.9/82.4	80-90 GUSTING TO 100	CYCLONIC STORM
17.12.18/1200	16.4/82.3	70-80 GUSTING TO 90	CYCLONIC STORM
18.12.18/0000	17.8/82.8	55-65 GUSTING TO 75	DEEP DEPRESSION
18.12.18/1200	18.6/83.5	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%

AS PER THE SATELLITE IMAGERY OF 0300 UTC ON 16TH DECEMBER THE INTENSITY OF THE SYSTEM OVER SW BAY AND NEIGHBOURHOOD IS T 3.0. ASSOCIATED BROKEN LOW TO MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION OVER AREA BETWEEN LATITUDE 10.0°N TO 17.0°N AND LONG 80.0°E TO 91.0°E (.) MINIMUM CLOUD TOP TEMPERATURE IS MINUS 93.0° C.

AT 0300 UTC OF 16TH DECEMBER, A BOUY LOCATED AT 13.5°N/84.1°E REPORTED A MEAN SEA LEVEL PRESSURE OF 1004.9 HPA AND MEAN SURFACE WIND SPEED OF 070°/ 29 KNOTS.

THE ESTIMATED CENTRAL PRESSURE IS ABOUT 996 HPA AND THE MAXIMUM SUSTAINED SURFACE WIND SPEED IS 45 KNOTS GUSTING TO 55 KNOTS. STATE OF SEA IS HIGH AROUND THE SYSTEM CENTRE.

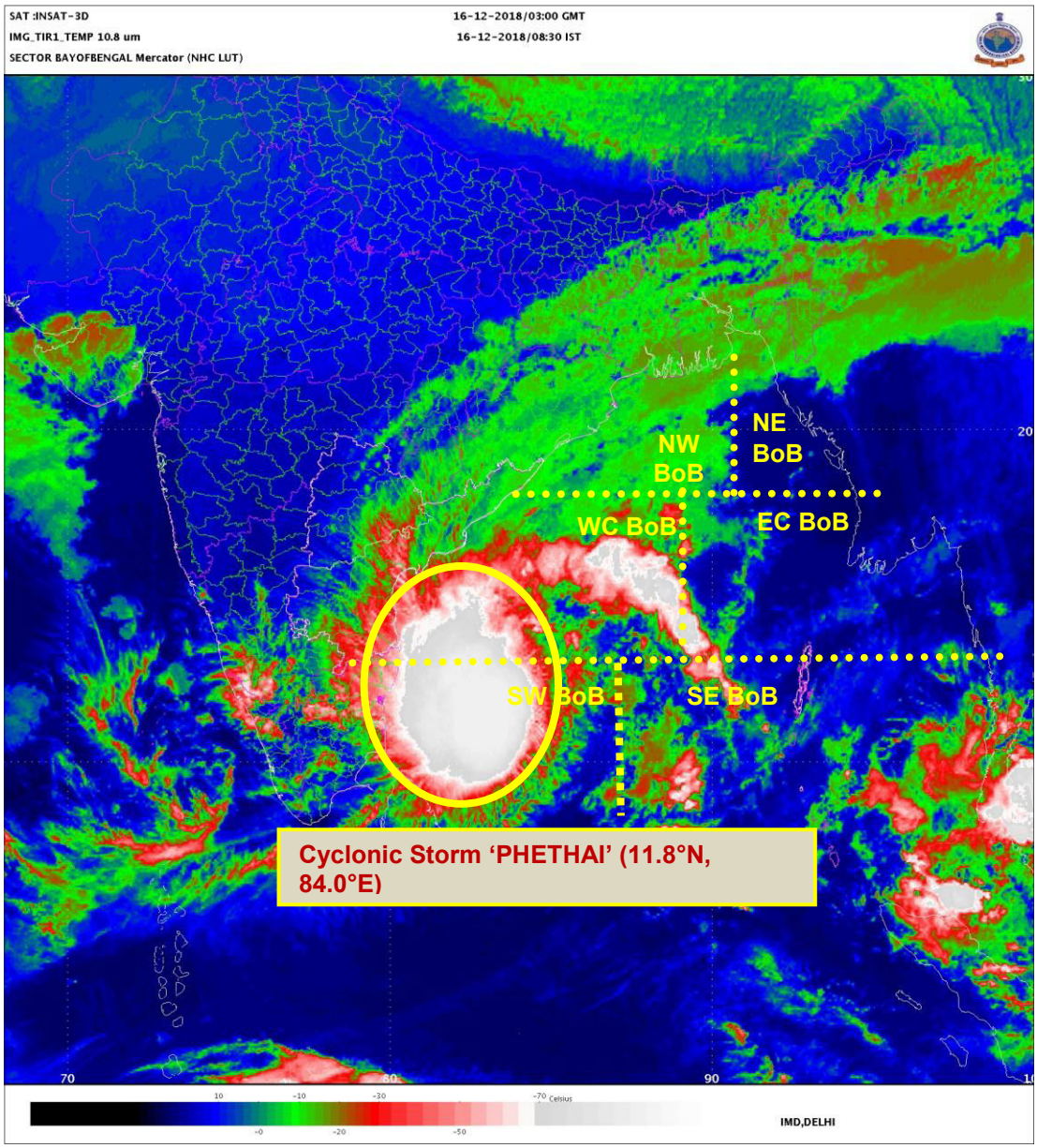
REMARKS:
THE MADDEN JULIAN OSCILLATION (MJO) INDEX LIES CURRENTLY IN PHASE 4 WITH AMPLITUDE MORE THAN 1. IT WILL CONTINUE IN SAME PHASE WITH AMPLITUDE GREATER THAN 1 FOR NEXT 4-5 DAYS. HENCE, MJO PHASE WILL BE FAVOURABLE FOR ENHANCEMENT OF CONVECTION & INTENSIFICATION OF THE SYSTEM.

CONSIDERING THE ENVIRONMENTAL CONDITIONS, THE SEA SURFACE TEMPERATURE (SST) IS 28-29˚C AROUND THE SYSTEM AREA. IT IS DECREASING SLIGHTLY BECOMING 26-28˚C TOWARDS WESTCENTRAL BAY OF BENGAL AND ALONG & OFF ANDHRA PRADESH COAST. THE TROPICAL CYCLONE HEAT POTENTIAL IS AROUND 35-50 KJ/CM^2 OVER THE SYSTEM AREA. HOWEVER, IT IS LESS THAN 35 KJ/CM^2 OVER WESTERN PARTS OF BOB ALONG THE EAST COAST OF INDIA. THE LOWER LEVEL CONVERGENCE IS 60x10^{-5} SECOND^{-1} TOWARDS NORTH-NORTHWEST OF THE SYSTEM CENTER. LOWER LEVEL VORTICITY IS 250x10^{-6} SECOND ^{1} AROUND THE SYSTEM CENTER. UPPER LEVEL DIVERGENCE IS 20x10^{-5} SECOND^{-1} TOWARDS NORTH-NORTHWEST OF THE SYSTEM CENTER AND VERTICAL WIND SHEAR (15-20 KNOTS) OVER THE SYSTEM AREA AND INCREASES ALONG THE FORECAST TRACK. THE TOTAL PRECIPITABLE WATER IMAGERY INDICATES WARM AND MOIST AIR FEEDING INTO THE CORE OF THE SYSTEM FROM SOUTHEAST SECTOR AND DRY & COLD AIR PREVAILS OVER PENINSULAR INDIA. ALL THESE MAY LEAD TO INTENSIFICATION OF THE SYSTEM INTO SEVERE CYCLONIC STORM DURING NEXT 24 HOURS.

THE UPPER TROPOSPHERIC RIDGE RUNS ALONG 17°N. THE SYSTEM IS BEING GUIDED BY THE ANTICYCLONE OVER SOUTHEAST ASIA, AND HENCE WILL HAVE MORE NORTHWARD COMPONENT OF MOVEMENT AS IT APPROACHES THE COAST. AS PER THE MODEL FORECAST A DEEP TROUGH IN UPPER TROPOSPHERIC WESTERLIES IS APPROACHING THE INDIAN REGION. IT IS LIKELY TO LEAD TO RECURVATURE OF THE SYSTEM TO NORTHEAST DURING AND AFTER LANDFALL OVER ANDHRA PRADESH COAST. FURTHER UNDER THE COMBIND EFFECT OF ANTICYCLONE AND ABOVE TROUGH THE UPPER LEVEL WINDS ARE EXPECTED TO INCREASE OVER NORTHEAST COAST OF INDIA. IT MAY LEAD TO INCREASE IN WIND SHEAR OVER THE REGION. HENCE THERE IS POSSIBILITIES OF WEAKENING OF THE SYSTEM ON 17TH DECEMBER BEFORE LANDFALL DUE TO DRY & COLD AIR ADVECTION FROM NORTHWEST AND COLDER SST & LOWER OCEAN HEAT CONTENT AND HIGH WIND SHEAR. MOST OF THE NWP MODEL GUIDENCE AGREE WITH ABOVE ANALYSIS.

(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)
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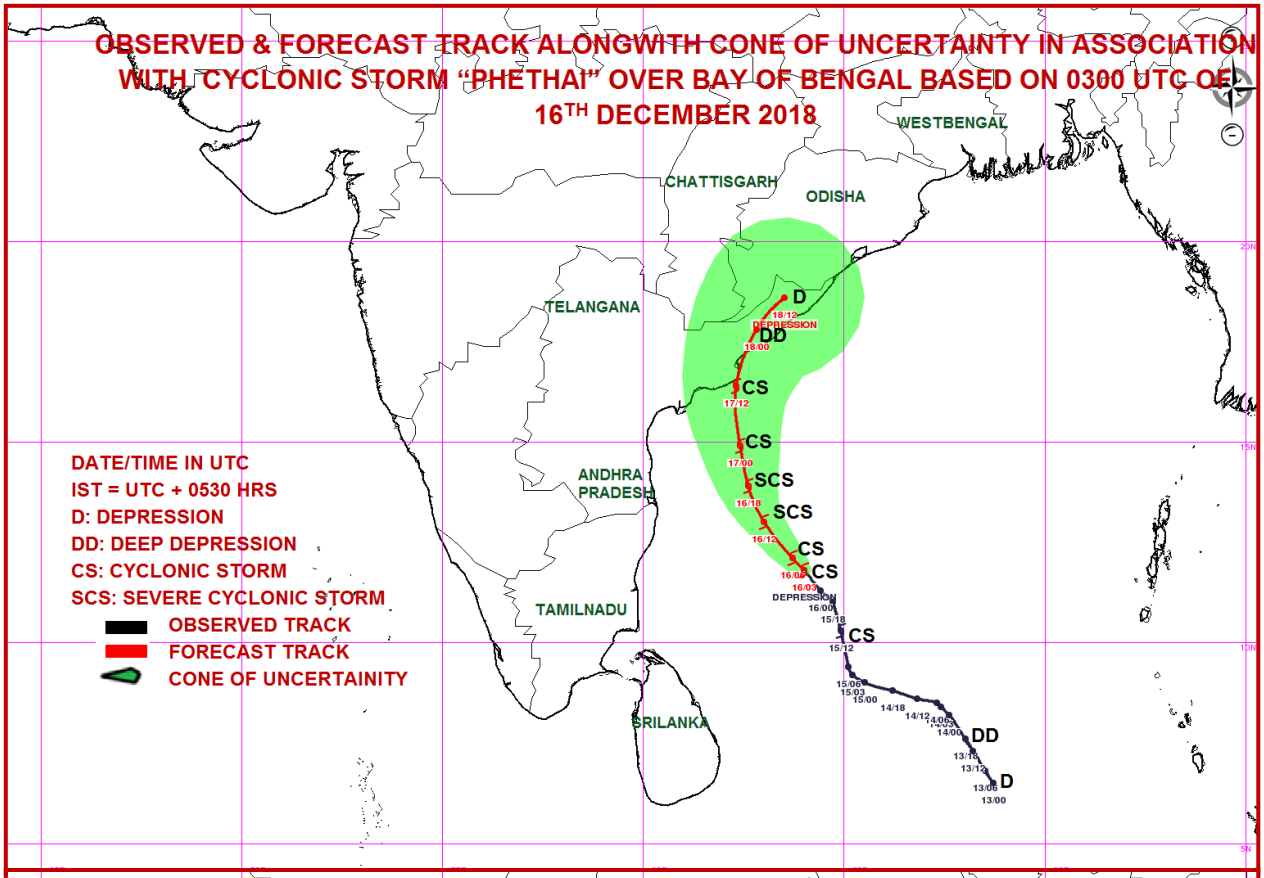
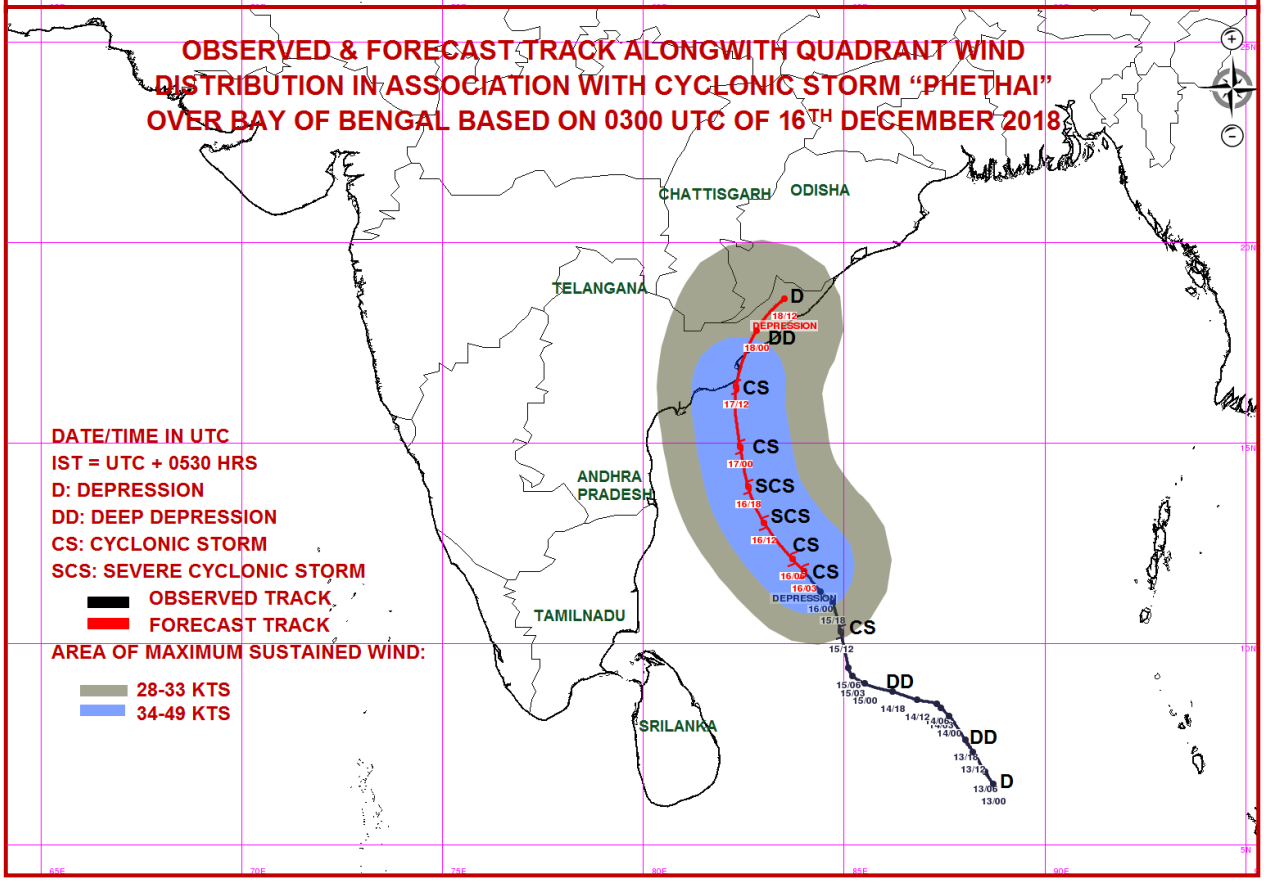




PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

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

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 0900 UTC OF 16.12.2018 BASED ON 0600 UTC OF 16.12.2018.

CYCLONIC STORM 'PHETHAI' OVER WESTCENTRAL AND SOUTHWEST ADJOINING BAY OF BENGAL:

THE CYCLONIC STORM '**PHETHAI**' OVER SOUTHWEST BAY OF BENGAL MOVED FURTHER NORTH-NORTHWESTWARDS WITH A SPEED OF 19 KMPH DURING PAST 06 HOURS AND LAY CENTRED AT 0600 UTC OF 16TH DECEMBER, 2018 OVER SOUTHWEST & ADJOINING WESTCENTRAL BAY OF BENGAL NEAR LATITUDE 12.2°N AND LONGITUDE 83.9°E, ABOUT 490 KM NORTH-NORTHEAST OF TRINCOMALEE (43418) (SRI LANKA), 410 KM EAST-SOUTHEAST OF CHENNAI (43278) (TAMIL NADU), 530 KM SOUTH-SOUTHEAST OF MACHILIPATNAM (43185) (ANDHRA PRADESH) AND 560 KM SOUTH-SOUTHEAST KAKINADA (43189) (ANDHRA PRADESH). IT IS VERY LIKELY TO INTENSIFY FURTHER INTO A SEVERE CYCLONIC STORM DURING NEXT 06 HOURS. IT IS VERY LIKELY TO MOVE NORTH-NORTHWESTWARDS AND CROSS ANDHRA PRADESH COAST AROUND KAKINADA (43189) DURING 0900-1200 UTC ON 17TH DECEMBER. HOWEVER, DUE TO UNFAVOURABLE ENVIRONMENTAL CONDITIONS, IT IS LIKELY TO WEAKEN SLIGHTLY BEFORE LANDFALL AND CROSS COAST AS A CYCLONIC STORM

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
16.12.18/0600	12.2/83.9	80-90 GUSTING TO 100	CYCLONIC STORM
16.12.18/1200	13.0/83.4	90-100 GUSTING TO 110	SEVERE CYCLONIC STORM
16.12.18/1800	13.9/82.9	90-100 GUSTING TO 110	SEVERE CYCLONIC STORM
17.12.18/0000	14.9/82.6	90-100 GUSTING TO 110	CYCLONIC STORM
17.12.18/0600	15.8/82.4	80-90 GUSTING TO 100	CYCLONIC STORM
17.12.18/1200	17.0/82.4	70-80 GUSTING TO 90	CYCLONIC STORM
17.12.18/1800	17.6/82.9	55-65 GUSTING TO 75	DEEP DEPRESSION
18.12.18/0000	18.3/83.8	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%

AS PER THE SATELLITE IMAGERY OF 0600 UTC ON 16TH DECEMBER THE INTENSITY OF THE SYSTEM OVER SW BAY AND NEIGHBOURHOOD IS T 3.0. ASSOCIATED BROKEN LOW TO MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION OVER AREA BETWEEN LATITUDE 10.0°N TO 17.0°N AND LONG 80.0°E TO 91.0°E (.) MINIMUM CLOUD TOP TEMPERATURE IS MINUS 93.0° C.

AT 0600 UTC OF 16TH DECEMBER, A SHIP LOCATED AT 12.8°N/80.5°E REPORTED MEAN SURFACE WIND SPEED OF 340°/ 31 KNOTS.

THE ESTIMATED CENTRAL PRESSURE IS ABOUT 996 HPA AND THE MAXIMUM SUSTAINED SURFACE WIND SPEED IS 45 KNOTS GUSTING TO 55 KNOTS. STATE OF SEA IS HIGH AROUND THE SYSTEM CENTRE.

REMARKS:

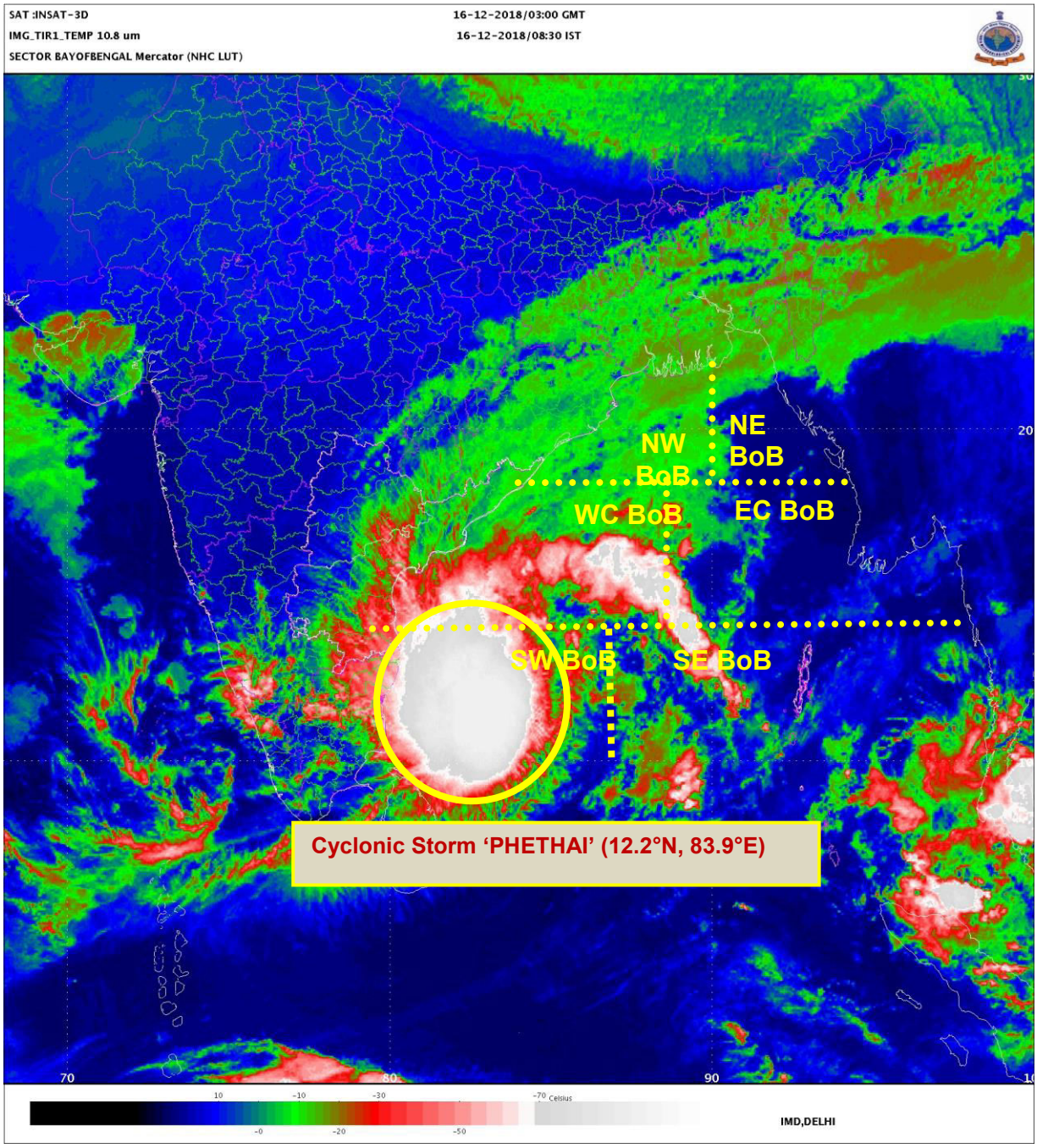
THE MADDEN JULIAN OSCILLATION (MJO) INDEX LIES CURRENTLY IN PHASE 4 WITH AMPLITUDE MORE THAN 1. IT WILL CONTINUE IN SAME PHASE WITH AMPLITUDE GREATER THAN 1 FOR NEXT 4-5 DAYS. HENCE, MJO PHASE WILL BE FAVOURABLE FOR ENHANCEMENT OF CONVECTION & INTENSIFICATION OF THE SYSTEM.

CONSIDERING THE ENVIRONMENTAL CONDITIONS, THE SEA SURFACE TEMPERATURE (SST) IS 28-29˚C AROUND THE SYSTEM AREA. IT IS DECREASING SLIGHTLY BECOMING 26-28˚C TOWARDS WESTCENTRAL BAY OF BENGAL AND ALONG & OFF ANDHRA PRADESH COAST. THE TROPICAL CYCLONE HEAT POTENTIAL IS AROUND 35-50 KJ/CM^2 OVER THE SYSTEM AREA. HOWEVER, IT IS LESS THAN 35 KJ/CM^2 OVER WESTERN PARTS OF BOB ALONG THE EAST COAST OF INDIA. THE LOWER LEVEL CONVERGENCE IS 30x10^{-5} SECOND^{-1} TOWARDS NORTH-NORTHEAST OF THE SYSTEM CENTER. LOWER LEVEL VORTICITY IS 250x10^{-6} SECOND ^{1} AROUND THE SYSTEM CENTER. UPPER LEVEL DIVERGENCE IS 20x10^{-5} SECOND^{-1} TOWARDS NORTH-NORTHWEST OF THE SYSTEM CENTER AND VERTICAL WIND SHEAR (15-20 KNOTS) OVER THE SYSTEM AREA AND INCREASES ALONG THE FORECAST TRACK. THE TOTAL PRECIPITABLE WATER IMAGERY INDICATES WARM AND MOIST AIR FEEDING INTO THE CORE OF THE SYSTEM FROM SOUTHEAST SECTOR AND DRY & COLD AIR PREVAILS OVER PENINSULAR INDIA. ALL THESE MAY LEAD TO INTENSIFICATION OF THE SYSTEM INTO SEVERE CYCLONIC STORM DURING NEXT 06 HOURS.

THE UPPER TROPOSPHERIC RIDGE RUNS ALONG 17°N. THE SYSTEM IS BEING GUIDED BY THE ANTICYCLONE OVER SOUTHEAST ASIA, AND HENCE WILL HAVE MORE NORTHWARD COMPONENT OF MOVEMENT AS IT APPROACHES THE COAST. AS PER THE MODEL FORECAST A DEEP TROUGH IN UPPER TROPOSPHERIC WESTERLIES IS APPROACHING THE INDIAN REGION. IT IS LIKELY TO LEAD TO RECURVATURE OF THE SYSTEM TO NORTHEAST DURING AND AFTER LANDFALL OVER ANDHRA PRADESH COAST. FURTHER UNDER THE COMBIND EFFECT OF ANTICYCLONE AND ABOVE TROUGH THE UPPER LEVEL WINDS ARE EXPECTED TO INCREASE OVER NORTHEAST COAST OF INDIA. IT MAY LEAD TO INCREASE IN WIND SHEAR OVER THE REGION. HENCE THERE IS POSSIBILITIES OF WEAKENING OF THE SYSTEM ON 17TH DECEMBER BEFORE LANDFALL DUE TO DRY & COLD AIR ADVECTION FROM NORTHWEST AND COLDER SST & LOWER OCEAN HEAT CONTENT AND HIGH WIND SHEAR. MOST OF THE NWP MODEL GUIDENCE AGREE WITH ABOVE ANALYSIS.

(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)
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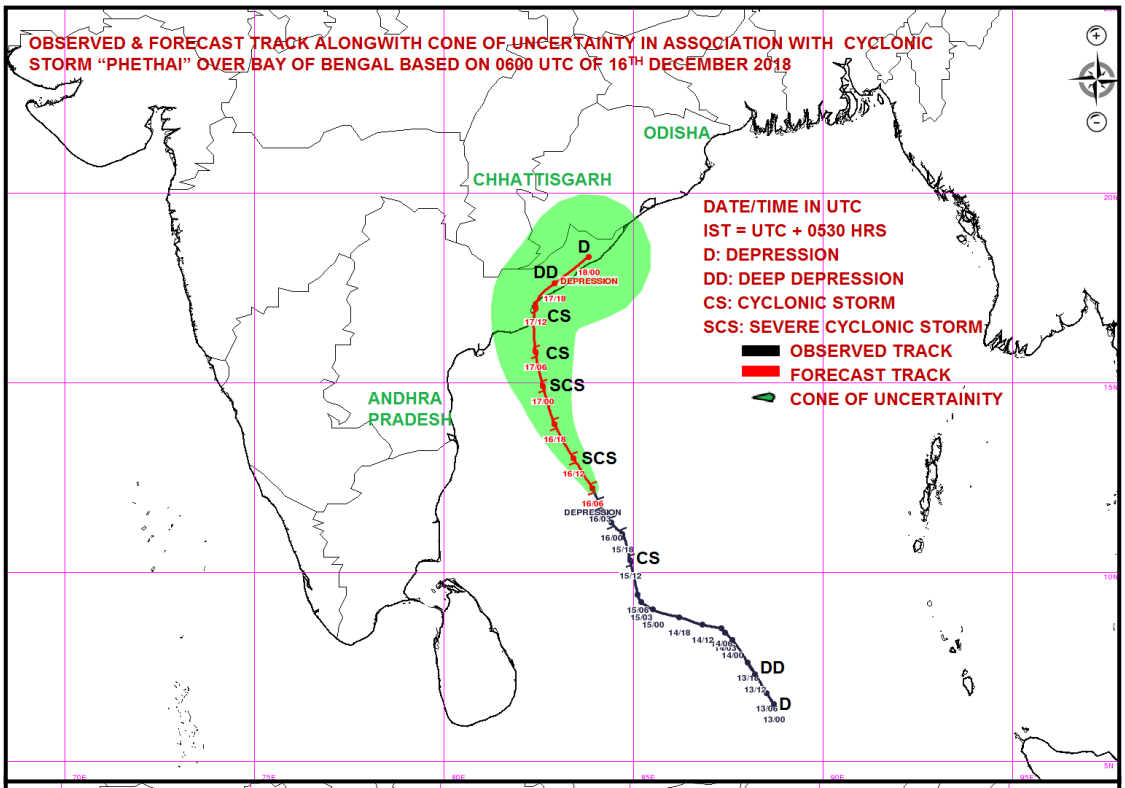
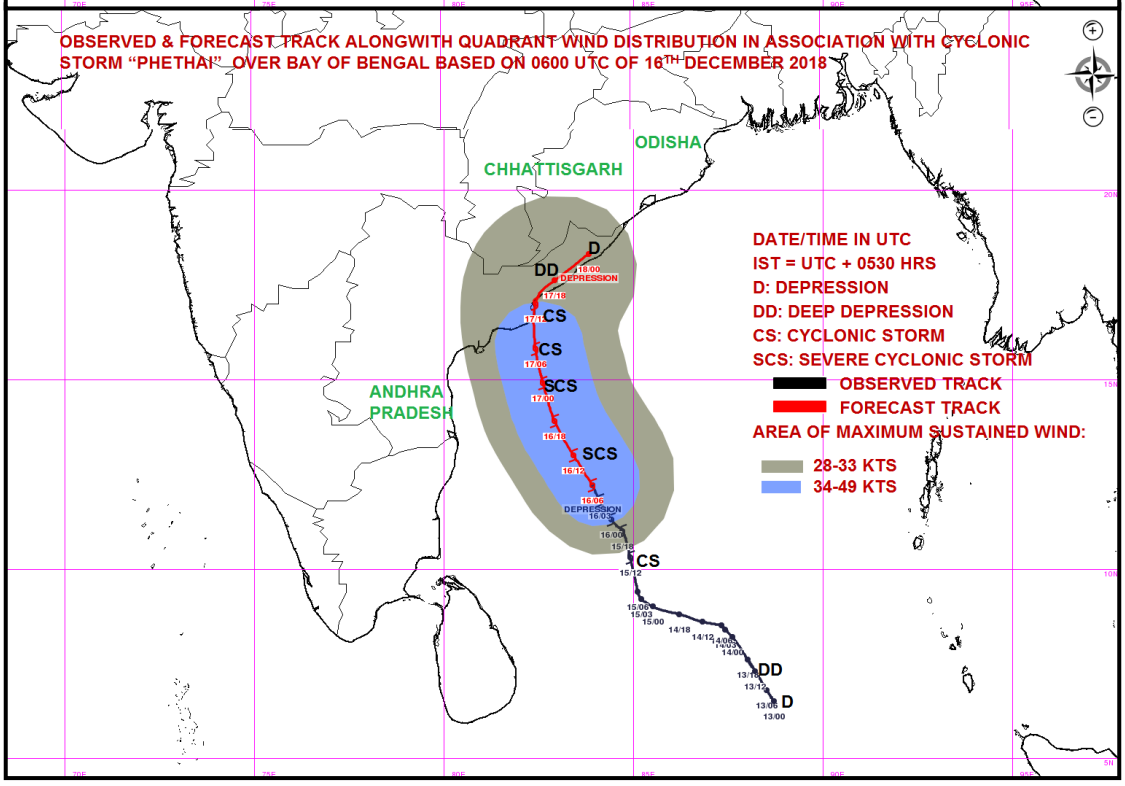




PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)
NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

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 1100 UTC OF 16.12.2018 BASED ON 0900 UTC OF 16.12.2018.

CYCLONIC STORM 'PHETHAI' OVER WESTCENTRAL AND SOUTHWEST ADJOINING BAY OF BENGAL:

THE CYCLONIC STORM '**PHETHAI**' OVER SOUTHWEST & ADJOINING WESTCENTRAL BAY OF BENGAL MOVED FURTHER NORTH-NORTHWESTWARDS WITH A SPEED OF 16 KMPH DURING PAST 06 HOURS AND LAY CENTRED AT 0900 UTC OF 16TH DECEMBER, 2018 OVER SOUTHWEST & ADJOINING WESTCENTRAL BAY OF BENGAL NEAR LATITUDE 12.6°N AND LONGITUDE 83.7°E, ABOUT 520 KM NORTH-NORTHEAST OF TRINCOMALEE (43418) (SRI LANKA), 380 KM EAST-SOUTHEAST OF CHENNAI (43278) (TAMIL NADU), 480 KM SOUTH-SOUTHEAST OF MACHILIPATNAM (43185) (ANDHRA PRADESH) AND 510 KM SOUTH-SOUTHEAST KAKINADA (43189) (ANDHRA PRADESH). IT IS VERY LIKELY TO INTENSIFY FURTHER INTO A SEVERE CYCLONIC STORM DURING NEXT 06 HOURS. IT IS VERY LIKELY TO MOVE NORTH-NORTHWESTWARDS AND CROSS ANDHRA PRADESH COAST AROUND KAKINADA (43189) DURING 0900-1200 UTC ON 17TH DECEMBER. HOWEVER, DUE TO UNFAVOURABLE ENVIRONMENTAL CONDITIONS, IT IS LIKELY TO WEAKEN SLIGHTLY BEFORE LANDFALL AND CROSS COAST AS A CYCLONIC STORM.

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
16.12.18/0900	12.6/83.7	80-90 GUSTING TO 100	CYCLONIC STORM
16.12.18/1200	13.0/83.4	90-100 GUSTING TO 110	SEVERE CYCLONIC STORM
16.12.18/1800	13.9/82.9	90-100 GUSTING TO 110	SEVERE CYCLONIC STORM
17.12.18/0000	14.9/82.6	90-100 GUSTING TO 110	SEVERE CYCLONIC STORM
17.12.18/0600	15.8/82.4	80-90 GUSTING TO 100	CYCLONIC STORM
17.12.18/1200	17.0/82.4	70-80 GUSTING TO 90	CYCLONIC STORM
17.12.18/1800	17.6/82.9	55-65 GUSTING TO 75	DEEP DEPRESSION
18.12.18/0000	18.3/83.8	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%

AS PER THE SATELLITE IMAGERY OF 0900 UTC ON 16TH DECEMBER THE INTENSITY OF THE SYSTEM OVER SW BAY AND NEIGHBOURHOOD IS T 3.0. ASSOCIATED BROKEN LOW TO MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION OVER AREA BETWEEN LATITUDE 10.0°N TO 16.5°N AND LONG 80.0°E TO 85.0°E (.) MINIMUM CLOUD TOP TEMPERATURE IS MINUS 93.0° C.

AT 0900 UTC OF 16TH DECEMBER, A BOUY LOCATED AT 13.5°N/87.1°E REPORTED MEAN SURFAFACE LEVEL PRESSURE OF 1000.6 HPA AND MEAN SURFACE WIND SPEED OF 120°/ 33 KNOTS.

THE ESTIMATED CENTRAL PRESSURE IS ABOUT 996 HPA AND THE MAXIMUM SUSTAINED SURFACE WIND SPEED IS 45 KNOTS GUSTING TO 55 KNOTS. STATE OF SEA IS HIGH AROUND THE SYSTEM CENTRE.

REMARKS:

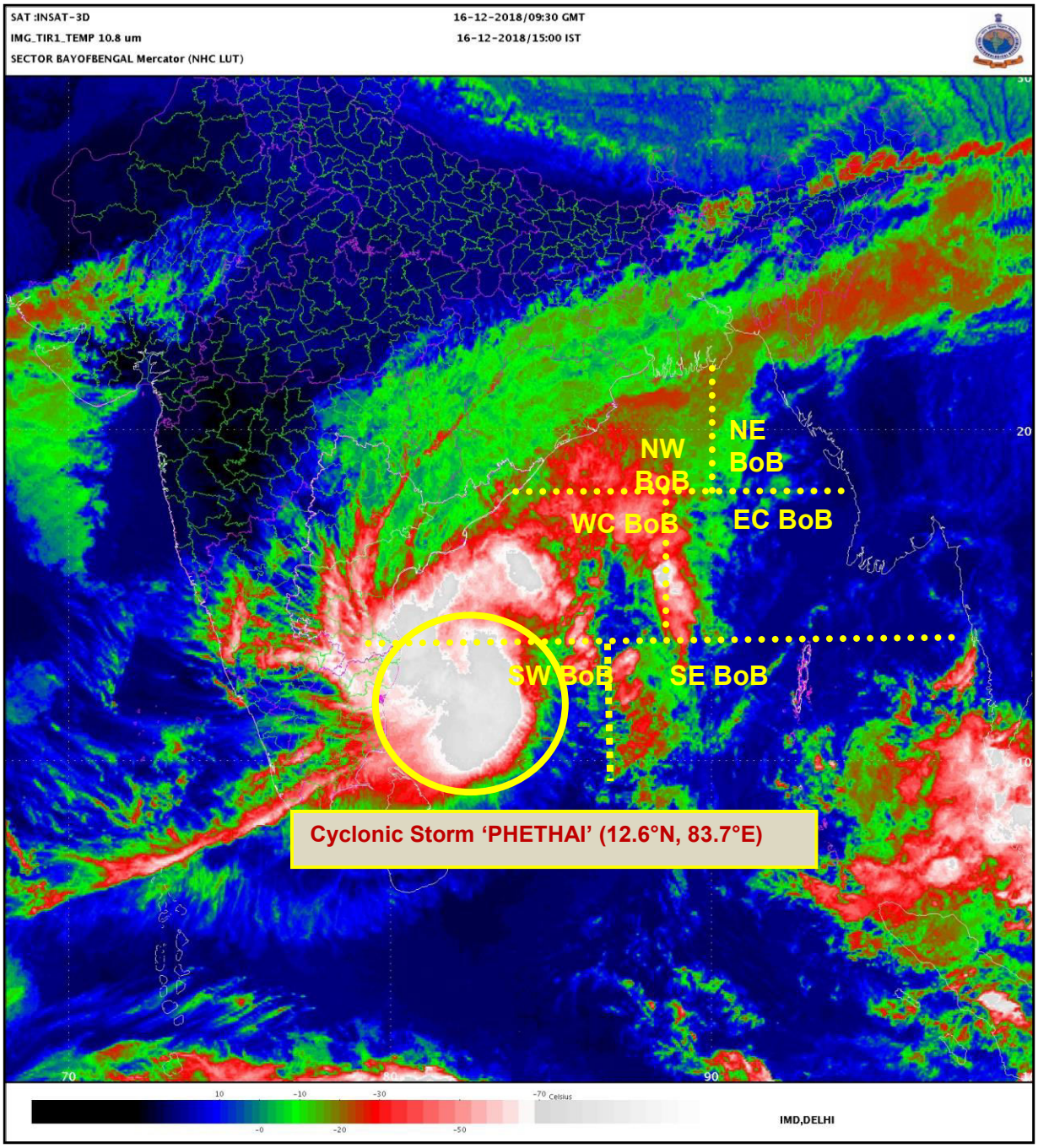
THE MADDEN JULIAN OSCILLATION (MJO) INDEX LIES CURRENTLY IN PHASE 4 WITH AMPLITUDE MORE THAN 1. IT WILL CONTINUE IN SAME PHASE WITH AMPLITUDE GREATER THAN 1 FOR NEXT 4-5 DAYS. HENCE, MJO PHASE WILL BE FAVOURABLE FOR ENHANCEMENT OF CONVECTION & INTENSIFICATION OF THE SYSTEM.

CONSIDERING THE ENVIRONMENTAL CONDITIONS, THE SEA SURFACE TEMPERATURE (SST) IS 28-29˚C AROUND THE SYSTEM AREA. IT IS DECREASING SLIGHTLY BECOMING 26-28˚C TOWARDS WESTCENTRAL BAY OF BENGAL AND ALONG & OFF ANDHRA PRADESH COAST. THE TROPICAL CYCLONE HEAT POTENTIAL IS AROUND 35-50 KJ/CM^2 OVER THE SYSTEM AREA. HOWEVER, IT IS LESS THAN 35 KJ/CM^2 OVER WESTERN PARTS OF BOB ALONG THE EAST COAST OF INDIA. THE LOWER LEVEL CONVERGENCE IS 30x10^{-5} SECOND^{-1} TOWARDS NORTH-NORTHEAST OF THE SYSTEM CENTER. LOWER LEVEL VORTICITY IS 250x10^{-6} SECOND ^{1} AROUND THE SYSTEM CENTER. UPPER LEVEL DIVERGENCE IS 20x10^{-5} SECOND^{-1} TOWARDS NORTH-NORTHWEST OF THE SYSTEM CENTER AND VERTICAL WIND SHEAR (15-20 KNOTS) OVER THE SYSTEM AREA AND INCREASES ALONG THE FORECAST TRACK. THE TOTAL PRECIPITABLE WATER IMAGERY INDICATES WARM AND MOIST AIR FEEDING INTO THE CORE OF THE SYSTEM FROM SOUTHEAST SECTOR AND DRY & COLD AIR PREVAILS OVER PENINSULAR INDIA. ALL THESE MAY LEAD TO INTENSIFICATION OF THE SYSTEM INTO SEVERE CYCLONIC STORM DURING NEXT 06 HOURS.

THE UPPER TROPOSPHERIC RIDGE RUNS ALONG 17°N. THE SYSTEM IS BEING GUIDED BY THE ANTICYCLONE OVER SOUTHEAST ASIA, AND HENCE WILL HAVE MORE NORTHWARD COMPONENT OF MOVEMENT AS IT APPROACHES THE COAST. AS PER THE MODEL FORECAST A DEEP TROUGH IN UPPER TROPOSPHERIC WESTERLIES IS APPROACHING THE INDIAN REGION. IT IS LIKELY TO LEAD TO RECURVATURE OF THE SYSTEM TO NORTHEAST DURING AND AFTER LANDFALL OVER ANDHRA PRADESH COAST. FURTHER UNDER THE COMBIND EFFECT OF ANTICYCLONE AND ABOVE TROUGH THE UPPER LEVEL WINDS ARE EXPECTED TO INCREASE OVER NORTHEAST COAST OF INDIA. IT MAY LEAD TO INCREASE IN WIND SHEAR OVER THE REGION. HENCE THERE IS POSSIBILITIES OF WEAKENING OF THE SYSTEM ON 17TH DECEMBER BEFORE LANDFALL DUE TO DRY & COLD AIR ADVECTION FROM NORTHWEST AND COLDER SST & LOWER OCEAN HEAT CONTENT AND HIGH WIND SHEAR. MOST OF THE NWP MODEL GUIDENCE AGREE WITH ABOVE ANALYSIS.

(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)
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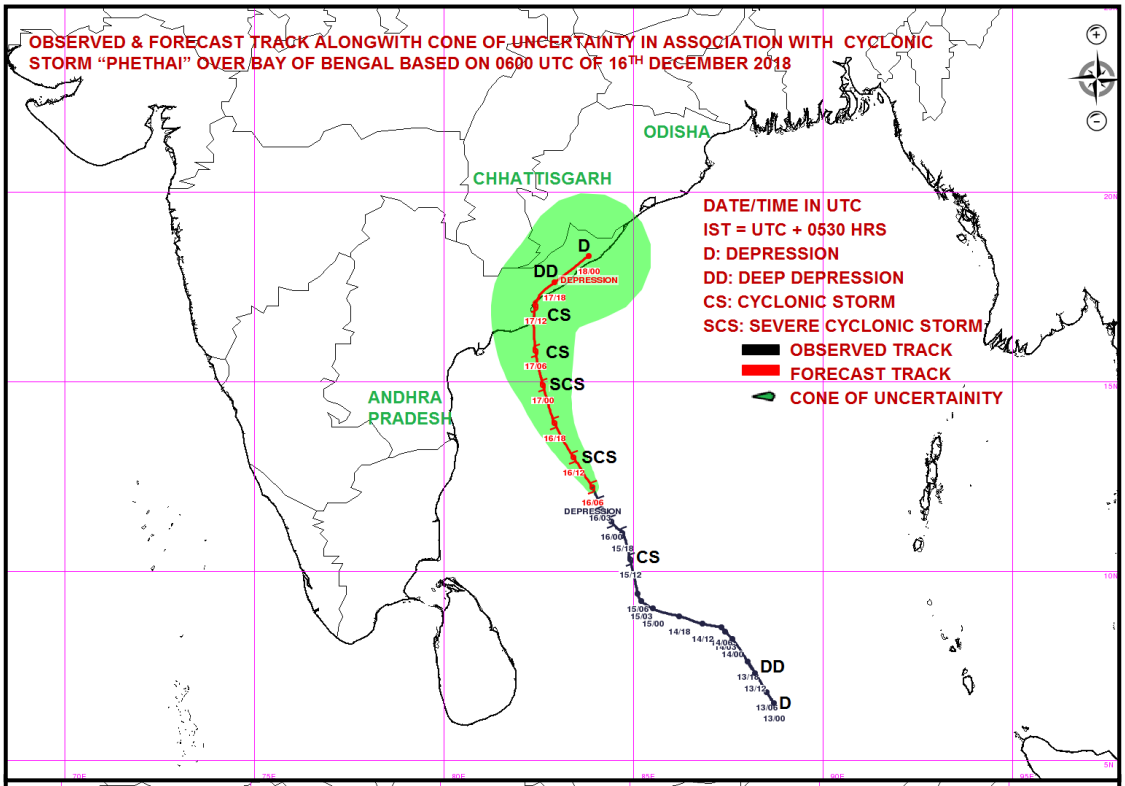
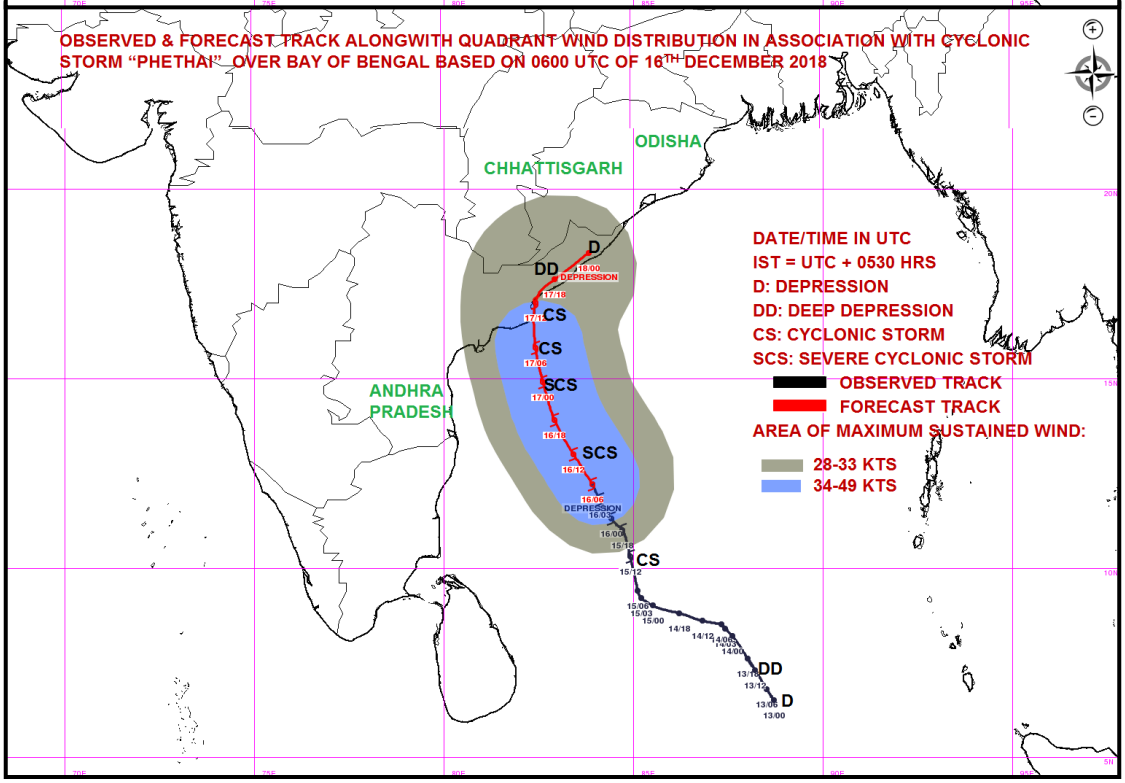




PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

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

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 72 HOURS ISSUED AT 1500 UTC OF 16.12.2018 BASED ON 1200 UTC OF 16.12.2018.

CYCLONIC STORM 'PHETHAI' OVER WESTCENTRAL AND SOUTHWEST ADJOINING BAY OF BENGAL:

THE CYCLONIC STORM '**PHETHAI**' OVER SOUTHWEST & ADJOINING WESTCENTRAL MOVED FURTHER NORTH-NORTHWESTWARDS WITH A SPEED OF 26 KMPH DURING PAST 06 HOURS, INTENSIFIED INTO A SEVERE CYCLONIC STORM AND LAY CENTRED AT 1200 UTC OF 16TH DECEMBER, 2018 OVER WESTCENTRAL & ADJOINING SOUTHWEST BAY OF BENGAL NEAR LATITUDE 13.3°N AND LONGITUDE 83.0°E, ABOUT 560 KM NORTH-NORTHEAST OF TRINCOMALEE (43418) (SRI LANKA), 300 KM EAST-NORTHEAST OF CHENNAI (43278) (TAMIL NADU), 380 KM SOUTH-SOUTHEAST OF MACHILIPATNAM (43185) (ANDHRA PRADESH) AND 410 KM SOUTH-SOUTHEAST KAKINADA (43189) (ANDHRA PRADESH). IT IS VERY LIKELY TO MOVE NORTH-NORTHWESTWARDS AND CROSS ANDHRA PRADESH COAST AROUND KAKINADA (43189) DURING 17TH DECEMBER AFTERNOON. HOWEVER, DUE TO UNFAVOURABLE ENVIRONMENTAL CONDITIONS, IT IS LIKELY TO WEAKEN SLIGHTLY BEFORE LANDFALL AND CROSS COAST AS A CYCLONIC STORM.

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
16.12.18/1200	13.3/83.0	95-105 GUSTING TO 110	SEVERE CYCLONIC STORM
16.12.18/1800	14.0/82.4	95-105 GUSTING TO 110	SEVERE CYCLONIC STORM
17.12.18/0000	14.9/82.0	90-100 GUSTING TO 110	SEVERE CYCLONIC STORM
17.12.18/0600	16.0/82.0	80-90 GUSTING TO 100	CYCLONIC STORM
17.12.18/1200	16.9/82.3	70-80 GUSTING TO 90	CYCLONIC STORM
18.12.18/1800	17.7/82.8	55-65 GUSTING TO 75	DEEP DEPRESSION
18.12.18/0000	18.4/83.5	40-50 GUSTING TO 60	DEPRESSION

CYCLONE '**PHETHAI**' IS ALSO BEING TRACKED BY DWR CHENNAI (43278) AND MACHILIPATNAM (43185) APART FROM SATELLITE AND OTHER OBSERVATIONS.

THE DWR CHENNAI. ESTIMATED THE CENTRE TO BE NEAR 13.47° N/ 82.59° E AT 1300 UTC.AS THE CLOSED ELLIPTICAL EYE IS VISIBLE AND THE CONFIDENCE IS FAIR. THE CENTER OF THE CENTER IS POORLY DEFINED BY DWR MACHILIPATNAM (43185) AS THE

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

SYSTEM IS FAR AWAY FROM THE DWR.

AS PER THE SATELLITE IMAGERY OF 1200 UTC ON 16TH DECEMBER THE INTENSITY OF THE SYSTEM OVER SW BAY AND NEIGHBOURHOOD IS T 3.5. ASSOCIATED BROKEN LOW TO MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION OVER AREA BETWEEN LATITUDE 11.0°N TO 15.0°N AND LONG 80.0°E TO 84.5°E (.) MINIMUM CLOUD TOP TEMPERATURE IS MINUS 93.0° C.

AT 1200 UTC OF 16TH DECEMBER, A BOUY LOCATED AT 13.5°N/84.1°E REPORTED MEAN SURFAFACE LEVEL PRESSURE OF 1001.5 HPA AND MEAN SURFACE WIND SPEED OF 130°/ 27 KNOTS.

THE ESTIMATED CENTRAL PRESSURE IS ABOUT 993 HPA AND THE MAXIMUM SUSTAINED SURFACE WIND SPEED IS 55 KNOTS GUSTING TO 65 KNOTS. STATE OF SEA IS VERY HIGH AROUND THE SYSTEM CENTRE.

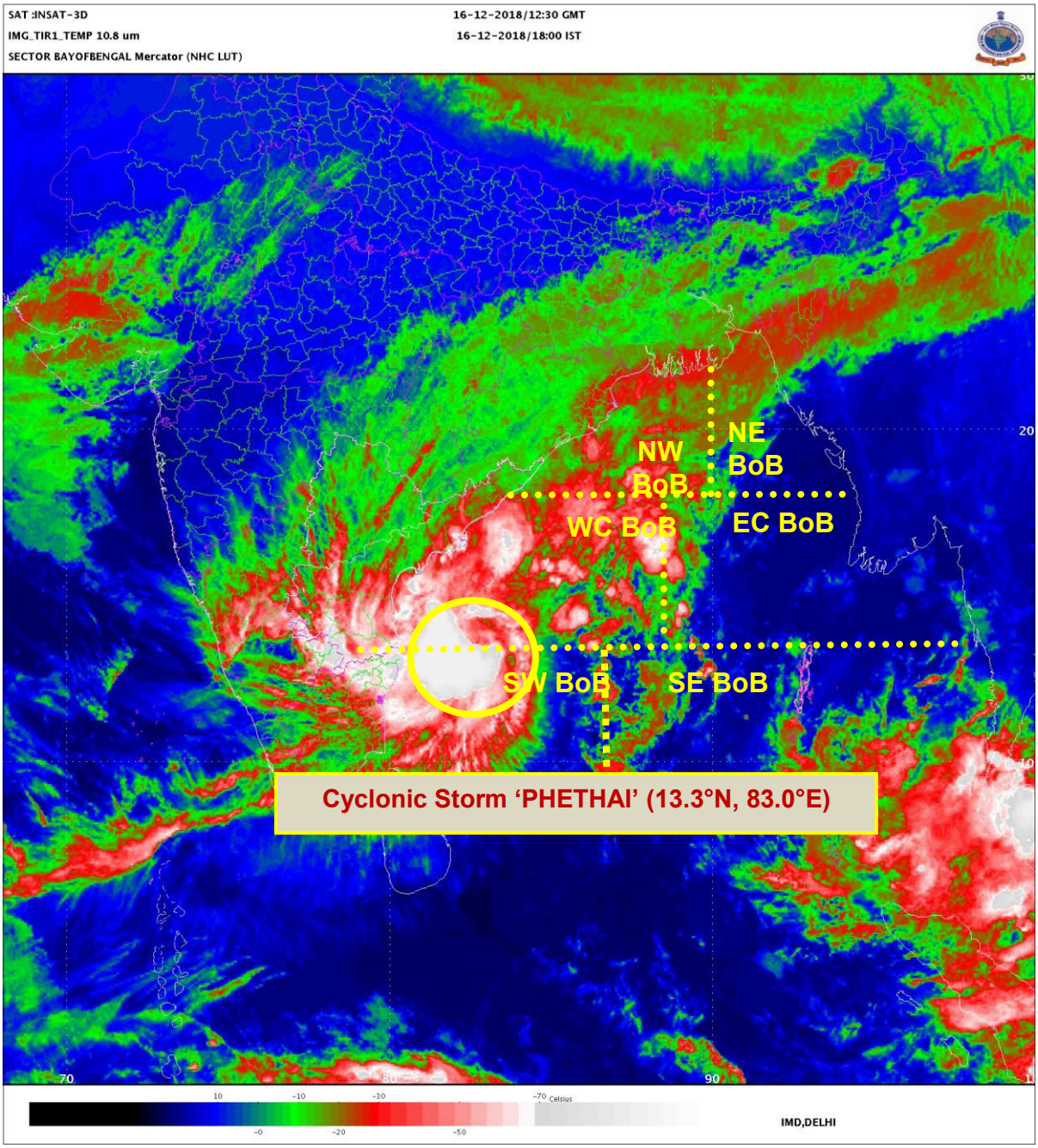
REMARKS:

UNDER THE FAVORABLE MJO AND ENVIRONMENTAL CONDITION LIKE LOW TO MODERATE VERTICAL WIND SHEAR, HIGHER POSITIVE LOWER LEVEL VORTICITY, POLEWARD OUTFLOW AND WARM AIR ADVECTION FROM THE SOUTHEAST, THE CYCLONIC STORM “PHETHAI” INTENSIFIED INTO A SEVERE CYCLONIC STORM. WITH THE SIMILAR FAVORABLE ENVIRONMENTAL CONDITIONS EXPECTED TO PREVAIL DURING NEXT 12 HOURS THE SYSTEM IS VERY LIKELY TO MAINTAIN ITS INTENSITY DURING THE SAME PERIOD. THE SEA SURFACE TEMPERATURE (SST) IS 28-29˚C AROUND THE SYSTEM AREA. IT IS DECREASING SLIGHTLY BECOMING 26-28˚C TOWARDS WESTCENTRAL BAY OF BENGAL AND ALONG & OFF ANDHRA PRADESH COAST. THE TROPICAL CYCLONE HEAT POTENTIAL IS AROUND 35-50 KJ/CM^2 OVER THE SYSTEM AREA. HOWEVER, IT IS LESS THAN 35 KJ/CM^2 OVER WESTERN PARTS OF BOB ALONG THE EAST COAST OF INDIA. THE LOWER LEVEL CONVERGENCE IS 40x10^{-5} SECOND^{-1} TOWARDS NORTH-NORTHEAST OF THE SYSTEM CENTER. LOWER LEVEL VORTICITY IS 250x10^{-6} SECOND ^{1} AROUND THE SYSTEM CENTER. POSITIVE VORTIVITY FIELD IS EXTENDING UPTO 200 HPA LEVEL. UPPER LEVEL DIVERGENCE IS (5-10x10^{-5} SECOND^{-1}) TOWARDS NORTHEAST AND NORTHWEST OF THE SYSTEM CENTER AND VERTICAL WIND SHEAR (10-15 KNOTS) OVER THE SYSTEM AREA AND INCREASES ALONG THE FORECAST TRACK. WIND SHEAR TENDENCY IS NEGATIVE OVER THE SYSTEM AREA AS WELL AS ALONG THE FORECAST TRACK. THE TOTAL PRECIPITABLE WATER IMAGERY INDICATES WARM AND MOIST AIR FEEDING INTO THE CORE OF THE SYSTEM FROM SOUTHEAST SECTOR AND DRY & COLD AIR PREVAILS OVER PENINSULAR INDIA. ALL THESE MAY LEAD TO MAINTAIN THE SYSTEM INTENSITY DURING NEXT 12 HOURS.

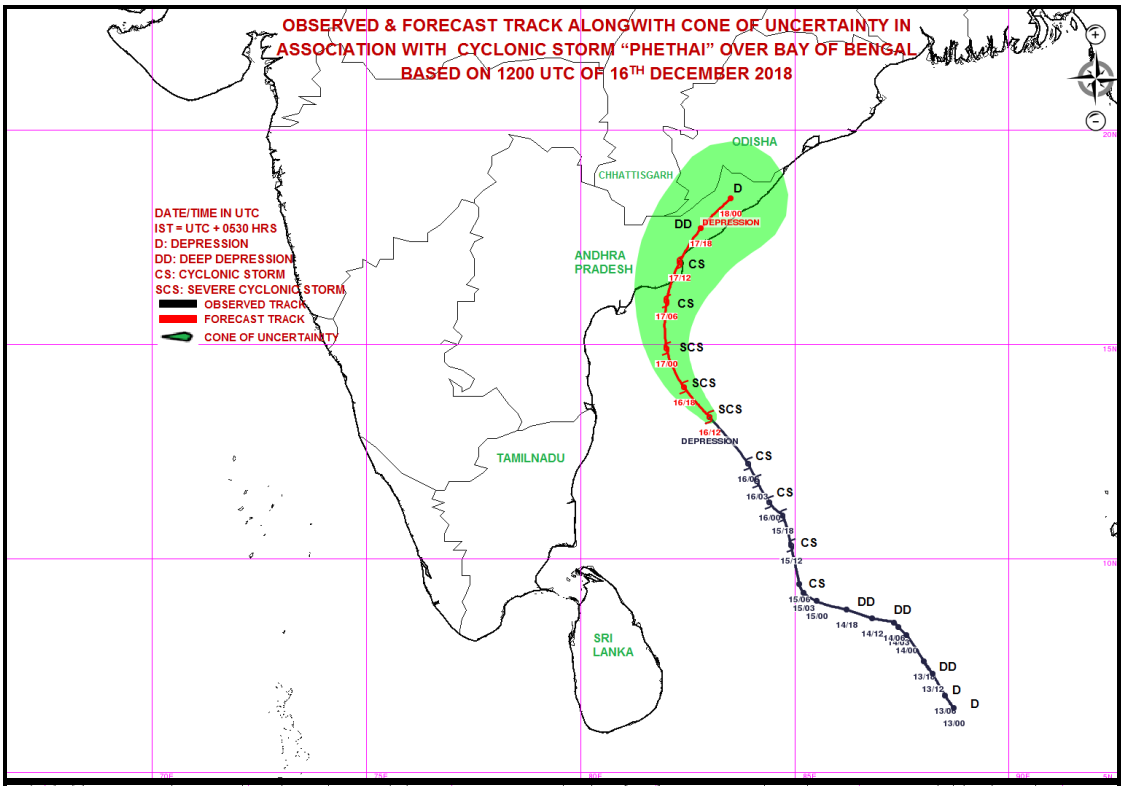
THE UPPER TROPOSPHERIC RIDGE RUNS ALONG 17°N. THE SYSTEM IS BEING GUIDED BY THE ANTICYCLONE OVER SOUTHEAST ASIA, AND HENCE WILL HAVE MORE NORTHWARD COMPONENT OF MOVEMENT AS IT APPROACHES THE COAST. AS PER THE MODEL FORECAST A DEEP TROUGH IN UPPER TROPOSPHERIC WESTERLIES IS APPROACHING THE INDIAN REGION. IT IS LIKELY TO RECURVE THE SYSTEM TO NORTHEAST DURING AND AFTER LANDFALL OVER ANDHRA PRADESH COAST AROUND KAKINADA BY 1200 UTC OF 17TH DECEMBER. FURTHER, UNDER THE COMBIND EFFECT OF ANTICYCLONE AND ABOVE TROUGH THE UPPER LEVEL WINDS ARE EXPECTED TO INCREASE OVER NORTHEAST COAST OF INDIA. IT MAY LEAD TO INCREASE IN WIND SHEAR OVER THE REGION. HENCE THERE IS POSSIBILITIES OF WEAKENING OF THE SYSTEM ON 17TH DECEMBER BEFORE LANDFALL DUE TO DRY & COLD AIR ADVECTION FROM NORTHWEST, COLDER SST, LOWER OCEAN HEAT CONTENT AND HIGH WIND SHEAR. MOST OF THE NWP MODEL GUIDENCE AGREE WITH ABOVE ANALYSIS.

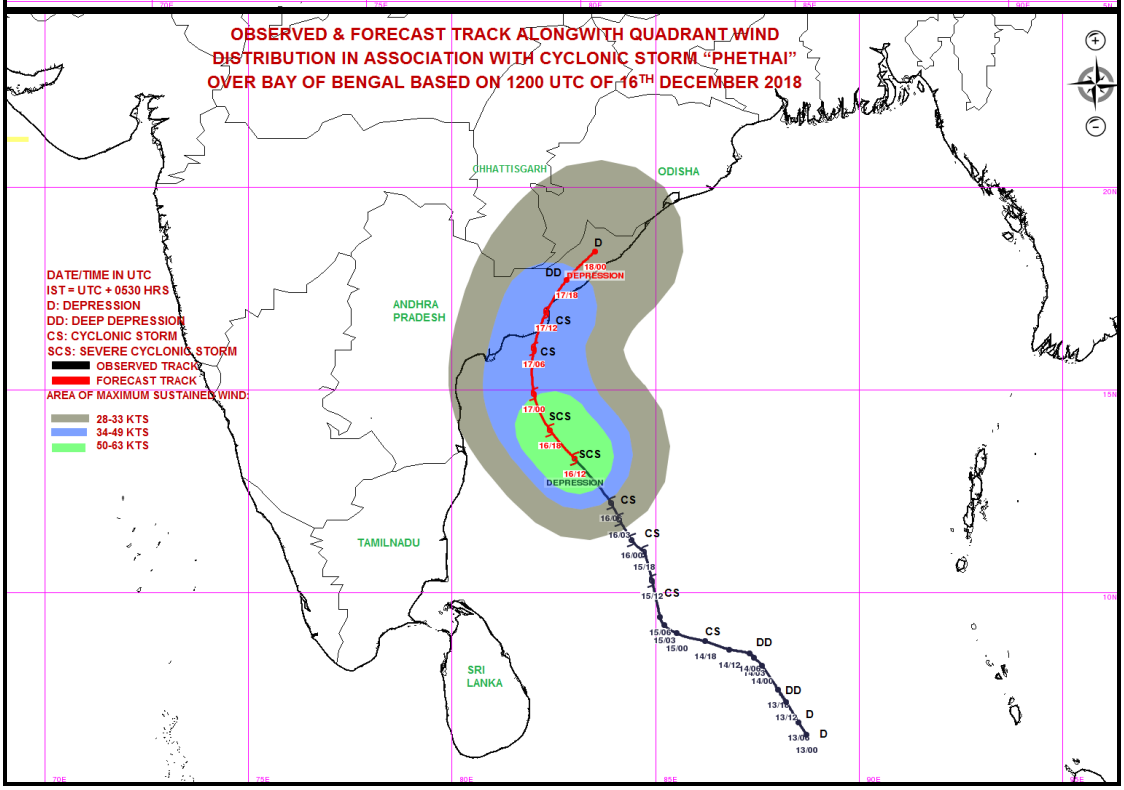
(ANANDA KUMAR DAS)
SCIENTIST-E, RSMC, NEW DELHI

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



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 72 HOURS ISSUED AT 1730 UTC OF 16.12.2018 BASED ON 1500 UTC OF 16.12.2018.

CYCLONIC STORM 'PHETHAI' OVER WESTCENTRAL AND SOUTHWEST ADJOINING BAY OF BENGAL:

THE SEVERE CYCLONIC STORM '**PHETHAI**' OVER WESTCENTRAL & ADJOINING SOUTHWEST BAY OF BENGAL MOVED NORTHWESTWARDS WITH A SPEED OF 28 KMPH DURING PAST 06 HOURS AND LAY CENTRED AT 1500 UTC OF 16TH DECEMBER, 2018 OVER WESTCENTRAL & ADJOINING SOUTHWEST BAY OF BENGAL NEAR LATITUDE 13.8°N AND LONGITUDE 82.7°E, ABOUT 600 KM NORTH-NORTHEAST OF TRINCOMALEE (43418)(SRI LANKA), 280 KM EAST-NORTHEAST OF CHENNAI (43278)(TAMIL NADU), 310 KM SOUTH-SOUTHEAST OF MACHILIPATNAM (43185)(ANDHRA PRADESH) AND 350 KM SOUTH-SOUTHEAST OF KAKINADA (43189)(ANDHRA PRADESH). IT IS VERY LIKELY TO MOVE NORTH-NORTHWESTWARDS AND CROSS ANDHRA PRADESH COAST AROUND KAKINADA (43189) DURING 17TH DECEMBER AFTERNOON. HOWEVER, DUE TO UNFAVOURABLE ENVIRONMENTAL CONDITIONS, IT IS LIKELY TO WEAKEN SLIGHTLY BEFORE LANDFALL AND CROSS COAST AS A CYCLONIC STORM WITH A WIND SPEED OF 70-90 KMPH GUSTING TO 100 KMPH.

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
16.12.18/1500	13.8/82.7	95-105 GUSTING TO 110	SEVERE CYCLONIC STORM
16.12.18/1800	14.0/82.4	95-105 GUSTING TO 110	SEVERE CYCLONIC STORM
17.12.18/0000	14.9/82.0	90-100 GUSTING TO 110	SEVERE CYCLONIC STORM
17.12.18/0600	16.0/82.0	80-90 GUSTING TO 100	CYCLONIC STORM
17.12.18/1200	16.9/82.3	70-80 GUSTING TO 90	CYCLONIC STORM
18.12.18/1800	17.7/82.8	55-65 GUSTING TO 75	DEEP DEPRESSION
18.12.18/0000	18.4/83.5	40-50 GUSTING TO 60	DEPRESSION

CYCLONE '**PHETHAI**' IS ALSO BEING TRACKED BY DWR CHENNAI (43278) AND MACHILIPATNAM (43185) APART FROM SATELLITE AND OTHER OBSERVATIONS. BUT AS THE SYSTEM IS FAR AWAY FROM THE BOTH DWRS, THE CENTER OF THE SYSTEM IS POORLY DEFINED.

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

AS PER THE SATELLITE IMAGERY OF 1500 UTC ON 16TH DECEMBER THE INTENSITY OF THE SYSTEM OVER SW BAY AND NEIGHBOURHOOD IS T 3.5. ASSOCIATED BROKEN LOW TO MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION OVER AREA BETWEEN LATITUDE 12.0°N TO 15.0°N AND LONG 80.0°E TO 84.0°E (.) MINIMUM CLOUD TOP TEMPERATURE IS MINUS 93.0° C.

AT 1500 UTC OF 16TH DECEMBER, A BOUY (23094) LOCATED AT 13.5°N/84.1°E REPORTED MEAN SURFAFACE LEVEL PRESSURE OF 1005.0 HPA AND MEAN SURFACE WIND SPEED OF 150°/ 28 KNOTS. ANOTHER BOUY (23459) LOCATED AT 14.0°N/87.0°E REPORTED MEAN SURFAFACE LEVEL PRESSURE OF 1011.5 HPA AND MEAN SURFACE WIND SPEED OF 130°/ 10 KNOTS.

THE ESTIMATED CENTRAL PRESSURE IS ABOUT 993 HPA AND THE MAXIMUM SUSTAINED SURFACE WIND SPEED IS 55 KNOTS GUSTING TO 65 KNOTS. STATE OF SEA IS VERY HIGH AROUND THE SYSTEM CENTRE.

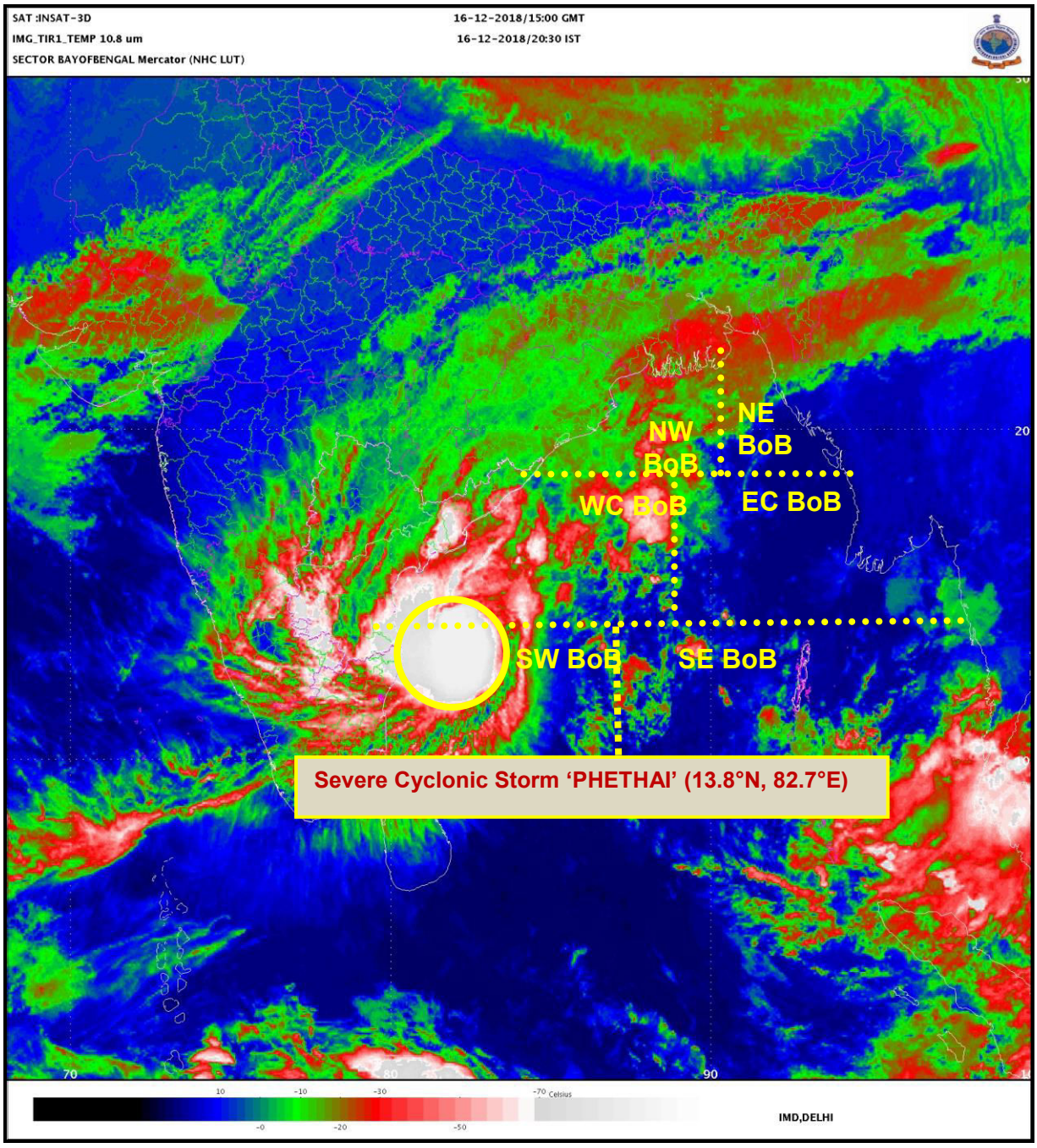
REMARKS:

UNDER THE FAVORABLE MJO AND ENVIRONMENTAL CONDITION LIKE LOW TO MODERATE VERTICAL WIND SHEAR, HIGHER POSITIVE LOWER LEVEL VORTICITY, POLEWARD OUTFLOW AND WARM AIR ADVECTION FROM THE SOUTHEAST, THE CYCLONIC STORM “PHETHAI” INTENSIFIED INTO A SEVERE CYCLONIC STORM. WITH THE SIMILAR FAVORABLE ENVIRONMENTAL CONDITIONS EXPECTED TO PREVAIL DURING NEXT 12 HOURS THE SYSTEM IS VERY LIKELY TO MAINTAIN ITS INTENSITY DURING THE SAME PERIOD. THE SEA SURFACE TEMPERATURE (SST) IS 28-29˚C AROUND THE SYSTEM AREA. IT IS DECREASING SLIGHTLY BECOMING 26-28˚C TOWARDS WESTCENTRAL BAY OF BENGAL AND ALONG & OFF ANDHRA PRADESH COAST. THE TROPICAL CYCLONE HEAT POTENTIAL IS AROUND 35-50 KJ/CM^2 OVER THE SYSTEM AREA. HOWEVER, IT IS LESS THAN 35 KJ/CM^2 OVER WESTERN PARTS OF BOB ALONG THE EAST COAST OF INDIA. THE LOWER LEVEL CONVERGENCE IS 40x10^{-5} SECOND^{-1} TOWARDS NORTH-NORTHEAST OF THE SYSTEM CENTER. LOWER LEVEL VORTICITY IS 250x10^{-6} SECOND ^{1} AROUND THE SYSTEM CENTER. POSITIVE VORTIVITY FIELD IS EXTENDING UPTO 200 HPA LEVEL. UPPER LEVEL DIVERGENCE IS (5-10x10^{-5} SECOND^{-1}) TOWARDS NORTHEAST AND NORTHWEST OF THE SYSTEM CENTER AND VERTICAL WIND SHEAR (10-15 KNOTS) OVER THE SYSTEM AREA AND INCREASES ALONG THE FORECAST TRACK. WIND SHEAR TENDENCY IS NEGATIVE OVER THE SYSTEM AREA AS WELL AS ALONG THE FORECAST TRACK. THE TOTAL PRECIPITABLE WATER IMAGERY INDICATES WARM AND MOIST AIR FEEDING INTO THE CORE OF THE SYSTEM FROM SOUTHEAST SECTOR AND DRY & COLD AIR PREVAILS OVER PENINSULAR INDIA. ALL THESE MAY LEAD TO MAINTAIN THE SYSTEM INTENSITY DURING NEXT 12 HOURS.

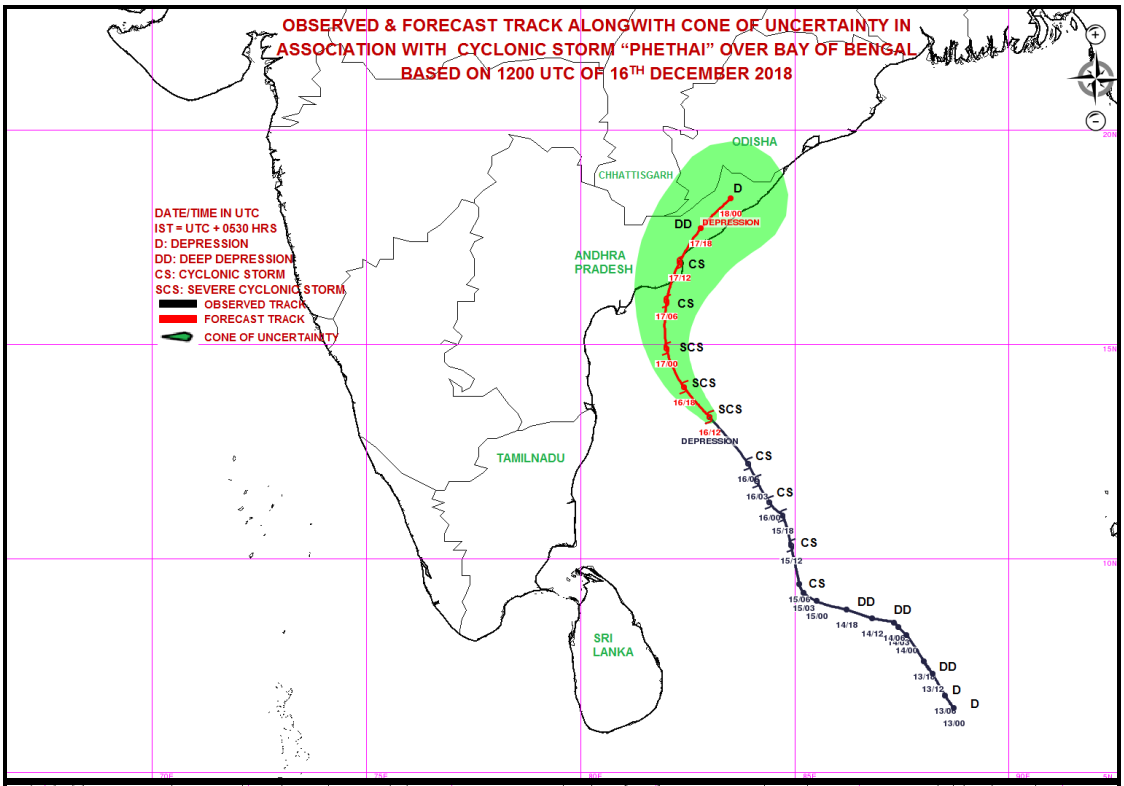
THE UPPER TROPOSPHERIC RIDGE RUNS ALONG 17°N. THE SYSTEM IS BEING GUIDED BY THE ANTICYCLONE OVER SOUTHEAST ASIA, AND HENCE WILL HAVE MORE NORTHWARD COMPONENT OF MOVEMENT AS IT APPROACHES THE COAST. AS PER THE MODEL FORECAST A DEEP TROUGH IN UPPER TROPOSPHERIC WESTERLIES IS APPROACHING THE INDIAN REGION. IT IS LIKELY TO RECURVE THE SYSTEM TO NORTHEAST DURING AND AFTER LANDFALL OVER ANDHRA PRADESH COAST AROUND KAKINADA BY 1200 UTC OF 17TH DECEMBER. FURTHER, UNDER THE COMBINED EFFECT OF ANTICYCLONE AND ABOVE TROUGH, THE UPPER LEVEL WINDS ARE EXPECTED TO INCREASE OVER NORTHEAST COAST OF INDIA. IT MAY LEAD TO INCREASE IN WIND SHEAR OVER THE REGION. HENCE THERE IS POSSIBILITIES OF WEAKENING OF THE SYSTEM ON 17TH DECEMBER BEFORE LANDFALL DUE TO DRY & COLD AIR ADVECTION FROM NORTHWEST, COLDER SST, LOWER OCEAN HEAT CONTENT AND HIGH WIND SHEAR. MOST OF THE NWP MODEL GUIDENCE AGREE WITH ABOVE ANALYSIS.

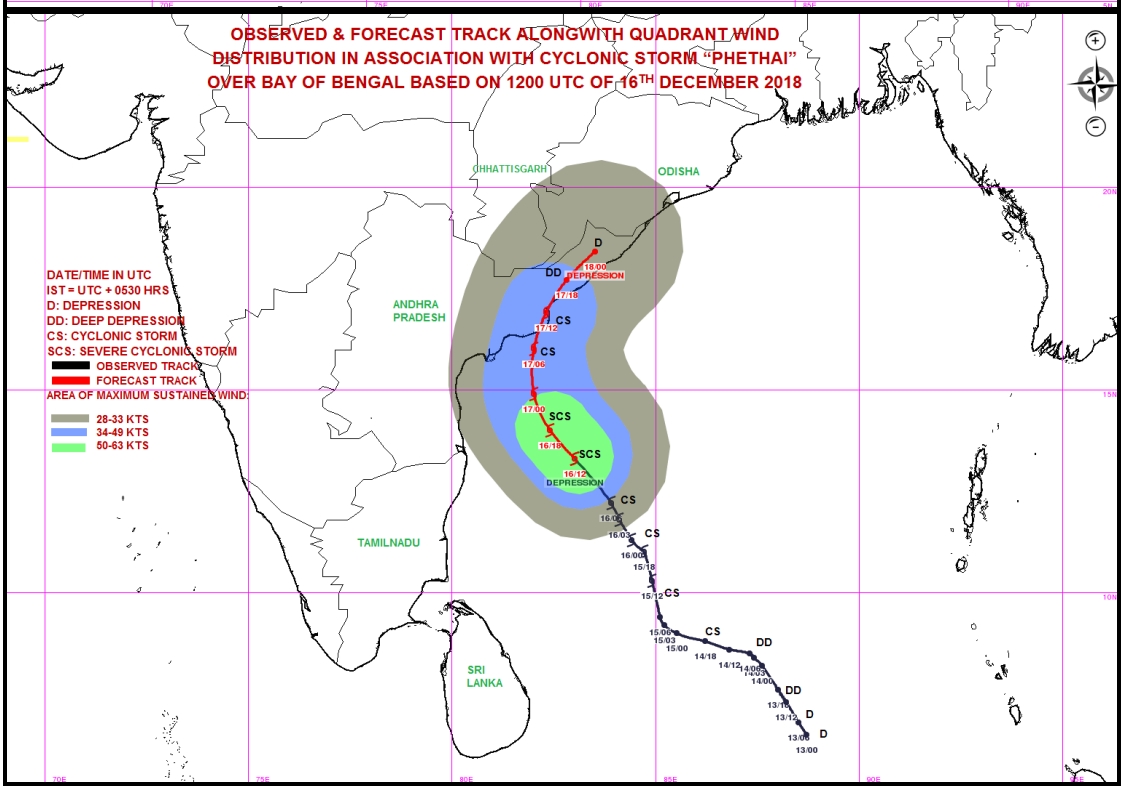
(ANANDA KUMAR DAS)
SCIENTIST-E, RSMC, NEW DELHI

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



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. 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 72 HOURS ISSUED AT 2000 UTC OF 16.12.2018 BASED ON 1800 UTC OF 16.12.2018.

CYCLONIC STORM 'PHETHAI' OVER WESTCENTRAL AND SOUTHWEST ADJOINING BAY OF BENGAL:

THE SEVERE CYCLONIC STORM '**PHETHAI**' OVER WESTCENTRAL & ADJOINING SOUTHWEST BAY OF BENGAL MOVED NORTH-NORTHWESTWARDS WITH A SPEED OF 16 KMPH DURING PAST 06 HOURS AND LAY CENTRED AT 1800 UTC OF 16TH DECEMBER, 2018 OVER WESTCENTRAL & ADJOINING SOUTHWEST BAY OF BENGAL NEAR LATITUDE 14.0°N AND LONGITUDE 82.5°E, ABOUT 620 KM NORTH-NORTHEAST OF TRINCOMALEE (43418)(SRI LANKA), 260 KM EAST-NORTHEAST OF CHENNAI (43278)(TAMIL NADU), 280 KM SOUTH-SOUTHEAST OF MACHILIPATNAM (43185)(ANDHRA PRADESH) AND 330 KM SOUTH-SOUTHEAST OF KAKINADA (43189)(ANDHRA PRADESH). IT IS VERY LIKELY TO MOVE NORTH-NORTHWESTWARDS AND CROSS ANDHRA PRADESH COAST AROUND KAKINADA (43189) DURING 17TH DECEMBER AFTERNOON. HOWEVER, DUE TO UNFAVOURABLE ENVIRONMENTAL CONDITIONS, IT IS LIKELY TO WEAKEN SLIGHTLY BEFORE LANDFALL AND CROSS COAST AS A CYCLONIC STORM WITH A WIND SPEED OF 70-90 KMPH GUSTING TO 100 KMPH.

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
16.12.18/1800	14.0/82.5	95-105 GUSTING TO 110	SEVERE CYCLONIC STORM
17.12.18/0000	14.9/82.0	90-100 GUSTING TO 110	SEVERE CYCLONIC STORM
17.12.18/0600	16.0/82.0	80-90 GUSTING TO 100	CYCLONIC STORM
17.12.18/1200	16.9/82.3	70-80 GUSTING TO 90	CYCLONIC STORM
17.12.18/1800	17.7/82.8	55-65 GUSTING TO 75	DEEP DEPRESSION
18.12.18/0000	18.4/83.5	40-50 GUSTING TO 60	DEPRESSION
18.12.18/0600	19.1/84.3	30-40 GUSTING TO 50	DEPRESSION

CYCLONE '**PHETHAI**' IS ALSO BEING TRACKED BY DWR CHENNAI (43278) AND MACHILIPATNAM (43185) APART FROM SATELLITE AND OTHER OBSERVATIONS. BUT AS THE SYSTEM IS FAR AWAY FROM THE BOTH DWRS, THE CENTER OF THE SYSTEM IS POORLY DEFINED.

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

AS PER THE SATELLITE IMAGERY OF 1800 UTC ON 16TH DECEMBER THE INTENSITY OF THE SYSTEM OVER SW BAY AND NEIGHBOURHOOD IS T 3.5. ASSOCIATED BROKEN LOW TO MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION OVER AREA BETWEEN LATITUDE 12.0°N TO 16.0°N AND LONG 80.0°E TO 83.5°E (.) MINIMUM CLOUD TOP TEMPERATURE IS MINUS 93.0° C.

THE ESTIMATED CENTRAL PRESSURE IS ABOUT 993 HPA AND THE MAXIMUM SUSTAINED SURFACE WIND SPEED IS 55 KNOTS GUSTING TO 65 KNOTS. STATE OF SEA IS VERY HIGH AROUND THE SYSTEM CENTRE.

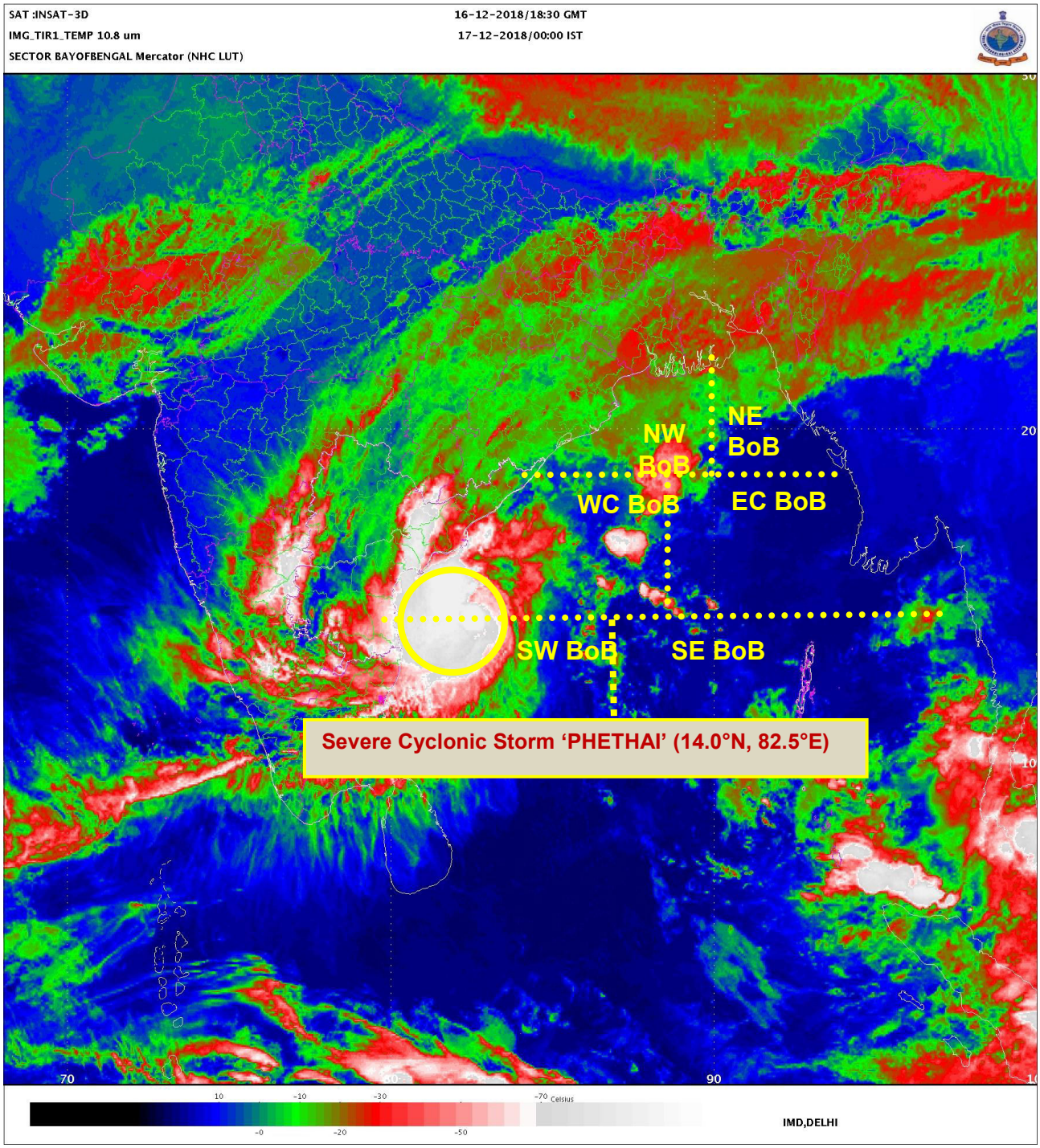
REMARKS:

UNDER THE FAVORABLE MJO AND ENVIRONMENTAL CONDITION LIKE LOW TO MODERATE VERTICAL WIND SHEAR, HIGHER POSITIVE LOWER LEVEL VORTICITY, POLEWARD OUTFLOW AND WARM AIR ADVECTION FROM THE SOUTHEAST, THE CYCLONIC STORM “PHETHAI” INTENSIFIED INTO A SEVERE CYCLONIC STORM. WITH THE SIMILAR FAVORABLE ENVIRONMENTAL CONDITIONS EXPECTED TO PREVAIL DURING NEXT 12 HOURS THE SYSTEM IS VERY LIKELY TO MAINTAIN ITS INTENSITY DURING THE SAME PERIOD. THE SEA SURFACE TEMPERATURE (SST) IS 28-29˚C AROUND THE SYSTEM AREA. IT IS DECREASING SLIGHTLY BECOMING 26-28˚C TOWARDS WESTCENTRAL BAY OF BENGAL AND ALONG & OFF ANDHRA PRADESH COAST. THE TROPICAL CYCLONE HEAT POTENTIAL IS AROUND 35-50 KJ/CM^2 OVER THE SYSTEM AREA. HOWEVER, IT IS LESS THAN 35 KJ/CM^2 OVER WESTERN PARTS OF BOB ALONG THE EAST COAST OF INDIA. THE LOWER LEVEL CONVERGENCE IS 40x10^{-5} SECOND^{-1} TOWARDS NORTH-NORTHEAST OF THE SYSTEM CENTER. LOWER LEVEL VORTICITY IS 250x10^{-6} SECOND ^{1} AROUND THE SYSTEM CENTER. POSITIVE VORTIVITY FIELD IS EXTENDING UPTO 200 HPA LEVEL. UPPER LEVEL DIVERGENCE IS (5-10x10^{-5} SECOND^{-1}) TOWARDS NORTHEAST AND NORTHWEST OF THE SYSTEM CENTER AND VERTICAL WIND SHEAR (10-15 KNOTS) OVER THE SYSTEM AREA AND INCREASES ALONG THE FORECAST TRACK. WIND SHEAR TENDENCY IS NEGATIVE OVER THE SYSTEM AREA AS WELL AS ALONG THE FORECAST TRACK. THE TOTAL PRECIPITABLE WATER IMAGERY INDICATES WARM AND MOIST AIR FEEDING INTO THE CORE OF THE SYSTEM FROM SOUTHEAST SECTOR AND DRY & COLD AIR PREVAILS OVER PENINSULAR INDIA. ALL THESE MAY LEAD TO MAINTAIN THE SYSTEM INTENSITY DURING NEXT 12 HOURS.

THE UPPER TROPOSPHERIC RIDGE RUNS ALONG 17°N. THE SYSTEM IS BEING GUIDED BY THE ANTICYCLONE OVER SOUTHEAST ASIA, AND HENCE WILL HAVE MORE NORTHWARD COMPONENT OF MOVEMENT AS IT APPROACHES THE COAST. AS PER THE MODEL FORECAST A DEEP TROUGH IN UPPER TROPOSPHERIC WESTERLIES IS APPROACHING THE INDIAN REGION. IT IS LIKELY TO RECURVE THE SYSTEM TO NORTHEAST DURING AND AFTER LANDFALL OVER ANDHRA PRADESH COAST AROUND KAKINADA BY 1200 UTC OF 17TH DECEMBER. FURTHER, UNDER THE COMBINED EFFECT OF ANTICYCLONE AND ABOVE TROUGH, THE UPPER LEVEL WINDS ARE EXPECTED TO INCREASE OVER NORTHEAST COAST OF INDIA. IT MAY LEAD TO INCREASE IN WIND SHEAR OVER THE REGION. HENCE THERE IS POSSIBILITIES OF WEAKENING OF THE SYSTEM ON 17TH DECEMBER BEFORE LANDFALL DUE TO DRY & COLD AIR ADVECTION FROM NORTHWEST, COLDER SST, LOWER OCEAN HEAT CONTENT AND HIGH WIND SHEAR. MOST OF THE NWP MODEL GUIDENCE AGREE WITH ABOVE ANALYSIS.

(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%



PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)
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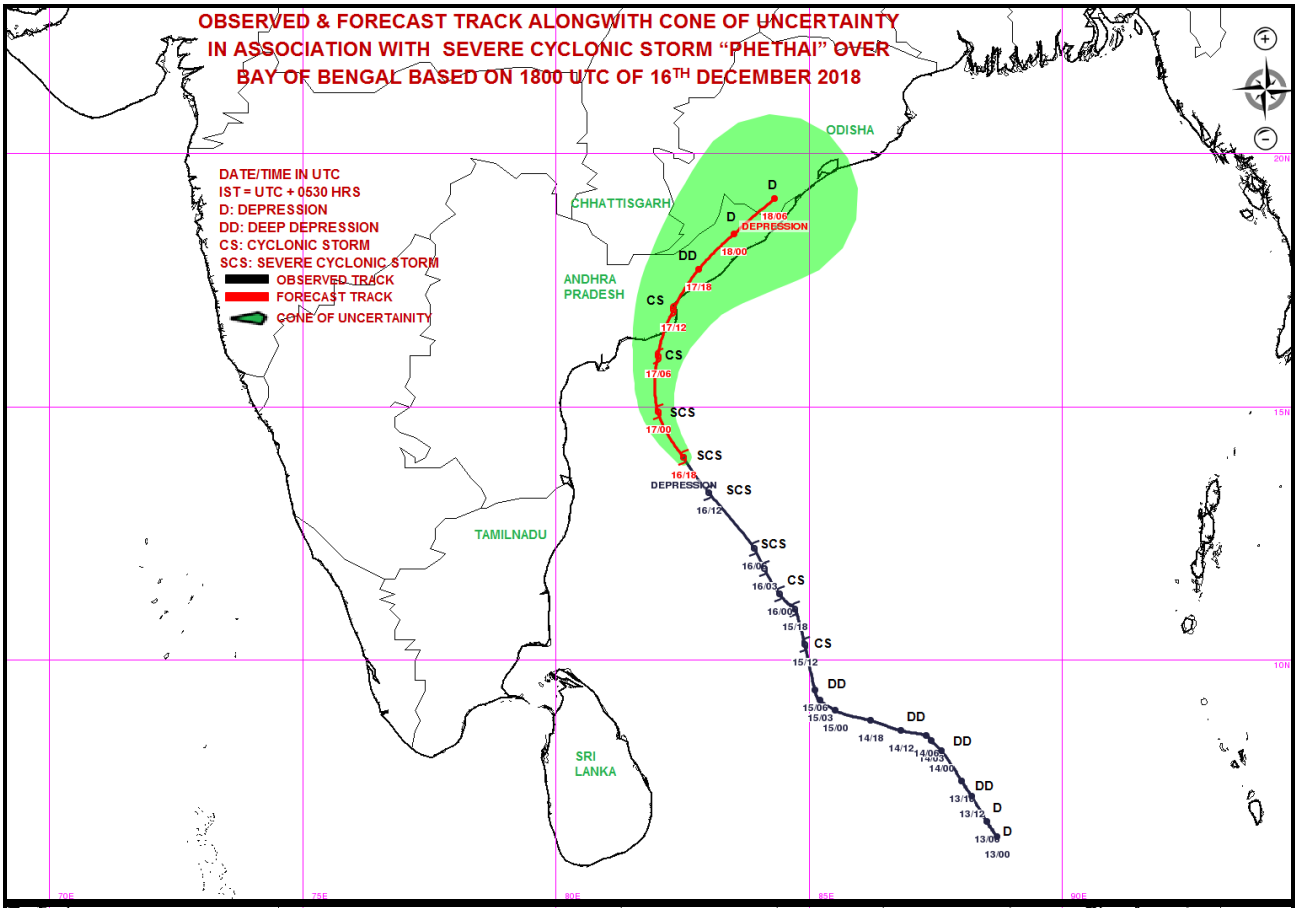

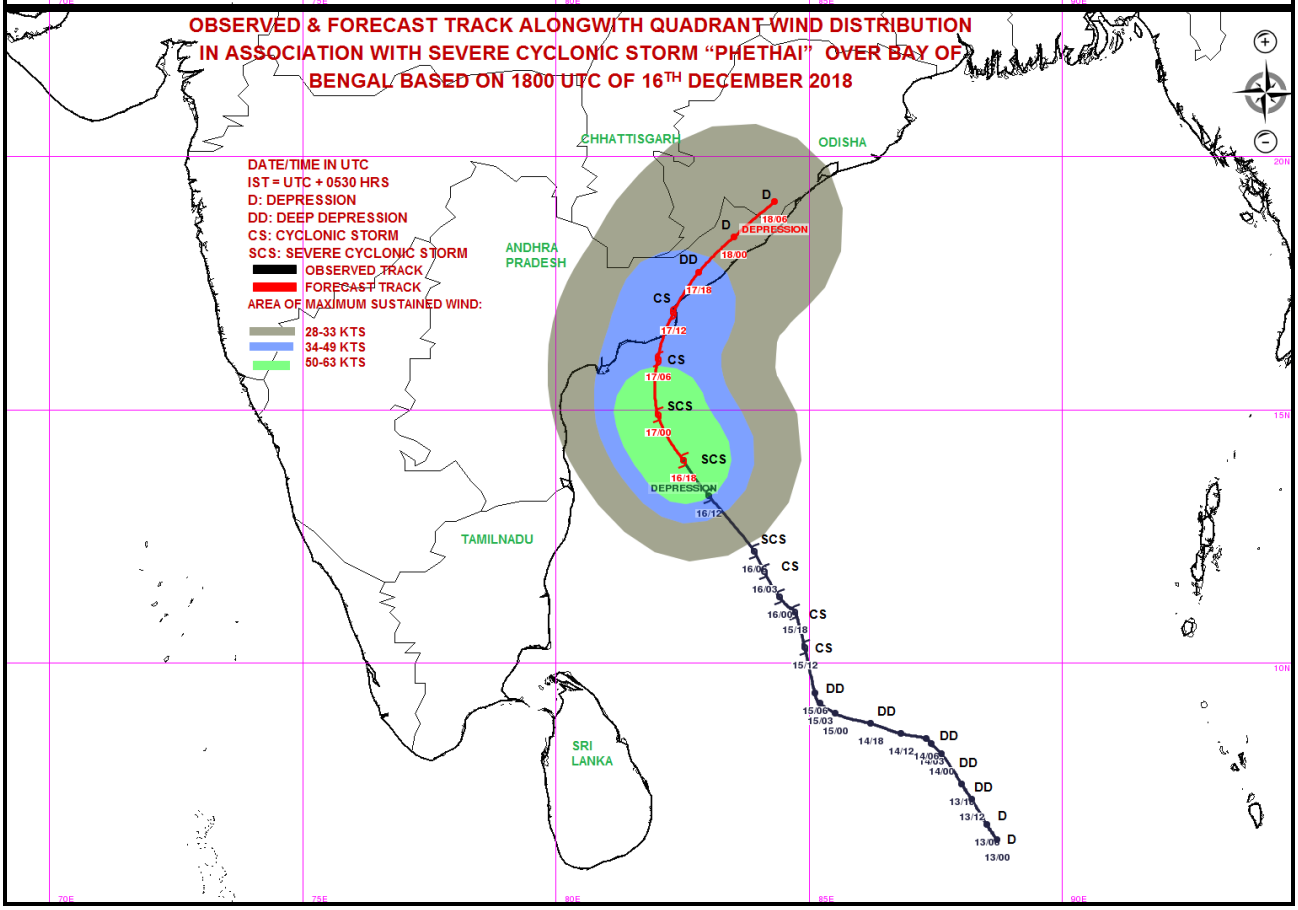

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

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

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 72 HOURS ISSUED AT 0000 UTC OF 17.12.2018 BASED ON 2100 UTC OF 16.12.2018.

CYCLONIC STORM 'PHETHAI' OVER WESTCENTRAL AND SOUTHWEST ADJOINING BAY OF BENGAL:

THE SEVERE CYCLONIC STORM '**PHETHAI**' OVER WESTCENTRAL & ADJOINING SOUTHWEST BAY OF BENGAL MOVED NORTH-NORTHWESTWARDS WITH A SPEED OF 16 KMPH DURING PAST 06 HOURS AND LAY CENTRED AT 2100 UTC OF 16TH DECEMBER, 2018 OVER WESTCENTRAL & ADJOINING SOUTHWEST BAY OF BENGAL NEAR LATITUDE 14.5°N AND LONGITUDE 82.2°E, ABOUT 660 KM NORTH-NORTHEAST OF TRINCOMALEE (43418)(SRI LANKA), 260 KM EAST-NORTHEAST OF CHENNAI (43278)(TAMIL NADU), 220 KM SOUTH-SOUTHEAST OF MACHILIPATNAM (43185)(ANDHRA PRADESH) AND 270 KM SOUTH-SOUTHEAST OF KAKINADA (43189)(ANDHRA PRADESH). IT IS VERY LIKELY TO MOVE NORTH-NORTHWESTWARDS AND CROSS ANDHRA PRADESH COAST AROUND KAKINADA (43189) DURING 17TH DECEMBER AFTERNOON. HOWEVER, DUE TO UNFAVOURABLE ENVIRONMENTAL CONDITIONS, IT IS LIKELY TO WEAKEN SLIGHTLY BEFORE LANDFALL AND CROSS COAST AS A CYCLONIC STORM WITH A WIND SPEED OF 70-90 KMPH GUSTING TO 100 KMPH.

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
16.12.18/2100	14.5/82.2	95-105 GUSTING TO 110	SEVERE CYCLONIC STORM
17.12.18/0000	14.9/82.0	90-100 GUSTING TO 110	SEVERE CYCLONIC STORM
17.12.18/0600	16.0/82.0	80-90 GUSTING TO 100	CYCLONIC STORM
17.12.18/1200	16.9/82.3	70-80 GUSTING TO 90	CYCLONIC STORM
17.12.18/1800	17.7/82.8	55-65 GUSTING TO 75	DEEP DEPRESSION
18.12.18/0000	18.4/83.5	40-50 GUSTING TO 60	DEPRESSION
18.12.18/0600	19.1/84.3	30-40 GUSTING TO 50	DEPRESSION

CYCLONE '**PHETHAI**' IS ALSO BEING TRACKED BY DWR CHENNAI (43278) AND MACHILIPATNAM (43185) APART FROM SATELLITE AND OTHER OBSERVATIONS. BUT AS THE SYSTEM IS FAR AWAY FROM THE BOTH DWRS, THE CENTER OF THE SYSTEM IS POORLY DEFINED.

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

AS PER THE SATELLITE IMAGERY OF 2100 UTC ON 16TH DECEMBER THE INTENSITY OF THE SYSTEM OVER SW BAY AND NEIGHBOURHOOD IS T 3.5. ASSOCIATED BROKEN LOW TO MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION OVER AREA BETWEEN LATITUDE 13.5°N TO 17.0°N AND LONG 80.0°E TO 84.0°E (.) MINIMUM CLOUD TOP TEMPERATURE IS MINUS 93.0° C.

THE ESTIMATED CENTRAL PRESSURE IS ABOUT 993 HPA AND THE MAXIMUM SUSTAINED SURFACE WIND SPEED IS 55 KNOTS GUSTING TO 65 KNOTS. STATE OF SEA IS VERY HIGH AROUND THE SYSTEM CENTRE.

REMARKS:

UNDER THE FAVORABLE MJO AND ENVIRONMENTAL CONDITION LIKE LOW TO MODERATE VERTICAL WIND SHEAR, HIGHER POSITIVE LOWER LEVEL VORTICITY, POLEWARD OUTFLOW AND WARM AIR ADVECTION FROM THE SOUTHEAST, THE CYCLONIC STORM "PHETHAI" INTENSIFIED INTO A SEVERE CYCLONIC STORM. WITH THE SIMILAR FAVORABLE ENVIRONMENTAL CONDITIONS EXPECTED TO PREVAIL DURING NEXT 12 HOURS THE SYSTEM IS VERY LIKELY TO MAINTAIN ITS INTENSITY DURING THE SAME PERIOD. THE SEA SURFACE TEMPERATURE (SST) IS 28-29˚C AROUND THE SYSTEM AREA. IT IS DECREASING SLIGHTLY BECOMING 26-28˚C TOWARDS WESTCENTRAL BAY OF BENGAL AND ALONG & OFF ANDHRA PRADESH COAST. THE TROPICAL CYCLONE HEAT POTENTIAL IS AROUND 35-50 KJ/CM^2 OVER THE SYSTEM AREA. HOWEVER, IT IS LESS THAN 35 KJ/CM^2 OVER WESTERN PARTS OF BOB ALONG THE EAST COAST OF INDIA. THE LOWER LEVEL CONVERGENCE IS 40x10^{-5} SECOND^{-1} TOWARDS NORTH-NORTHEAST OF THE SYSTEM CENTER. LOWER LEVEL VORTICITY IS 250x10^{-6} SECOND ^{1} AROUND THE SYSTEM CENTER. POSITIVE VORTIVITY FIELD IS EXTENDING UPTO 200 HPA LEVEL. UPPER LEVEL DIVERGENCE IS (5-10x10^{-5} SECOND^{-1}) TOWARDS NORTHEAST AND NORTHWEST OF THE SYSTEM CENTER AND VERTICAL WIND SHEAR (10-15 KNOTS) OVER THE SYSTEM AREA AND INCREASES ALONG THE FORECAST TRACK. WIND SHEAR TENDENCY IS NEGATIVE OVER THE SYSTEM AREA AS WELL AS ALONG THE FORECAST TRACK. THE TOTAL PRECIPITABLE WATER IMAGERY INDICATES WARM AND MOIST AIR FEEDING INTO THE CORE OF THE SYSTEM FROM SOUTHEAST SECTOR AND DRY & COLD AIR PREVAILS OVER PENINSULAR INDIA. ALL THESE MAY LEAD TO MAINTAIN THE SYSTEM INTENSITY DURING NEXT 12 HOURS.

THE UPPER TROPOSPHERIC RIDGE RUNS ALONG 17°N. THE SYSTEM IS BEING GUIDED BY THE ANTICYCLONE OVER SOUTHEAST ASIA, AND HENCE WILL HAVE MORE NORTHWARD COMPONENT OF MOVEMENT AS IT APPROACHES THE COAST. AS PER THE MODEL FORECAST A DEEP TROUGH IN UPPER TROPOSPHERIC WESTERLIES IS APPROACHING THE INDIAN REGION. IT IS LIKELY TO RECURVE THE SYSTEM TO NORTHEAST DURING AND AFTER LANDFALL OVER ANDHRA PRADESH COAST AROUND KAKINADA BY 1200 UTC OF 17TH DECEMBER. FURTHER, UNDER THE COMBINED EFFECT OF ANTICYCLONE AND ABOVE TROUGH, THE UPPER LEVEL WINDS ARE EXPECTED TO INCREASE OVER NORTHEAST COAST OF INDIA. IT MAY LEAD TO INCREASE IN WIND SHEAR OVER THE REGION. HENCE THERE IS POSSIBILITIES OF WEAKENING OF THE SYSTEM ON 17TH DECEMBER BEFORE LANDFALL DUE TO DRY & COLD AIR ADVECTION FROM NORTHWEST, COLDER SST, LOWER OCEAN HEAT CONTENT AND HIGH WIND SHEAR. MOST OF THE NWP MODEL GUIDENCE AGREE WITH ABOVE ANALYSIS.

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

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)
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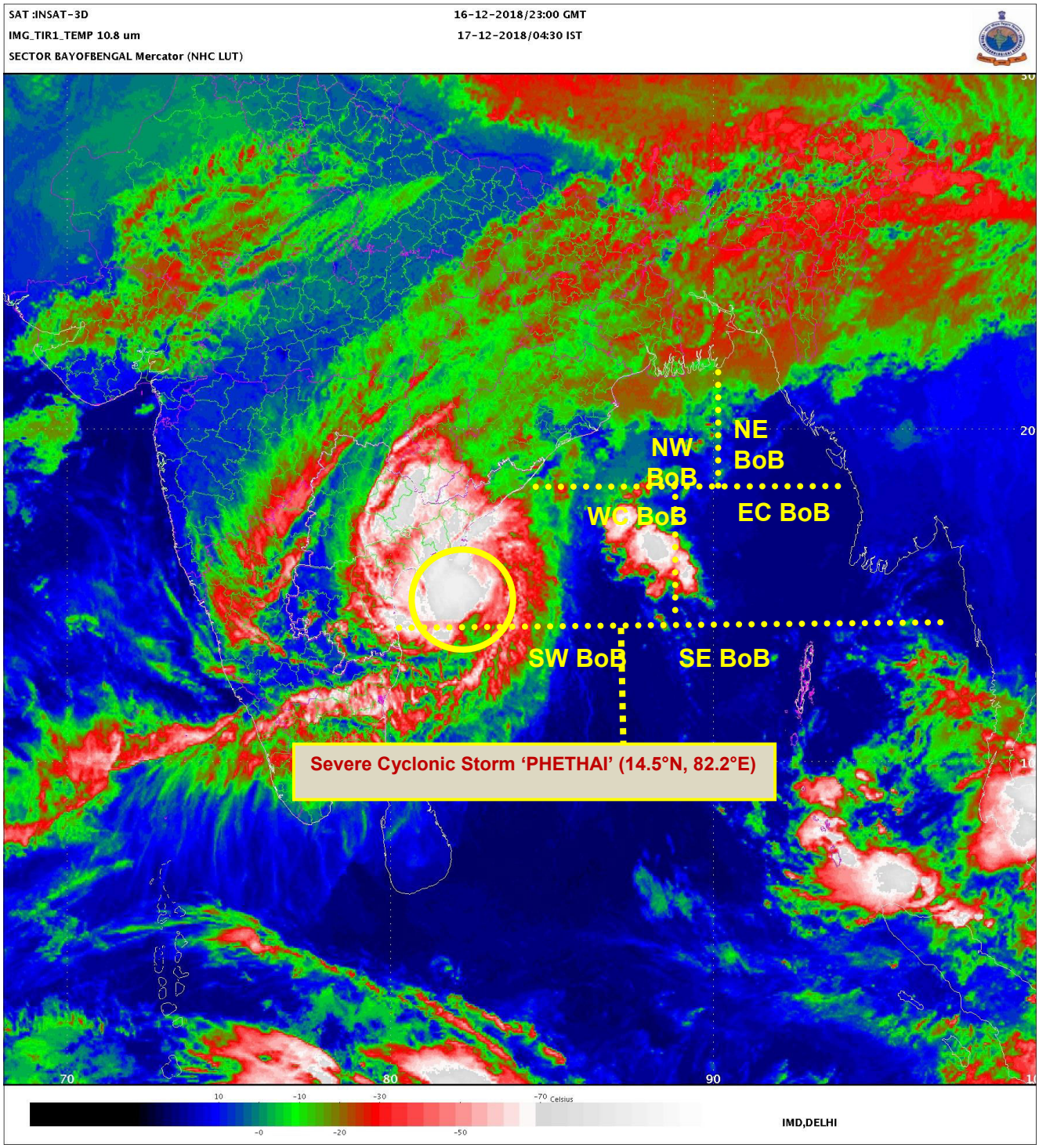

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)
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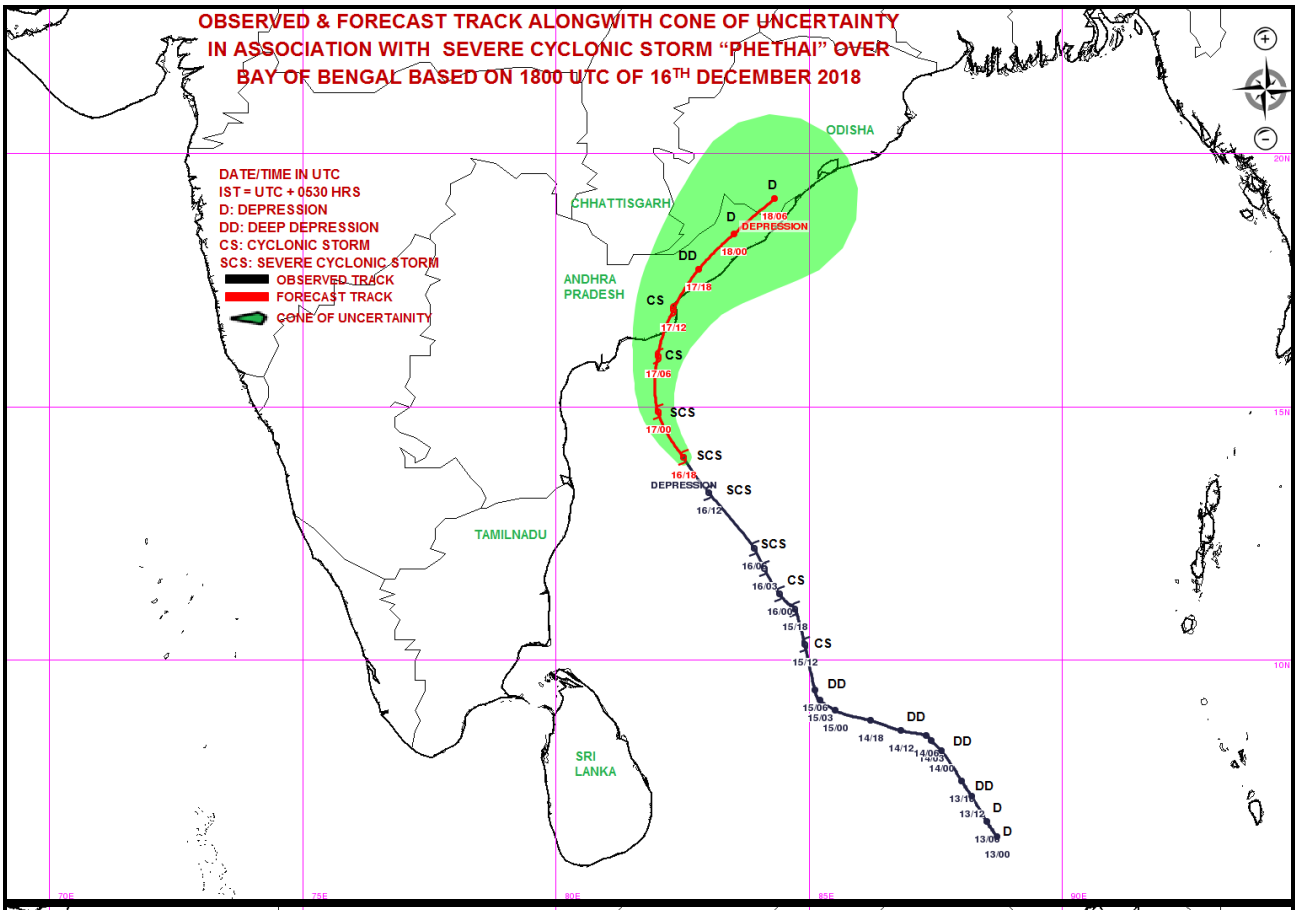

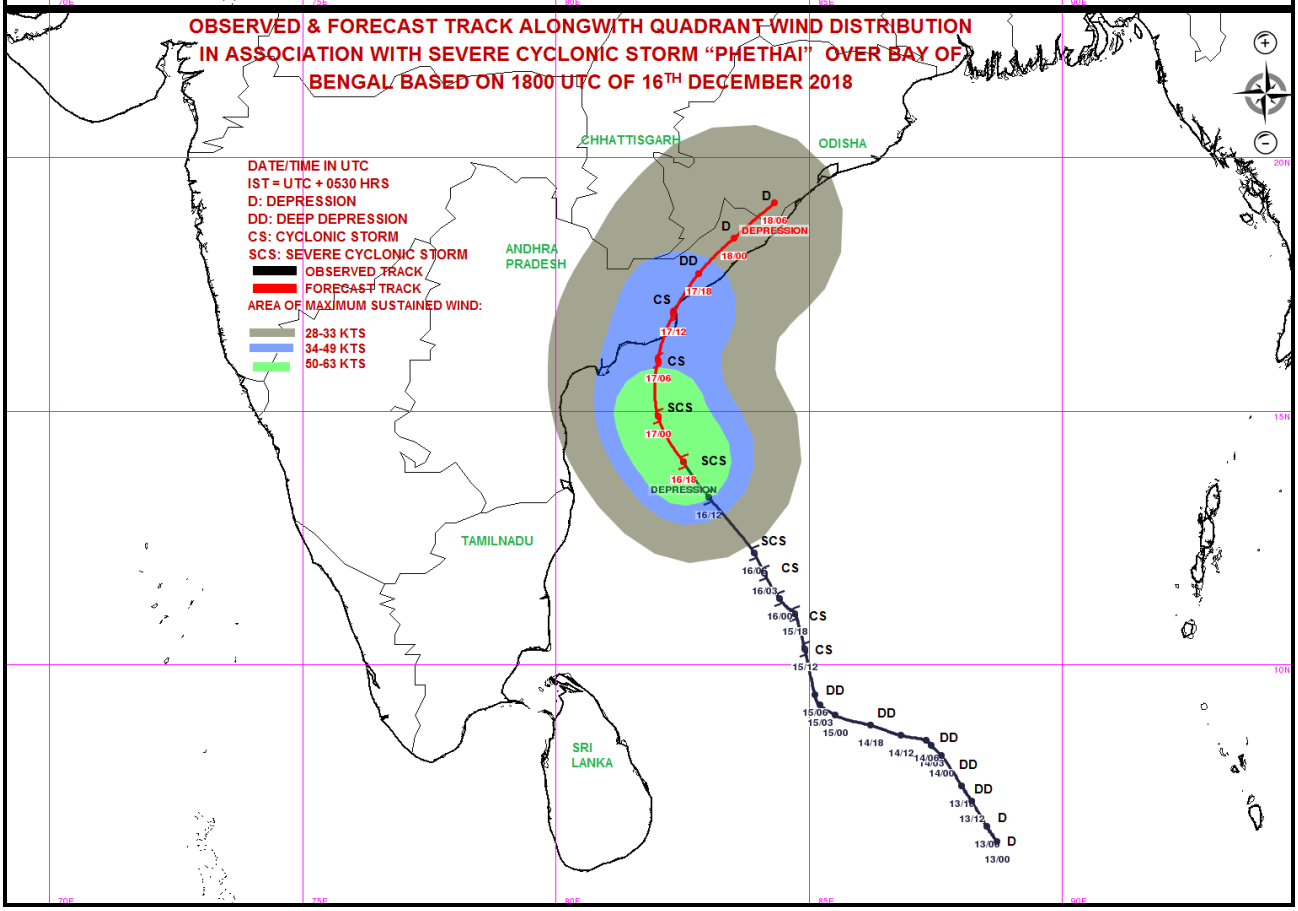

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

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

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 72 HOURS ISSUED AT 0330 UTC OF 17.12.2018 BASED ON 0000 UTC OF 17.12.2018.

CYCLONIC STORM 'PHETHAI' OVER WESTCENTRAL AND SOUTHWEST ADJOINING BAY OF BENGAL:

THE SEVERE CYCLONIC STORM '**PHETHAI**' OVER WESTCENTRAL & ADJOINING SOUTHWEST BAY OF BENGAL MOVED NORTHWARDS WITH A SPEED OF 23 KMPH DURING PAST 06 HOURS, WEAKENED SLIGHTLY AND LAY CENTRED AT 0000 UTC OF 17TH DECEMBER, 2018 OVER WESTCENTRAL BAY OF BENGAL NEAR LATITUDE 15.2°N AND LONGITUDE 82.2°E, 320 KM EAST-NORTHEAST OF CHENNAI (43278)(TAMIL NADU), 160 KM SOUTHEAST OF MACHILIPATNAM (43185)(ANDHRA PRADESH) AND 190 KM SOUTH OF KAKINADA (43189)(ANDHRA PRADESH). IT IS VERY LIKELY TO MOVE NEARLY NORTHWARDS AND CROSS ANDHRA PRADESH COAST AROUND KAKINADA (43189) DURING 17TH DECEMBER AFTERNOON. HOWEVER, DUE TO UNFAVOURABLE ENVIRONMENTAL CONDITIONS, IT IS LIKELY TO WEAKEN BEFORE LANDFALL AND CROSS COAST AS A CYCLONIC STORM WITH A WIND SPEED OF 70-90 KMPH GUSTING TO 100 KMPH.

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
17.12.18/0000	15.2/82.2	90-100 GUSTING TO 110	SEVERE CYCLONIC STORM
17.12.18/0600	16.2/82.2	80-90 GUSTING TO 100	CYCLONIC STORM
17.12.18/1200	17.0/82.5	70-80 GUSTING TO 90	CYCLONIC STORM
17.12.18/1800	17.8/83.0	50-60 GUSTING TO 70	DEEP DEPRESSION
18.12.18/0000	18.4/83.5	30-40 GUSTING TO 50	DEPRESSION

CYCLONE '**PHETHAI**' IS ALSO BEING TRACKED BY DWR CHENNAI (43278), MACHILIPATNAM (43185) AND VISHAKHAPATNAM (43150) APART FROM SATELLITE AND OTHER OBSERVATIONS. BUT, AS THE SYSTEM IS NOT WELL-ORGANIZED, THE SYSTEM CENTER IS POORLY DEFINED BY THE DWRS.

AS PER THE SATELLITE IMAGERY OF 0000 UTC ON 17TH DECEMBER THE INTENSITY OF THE SYSTEM OVER SW BAY AND NEIGHBOURHOOD IS T 3.0. ASSOCIATED BROKEN LOW TO MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION OVER AREA BETWEEN LATITUDE 14.0°N TO 17.5°N AND LONG 80.0°E TO 84.0°E. MINIMUM CLOUD TOP TEMPERATURE IS MINUS 93.0° C.

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

THE ESTIMATED CENTRAL PRESSURE IS ABOUT 993 HPA AND THE MAXIMUM SUSTAINED SURFACE WIND SPEED IS 55 KNOTS GUSTING TO 65 KNOTS. STATE OF SEA IS VERY HIGH AROUND THE SYSTEM CENTRE.

ALONG THE ANDHRA PRADESH COAST THE PRESSURE IS LOWEST AT NARSAPUR (43187) WITH MSLP OF 1007.5 HPA AND 24 HOUR CHANGE OF -6.4 HPA AT 0000 UTC OF 17^{TH} DECEMBER.

REMARKS:

THE SEA SURFACE TEMPERATURE (SST) IS 28-29˚C AROUND THE SYSTEM AREA. IT IS DECREASING SLIGHTLY BECOMING 26-28˚C TOWARDS WESTCENTRAL BAY OF BENGAL AND ALONG & OFF ANDHRA PRADESH COAST. THE TROPICAL CYCLONE HEAT POTENTIAL IS AROUND 35-50 KJ/CM^2 OVER THE SYSTEM AREA. HOWEVER, IT IS LESS THAN 35 KJ/CM^2 OVER WESTERN PARTS OF BOB ALONG THE EAST COAST OF INDIA. THE LOWER LEVEL CONVERGENCE DECREASES AND $20x10^{-5}$ $SECOND^{-1}$ TOWARDS NORTH-NORTHEAST OF THE SYSTEM CENTER. LOWER LEVEL VORTICITY ALSO DECREASED AND $200x10^{-6}$ $SECOND^{1}$ AROUND THE SYSTEM CENTER. UPPER LEVEL DIVERGENCE IS ($10x10^{-5}$ $SECOND^{-1}$) TOWARDS AROUND THE SYSTEM CENTER AND VERTICAL WIND SHEAR INCREASED OVER THE SYSTEM AREA AND ALONG THE FORECAST TRACK (20 KNOTS). WIND SHEAR TENDENCY IS POSITIVE OVER THE SYSTEM AREA AS WELL AS ALONG THE FORECAST TRACK. THE TOTAL PRECIPITABLE WATER IMAGERY INDICATES WARM AND MOIST AIR FEEDING INTO THE CORE OF THE SYSTEM FROM NORTH-NORTHEAST SECTOR AND DRY & COLD AIR PREVAILING OVER PENINSULAR INDIA INCURSION TAKES PLACE FROM SOUTH-SOUTHWEST SECTOR OF THE SYSTEM.

THE UPPER TROPOSPHERIC RIDGE RUNS ALONG 17°N. THE SYSTEM IS BEING GUIDED BY THE ANTICYCLONE OVER SOUTHEAST ASIA, AND HENCE WILL HAVE MORE NORTH-NORTHEASTWARD COMPONENT OF MOVEMENT AS IT APPROACHES THE COAST. AS PER THE MODEL FORECAST A DEEP TROUGH IN UPPER TROPOSPHERIC WESTERLIES IS APPROACHING THE INDIAN REGION. IT IS LIKELY TO RECURVE THE SYSTEM TO NORTHEAST DURING AND AFTER LANDFALL OVER ANDHRA PRADESH COAST AROUND KAKINADA BY AFTERNOON OF 17^{TH} DECEMBER. FURTHER, UNDER THE COMBINED EFFECT OF ANTICYCLONE AND ABOVE TROUGH, THE UPPER LEVEL WINDS ARE EXPECTED TO INCREASE OVER NORTHEAST COAST OF INDIA. IT MAY LEAD TO INCREASE IN WIND SHEAR OVER THE REGION. HENCE THERE IS POSSIBILITIES OF WEAKENING OF THE SYSTEM ON 17^{TH} DECEMBER BEFORE AND DURING LANDFALL DUE TO DRY & COLD AIR ADVECTION FROM NORTHWEST, COLDER SST, LOWER OCEAN HEAT CONTENT AND HIGH WIND SHEAR. MOST OF THE NWP MODEL GUIDENCE AGREE WITH ABOVE ANALYSIS.

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

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)
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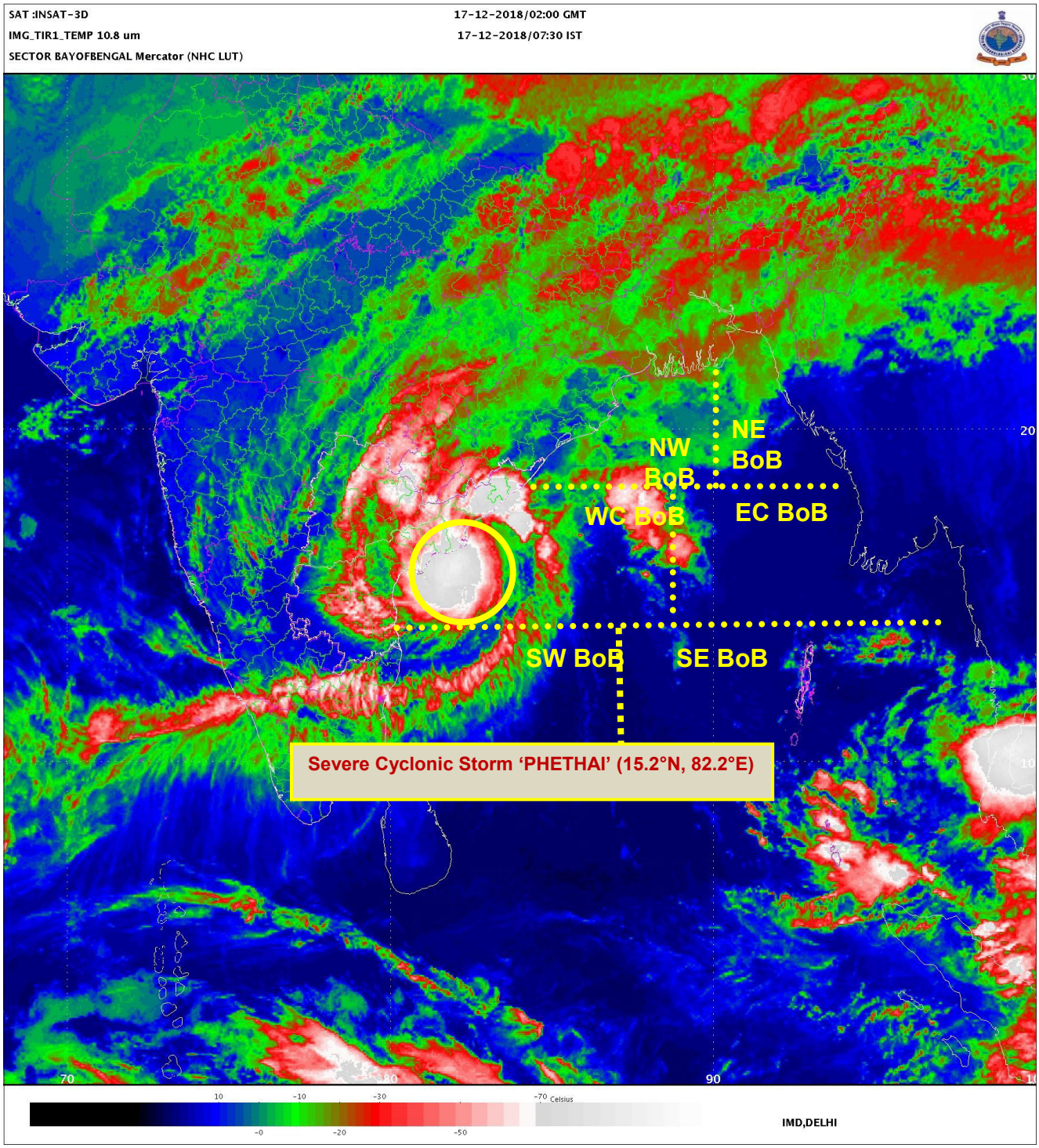

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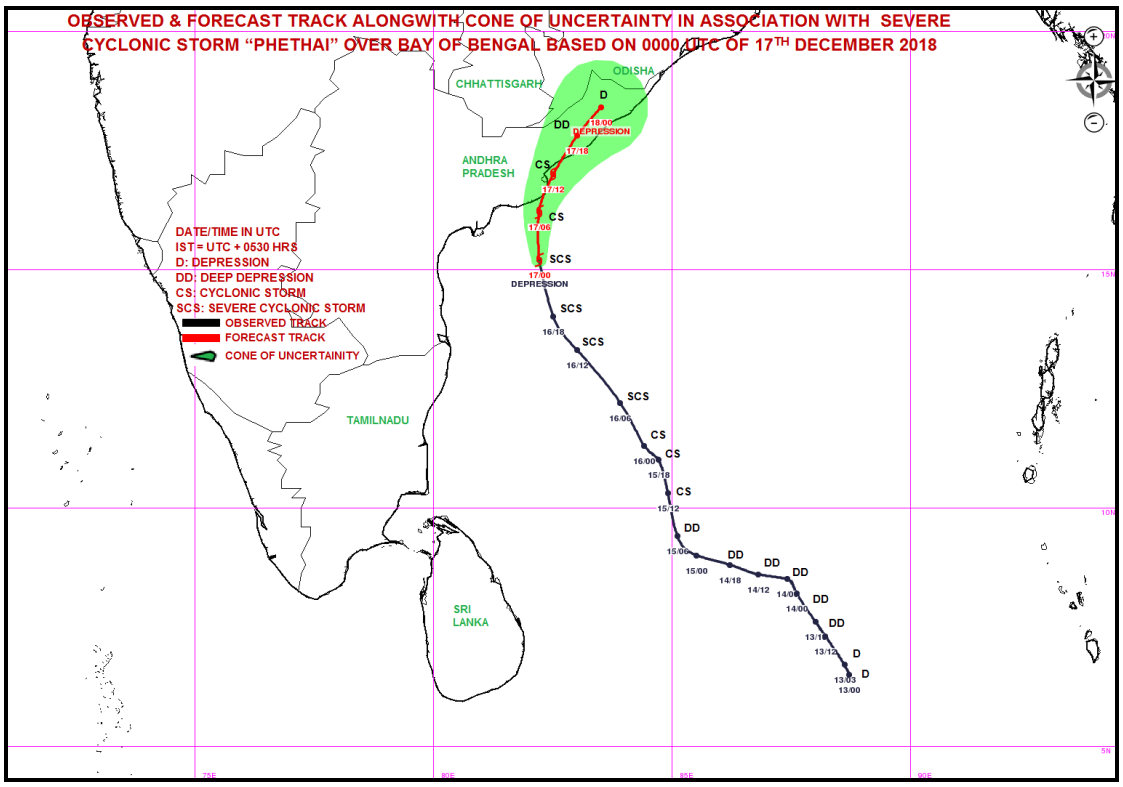

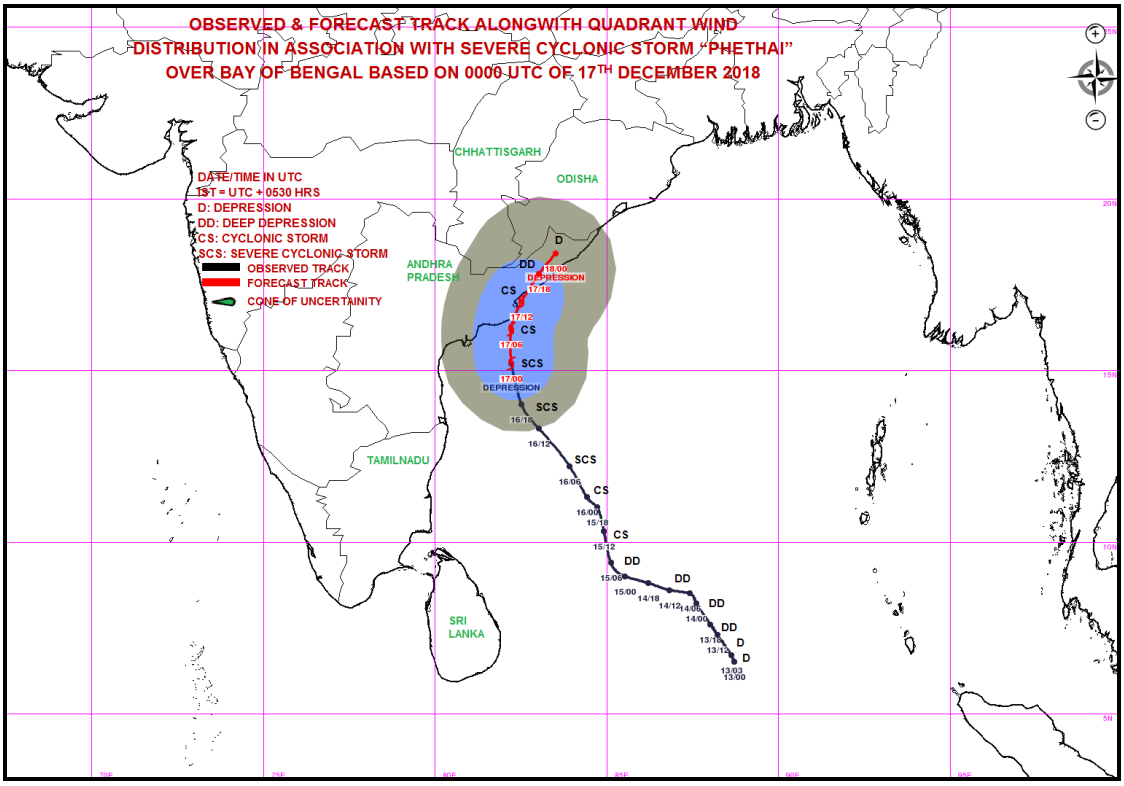

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

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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 72 HOURS ISSUED AT 0600 UTC OF 17.12.2018 BASED ON 0300 UTC OF 17.12.2018.

CYCLONIC STORM 'PHETHAI' OVER WESTCENTRAL BAY OF BENGAL:

THE SEVERE CYCLONIC STORM '**PHETHAI**' OVER WESTCENTRAL BAY OF BENGAL MOVED FURTHER NORTHWARDS WITH A SPEED OF 24 KMPH DURING PAST 06 HOURS, WEAKENED **INTO A CYCLONIC STORM** AND LAY CENTRED AT 0300 UTC OF 17TH DECEMBER, 2018 OVER WESTCENTRAL BAY OF BENGAL NEAR LATITUDE 15.8°N AND LONGITUDE 82.2°E, 370 KM NORTH-NORTHEAST OF CHENNAI (43278) (TAMIL NADU), 120 KM EAST-SOUTHEAST OF MACHILIPATNAM (43185) (ANDHRA PRADESH) AND 130 KM SOUTH OF KAKINADA (43189) (ANDHRA PRADESH). IT IS VERY LIKELY TO MOVE NEARLY NORTHWARDS AND CROSS ANDHRA PRADESH COAST AROUND KAKINADA (43189) DURING 0900-1200 UTC ON 17TH DECEMBER AFTERNOON. HOWEVER, DUE TO UNFAVOURABLE ENVIRONMENTAL CONDITIONS, IT IS LIKELY TO SLIGHTLY WEAKEN FURTHER BEFORE LANDFALL AND CROSS COAST AS A CYCLONIC STORM WITH A WIND SPEED OF 70-90 KMPH GUSTING TO 100 KMPH.

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
17.12.18/0300	15.8/82.2	80-90 GUSTING TO 100	CYCLONIC STORM
17.12.18/0600	16.2/82.2	80-90 GUSTING TO 100	CYCLONIC STORM
17.12.18/1200	17.0/82.5	70-80 GUSTING TO 90	CYCLONIC STORM
17.12.18/1800	17.8/83.0	50-60 GUSTING TO 70	DEEP DEPRESSION
18.12.18/0000	18.4/83.5	30-40 GUSTING TO 50	DEPRESSION

CYCLONE '**PHETHAI**' IS ALSO BEING TRACKED BY DWR CHENNAI (43278), MACHILIPATNAM (43185) AND VISHAKHAPATNAM (43150) APART FROM SATELLITE AND OTHER OBSERVATIONS. BUT, AS THE SYSTEM IS NOT WELL-ORGANIZED, THE SYSTEM CENTER IS POORLY DEFINED BY THE DWRS.

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

AS PER THE SATELLITE IMAGERY OF 0300 UTC ON 17TH DECEMBER THE INTENSITY OF THE SYSTEM OVER SW BAY AND NEIGHBOURHOOD IS T 3.0. ASSOCIATED BROKEN LOW TO MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION OVER AREA BETWEEN LATITUDE 14.0°N TO 17.5°N AND LONG 80.0°E TO 84.0°E. MINIMUM CLOUD TOP TEMPERATURE IS MINUS 93.0° C.

THE ESTIMATED CENTRAL PRESSURE IS ABOUT 996 HPA AND THE MAXIMUM SUSTAINED SURFACE WIND SPEED IS 45 KNOTS GUSTING TO 55 KNOTS. STATE OF SEA IS VERY HIGH AROUND THE SYSTEM CENTRE.

ALONG THE ANDHRA PRADESH COAST THE PRESSURE IS LOWEST AT NARSAPUR (43187) WITH MSLP OF 1008.3 HPA AND 24 HOUR CHANGE OF -7.6 HPA AT 0300 UTC OF 17TH DECEMBER.

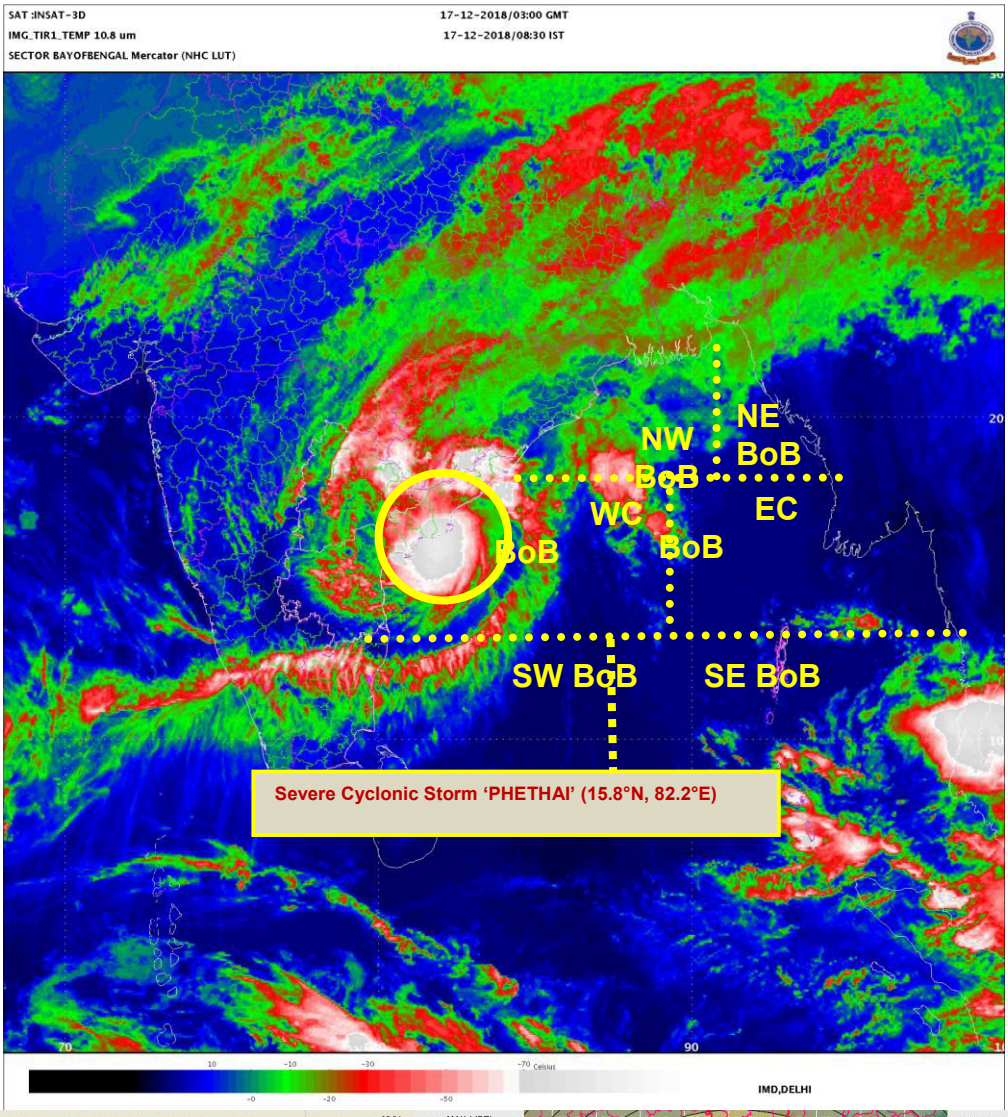
REMARKS:

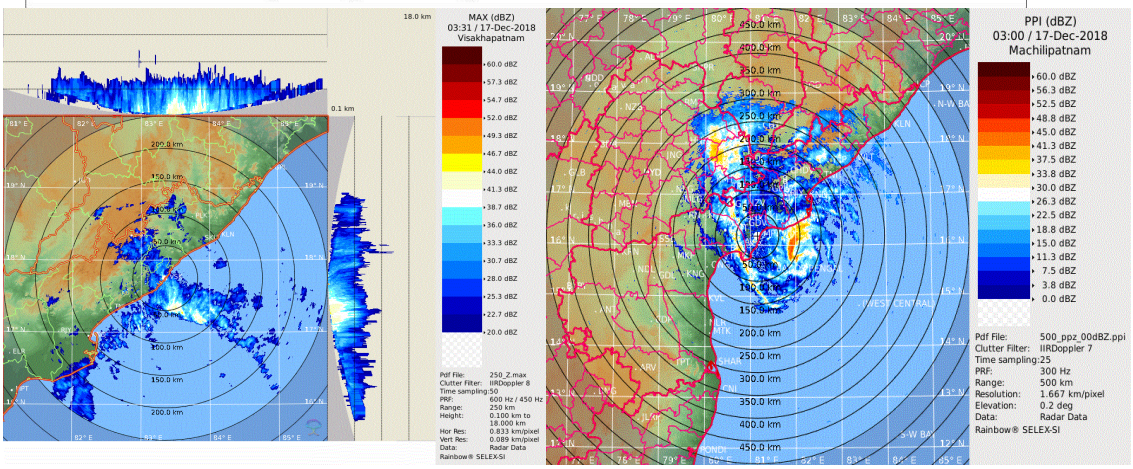
THE SEA SURFACE TEMPERATURE (SST) IS 27-28˚C AROUND THE SYSTEM AREA AND ALSO OVER WESTCENTRAL BAY OF BENGAL AND ALONG & OFF ANDHRA PRADESH COAST. THE TROPICAL CYCLONE HEAT POTENTIAL IS AROUND 35-50 KJ/CM^2 OVER THE SYSTEM AREA. HOWEVER, IT IS LESS THAN 35 KJ/CM^2 OVER WESTERN PARTS OF BOB ALONG THE EAST COAST OF INDIA. THE LOWER LEVEL CONVERGENCE DECREASES AND 20x10^{-5} SECOND^{-1} TOWARDS NORTHWEST OF THE SYSTEM CENTER. LOWER LEVEL VORTICITY ALSO DECREASED AND 200x10^{-6} SECOND ^{1} TO THE SOUTH OF THE SYSTEM CENTER. UPPER LEVEL DIVERGENCE IS (20x10^{-5} SECOND^{-1}) TO THE NORTHWEST SYSTEM CENTER. VERTICAL WIND SHEAR IS 15-20 KNOTS OVER THE SYSTEM AREA AND ALONG THE FORECAST TRACK. WIND SHEAR TENDENCY IS NEGATIVE OVER THE SYSTEM AREA AS WELL AS ALONG THE FORECAST TRACK. THE TOTAL PRECIPITABLE WATER IMAGERY INDICATES WARM AND MOIST AIR FEEDING INTO THE CORE OF THE SYSTEM FROM NORTH-NORTHEAST SECTOR AND DRY & COLD AIR INCURSION IS TAKING PLACE FROM SOUTH-SOUTHWEST SECTOR OF THE SYSTEM CAUSING SLIGHT WEAKENING OF THE SYSTEM.

THE UPPER TROPOSPHERIC RIDGE RUNS ALONG 17°N. THE SYSTEM IS BEING GUIDED BY THE ANTICYCLONE OVER SOUTHEAST ASIA, AND HENCE HAVE MORE NORTH-NORTHEASTWARD COMPONENT OF MOVEMENT AS IT APPROACHES THE COAST. AS PER THE MODEL FORECAST A DEEP TROUGH IN UPPER TROPOSPHERIC WESTERLIES IS APPROACHING THE INDIAN REGION. IT IS LIKELY CAUSE RECURVATURE OF THE SYSTEM TO NORTHEAST DURING AND AFTER LANDFALL OVER ANDHRA PRADESH COAST AROUND KAKINADA BY AFTERNOON OF 17TH DECEMBER. FURTHER, UNDER THE COMBINED EFFECT OF ANTICYCLONE AND ABOVE TROUGH, THE UPPER LEVEL WINDS ARE EXPECTED TO INCREASE OVER NORTHEAST COAST OF INDIA. IT MAY LEAD TO INCREASE IN WIND SHEAR OVER THE REGION. HENCE THERE IS POSSIBILITIES OF WEAKENING OF THE SYSTEM ON 17TH DECEMBER BEFORE AND DURING LANDFALL DUE TO DRY & COLD AIR ADVECTION FROM NORTHWEST, COLDER SST, LOWER OCEAN HEAT CONTENT AND HIGH WIND SHEAR. MOST OF THE NWP MODEL GUIDENCE AGREE WITH ABOVE ANALYSIS.

(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)

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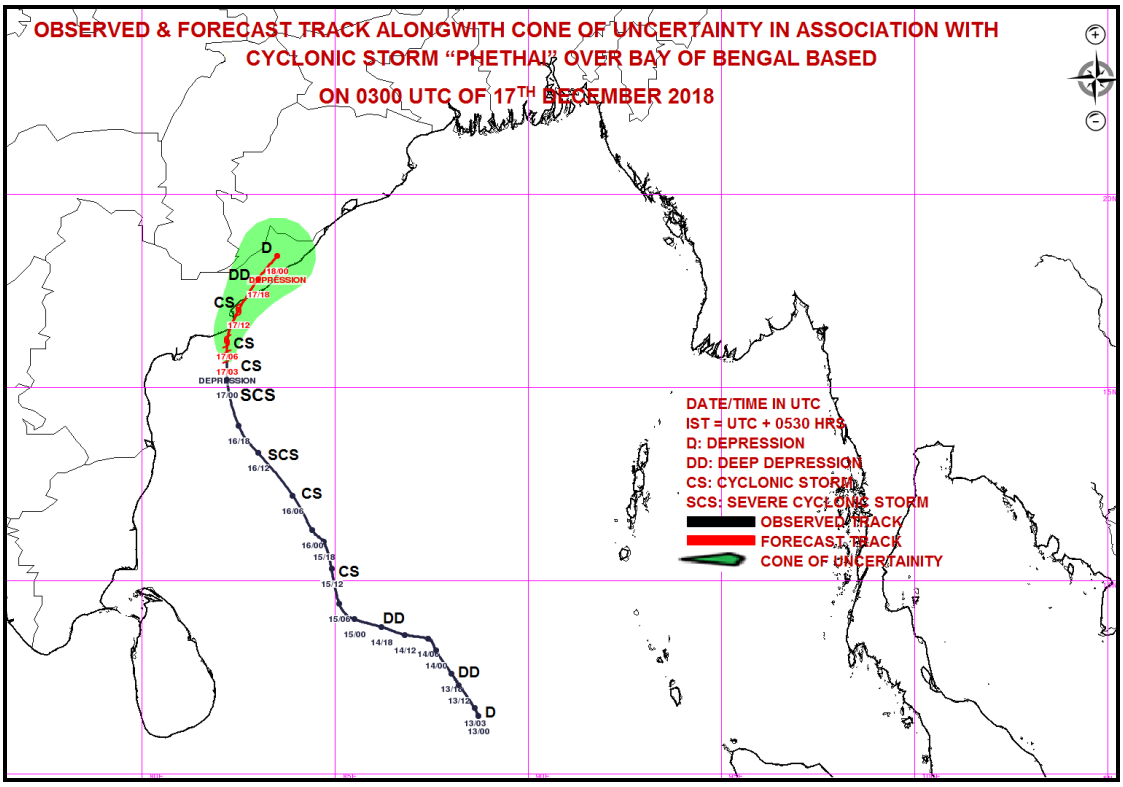
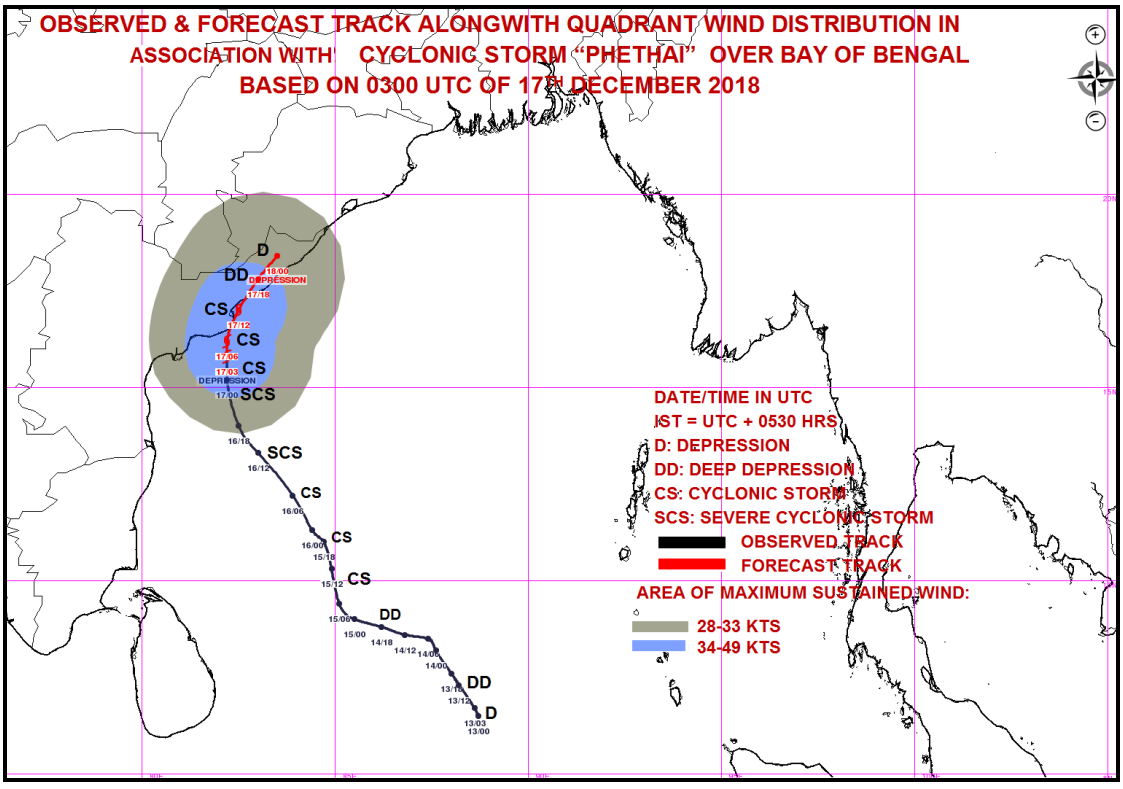




PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)
NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

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 72 HOURS ISSUED AT 0800 UTC OF 17.12.2018 BASED ON 0600 UTC OF 17.12.2018.

CYCLONIC STORM 'PHETHAI' OVER WESTCENTRAL BAY OF BENGAL:

THE CYCLONIC STORM '**PHETHAI**' OVER WESTCENTRAL BAY OF BENGAL MOVED FURTHER NORTHWARDS WITH A SPEED OF 19 KMPH DURING PAST 06 HOURS AND LAY CENTRED AT 0600 UTC OF 17TH DECEMBER, 2018 OVER WESTCENTRAL BAY OF BENGAL NEAR LATITUDE 16.2°N AND LONGITUDE 82.2°E, 85 KM SOUTH-SOUTHWEST OF KAKINADA (43189) (ANDHRA PRADESH) AND 60 KM EAST-SOUTHEAST OF NARSAPUR (43187) (ANDHRA PRADESH). IT IS VERY LIKELY TO MOVE NEARLY NORTHWARDS AND CROSS ANDHRA PRADESH COAST AROUND KAKINADA (43189) DURING 0900-1200 UTC ON 17TH DECEMBER. HOWEVER, DUE TO UNFAVOURABLE ENVIRONMENTAL CONDITIONS, IT IS LIKELY TO CROSS COAST AS A CYCLONIC STORM WITH A WIND SPEED OF 70-90 KMPH GUSTING TO 100 KMPH. THEREAFTER, IT IS VERY LIKELY TO MOVE NORTH-NORTHEASTWARDS AND WEAKEN GRADUALLY.

CYCLONE '**PHETHAI**' IS ALSO BEING TRACKED BY DWR CHENNAI, MACHILIPATNAM AND VISHAKHAPATNAM APART FROM SATELLITE AND OTHER OBSERVATIONS. 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
17.12.18/0600	16.2/82.2	80-90 GUSTING TO 100	CYCLONIC STORM
17.12.18/1200	17.0/82.5	70-80 GUSTING TO 90	CYCLONIC STORM
17.12.18/1800	17.8/83.0	50-60 GUSTING TO 70	DEEP DEPRESSION
18.12.18/0000	18.4/83.5	30-40 GUSTING TO 50	DEPRESSION

CYCLONE '**PHETHAI**' IS ALSO BEING TRACKED BY DWR CHENNAI (43278), MACHILIPATNAM (43185) AND VISHAKHAPATNAM (43150) APART FROM SATELLITE AND OTHER OBSERVATIONS. BUT, AS THE SYSTEM IS NOT WELL-ORGANIZED, THE SYSTEM CENTER IS POORLY DEFINED BY THE DWRS.

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

AS PER THE SATELLITE IMAGERY OF 0600 UTC ON 17TH DECEMBER THE INTENSITY OF THE SYSTEM OVER SW BAY AND NEIGHBOURHOOD IS T 3.0. ASSOCIATED BROKEN LOW TO MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION OVER AREA BETWEEN LATITUDE 14.0°N TO 17.5°N AND LONG 80.0°E TO 84.0°E. MINIMUM CLOUD TOP TEMPERATURE IS MINUS 93.0° C.

THE ESTIMATED CENTRAL PRESSURE IS ABOUT 996 HPA AND THE MAXIMUM SUSTAINED SURFACE WIND SPEED IS 45 KNOTS GUSTING TO 55 KNOTS. STATE OF SEA IS VERY HIGH AROUND THE SYSTEM CENTRE.

ALONG THE ANDHRA PRADESH COAST THE PRESSURE IS LOWEST AT NARSAPUR (43187) WITH MSLP OF 1006.3 HPA AND 24 HOUR CHANGE OF -8.4 HPA AT 0600 UTC OF 17TH DECEMBER.

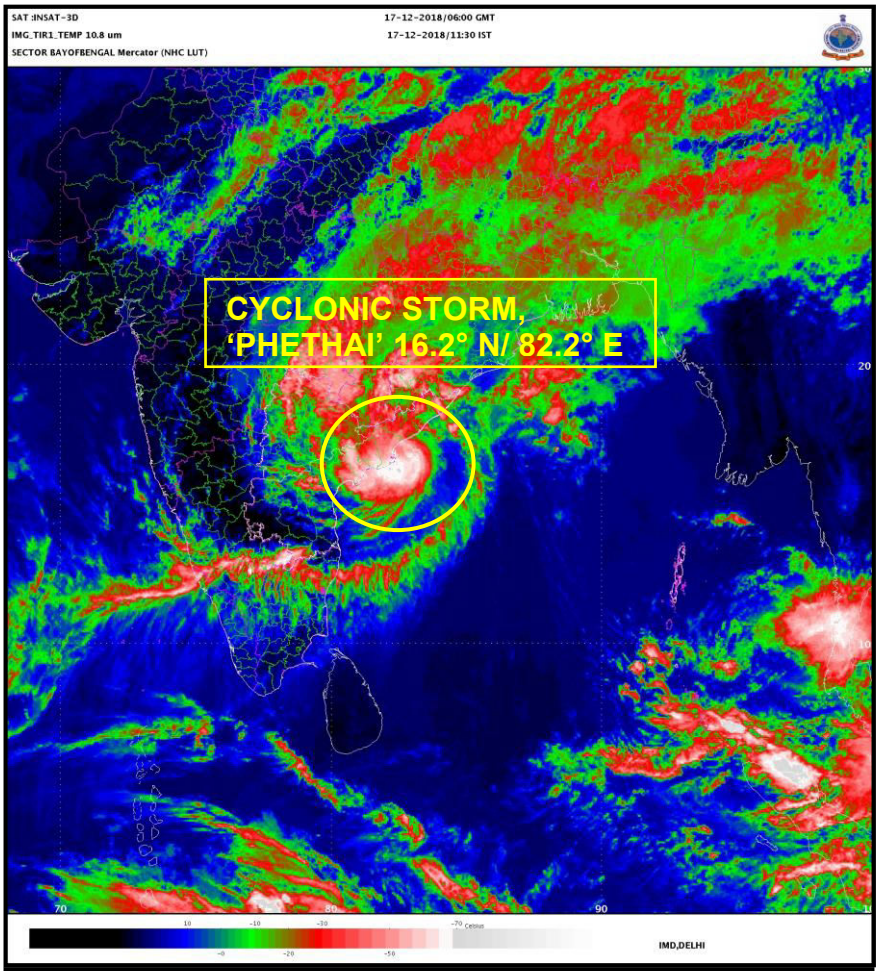
REMARKS:

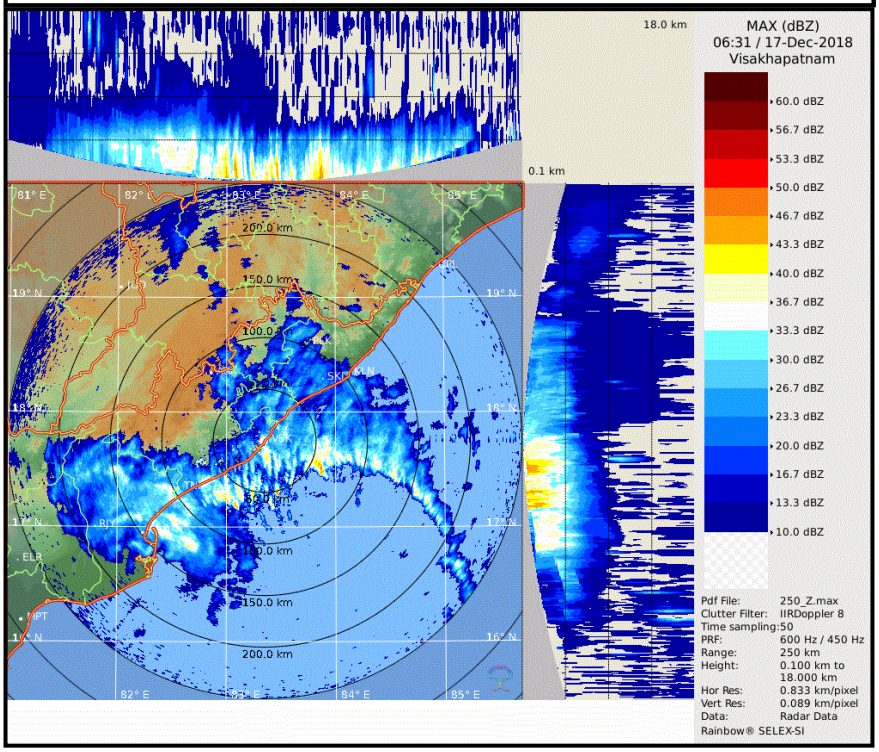
THE SEA SURFACE TEMPERATURE (SST) IS 27-28˚C AROUND THE SYSTEM AREA AND ALSO OVER WESTCENTRAL BAY OF BENGAL AND ALONG & OFF ANDHRA PRADESH COAST. THE TROPICAL CYCLONE HEAT POTENTIAL IS AROUND 35-50 KJ/CM^2 OVER THE SYSTEM AREA. HOWEVER, IT IS LESS THAN 35 KJ/CM^2 OVER WESTERN PARTS OF BOB ALONG THE EAST COAST OF INDIA. THE LOWER LEVEL CONVERGENCE IS 20x10^{-5} SECOND^{-1} TOWARDS SOUTH AND SOUTHWEST OF THE SYSTEM CENTER. LOWER LEVEL VORTICITY ALSO DECREASED AND 200x10^{-6} SECOND ^{1} TO THE SOUTH OF THE SYSTEM CENTER. UPPER LEVEL DIVERGENCE IS (20x10^{-5} SECOND^{-1}) TO THE NORTHWEST SYSTEM CENTER. VERTICAL WIND SHEAR IS 15-20 KNOTS OVER THE SYSTEM AREA AND ALONG THE FORECAST TRACK. WIND SHEAR TENDENCY IS NEGATIVE OVER THE SYSTEM AREA AS WELL AS ALONG THE FORECAST TRACK. THE TOTAL PRECIPITABLE WATER IMAGERY INDICATES WARM AND MOIST AIR FEEDING INTO THE CORE OF THE SYSTEM FROM NORTH-NORTHEAST SECTOR AND DRY & COLD AIR INCURSION IS TAKING PLACE FROM SOUTH-SOUTHWEST SECTOR OF THE SYSTEM CAUSING SLIGHT WEAKENING OF THE SYSTEM.

THE UPPER TROPOSPHERIC RIDGE RUNS ALONG 17°N. THE SYSTEM IS BEING GUIDED BY THE ANTICYCLONE OVER SOUTHEAST ASIA, AND HENCE HAVE MORE NORTH-NORTHEASTWARD COMPONENT OF MOVEMENT AS IT APPROACHES THE COAST. A DEEP TROUGH IN UPPER TROPOSPHERIC WESTERLIES IS APPROACHING THE INDIAN REGION AND IS LIKELY CAUSE RECURVATURE OF THE SYSTEM TO NORTHEAST DURING AND AFTER LANDFALL OVER ANDHRA PRADESH COAST AROUND KAKINADA BY 0900-1200 UTC OF TODAY, THE 17TH DECEMBER. FURTHER, UNDER THE COMBINED EFFECT OF ANTICYCLONE AND ABOVE TROUGH, THE UPPER LEVEL WINDS ARE EXPECTED TO INCREASE OVER NORTHEAST COAST OF INDIA. IT MAY LEAD TO INCREASE IN WIND SHEAR OVER THE REGION. HENCE THERE IS POSSIBILITIES OF SLIGHT WEAKENING OF THE SYSTEM BEFORE AND DURING LANDFALL DUE TO DRY & COLD AIR ADVECTION FROM NORTHWEST, COLDER SST, LOWER OCEAN HEAT CONTENT AND HIGH WIND SHEAR. MOST OF THE NWP MODEL GUIDENCE AGREE WITH ABOVE ANALYSIS.

(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)

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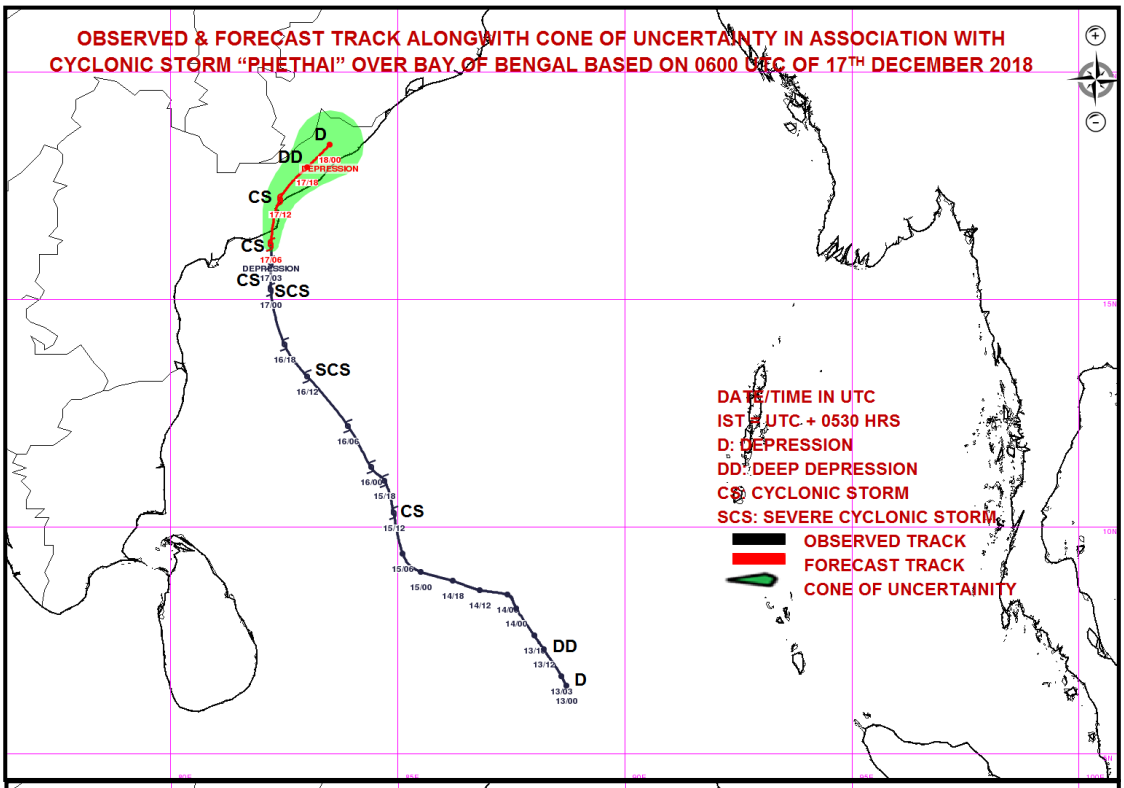

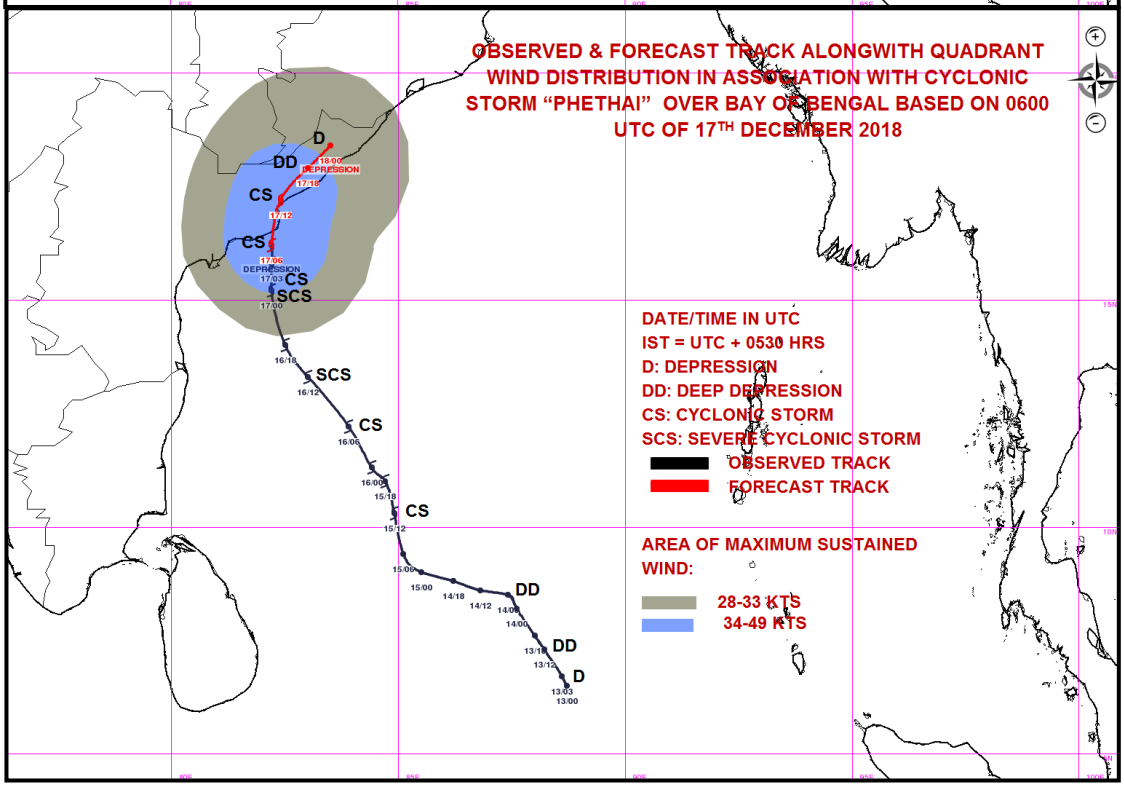

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

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

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 72 HOURS ISSUED AT 1100 UTC OF 17.12.2018 BASED ON 0900 UTC OF 17.12.2018.

CYCLONIC STORM 'PHETHAI' OVER WESTCENTRAL BAY OF BENGAL CROSSED ANDHRA PRADESH COAST CLOSE TO SOUTH OF YANAM (PUDUCHERRY):

THE CYCLONIC STORM '**PHETHAI**' OVER WESTCENTRAL BAY OF BENGAL MOVED FURTHER NEARLY NORTHWARDS WITH A SPEED OF 17 KMPH DURING PAST 06 HOURS, CROSSED ANDHRA PRADESH COAST NEAR 16.55°N /82.25°E, 25 KM SOUTH OF YANAM (LAT.16.55°N / LONG. 82.25°E) AND 40 KM SOUTH OF KAKINADA (43189) BETWEEN 0800 UTC TO 0900 UTC OF TODAY, THE 17TH DECEMBER, 2018. IT LAY CENTRED AT 0900 UTC OF 17TH DECEMBER, 2018 OVER COASTAL ANDHRA PRADESH, NEAR LATITUDE 16.7°N AND LONGITUDE 82.3°E, CLOSE TO YANAM AND 25 KM SOUTH OF KAKINADA (43189). IT IS VERY LIKELY TO MOVE NORTHEASTWARDS AND EMERGE INTO WESTCENTRAL BAY OF BENGAL OFF KAKINADA (43189) COAST DURING NEXT 3 HOURS. THEREAFTER, IT IS VERY LIKELY TO CONTINUE TO MOVE NORTHEASTWARDS, WEAKEN FURTHER AND AGAIN CROSS ANDHRA PRADESH COAST CLOSE TO TUNI (43147) DURING LATE EVENING OF TODAY, THE 17TH DECEMBER 2018 AS A DEEP DEPRESSION WITH A WIND SPEED OF 55-65 KMPH GUSTING TO 75 KMPH.

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
17.12.18/0900	16.7/82.3	70-80 GUSTING TO 90	CYCLONIC STORM
17.12.18/1200	17.0/82.5	55-65 GUSTING TO 75	DEEP DEPRESSION
17.12.18/1800	17.8/83.0	40-60 GUSTING TO 70	DEPRESSION
18.12.18/0000	18.4/83.5	20-30 GUSTING TO 40	LOW

CYCLONE '**PHETHAI**' IS ALSO BEING TRACKED BY DWR MACHILIPATNAM (43185) AND VISHAKHAPATNAM (43150) APART FROM SATELLITE AND OTHER OBSERVATIONS. BUT, AS THE SYSTEM IS NOT WELL-ORGANIZED, THE SYSTEM CENTER IS POORLY DEFINED BY THE DWRS.

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

AS PER THE SATELLITE IMAGERY OF 0900 UTC ON 17TH DECEMBER, BROKEN LOW TO MEDIUM CLOUDS WITH EMBEDDED MODERATE TO INTENSE CONVECTION LAY OVER AREA BETWEEN LATITUDE 14.0°N TO 17.5°N AND LONG 80.0°E TO 84.0°E IN ASSOCIATION WITH THE VORTEX OVER COASTAL ANDHRA PRADESH. MINIMUM CLOUD TOP TEMPERATURE IS MINUS 69.0° C.

THE ESTIMATED CENTRAL PRESSURE IS ABOUT 998 HPA AND THE MAXIMUM SUSTAINED SURFACE WIND SPEED IS 40 KNOTS GUSTING TO 50 KNOTS. ALONG THE ANDHRA PRADESH COAST THE PRESSURE IS LOWEST AT NARSAPUR (43187) WITH MSLP OF 1004.2 HPA AND 24 HOUR CHANGE OF -7.0 HPA AT 0900 UTC OF 17TH DECEMBER.

REMARKS:

THE LOWER LEVEL CONVERGENCE IS $20x10^{-5}$ SECOND^{-1} TOWARDS SOUTH AND SOUTHWEST OF THE SYSTEM CENTER. LOWER LEVEL VORTICITY ALSO DECREASED AND $200x10^{-6}$ SECOND ^{1} TO THE SOUTH OF THE SYSTEM CENTER. UPPER LEVEL DIVERGENCE IS ($20x10^{-5}$ SECOND^{-1}) TO THE NORTHWEST SYSTEM CENTER. THE TOTAL PRECIPITABLE WATER IMAGERY INDICATES WARM AND MOIST AIR FEEDING INTO THE CORE OF THE SYSTEM IS BEING CUT-OFF AND DRY & COLD AIR INCURSION IS TAKING PLACE FROM SOUTH-SOUTHWEST SECTOR OF THE SYSTEM CAUSING SLIGHT WEAKENING OF THE SYSTEM.

THE UPPER TROPOSPHERIC RIDGE RUNS ALONG 17°N. THE SYSTEM IS BEING GUIDED BY THE ANTICYCLONE OVER SOUTHEAST ASIA, AND HENCE HAD MORE NORTH-NORTHEASTWARD COMPONENT OF MOVEMENT AS IT APPROACHED THE COAST. A DEEP TROUGH IN UPPER TROPOSPHERIC WESTERLIES IS APPROACHING THE INDIAN REGION AND IS CAUSING RECURVATURE OF THE SYSTEM TO NORTHEAST AFTER LANDFALL OVER ANDHRA PRADESH COAST. FURTHER, UNDER THE COMBINED EFFECT OF ANTICYCLONE AND ABOVE TROUGH, THE UPPER LEVEL WINDS ARE EXPECTED TO INCREASE OVER NORTHEAST COAST OF INDIA. IT MAY LEAD TO INCREASE IN WIND SHEAR OVER THE REGION. HENCE THERE IS POSSIBILITY OF FURTHER WEAKENING OF THE SYSTEM DUE TO DRY & COLD AIR ADVECTION FROM NORTHWEST, COLDER SST, LOWER OCEAN HEAT CONTENT, LAND INTERACTION AND HIGH WIND SHEAR.

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

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)
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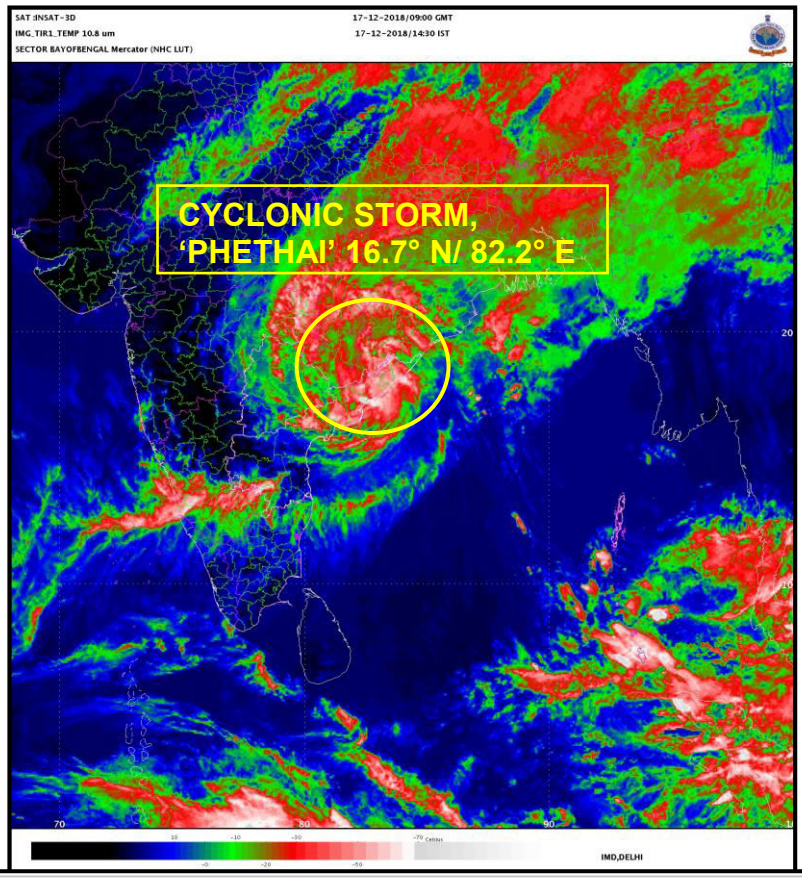

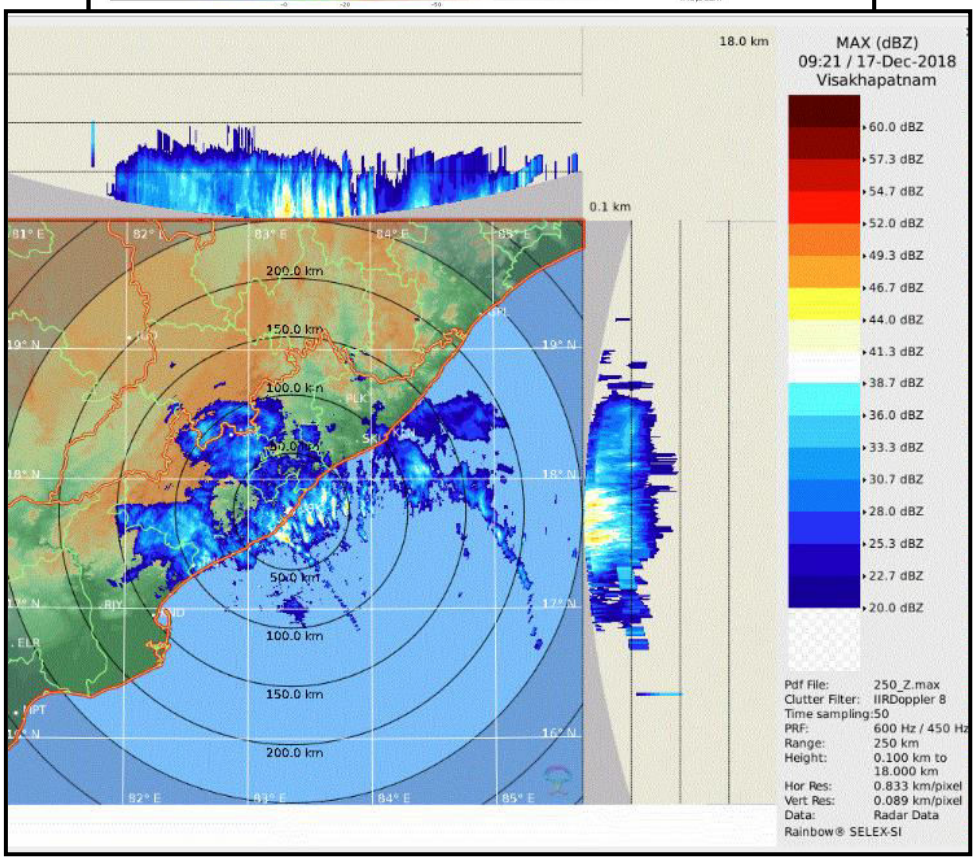

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

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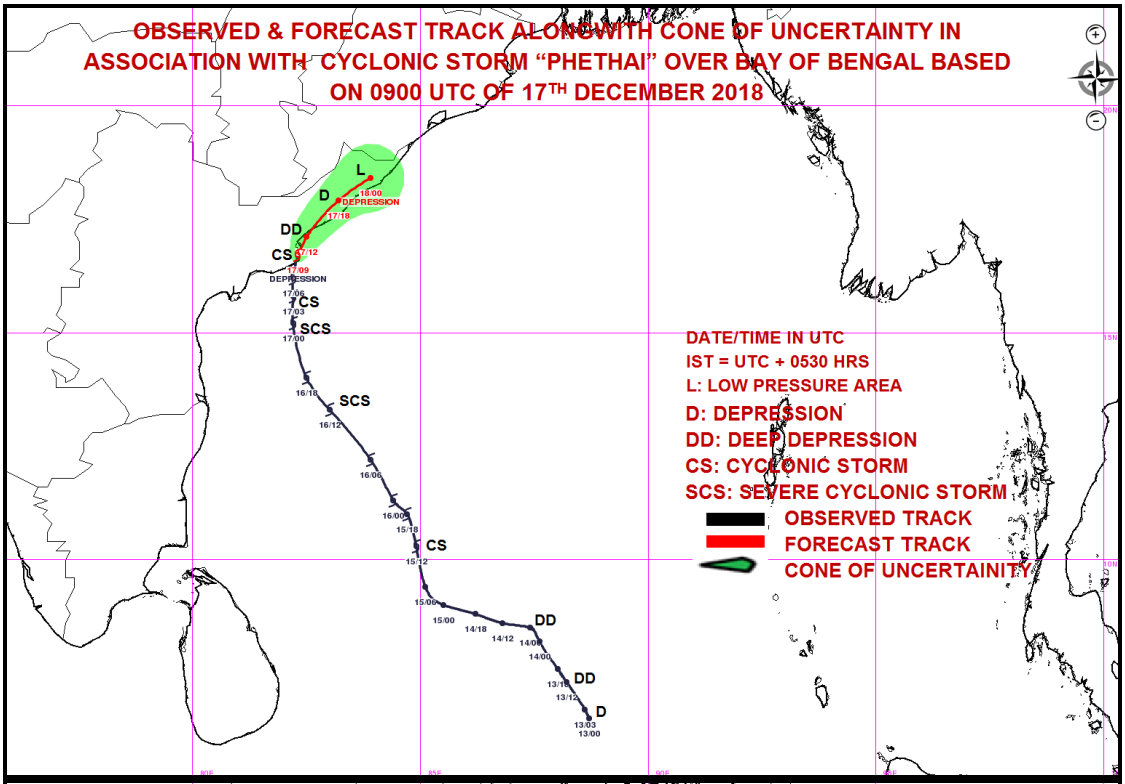
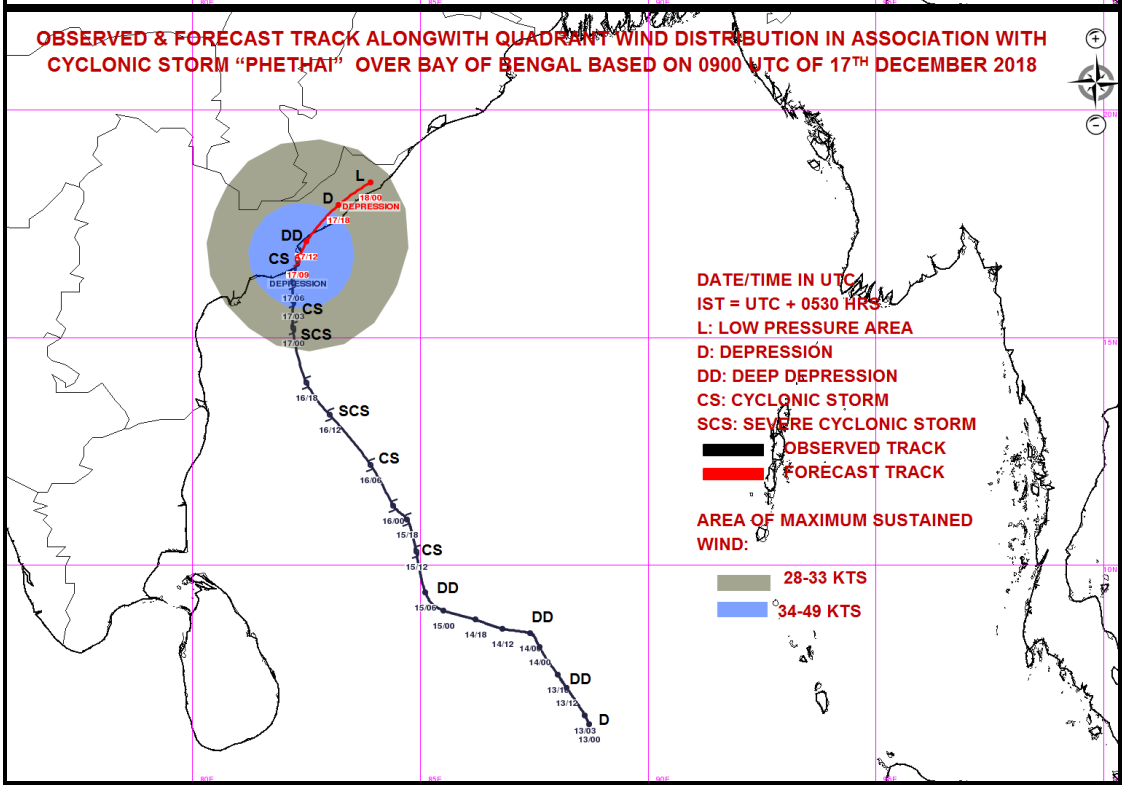




PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

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

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 72 HOURS ISSUED AT 1500 UTC OF 17.12.2018 BASED ON 1200 UTC OF 17.12.2018.

CYCLONIC STORM 'PHETHAI' OVER COASTAL ANDHRA PRADESH WEAKENED INTO DEEP DEPRESSION:

THE CYCLONIC STORM 'PHETHAI' OVER COASTAL ANDHRA PRADESH MOVED NORTH-NORTHEASTWARDS WITH A SPEED OF 13 KMPH DURING PAST 06 HOURS, WEAKENED INTO A DEEP DEPRESSION AND LAY CENTRED AT 1200 UTC OF 17TH DECEMBER, 2018, OVER WESTCENTRAL BAY OF BENGAL NEAR LATITUDE 16.9°N AND LONGITUDE 82.4°E, CLOSE TO KAKINADA COAST. IT IS VERY LIKELY TO MOVE NORTH-NORTHEASTWARDS AND CROSS ANDHRA PRADESH COAST CLOSE TO TUNI DURING NIGHT OF TODAY, THE 17TH DECEMBER 2018. IT WILL GRADUALLY WEAKEN FURTHER INTO A DEPRESSION DURING NEXT SIX HOURS AND INTO A WELL MARKED LOW PRESSURE AREA DURING SUBSEQUENT SIX 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
17.12.18/1200	16.9/82.4	55-65 gusting to75	DEEP DEPRESSION
17.12.18/1800	17.7/82.9	40-50 gusting to 60	DEPRESSION
18.12.18/0000	18.5/83.6	25-35 gusting to 45	WELL MARKED LOW PRESSURE AREA

CYCLONE '**PHETHAI**' IS ALSO BEING TRACKED BY DWR MACHILIPATNAM (43185) AND VISHAKHAPATNAM (43150) APART FROM SATELLITE AND OTHER OBSERVATIONS. BUT, AS THE SYSTEM IS NOT WELL-ORGANIZED, THE SYSTEM CENTER IS POORLY DEFINED BY THE DWRS.

BROKEN LOW TO MEDIUM CLOUDS WITH EMBEDDED MODERATE TO INTENSE CONVECTION LAY OVER AREA BETWEEN LATITUDE 14.0°N TO 17.5°N AND LONG 80.0°E TO 84.0°E. MINIMUM CLOUD TOP TEMPERATURE IS MINUS 69.0° C.

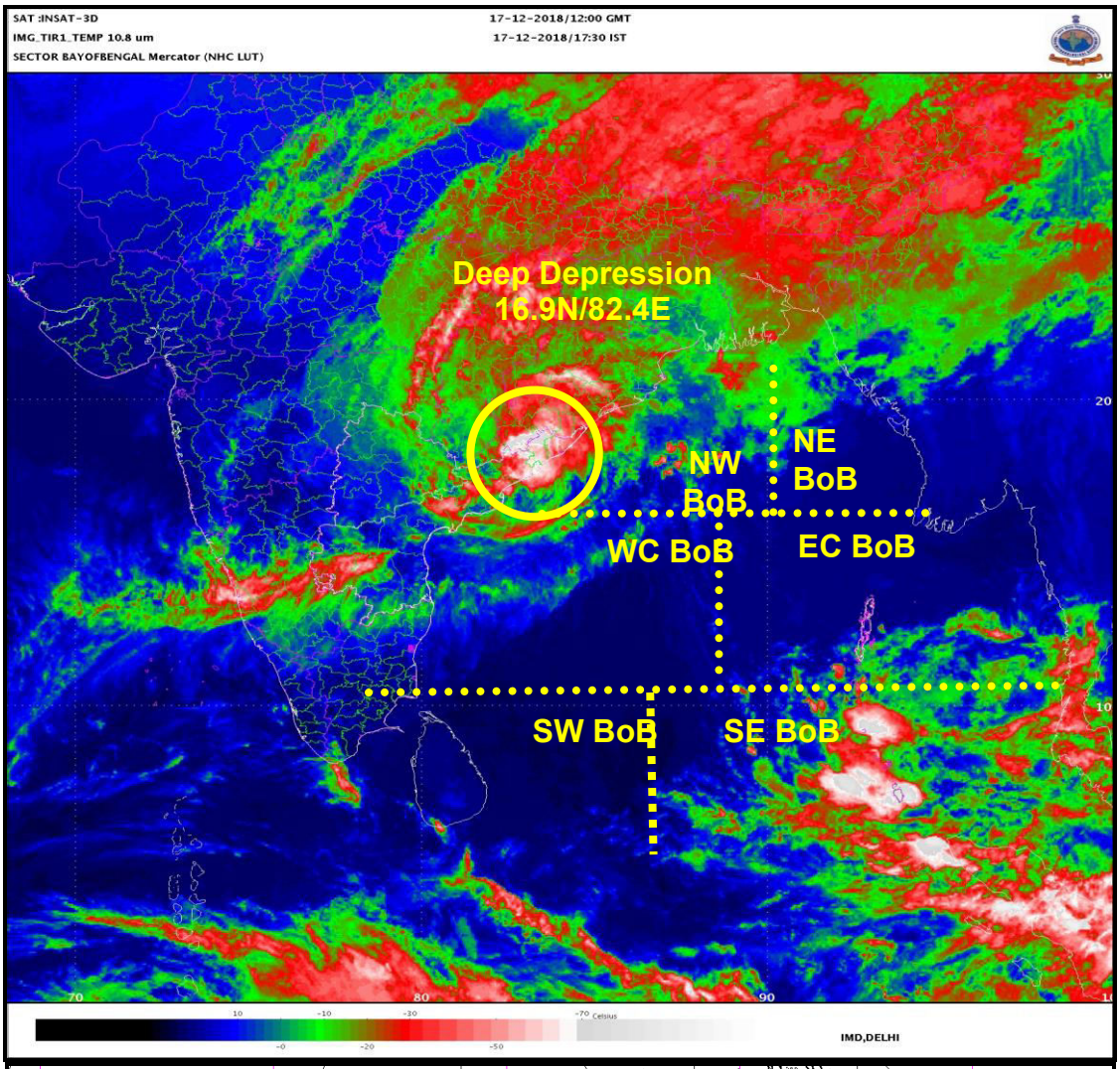
THE ESTIMATED CENTRAL PRESSURE IS ABOUT 1000 HPA AND THE MAXIMUM SUSTAINED SURFACE WIND SPEED IS 30 KNOTS GUSTING TO 40 KNOTS.

REMARKS:

THE LOWER LEVEL CONVERGENCE IS $30x10^{-5}$ $SECOND^{-1}$ TOWARDS EAST OF THE SYSTEM CENTER. UPPER LEVEL DIVERGENCE IS $20x10^{-5}$ $SECOND^{-1}$ TOWARDS NORTHEAST OF THE SYSTEM CENTER. LOWER LEVEL VORTICITY IS $150x10^{-6}$ $SECOND^{1}$ TO THE SOUTH OF THE SYSTEM CENTER.

THE UPPER TROPOSPHERIC RIDGE RUNS ALONG 16°N. THE SYSTEM IS BEING GUIDED BY THE ANTICYCLONE OVER SOUTHEAST ASIA AND A DEEP TROUGH IN UPPER TROPOSPHERIC WESTERLIES TO THE WEST. FURTHER, UNDER THE COMBINED EFFECT OF ANTICYCLONE AND ABOVE TROUGH, THE UPPER LEVEL WINDS ARE EXPECTED TO INCREASE OVER NORTHEAST COAST OF INDIA. IT MAY LEAD TO INCREASE IN WIND SHEAR OVER THE REGION. THUS THERE WILL BE FURTHER WEAKENING OF THE SYSTEM DUE TO DRY & COLD AIR ADVECTION FROM NORTHWEST, COLDER SST, LOWER OCEAN HEAT CONTENT, LAND INTERACTION AND HIGH WIND SHEAR.

(D.R. PATTANAIK)
SCIENTIST-E, RSMC, NEW DELHI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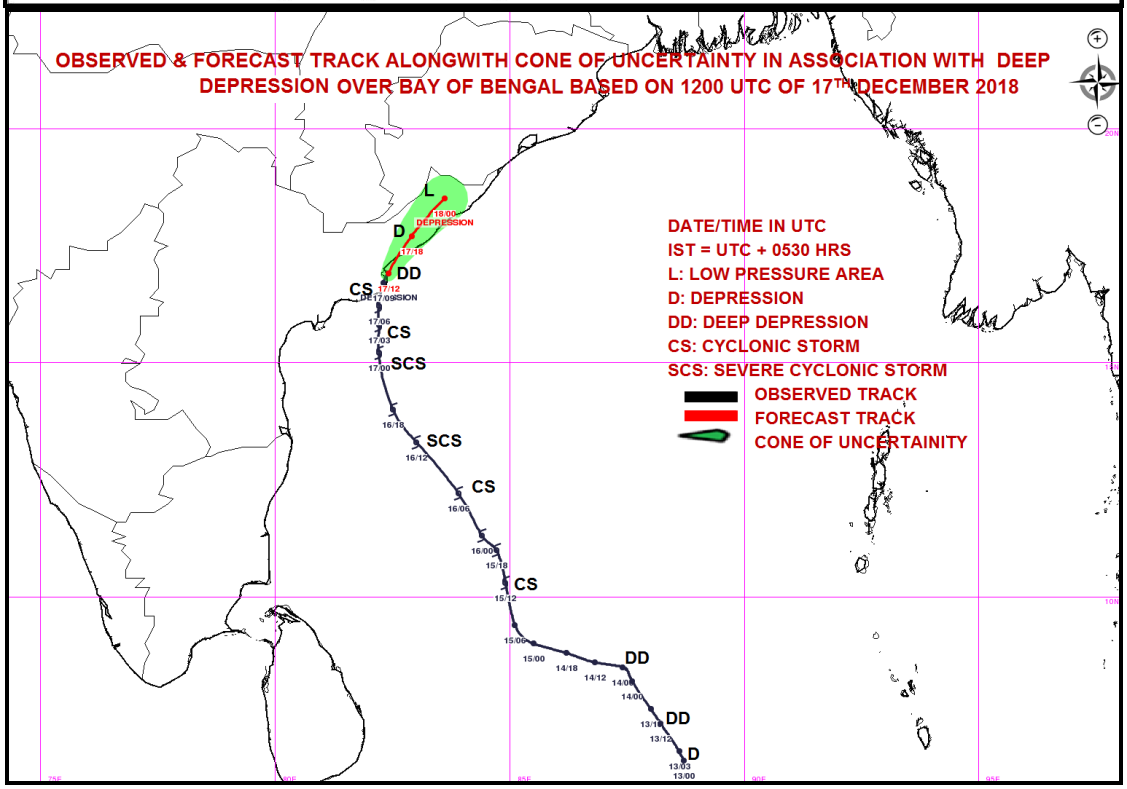
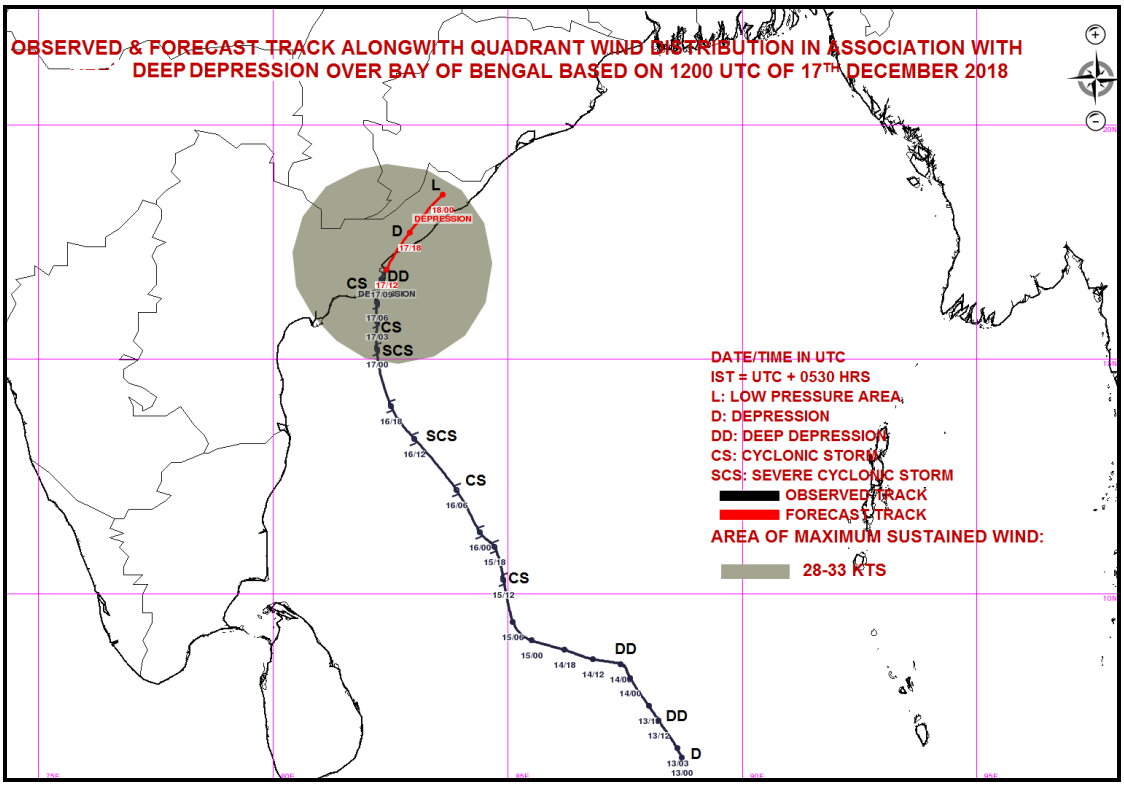
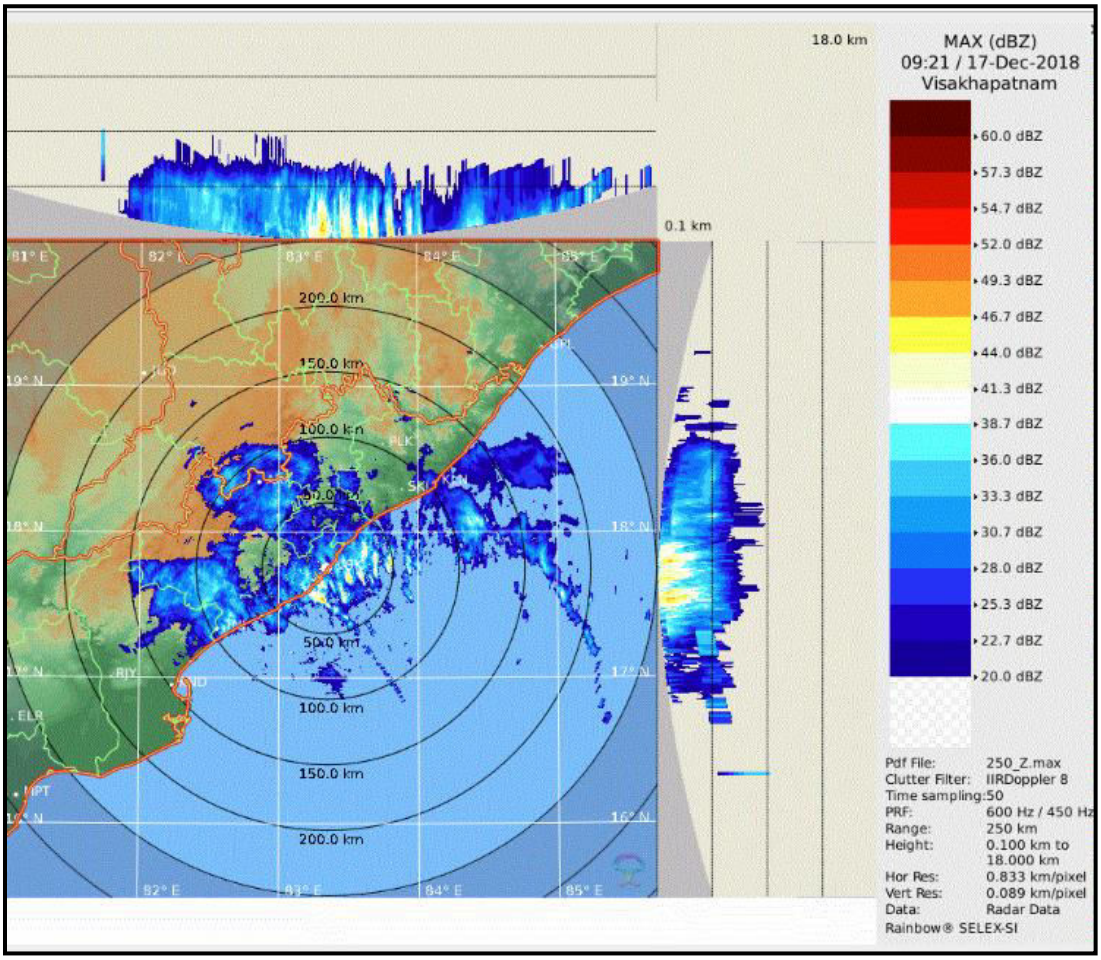
SECTOR BAYOFBENGAL Mercator (NHC LUT)
17-12-2018/12:00 GMT
17-12-2018/17:30 IST
Deep Depression
16.9N/82.4E
NW BoB
NE BoB
WC BoB
EC BoB
SW BoB
SE BoB
IMD,DELHI


OBSERVED & FORECAST TRACK ALONGWITH CONE OF UNCERTAINTY IN ASSOCIATION WITH DEEP DEPRESSION OVER BAY OF BENGAL BASED ON 1200 UTC OF 17TH DECEMBER 2018
DATE/TIME IN UTC
IST = UTC + 0530 HRS
L: LOW PRESSURE AREA
D: DEPRESSION
DD: DEEP DEPRESSION
CS: CYCLONIC STORM
SCS: SEVERE CYCLONIC STORM
OBSERVED TRACK
FORECAST TRACK
CONE OF UNCERTAINITY


OBSERVED & FORECAST TRACK ALONGWITH QUADRANT WIND DISTRIBUTION IN ASSOCIATION WITH
DEEP DEPRESSION OVER BAY OF BENGAL BASED ON 1200 UTC OF 17TH DECEMBER 2018
L
18/06
DEPRESSION
D
17/18
DD
17/12
CS
17/06
CS
17/03
SCS
17/00
SCS
16/18
SCS
16/12
CS
16/06
16/00
15/18
CS
15/12
15/06
15/00
14/18
14/12
14/06
14/00
DD
13/18
13/12
DD
13/06
13/00
D
DATE/TIME IN UTC
IST = UTC + 0530 HRS
L: LOW PRESSURE AREA
D: DEPRESSION
DD: DEEP DEPRESSION
CS: CYCLONIC STORM
SCS: SEVERE CYCLONIC STORM
OBSERVED TRACK
FORECAST TRACK
AREA OF MAXIMUM SUSTAINED WIND:
28-33 KTS


18.0 km
0.1 km
MAX (dBZ)
09:21 / 17-Dec-2018
Visakhapatnam
60.0 dBZ
57.3 dBZ
54.7 dBZ
52.0 dBZ
49.3 dBZ
46.7 dBZ
44.0 dBZ
41.3 dBZ
38.7 dBZ
36.0 dBZ
33.3 dBZ
30.7 dBZ
28.0 dBZ
25.3 dBZ
22.7 dBZ
20.0 dBZ
200.0 km
150.0 km
100.0 km
50.0 km
Pdf File: 250_Z.max
Clutter Filter: IIRDoppler 8
Time sampling: 50
PRF: 600 Hz / 450 Hz
Range: 250 km
Height: 0.100 km to 18.000 km
Hor Res: 0.833 km/pixel
Vert Res: 0.089 km/pixel
Data: Radar Data
Rainbow® SELEX-SI

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

DEMS-RSMC TROPICAL CYCLONES NEW DELHI DATED 17.12.2018

SPECIAL TROPICAL WEATHER OUTLOOK FOR NORTH INDIAN OCEAN (THE BAY OF BENGAL AND ARABIAN SEA) VALID FOR NEXT 120 HOURS ISSUED AT 1630 UTC OF 17.12.2018 BASED ON 1500 UTC OF 17.12.2018.

DEEP DEPRESSION OVER COASTAL ANDHRA PRADESH :

THE DEEP DEPRESSION OVER WESTCENTRAL BAY OF BENGAL MOVED NORTH-NORTHEASTWARDS WITH A SPEED OF 11 KMPH DURING PAST 06 HOURS CROSSED ANDHRA PRADESH COAST CLOSE TO TUNI (43147) DURING 1400 TO 1500 UTC AND LAY CENTRED AT 1500 UTC OF 17TH DECEMBER, 2018, OVER COASTAL ANDHRA PRADESH NEAR LATITUDE 17.3°N AND LONGITUDE 82.5°E, CLOSE TO TUNI (43147). IT IS VERY LIKELY TO MOVE NORTH-NORTHEASTWARDS AND WEAKEN FURTHER INTO A DEPRESSION DURING NEXT SIX HOURS AND INTO A WELL MARKED LOW PRESSURE AREA DURING SUBSEQUENT SIX HOURS.

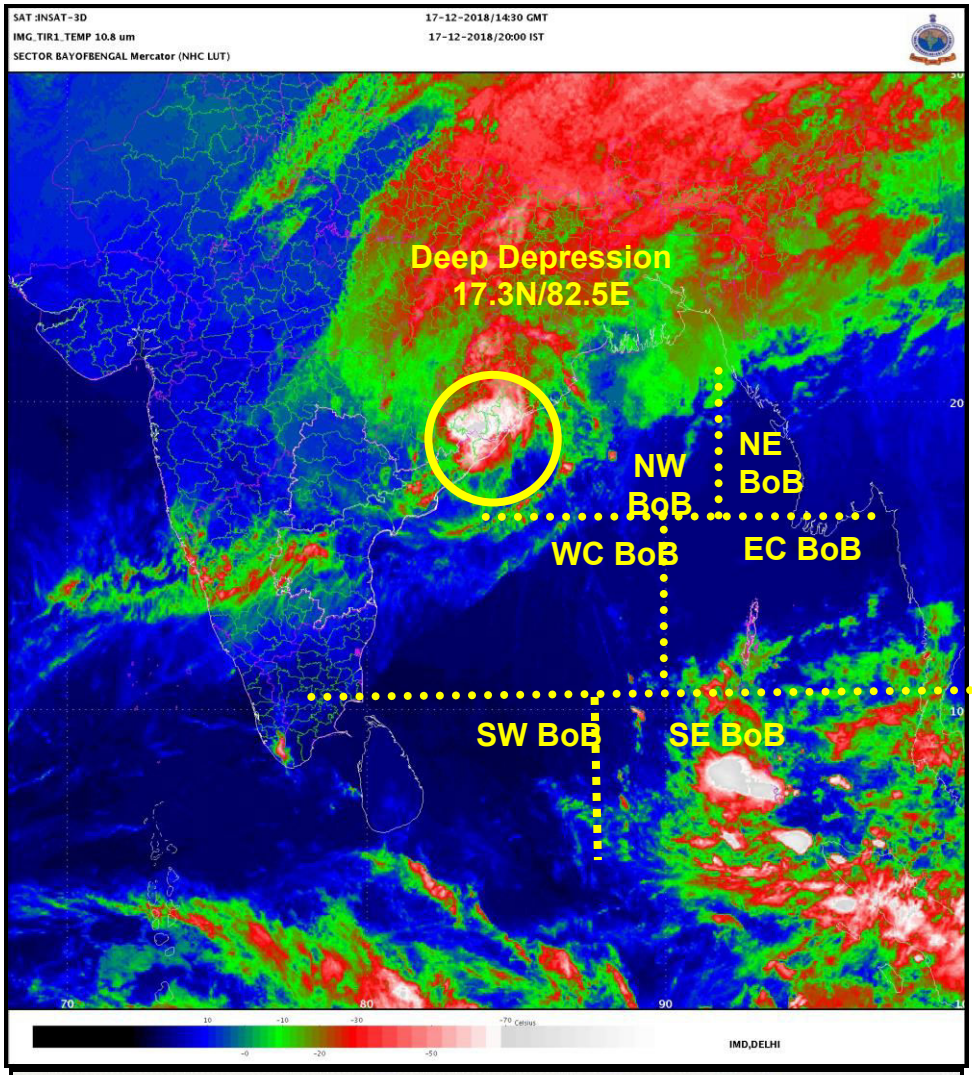
FORECAST TRACK AND INTENSITY ARE GIVEN IN THE FOLLOWING TABLE:

DATE/TIME(UTC)	POSITION (LAT.°N/ LONG.°E)	MAXIMUM SUSTAINED SURFACE WIND SPEED (KMPH)	CATEGORY OF CYCLONIC DISTURBANCE
17.12.18/1500	17.3/82.5	50-60 GUSTING TO 70	DEEP DEPRESSION
17.12.18/1800	17.7/82.9	40-50 GUSTING TO 60	DEPRESSION
18.12.18/0000	18.5/83.6	25-35 GUSTING TO 45	WELL MARKED LOW PRESSURE AREA

THE ESTIMATED CENTRAL PRESSURE IS ABOUT 1000 HPA AND THE MAXIMUM SUSTAINED SURFACE WIND SPEED IS 30 KNOTS GUSTING TO 40 KNOTS. BROKEN LOW TO MEDIUM CLOUDS WITH EMBEDDED MODERATE TO INTENSE CONVECTION LAY OVER AREA BETWEEN LATITUDE 14.0°N TO 17.5°N AND LONG 80.0°E TO 84.0°E. MINIMUM CLOUD TOP TEMPERATURE IS MINUS 69.0° C.

REMARKS:
THE LOWER LEVEL CONVERGENCE IS $30x10^{-5}$ $SECOND^{-1}$ TOWARDS EAST OF THE SYSTEM CENTER. UPPER LEVEL DIVERGENCE IS $20x10^{-5}$ $SECOND^{-1}$ TOWARDS NORTHEAST OF THE SYSTEM CENTER. LOWER LEVEL VORTICITY IS $150x10^{-6}$ $SECOND^{1}$ TO THE SOUTH OF THE SYSTEM CENTER. THE UPPER TROPOSPHERIC RIDGE RUNS ALONG 16°N. THE SYSTEM IS BEING GUIDED BY THE ANTICYCLONE OVER SOUTHEAST ASIA AND A DEEP TROUGH IN UPPER TROPOSPHERIC WESTERLIES TO THE WEST. FURTHER, UNDER THE COMBINED EFFECT OF ANTICYCLONE AND ABOVE TROUGH, THE UPPER LEVEL WINDS ARE EXPECTED TO INCREASE OVER NORTHEAST COAST OF INDIA. IT MAY LEAD TO INCREASE IN WIND SHEAR OVER THE REGION. THUS THERE WILL BE FURTHER WEAKENING OF THE SYSTEM DUE TO DRY & COLD AIR ADVECTION FROM NORTHWEST, COLDER SST, LOWER OCEAN HEAT CONTENT, LAND INTERACTION AND HIGH WIND SHEAR.

(D.R. PATTANAIK)
SCIENTIST-E, RSMC, NEW DELHI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17-12-2018/14:30 GMT
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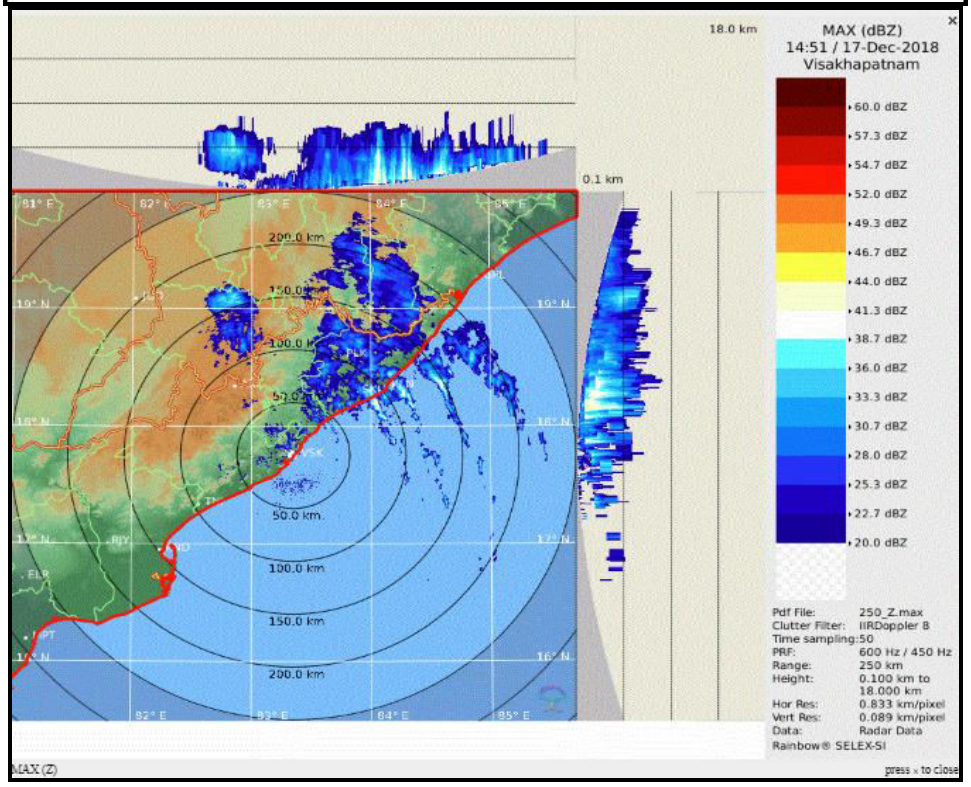
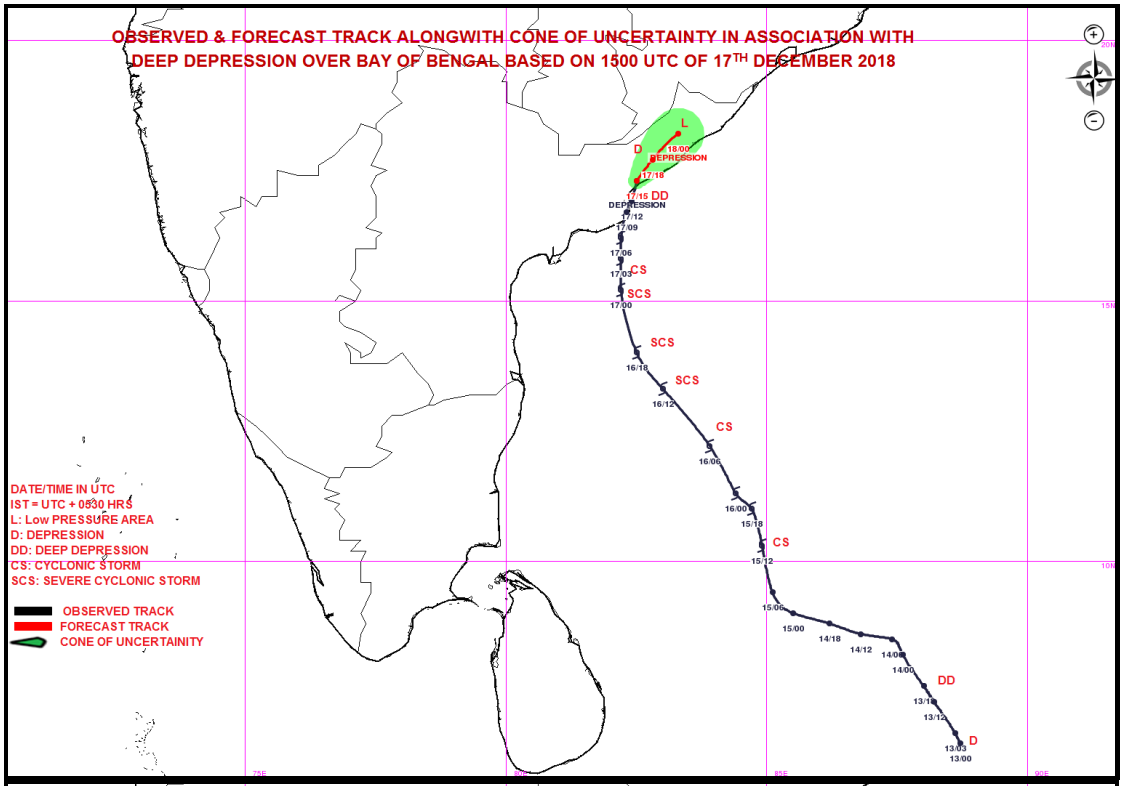
17-12-2018/20:00 IST
SECTOR BAYOFBENGAL Mercator (NHC LUT)
Deep Depression
17.3N/82.5E
NW BoB
NE BoB
WC BoB
EC BoB
SW BoB
SE BoB
IMD,DELHI


MAX (dBZ)
14:51 / 17-Dec-2018
Visakhapatnam
18.0 km
0.1 km
60.0 dBZ
57.3 dBZ
54.7 dBZ
52.0 dBZ
49.3 dBZ
46.7 dBZ
44.0 dBZ
41.3 dBZ
38.7 dBZ
36.0 dBZ
33.3 dBZ
30.7 dBZ
28.0 dBZ
25.3 dBZ
22.7 dBZ
20.0 dBZ
50.0 km
100.0 km
150.0 km
200.0 km
Pdf File: 250_Z.max
Clutter Filter: IIRDoppler 8
Time sampling:50
PRF: 600 Hz / 450 Hz
Range: 250 km
Height: 0.100 km to 18.000 km
Hor Res: 0.833 km/pixel
Vert Res: 0.089 km/pixel
Data: Radar Data
Rainbow® SELEX-SI
press x to close


OBSERVED & FORECAST TRACK ALONGWITH CONE OF UNCERTAINTY IN ASSOCIATION WITH DEEP DEPRESSION OVER BAY OF BENGAL BASED ON 1500 UTC OF 17TH DECEMBER 2018
DATE/TIME IN UTC
IST = UTC + 0530 HRS
L: Low PRESSURE AREA
D: DEPRESSION
DD: DEEP DEPRESSION
CS: CYCLONIC STORM
SCS: SEVERE CYCLONIC STORM
OBSERVED TRACK
FORECAST TRACK
CONE OF UNCERTAINITY
L
D
18/00
DEPRESSION
17/18
17/15 DD
DEPRESSION
17/12
17/09
17/06
CS
17/03
SCS
17/00
SCS
16/18
SCS
16/12
CS
16/06
16/00
15/18
CS
15/12
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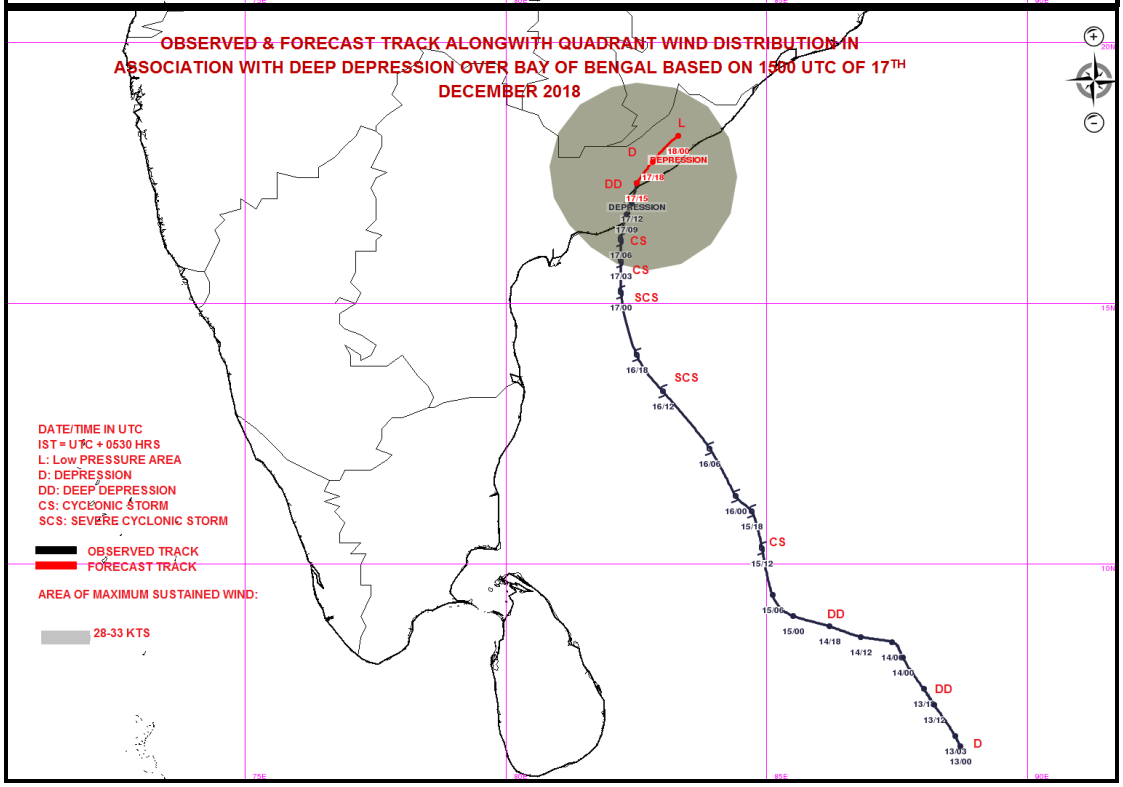
14/00
DD
13/18
13/12
D
13/03
13/00


OBSERVED & FORECAST TRACK ALONGWITH QUADRANT WIND DISTRIBUTION IN ASSOCIATION WITH DEEP DEPRESSION OVER BAY OF BENGAL BASED ON 1500 UTC OF 17TH DECEMBER 2018
DATE/TIME IN UTC
IST = UTC + 0530 HRS
L: Low PRESSURE AREA
D: DEPRESSION
DD: DEEP DEPRESSION
CS: CYCLONIC STORM
SCS: SEVERE CYCLONIC STORM
OBSERVED TRACK
FORECAST TRACK
AREA OF MAXIMUM SUSTAINED WIND:
28-33 KTS
L
D
18/00
DEPRESSION
17/18
DD
17/15
DEPRESSION
17/12
17/09
CS
17/06
CS
17/03
SCS
17/00
16/18
SCS
16/12
16/06
16/00
15/18
CS
15/12
15/06
DD
15/00
14/18
14/12
14/06
14/00
DD
13/18
13/12
D
13/03
13/00

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

DEMS-RSMC TROPICAL CYCLONES NEW DELHI DATED 17.12.2018

SPECIAL TROPICAL WEATHER OUTLOOK FOR NORTH INDIAN OCEAN (THE BAY OF BENGAL AND ARABIAN SEA) VALID FOR NEXT 120 HOURS ISSUED AT 1930 UTC OF 17.12.2018 BASED ON 1800 UTC OF 17.12.2018.

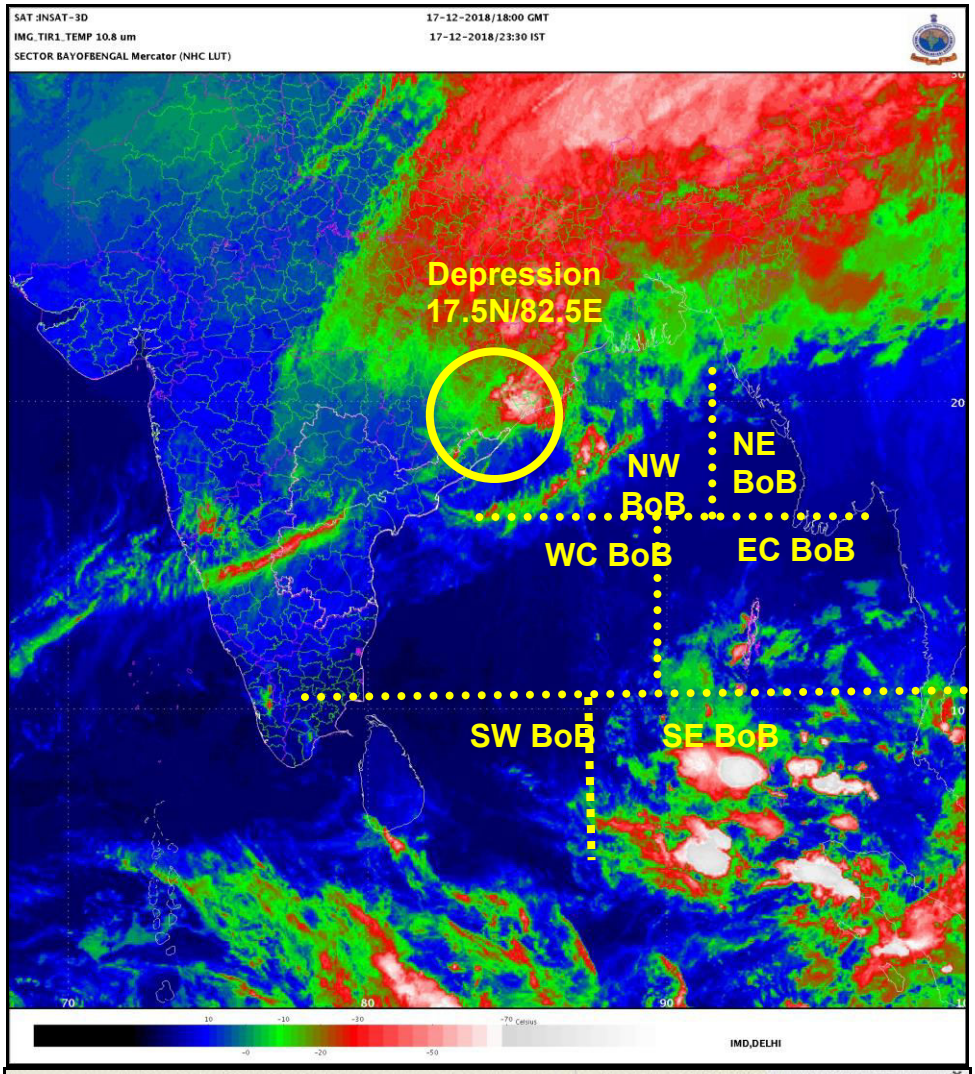
DEEP DEPRESSION WEAKENED INTO DEPRESSION OVER COASTAL ANDHRA PRADESH :

THE DEEP DEPRESSION OVER COASTAL ANDHRA PRADESH MOVED NEARLY NORTHWARDS WITH A SPEED OF 11 KMPH DURING PAST 06 HOURS, WEAKENED INTO A DEPRESSION AND LAY CENTRED AT 1800 UTC OF 17TH DECEMBER, 2018 OVER COASTAL ANDHRA PRADESH, NEAR LATITUDE 17.5°N AND LONGITUDE 82.5°E, ABOUT 20 KM NORTH-NORTHWEST OF TUNI (43147). IT IS VERY LIKELY TO MOVE NORTH-NORTHEASTWARDS AND FURTHER WEAKEN INTO A WELL MARKED LOW PRESSURE AREA DURING NEXT SIX HOURS.

THE ESTIMATED CENTRAL PRESSURE IS ABOUT 1006 HPA AND THE MAXIMUM SUSTAINED SURFACE WIND SPEED IS 25 KNOTS GUSTING TO 35 KNOTS. BROKEN LOW TO MEDIUM CLOUDS WITH EMBEDDED MODERATE TO INTENSE CONVECTION LAY OVER NORTH COASTAL ANDHRA PRADESH AND ODISHA. MINIMUM CLOUD TOP TEMPERATURE IS MINUS 65.0° C.

REMARKS:
THE LOWER LEVEL CONVERGENCE IS $40x10^{-5}$ $SECOND^{-1}$ AROUND THE SYSTEM CENTER. UPPER LEVEL DIVERGENCE IS $20x10^{-5}$ $SECOND^{-1}$ TOWARDS NORTHEAST OF THE SYSTEM CENTER. LOWER LEVEL VORTICITY IS $130x10^{-6}$ $SECOND^{1}$ AROUND THE SYSTEM CENTER. THE UPPER TROPOSPHERIC RIDGE RUNS ALONG 14°N. THE SYSTEM IS BEING GUIDED BY THE ANTICYCLONE OVER SOUTHEAST ASIA AND A DEEP TROUGH IN UPPER TROPOSPHERIC WESTERLIES TO THE WEST. FURTHER, UNDER THE COMBINED EFFECT OF ANTICYCLONE AND ABOVE TROUGH, THE UPPER LEVEL WINDS ARE EXPECTED TO INCREASE OVER NORTHEAST COAST OF INDIA. IT MAY LEAD TO INCREASE IN WIND SHEAR OVER THE REGION. THUS, THERE WILL BE FURTHER WEAKENING OF THE SYSTEM DUE TO DRY & COLD AIR ADVECTION FROM NORTHWEST, COLDER SST, LOWER OCEAN HEAT CONTENT, LAND INTERACTION AND HIGH WIND SHEAR.

(D.R. PATTANAIK)
SCIENTIST-E, RSMC, NEW DELHI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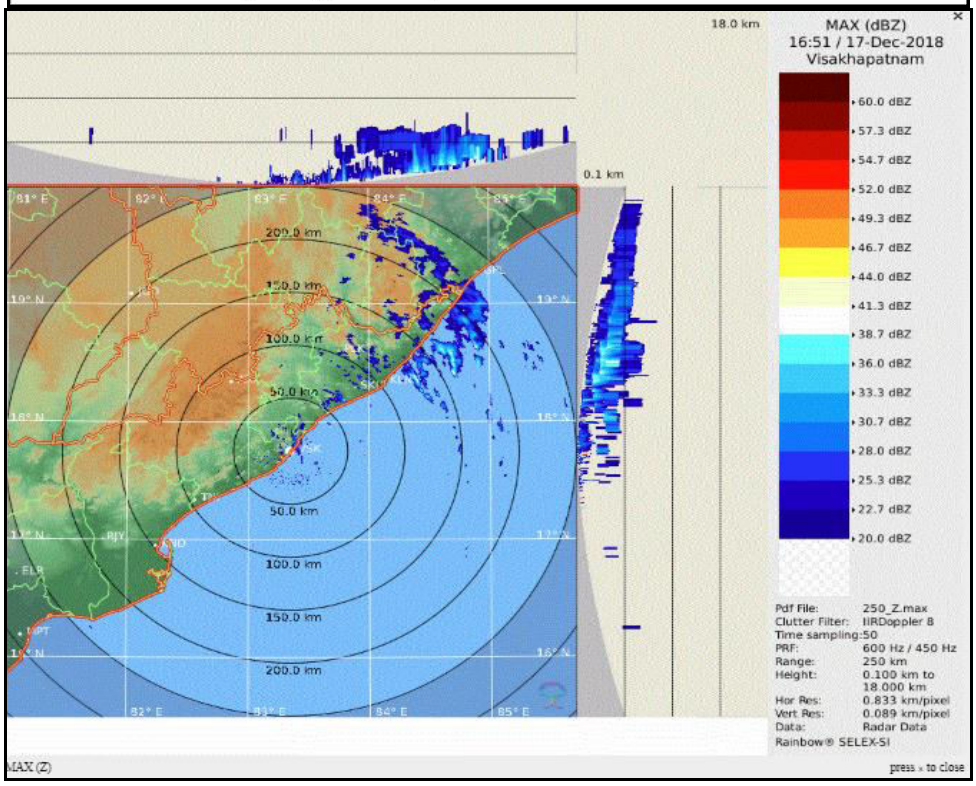
IMG_TIR1_TEMP 10.8 um
SECTOR BAYOFBENGAL Mercator (NHC LUT)
17-12-2018/18:00 GMT
17-12-2018/23:30 IST
Depression
17.5N/82.5E
NW
BoB
NE
BoB
WC BoB
EC BoB
SW BoB
SE BoB
IMD,DELHI


MAX (dBZ)
16:51 / 17-Dec-2018
Visakhapatnam
18.0 km
0.1 km
60.0 dBZ
57.3 dBZ
54.7 dBZ
52.0 dBZ
49.3 dBZ
46.7 dBZ
44.0 dBZ
41.3 dBZ
38.7 dBZ
36.0 dBZ
33.3 dBZ
30.7 dBZ
28.0 dBZ
25.3 dBZ
22.7 dBZ
20.0 dBZ
50.0 km
100.0 km
150.0 km
200.0 km
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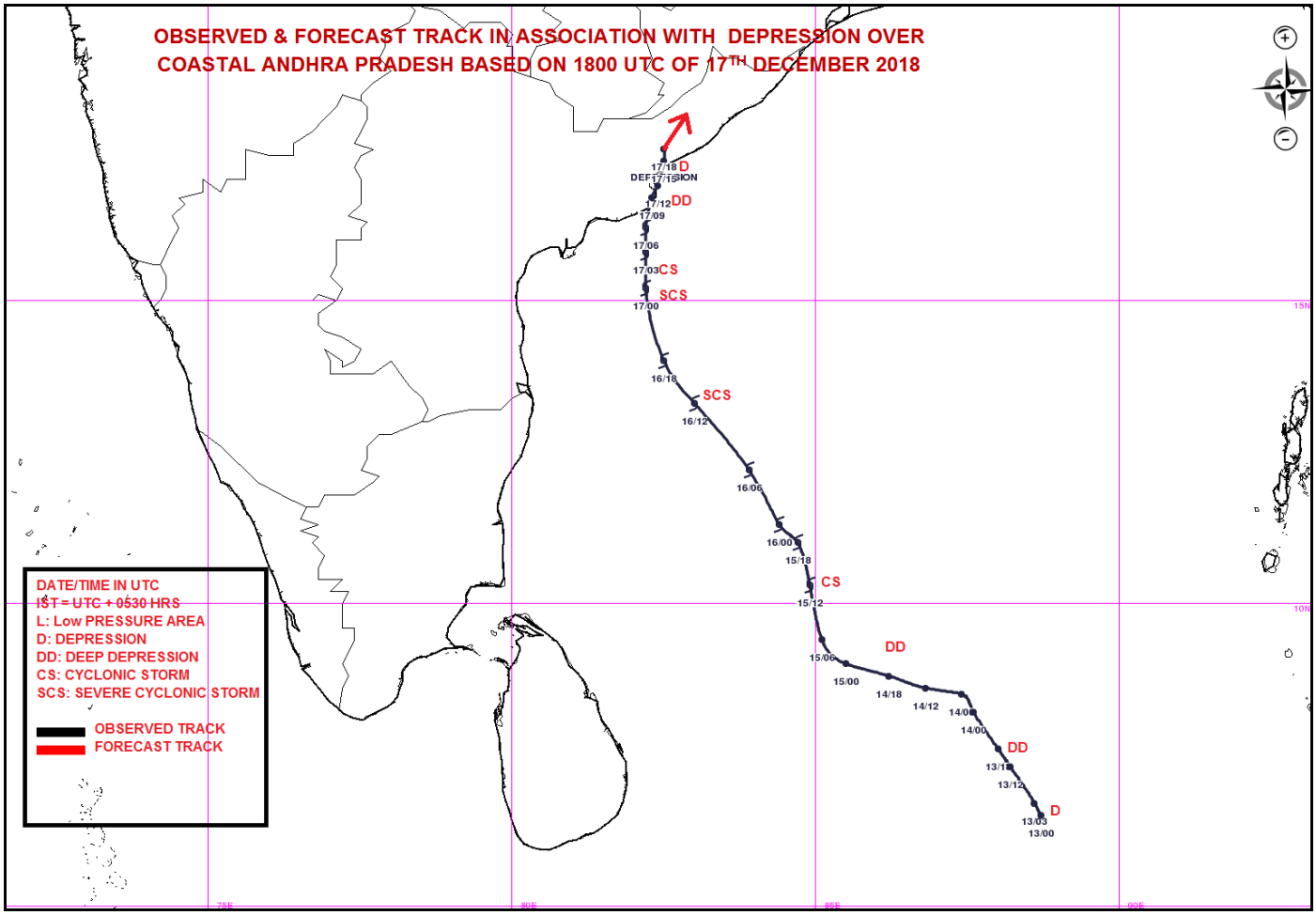
Clutter Filter: IIRDoppler 8
Time sampling:50
PRF: 600 Hz / 450 Hz
Range: 250 km
Height: 0.100 km to 18.000 km
Hor Res: 0.833 km/pixel
Vert Res: 0.089 km/pixel
Data: Radar Data
Rainbow® SELEX-SI
MAX (Z)
press x to close


OBSERVED & FORECAST TRACK IN ASSOCIATION WITH DEPRESSION OVER
COASTAL ANDHRA PRADESH BASED ON 1800 UTC OF 17TH DECEMBER 2018
17/18 D
DEP17/15ION
17/12 DD
17/09
17/06
17/03 CS
SCS
17/00
16/18
SCS
16/12
16/06
16/00
15/18
CS
15/12
DD
15/06
15/00
14/18
14/12
14/06
14/00
DD
13/18
13/12
D
13/03
13/00
DATE/TIME IN UTC
IST = UTC + 0530 HRS
L: Low PRESSURE AREA
D: DEPRESSION
DD: DEEP DEPRESSION
CS: CYCLONIC STORM
SCS: SEVERE CYCLONIC STORM
OBSERVED TRACK
FORECAST TRACK

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

DEMS-RSMC TROPICAL CYCLONES NEW DELHI DATED 17.12.2018

SPECIAL TROPICAL WEATHER OUTLOOK FOR NORTH INDIAN OCEAN (THE BAY OF BENGAL AND ARABIAN SEA) VALID FOR NEXT 120 HOURS ISSUED AT 0300 UTC OF 18.12.2018 BASED ON 0000 UTC OF 18.12.2018.

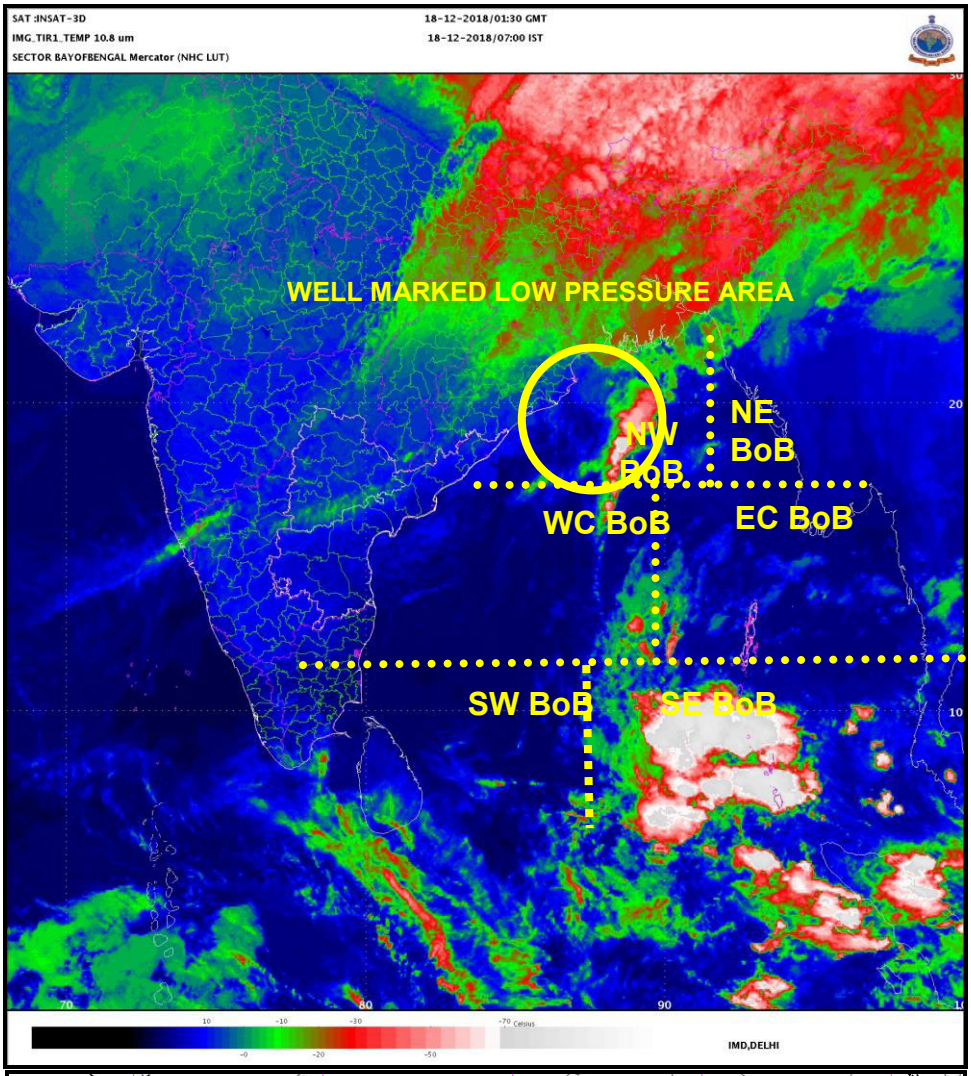
DEPRESSION WEAKENED INTO WELL MARKED LOW PRESSURE AREA OVER NORTHWEST AND ADJOINING WESTCENTRAL BAY OF BENGAL AND COASTAL ODISHA

THE DEPRESSION OVER NORTH COASTAL ANDHRA PRADESH MOVED NEARLY NORTH-NORTHEASTWARDS DURING PAST 06 HOURS, WEAKENED INTO A WELL MARKED LOW PRESSURE AREA AND LAY OVER NORTHWEST AND ADJOINING WESTCENTRAL BAY OF BENGAL AND COASTAL ODISHA AT 0000 UTC OF 18TH DECEMBER, 2018. IT IS VERY LIKELY TO WEAKEN INTO A LOW PRESSURE AREA DURING NEXT TWELVE HOURS.

THE ESTIMATED CENTRAL PRESSURE IS ABOUT 1010 HPA AND THE MAXIMUM SUSTAINED SURFACE WIND SPEED IS 20 KNOTS GUSTING TO 25 KNOTS. BROKEN LOW TO MEDIUM CLOUDS WITH EMBEDDED WEAK CONVECTION LAY OVER NORTHWEST BAY OF BENGAL.

THIS IS THE LAST BULLETIN FOR THIS SYSTEM.

(D.R. PATTANAIK)
SCIENTIST-E, RSMC, NEW DELHI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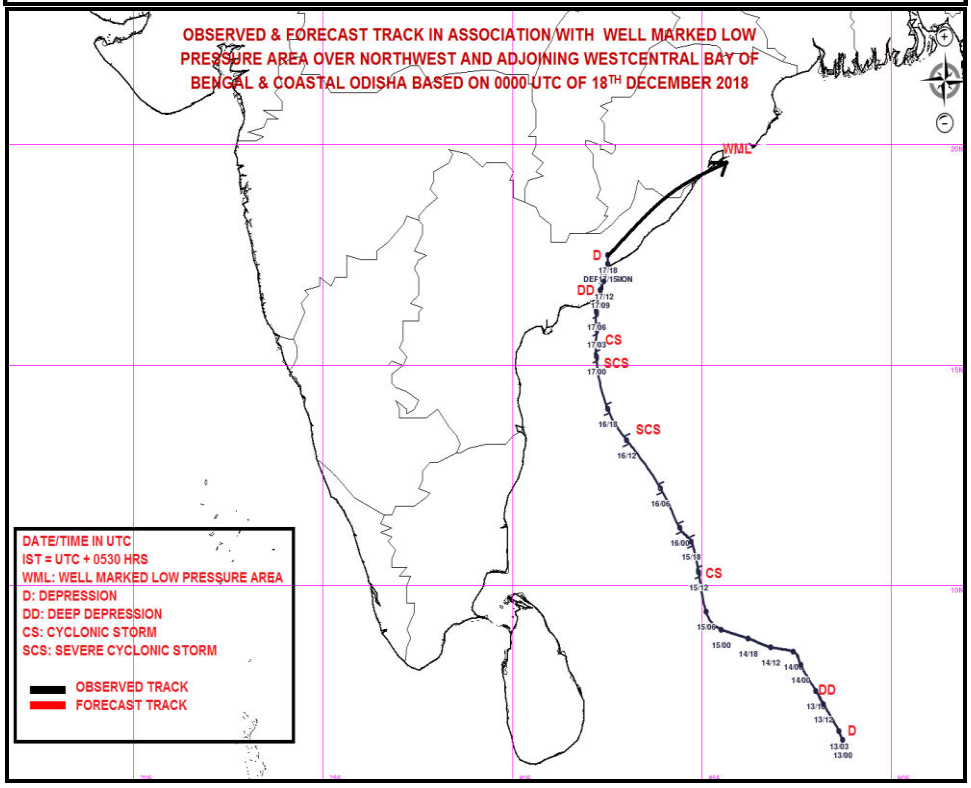
IMG_TIR1_TEMP 10.8 um
SECTOR BAYOFBENGAL Mercator (NHC LUT)
18-12-2018/01:30 GMT
18-12-2018/07:00 IST
WELL MARKED LOW PRESSURE AREA
NW BoB
NE BoB
WC BoB
EC BoB
SW BoB
SE BoB
IMD,DELHI


OBSERVED & FORECAST TRACK IN ASSOCIATION WITH WELL MARKED LOW PRESSURE AREA OVER NORTHWEST AND ADJOINING WESTCENTRAL BAY OF BENGAL & COASTAL ODISHA BASED ON 0000 UTC OF 18TH DECEMBER 2018
WML
D
DD
CS
SCS
SCS
CS
DD
D
DATE/TIME IN UTC
IST = UTC + 0530 HRS
WML: WELL MARKED LOW PRESSURE AREA
D: DEPRESSION
DD: DEEP DEPRESSION
CS: CYCLONIC STORM
SCS: SEVERE CYCLONIC STORM
OBSERVED TRACK
FORECAST TRACK