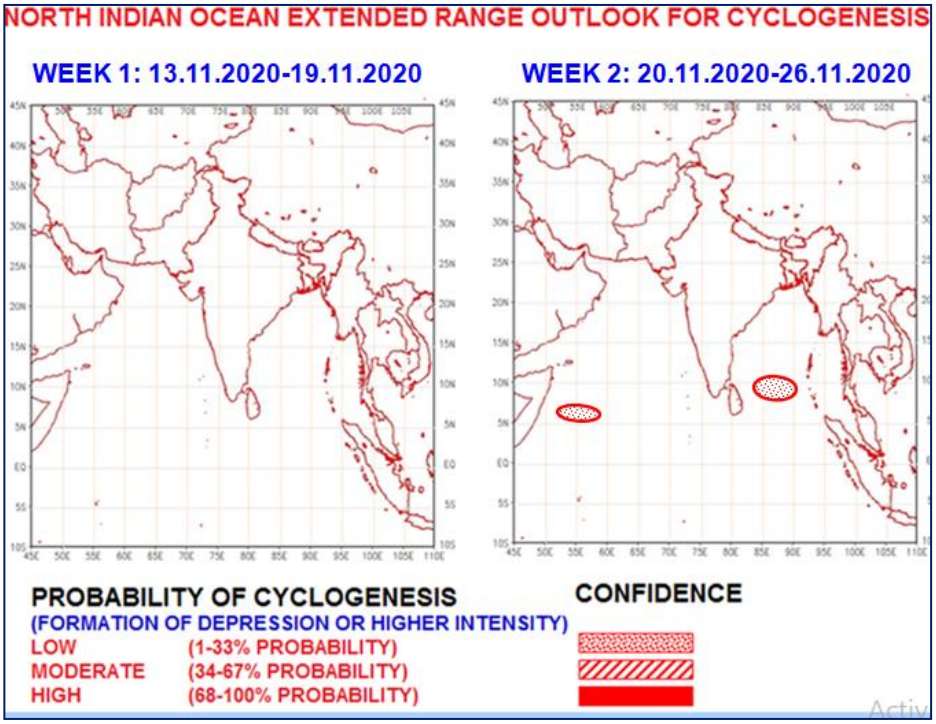
India Meteorological Department
Ministry of Earth Sciences
Mausam Bhavan, Lodi Road, New Delhi-110003

Issued on 12.11.2020



The Madden Julian Oscillation (MJO) index is currently in Phase 1 with amplitude > 1. It will move into phase 2 with amplitude >1 by 15th November and remain in Phase 2 with gradual reduction in amplitude during the subsequent 10 days. Thus, the phase of MJO will support convective activity over the north Indian Ocean during weeks 1 & 2.

Most of the numerical models including IMD GFS, GEFS, ECMWF, NCEP GFS, NEPS, Genesis Potential Parameter (GPP) based on IMD GFS and CGEPS (MME), NCUM & NEPS are not indicating any cyclogenesis during week 1. However, a few models for which we have the forecasts beyond this period viz., NCEP GFS indicates the likely formation of a Depression / Deep Depression, one each over south Bay of Bengal (BoB) and south Arabian Sea (AS) towards the later part of week-2. CGEPS (MME) also indicate probable formation of a Depression over south BoB towards the end of week 2 and formation of a Low Pressure Area over south AS and its westward movement without any intensification during the first half of week 2. However the probability of cyclogenesis as indicated by CGEPS (MME) is only 30-40% for this period over the above mentioned area.

Considering all the above, it may be concluded that: (1) No cyclogenesis (formation of Depression and above) likely over the north Indian Ocean during week 1. (2)There exists a 'low' probability for cyclogenesis over south Bay of Bengal and also over south Arabian Sea during the later part of week2.

Verification of forecast issued during last two weeks:

The forecast issued on 29th October for week 2 (06.11.2020-12.11.2020) stated **No fresh cyclogenesis likely over the North Indian Ocean during the forecast period. However, a fresh Low pressure area could form over north BoB during the first half of week -1.** A low pressure formed over north BoB during 31st October – 2nd November.

The forecast issued on 05th November for week 1 (06.11.2020-12.11.2020) stated **(1) No cyclogenesis (formation of Depression and above) likely over the north Indian Ocean during next 2 weeks. (2) A Low Pressure area could form over central Bay of Bengal in an amplified easterly wave trough during the middle part of week-2.Though no Low pressure area formed, the** non-occurrence of Cyclogenesis could be predicted in two weeks in advance.

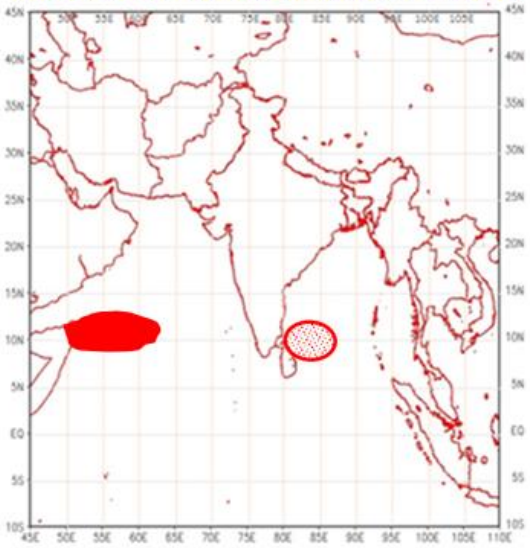
Next update: 19.11.2020

India Meteorological Department
Ministry of Earth Sciences
Mausam Bhavan, Lodi Road, New Delhi-110003

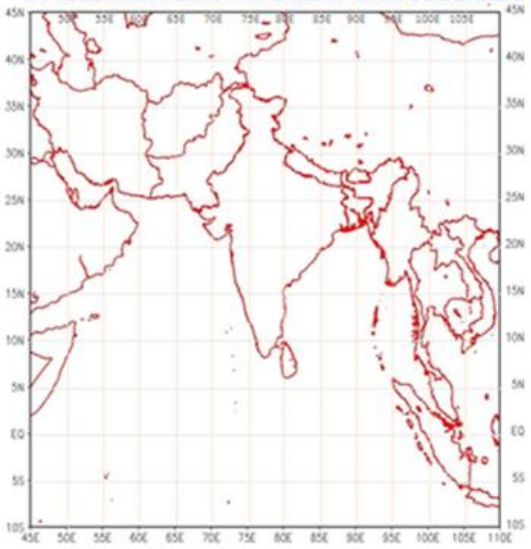
Issued on 19.11.2020

NORTH INDIAN OCEAN EXTENDED RANGE OUTLOOK FOR CYCLOGENESIS

WEEK 1: 20.11.2020-26.11.2020



WEEK 2: 27.11.2020-03.12.2020



PROBABILITY OF CYCLOGENESIS
(FORMATION OF DEPRESSION OR HIGHER INTENSITY)

LOW	(1-33% PROBABILITY)
MODERATE	(34-67% PROBABILITY)
HIGH	(68-100% PROBABILITY)

CONFIDENCE

The Madden Julian Oscillation (MJO) Index is currently in Phase 2 with amplitude more than 1. It will continue in same Phase till 20th November with Amplitude remaining more than 1. Thereafter, it will move to phase 3 with amplitude becoming less than 1, remain there during 3-4 days and move into Phase 4 with reduced amplitude for the rest of the forecast period. Thus the phase of MJO will support enhancement of convective activity over the North Indian Ocean including Bay Of Bengal (BoB) and Arabian Sea (AS) for next 2 weeks.

Most of the numerical models including IMD GFS, GEFS, NCEP GFS, NEPS, Genesis Potential Parameter (GPP) based on IMD GFS and CGEPS (MME), NCUM & NEPS are indicating formation of a Depression over southwest AS and west-northwestward movement towards north Somalia coast during 22nd – 24th November (Week 1). However, ECMWF is not indicating any cyclogenesis over the AS during this period. ECMWF and NCUM group of models indicate development of a brief duration Depression over southwest BoB towards the later part of Week-1. CGEPS (MME) also indicate 60-70% probability for formation of a Depression over southwest AS during Week 1 and 30-40% probability over equatorial Indian Ocean & adjoining south BoB during the later part of week 1.

Considering all the above, it may be concluded that: (1) There is 'High' probability for the formation of a Depression over southwest Arabian Sea, during the first half of Week-1 and its west-northwestward movement towards north Somalia coast during 22nd – 24th November. (2) Also there exists a 'low' probability for cyclogenesis over southwest Bay of Bengal during the later part of Week 1 (3) No cyclogenesis likely during Week -2.

Verification of forecast issued during last two weeks:

The forecast issued on 05th November for week 2 (13.11.2020-19.11.2020) stated **(1) No cyclogenesis (formation of Depression and above) likely over the north Indian Ocean during next 2 weeks (2) A Low Pressure area could form over central Bay of Bengal in an amplified easterly wave trough during the middle part of week-2.** However, a Low pressure area formed not over the BoB, but over central parts of South Arabian Sea on 19th November 2020.

The forecast issued on 12th November for week 1 (13.11.2020-19.11.2020) stated **(1) No cyclogenesis (formation of Depression and above) likely over the north Indian Ocean during week 1.** No cyclogenesis occurred during the period. **Thus the non-occurrence of Cyclogenesis could be predicted two weeks in advance.**

Next update: 26.11.2020

REGIONAL SPECIALISED METEOROLOGICAL CENTRE-TROPICAL CYCLONES, NEW DELHI

TROPICAL WEATHER OUTLOOK

DEMS-RSMC TROPICAL CYCLONES NEW DELHI DATED 17.11.2020

TROPICAL WEATHER OUTLOOK FOR NORTH INDIAN OCEAN (THE BAY OF BENGAL AND ARABIAN SEA) VALID FOR NEXT 120 HOURS ISSUED AT 0600 UTC OF 17.11.2020 BASED ON 0300 UTC OF 17.11.2020 .

BAY OF BENGAL:

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

PROBABILITY OF CYCLOGENESIS(FORMATION OF DEPRESSION) DURING NEXT 120 HRS:

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

ARABIAN SEA:

BROKEN LOW AND MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION CLOUD CLUSTERS LAY OVER SOUTHEAST ARABIAN SEA, COMORIN ADJOINING INDIAN OCEAN MALDIEVES & NEIGHBOURHOOD.
SCATTERED LOW AND MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION OVER SOUTHWEST ARABIAN SEA.
A LOW PRESSURE AREA IS LIKELY TO FORM OVER SOUTHEAST ARABIAN SEA AROUND 19TH NOVEMBER, 2020. IT IS VERY LIKELY TO MOVE WESTNORTHWESTWARDS AND CONCENTRATE INTO A DEPRESSION OVER SOUTHEAST & ADJOINING EASTCENTRAL ARABIAN SEA DURING SUBSEQUENT 48 HOURS.

PROBABILITY OF CYCLOGENESIS(FORMATION OF DEPRESSION) DURING NEXT 120 HRS :

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

REMARKS: NIL

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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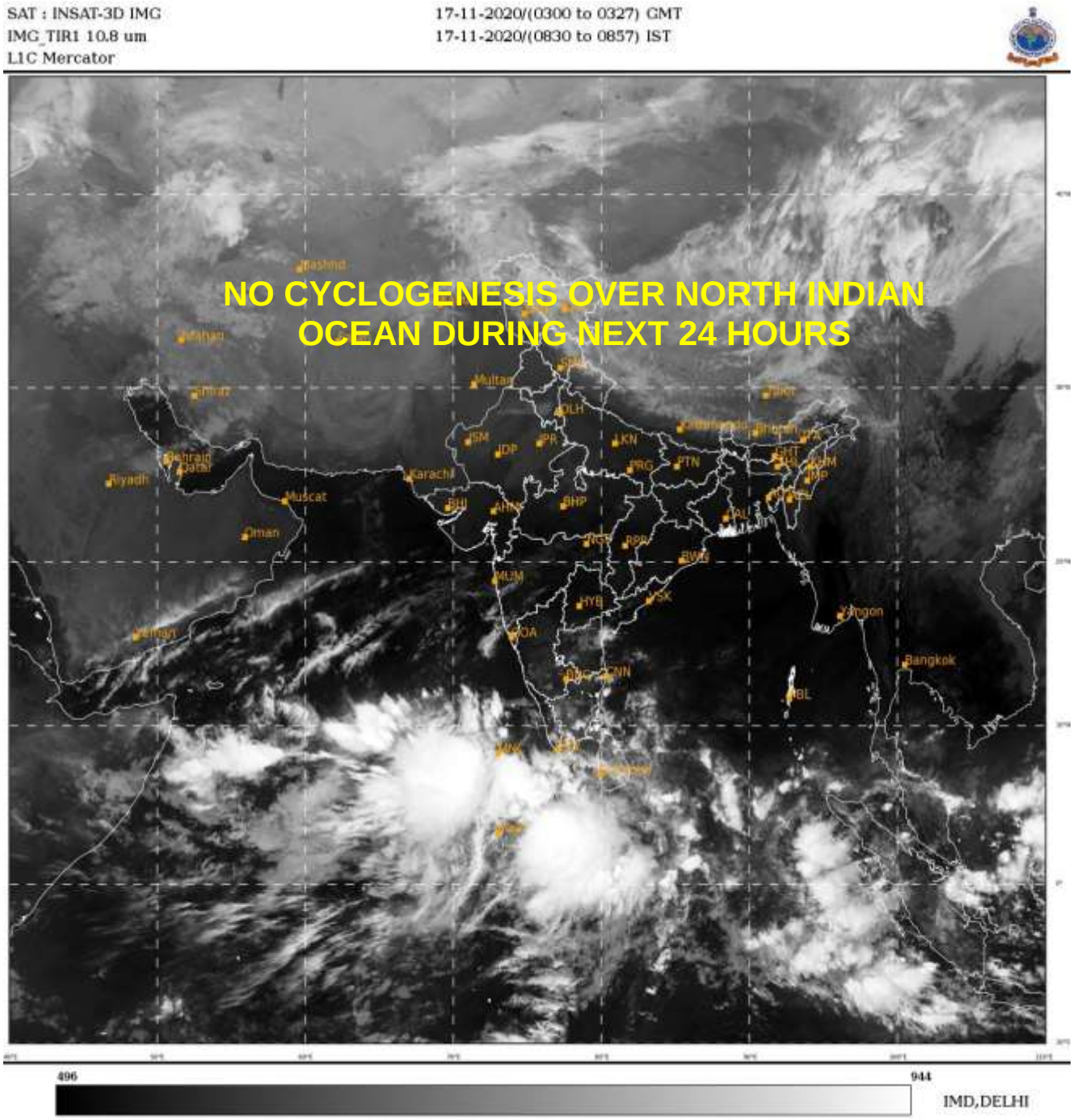

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION):NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

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REGIONAL SPECIALISED METEOROLOGICAL CENTRE-TROPICAL CYCLONES, NEW DELHI

TROPICAL WEATHER OUTLOOK

DEMS-RSMC TROPICAL CYCLONES NEW DELHI DATED 18.11.2020

TROPICAL WEATHER OUTLOOK FOR NORTH INDIAN OCEAN (THE BAY OF BENGAL AND ARABIAN SEA) VALID FOR NEXT 120 HOURS ISSUED AT 0600 UTC OF 18.11.2020 BASED ON 0300 UTC OF 18.11.2020 .

BAY OF BENGAL:

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

PROBABILITY OF CYCLOGENESIS(FORMATION OF DEPRESSION) DURING NEXT 120 HRS:

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

ARABIAN SEA:

A LOW PRESSURE AREA IS LIKELY TO FORM OVER CENTRAL PARTS OF SOUTH ARABIAN SEA AROUND 19TH NOVEMBER, 2020. IT IS VERY LIKELY TO MOVE WEST-NORTHWESTWARDS AND CONCENTRATE INTO A DEPRESSION OVER CENTRAL PARTS OF SOUTH ARABIAN SEA AND ADJOINING CENTRAL ARABIAN SEA DURING SUBSEQUENT 48 HOURS.

BROKEN LOW AND MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION LAY OVER SOUTH ADJOINING CENTRAL ARABIAN SEA, COMORIN & MALDIEVES. SCATTERED LOW AND MEDIUM CLOUDS WITH EMBEDDED WEAK CONVECTION LAY OVER NORTH ARABIAN SEA.

PROBABILITY OF CYCLOGENESIS(FORMATION OF DEPRESSION) DURING NEXT 120 HRS :

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

REMARKS:

THE MADDEN JULIAN OSCILLATION (MJO) INDEX IS CURRENTLY IN PHASE 2 WITH AMPLITUDE MORE THAN 1. IT WILL CONTINUE IN SAME PHASE TILL 20TH NOVEMBER WITH AMPLITUDE REMAINING MORE THAN 1. THEREAFTER, IT WILL MOVE TO PHASE 3 WITH AMPLITUDE BECOMING LESS THAN 1. THUS MJO WILL SUPPORT ENHANCEMENT OF CONVECTIVE ACTIVITY OVER THE NORTH INDIAN OCEAN

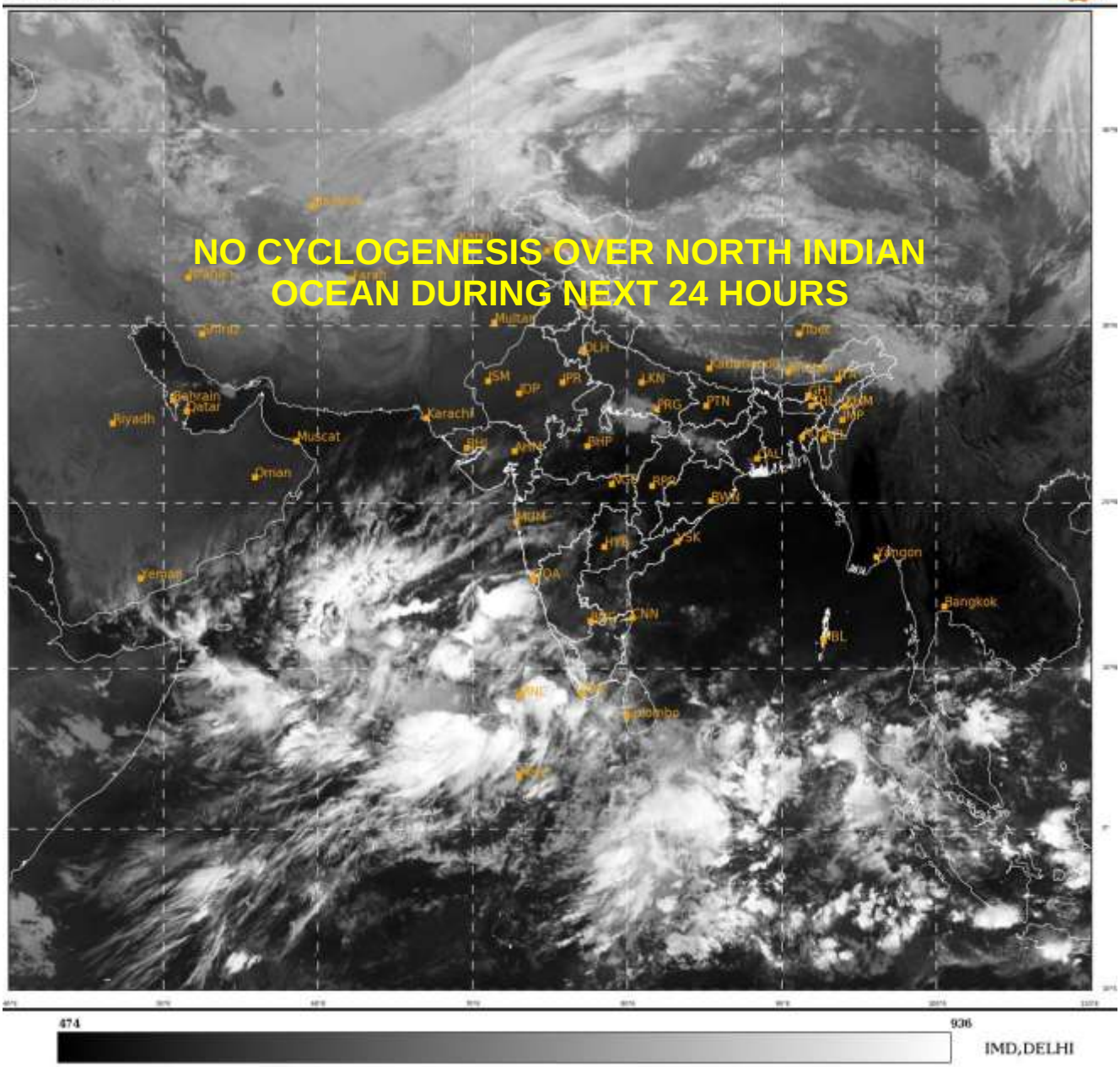
INCLUDING BAY OF BENGAL (BOB) AND ARABIAN SEA (AS) FOR NEXT 5 DAYS.
CONSIDERING THE SEA CONDITIONS, SST IS AROUND 29-30°C OVER MOST PARTS OF SOUTH AND EASTCENTRAL ARABIAN SEA (AS). IT IS SLIGHTLY LESS (26-28°C) OVER WESTCENTRAL & NORTH AS. HIGH TCHP (100-120 KJ/CM^2) PREVAILS OVER COMORIN AREA AND ADJOINING SOUTHWEST BOB OFF SOUTH SRI LANKA COAST AND KERALA COAST. TCHP IS AROUND 60-80 KJ/CM^2 OVER MAJOR PARTS OF SOUTH AS EXCEPT OFF NORTH SOMALIA COAST. TCHP IS LESS THAN 50KJ/CM^2 TO THE WEST OF 68°E AND NORTH 11°N OVER THE CENTRAL & NORTH AS AND 60 – 80 KJ/CM^2 OVER REMAINING PARTS OF EASTCENTRAL & NORTHEAST AS. CONSIDERING THE ENVIRONMENTAL CONDITIONS, POSITIVE RELATIVE VORTICITY (25-50X$10^{-6}S^{-1}$) PREVAILS OVER SOUTHEAST AND ADJOINING SOUTHWEST & WESTCENTRAL AS WITH VERTICAL EXTENSION UPTO 200 HPA LEVEL. AREA OF POSITIVE DIVERGENCE (20-30X$10^{-5}S^{-1}$) PREVAILS OVER SOUTHEAST AS TO THE SOUTHWEST OF INVEST AREA. AREA OF POSITIVE CONVERGENCE ZONE (05-10 X $10^{-5}S^{-1}$) PREVAILS OVER SOUTHEAST AS TO THE SOUTHEAST OF INVEST AREA. THE VERTICAL WIND SHEAR (VWS) IS MODERATE (10-15 KTS) OVER SOUTHEAST AND ADJOINING SOUTHWEST & WESTCENTRAL AS. THE UPPER TROPOSPHERIC RIDGE AT 200 HPA RUNS ALONG 15°N OVER THE AS.

SOME MODELS LIKE IMD GFS, NCEP GFS AND ECMWF ARE INDICATING DEVELOPMENT OF A LOW PRESSURE AREA OVER SOUTHEAST AS AROUND 19^{TH} AND FURTHER INTENSIFICATION INTO DEPRESSION OVER SOUTHEAST & ADJOINING EASTCENTRAL AS DURING SUBSEQUENT 24-48 HOURS AND WEST-NORTHWESTWARDS MOVEMENT TOWARDS GULF OF ADEN. MODELS LIKE NCUM AND NEPS ARE INDICATING FORMATION OF DEPRESSION AROUND 23^{RD}. GFS GR HOWEVER, ALL THE MODELS ARE UNANIMOUS ABOUT WEST-NORTHWESTWARDS MOVEMENT OF THE SYSTEM TOWARDS GULF OF ADEN.

CONSIDERING ALL THE ABOVE, A LOW PRESSURE AREA IS LIKELY TO FORM OVER CENTRAL PARTS OF SOUTH ARABIAN SEA AROUND 19TH NOVEMBER, 2020. IT IS VERY LIKELY TO MOVE WEST-NORTHWESTWARDS AND CONCENTRATE INTO A DEPRESSION OVER CENTRAL PARTS OF SOUTH ARABIAN SEA AND ADJOINING CENTRAL AS DURING SUBSEQUENT 48 HOURS.

SAT : INSAT-3D IMG
IMG_TIR1 10.8 um
L1C Mercator

18-11-2020/(0330 to 0357) GMT
18-11-2020/(0900 to 0927) IST



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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REGIONAL SPECIALISED METEOROLOGICAL CENTRE-TROPICAL CYCLONES, NEW DELHI

TROPICAL WEATHER OUTLOOK

DEMS-RSMC TROPICAL CYCLONES NEW DELHI DATED 19.11.2020

TROPICAL WEATHER OUTLOOK FOR NORTH INDIAN OCEAN (THE BAY OF BENGAL AND ARABIAN SEA) VALID FOR NEXT 120 HOURS ISSUED AT 0600 UTC OF 19.11.2020 BASED ON 0300 UTC OF 19.11.2020 .

BAY OF BENGAL:

SCATTERED LOW AND MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION LAY OVER SOUTH PARTS OF SOUTHEAST BAY OF BENGAL & SOUTH ANDAMAN SEA. SCATTERED LOW AND MEDIUM CLOUDS WITH EMBEDDED ISOLATED MODERATE TO INTENSE CONVECTION LAY OVER REST SOUTH BAY OF BENGAL.

PROBABILITY OF CYCLOGENESIS(FORMATION OF DEPRESSION) DURING NEXT 120 HRS:

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

ARABIAN SEA:

A LOW PRESSURE AREA HAS FORMED OVER CENTRAL PARTS OF SOUTH ARABIAN SEA AT 0300 UTC OF TODAY, THE 19TH NOVEMBER, 2020. IT IS LIKELY TO MOVE WEST-NORTHWESTWARDS AND CONCENTRATE INTO A DEPRESSION OVER SOUTHWEST ARABIAN SEA DURING NEXT 48 HOURS.

SCATTERED TO BROKEN LOW AND MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION LAY OVER SOUTH ARABIAN SEA AND ALSO OVER SOUTH PARTS OF EASTCENTRAL ARABIAN SEA & COMORIN.

PROBABILITY OF CYCLOGENESIS(FORMATION OF DEPRESSION) DURING NEXT 120 HRS :

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

REMARKS:

THE MADDEN JULIAN OSCILLATION (MJO) INDEX IS CURRENTLY IN PHASE 2 WITH AMPLITUDE MORE THAN 1. IT WILL CONTINUE IN SAME PHASE TILL 20TH NOVEMBER WITH AMPLITUDE REMAINING MORE THAN 1. THEREAFTER, IT WILL MOVE TO PHASE 3 WITH AMPLITUDE BECOMING LESS THAN 1. THUS MJO WILL SUPPORT ENHANCEMENT OF CONVECTIVE ACTIVITY OVER THE NORTH INDIAN OCEAN INCLUDING BAY OF BENGAL (BOB) AND ARABIAN SEA (AS) FOR NEXT 5 DAYS.

CONSIDERING THE SEA CONDITIONS, SST IS AROUND 29-30°C OVER MOST PARTS OF SOUTH AND EASTCENTRAL ARABIAN SEA (AS). IT IS SLIGHTLY LESS (26-28°C) OVER WESTCENTRAL & NORTH AS. HIGH TCHP (100-120 KJ/CM^2) PREVAILS OVER COMORIN AREA AND ADJOINING SOUTHWEST BOB OFF SOUTH SRI LANKA COAST AND KERALA COAST. TCHP IS AROUND 60-80 KJ/CM^2 OVER MAJOR PARTS OF SOUTH AS EXCEPT OFF NORTH SOMALIA COAST. TCHP IS LESS THAN 50KJ/CM^2 TO THE WEST OF 68°E AND NORTH 11°N OVER THE CENTRAL & NORTH AS AND 60 – 80 KJ/CM^2 OVER REMAINING PARTS OF EASTCENTRAL & NORTHEAST AS.

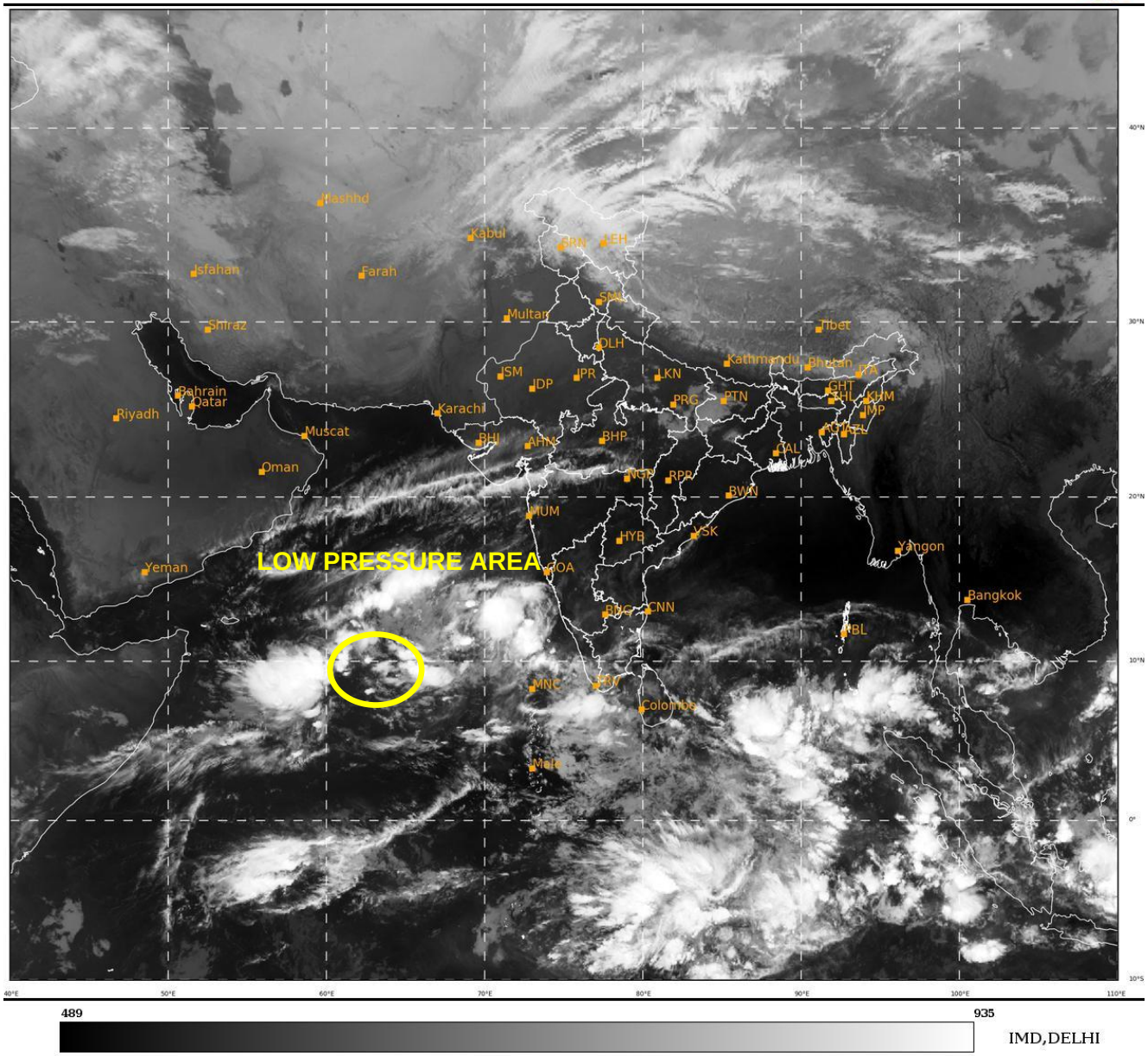
CONSIDERING THE ENVIRONMENTAL CONDITIONS, POSITIVE RELATIVE VORTICITY (25-50X$10^{-6}S^{-1}$) PREVAILS OVER SOUTHEAST AND ADJOINING SOUTHWEST & WESTCENTRAL AS WITH VERTICAL EXTENSION UPTO 200 HPA LEVEL. AREA OF POSITIVE DIVERGENCE (30X$10^{-5}S^{-1}$) PREVAILS OVER SOUTHWEST AS. AREA OF POSITIVE CONVERGENCE ZONE (05-10 X $10^{-5}S^{-1}$) PREVAILS OVER CENTRAL PARTS OF SOUTH AS. THE VERTICAL WIND SHEAR (VWS) IS LOW TO MODERATE (5-20 KTS) OVER CENTRAL PARTS OF AS AND ADJOINING SOUTH AS. THE UPPER TROPOSPHERIC RIDGE AT 200 HPA RUNS ALONG 15°N OVER THE AS.

SOME MODELS LIKE IMD GFS, NCEP GFS, ECMWF, NCUM AND NEPS ARE INDICATING DEVELOPMENT OF A DEPRESSION OVER SOUTHWEST AS. HOWEVER THERE IS VARIATION W.R.T. DATE OF CYCLOGENESIS WITH ECMWF INDICATING DEPRESSION AROUND 21^{ST}, GFS AROUND & NCUM AROUND 22^{ND} AND NEPS AROUND 23^{RD}. HOWEVER, ALL THE MODELS ARE UNANIMOUS ABOUT WEST-NORTHWESTWARD MOVEMENT OF THE SYSTEM TOWARDS GULF OF ADEN. THERE IS ALSO VARIATION W.R.T. INTENSIFICATION OF THE SYSTEM ALSO. MOST OF TE MODELS ARE INDICATING INTENSIFICATION UPTO DEPRESSION/DEEP DEPRESSION. ECMWF IS INDICATING HIGHER INTENSIFICATION UPTO CYCLONIC STORM STAGE.

CONSIDERING ALL THE ABOVE, THE EXISTING LOW PRESSURE AREA OVER CENTRAL PARTS OF SOUTH AS IS EXPECTED TO MOVE WEST-NORTHWESTWARDS AND INTENSIFY INTO A DEPRESSION OVER THE SOUTHWEST AS DURING NEXT 48 HOURS.

SAT : INSAT-3D IMG
IMG_TIR1 10.8 um
L1C Mercator

19-11-2020/(0300 to 0327) GMT
19-11-2020/(0830 to 0857) IST



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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REGIONAL SPECIALISED METEOROLOGICAL CENTRE-TROPICAL CYCLONES, NEW DELHI

TROPICAL WEATHER OUTLOOK

DEMS-RSMC TROPICAL CYCLONES NEW DELHI DATED 20.11.2020

TROPICAL WEATHER OUTLOOK FOR NORTH INDIAN OCEAN (THE BAY OF BENGAL AND ARABIAN SEA) VALID FOR NEXT 120 HOURS ISSUED AT 0600 UTC OF 20.11.2020 BASED ON 0300 UTC OF 20.11.2020 .

BAY OF BENGAL:

A CYCLONIC CIRCULATION LIES OVER EQUATORIAL INDIAN OCEAN AND ADJOINING SOUTHEAST BAY OF BENGAL (BOB). UNDER IT'S INFLUENCE, A LOW PRESSURE AREA IS VERY LIKELY TO FORM OVER CENTRAL PARTS OF SOUTH BOB AROUND 23RD NOVEMBER, 2020. IT IS LIKELY TO CONCENTRATE INTO A DEPRESSION OVER SOUTHWEST BOB AND MOVE WEST-NORTHWESTWARDS TOWARDS SRILANKA-TAMILNADU COASTS DURING SUBSEQUENT 48 HOURS.

SCATTERED LOW AND MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION LAY OVER SOUTH BAY OF BENGAL SOUTH OF LATITUDE 10.0 NORTH & SOUTH ANDAMAN SEA. SCATTERED LOW AND MEDIUM CLOUDS WITH EMBEDDED TO INTENSE CONVECTION LAY OVER ANDAMAN SEA.

PROBABILITY OF CYCLOGENESIS(FORMATION OF DEPRESSION) DURING NEXT 120 HRS:

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

ARABIAN SEA:

YESTERDAY'S LOW PRESSURE AREA OVER CENTRAL PARTS OF SOUTH ARABIAN SEA PERSISTED OVER THE SAME REGION AT 0300 UTC OF TODAY, THE 20TH NOVEMBER, 2020. IT IS LIKELY TO MOVE WEST-NORTHWESTWARDS AND CONCENTRATE INTO A DEPRESSION OVER SOUTHWEST ARABIAN SEA DURING NEXT 48 HOURS.

SCATTERED TO BROKEN LOW AND MEDIUM CLOUDS WITH EMBEDDED MODERATE CONVECTION LAY OVER SOUTH & CENTRAL ARABIAN SEA. SCATTERED LOW AND MEDIUM CLOUDS WITH EMBEDDED ISOLATED MODERATE TO INTENSE CONVECTION LAY OVER NORTHEAST ARABIAN SEA.

PROBABILITY OF CYCLOGENESIS(FORMATION OF DEPRESSION) DURING NEXT 120 HRS :

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

REMARKS:

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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THE MADDEN JULIAN OSCILLATION (MJO) INDEX IS CURRENTLY IN PHASE 2 WITH AMPLITUDE EQUAL TO 1. THEREAFTER, IT WILL MOVE TO PHASE 3 WITH AMPLITUDE BECOMING LESS THAN 1 AND WILL CONTINUE THERE DURING SUBSEQUENT 4 DAYS. THUS MJO WILL SUPPORT ENHANCEMENT OF CONVECTIVE ACTIVITY OVER THE NORTH INDIAN OCEAN INCLUDING BAY OF BENGAL (BOB) AND ARABIAN SEA (AS) FOR NEXT 5 DAYS.

CONSIDERING THE SEA CONDITIONS, SST IS AROUND 29-30°C OVER MOST PARTS OF SOUTH AND EASTCENTRAL ARABIAN SEA (AS). IT IS SLIGHTLY LESS (26-28°C) OVER WESTCENTRAL & NORTH AS. HIGH TCHP (100-120 KJ/CM^2) PREVAILS OVER COMORIN AREA AND ADJOINING SOUTHWEST BOB OFF SOUTH SRI LANKA COAST AND KERALA COAST. TCHP IS AROUND 60-80 KJ/CM^2 OVER MAJOR PARTS OF SOUTH AS EXCEPT OFF NORTH SOMALIA COAST. TCHP IS LESS THAN 50KJ/CM^2 TO THE WEST OF 68°E AND NORTH 11°N OVER THE CENTRAL & NORTH AS AND 60 – 80 KJ/CM^2 OVER REMAINING PARTS OF EASTCENTRAL & NORTHEAST AS.

CONSIDERING THE ENVIRONMENTAL CONDITIONS, POSITIVE RELATIVE VORTICITY (25-50$X10^{-6}S^{-1}$) PREVAILS OVER CENTRAL PARTS OF SOUTH AS AND ADJOINING WESTCENTRAL AS WITH VERTICAL EXTENSION UPTO 200 HPA LEVEL. AREA OF POSITIVE DIVERGENCE (5-20$X10^{-5}S^{-1}$) PREVAILS OVER WESTCENTRAL AS TO THE NORTHWEST OF INVEST AREA. AREA OF POSITIVE CONVERGENCE ZONE (05-10 X $10^{-5}S^{-1}$) PREVAILS OVER CENTRAL PARTS OF SOUTH AS AND ADJOINIG CENTRAL AS. THE VERTICAL WIND SHEAR (VWS) IS LOW TO MODERATE (5-20 KTS) OVER CENTRAL PARTS OF AS AND ADJOINING SOUTH AS. THE UPPER TROPOSPHERIC RIDGE AT 200 HPA RUNS ALONG 15°N OVER THE AS.

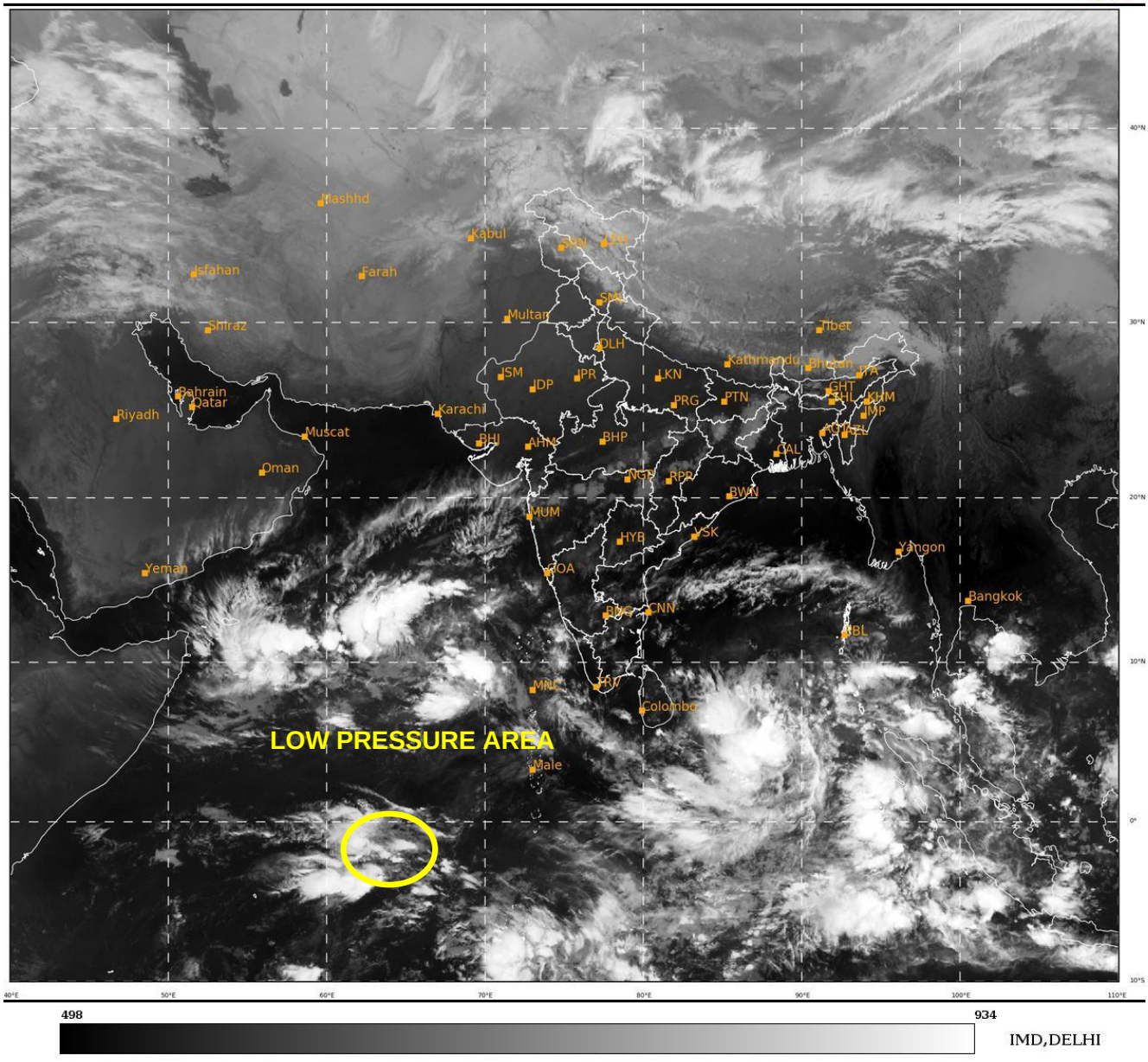
SOME MODELS LIKE IMD GFS, NCEP GFS, ECMWF, NCUM AND NEPS ARE INDICATING DEVELOPMENT OF A DEPRESSION OVER SOUTHWEST AS. HOWEVER THERE IS VARIATION W.R.T. DATE OF CYCLOGENESIS WITH ECMWF INDICATING DEPRESSION AROUND 21ST, GFS, GEFS, NCUM AND NEPS AROUND 23RD. HOWEVER, ALL THE MODELS ARE UNANIMOUS ABOUT WEST-NORTHWESTWARD MOVEMENT OF THE SYSTEM TOWARDS GULF OF ADEN. MODELS ARE UNANIMOUS ABOUT INTENSIFICATION UPTO DEPRESSION STAGE ONLY.

IN ADDITION, MODELS LIKE ECMWF, GFS, GEFS, NCUM AND NEPS ARE ALSO INDICATING DEVELOPMENT OF DEPRESSION OVER SOUTHWEST BOB AROUND 24TH NOVEMBER.

CONSIDERING ALL THE ABOVE, THE EXISTING LOW PRESSURE AREA OVER CENTRAL PARTS OF SOUTH AS IS EXPECTED TO MOVE WEST-NORTHWESTWARDS AND INTENSIFY INTO A DEPRESSION OVER THE SOUTHWEST AS DURING NEXT 48 HOURS. THERE IS LIKELIHOOD OF FORMATION OF A LOW PRESSURE AREA OVER CENTRAL PARTS OF SOUTH BOB AROUND 23RD NOVEMBER. IT IS LIKELY TO CONCENTRATE INTO A DEPRESSION OVER SOUTHWEST BOB AND MOVE WEST-NORTHWESTWARDS TOWARDS SRILANKA-TAMILNADU COASTS DURING SUBSEQUENT 48 HOURS.

SAT : INSAT-3D IMG
IMG_TIR1 10.8 um
L1C Mercator

20-11-2020/(0300 to 0327) GMT
20-11-2020/(0830 to 0857) IST



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IMD,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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REGIONAL SPECIALISED METEOROLOGICAL CENTRE-TROPICAL CYCLONES, NEW DELHI

TROPICAL WEATHER OUTLOOK

DEMS-RSMC TROPICAL CYCLONES NEW DELHI DATED 21.11.2020

TROPICAL WEATHER OUTLOOK FOR NORTH INDIAN OCEAN (THE BAY OF BENGAL AND ARABIAN SEA) VALID FOR NEXT 120 HOURS ISSUED AT 0600 UTC OF 21.11.2020 BASED ON 0300 UTC OF 21.11.2020 .

BAY OF BENGAL:

UNDER THE INFLUENCE OF YESTERDAY'S CYCLONIC CIRCULATION OVER EQUATORIAL INDIAN OCEAN AND ADJOINING SOUTHEAST BAY OF BENGAL (BOB), **A LOW PRESSURE AREA HAS FORMED OVER EQUATORIAL INDIAN OCEAN AND ADJOINING CENTRAL PARTS OF SOUTH BOB IN THE MORNING (0300 UTC) OF TODAY, THE 21ST NOVEMBER.** IT IS LIKELY TO CONCENTRATE INTO A DEPRESSION OVER SOUTHWEST BOB DURING NEXT 48 HOURS. IT IS VERY LIKELY TO MOVE WEST-NORTHWESTWARDS TOWARDS SRILANKA-TAMILNADU COASTS DURING SUBSEQUENT 48 HOURS AND REACH TAMILNADU & PUDUCHERRY COAST ON 25TH NOVEMBER, 2020.

BROKEN LOW AND MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION LAY OVER EQUATORIAL INDIAN OCEAN AND ADJOINING SOUTHEAST BAY OF BENGAL, BETWEEN LATITUDE 2.0^{0}N & 10.0^{0}N AND LONGITUDE 83.0^{0}E & 93.0^{0}E IN ASSOCIATION WITH THE LOW PRESSURE AREA. MINIMUM CLOUD TOP TEMPERATURE IS -93.0^{0}C. SCATTERED TO BROKEN LOW AND MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION LAY OVER SOUTH BAY OF BENGAL, SOUTH OF LATITUDE 10.0^{0}N, SOUTH ANDAMAN SEA. SCATTERED LOW AND MEDIUM CLOUDS WITH EMBEDDED MODERATE TO INTENSE CONVECTION LAY OVER EASTCENTRAL BAY OF BENGAL, REST OF ANDAMAN SEA.

PROBABILITY OF CYCLOGENESIS(FORMATION OF DEPRESSION) DURING NEXT 120 HRS:

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

ARABIAN SEA:

YESTERDAY'S LOW PRESSURE AREA OVER CENTRAL PARTS OF SOUTH ARABIAN SEA LAY AS A **WELL MARKED LOW PRESSURE AREA OVER SOUTHWEST ARABIAN SEA (AS) AND NEIGHBOURHOOD IN THE EARLY MORNING (0000 UTC) AND PERSISTED OVER THE SAME REGION AT 0300 UTC OF TODAY, THE 21ST NOVEMBER, 2020.** IT IS LIKELY TO MOVE WEST-NORTHWESTWARDS AND CONCENTRATE INTO A DEPRESSION DURING NEXT 24 HOURS.

AS PER SATELLITE IMAGERY, THE INTENSITY OF THE SYSTEM IS T 1.0. BROKEN LOW AND MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE

CONVECTION LAY OVER SOUTHWEST & ADJOINING WESTCENTRAL AS BETWEEN LATITUDE 8.0^{0}N & 14.0^{0}N AND LONGITUDE 56.0^{0}E & 64.0^{0}E IN ASSOCIATION WITH THE SYSTEM. THE MINIMUM CLOUD TOP TEMPERATURE IS -93^{0}C. SCATTERED TO BROKEN LOW AND MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION LAY OVER SOUTH & WESTCENTRAL ARABIAN SEA,COMORIN. SCATTERED LOW AND MEDIUM CLOUDS WITH EMBEDDED MODERATE TO INTENSE CONVECTION LAY OVER NORTH ADJOINING CENTRAL ARABIAN SEA.

PROBABILITY OF CYCLOGENESIS(FORMATION OF DEPRESSION) DURING NEXT 120 HRS :

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

REMARKS:

THE MADDEN JULIAN OSCILLATION (MJO) INDEX IS CURRENTLY IN PHASE 3 WITH AMPLITUDE EQUAL TO 1. IT WILL CONTINUE IN SAME PHASE WITH AMPLITUDE BECOMING LESS THAN 1 DURING SUBSEQUENT 4 DAYS. THUS MJO WILL SUPPORT ENHANCEMENT OF CONVECTIVE ACTIVITY OVER THE NORTH INDIAN OCEAN INCLUDING BAY OF BENGAL (BOB) AND ARABIAN SEA (AS) FOR NEXT 5 DAYS.

ARABIAN SEA:

CONSIDERING THE SEA CONDITIONS, SEA SURFACE TEMPERATURE (SST) IS AROUND 29-30°C OVER MOST PARTS OF SOUTH AND EASTCENTRAL ARABIAN SEA (AS). IT IS SLIGHTLY LESS (26-28°C) OVER WESTCENTRAL & NORTH AS. HIGH TCHP (100-120 KJ/CM^2) PREVAILS OVER COMORIN AREA AND ADJOINING SOUTHWEST BOB OFF SOUTH SRI LANKA COAST AND KERALA COAST. TCHP IS AROUND 60-80 KJ/CM^2 OVER MAJOR PARTS OF SOUTH AS EXCEPT OFF NORTH SOMALIA COAST. TCHP IS LESS THAN 50KJ/CM^2 TO THE WEST OF 68°E AND NORTH 11°N OVER THE CENTRAL & NORTH AS AND 60 – 80 KJ/CM^2 OVER REMAINING PARTS OF EASTCENTRAL & NORTHEAST AS.

CONSIDERING THE ENVIRONMENTAL CONDITIONS **OVER AS**, TWO FRAGEMENTED POSITIVE RELATIVE VORTICITY ZONES (25-50X10^{-6}S^{-1}) PREVAIL OVER SOUTHWEST AS AND ANOTHER (20-30X10^{-6}S^{-1}) PREVAILS OVER SOUTHWEST & ADJOINING SOUTHEAST AS WITH VERTICAL EXTENSION UPTO 500 HPA LEVEL. TWO AREAS OF POSITIVE DIVERGENCE 10X10^{-5}S^{-1} & 20X10^{-5}S^{-1} PREVAIL OVER SOUTHWEST AS. ANOTHER 30X10^{-5}S^{-1} PREVAILS OVER SOUTHWEST AS. AREA OF POSITIVE CONVERGENCE ZONE (20 X 10^{-5}S^{-1}) PREVAILS OVER SOUTHWEST AS. THE VERTICAL WIND SHEAR (VWS) IS LOW TO MODERATE (5-20 KTS) OVER CENTRAL PARTS OF AS AND ADJOINING SOUTH AS. THE UPPER TROPOSPHERIC RIDGE AT 200 HPA RUNS ALONG 15°N OVER THE AS.

MODELS LIKE IMD GFS, NCEP GFS, ECMWF, NCUM AND NEPS ARE INDICATING DEVELOPMENT OF A DEPRESSION OVER SOUTHWEST AS AROUND 22ND. HOWEVER, ALL THE MODELS ARE UNANIMOUS ABOUT WEST-NORTHWESTWARD MOVEMENT OF THE SYSTEM TOWARDS NORTH SOMALIA COAST AND THEN INTO GULF OF ADEN. MODELS ARE UNANIMOUS ABOUT INTENSIFICATION UPTO DEPRESSION STAGE ONLY.

BAY OF BENGAL:

CONSIDERING THE SEA CONDITIONS, SST IS AROUND 29-30°C OVER MOST PARTS OF BAY OF BENGAL (BOB). HIGH TCHP (120-140 KJ/CM^2) PREVAILS IN THE NEAR EQUATORIAL BELT OF NORTH INDIAN OCEAN (NIO) AND ADJOINING SOUTH BOB & SUMATRA COAST. HIGHER TCHP (120-140 KJ/CM^2) ALSO PREVAIL OFF MYANMAR

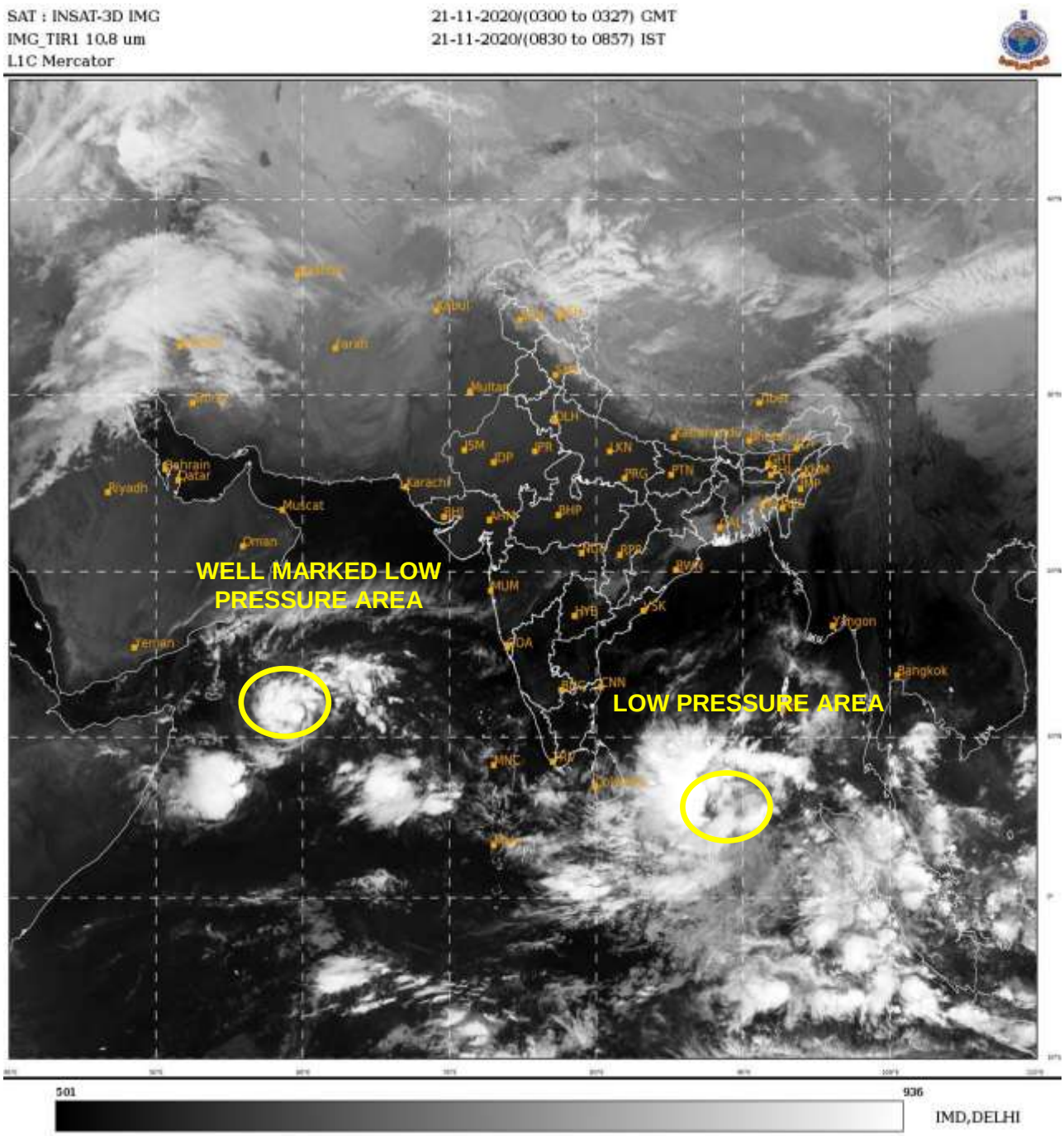
COAST AND NORTH ANDHRA PRADESH COAST (INDIA). TCHP IS 60-80 KJ/CM^2 OVER REMAINING PARTS OF BOB AND ANDAMAN SEA.

CONSIDERING THE ENVIRONMENTAL CONDITIONS **OVER BOB**, POSITIVE RELATIVE VORTICITY (20-50X10^{-6}S^{-1}) PREVAILS OVER EQUATORIAL INDIAN OCEAN & ADJOINING CENTRAL PARTS OF SOUTH BOB WITH VERTICAL EXTENSION UPTO 500 HPA LEVEL. AREA OF POSITIVE DIVERGENCE (30X10^{-5}S^{-1}) PREVAILS OVER EQUATORIAL INDIAN OCEAN & ADJOINING CENTRAL PARTS OF SOUTH BOB. AREA OF POSITIVE CONVERGENCE ZONE (05-10 X 10^{-5}S^{-1}) PREVAILS OVER THE SAME REGION. THE VERTICAL WIND SHEAR (VWS) IS MODERATE (10-20 KTS) OVER SOUTH AND ADJOINING CENTRAL BOB. THE UPPER TROPOSPHERIC RIDGE AT 200 HPA RUNS ALONG 11.5°N OVER THE BOB.

MODELS LIKE ECMWF, IMD GFS, NCEP GFS, GEFS, NCUM AND NEPS ARE INDICATING INDICATING DEVELOPMENT OF DEPRESSION OVER SOUTHWEST BOB AROUND 23RD/24TH NOVEMBER WITH LIKELY MOVEMENT TOWARDS SRILANKA-TAMIL NADU COASTS. HOWEVER THERE IS LARGE VARIATION W.R.T. INTENSIFICATION OF THE SYSTEM.

CONCLUSION:

CONSIDERING ALL THE ABOVE, THE EXISTING WELL MARKED LOW PRESSURE AREA OVER CENTRAL PARTS OF SOUTH AS IS EXPECTED TO MOVE WEST-NORTHWESTWARDS AND INTENSIFY INTO A DEPRESSION OVER THE SOUTHWEST AS DURING NEXT 24 HOURS. AND THE EXISTING LOW PRESSURE AREA OVER EQUATORIAL INDIAN OCEAN & ADJOINING CENTRAL PARTS OF SOUTH BOB IS LIKELY TO CONCENTRATE INTO A DEPRESSION DURING NEXT 48 HOURS. IT IS LIKELY TO MOVE WEST-NORTHWESTWARDS TOWARDS SRILANKA-TAMILNADU COASTS DURING SUBSEQUENT 48 HOURS AND REACH TAMILNADU & PUDUCHERRY COAST ON 25TH NOVEMBER, 2020.



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

DEMS-RSMC TROPICAL CYCLONES NEW DELHI DATED 21.11.2020

SPECIAL TROPICAL WEATHER OUTLOOK FOR NORTH INDIAN OCEAN (THE BAY OF BENGAL AND ARABIAN SEA) VALID FOR NEXT 120 HOURS ISSUED AT 2200 UTC OF 21.11.2020 BASED ON 1800 UTC OF 21.11.2020 .

A. DEPRESSION OVER SOUTHWEST ARABIAN SEA:

LATEST SATELLITE AND SHIP OBSERVATIONS INDICATE THAT THE **WELL MARKED LOW PRESSURE AREA OVER SOUTHWEST ARABIAN SEA (AS) AND NEIGHBOURHOOD** CONCENTRATED INTO A DEPRESSION AND LAY CENTERED AT 1800 UTC OF 21ST NOVEMBER OVER THE SAME REGION **NEAR LATITUDE 11.2^{o}N AND LONGITUDE 57.4^{o}E** ABOUT 410 KM EAST-SOUTHEAST OF SOCOTRA (41494) AND 730 KM EAST OF ALULA (63200)**.**
IT IS VERY LIKELY TO MOVE WEST-NORTHWESTWARDS AND INTENSIFY FURTHER INTO DEEP DEPRESSION DURING NEXT 24 HOURS.

A SHIP AT 10.6^{o}N AND 57.0^{o}E OBSERVED WIND 19.0 KTS /120^{o}, MEAN SEA LEVEL PRESSURE 1025 HPA AND SEA SURFACE TEMPERATURE 28^{o}C.

AS PER SATELLITE IMAGERY, THE INTENSITY OF THE SYSTEM IS T 1.5. BROKEN LOW AND MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION LAY OVER SOUTHWEST & ADJOINING WESTCENTRAL ARABIAN SEA BETWEEN LATITUDE 7.0^{0}N & 13.5^{0}N AND LONGITUDE 53.5^{0}E & 59.0^{0}E IN ASSOCIATION WITH THE SYSTEM. THE MINIMUM CLOUD TOP TEMPERATURE IS -93^{0}C.

B. LOW PRESSURE AREA OVER SOUTH BAY OF BENGAL:

A LOW PRESSURE AREA FORMED OVER EQUATORIAL INDIAN OCEAN AND ADJOINING CENTRAL PARTS OF SOUTH BOB PERSISTED OVER SAME REGION. IT IS LIKELY TO CONCENTRATE INTO A DEPRESSION OVER SOUTHWEST BOB DURING NEXT 48 HOURS. IT IS VERY LIKELY TO MOVE WEST-NORTHWESTWARDS TOWARDS SRILANKA-TAMILNADU COASTS DURING SUBSEQUENT 48 HOURS AND REACH TAMILNADU & PUDUCHERRY COAST ON 25TH NOVEMBER, 2020.

BROKEN LOW AND MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION LAY OVER EQUATORIAL INDIAN OCEAN AND ADJOINING SOUTHEAST BAY OF BENGAL, BETWEEN LATITUDE 2.0^{0}N & 10.0^{0}N AND LONGITUDE 83.0^{0}E & 93.0^{0}E IN ASSOCIATION WITH THE LOW PRESSURE AREA. MINIMUM CLOUD TOP TEMPERATURE IS -93.0^{0}C. SCATTERED TO BROKEN LOW AND MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION LAY OVER SOUTH BAY OF BENGAL, SOUTH OF LATITUDE 10.0^{0}N, SOUTH ANDAMAN SEA. SCATTERED LOW AND MEDIUM CLOUDS WITH EMBEDDED MODERATE TO INTENSE CONVECTION LAY OVER EASTCENTRAL BAY OF BENGAL, REST OF ANDAMAN SEA.

PROBABILITY OF CYCLOGENESIS(FORMATION OF DEPRESSION) DURING NEXT 120 HRS:

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

REMARKS:

THE MADDEN JULIAN OSCILLATION (MJO) INDEX IS CURRENTLY IN PHASE 3 WITH AMPLITUDE EQUAL TO 1. IT WILL CONTINUE IN SAME PHASE WITH AMPLITUDE BECOMING LESS THAN 1 DURING SUBSEQUENT 4 DAYS. THUS MJO WILL SUPPORT ENHANCEMENT OF CONVECTIVE ACTIVITY OVER THE NORTH INDIAN OCEAN INCLUDING BAY OF BENGAL (BOB) AND ARABIAN SEA (AS) FOR NEXT 5 DAYS.

A. DEPRESSION OVER SOUTHWEST ARABIAN SEA:

CONSIDERING THE SEA CONDITIONS, SEA SURFACE TEMPERATURE (SST) IS AROUND 29-30°C OVER MOST PARTS OF SOUTH AND EASTCENTRAL ARABIAN SEA (AS). IT IS SLIGHTLY LESS (26-28°C) OVER WESTCENTRAL & NORTH AS. HIGH TCHP (100-120 KJ/CM^2) PREVAILS OVER COMORIN AREA AND ADJOINING SOUTHWEST BOB OFF SOUTH SRI LANKA COAST AND KERALA COAST. TCHP IS AROUND 60-80 KJ/CM^2 OVER MAJOR PARTS OF SOUTH AS EXCEPT OFF NORTH SOMALIA COAST. TCHP IS LESS THAN 50KJ/CM^2 TO THE WEST OF 68°E AND NORTH 11°N OVER THE CENTRAL & NORTH AS AND 60 – 80 KJ/CM^2 OVER REMAINING PARTS OF EASTCENTRAL & NORTHEAST AS.

CONSIDERING THE ENVIRONMENTAL CONDITIONS **OVER ARABIAN SEA**, RELATIVE VORTICITY ZONE (100X10^{-6}S^{-1}) PREVAIL OVER SOUTHWEST OF THE SYSTEM. AN AREA OF POSITIVE DIVERGENCE 20X10^{-5}S^{-1} AND AREA OF POSITIVE CONVERGENCE ZONE (10 X 10^{-5}S^{-1}) PREVAILS OVER SOUTHWEST OF THE SYSTEM. THE VERTICAL WIND SHEAR (VWS) IS LOW TO MODERATE (10-15 KTS) OVER AND WEST OF THE SYSTEM THE UPPER TROPOSPHERIC RIDGE AT 200 HPA RUNS ALONG 15°N.

NWP MODELS SUCH AS IMD-GFS, NCEP-GFS, ECMWF, NCUM AND NEPS ARE INDICATING FURTHER INTENSIFICATION OF THE DEPRESSION. ALL MODELS ARE UNANIMOUS ABOUT WEST-NORTHWESTWARD MOVEMENT OF THE SYSTEM TOWARDS NORTH SOMALIA COAST AND THEN INTO GULF OF ADEN.

B. LOW PRESSURE AREA OVER SOUTH BAY OF BENGAL:

CONSIDERING THE SEA CONDITIONS, SST IS AROUND 29-30°C OVER MOST PARTS OF BAY OF BENGAL (BOB). HIGH TCHP (120-140 KJ/CM^2) PREVAILS IN THE NEAR EQUATORIAL BELT OF NORTH INDIAN OCEAN (NIO) AND ADJOINING SOUTH BOB & SUMATRA COAST. HIGHER TCHP (120-140 KJ/CM^2) ALSO PREVAIL OFF MYANMAR COAST AND NORTH ANDHRA PRADESH COAST (INDIA). TCHP IS 60-80 KJ/CM^2 OVER REMAINING PARTS OF BOB AND ANDAMAN SEA.

CONSIDERING THE ENVIRONMENTAL CONDITIONS **OVER BOB**, POSITIVE RELATIVE VORTICITY (20-50X10^{-6}S^{-1}) PREVAILS OVER EQUATORIAL INDIAN OCEAN & ADJOINING CENTRAL PARTS OF SOUTH BOB WITH VERTICAL EXTENSION UPTO 500 HPA LEVEL. AREA OF POSITIVE DIVERGENCE (30X10^{-5}S^{-1}) PREVAILS OVER EQUATORIAL INDIAN OCEAN & ADJOINING CENTRAL PARTS OF SOUTH BOB. AREA OF POSITIVE CONVERGENCE ZONE (05-10 X 10^{-5}S^{-1}) PREVAILS OVER THE SAME REGION. THE VERTICAL WIND SHEAR (VWS) IS MODERATE (10-20 KTS) OVER SOUTH AND ADJOINING CENTRAL BOB. THE UPPER TROPOSPHERIC RIDGE AT 200 HPA RUNS ALONG 11.5°N OVER THE BOB.

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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MODELS LIKE ECMWF, IMD GFS, NCEP GFS, GEFS, NCUM AND NEPS ARE INDICATING INDICATING DEVELOPMENT OF DEPRESSION OVER SOUTHWEST BOB AROUND 23RD/24TH NOVEMBER WITH LIKELY MOVEMENT TOWARDS SRILANKA-TAMIL NADU COASTS. HOWEVER THERE IS LARGE VARIATION W.R.T. INTENSIFICATION OF THE SYSTEM.

CONCLUSION:

CONSIDERING ALL THE ABOVE, THE EXISTING DEPRESSION OVER SOUTHWEST ARABIAN SEA IS EXPECTED TO MOVE WEST-NORTHWESTWARDS AND INTENSIFY FURTHER OVER SOUTHWEST ARABIAN SEA DURING NEXT 24 HOURS. AND THE EXISTING LOW PRESSURE AREA OVER EQUATORIAL INDIAN OCEAN & ADJOINING CENTRAL PARTS OF SOUTH BOB IS LIKELY TO CONCENTRATE INTO A DEPRESSION DURING NEXT 48 HOURS. IT IS LIKELY TO MOVE WEST-NORTHWESTWARDS TOWARDS SRILANKA-TAMILNADU COASTS DURING SUBSEQUENT 48 HOURS AND REACH TAMILNADU & PUDUCHERRY COAST ON 25TH NOVEMBER, 2020.

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

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

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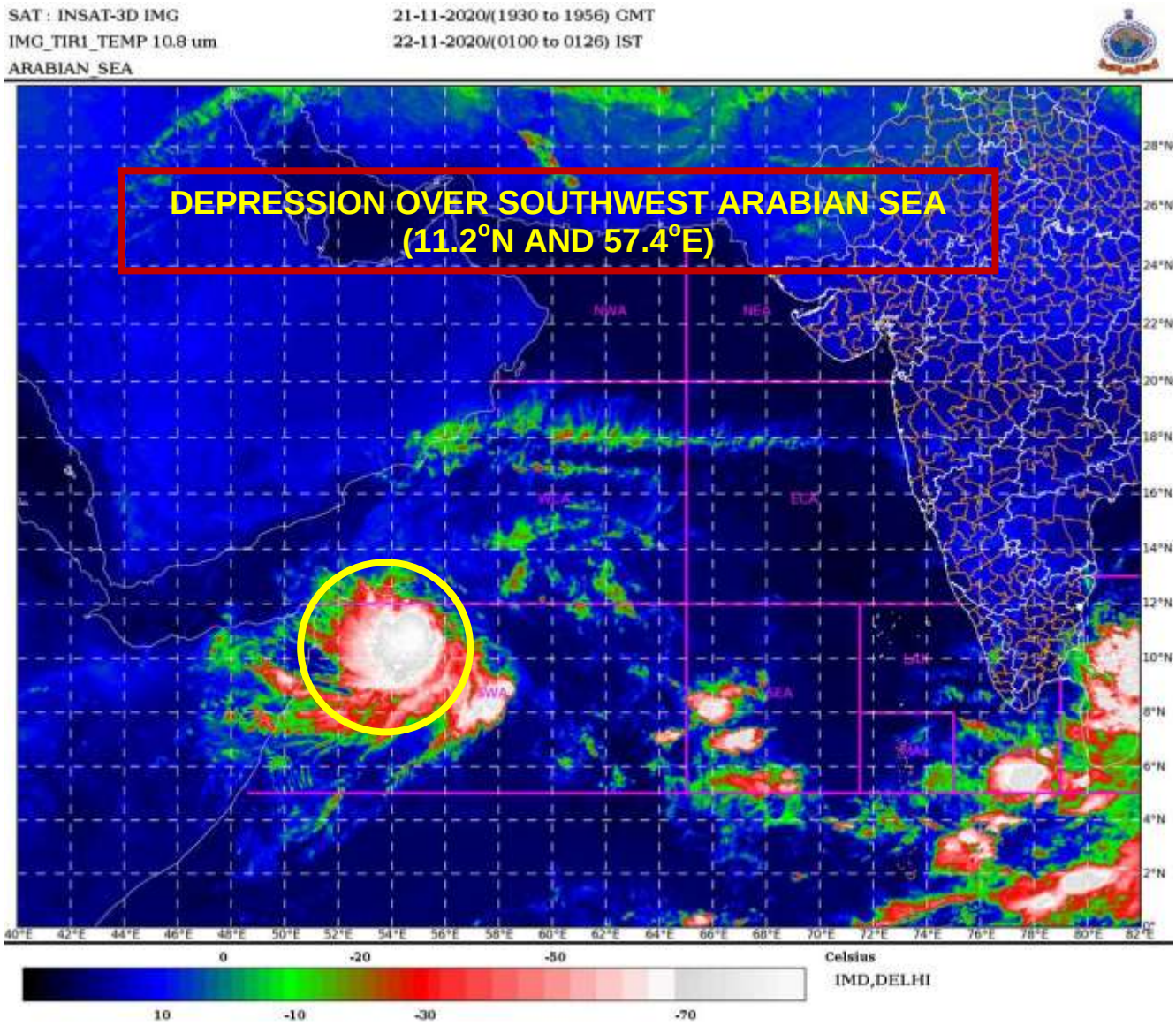

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION):NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

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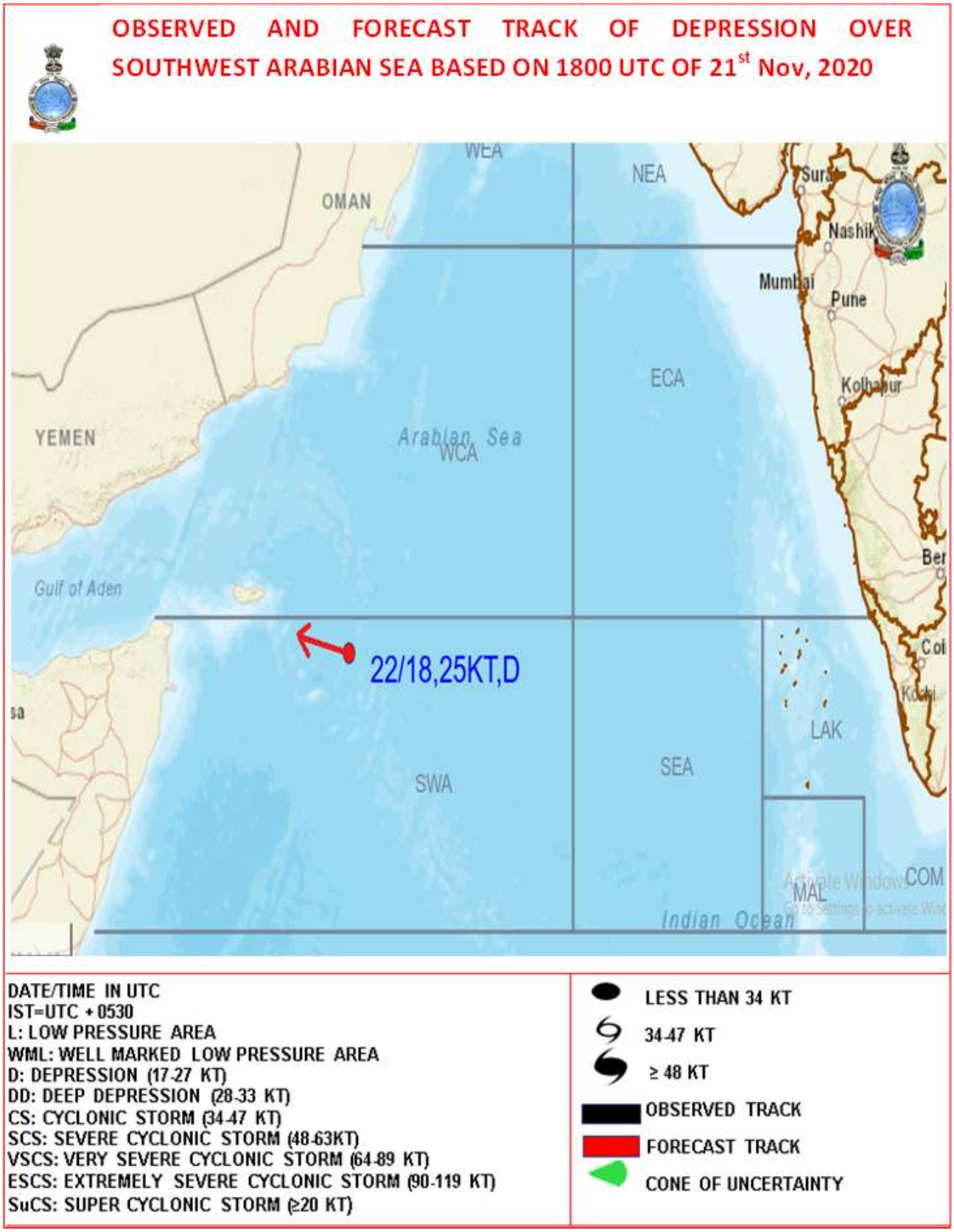

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION):NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

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REGIONAL SPECIALISED METEOROLOGICAL CENTRE-TROPICAL CYCLONES, NEW DELHI

SPECIAL TROPICAL WEATHER OUTLOOK

DEMS-RSMC TROPICAL CYCLONES NEW DELHI DATED 21.11.2020

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 22.11.2020 BASED ON 0000 UTC OF 22.11.2020 .

A. DEPRESSION OVER SOUTHWEST ARABIAN SEA:

THE DEPRESSION OVER SOUTHWEST ARABIAN SEA MOVED WESTWARDS WITH A SPEED OF 36 KMPH DURING PAST 06 HOURS, INTENSIFIED INTO A DEEP DEPRESSION AND LAY CENTRED AT 0000 UTC OF TODAY 22ND NOVEMBER 2020 OVER SOUTHWEST ARABIAN SEA NEAR LATITUDE 11.1° N AND LONGITUDE 55.4°E, ABOUT 230 KM SOUTHEAST OF SOCOTRA (41494), 460 KM EAST OF RAS BINNAH AND 510 KM EAST-SOUTHEAST OF ALULA (SOMALIA). IT IS VERY LIKELY TO MOVE WEST-SOUTHWESTWARDS AND INTENSIFY INTO A CYCLONIC STORM DURING NEXT 12 HOURS. IT IS VERY LIKELY TO CROSS SOMALIA COAST BETWEEN LATITUDE 10.5° N AND 11.0° N TO THE SOUTH OF RAS BINNAH (SOMALIA) DURING THE EARLY HOURS OF 23RD NOVEMBER AS A CYCLONIC STORM WITH A WIND SPEED OF 80-90 KMPH GUSTING TO 100 KMPH.

FORECAST TRACK AND INTENSITY ARE GIVEN BELOW:

DATE/TIME(IST)	POSITION (LAT. ^{0}N/ LONG. ^{0}E)	MAXIMUM SUSTAINED SURFACE WIND SPEED (KMPH)	CATEGORY OF CYCLONIC DISTURBANCE
22.11.20/0000	11.1/55.4	55-65 GUSTING TO 75	DEEP DEPRESSION
22.11.20/0600	11.0/53.8	70-80 GUSTING TO 90	CYCLONIC STORM
22.11.20/1200	10.9/52.2	80-90 GUSTING TO 100	CYCLONIC STORM
22.11.20/1800	10.8/50.6	80-90 GUSTING TO 100	CYCLONIC STORM
23.11.20/0000	10.9/49.0	70-80 GUSTING TO 90	CYCLONIC STORM
23.11.20/1200	11.1/45.8	50-60 GUSTING TO 70	DEEP DEPRESSION

A SHIP AT 10.6^{o}N AND 57.0^{o}E REPORTED WIND 19.0 KTS /120^o.

AS PER SATELLITE IMAGERY, THE INTENSITY OF THE SYSTEM IS T 2.0. BROKEN LOW AND MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION LAY OVER SOUTHWEST & ADJOINING WESTCENTRAL ARABIAN SEA BETWEEN LATITUDE 7.5^{0}N & 12.5^{0}N AND LONGITUDE 50.5^{0}E & 57.5^{0}E IN ASSOCIATION WITH THE SYSTEM. THE MINIMUM CLOUD TOP TEMPERATURE IS -93^{0}C.

B. LOW PRESSURE AREA OVER SOUTHWEST BAY OF BENGAL:

THE LOW PRESSURE AREA OVER EQUATORIAL INDIAN OCEAN AND ADJOINING CENTRAL PARTS OF SOUTH BAY OF BENGAL MOVED WEST-NORTHWESTWARDS AND LAY CENTERED OVER SOUTHWEST BAY OF BENGAL. IT IS LIKELY TO CONCENTRATE INTO A DEPRESSION OVER SOUTHWEST BAY OF BENGAL DURING NEXT 36 HOURS AND INTENSIFY FURTHER DURING SUBSEQUENT 48 HOURS. IT IS VERY LIKELY TO MOVE WEST-NORTHWESTWARDS TOWARDS SRI LANKA-SOUTH TAMIL NADU COAST AND REACH NEAR TAMIL NADU & PUDUCHERRY COAST ON 25TH NOVEMBER MORNING.

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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BROKEN LOW AND MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION LAY OVER EQUATORIAL INDIAN OCEAN AND ADJOINING SOUTHEAST BAY OF BENGAL, BETWEEN LATITUDE 5.0^0N & 11.0^0N AND LONGITUDE 80.5^0E & 88.0^0E IN ASSOCIATION WITH THE LOW PRESSURE AREA. MINIMUM CLOUD TOP TEMPERATURE IS -93.0^0C.

PROBABILITY OF CYCLOGENESIS(FORMATION OF DEPRESSION) DURING NEXT 120 HRS:

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

REMARKS:

THE MADDEN JULIAN OSCILLATION (MJO) INDEX IS CURRENTLY IN PHASE 3 WITH AMPLITUDE EQUAL TO 1. IT WILL CONTINUE IN SAME PHASE WITH AMPLITUDE BECOMING LESS THAN 1 DURING SUBSEQUENT 4 DAYS. THUS MJO WILL SUPPORT ENHANCEMENT OF CONVECTIVE ACTIVITY OVER THE NORTH INDIAN OCEAN INCLUDING BAY OF BENGAL (BOB) AND ARABIAN SEA (AS) FOR NEXT 5 DAYS.

A. DEPRESSION OVER SOUTHWEST ARABIAN SEA:

CONSIDERING THE SEA CONDITIONS, SEA SURFACE TEMPERATURE (SST) IS AROUND 29-30°C OVER MOST PARTS OF SOUTH AND EASTCENTRAL ARABIAN SEA (AS). IT IS SLIGHTLY LESS (26-28°C) OVER WESTCENTRAL & NORTH AS. HIGH TCHP (100-120 KJ/CM^2) PREVAILS OVER COMORIN AREA AND ADJOINING SOUTHWEST BOB OFF SOUTH SRI LANKA COAST AND KERALA COAST. TCHP IS AROUND 60-80 KJ/CM^2 OVER MAJOR PARTS OF SOUTH AS EXCEPT OFF NORTH SOMALIA COAST. TCHP IS LESS THAN 50KJ/CM^2 TO THE WEST OF 68°E AND NORTH 11°N OVER THE CENTRAL & NORTH AS AND 60 – 80 KJ/CM^2 OVER REMAINING PARTS OF EASTCENTRAL & NORTHEAST AS.

CONSIDERING THE ENVIRONMENTAL CONDITIONS **OVER ARABIAN SEA**, RELATIVE VORTICITY ZONE ($100X10^{-6}S^{-1}$) PREVAIL AROUND THE SYSTEM. AN AREA OF POSITIVE DIVERGENCE $20X10^{-5}S^{-1}$ AND AREA OF POSITIVE CONVERGENCE ZONE ($10 X 10^{-5}S^{-1}$) PREVAILS OVER AND SOUTHWEST OF THE SYSTEM. THE VERTICAL WIND SHEAR (VWS) IS LOW TO MODERATE (10-15 KTS) OVER AND WEST OF THE SYSTEM THE UPPER TROPOSPHERIC RIDGE AT 200 HPA RUNS ALONG 15°N.

NWP MODELS SUCH AS IMD-GFS, NCEP-GFS, ECMWF, NCUM AND NEPS ARE INDICATING FURTHER RAPID INTENSIFICATION OF THE DEEP DEPRESSION IN TO CYCLONIC STORM. ALL MODELS ARE UNANIMOUS ABOUT WEST-NORTHWESTWARD MOVEMENT OF THE SYSTEM TOWARDS NORTH SOMALIA COAST AND THEN INTO GULF OF ADEN.

B. LOW PRESSURE AREA OVER SOUTH BAY OF BENGAL:

CONSIDERING THE SEA CONDITIONS, SST IS AROUND 29-30°C OVER MOST PARTS OF BAY OF BENGAL (BOB). HIGH TCHP (120-140 KJ/CM^2) PREVAILS IN THE NEAR EQUATORIAL BELT OF NORTH INDIAN OCEAN (NIO) AND ADJOINING SOUTH BOB & SUMATRA COAST. HIGHER TCHP (120-140 KJ/CM^2) ALSO PREVAIL OFF MYANMAR COAST AND NORTH ANDHRA PRADESH COAST (INDIA). TCHP IS 60-80 KJ/CM^2 OVER REMAINING PARTS OF BOB AND ANDAMAN SEA.

CONSIDERING THE ENVIRONMENTAL CONDITIONS **OVER BOB**, POSITIVE RELATIVE VORTICITY ($20\text{-}50X10^{-6}S^{-1}$) PREVAILS OVER EQUATORIAL INDIAN OCEAN & ADJOINING CENTRAL PARTS OF SOUTH BOB WITH VERTICAL EXTENSION UPTO 500 HPA LEVEL. AREA OF POSITIVE DIVERGENCE ($30X10^{-5}S^{-1}$) PREVAILS OVER EQUATORIAL INDIAN OCEAN & ADJOINING CENTRAL PARTS OF SOUTH BOB. AREA OF POSITIVE CONVERGENCE ZONE ($05\text{-}10 X 10^{-5}S^{-1}$) PREVAILS OVER THE SAME

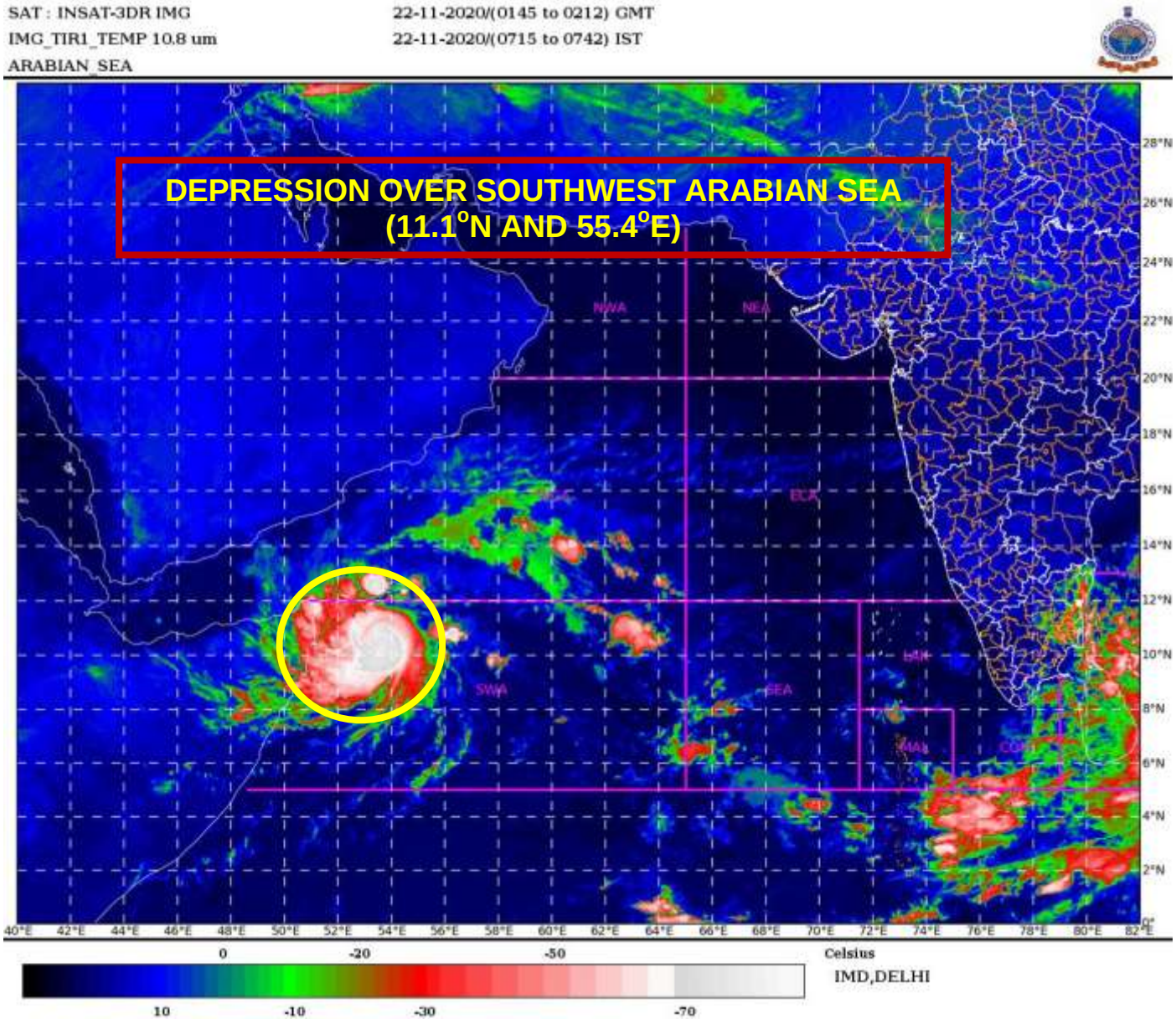
REGION. THE VERTICAL WIND SHEAR (VWS) IS MODERATE (10-20 KTS) OVER SOUTH AND ADJOINING CENTRAL BOB. THE UPPER TROPOSPHERIC RIDGE AT 200 HPA RUNS ALONG 11.5°N OVER THE BOB.

NWP MODELS LIKE ECMWF, IMD GFS, NCEP GFS, GEFS, NCUM AND NEPS ARE INDICATING INDICATING DEVELOPMENT OF DEPRESSION OVER SOUTHWEST BOB AROUND $23^{RD}/24^{TH}$ NOVEMBER WITH LIKELY MOVEMENT TOWARDS SRILANKA-TAMIL NADU COASTS. HOWEVER THERE IS LARGE VARIATION W.R.T. INTENSIFICATION OF THE SYSTEM.

CONCLUSION:

CONSIDERING ALL THE ABOVE, THE EXISTING DEEP DEPRESSION OVER SOUTHWEST ARABIAN SEA IS EXPECTED TO MOVE WEST-NORTHWESTWARDS AND INTENSIFY FURTHER INTO A CYCLONIC STORM OVER SOUTHWEST ARABIAN SEA DURING NEXT 06 HOURS. AND THE EXISTING LOW PRESSURE AREA OVER EQUATORIAL INDIAN OCEAN & ADJOINING CENTRAL PARTS OF SOUTH BOB IS LIKELY TO CONCENTRATE INTO A DEPRESSION DURING NEXT 48 HOURS. IT IS LIKELY TO MOVE WEST-NORTHWESTWARDS TOWARDS SRILANKA-TAMILNADU COASTS DURING SUBSEQUENT 48 HOURS AND REACH TAMILNADU & PUDUCHERRY COAST ON 25^{TH} NOVEMBER, 2020.

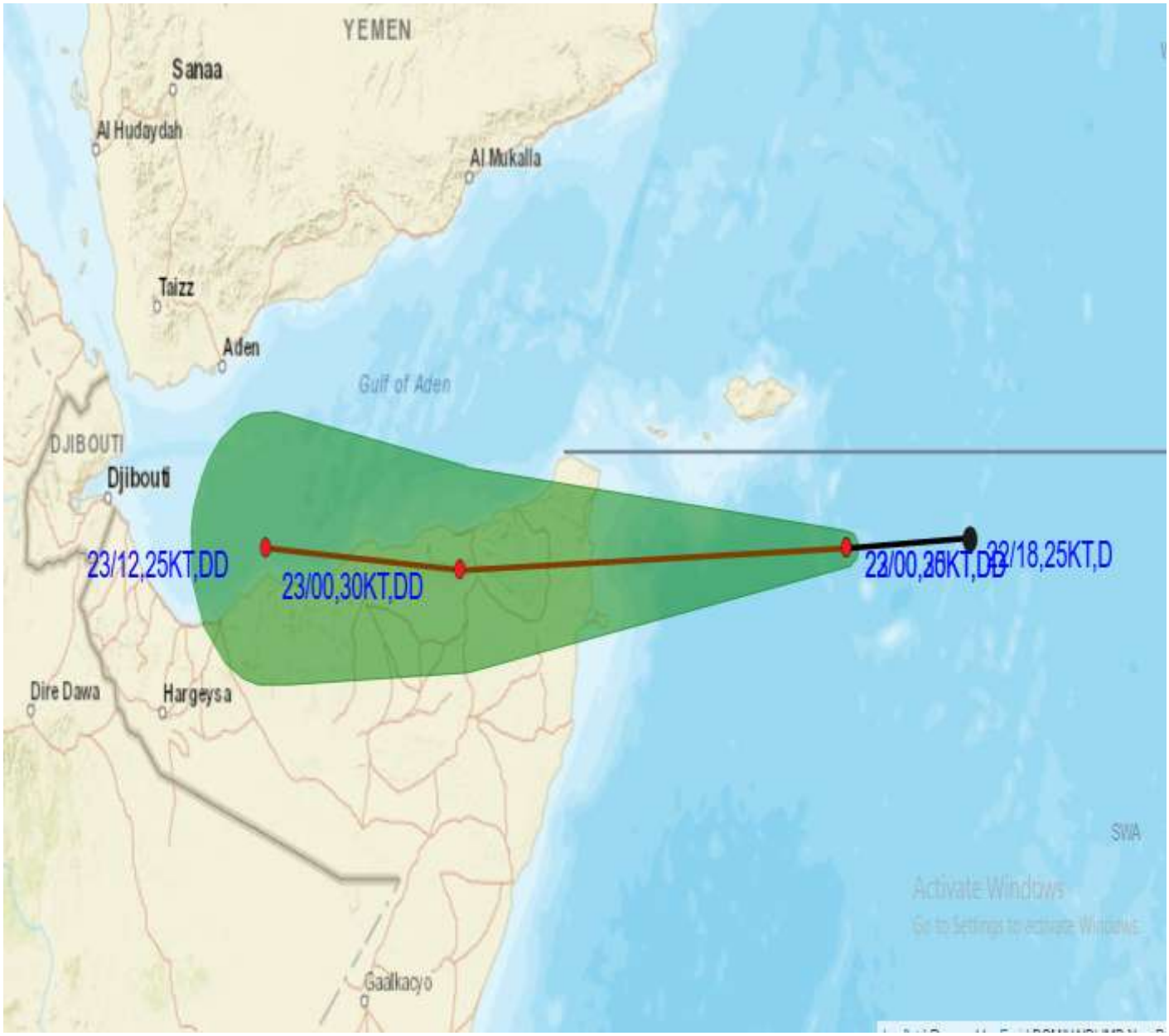
(ANANDA KUMAR DAS)
SCIENTIST-E, RSMC, NEW DELHI



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

- **This is a guidance Bulletin for the WMO/ESCAP Panel Member countries,. Please visit respective National websites for Country specific Bulletins**

OBSERVED AND FORECAST TRACK ALONGWITH CONE OF UNCERTAINITY OF DEEP DEPRESSION OVER SOUTHWEST ARABIAN SEA BASED ON 0000UTC OF 22nd Nov, 2020



DATE/TIME IN UTC
IST=UTC + 0530
L: LOW PRESSURE AREA
WML: WELL MARKED LOW PRESSURE AREA
D: DEPRESSION (17-27 KT)
DD: DEEP DEPRESSION (28-33 KT)
CS: CYCLONIC STORM (34-47 KT)
SCS: SEVERE CYCLONIC STORM (48-63KT)
VSCS: VERY SEVERE CYCLONIC STORM (64-89 KT)
ESCS: EXTREMELY SEVERE CYCLONIC STORM (90-119 KT)
SuCS: SUPER CYCLONIC STORM (≥20 KT)

LESS THAN 34 KT
34-47 KT
≥ 48 KT
OBSERVED TRACK
FORECAST TRACK
CONE OF UNCERTAINTY

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

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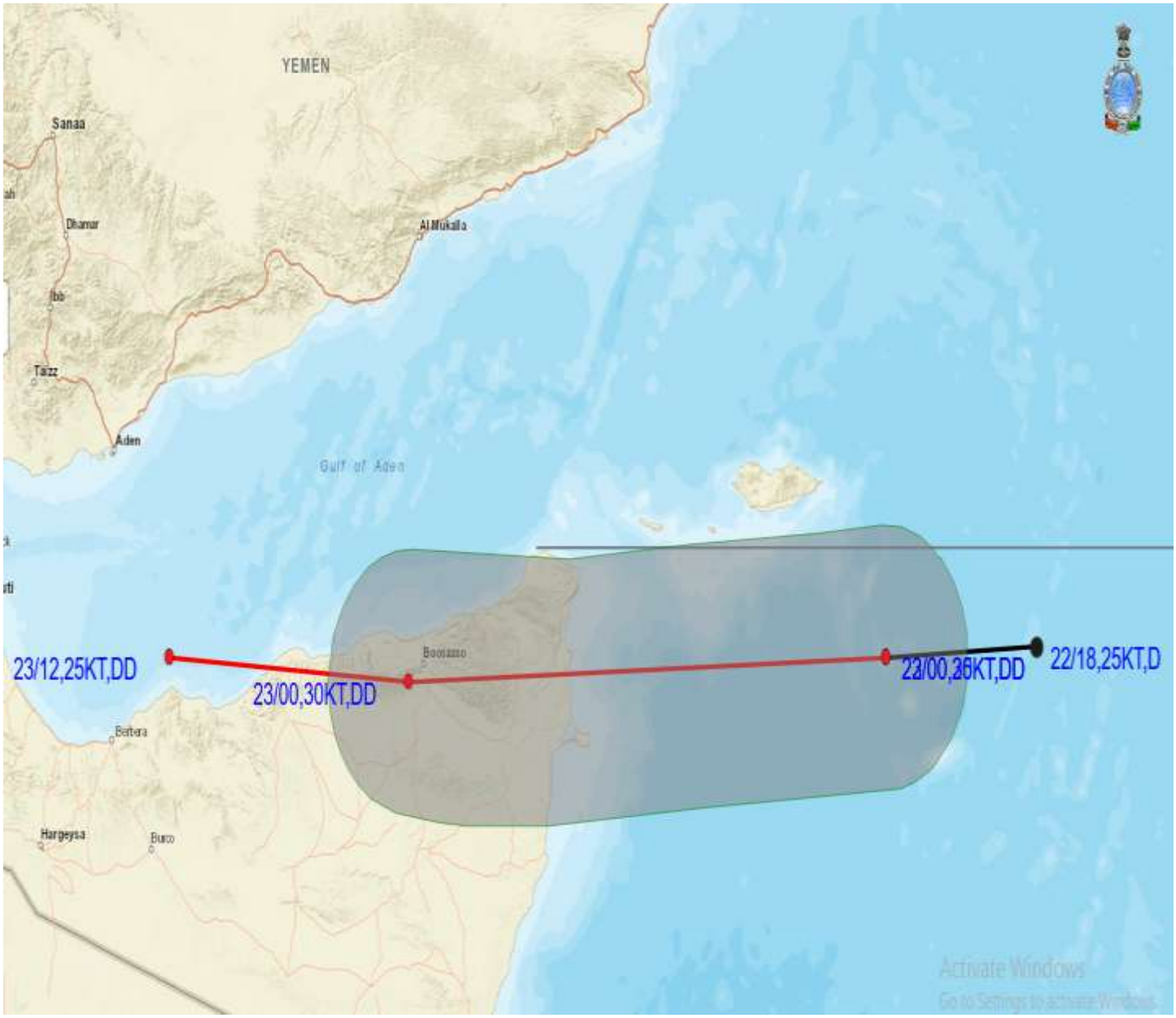
OBSERVED AND FORECAST TRACK OF DEPRESSION ALONGWITH QUADRANT WIND DISTRIBUTION OF DEEP DEPRESSION OVER SOUTHWEST ARABIAN SEA BASED ON 0000UTC OF 22nd Nov, 2020



DATE/TIME IN UTC
IST=UTC + 0530
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WML: WELL MARKED LOW PRESSURE AREA
D: DEPRESSION (17-27 KT)
DD: DEEP DEPRESSION (28-33 KT)
CS: CYCLONIC STORM (34-47 KT)
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SuCS: SUPER CYCLONIC STORM (≥20 KT)

LESS THAN 34 KT
34-47 KT
≥ 48 KT
OBSERVED TRACK
FORECAST TRACK
CONE OF UNCERTAINTY

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

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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 0600 UTC OF 22.11.2020 BASED ON 0300 UTC OF 22.11.2020.

A. CYCLONIC STORM "GATI" OVER SOUTHWEST ARABIAN SEA:

THE DEEP DEPRESSION OVER SOUTHWEST ARABIAN SEA MOVED RAPIDLY WESTSOUTHWESTWARDS WITH A SPEED OF 45 KMPH DURING PAST 06 HOURS, INTENSIFIED INTO A CYCLONIC STORM **"GATI"** AND LAY CENTERED AT 0300 UTC OF TODAY 22ND NOVEMBER 2020 OVER SOUTHWEST ARABIAN SEA NEAR LATITUDE 10.7° N AND LONGITUDE 53.8°E, ABOUT 210 KM SOUTH OF SOCOTRA (41494), 290 KM WESTSOUTHEAST OF RAS BINNAH AND 360 KM EAST-SOUTHEAST OF ALULA (SOMALIA). IT IS VERY LIKELY TO MOVE WEST-SOUTHWESTWARDS AND INTENSIFY FURTHER INTO A SEVERE CYCLONIC STORM DURING NEXT 12 HOURS. IT IS VERY LIKELY TO CROSS SOMALIA COAST AROUND 10.5 DEG N, TO THE SOUTH OF RAS BINNAH (SOMALIA) DURING 1800 TO 2100 UTC OF TODAY, 22ND NOVEMBER AS A SEVERE CYCLONIC STORM WITH A WIND SPEED OF 100-110 KMPH GUSTING TO 120KMPH.

FORECAST TRACK AND INTENSITY ARE GIVEN BELOW:

DATE/TIME(UTC)	POSITION (LAT. ^{0}N/ LONG. ^{0}E)	MAXIMUM SUSTAINED SURFACE WIND SPEED (KMPH)	CATEGORY OF CYCLONIC DISTURBANCE
22.11.20/0300	10.7/53.8	70-80 GUSTING TO 90	CYCLONIC STORM
22.11.20/0600	10.4/52.7	80-90 GUSTING TO 100	CYCLONIC STORM
22.11.20/1200	10.3/51.7	100-110 GUSTING TO 120	SEVERE CYCLONIC STORM
22.11.20/1800	10.4/50.6	100-110 GUSTING TO 125	SEVERE CYCLONIC STORM
23.11.20/0000	10.5/49.5	70-80 GUSTING TO 90	CYCLONIC STORM
23.11.20/1200	10.6/48.0	50-60 GUSTING TO 70	DEEP DEPRESSION
24.11.20/0000	10.7/46.5	40-50 GUSTING TO 60	DEPRESSION

AS PER SATELLITE IMAGERY, THE INTENSITY OF THE SYSTEM IS T 2.5. IT SHOWS CURVED BAND PTTERN WITH SPIRAL BANDING OF 0.6. MAXIMUM CONVECTION LIES IN THE SOUTHERN SECTOR OF VORTEX. BROKEN LOW AND MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION LAY OVER SOUTHWEST & ADJOINING WESTCENTRAL ARABIAN SEA BETWEEN LATITUDE 8^{0}N & 12^{0}N AND LONGITUDE 49.5^{0}E & 55.5^{0}E IN ASSOCIATION WITH THE SYSTEM. THE MINIMUM CLOUD

TOP TEMPERATURE IS -93^{0}C.
THE ESTIMATED MAXIMUM SUSTAINED WIND SPEED IS 40 KNOTS GUSTING TO 50 KNOTS. THE ESTIMATED CENTRAL PRESSURE IS 996 HPA. THE SEA CONDITION IS HIGH AROUND THE SYSTEM CENTRE.

B. WELL MARKED LOW PRESSURE AREA OVER SOUTHWEST BAY OF BENGAL:

THE LOW PRESSURE AREA OVER SOUTHWEST AND ADJOINING SOUTHEAST BAY OF BENGAL HAS BECOME WELL MARKED OVER THE SAME REGION. IT IS VERY LIKELY TO CONCENTRATE INTO A DEPRESSION OVER SOUTHWEST BAY OF BENGAL DURING NEXT 24 HOURS AND INTENSIFY FURTHER INTO A CYCLONIC STORM DURING SUBSEQUENT 24 HOURS. IT IS VERY LIKELY TO MOVE NORTHWESTWARDS AND CROSS TAMIL NADU AND PUDUCHERRY COASTS BETWEEN KARAIKAL AND MAHABALIPURAM AROUND 25TH NOVEMBER 2020 NOON/AFTERNOON. THE SYSTEM WHILE MOVING NORTHWESTWARDS, WOULD SKIRT NORTHEAST SRILANKA COAST ON 24TH

BROKEN LOW AND MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION LAY OVER EQUATORIAL INDIAN OCEAN AND ADJOINING SOUTHEAST BAY OF BENGAL, BETWEEN LATITUDE 5.0^{0}N & 11.0^{0}N AND LONGITUDE 80.5^{0}E & 88.0^{0}E IN ASSOCIATION WITH THE LOW PRESSURE AREA. MINIMUM CLOUD TOP TEMPERATURE IS -93.0^{0}C.

PROBABILITY OF CYCLOGENESIS(FORMATION OF DEPRESSION) DURING NEXT 120 HRS:

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

REMARKS:

THE MADDEN JULIAN OSCILLATION (MJO) INDEX IS CURRENTLY IN PHASE 3 WITH AMPLITUDE EQUAL TO 1. IT WILL CONTINUE IN SAME PHASE WITH AMPLITUDE BECOMING LESS THAN 1 DURING SUBSEQUENT 4 DAYS. THUS MJO WILL SUPPORT ENHANCEMENT OF CONVECTIVE ACTIVITY OVER THE NORTH INDIAN OCEAN INCLUDING BAY OF BENGAL (BOB) AND ARABIAN SEA (AS) FOR NEXT 5 DAYS.

A. CYCLONIC STORM OVER SOUTHWEST ARABIAN SEA:

CONSIDERING THE SEA CONDITIONS, SEA SURFACE TEMPERATURE (SST) IS (26-28°C) OVER SOUTHWEST AND ADJOINING WESTCENTRAL AS. TCHP IS AROUND 60-80 KJ/CM^2 OVER MAJOR PARTS OF SOUTH AS EXCEPT OFF NORTH SOMALIA COAST.

CONSIDERING THE ENVIRONMENTAL CONDITIONS **OVER ARABIAN SEA**, RELATIVE VORTICITY ZONE (100X10^{-6}S^{-1}) PREVAIL AROUND THE SYSTEM. AN AREA OF POSITIVE DIVERGENCE 20X10^{-5}S^{-1} AND AREA OF POSITIVE CONVERGENCE ZONE (20 X 10^{-5}S^{-1}) PREVAILS AROUND THE SYSTEM. THE VERTICAL WIND SHEAR (VWS) IS LOW TO MODERATE (15-20 KTS) OVER AND WEST OF THE SYSTEM THE UPPER TROPOSPHERIC RIDGE AT 200 HPA RUNS ALONG 15°N.

NWP MODELS SUCH AS IMD-GFS, NCEP-GFS, ECMWF, NCUM AND NEPS ARE INDICATING FURTHER INTENSIFICATION IN TO A SEVERE CYCLONIC STORM. ALL MODELS ARE UNANIMOUS ABOUT WEST-NORTHWESTWARD MOVEMENT OF THE SYSTEM TOWARDS NORTH SOMALIA COAST AND THEN INTO GULF OF ADEN.

B. WELL MARKED LOW PRESSURE AREA OVER SOUTH BAY OF BENGAL:

CONSIDERING THE SEA CONDITIONS, SST IS AROUND 29-30°C OVER MOST PARTS OF BAY OF BENGAL (BOB). HIGH TCHP (120-140 KJ/CM^2) PREVAILS IN THE NEAR EQUATORIAL BELT OF NORTH INDIAN OCEAN (NIO) AND ADJOINING SOUTH BOB.
CONSIDERING THE ENVIRONMENTAL CONDITIONS **OVER BOB**, POSITIVE RELATIVE VORTICITY (25-50X10^{-6}S^{-1}) PREVAILS OVER THE SYSTEM AREA OVER CENTRAL PARTS OF SOUTH BOB WITH VERTICAL EXTENSION UPTO 500 HPA LEVEL. AREA OF POSITIVE

DIVERGENCE ($40X10^{-5}S^{-1}$) PREVAILS OVER SOUTHWEST OF THE SYSTEM AREA OVER CENTRAL PARTS OF SOUTH BOB. AREA OF POSITIVE CONVERGENCE ZONE ($10\text{-}20 \text{ X } 20^{-5}S^{-1}$) PREVAILS OVER THE SAME AREA. THE VERTICAL WIND SHEAR (VWS) IS LOW (05-10 KTS) OVER SOUTH AND ADJOINING CENTRAL BOB. THE UPPER TROPOSPHERIC RIDGE AT 200 HPA RUNS ALONG 11.5°N OVER THE BOB.

NWP MODELS LIKE ECMWF, IMD GFS, NCEP GFS, GEFS, NCUM AND NEPS ARE INDICATING INDICATING DEVELOPMENT OF DEPRESSION OVER SOUTHWEST BOB DURING NEXT 24 HOURS AND LIKELY MOVEMENT TOWARDS TAMIL NADU-PUDUCHERY COASTS SKIRTING NORTHEAST SRILANKA COAST. THERE IS A CONSENSUS ABOUT GRADUAL INTENSIFICATION OF THE SYSTEM INTO A CYCLONIC STORM BY $24^{TH.}$

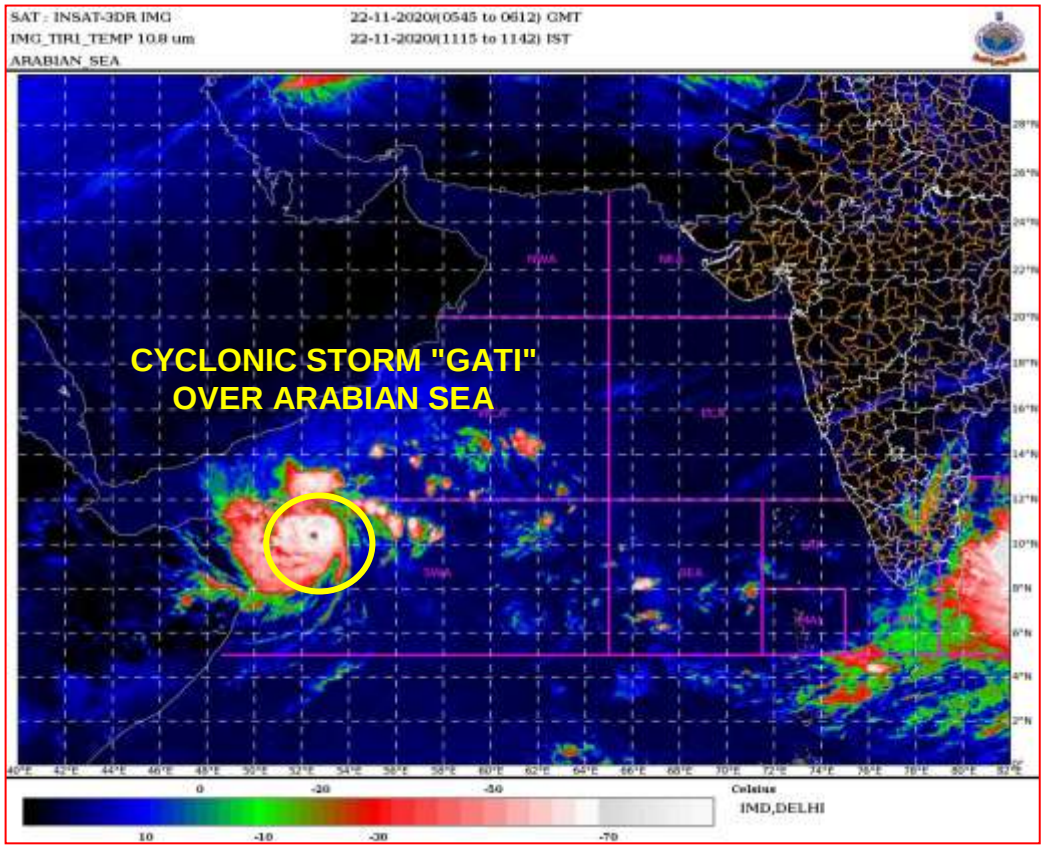
CONCLUSION:

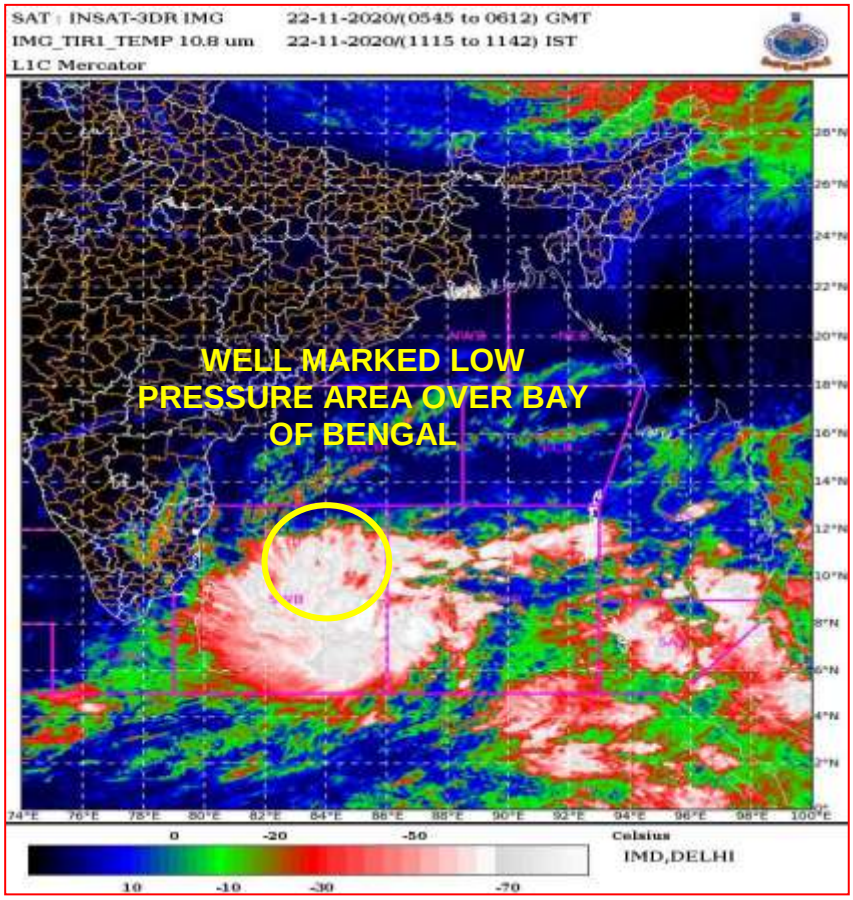
CONSIDERING ALL THE ABOVE, THE EXISTING CYCLONIC STORM OVER SOUTHWEST ARABIAN SEA IS EXPECTED TO MOVE WEST-NORTHWESTWARDS AND INTENSIFY FURTHER INTO A SEVERE CYCLONIC STORM OVER SOUTHWEST ARABIAN SEA DURING NEXT 12 HOURS.

THE EXISTING WELL MARKED LOW PRESSURE AREA OVER SOUTHWEST AND ADJOINING SOUTHEAST BAY OF BENGAL IS LIKELY TO CONCENTRATE INTO A DEPRESSION DURING NEXT 24 HOURS, AND INTENSIFY FURTHER INTO A CYCLONIC STORM DURING SUBSEQUENT 24 HOURS. IT IS VERY LIKELY TO MOVE NORTHWESTWARDS AND CROSS TAMIL NADU AND PUDUCHERRY COASTS BETWEEN KARAIKAL AND MAHABALIPURAM AROUND 25^{TH} NOVEMBER 2020 NOON/AFTERNOON. THE SYSTEM WHILE MOVING NORTHWESTWARDS, WOULD SKIRT NORTHEAST SRILANKA COAST ON 24^{TH}

(RK JENAMANI)
SCIENTIST- F
RSMC
NEW DELHI

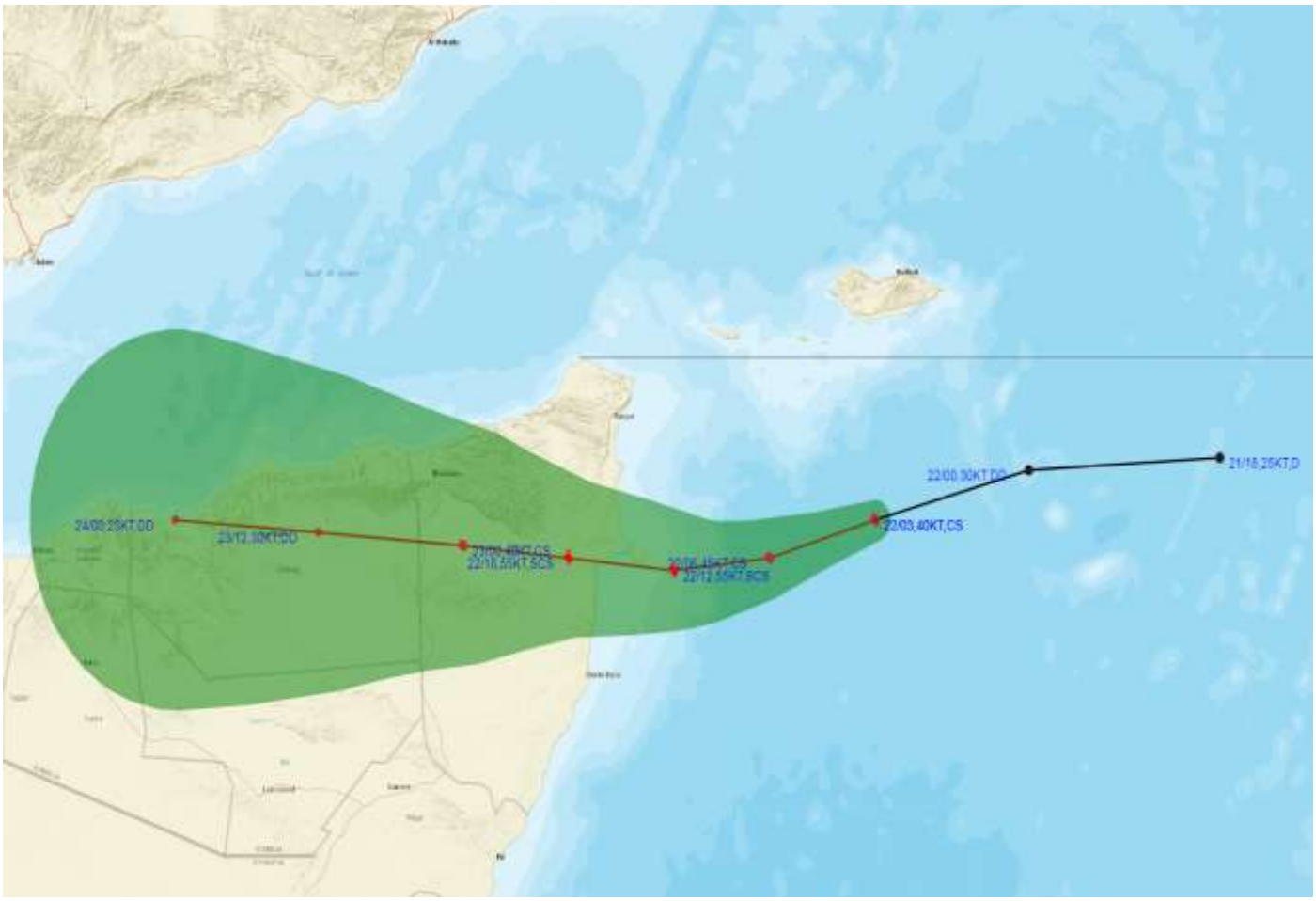
PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)
NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%





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

OBSERVED AND FORECAST TRACK ALONGWITH CONE OF UNCERTAINITY OF CYCLONIC STORM GATI OVER SOUTHWEST ARABIAN SEA BASED ON 0300UTC OF 22nd Nov, 2020

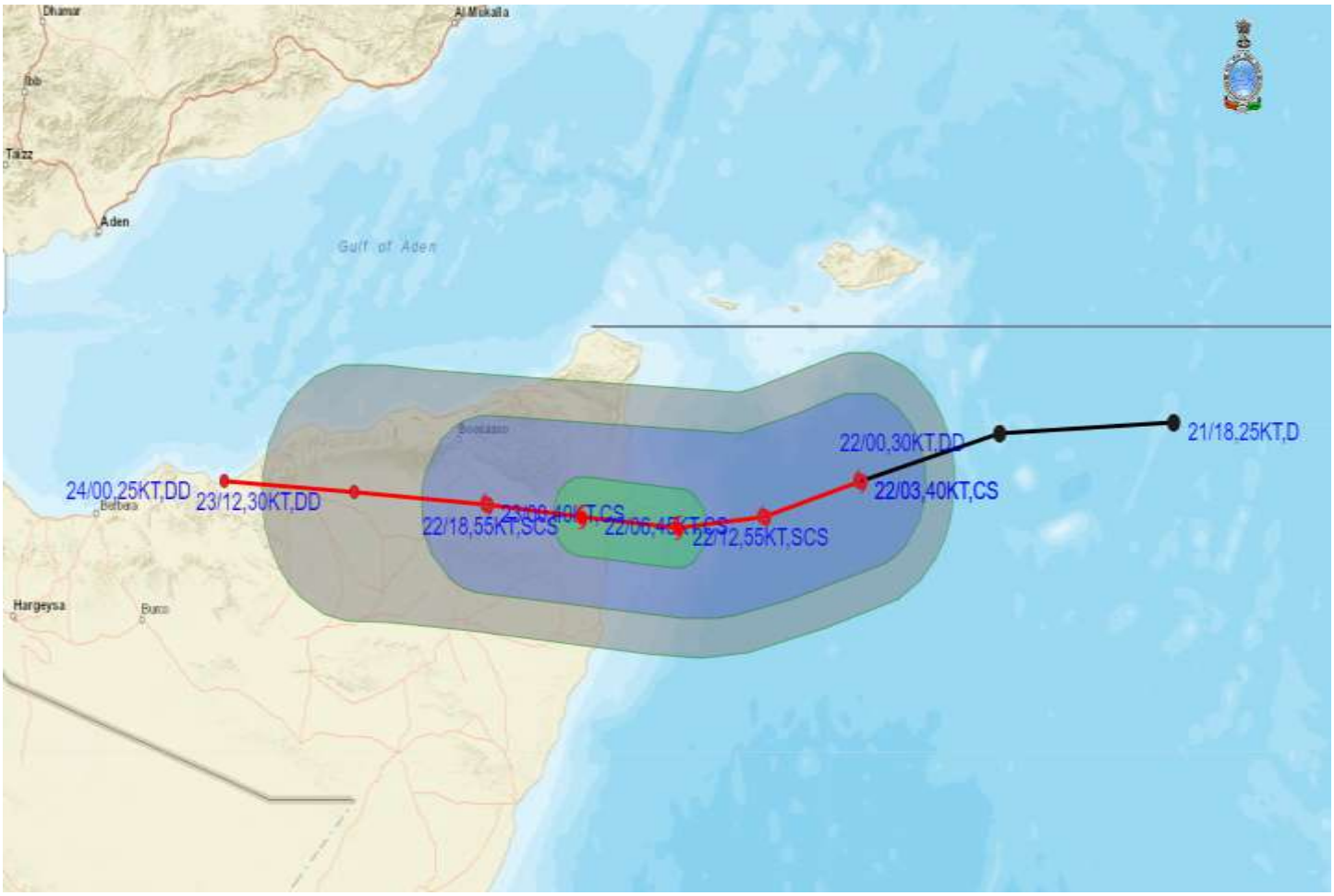


DATE/TIME IN UTC
IST=UTC + 0530
L: LOW PRESSURE AREA
WML: WELL MARKED LOW PRESSURE AREA
D: DEPRESSION (17-27 KT)
DD: DEEP DEPRESSION (28-33 KT)
CS: CYCLONIC STORM (34-47 KT)
SCS: SEVERE CYCLONIC STORM (48-63KT)
VSCS: VERY SEVERE CYCLONIC STORM (64-89 KT)
ESCS: EXTREMELY SEVERE CYCLONIC STORM (90-119 KT)
SuCS: SUPER CYCLONIC STORM (≥20 KT)

LESS THAN 34 KT
34-47 KT
≥ 48 KT
OBSERVED TRACK
FORECAST TRACK
CONE OF UNCERTAINTY

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

OBSERVED AND FORECAST TRACK OF DEPRESSION ALONGWITH QUADRANT WIND DISTRIBUTION OF CYCLONIC STORM GATI OVER SOUTHWEST ARABIAN SEA BASED ON 0300UTC OF 22nd Nov, 2020



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ESCS: EXTREMELY SEVERE CYCLONIC STORM (90-119 KT)
SuCS: SUPER CYCLONIC STORM (≥20 KT)

- LESS THAN 34 KT
- 34-47 KT
- ≥ 48 KT
- OBSERVED TRACK
- FORECAST TRACK
- CONE OF UNCERTAINTY

AREA OF MAXIMUM SUSTAINED WIND SPEED:
- 28-33 KT (52-61 KMPH)
- 34-49 KT (62-91 KMPH)
- 50-63 KT (92-117 KMPH)
- ≥ 64 KT (≥118 KMPH)

IMPACT OVER THE SEA

MSW (knot/kmph)	Impact	Action
28-33 (52-61)	Very rough seas	Total suspension of fishing operations
34-49 (62-91)	High to very high seas	Total suspension of fishing operations
50-63 (92-117)	Very high seas	Total suspension of fishing operations
≥ 64 (≥118)	Phenomenal	Total suspension of fishing operations

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 0900 UTC OF 22.11.2020 BASED ON 0600 UTC OF 22.11.2020.

A. SEVERE CYCLONIC STORM "GATI" OVER SOUTHWEST ARABIAN SEA:

THE CYCLONIC STORM, GATI OVER SOUTHWEST ARABIAN SEA MOVED RAPIDLY WESTSOUTHWESTWARDS WITH A SPEED OF 50 KMPH DURING PAST 06 HOURS, INTENSIFIED FURTHER INTO A SEVERE CYCLONIC STORM **"GATI"** AND LAY CENTERED AT 0600 UTC OF TODAY 22ND NOVEMBER 2020 OVER SOUTHWEST ARABIAN SEA NEAR LATITUDE 10.4° N AND LONGITUDE 52.6°E, ABOUT 290 KM SOUTH-SOUTHEAST OF SOCOTRA (41494), 180 KM EASTSOUTHEAST OF RAS BINNAH AND 270 KM EAST-SOUTHEAST OF ALULA (SOMALIA). IT IS VERY LIKELY TO MOVE NEARLY WESTWARDS AND INTENSIFY FURTHER INTO A VERY SEVERE CYCLONIC STORM DURING NEXT 06 HOURS. IT IS VERY LIKELY TO CROSS SOMALIA COAST AROUND 10.5 DEG N, TO THE SOUTH OF RAS BINNAH (SOMALIA) DURING 1800 TO 2100 UTC OF TODAY, 22ND NOVEMBER AS A VERY SEVERE CYCLONIC STORM WITH A WIND SPEED OF 120-130 KMPH GUSTING TO 145KMPH.

FORECAST TRACK AND INTENSITY ARE GIVEN BELOW:

DATE/TIME(UTC)	POSITION (LAT. ^{0}N/ LONG. ^{0}E)	MAXIMUM SUSTAINED SURFACE WIND SPEED (KMPH)	CATEGORY OF CYCLONIC DISTURBANCE
22.11.20/0600	10.4/52.6	90-100 gusting to 110	Severe Cyclonic Storm
22.11.20/1200	10.3/51.7	120-130 gusting to 145	Very Severe Cyclonic Storm
22.11.20/1800	10.4/50.6	120-130 gusting to 145	Very Severe Cyclonic Storm
23.11.20/0000	10.5/49.5	90-100 gusting to 110	Severe Cyclonic Storm
23.11.20/1200	10.6/48.4	60-70 gusting to 80	Cyclonic Storm
24.11.20/0000	10.7/46.5	40-50 gusting to 60	Depression
24.11.20/0300	10.8/44.5	20-30 gusting to 40	Low Pressure Area

AS PER SATELLITE IMAGERY, THE INTENSITY OF THE SYSTEM IS T 3.0. IT SHOWS CURVED BAND PTTERN WITH SPIRAL BANDING OF 0.75. SATELLITE IMAGERY INDICATES RAPID ORGANIZATION. MAXIMUM CONVECTION LIES IN THE SOUTHERN SECTOR OF VORTEX. BROKEN LOW AND MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION LAY OVER SOUTHWEST & ADJOINING WESTCENTRAL ARABIAN

SEA BETWEEN LATITUDE 8^0N & 12^0N AND LONGITUDE 49.5^0E & 55.5^0E IN ASSOCIATION WITH THE SYSTEM. THE MINIMUM CLOUD TOP TEMPERATURE IS -93^0C.
THE ESTIMATED MAXIMUM SUSTAINED WIND SPEED IS 50 KNOTS GUSTING TO 60 KNOTS. THE ESTIMATED CENTRAL PRESSURE IS 992 HPA. THE SEA CONDITION IS VERY HIGH AROUND THE SYSTEM CENTRE.

B. WELL MARKED LOW PRESSURE AREA OVER SOUTHWEST BAY OF BENGAL:

THE WELL MARKED LOW PRESSURE AREA OVER SOUTHWEST AND ADJOINING SOUTHEAST BAY OF BENGAL PERSISTS. IT IS VERY LIKELY TO CONCENTRATE INTO A DEPRESSION OVER SOUTHWEST BAY OF BENGAL DURING NEXT 24 HOURS AND INTENSIFY FURTHER INTO A CYCLONIC STORM DURING SUBSEQUENT 24 HOURS. IT IS VERY LIKELY TO MOVE NORTHWESTWARDS AND CROSS TAMIL NADU AND PUDUCHERRY COASTS BETWEEN KARAIKAL AND MAHABALIPURAM AROUND 25TH NOVEMBER 2020 NOON/AFTERNOON. THE SYSTEM WHILE MOVING NORTHWESTWARDS, WOULD SKIRT NORTHEAST SRILANKA COAST ON 24TH

BROKEN LOW AND MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION LAY OVER EQUATORIAL INDIAN OCEAN AND ADJOINING SOUTHEAST BAY OF BENGAL, BETWEEN LATITUDE 5.0^0N & 11.0^0N AND LONGITUDE 80.5^0E & 88.0^0E IN ASSOCIATION WITH THE LOW PRESSURE AREA. MINIMUM CLOUD TOP TEMPERATURE IS -93.0^0C.

PROBABILITY OF CYCLOGENESIS(FORMATION OF DEPRESSION) DURING NEXT 120 HRS:

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

REMARKS:

THE MADDEN JULIAN OSCILLATION (MJO) INDEX IS CURRENTLY IN PHASE 3 WITH AMPLITUDE EQUAL TO 1. IT WILL CONTINUE IN SAME PHASE WITH AMPLITUDE BECOMING LESS THAN 1 DURING SUBSEQUENT 4 DAYS. THUS MJO WILL SUPPORT ENHANCEMENT OF CONVECTIVE ACTIVITY OVER THE NORTH INDIAN OCEAN INCLUDING BAY OF BENGAL (BOB) AND ARABIAN SEA (AS) FOR NEXT 5 DAYS.

A. SEVERE CYCLONIC STORM OVER SOUTHWEST ARABIAN SEA:

CONSIDERING THE SEA CONDITIONS, SEA SURFACE TEMPERATURE (SST) IS (26-28°C) OVER SOUTHWEST AND ADJOINING WESTCENTRAL AS. TCHP IS AROUND 60-80 KJ/CM^2 OVER MAJOR PARTS OF SOUTH AS EXCEPT OFF NORTH SOMALIA COAST.

CONSIDERING THE ENVIRONMENTAL CONDITIONS **OVER ARABIAN SEA**, RELATIVE VORTICITY ZONE ($100X10^{-6}S^{-1}$) PREVAIL AROUND THE SYSTEM. AN AREA OF POSITIVE DIVERGENCE $30X10^{-5}S^{-1}$ AND AREA OF POSITIVE CONVERGENCE ZONE ($40 X 10^{-5}S^{-1}$) PREVAILS AROUND THE SYSTEM. THE VERTICAL WIND SHEAR (VWS) IS LOW TO MODERATE (15-20 KTS) OVER AND WEST OF THE SYSTEM THE UPPER TROPOSPHERIC RIDGE AT 200 HPA RUNS ALONG 15°N.

NWP MODELS SUCH AS IMD-GFS, NCEP-GFS, ECMWF, NCUM AND NEPS ARE INDICATING FURTHER INTENSIFICATION IN TO A VERY SEVERE CYCLONIC STORM. ALL MODELS ARE UNANIMOUS ABOUT WEST-NORTHWESTWARD MOVEMENT OF THE SYSTEM TOWARDS NORTH SOMALIA COAST AND THEN INTO GULF OF ADEN.

B. WELL MARKED LOW PRESSURE AREA OVER SOUTH BAY OF BENGAL:

CONSIDERING THE SEA CONDITIONS, SST IS AROUND 29-30°C OVER MOST PARTS OF BAY OF BENGAL (BOB). HIGH TCHP (120-140 KJ/CM^2) PREVAILS IN THE NEAR EQUATORIAL BELT OF NORTH INDIAN OCEAN (NIO) AND ADJOINING SOUTH BOB.
CONSIDERING THE ENVIRONMENTAL CONDITIONS **OVER BOB**, POSITIVE RELATIVE VORTICITY ($25-50X10^{-6}S^{-1}$) PREVAILS OVER THE SYSTEM AREA OVER CENTRAL PARTS OF

SOUTH BOB WITH VERTICAL EXTENSION UPTO 500 HPA LEVEL. AREA OF POSITIVE DIVERGENCE (50-60X$10^{-5}S^{-1}$) PREVAILS OVER SOUTHWEST OF THE SYSTEM AREA OVER CENTRAL PARTS OF SOUTH BOB. AREA OF POSITIVE CONVERGENCE ZONE (20-30 X $20^{-5}S^{-1}$) PREVAILS OVER THE SAME AREA. THE VERTICAL WIND SHEAR (VWS) IS LOW (05-10 KTS) OVER SOUTH AND ADJOINING CENTRAL BOB. THE UPPER TROPOSPHERIC RIDGE AT 200 HPA RUNS ALONG 11.5°N OVER THE BOB.

NWP MODELS LIKE ECMWF, IMD GFS, NCEP GFS, GEFS, NCUM AND NEPS ARE INDICATING INDICATING DEVELOPMENT OF DEPRESSION OVER SOUTHWEST BOB DURING NEXT 24 HOURS AND LIKELY MOVEMENT TOWARDS TAMIL NADU-PUDUCHERY COASTS SKIRTING NORTHEAST SRILANKA COAST. THERE IS A CONSENSUS ABOUT GRADUAL INTENSIFICATION OF THE SYSTEM INTO A CYCLONIC STORM BY $24^{TH.}$

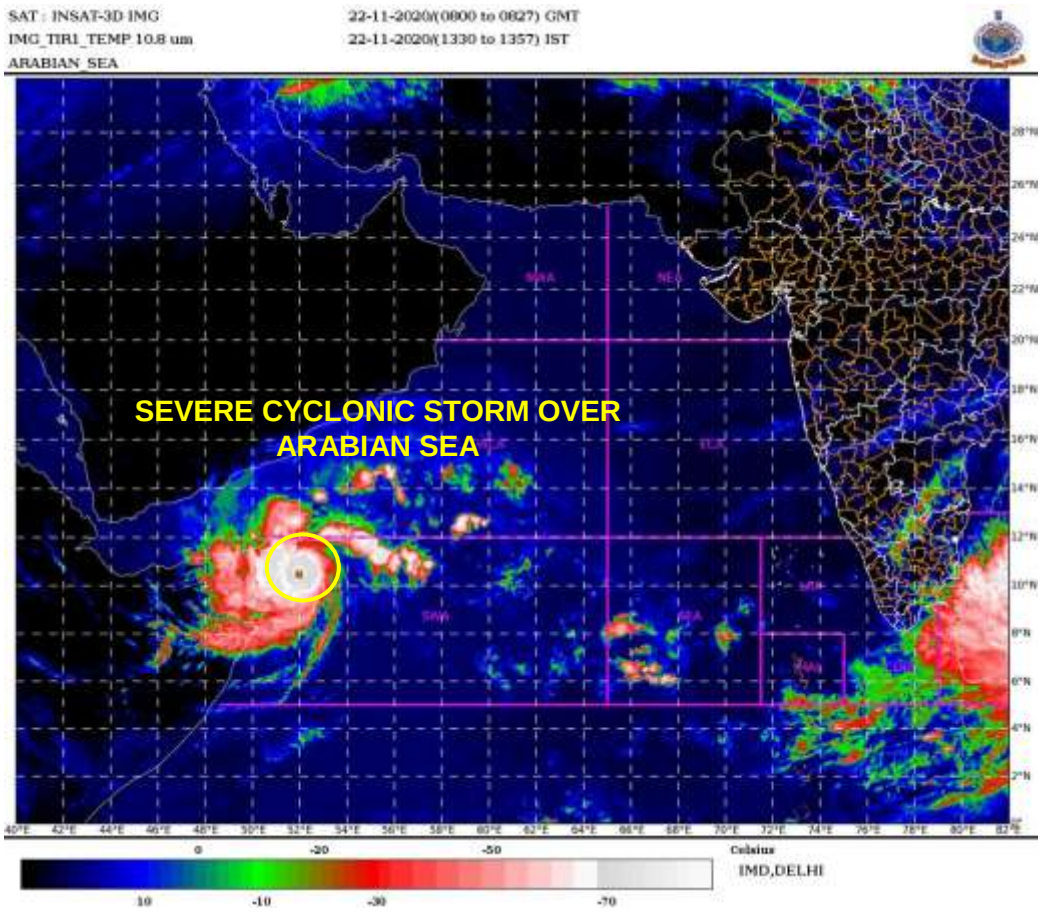
CONCLUSION:

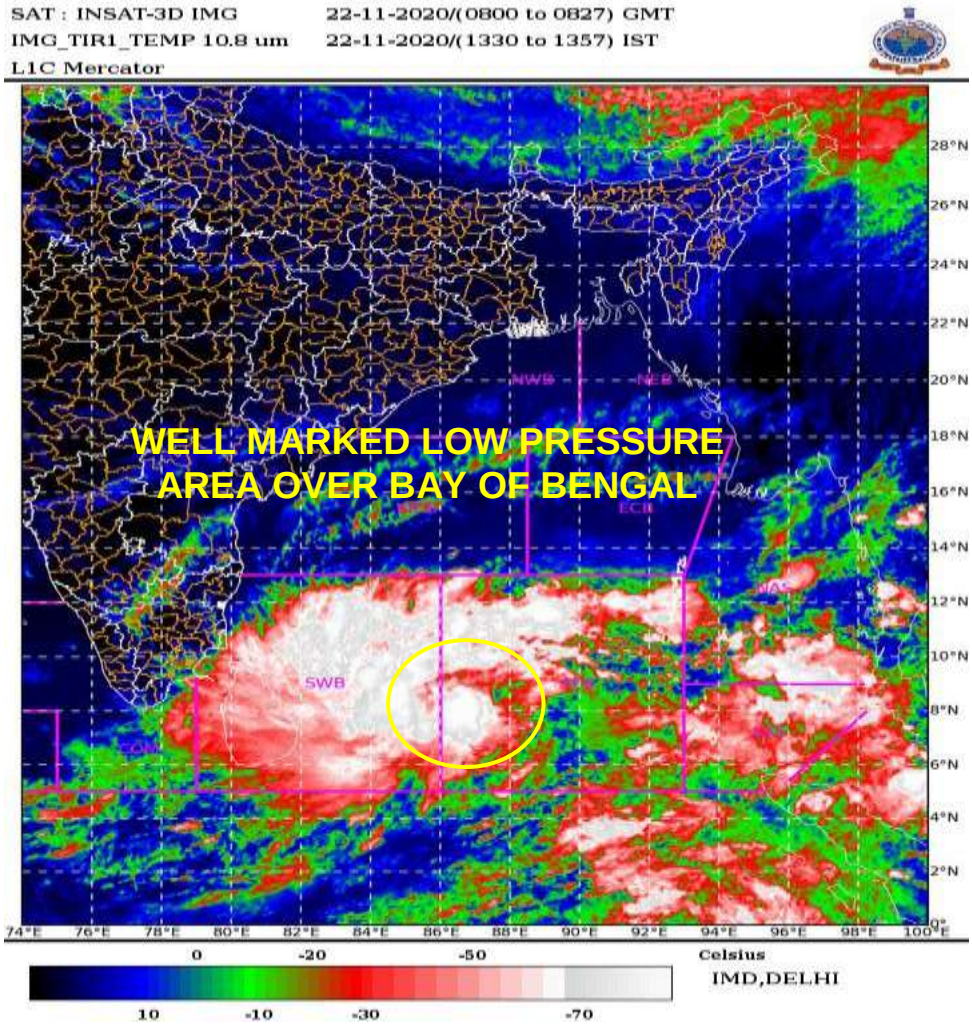
CONSIDERING ALL THE ABOVE, THE EXISTING SEVERE CYCLONIC STORM OVER SOUTHWEST ARABIAN SEA IS EXPECTED TO MOVE WEST-NORTHWESTWARDS AND INTENSIFY FURTHER INTO A VERY SEVERE CYCLONIC STORM OVER SOUTHWEST ARABIAN SEA DURING NEXT 12 HOURS.

THE EXISTING WELL MARKED LOW PRESSURE AREA OVER SOUTHWEST AND ADJOINING SOUTHEAST BAY OF BENGAL IS LIKELY TO CONCENTRATE INTO A DEPRESSION DURING NEXT 24 HOURS, AND INTENSIFY FURTHER INTO A CYCLONIC STORM DURING SUBSEQUENT 24 HOURS. IT IS VERY LIKELY TO MOVE NORTHWESTWARDS AND CROSS TAMIL NADU AND PUDUCHERRY COASTS BETWEEN KARAIKAL AND MAHABALIPURAM AROUND 25^{TH} NOVEMBER 2020 NOON/AFTERNOON. THE SYSTEM WHILE MOVING NORTHWESTWARDS, WOULD SKIRT NORTHEAST SRILANKA COAST ON 24^{TH}

(RK JENAMANI)
SCIENTIST- F
RSMC
NEW DELHI

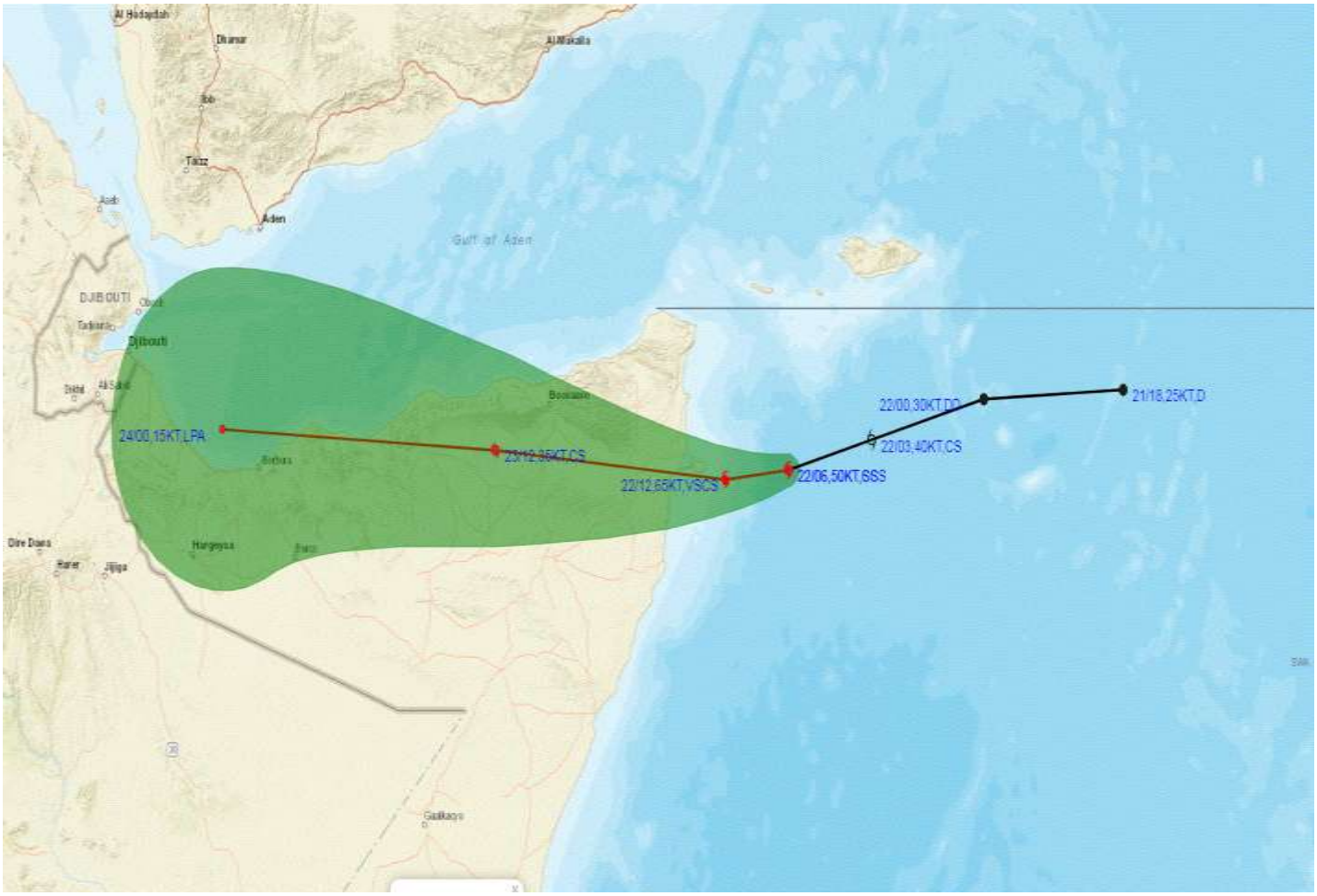
PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)
NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%





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

OBSERVED AND FORECAST TRACK ALONGWITH CONE OF UNCERTAINITY OF SEVERE CYCLONIC STORM GATI OVER SOUTHWEST ARABIAN SEA BASED ON 0600UTC OF 22nd Nov, 2020

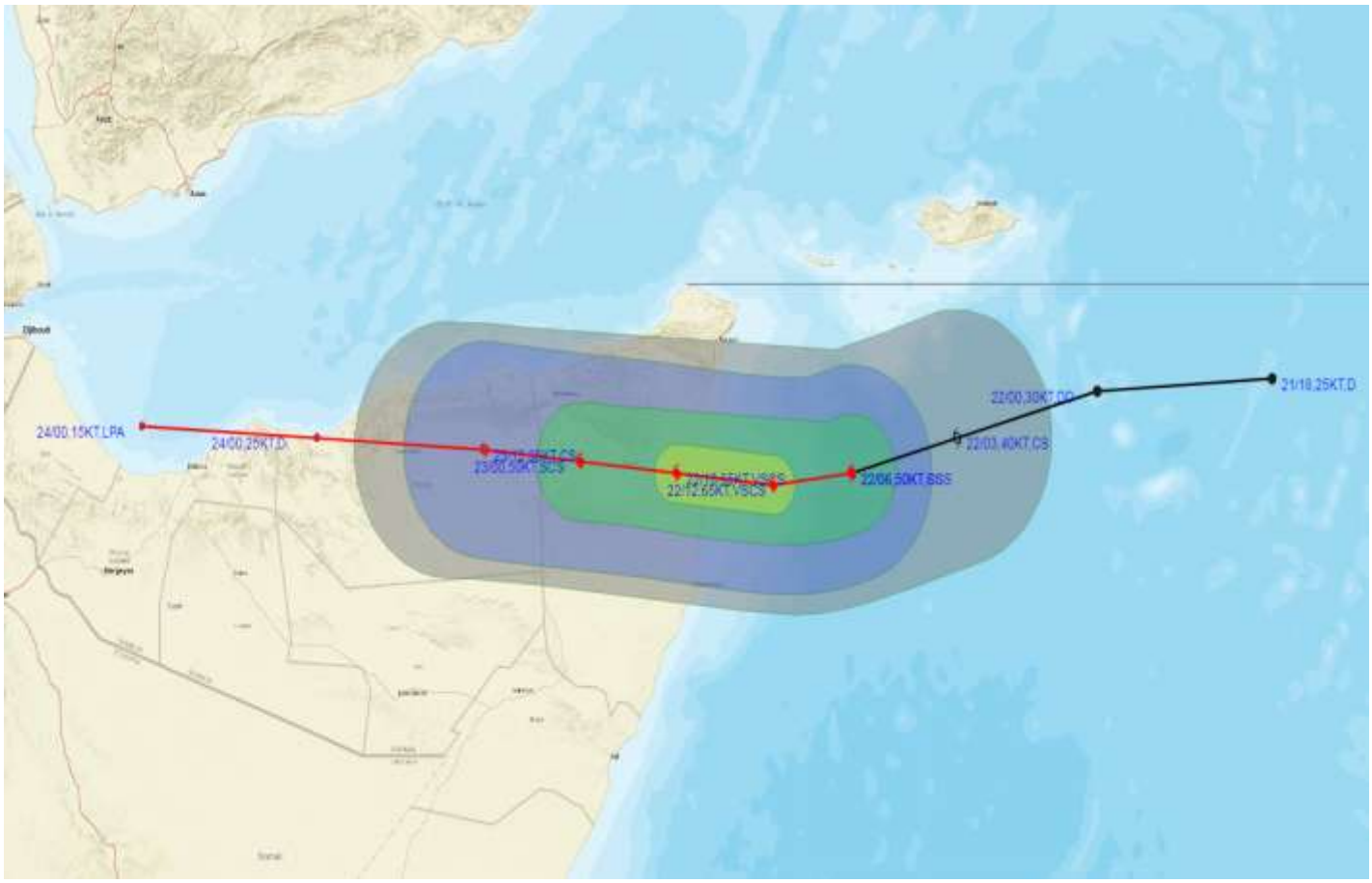


DATE/TIME IN UTC
IST=UTC + 0530
L: LOW PRESSURE AREA
WML: WELL MARKED LOW PRESSURE AREA
D: DEPRESSION (17-27 KT)
DD: DEEP DEPRESSION (28-33 KT)
CS: CYCLONIC STORM (34-47 KT)
SCS: SEVERE CYCLONIC STORM (48-63KT)
VSCS: VERY SEVERE CYCLONIC STORM (64-89 KT)
ESCS: EXTREMELY SEVERE CYCLONIC STORM (90-119 KT)
SuCS: SUPER CYCLONIC STORM ≥120 kt

LESS THAN 34 KT
34-47 KT
≥ 48 KT
OBSERVED TRACK
FORECAST TRACK
CONE OF UNCERTAINTY

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

OBSERVED AND FORECAST TRACK OF DEPRESSION ALONGWITH QUADRANT WIND DISTRIBUTION OF SEVERE CYCLONIC STORM GATI OVER SOUTHWEST ARABIAN SEA BASED ON 0600UTC OF 22nd Nov, 2020



DATE/TIME IN UTC
IST=UTC + 0530
L: LOW PRESSURE AREA
WML: WELL MARKED LOW PRESSURE AREA
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DD: DEEP DEPRESSION (28-33 KT)
CS: CYCLONIC STORM (34-47 KT)
SCS: SEVERE CYCLONIC STORM (48-63KT)

LESS THAN 34 KT
34-47 KT
≥ 48 KT
OBSERVED TRACK
FORECAST TRACK
CONE OF UNCERTAINTY
AREA OF MAXIMUM SUSTAINED WIND SPEED:
28-33 KT (52-61 KMPH)

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 1130 UTC OF 22.11.2020 BASED ON 0900 UTC OF 22.11.2020.

A. VERY SEVERE CYCLONIC STORM "GATI" OVER SOUTHWEST ARABIAN SEA:

THE SEVERE CYCLONIC STORM, **GATI** OVER SOUTHWEST ARABIAN SEA MOVED RAPIDLY NEARLY WESTWARDS WITH A SPEED OF 32 KMPH DURING PAST 06 HOURS, INTENSIFIED FURTHER INTO A VERY SEVERE CYCLONIC STORM AND LAY CENTERED AT 0900 UTC OF TODAY 22ND NOVEMBER 2020 OVER SOUTHWEST ARABIAN SEA NEAR LATITUDE 10.4° N AND LONGITUDE 52.0°E, ABOUT 320 KM SOUTHSOUTHWEST OF SOCOTRA (41494), 120 KM SOUTHEAST OF RAS BINNAH(SOMALIA). IT IS VERY LIKELY TO MOVE NEARLY WESTWARDS AND CROSS SOMALIA COAST AROUND 10.5 DEG N TO THE SOUTH OF RAS BINNAH (SOMALIA) AROUND 1800 UTC OF TODAY, 22ND NOVEMBER AS A VERY SEVERE CYCLONIC STORM WITH A WIND SPEED OF 130-140 KMPH GUSTING TO 155KMPH.

FORECAST TRACK AND INTENSITY ARE GIVEN BELOW:

DATE/TIME(UTC)	POSITION (LAT. ^{0}N/ LONG. ^{0}E)	MAXIMUM SUSTAINED SURFACE WIND SPEED (KMPH)	CATEGORY OF CYCLONIC DISTURBANCE
22.11.20/0900	10.4/52.0	120-130 GUSTING TO 145	VERY SEVERE CYCLONIC STORM
22.11.20/1200	10.4/51.7	130-140 GUSTING TO 155	VERY SEVERE CYCLONIC STORM
22.11.20/1800	10.5/50.6	130-140 GUSTING TO 155	VERY SEVERE CYCLONIC STORM
23.11.20/0000	10.5/49.5	90-100 GUSTING TO 110	SEVERE CYCLONIC STORM
23.11.20/1200	10.6/48.4	60-70 GUSTING TO 80	CYCLONIC STORM
24.11.20/0000	10.7/46.5	40-50 GUSTING TO 60	DEPRESSION
24.11.20/0300	10.8/44.5	20-30 GUSTING TO 40	LOW PRESSURE AREA

AS PER SATELLITE IMAGERY, THE INTENSITY OF THE SYSTEM IS T 4.0. IT SHOWS EYE PTTERN WITH IREGULAR EYE. SPIRAL BAND HAS ENTERED INTO THE LAND INDICATING INTERACTION OF THE SYSTEM WITH LAND SURFACE. MAXIMUM CONVECTION LIES IN THE SOUTHERN SECTOR OF VORTEX. BROKEN LOW AND MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION LAY OVER SOUTHWEST &

ADJOINING WESTCENTRAL ARABIAN SEA BETWEEN LATITUDE 8^0N & 12^0N AND LONGITUDE 49.5^0E & 55.5^0E IN ASSOCIATION WITH THE SYSTEM. THE MINIMUM CLOUD TOP TEMPERATURE IS -93^0C.
THE ESTIMATED MAXIMUM SUSTAINED WIND SPEED IS 65 KNOTS GUSTING TO 75 KNOTS. THE ESTIMATED CENTRAL PRESSURE IS 982 HPA. THE SEA CONDITION IS PHENOMENAL AROUND THE SYSTEM CENTRE.

B. WELL MARKED LOW PRESSURE AREA OVER SOUTHWEST BAY OF BENGAL:

THE WELL MARKED LOW PRESSURE AREA OVER SOUTHWEST AND ADJOINING SOUTHEAST BAY OF BENGAL PERSISTS. IT IS VERY LIKELY TO CONCENTRATE INTO A DEPRESSION OVER SOUTHWEST BAY OF BENGAL DURING NEXT 24 HOURS AND INTENSIFY FURTHER INTO A CYCLONIC STORM DURING SUBSEQUENT 24 HOURS. IT IS VERY LIKELY TO MOVE NORTHWESTWARDS AND CROSS TAMIL NADU AND PUDUCHERRY COASTS BETWEEN KARAIKAL AND MAHABALIPURAM AROUND 25TH NOVEMBER 2020 NOON/AFTERNOON. THE SYSTEM WHILE MOVING NORTHWESTWARDS, WOULD SKIRT NORTHEAST SRILANKA COAST ON 24TH

BROKEN LOW AND MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION LAY OVER EQUATORIAL INDIAN OCEAN AND ADJOINING SOUTHEAST BAY OF BENGAL, BETWEEN LATITUDE 5.0^0N & 11.0^0N AND LONGITUDE 80.5^0E & 88.0^0E IN ASSOCIATION WITH THE LOW PRESSURE AREA. MINIMUM CLOUD TOP TEMPERATURE IS -93.0^0C.

PROBABILITY OF CYCLOGENESIS(FORMATION OF DEPRESSION) DURING NEXT 120 HRS:

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

REMARKS:

THE MADDEN JULIAN OSCILLATION (MJO) INDEX IS CURRENTLY IN PHASE 3 WITH AMPLITUDE EQUAL TO 1. IT WILL CONTINUE IN SAME PHASE WITH AMPLITUDE BECOMING LESS THAN 1 DURING SUBSEQUENT 4 DAYS. THUS MJO WILL SUPPORT ENHANCEMENT OF CONVECTIVE ACTIVITY OVER THE NORTH INDIAN OCEAN INCLUDING BAY OF BENGAL (BOB) AND ARABIAN SEA (AS) FOR NEXT 5 DAYS.

A. VERY SEVERE CYCLONIC STORM OVER SOUTHWEST ARABIAN SEA:

CONSIDERING THE SEA CONDITIONS, SEA SURFACE TEMPERATURE (SST) IS (26-28°C) OVER SOUTHWEST AND ADJOINING WESTCENTRAL AS. TCHP IS AROUND 60-80 KJ/CM^2 OVER MAJOR PARTS OF SOUTH AS EXCEPT OFF NORTH SOMALIA COAST.

CONSIDERING THE ENVIRONMENTAL CONDITIONS **OVER ARABIAN SEA**, RELATIVE VORTICITY ZONE ($100X10^{-6}S^{-1}$) PREVAIL AROUND THE SYSTEM. AN AREA OF POSITIVE DIVERGENCE $30X10^{-5}S^{-1}$ AND AREA OF POSITIVE CONVERGENCE ZONE ($40 X 10^{-5}S^{-1}$) PREVAILS AROUND THE SYSTEM. THE VERTICAL WIND SHEAR (VWS) IS LOW TO MODERATE (15-20 KTS) OVER AND WEST OF THE SYSTEM THE UPPER TROPOSPHERIC RIDGE AT 200 HPA RUNS ALONG 15°N.

NWP MODELS SUCH AS IMD-GFS, NCEP-GFS, ECMWF, NCUM AND NEPS ARE INDICATING SLIGHTLY FURTHER INTENSIFICATION. ALL MODELS ARE UNANIMOUS ABOUT WEST-NORTHWESTWARD MOVEMENT OF THE SYSTEM TOWARDS NORTH SOMALIA COAST AND THEN INTO GULF OF ADEN.

B. WELL MARKED LOW PRESSURE AREA OVER SOUTH BAY OF BENGAL:

CONSIDERING THE SEA CONDITIONS, SST IS AROUND 29-30°C OVER MOST PARTS OF BAY OF BENGAL (BOB). HIGH TCHP (120-140 KJ/CM^2) PREVAILS IN THE NEAR EQUATORIAL BELT OF NORTH INDIAN OCEAN (NIO) AND ADJOINING SOUTH BOB.

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 **OVER BOB**, POSITIVE RELATIVE VORTICITY (25-50X$10^{-6}S^{-1}$) PREVAILS OVER THE SYSTEM AREA OVER CENTRAL PARTS OF SOUTH BOB WITH VERTICAL EXTENSION UPTO 500 HPA LEVEL. AREA OF POSITIVE DIVERGENCE (50-60X$10^{-5}S^{-1}$) PREVAILS OVER SOUTHWEST OF THE SYSTEM AREA OVER CENTRAL PARTS OF SOUTH BOB. AREA OF POSITIVE CONVERGENCE ZONE (20-30 X $20^{-5}S^{-1}$) PREVAILS OVER THE SAME AREA. THE VERTICAL WIND SHEAR (VWS) IS LOW (05-10 KTS) OVER SOUTH AND ADJOINING CENTRAL BOB. THE UPPER TROPOSPHERIC RIDGE AT 200 HPA RUNS ALONG 11.5°N OVER THE BOB.

NWP MODELS LIKE ECMWF, IMD GFS, NCEP GFS, GEFS, NCUM AND NEPS ARE INDICATING INDICATING DEVELOPMENT OF DEPRESSION OVER SOUTHWEST BOB DURING NEXT 24 HOURS AND LIKELY MOVEMENT TOWARDS TAMIL NADU-PUDUCHERY COASTS SKIRTING NORTHEAST SRILANKA COAST. THERE IS A CONSENSUS ABOUT GRADUAL INTENSIFICATION OF THE SYSTEM INTO A CYCLONIC STORM BY $24^{TH.}$

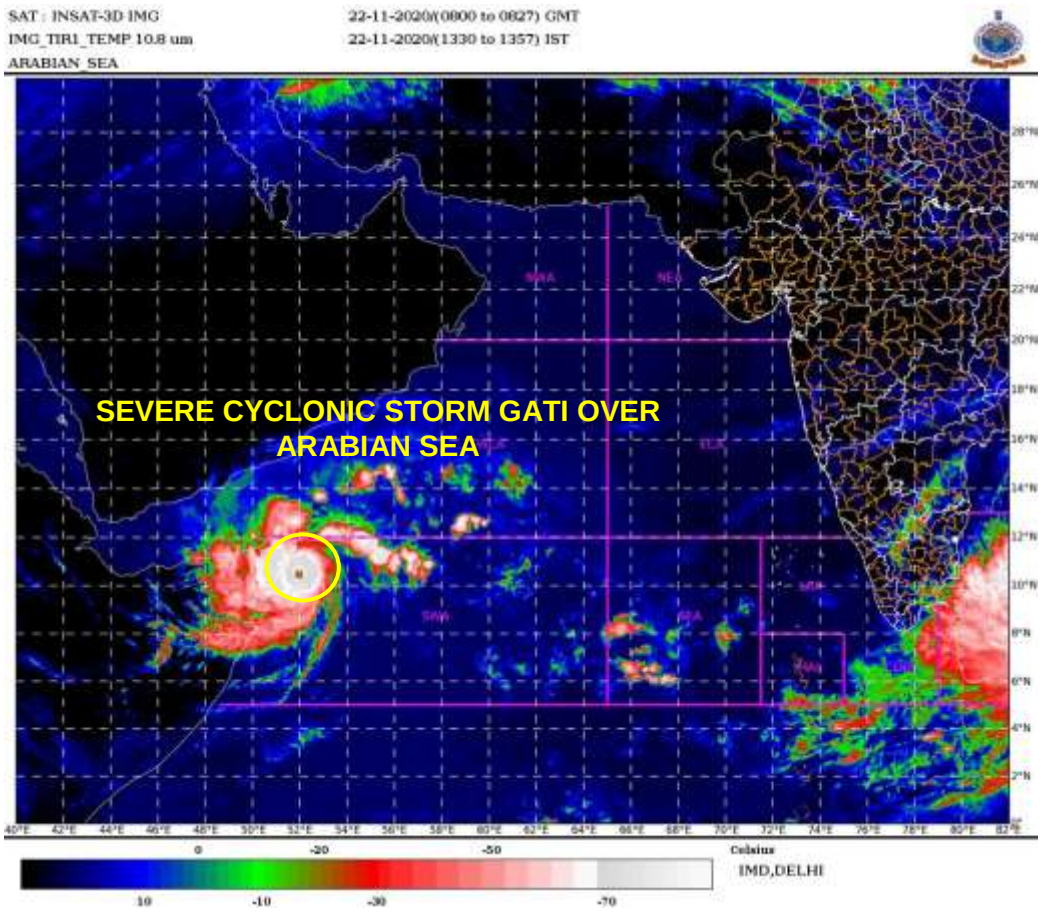
CONCLUSION:

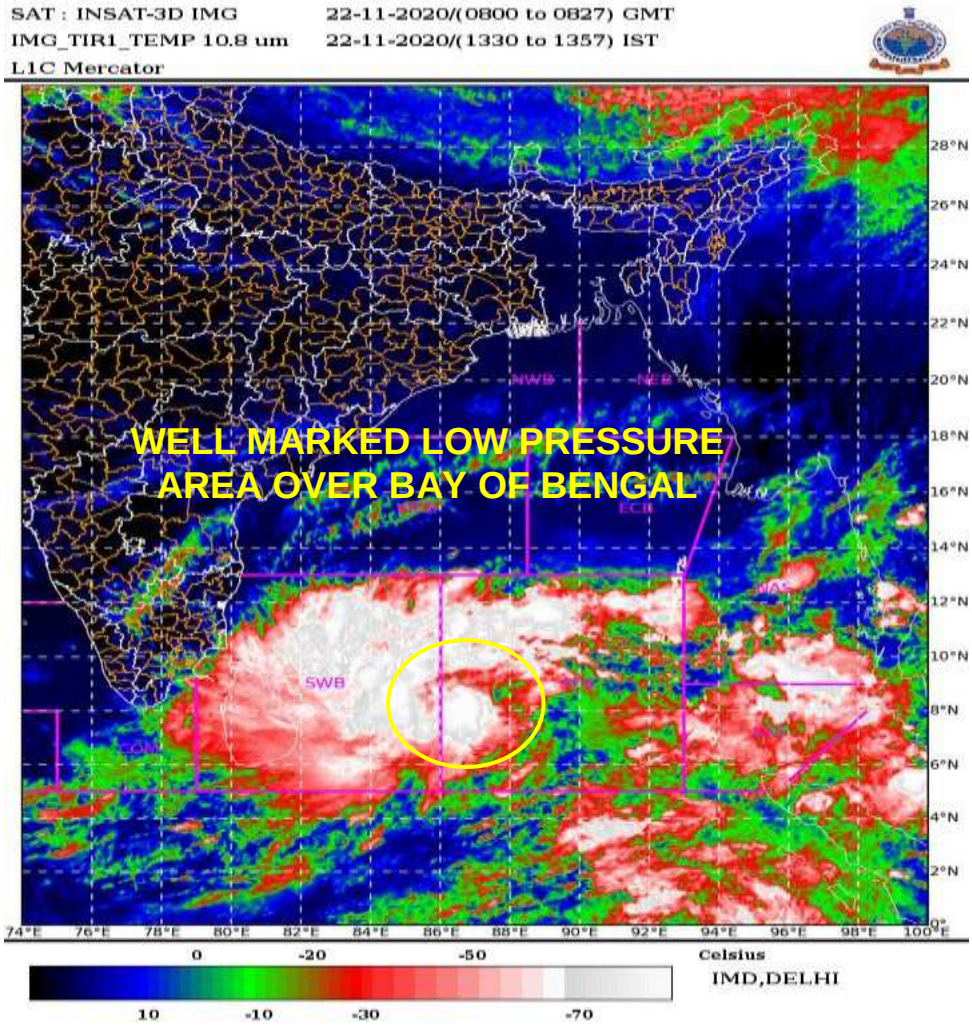
CONSIDERING ALL THE ABOVE, THE EXISTING VERY SEVERE CYCLONIC STORM OVER SOUTHWEST ARABIAN SEA IS EXPECTED TO MOVE WEST-NORTHWESTWARDS OVER SOUTHWEST ARABIAN SEA DURING NEXT 12 HOURS.

THE EXISTING WELL MARKED LOW PRESSURE AREA OVER SOUTHWEST AND ADJOINING SOUTHEAST BAY OF BENGAL IS LIKELY TO CONCENTRATE INTO A DEPRESSION DURING NEXT 24 HOURS, AND INTENSIFY FURTHER INTO A CYCLONIC STORM DURING SUBSEQUENT 24 HOURS. IT IS VERY LIKELY TO MOVE NORTHWESTWARDS AND CROSS TAMIL NADU AND PUDUCHERRY COASTS BETWEEN KARAIKAL AND MAHABALIPURAM AROUND 25^{TH} NOVEMBER 2020 NOON/AFTERNOON. THE SYSTEM WHILE MOVING NORTHWESTWARDS, WOULD SKIRT NORTHEAST SRILANKA COAST ON 24^{TH}

(RK JENAMANI)
SCIENTIST- F
RSMC
NEW DELHI

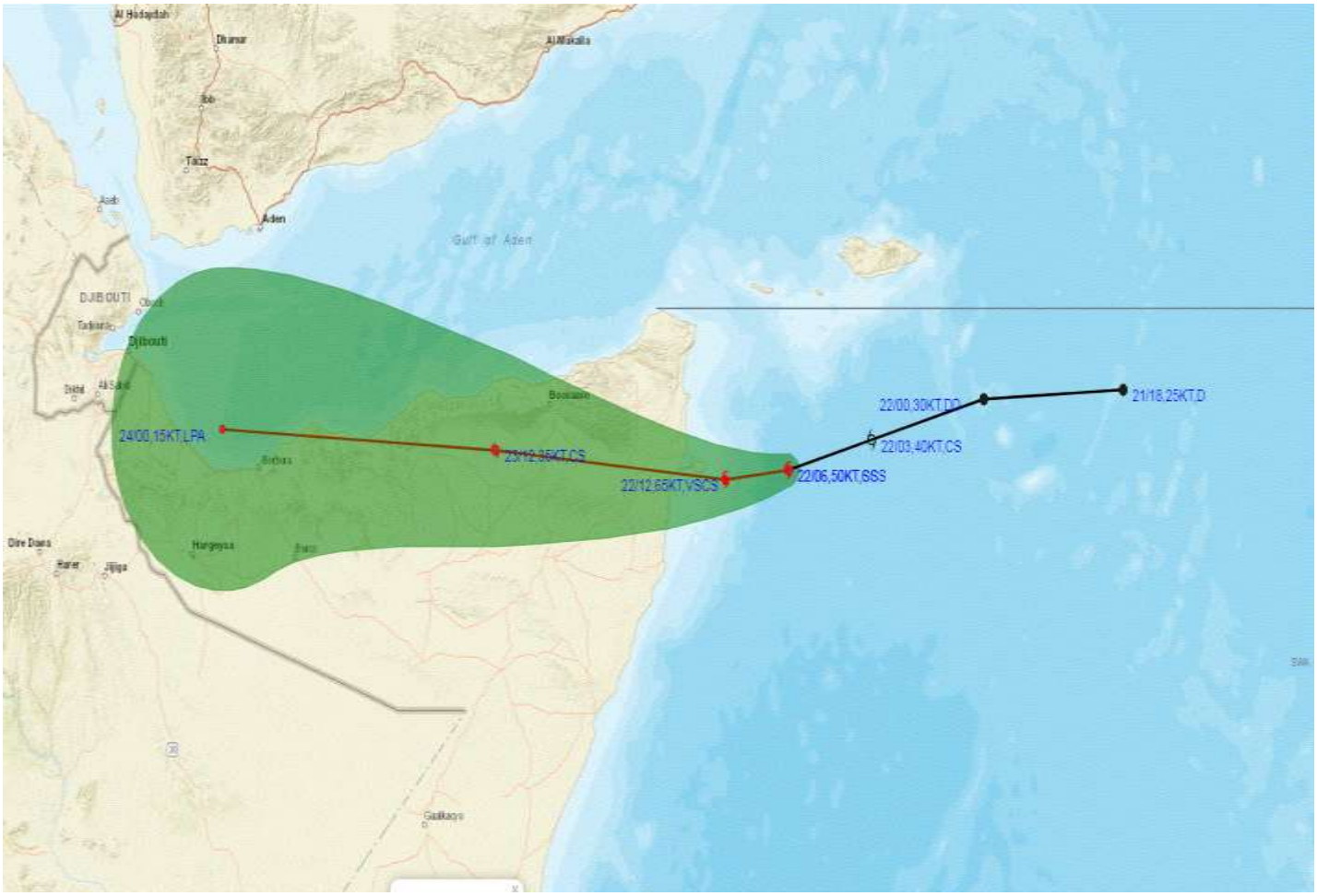
PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)
NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%





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

OBSERVED AND FORECAST TRACK ALONGWITH CONE OF UNCERTAINITY OF SEVERE CYCLONIC STORM GATI OVER SOUTHWEST ARABIAN SEA BASED ON 0600UTC OF 22nd Nov, 2020

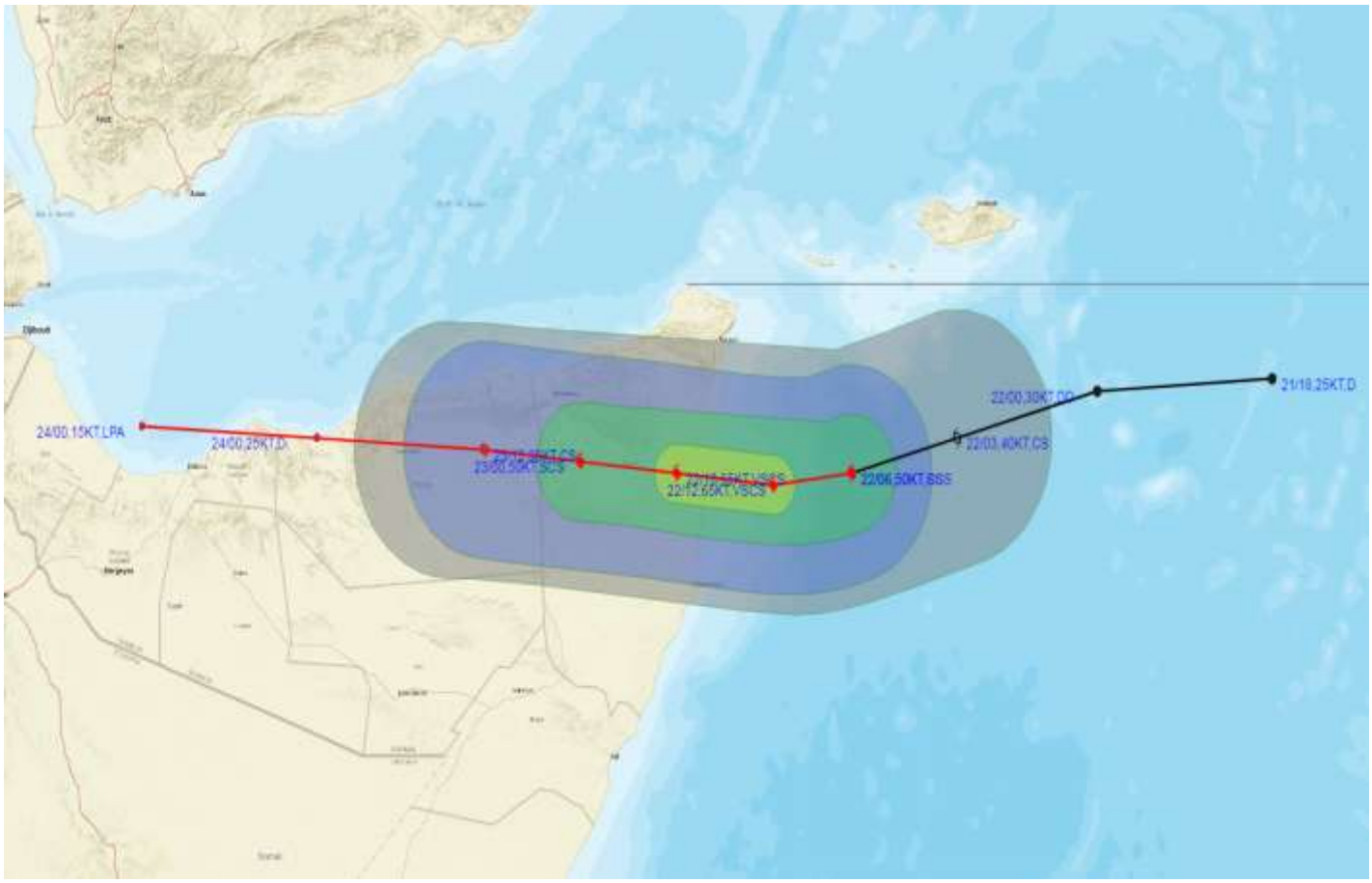


DATE/TIME IN UTC
IST=UTC + 0530
L: LOW PRESSURE AREA
WML: WELL MARKED LOW PRESSURE AREA
D: DEPRESSION (17-27 KT)
DD: DEEP DEPRESSION (28-33 KT)
CS: CYCLONIC STORM (34-47 KT)
SCS: SEVERE CYCLONIC STORM (48-63KT)
VSCS: VERY SEVERE CYCLONIC STORM (64-89 KT)
ESCS: EXTREMELY SEVERE CYCLONIC STORM (90-119 KT)
SuCS: SUPER CYCLONIC STORM ≥120 kt

LESS THAN 34 KT
34-47 KT
≥ 48 KT
OBSERVED TRACK
FORECAST TRACK
CONE OF UNCERTAINTY

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

OBSERVED AND FORECAST TRACK OF DEPRESSION ALONGWITH QUADRANT WIND DISTRIBUTION OF SEVERE CYCLONIC STORM GATI OVER SOUTHWEST ARABIAN SEA BASED ON 0600UTC OF 22nd Nov, 2020



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DD: DEEP DEPRESSION (28-33 KT)
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SCS: SEVERE CYCLONIC STORM (48-63KT)

LESS THAN 34 KT
34-47 KT
≥ 48 KT
OBSERVED TRACK
FORECAST TRACK
CONE OF UNCERTAINTY
AREA OF MAXIMUM SUSTAINED WIND SPEED:
28-33 KT (52-61 KMPH)

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 1430 UTC OF 22.11.2020 BASED ON 1200 UTC OF 22.11.2020.

A. VERY SEVERE CYCLONIC STORM "GATI" OVER SOUTHWEST ARABIAN SEA CLOSED TO SOMALI COAST:

THE VERY SEVERE CYCLONIC STORM, **GATI** OVER SOUTHWEST ARABIAN SEA MOVED WESTWARDS WITH A SPEED OF 18 KMPH DURING PAST 06 HOURS AND LAY CENTERED AT 1200 UTC OF TODAY 22ND NOVEMBER 2020 OVER SOUTHWEST ARABIAN SEA NEAR LATITUDE 10.4° N AND LONGITUDE 51.5°E, ABOUT 40 KM EAST OF SOMALIA COAST AND 90 KM SOUTH-SOUTHEAST OF RAS BINNAH(SOMALIA). IT IS VERY LIKELY TO MOVE NEARLY WESTWARDS AND CROSS SOMALIA COAST AROUND 10.5 DEG N TO THE SOUTH OF RAS BINNAH (SOMALIA) WITHIN NEXT THREE HOURS AS A VERY SEVERE CYCLONIC STORM WITH A WIND SPEED OF 130-140 KMPH GUSTING TO 155 KMPH.

FORECAST TRACK AND INTENSITY ARE GIVEN BELOW:

DATE/TIME(UTC)	POSITION (LAT. ^{0}N/ LONG. ^{0}E)	MAXIMUM SUSTAINED SURFACE WIND SPEED (KMPH)	CATEGORY OF CYCLONIC DISTURBANCE
22.11.20/1200	10.4/51.5	130-140 GUSTING TO 155	VERY SEVERE CYCLONIC STORM
22.11.20/1800	10.5/50.6	120-130 GUSTING TO 145	VERY SEVERE CYCLONIC STORM
23.11.20/0000	10.6/49.5	90-100 GUSTING TO 110	SEVERE CYCLONIC STORM
23.11.20/0600	10.6/48.4	60-70 GUSTING TO 80	CYCLONIC STORM
23.11.20/1200	10.6/47.3	40-50 GUSTING TO 60	DEPRESSION
24.11.20/0000	10.5/45.1	20-30 GUSTING TO 40	LOW PRESSURE AREA

AS PER SATELLITE IMAGERY, THE INTENSITY OF THE SYSTEM IS T 4.5. IT SHOWS EYE PTTERN WITH RUGGED EYE PATTERN AND EYE TEMPERATURE IS -37.0 DEG C. SPIRAL BAND HAS ENTERED INTO THE LAND INDICATING INTERACTION OF THE SYSTEM WITH LAND SURFACE. MAXIMUM CONVECTION LIES IN THE SOUTHERN SECTOR OF VORTEX. BROKEN LOW AND MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION LAY OVER SOUTHWEST & ADJOINING WESTCENTRAL ARABIAN SEA BETWEEN LATITUDE 8^{0}N & 12^{0}N AND LONGITUDE 49.5^{0}E & 55.5^{0}E IN ASSOCIATION WITH

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

THE SYSTEM.
THE ESTIMATED MAXIMUM SUSTAINED WIND SPEED IS 75 KNOTS GUSTING TO 85 KNOTS. THE ESTIMATED CENTRAL PRESSURE IS 978 HPA. THE SEA CONDITION IS PHENOMENAL AROUND THE SYSTEM CENTRE.

B. WELL MARKED LOW PRESSURE AREA OVER SOUTHWEST BAY OF BENGAL:

THE WELL MARKED LOW PRESSURE AREA OVER SOUTHWEST AND ADJOINING SOUTHEAST BAY OF BENGAL PERSISTS. IT IS VERY LIKELY TO CONCENTRATE INTO A DEPRESSION OVER SOUTHWEST BAY OF BENGAL DURING NEXT 12 HOURS AND INTENSIFY FURTHER INTO A CYCLONIC STORM DURING SUBSEQUENT 24 HOURS. IT IS VERY LIKELY TO MOVE NORTHWESTWARDS AND CROSS TAMIL NADU AND PUDUCHERRY COASTS BETWEEN KARAIKAL AND MAHABALIPURAM AROUND 25TH NOVEMBER 2020 NOON/AFTERNOON. THE SYSTEM WHILE MOVING NORTHWESTWARDS, WOULD SKIRT NORTHEAST SRILANKA COAST ON 24TH NOVEMBER.

AS PER SATELLITE IMAGERY, THE VORTEX ASSOCIATED WITH THIS SYSTEM LIES OVER CENTRAL PARTS OF SOUTH BAY OF BENGAL CENTERED 7.5^{0}N/85.5^{0}E (.) AND INTENSITY IS T1.0/1.0. BROKEN LOW AND MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION LAY OVER EQUATORIAL INDIAN OCEAN AND ADJOINING SOUTHEAST BAY OF BENGAL, BETWEEN LATITUDE 5.0^{0}N & 13.0^{0}N AND LONGITUDE 80.5^{0}E & 90.0^{0}E IN ASSOCIATION WITH THE SYSTEM. MINIMUM CLOUD TOP TEMPERATURE IS -93.0^{0}C.

PROBABILITY OF CYCLOGENESIS(FORMATION OF DEPRESSION) DURING NEXT 120 HRS:

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

REMARKS:

THE MADDEN JULIAN OSCILLATION (MJO) INDEX IS CURRENTLY IN PHASE 3 WITH AMPLITUDE EQUAL TO 1. IT WILL CONTINUE IN SAME PHASE WITH AMPLITUDE BECOMING LESS THAN 1 DURING SUBSEQUENT 4 DAYS. THUS MJO WILL SUPPORT ENHANCEMENT OF CONVECTIVE ACTIVITY OVER THE NORTH INDIAN OCEAN INCLUDING BAY OF BENGAL (BOB) AND ARABIAN SEA (AS) FOR NEXT 5 DAYS.

A. VERY SEVERE CYCLONIC STORM OVER SOUTHWEST ARABIAN SEA:

CONSIDERING THE SEA CONDITIONS, SEA SURFACE TEMPERATURE (SST) IS (26-28°C) OVER SOUTHWEST AND ADJOINING WESTCENTRAL AS. TCHP IS AROUND 60-80 KJ/CM^2 OVER MAJOR PARTS OF SOUTH AS EXCEPT OFF NORTH SOMALIA COAST.

CONSIDERING THE ENVIRONMENTAL CONDITIONS **OVER ARABIAN SEA**, RELATIVE VORTICITY ZONE (100X10^{-6}S^{-1}) PREVAIL AROUND THE SYSTEM. AN AREA OF POSITIVE DIVERGENCE 30X10^{-5}S^{-1} AND AREA OF POSITIVE CONVERGENCE ZONE (20 X 10^{-5}S^{-1}) PREVAILS AROUND THE SYSTEM. THE VERTICAL WIND SHEAR (VWS) IS LOW TO MODERATE (15-20 KTS) OVER AND WEST OF THE SYSTEM THE UPPER TROPOSPHERIC RIDGE AT 200 HPA RUNS ALONG 15°N.

NWP MODELS SUCH AS IMD-GFS, NCEP-GFS, ECMWF, NCUM AND NEPS ARE UNANIMOUS ABOUT WESTWARD MOVEMENT OF THE SYSTEM TOWARDS NORTH SOMALIA COAST.

B. WELL MARKED LOW PRESSURE AREA OVER SOUTH BAY OF BENGAL:

CONSIDERING THE SEA CONDITIONS, SST IS AROUND 29-30°C OVER MOST PARTS OF BAY OF BENGAL (BOB). HIGH TCHP (120-140 KJ/CM^2) PREVAILS IN THE NEAR EQUATORIAL BELT OF NORTH INDIAN OCEAN (NIO) AND ADJOINING SOUTH BOB.
CONSIDERING THE ENVIRONMENTAL CONDITIONS **OVER BOB**, POSITIVE RELATIVE VORTICITY (100X10^{-6}S^{-1}) PREVAILS OVER THE SYSTEM AREA OVER CENTRAL PARTS OF SOUTH BOB WITH VERTICAL EXTENSION UPTO 500 HPA LEVEL. AREA OF POSITIVE

DIVERGENCE ($40X10^{-5}S^{-1}$) PREVAILS OVER SOUTHWEST OF THE SYSTEM AREA OVER CENTRAL PARTS OF SOUTH BOB. AREA OF POSITIVE CONVERGENCE ZONE ($20\text{-}30 \text{ X } 20^{-5}S^{-1}$) PREVAILS OVER THE SAME AREA. THE VERTICAL WIND SHEAR (VWS) IS LOW (05-10 KTS) OVER SOUTH AND ADJOINING CENTRAL BOB. THE UPPER TROPOSPHERIC RIDGE AT 200 HPA RUNS ALONG 11.5°N OVER THE BOB.

NWP MODELS LIKE ECMWF, IMD GFS, NCEP GFS, GEFS, NCUM AND NEPS ARE INDICATING INDICATING DEVELOPMENT OF DEPRESSION OVER SOUTHWEST BOB DURING NEXT 12 HOURS AND LIKELY MOVEMENT TOWARDS TAMIL NADU-PUDUCHERY COASTS SKIRTING NORTHEAST SRILANKA COAST. THERE IS A CONSENSUS ABOUT GRADUAL INTENSIFICATION OF THE SYSTEM INTO A CYCLONIC STORM BY $24^{TH.}$

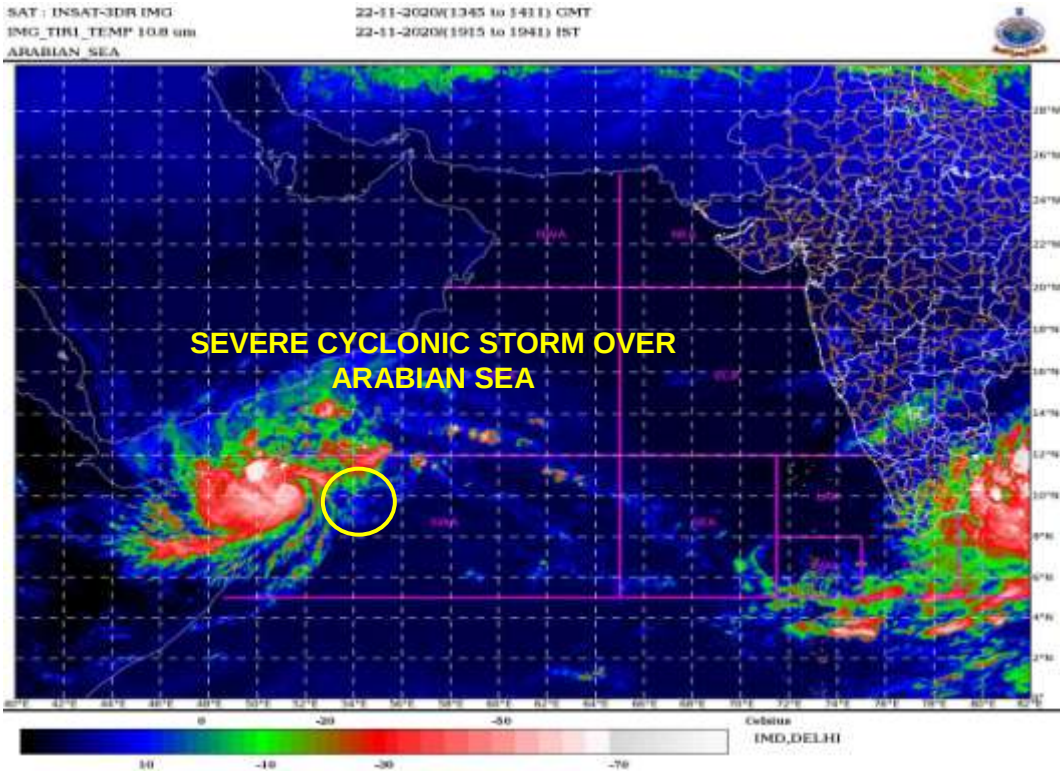
CONCLUSION:

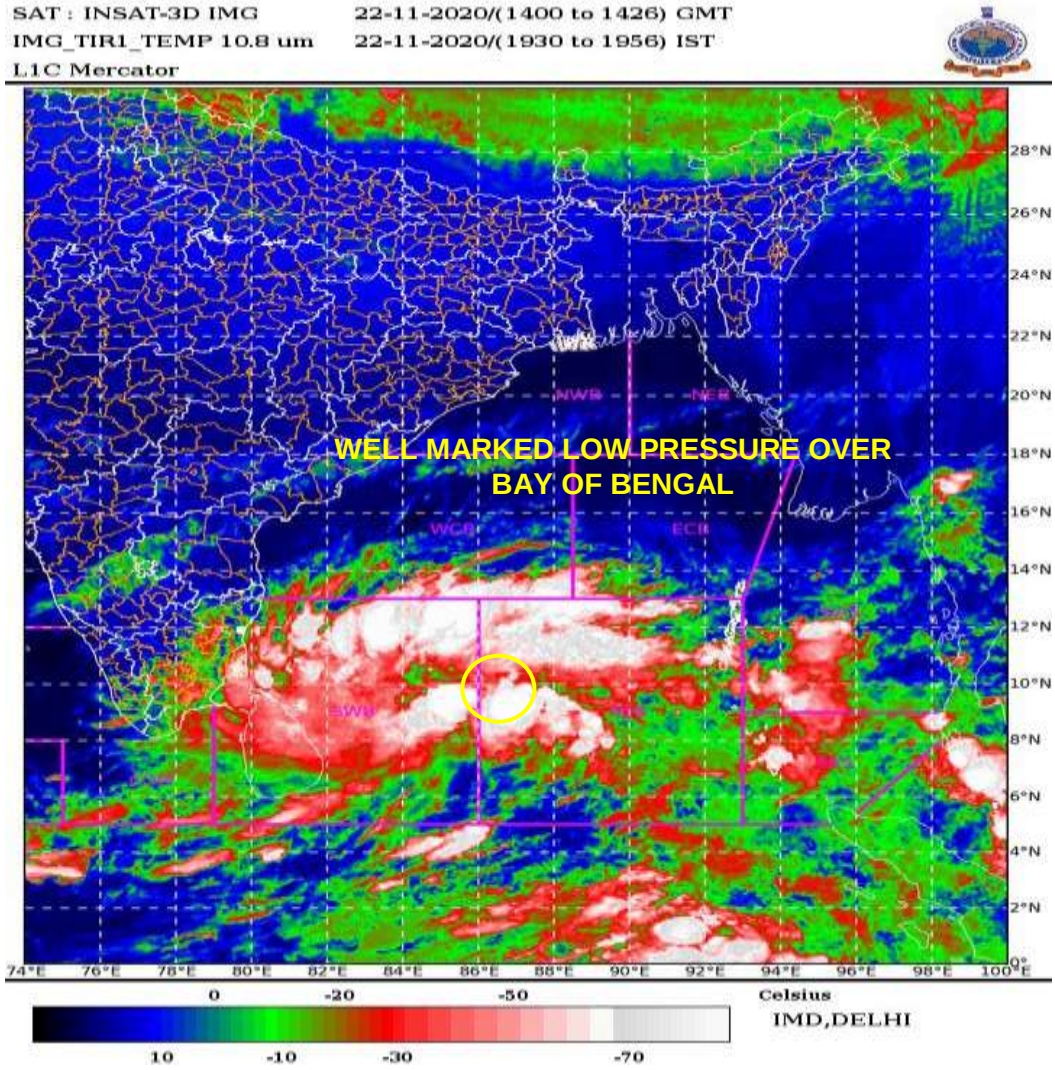
CONSIDERING ALL THE ABOVE, THE EXISTING VERY SEVERE CYCLONIC STORM OVER SOUTHWEST ARABIAN SEA IS EXPECTED TO MOVE WESTWARDS OVER SOUTHWEST ARABIAN SEA TOWARDS NORTH SOMALIA COAST DURING NEXT 03 HOURS.

THE EXISTING WELL MARKED LOW PRESSURE AREA OVER SOUTHWEST AND ADJOINING SOUTHEAST BAY OF BENGAL IS LIKELY TO CONCENTRATE INTO A DEPRESSION DURING NEXT 12 HOURS, AND INTENSIFY FURTHER INTO A CYCLONIC STORM DURING SUBSEQUENT 24 HOURS. IT IS VERY LIKELY TO MOVE NORTHWESTWARDS AND CROSS TAMIL NADU AND PUDUCHERRY COASTS BETWEEN KARAIKAL AND MAHABALIPURAM AROUND 25^{TH} NOVEMBER 2020 NOON/AFTERNOON. THE SYSTEM WHILE MOVING NORTHWESTWARDS, WOULD SKIRT NORTHEAST SRILANKA COAST ON 24^{TH}

(RK JENAMANI)
SCIENTIST- F
RSMC
NEW DELHI

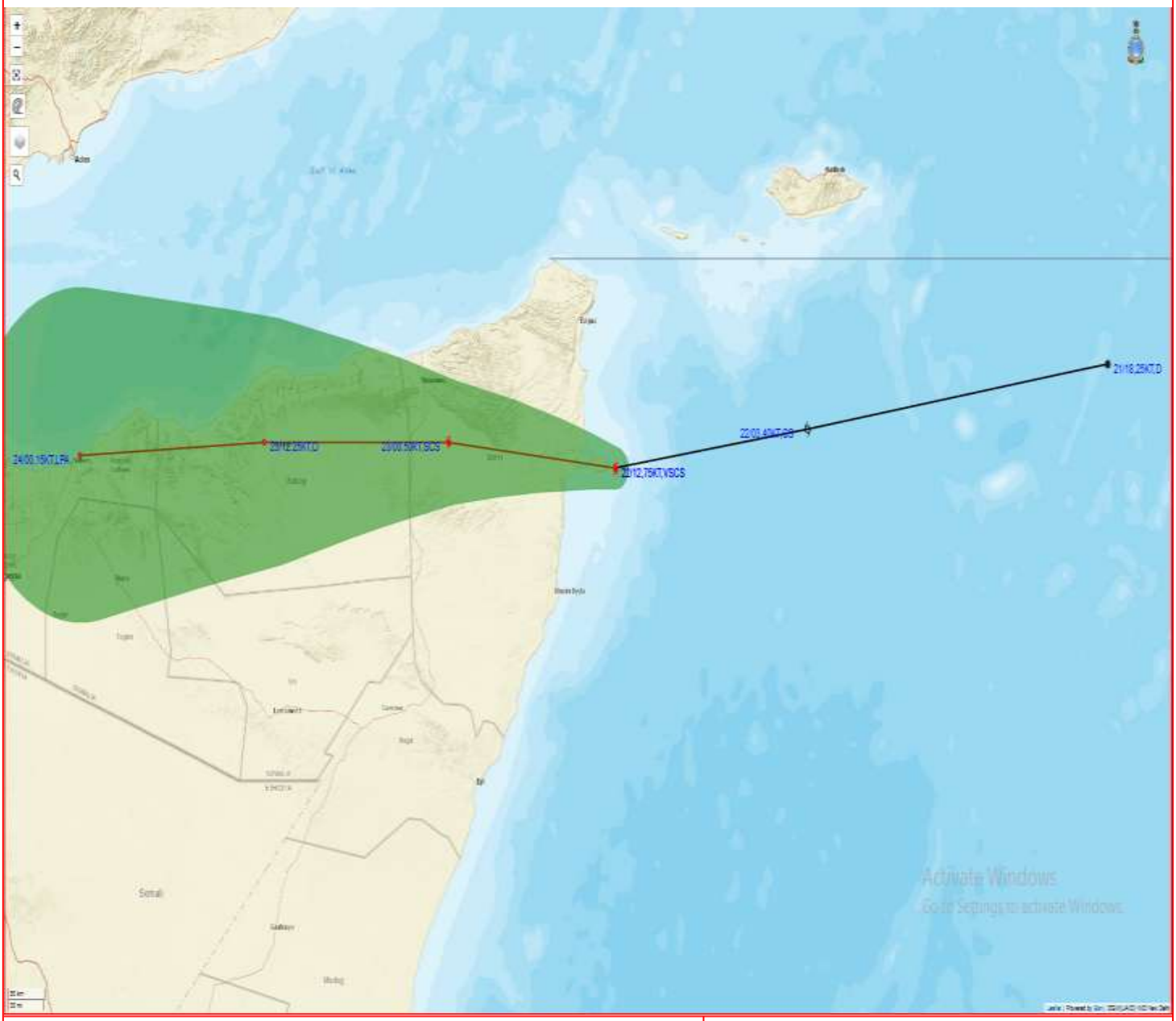
PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)
NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%





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

OBSERVED AND FORECAST TRACK ALONGWITH CONE OF UNCERTAINITY OF SEVERE CYCLONIC STORM GATI OVER SOUTHWEST ARABIAN SEA BASED ON 1200 UTC OF 22nd Nov, 2020

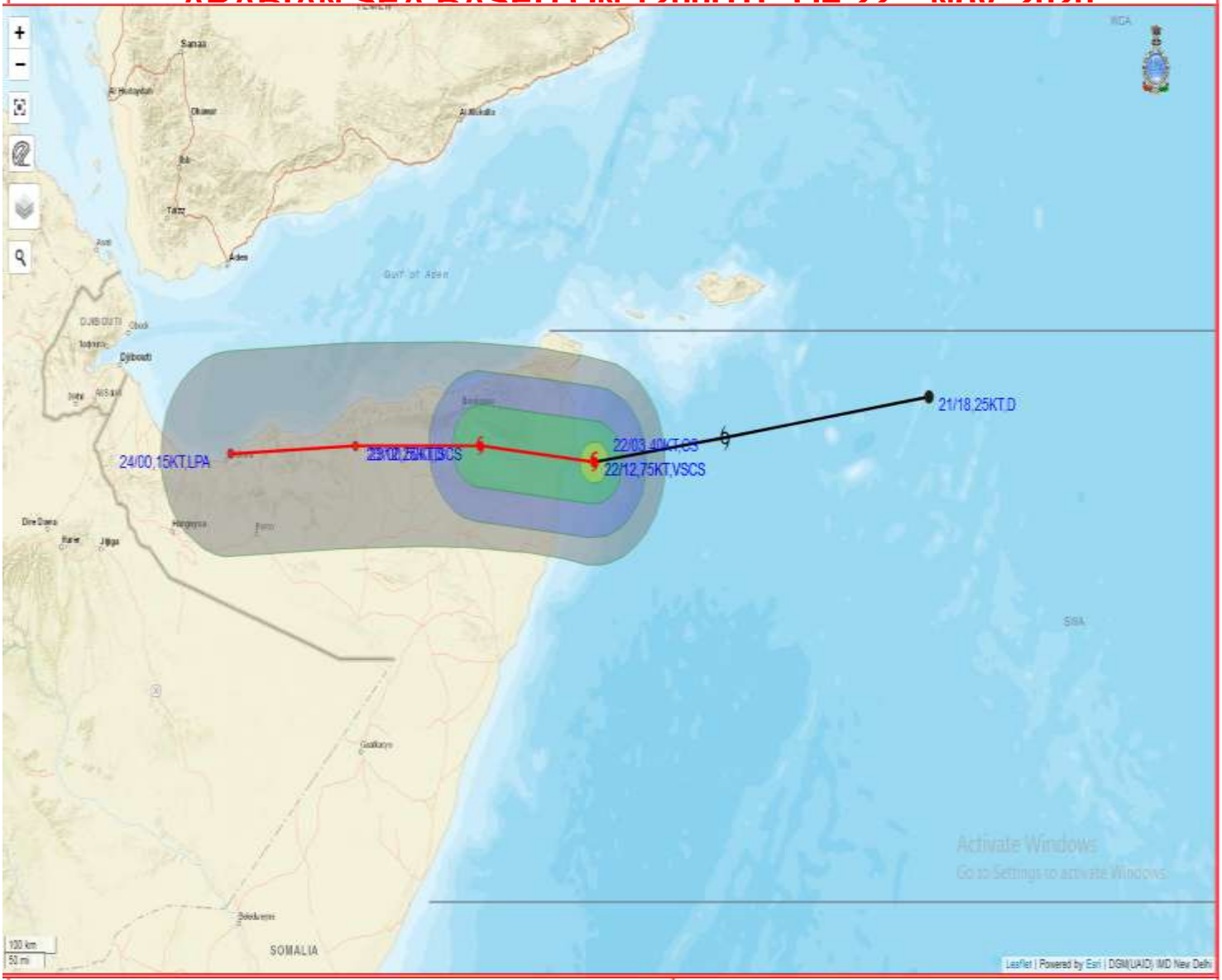


DATE/TIME IN UTC
IST=UTC + 0530
L: LOW PRESSURE AREA
WML: WELL MARKED LOW PRESSURE AREA
D: DEPRESSION (17-27 KT)
DD: DEEP DEPRESSION (28-33 KT)
CS: CYCLONIC STORM (34-47 KT)
SCS: SEVERE CYCLONIC STORM (48-63KT)
VSCS: VERY SEVERE CYCLONIC STORM (64-89 KT)
ESCS: EXTREMELY SEVERE CYCLONIC STORM (90-119 KT)
SuCS: SUPER CYCLONIC STORM (≥20 KT)

LESS THAN 34 KT
34-47 KT
≥ 48 KT
OBSERVED TRACK
FORECAST TRACK
CONE OF UNCERTAINTY

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

OBSERVED AND FORECAST TRACK OF DEPRESSION ALONGWITH QUADRANT WIND DISTRIBUTION OF SEVERE CYCLONIC STORM GATI OVER SOUTHWEST ARABIAN SEA BASED ON 1200UTC OF 22nd Nov, 2020



DATE/TIME IN UTC
IST=UTC + 0530
L: LOW PRESSURE AREA
WML: WELL MARKED LOW PRESSURE AREA
D: DEPRESSION (17-27 KT)
DD: DEEP DEPRESSION (28-33 KT)
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SCS: SEVERE CYCLONIC STORM (48-63KT)
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ESCS: EXTREMELY SEVERE CYCLONIC STORM (90-119 KT)
SuCS: SUPER CYCLONIC STORM (≥20 KT)

LESS THAN 34 KT
34-47 KT
≥ 48 KT
OBSERVED TRACK
FORECAST TRACK
CONE OF UNCERTAINTY
AREA OF MAXIMUM SUSTAINED WIND SPEED:
28-33 KT (52-61 KMPH)
34-49 KT (62-91 KMPH)
50-63 KT (92-117 KMPH)
≥ 64 KT (≥118 KMPH)

IMPACT OVER THE SEA

MSW (knot/kmph)	Impact	Action
28-33 (52-61)	Very rough seas	Total suspension of fishing operations
34-49 (62-91)	High to very high seas	Total suspension of fishing operations
50-63 (92-117)	Very high seas	Total suspension of fishing operations
≥ 64 (≥118)	Phenomenal	Total suspension of fishing operations

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

REGIONAL SPECIALISED METEOROLOGICAL CENTRE-TROPICAL CYCLONES, NEW DELHI

TROPICAL CYCLONE ADVISORY BULLETIN NO. 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 1700 UTC OF 22.11.2020 BASED ON 1500 UTC OF 22.11.2020.

A. VERY SEVERE CYCLONIC STORM "GATI" CROSSING SOMALIA COAST:

THE VERY SEVERE CYCLONIC STORM "GATI" OVER SOUTHWEST ARABIAN SEA MOVED NEARLY WESTWARDS WITH A SPEED OF ABOUT 18 KMPH DURING PAST 06 HOURS AND LAY CENTRED OVER SOMALIA COAST AT 1500 UTC OF TODAY 22ND NOVEMBER 2020 NEAR LATITUDE 10.4°N AND LONGITUDE 51.0°E, 80 KM SOUTH-SOUTHEAST OF RAS BINNAH (SOMALIA). THE LANDFALL PROCESS IS CONTINUING AND IT WILL TAKE ABOUT AN HOUR TO COMPLETE THE ENTIRE LANDFALL PROCESS WITH A WIND SPEED OF 130-140 KMPH GUSTING TO 155 KMPH. IT IS VERY LIKELY TO MOVE NEARLY WESTWARDS AND WEAKEN GRADUALLY INTO A SEVERE CYCLONIC STORM DURING NEXT 3 TO 6 HOURS AND INTO A CYCLONIC STORM DURING SUBSEQUENT 6 HOURS.

FORECAST TRACK AND INTENSITY ARE GIVEN BELOW:

DATE/TIME(UTC)	POSITION (LAT. ^{0}N/ LONG. ^{0}E)	MAXIMUM SUSTAINED SURFACE WIND SPEED (KMPH)	CATEGORY OF CYCLONIC DISTURBANCE
22.11.20/1500	10.4/51.0	130-140 GUSTING TO 155	VERY SEVERE CYCLONIC STORM
22.11.20/1800	10.5/50.6	120-130 GUSTING TO 145	VERY SEVERE CYCLONIC STORM
23.11.20/0000	10.6/49.5	90-100 GUSTING TO 110	SEVERE CYCLONIC STORM
23.11.20/0600	10.6/48.4	60-70 GUSTING TO 80	CYCLONIC STORM
23.11.20/1200	10.6/47.3	40-50 GUSTING TO 60	DEPRESSION
24.11.20/0000	10.5/45.1	20-30 GUSTING TO 40	LOW PRESSURE AREA

AS PER SATELLITE IMAGERY, THE INTENSITY OF THE SYSTEM IS T 4.5. BROKEN LOW AND MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION LAY OVER SOUTHWEST ARABIAN SEA AND NORTHEAST SOMALIA BETWEEN LATITUDE 8^{0}N & 12.2^{0}N AND LONGITUDE 46.0^{0}E & 52.5^{0}E IN ASSOCIATION WITH THE SYSTEM.
THE ESTIMATED MAXIMUM SUSTAINED WIND SPEED IS 75 KNOTS GUSTING TO 85 KNOTS. THE ESTIMATED CENTRAL PRESSURE IS 978 HPA. THE SEA CONDITION IS PHENOMENAL AROUND THE SYSTEM CENTRE.

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

B. WELL MARKED LOW PRESSURE AREA OVER SOUTHWEST BAY OF BENGAL:

THE WELL MARKED LOW PRESSURE AREA OVER SOUTHWEST AND ADJOINING SOUTHEAST BAY OF BENGAL PERSISTS. IT IS VERY LIKELY TO CONCENTRATE INTO A DEPRESSION OVER SOUTHWEST BAY OF BENGAL DURING NEXT 12 HOURS AND INTENSIFY FURTHER INTO A CYCLONIC STORM DURING SUBSEQUENT 24 HOURS. IT IS VERY LIKELY TO MOVE NORTHWESTWARDS AND CROSS TAMIL NADU AND PUDUCHERRY COASTS BETWEEN KARAIKAL AND MAHABALIPURAM AROUND 25TH NOVEMBER 2020 NOON/AFTERNOON. THE SYSTEM WHILE MOVING NORTHWESTWARDS, WOULD SKIRT NORTHEAST SRILANKA COAST ON 24TH NOVEMBER.

AS PER SATELLITE IMAGERY, THE VORTEX ASSOCIATED WITH THIS SYSTEM LIES OVER CENTRAL PARTS OF SOUTH BAY OF BENGAL CENTERED 8.0^{0}N/85.3^{0}E (.) AND INTENSITY IS T1.0/1.0. BROKEN LOW AND MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION LAY OVER EQUATORIAL INDIAN OCEAN AND ADJOINING SOUTHEAST BAY OF BENGAL, BETWEEN LATITUDE 8.0^{0}N & 14.0^{0}N AND LONGITUDE 80.5^{0}E & 90.0^{0}E IN ASSOCIATION WITH THE SYSTEM. MINIMUM CLOUD TOP TEMPERATURE IS -93.0^{0}C.

PROBABILITY OF CYCLOGENESIS(FORMATION OF DEPRESSION) DURING NEXT 120 HRS:

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

REMARKS:

THE MADDEN JULIAN OSCILLATION (MJO) INDEX IS CURRENTLY IN PHASE 3 WITH AMPLITUDE EQUAL TO 1. IT WILL CONTINUE IN SAME PHASE WITH AMPLITUDE BECOMING LESS THAN 1 DURING SUBSEQUENT 4 DAYS. THUS MJO WILL SUPPORT ENHANCEMENT OF CONVECTIVE ACTIVITY OVER THE NORTH INDIAN OCEAN INCLUDING BAY OF BENGAL (BOB) AND ARABIAN SEA (AS) FOR NEXT 5 DAYS.

A. VERY SEVERE CYCLONIC STORM OVER SOUTHWEST ARABIAN SEA:

THE PROCESS OF LANDFALL IS CONTINUING AND IT WILL TAKE ABOUT AN HOUR TO COMPLETE THE LANDFALL PROCESS. CONSIDERING THE ENVIRONMENTAL CONDITIONS **OVER ARABIAN SEA**, RELATIVE VORTICITY ZONE (100X10^{-6}S^{-1}) PREVAIL AROUND THE SYSTEM. AN AREA OF POSITIVE DIVERGENCE 15X10^{-5}S^{-1} AND AREA OF POSITIVE CONVERGENCE ZONE (05 X 10^{-5}S^{-1}) PREVAILS AROUND THE SYSTEM. THE VERTICAL WIND SHEAR (VWS) IS LOW TO MODERATE (15-20 KTS) OVER AND WEST OF THE SYSTEM THE UPPER TROPOSPHERIC RIDGE AT 200 HPA RUNS ALONG 15°N.

NWP MODELS SUCH AS IMD-GFS, NCEP-GFS, ECMWF, NCUM AND NEPS ARE UNANIMOUS ABOUT WESTWARD MOVEMENT OF THE SYSTEM AFTER CROSSING THE NORTH SOMALIA COAST.

B. WELL MARKED LOW PRESSURE AREA OVER SOUTH BAY OF BENGAL:

CONSIDERING THE SEA CONDITIONS, SST IS AROUND 29-30°C OVER MOST PARTS OF BAY OF BENGAL (BOB). HIGH TCHP (120-140 KJ/CM^2) PREVAILS IN THE NEAR EQUATORIAL BELT OF NORTH INDIAN OCEAN (NIO) AND ADJOINING SOUTH BOB.
CONSIDERING THE ENVIRONMENTAL CONDITIONS **OVER BOB**, POSITIVE RELATIVE VORTICITY (100X10^{-6}S^{-1}) PREVAILS OVER THE SYSTEM AREA OVER CENTRAL PARTS OF SOUTH BOB WITH VERTICAL EXTENSION UPTO 500 HPA LEVEL. AREA OF POSITIVE DIVERGENCE (40X10^{-5}S^{-1}) PREVAILS OVER SOUTHWEST OF THE SYSTEM AREA OVER CENTRAL PARTS OF SOUTH BOB. AREA OF POSITIVE CONVERGENCE ZONE (20-30 X 20^{-5}S^{-1}) PREVAILS OVER THE SAME AREA. THE VERTICAL WIND SHEAR (VWS) IS LOW (05-10

KTS) OVER SOUTH AND ADJOINING CENTRAL BOB. THE UPPER TROPOSPHERIC RIDGE AT 200 HPA RUNS ALONG 11.5°N OVER THE BOB.

NWP MODELS LIKE ECMWF, IMD GFS, NCEP GFS, GEFS, NCUM AND NEPS ARE INDICATING INDICATING DEVELOPMENT OF DEPRESSION OVER SOUTHWEST BOB DURING NEXT 12 HOURS AND LIKELY MOVEMENT TOWARDS TAMIL NADU-PUDUCHERY COASTS SKIRTING NORTHEAST SRILANKA COAST. THERE IS A CONSENSUS ABOUT GRADUAL INTENSIFICATION OF THE SYSTEM INTO A CYCLONIC STORM BY 24$^{TH.}$

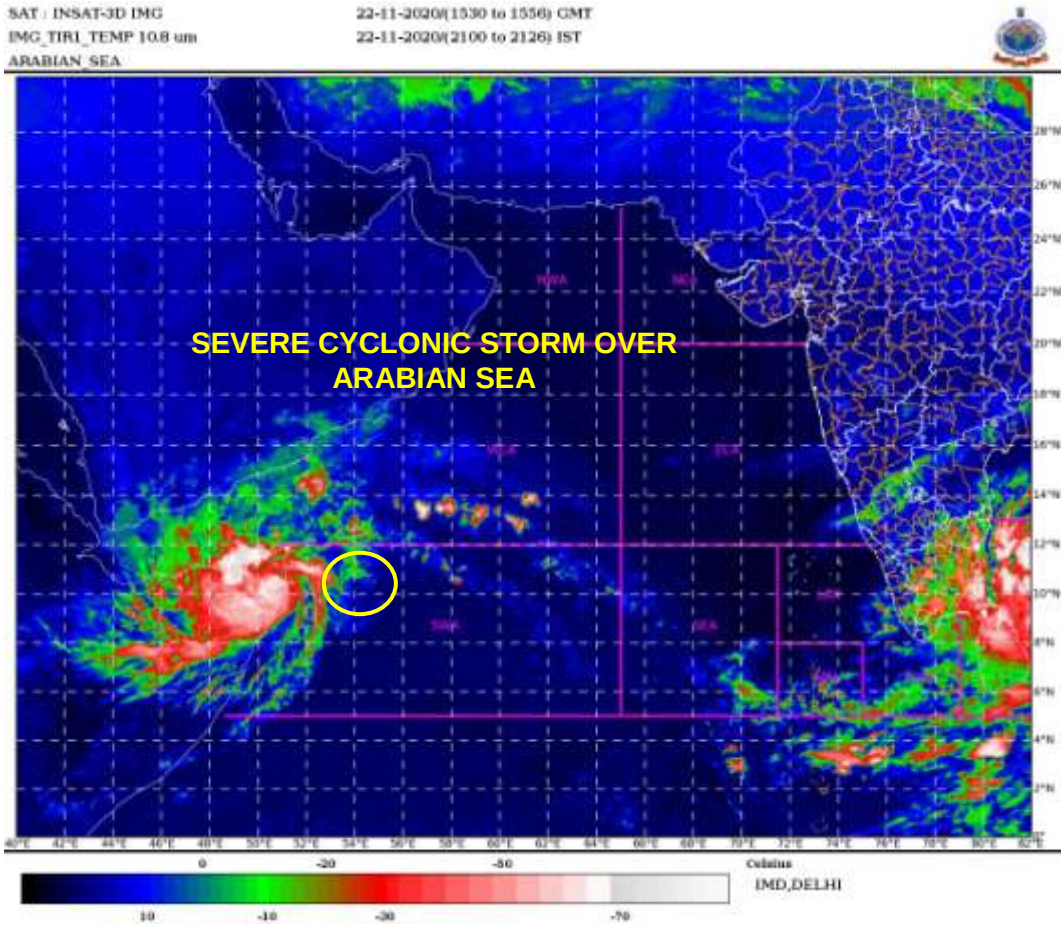
CONCLUSION:

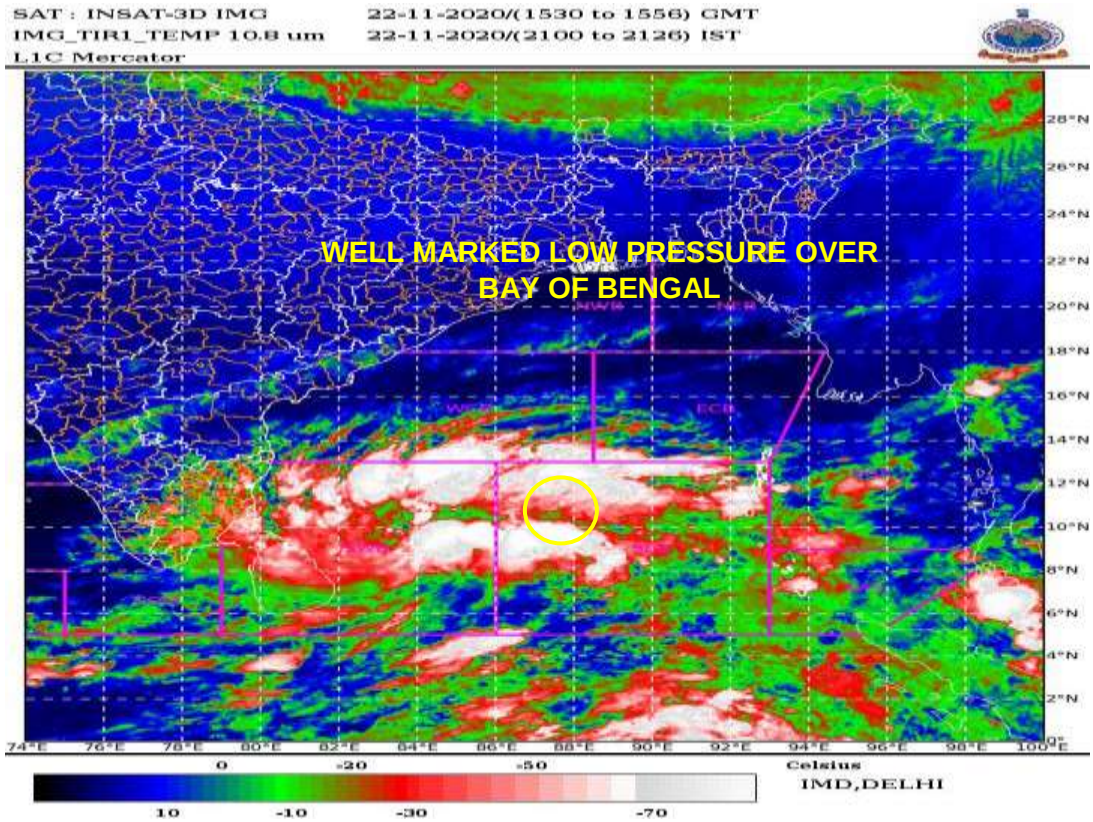
THE PROCESS OF LANDFALL IS CONTINUING AND IT WILL TAKE ABOUT AN HOUR TO COMPLETE THE LANDFALL PROCESS. NWP MODELS SUCH AS IMD-GFS, NCEP-GFS, ECMWF, NCUM AND NEPS ARE UNANIMOUS ABOUT WESTWARD MOVEMENT OF THE SYSTEM AFTER CROSSING THE NORTH SOMALIA COAST.

THE EXISTING WELL MARKED LOW PRESSURE AREA OVER SOUTHWEST AND ADJOINING SOUTHEAST BAY OF BENGAL IS LIKELY TO CONCENTRATE INTO A DEPRESSION DURING NEXT 12 HOURS, AND INTENSIFY FURTHER INTO A CYCLONIC STORM DURING SUBSEQUENT 24 HOURS. IT IS VERY LIKELY TO MOVE NORTHWESTWARDS AND CROSS TAMIL NADU AND PUDUCHERRY COASTS BETWEEN KARAIKAL AND MAHABALIPURAM AROUND 25TH NOVEMBER 2020 NOON/AFTERNOON. THE SYSTEM WHILE MOVING NORTHWESTWARDS, WOULD SKIRT NORTHEAST SRILANKA COAST ON 24TH

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

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

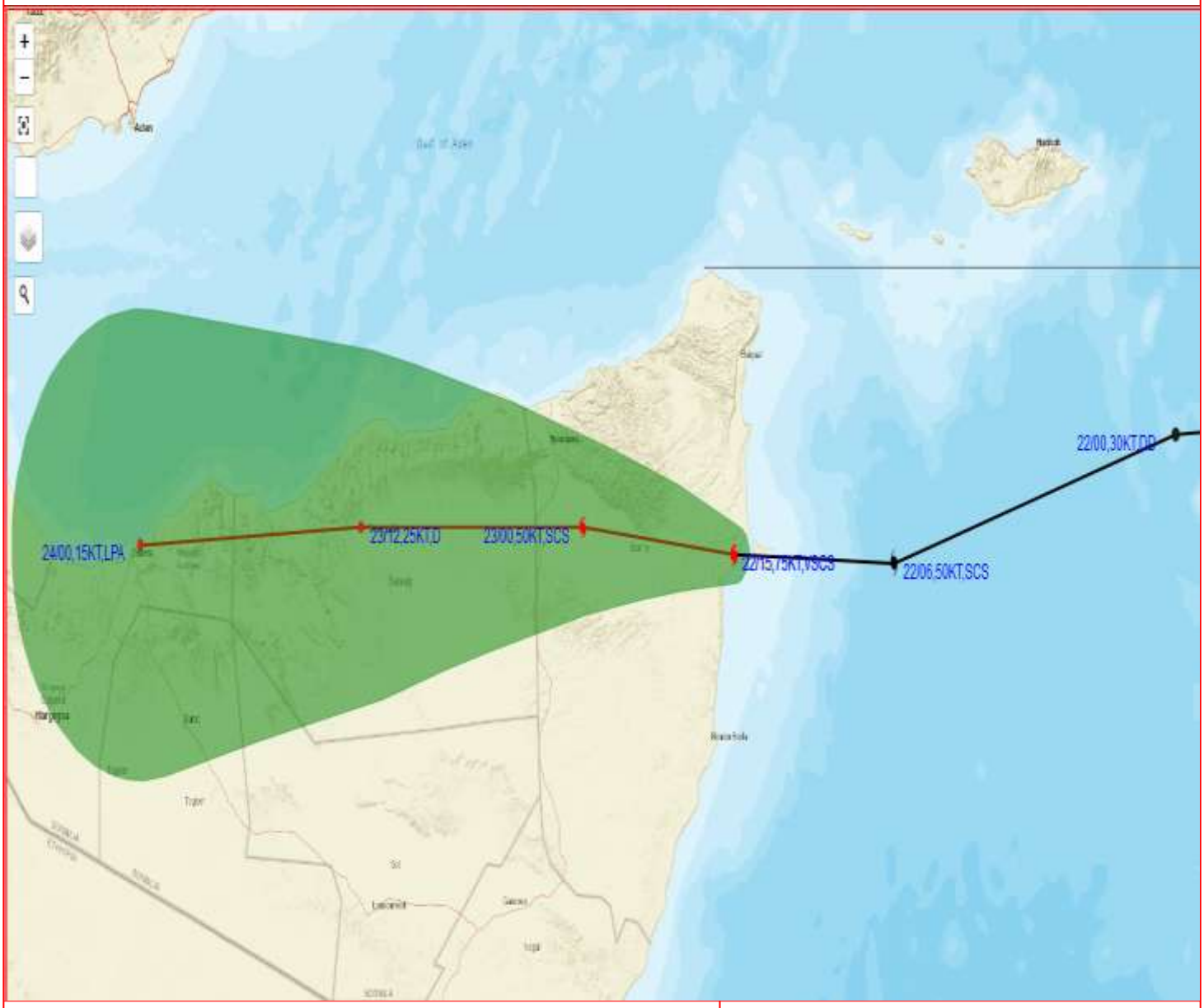




PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

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

BASED ON 1500UTC OF 22nd Nov, 2020
OBSERVED AND FORECAST TRACK ALONGWITH CONE OF UNCERTAINITY OF SEVERE CYCLONIC STORM GATI OVER SOUTHWEST ARABIAN SEA BASED ON 1500UTC OF 22nd

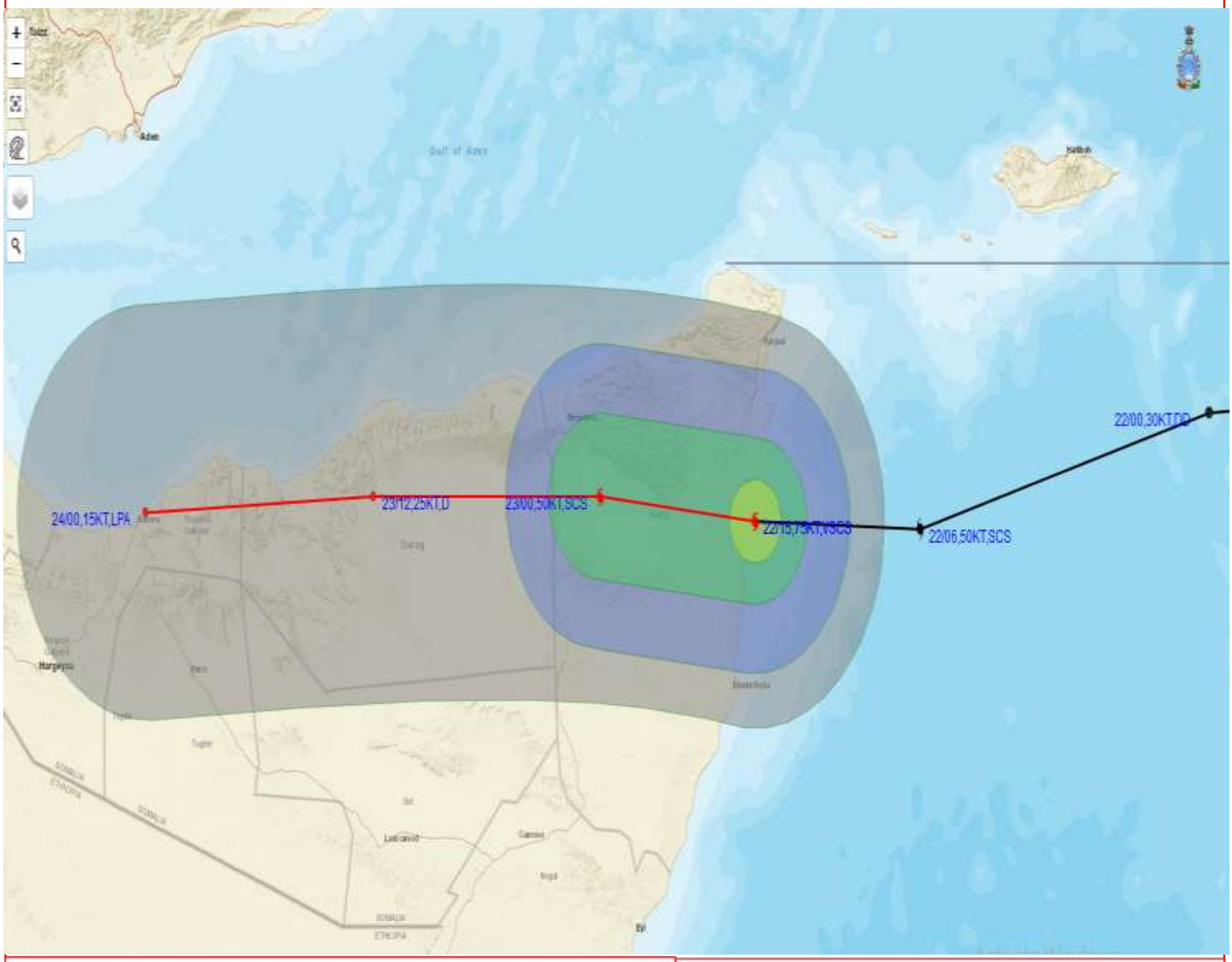


DATE/TIME IN UTC
IST=UTC + 0530
L: LOW PRESSURE AREA
WML: WELL MARKED LOW PRESSURE AREA
D: DEPRESSION (17-27 KT)
DD: DEEP DEPRESSION (28-33 KT)
CS: CYCLONIC STORM (34-47 KT)
SCS: SEVERE CYCLONIC STORM (48-63KT)
VSCS: VERY SEVERE CYCLONIC STORM (64-89 KT)
ESCS: EXTREMELY SEVERE CYCLONIC STORM (90-119 KT)
SuCS: SUPER CYCLONIC STORM (≥20 KT)

LESS THAN 34 KT
34-47 KT
≥ 48 KT
OBSERVED TRACK
FORECAST TRACK
CONE OF UNCERTAINTY

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

OBSERVED AND FORECAST TRACK OF DEPRESSION ALONGWITH QUADRANT WIND DISTRIBUTION OF SEVERE CYCLONIC STORM GATI OVER SOUTHWEST ARABIAN SEA



DATE/TIME IN UTC
IST=UTC + 0530
L: LOW PRESSURE AREA
WML: WELL MARKED LOW PRESSURE AREA
D: DEPRESSION (17-27 KT)
DD: DEEP DEPRESSION (28-33 KT)
CS: CYCLONIC STORM (34-47 KT)
SCS: SEVERE CYCLONIC STORM (48-63KT)
VSCS: VERY SEVERE CYCLONIC STORM (64-89 KT)
ESCS: EXTREMELY SEVERE CYCLONIC STORM (90-119 KT)
SuCS: SUPER CYCLONIC STORM (≥20 KT)

LESS THAN 34 KT
34-47 KT
≥ 48 KT
OBSERVED TRACK
FORECAST TRACK
CONE OF UNCERTAINTY
AREA OF MAXIMUM SUSTAINED WIND SPEED:
28-33 KT (52-61 KMPH)
34-49 KT (62-91 KMPH)
50-63 KT (92-117 KMPH)
≥ 64 KT (≥118 KMPH)

IMPACT OVER THE SEA

MSW (knot/kmph)	Impact	Action
28-33 (52-61)	Very rough seas	Total suspension of fishing operations
34-49 (62-91)	High to very high seas	Total suspension of fishing operations
50-63 (92-117)	Very high seas	Total suspension of fishing operations
≥ 64 (≥118)	Phenomenal	Total suspension of fishing operations

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

REGIONAL SPECIALISED METEOROLOGICAL CENTRE-TROPICAL CYCLONES, NEW DELHI

TROPICAL CYCLONE ADVISORY BULLETIN NO. 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 2030 UTC OF 22.11.2020 BASED ON 1800 UTC OF 22.11.2020.

A. VERY SEVERE CYCLONIC STORM "GATI" CROSSED SOMALIA COAST:

THE VERY SEVERE CYCLONIC STORM "GATI" OVER SOUTHWEST ARABIAN SEA MOVED NEARLY WESTWARDS WITH A SPEED OF ABOUT 18 KMPH DURING PAST 06 HOURS AND CROSSED NORTH SOMALIA COAST NEAR LATITUDE 10.4^{0}N AROUND 1500 UTC AS VERY SEVERE CYCLONIC STORM WITH AN ESTIMATED SUSTAINED MAXIMUM WIND SPEED OF 130-140 KMPH GUSTING TO 155 KMPH. IT LAY CENTRED OVER NORTH SOMALIA AT 1800 UTC OF 22ND NOVEMBER 2020 NEAR LATITUDE 10.4°N AND LONGITUDE 50.5°E, 110 KM SOUTH-SOUTHWEST OF RAS BINNAH (SOMALIA). IT IS VERY LIKELY TO MOVE NEARLY WESTWARDS AND WEAKEN GRADUALLY INTO A SEVERE CYCLONIC STORM DURING NEXT 03 TO 06 HOURS AND INTO A CYCLONIC STORM DURING SUBSEQUENT 6 HOURS.

FORECAST TRACK AND INTENSITY ARE GIVEN BELOW:

DATE/TIME(UTC)	POSITION (LAT. ^{0}N/ LONG. ^{0}E)	MAXIMUM SUSTAINED SURFACE WIND SPEED (KMPH)	CATEGORY OF CYCLONIC DISTURBANCE
22.11.20/1800	10.4/50.5	120-130 GUSTING TO 145	VERY SEVERE CYCLONIC STORM
23.11.20/0000	10.5/49.5	90-100 GUSTING TO 110	SEVERE CYCLONIC STORM
23.11.20/0600	10.6/48.4	60-70 GUSTING TO 80	CYCLONIC STORM
23.11.20/1200	10.6/47.3	40-50 GUSTING TO 60	DEPRESSION
23.11.20/1800	10.6/46.2	20-30 GUSTING TO 40	LOW PRESSURE AREA

AS PER SATELLITE IMAGERY, ASSOCTATED BROKEN LOW AND MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION LAY OVER SOUTHWEST ARABIAN SEA AND NORTHEAST SOMALIA BETWEEN LATITUDE 8.0^{0}N & 12.2^{0}N AND LONGITUDE 46.0^{0}E & 50.5^{0}E IN ASSOCIATION WITH THE SYSTEM. MINIMUM CLOUD TOP TEMPERATURE IS -70.0^{0}C.

THE ESTIMATED MAXIMUM SUSTAINED WIND SPEED IS 70 KNOTS GUSTING TO 80 KNOTS. THE ESTIMATED CENTRAL PRESSURE IS 980 HPA. THE SEA CONDITION IS PHENOMENAL AROUND THE SYSTEM CENTRE.

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

B. WELL MARKED LOW PRESSURE AREA OVER SOUTHWEST BAY OF BENGAL:

THE WELL MARKED LOW PRESSURE AREA OVER SOUTHWEST AND ADJOINING SOUTHEAST BAY OF BENGAL PERSISTS. IT IS VERY LIKELY TO CONCENTRATE INTO A DEPRESSION OVER SOUTHWEST BAY OF BENGAL DURING NEXT 12 HOURS AND INTENSIFY FURTHER INTO A CYCLONIC STORM DURING SUBSEQUENT 24 HOURS. IT IS VERY LIKELY TO MOVE NORTHWESTWARDS AND CROSS TAMIL NADU AND PUDUCHERRY COASTS BETWEEN KARAIKAL AND MAHABALIPURAM AROUND 25TH NOVEMBER 2020 NOON/AFTERNOON. THE SYSTEM WHILE MOVING NORTHWESTWARDS, WOULD SKIRT NORTHEAST SRILANKA COAST ON 24TH NOVEMBER.

AS PER SATELLITE IMAGERY, THE VORTEX ASSOCIATED WITH THIS SYSTEM LIES OVER CENTRAL PARTS OF SOUTH BAY OF BENGAL CENTERED 8.5^{0}N/85.3^{0}E (.) AND INTENSITY IS T1.0/1.0. BROKEN LOW AND MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION LAY OVER SOUTHEAST BAY OF BENGAL, BETWEEN LATITUDE 8.0^{0}N & 14.0^{0}N AND LONGITUDE 82.0^{0}E & 89.0^{0}E IN ASSOCIATION WITH THE SYSTEM. MINIMUM CLOUD TOP TEMPERATURE IS -93.0^{0}C.

PROBABILITY OF CYCLOGENESIS(FORMATION OF DEPRESSION) DURING NEXT 120 HRS:

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

REMARKS:

THE MADDEN JULIAN OSCILLATION (MJO) INDEX IS CURRENTLY IN PHASE 3 WITH AMPLITUDE EQUAL TO 1. IT WILL CONTINUE IN SAME PHASE WITH AMPLITUDE BECOMING LESS THAN 1 DURING SUBSEQUENT 4 DAYS. THUS MJO WILL SUPPORT ENHANCEMENT OF CONVECTIVE ACTIVITY OVER THE NORTH INDIAN OCEAN INCLUDING BAY OF BENGAL (BOB) AND ARABIAN SEA (AS) FOR NEXT 5 DAYS.

A. VERY SEVERE CYCLONIC STORM "GATI" CROSSED SOMALIA COAST:

THE VERY SEVERE CYCLONIC STORM "GATI" CROSSED SOMALIA COAST AROUND 1500 UTC OF 22nd NOVEMBER. CONSIDERING THE ENVIRONMENTAL CONDITIONS **OVER ARABIAN SEA**, RELATIVE VORTICITY ZONE (100X10^{-6}S^{-1}) PREVAIL AROUND THE SYSTEM. AN AREA OF POSITIVE DIVERGENCE (15X10^{-5}S^{-1})AND AREA OF POSITIVE CONVERGENCE ZONE (05 X 10^{-5}S^{-1}) PREVAILS AROUND THE SYSTEM. THE VERTICAL WIND SHEAR (VWS) IS LOW TO MODERATE (15-20 KTS) OVER AND WEST OF THE SYSTEM THE UPPER TROPOSPHERIC RIDGE AT 200 HPA RUNS ALONG 15°N.

NWP MODELS SUCH AS IMD-GFS, NCEP-GFS, ECMWF, NCUM AND NEPS ARE UNANIMOUS ABOUT WESTWARD MOVEMENT OF THE SYSTEM AFTER CROSSING THE NORTH SOMALIA COAST AND GRADUALLY WEAKENING THEREAFTER.

B. WELL MARKED LOW PRESSURE AREA OVER SOUTH BAY OF BENGAL:

CONSIDERING THE SEA CONDITIONS, SST IS AROUND 29-30°C OVER MOST PARTS OF BAY OF BENGAL (BOB). HIGH TCHP (120-140 KJ/CM^2) PREVAILS IN THE NEAR EQUATORIAL BELT OF NORTH INDIAN OCEAN (NIO) AND ADJOINING SOUTH BOB.
CONSIDERING THE ENVIRONMENTAL CONDITIONS **OVER BOB**, POSITIVE RELATIVE VORTICITY (100X10^{-6}S^{-1}) PREVAILS OVER THE SYSTEM AREA OVER CENTRAL PARTS OF SOUTH BOB WITH VERTICAL EXTENSION UPTO 500 HPA LEVEL. AREA OF POSITIVE DIVERGENCE (40X10^{-5}S^{-1}) PREVAILS OVER SOUTHWEST OF THE SYSTEM AREA OVER CENTRAL PARTS OF SOUTH BOB. AREA OF POSITIVE CONVERGENCE ZONE (20-30 X 20^{-5}S^{-1}) PREVAILS OVER THE SAME AREA. THE VERTICAL WIND SHEAR (VWS) IS LOW (05-10

KTS) OVER SOUTH AND ADJOINING CENTRAL BOB. THE UPPER TROPOSPHERIC RIDGE AT 200 HPA RUNS ALONG 11.5°N OVER THE BOB.

NWP MODELS LIKE ECMWF, IMD GFS, NCEP GFS, GEFS, NCUM AND NEPS ARE INDICATING INTENSIFICATION OF THE SYSTEM INTO DEPRESSION OVER SOUTHWEST BOB DURING NEXT 06 HOURS AND LIKELY MOVEMENT TOWARDS TAMIL NADU-PUDUCHERY COASTS SKIRTING NORTHEAST SRILANKA COAST. THERE IS A CONSENSUS ABOUT GRADUAL INTENSIFICATION OF THE SYSTEM INTO A CYCLONIC STORM BY 24$^{TH.}$

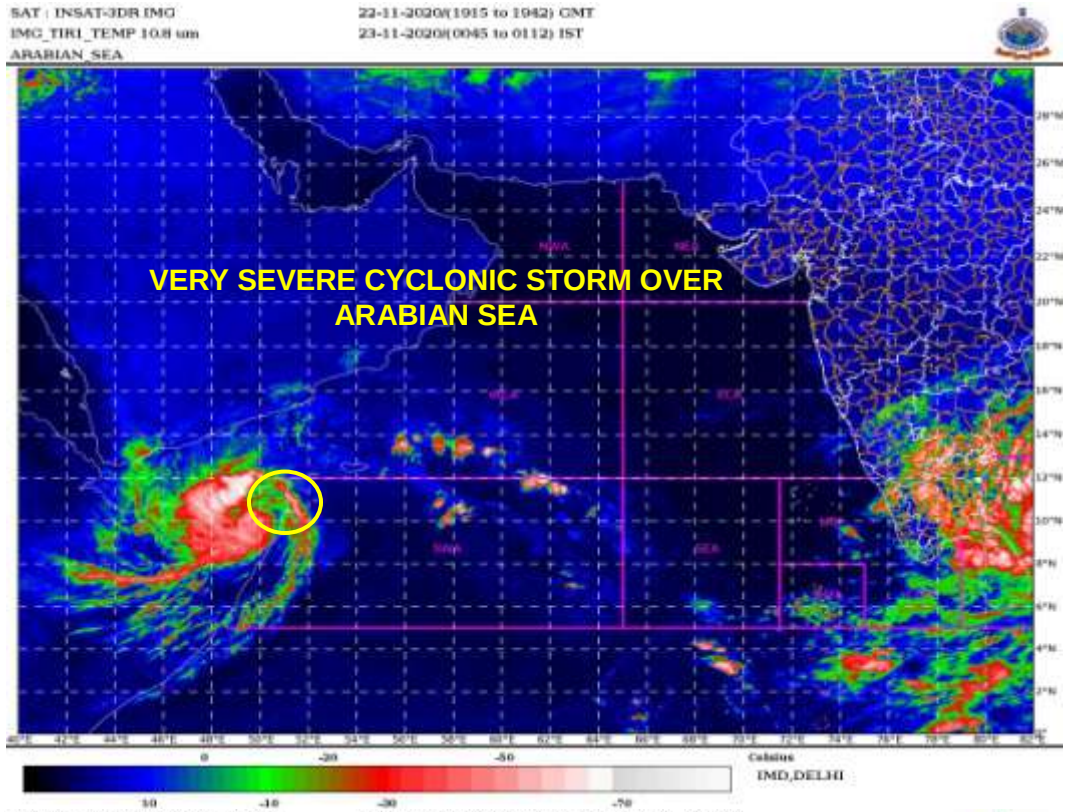
CONCLUSION:

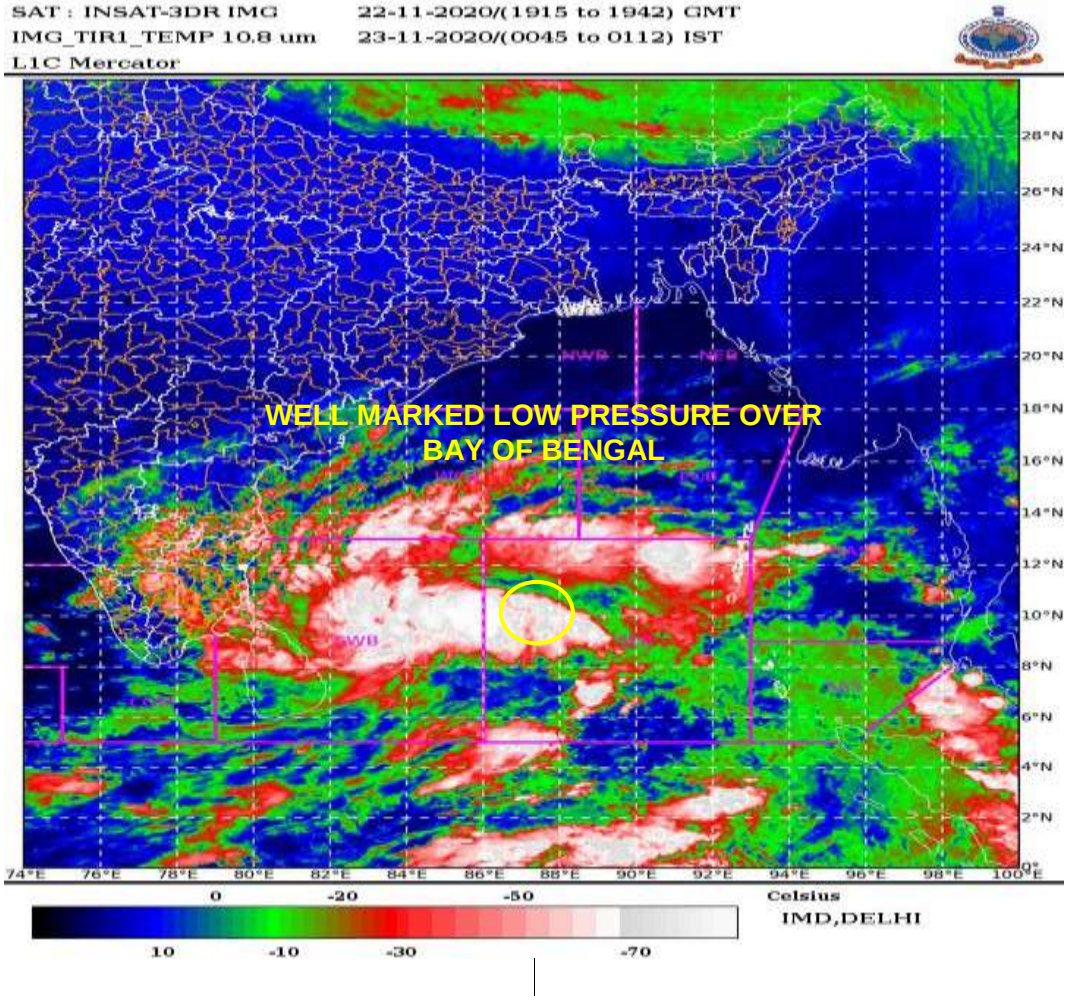
THE VERY SEVERE CYCLONIC STORM "GATI" OVER SOUTHWEST ARABIAN SEA CROSSED NORTH SOMALIA COAST NEAR LATITUDE 10.4^{0}N AROUND 1500 UTC AS VERY SEVERE CYCLONIC STORM WITH AN ESTIMATED SUSTAINED MAXIMUM WIND SPEED OF 130-140 KMPH GUSTING TO 155 KMPH. IT IS VERY LIKELY TO MOVE NEARLY WESTWARDS AND WEAKEN GRADUALLY INTO A SEVERE CYCLONIC STORM DURING NEXT 03 TO 06 HOURS AND INTO A CYCLONIC STORM DURING SUBSEQUENT 6 HOURS.

THE EXISTING WELL MARKED LOW PRESSURE AREA OVER SOUTHWEST AND ADJOINING SOUTHEAST BAY OF BENGAL IS LIKELY TO CONCENTRATE INTO A DEPRESSION DURING NEXT 06 HOURS, AND INTENSIFY FURTHER INTO A CYCLONIC STORM DURING SUBSEQUENT 24 HOURS. IT IS VERY LIKELY TO MOVE NORTHWESTWARDS AND CROSS TAMIL NADU AND PUDUCHERRY COASTS BETWEEN KARAIKAL AND MAHABALIPURAM AROUND 25TH NOVEMBER 2020 NOON/AFTERNOON. THE SYSTEM WHILE MOVING NORTHWESTWARDS, WOULD SKIRT NORTHEAST SRILANKA COAST ON 24TH NOVEMBER.

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

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

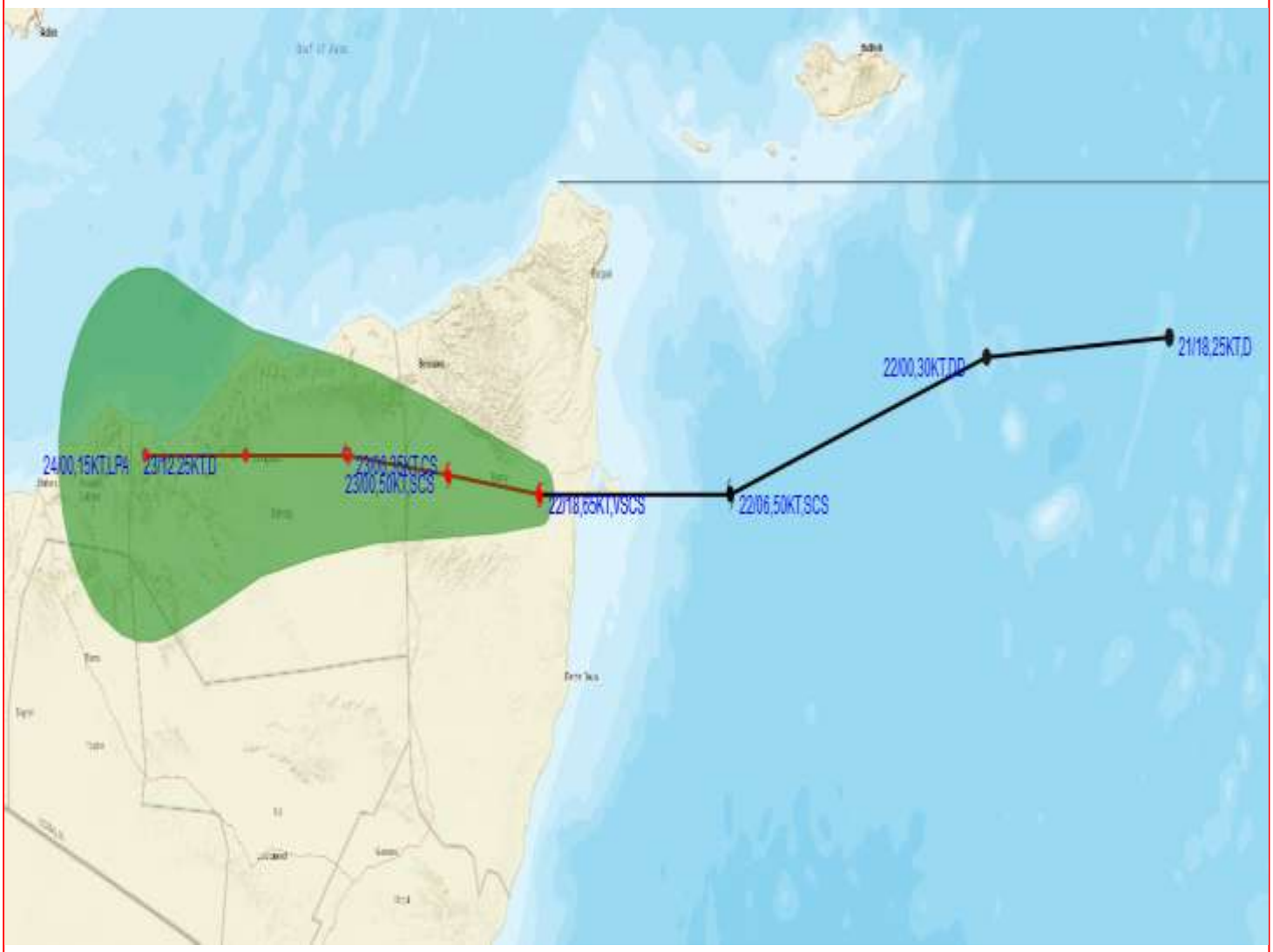




PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

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

OBSERVED AND FORECAST TRACK ALONGWITH CONE OF UNCERTAINITY OF VERY SEVERE CYCLONIC STORM GATI OVER NORTH SOMALIA BASED ON 1800 UTC OF 22nd Nov, 2020.

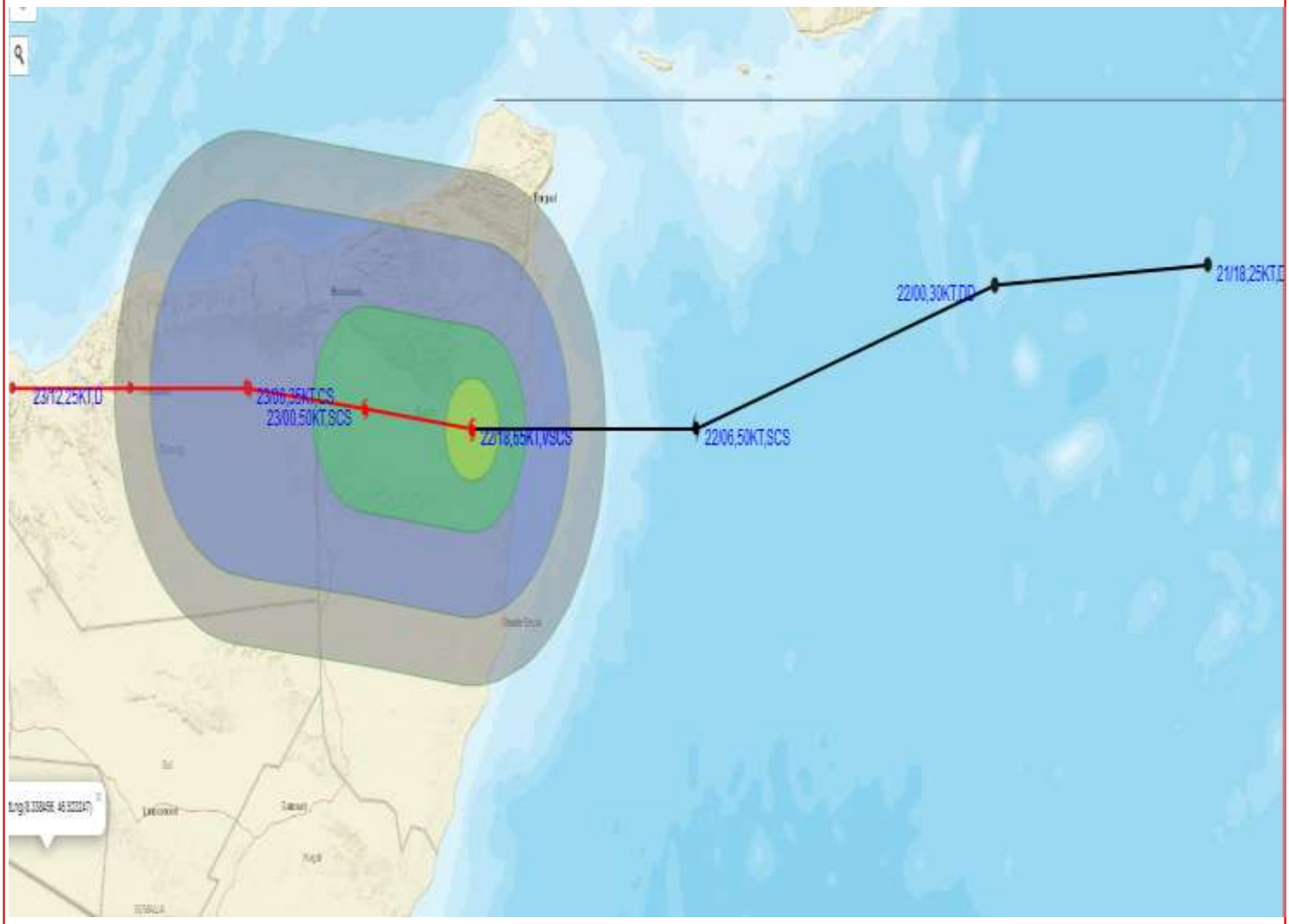


DATE/TIME IN UTC
IST=UTC + 0530
L: LOW PRESSURE AREA
WML: WELL MARKED LOW PRESSURE AREA
D: DEPRESSION (17-27 KT)
DD: DEEP DEPRESSION (28-33 KT)
CS: CYCLONIC STORM (34-47 KT)
SCS: SEVERE CYCLONIC STORM (48-63KT)
VSCS: VERY SEVERE CYCLONIC STORM (64-89 KT)
ESCS: EXTREMELY SEVERE CYCLONIC STORM (90-119 KT)
SuCS: SUPER CYCLONIC STORM (≥20 KT)

LESS THAN 34 KT
34-47 KT
≥ 48 KT
OBSERVED TRACK
FORECAST TRACK
CONE OF UNCERTAINTY

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

OBSERVED AND FORECAST TRACK ALONGWITH QUADRANT WIND DISTRIBUTION OF VERY SEVERE CYCLONIC STORM GATI OVER NORTH SOMALIA BASED ON 1800 UTC OF 22nd Nov, 2020.



DATE/TIME IN UTC
IST=UTC + 0530
L: LOW PRESSURE AREA
WML: WELL MARKED LOW PRESSURE AREA
D: DEPRESSION (17-27 KT)
DD: DEEP DEPRESSION (28-33 KT)
CS: CYCLONIC STORM (34-47 KT)
SCS: SEVERE CYCLONIC STORM (48-63KT)
VSCS: VERY SEVERE CYCLONIC STORM (64-89 KT)
ESCS: EXTREMELY SEVERE CYCLONIC STORM (90-119 KT)
SuCS: SUPER CYCLONIC STORM (≥20 KT)

LESS THAN 34 KT
34-47 KT
≥ 48 KT
OBSERVED TRACK
FORECAST TRACK
CONE OF UNCERTAINTY
AREA OF MAXIMUM SUSTAINED WIND SPEED:
28-33 KT (52-61 KMPH)
34-49 KT (62-91 KMPH)
50-63 KT (92-117 KMPH)
≥ 64 KT (≥118 KMPH)

IMPACT OVER THE SEA

MSW (knot/kmph)	Impact	Action
28-33 (52-61)	Very rough seas	Total suspension of fishing operations
34-49 (62-91)	High to very high seas	Total suspension of fishing operations
50-63 (92-117)	Very high seas	Total suspension of fishing operations
≥ 64 (≥118)	Phenomenal	Total suspension of fishing operations

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

REGIONAL SPECIALISED METEOROLOGICAL CENTRE-TROPICAL CYCLONES, NEW DELHI

TROPICAL CYCLONE ADVISORY BULLETIN NO. 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 0030 UTC OF 23.11.2020 BASED ON 2100 UTC OF 22.11.2020.

A. VERY SEVERE CYCLONIC STORM "GATI" WEAKENED INTO SEVERE CYCLONIC STORM OVER NORTH SOMALIA:

THE VERY SEVERE CYCLONIC STORM "GATI" OVER NORTH SOMALIA MOVED NEARLY WESTWARDS WITH A SPEED OF ABOUT 16 KMPH DURING PAST 06 HOURS AND WEAKENED INTO SEVERE CYCLONIC STORM OVER THE SAME REGION AND LAY CENTRED AT 2100 UTC OF 22ND NOVEMBER 2020 NEAR LATITUDE 10.4°N AND LONGITUDE 50.1°E, 140 KM SOUTH-SOUTHWEST OF RAS BINNAH (SOMALIA). IT IS VERY LIKELY TO MOVE NEARLY WESTWARDS AND WEAKEN GRADUALLY INTO A CYCLONIC STORM DURING NEXT 6 TO 12 HOURS.

FORECAST TRACK AND INTENSITY ARE GIVEN BELOW:

DATE/TIME(UTC)	POSITION (LAT. ^{0}N/ LONG. ^{0}E)	MAXIMUM SUSTAINED SURFACE WIND SPEED (KMPH)	CATEGORY OF CYCLONIC DISTURBANCE
22.11.20/2100	10.4/50.1	105-115 GUSTING TO 125	SEVERE CYCLONIC STORM
23.11.20/0000	10.5/49.5	90-100 GUSTING TO 110	SEVERE CYCLONIC STORM
23.11.20/0600	10.6/48.4	60-70 GUSTING TO 80	CYCLONIC STORM
23.11.20/1200	10.6/47.3	40-50 GUSTING TO 60	DEPRESSION
23.11.20/1800	10.6/46.2	20-30 GUSTING TO 40	LOW PRESSURE AREA

AS PER SATELLITE IMAGERY, ASSOCTATED BROKEN LOW AND MEDIUM CLOUDS WITH EMBEDDED MODERATE TO INTENSE CONVECTION LAY OVER NORTH SOMALIA AND SOUTHWEST ARABIAN SEA BETWEEN LATITUDE 8.5^{0}N & 12.5^{0}N AND LONGITUDE 40.0^{0}E & 50.5^{0}E IN ASSOCIATION WITH THE SYSTEM. MINIMUM CLOUD TOP TEMPERATURE IS -62.0^{0}C.
THE ESTIMATED MAXIMUM SUSTAINED WIND SPEED IS 60 KNOTS GUSTING TO 70 KNOTS. THE ESTIMATED CENTRAL PRESSURE IS 982 HPA.

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

B. WELL MARKED LOW PRESSURE AREA CONCENTRATED INTO A DEPRESSION OVER SOUTHWEST BAY OF BENGAL:

THE WELL MARKED LOW PRESSURE AREA OVER SOUTHWEST & ADJOINING SOUTHEAST BAY OF BENGAL CONCENTRATED INTO A DEPRESSION OVER SOUTHWEST BAY OF BENGAL AND LAY CENTRED AT 2100 UTC OF 22ND NOVEMBER 2020 NEAR LATITUDE 8.6°N AND LONGITUDE 85.2°E, ABOUT 700 KM SOUTH-SOUTHEAST OF PUDUCHERRY (43328) AND 740 KM SOUTH-SOUTHEAST OF CHENNAI (43279). IT IS LIKELY TO INTENSIFY FURTHER INTO A CYCLONIC STORM DURING NEXT 24 HOURS. IT IS VERY LIKELY TO MOVE NORTHWESTWARDS AND CROSS TAMIL NADU AND PUDUCHERRY COASTS BETWEEN KARAIKAL AND MAMALLAPURAM AROUND 0600 UTC OF 25TH NOVEMBER 2020. THE SYSTEM WHILE MOVING NORTH-WESTWARDS, WOULD SKIRT NORTHEAST SRI LANKA COAST ON 24TH NOVEMBER, 2020.

AS PER SATELLITE IMAGERY, THE VORTEX ASSOCIATED WITH THIS SYSTEM LIES OVER CENTRAL PARTS OF SOUTH BAY OF BENGAL CENTERED 8.6^{0}N/85.2^{0}E (.) AND INTENSITY IS INCREASE T1.5/1.5. BROKEN LOW AND MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION LAY OVER SOUTH BAY OF BENGAL, BETWEEN LATITUDE 8.0^{0}N & 12.0^{0}N AND LONGITUDE 82.0^{0}E & 89.0^{0}E IN ASSOCIATION WITH THE SYSTEM. MINIMUM CLOUD TOP TEMPERATURE IS -93.0^{0}C.

PROBABILITY OF CYCLOGENESIS(FORMATION OF DEPRESSION) DURING NEXT 120 HRS:

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

REMARKS:

THE MADDEN JULIAN OSCILLATION (MJO) INDEX IS CURRENTLY IN PHASE 3 WITH AMPLITUDE EQUAL TO 1. IT WILL CONTINUE IN SAME PHASE WITH AMPLITUDE BECOMING LESS THAN 1 DURING SUBSEQUENT 4 DAYS. THUS MJO WILL SUPPORT ENHANCEMENT OF CONVECTIVE ACTIVITY OVER THE NORTH INDIAN OCEAN INCLUDING BAY OF BENGAL (BOB) AND ARABIAN SEA (AS) FOR NEXT 5 DAYS.

A. VERY SEVERE CYCLONIC STORM "GATI" CROSSED SOMALIA COAST:

THE VERY SEVERE CYCLONIC STORM "GATI" CROSSED SOMALIA COAST AROUND 1500 UTC OF 22nd NOVEMBER. CONSIDERING THE ENVIRONMENTAL CONDITIONS **OVER ARABIAN SEA**, RELATIVE VORTICITY ZONE (50X10^{-6}S^{-1}) PREVAIL SOUND THE SYSTEM. AN AREA OF POSITIVE DIVERGENCE (10X10^{-5}S^{-1}) AND AREA OF NEGATIVE CONVERGENCE ZONE (05 X 10^{-5}S^{-1}) PREVAILS AROUND THE SYSTEM. THE VERTICAL WIND SHEAR (VWS) IS LOW TO MODERATE (15-20 KTS) OVER AND WEST OF THE SYSTEM THE UPPER TROPOSPHERIC RIDGE AT 200 HPA RUNS ALONG 15°N.

NWP MODELS SUCH AS IMD-GFS, NCEP-GFS, ECMWF, NCUM AND NEPS ARE UNANIMOUS ABOUT WESTWARD MOVEMENT OF THE SYSTEM AFTER CROSSING THE NORTH SOMALIA COAST AND GRADUALLY WEAKENING THEREAFTER.

B. WELL MARKED LOW PRESSURE AREA OVER SOUTH BAY OF BENGAL:

CONSIDERING THE SEA CONDITIONS, SST IS AROUND 29-30°C OVER MOST PARTS OF BAY OF BENGAL (BOB). HIGH TCHP (120-140 KJ/CM^2) PREVAILS IN THE NEAR EQUATORIAL BELT OF NORTH INDIAN OCEAN (NIO) AND ADJOINING SOUTH BOB.
CONSIDERING THE ENVIRONMENTAL CONDITIONS **OVER BOB**, POSITIVE RELATIVE VORTICITY (150X10^{-6}S^{-1}) PREVAILS OVER THE SOUTH OF THE SYSTEM AREA OVER CENTRAL PARTS OF SOUTH BOB WITH VERTICAL EXTENSION UPTO 500 HPA LEVEL. AREA OF POSITIVE DIVERGENCE (40X10^{-5}S^{-1}) PREVAILS OVER THE SYSTEM AREA OVER SOUTHWEST BOB. AREA OF POSITIVE CONVERGENCE ZONE (30 X 20^{-5}S^{-1}) PREVAILS OVER THE SAME AREA. THE VERTICAL WIND SHEAR (VWS) IS LOW (05-10 KTS) OVER

SOUTH AND ADJOINING CENTRAL BOB. THE UPPER TROPOSPHERIC RIDGE AT 200 HPA RUNS ALONG 11.5°N OVER THE BOB.

NWP MODELS LIKE ECMWF, IMD GFS, NCEP GFS, GEFS, NCUM AND NEPS ARE INDICATING INTENSIFICATION OF THE SYSTEM INTO A CYCLONIC STORM OVER SOUTHWEST BOB DURING NEXT 24 HOURS AND LIKELY MOVEMENT TOWARDS TAMIL NADU-PUDUCHERRY COASTS SKIRTING NORTHEAST SRILANKA COAST.

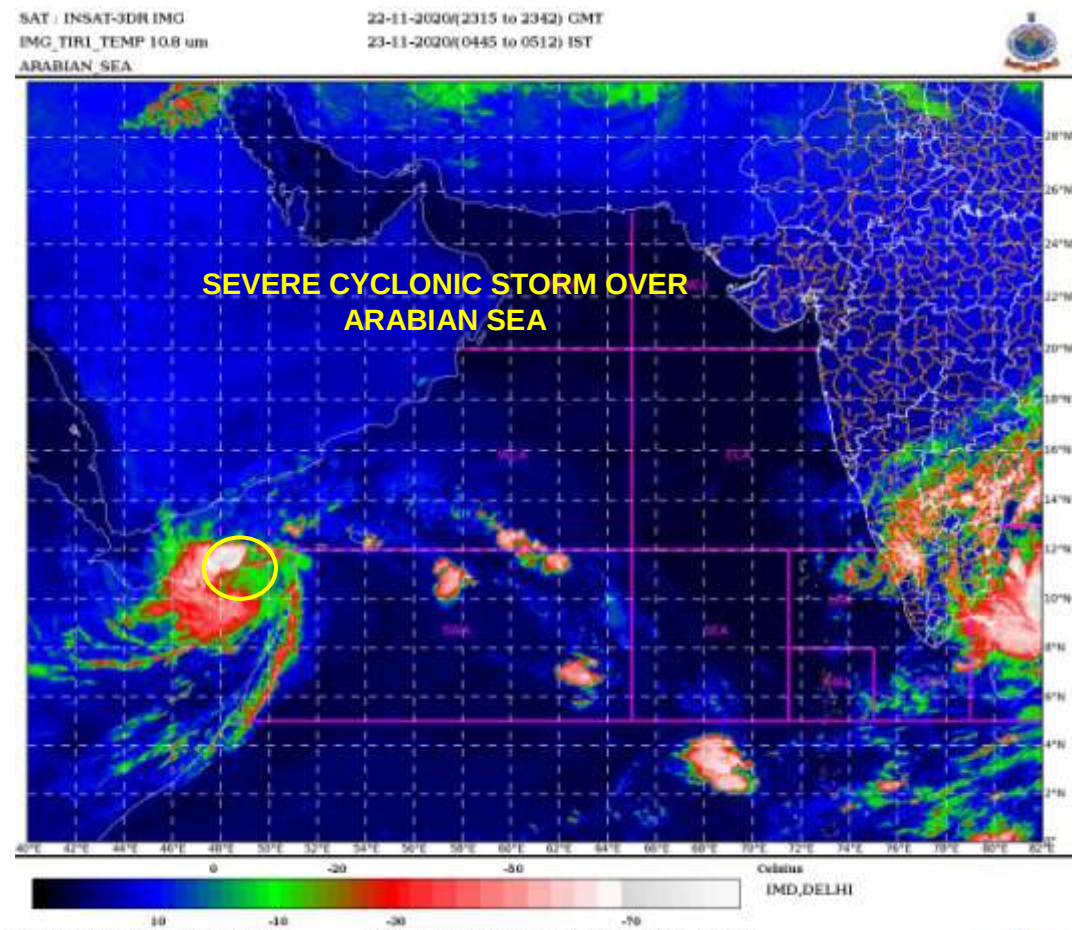
CONCLUSION:

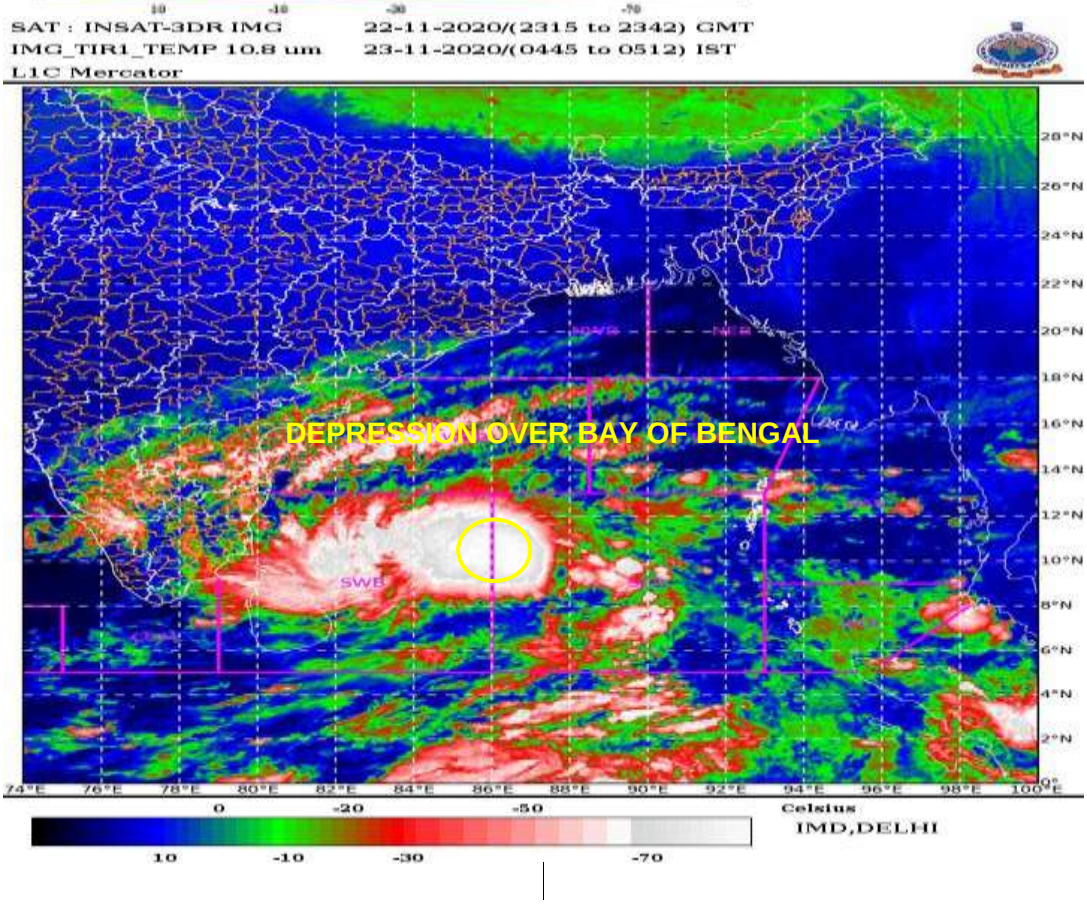
THE VERY SEVERE CYCLONIC STORM “GATI” OVER NORTH SOMALIA MOVED NEARLY WESTWARDS AND WEAKENED INTO SEVERE CYCLONIC STORM OVER THE SAME REGION. IT IS VERY LIKELY TO MOVE NEARLY WESTWARDS AND WEAKEN GRADUALLY INTO A CYCLONIC STORM DURING NEXT 6 TO 12 HOURS.

THE WELL MARKED LOW PRESSURE AREA OVER SOUTHWEST & ADJOINING SOUTHEAST BAY OF BENGAL CONCENTRATED INTO A DEPRESSION OVER SOUTHWEST BAY OF BENGAL. IT IS LIKELY TO INTENSIFY FURTHER INTO A CYCLONIC STORM DURING NEXT 24 HOURS AND LIKELY TO MOVE NORTHWESTWARDS AND CROSS TAMIL NADU AND PUDUCHERRY COASTS AROUND 0600 UTC OF 25TH NOVEMBER 2020.

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

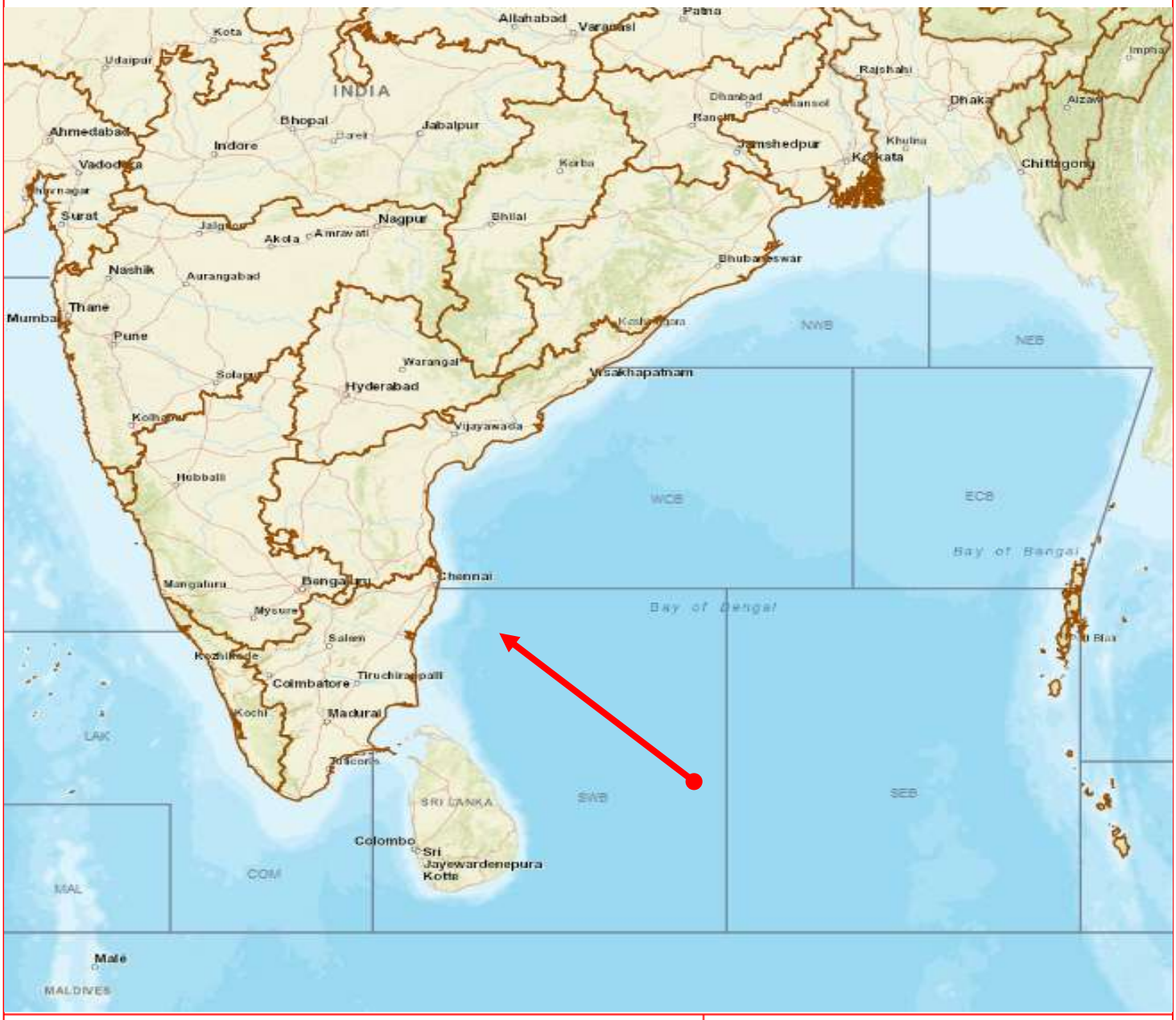
PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)
NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%





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

OBSERVED AND FORECAST TRACK ALONGWITH CONE OF UNCERTAINITY OF DEPRESSION SOUTHWEST BAY OF BENGAL BASED ON 2100 UTC OF 22nd Nov, 2020

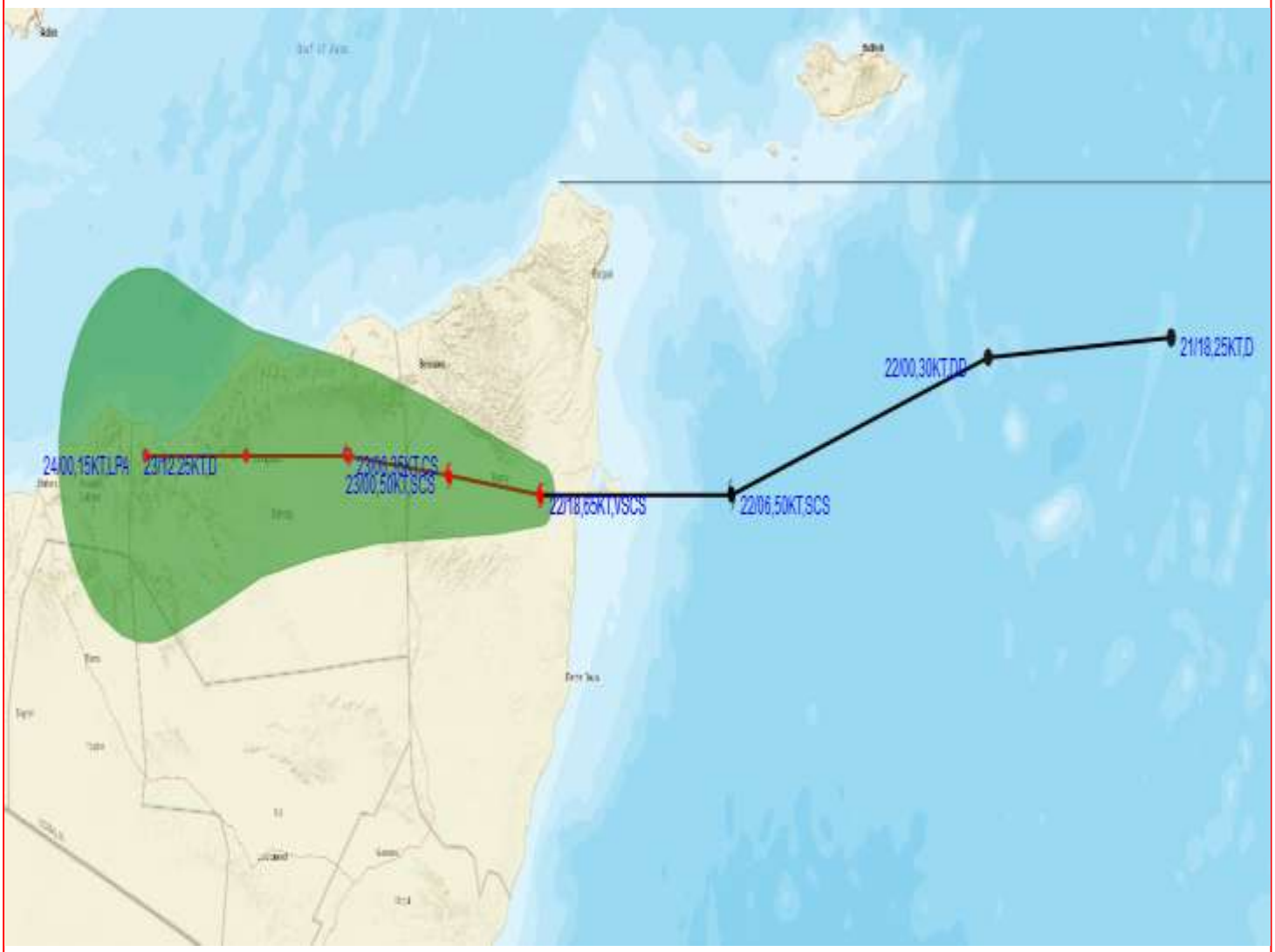


DATE/TIME IN UTC
IST=UTC + 0530
L: LOW PRESSURE AREA
WML: WELL MARKED LOW PRESSURE AREA
D: DEPRESSION (17-27 KT)
DD: DEEP DEPRESSION (28-33 KT)
CS: CYCLONIC STORM (34-47 KT)
SCS: SEVERE CYCLONIC STORM (48-63KT)
VSCS: VERY SEVERE CYCLONIC STORM (64-89 KT)
ESCS: EXTREMELY SEVERE CYCLONIC STORM (90-119 KT)
SuCS: SUPER CYCLONIC STORM (≥20 KT)

LESS THAN 34 KT
34-47 KT
≥ 48 KT
OBSERVED TRACK
FORECAST TRACK
CONE OF UNCERTAINTY

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

OBSERVED AND FORECAST TRACK ALONGWITH CONE OF UNCERTAINITY OF VERY SEVERE CYCLONIC STORM GATI OVER NORTH SOMALIA BASED ON 1800 UTC OF 22nd Nov, 2020.

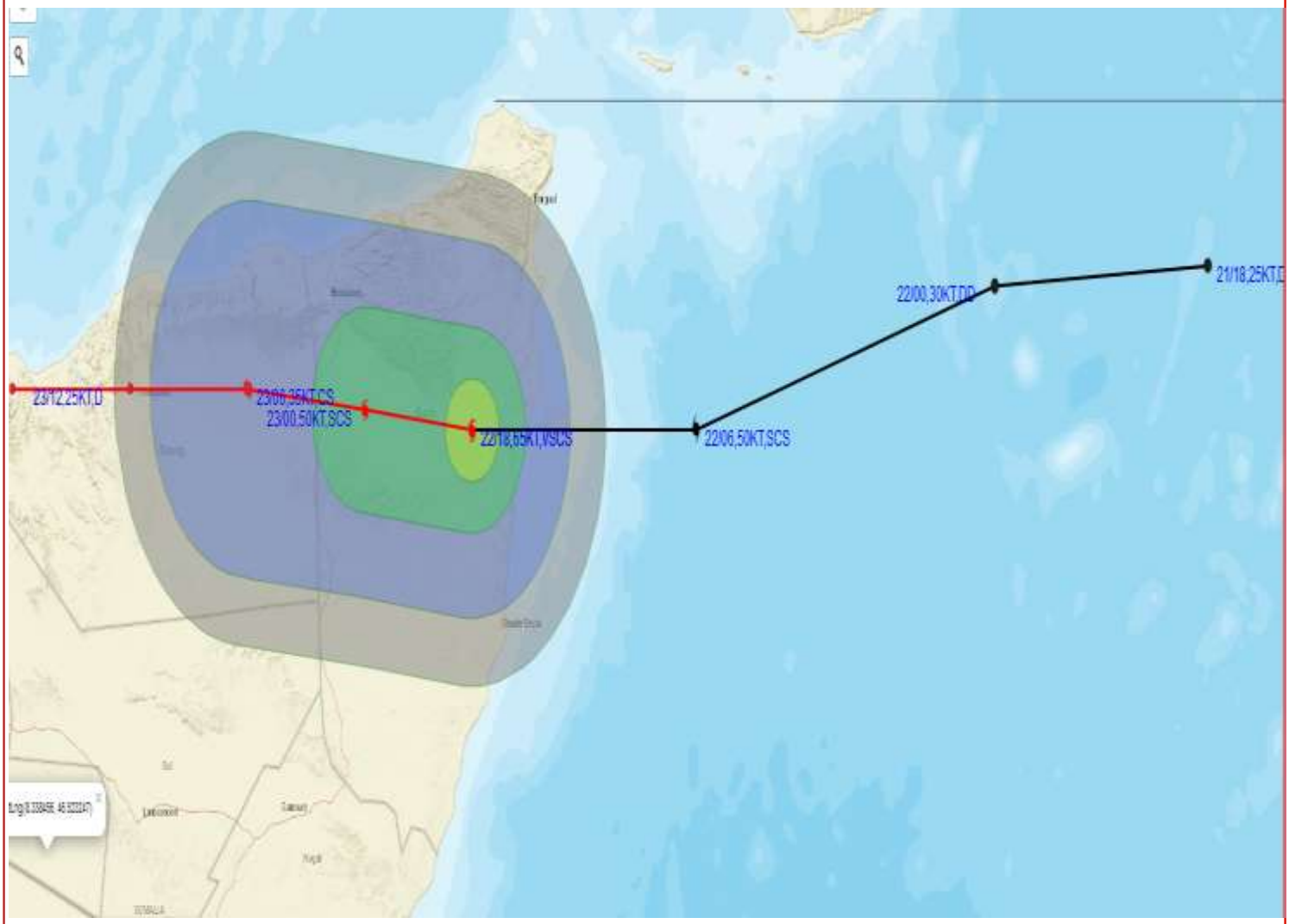


DATE/TIME IN UTC
IST=UTC + 0530
L: LOW PRESSURE AREA
WML: WELL MARKED LOW PRESSURE AREA
D: DEPRESSION (17-27 KT)
DD: DEEP DEPRESSION (28-33 KT)
CS: CYCLONIC STORM (34-47 KT)
SCS: SEVERE CYCLONIC STORM (48-63KT)
VSCS: VERY SEVERE CYCLONIC STORM (64-89 KT)
ESCS: EXTREMELY SEVERE CYCLONIC STORM (90-119 KT)
SuCS: SUPER CYCLONIC STORM (≥20 KT)

LESS THAN 34 KT
34-47 KT
≥ 48 KT
OBSERVED TRACK
FORECAST TRACK
CONE OF UNCERTAINTY

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

OBSERVED AND FORECAST TRACK ALONGWITH QUADRANT WIND DISTRIBUTION OF VERY SEVERE CYCLONIC STORM GATI OVER NORTH SOMALIA BASED ON 1800 UTC OF 22nd Nov. 2020.



DATE/TIME IN UTC
IST=UTC + 0530
L: LOW PRESSURE AREA
WML: WELL MARKED LOW PRESSURE AREA
D: DEPRESSION (17-27 KT)
DD: DEEP DEPRESSION (28-33 KT)
CS: CYCLONIC STORM (34-47 KT)
SCS: SEVERE CYCLONIC STORM (48-63KT)
VSCS: VERY SEVERE CYCLONIC STORM (64-89 KT)
ESCS: EXTREMELY SEVERE CYCLONIC STORM (90-119 KT)
SuCS: SUPER CYCLONIC STORM (≥20 KT)

- LESS THAN 34 KT
- 34-47 KT
- ≥ 48 KT
- OBSERVED TRACK
- FORECAST TRACK
- CONE OF UNCERTAINTY

AREA OF MAXIMUM SUSTAINED WIND SPEED:
- 28-33 KT (52-61 KMPH)
- 34-49 KT (62-91 KMPH)
- 50-63 KT (92-117 KMPH)
- ≥ 64 KT (≥118 KMPH)

IMPACT OVER THE SEA

MSW (knot/kmph)	Impact	Action
28-33 (52-61)	Very rough seas	Total suspension of fishing operations
34-49 (62-91)	High to very high seas	Total suspension of fishing operations
50-63 (92-117)	Very high seas	Total suspension of fishing operations
≥ 64 (≥118)	Phenomenal	Total suspension of fishing operations

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

REGIONAL SPECIALISED METEOROLOGICAL CENTRE-TROPICAL CYCLONES, NEW DELHI

TROPICAL CYCLONE ADVISORY BULLETIN NO. 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 0330 UTC OF 23.11.2020 BASED ON 0000 UTC OF 23.11.2020.

A. SEVERE CYCLONIC STORM "GATI" OVER SOMALIA WEAKENED INTO A CYCLONIC STORM

THE SEVERE CYCLONIC STORM "GATI" OVER NORTH SOMALIA MOVED NEARLY WESTWARDS WITH A SPEED OF ABOUT 09 KMPH DURING PAST 06 HOURS AND WEAKENED INTO A CYCLONIC STORM OVER THE SAME REGION AND LAY CENTRED AT 0030 UTC OF 23RD NOVEMBER 2020 NEAR LATITUDE 10.5°N AND LONGITUDE 50.0°E, 150 KM SOUTH-SOUTHWEST OF RAS BINNAH (SOMALIA). IT IS VERY LIKELY TO MOVE NEARLY WESTWARDS AND WEAKEN GRADUALLY INTO A DEEP DEPRESSION DURING NEXT 6 HOURS.

FORECAST TRACK AND INTENSITY ARE GIVEN BELOW:

DATE/TIME(UTC)	POSITION (LAT. ^{0}N/ LONG. ^{0}E)	MAXIMUM SUSTAINED SURFACE WIND SPEED (KMPH)	CATEGORY OF CYCLONIC DISTURBANCE
23.11.20/0000	10.5/50.0	80-90 GUSTING TO 100	CYCLONIC STORM
23.11.20/0600	10.6/48.8	55-65 GUSTING TO 75	DEEP DEPRESSION
23.11.20/1200	10.6/47.6	40-50 GUSTING TO 60	DEPRESSION
23.11.20/1800	10.7/46.4	20-30 GUSTING TO 40	LOW PRESSURE AREA

AS PER SATELLITE IMAGERY, ASSOCTATED BROKEN LOW AND MEDIUM CLOUDS WITH EMBEDDED MODERATE TO INTENSE CONVECTION LAY OVER NORTH SOMALIA AND SOUTHWEST ARABIAN SEA BETWEEN LATITUDE 8.5^{0}N & 12.5^{0}N AND LONGITUDE 44.0^{0}E & 50.5^{0}E IN ASSOCIATION WITH THE SYSTEM. MINIMUM CLOUD TOP TEMPERATURE IS -62.0^{0}C.
THE ESTIMATED MAXIMUM SUSTAINED WIND SPEED IS 45 KNOTS GUSTING TO 55 KNOTS. THE ESTIMATED CENTRAL PRESSURE IS 992 HPA.

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

B. DEPRESSION OVER SOUTHWEST AND ADJOINING SOUTHEAST BAY OF BENGAL—(CYCLONE ALERT FOR TAMILNADU AND PUDUCHERRY COASTS)

THE DEPRESSION OVER SOUTHWEST AND ADJOINING SOUTHEAST BAY OF BENGAL MOVED NEARLY NORTHWESTWARDS IN PAST 06 HOURS AND LAY CENTRED AT 0000 UTC OF 23RD NOVEMBER 2020 NEAR LATITUDE 9.3°N AND LONGITUDE 84.5°E, ABOUT 600 KM SOUTH-SOUTHEAST OF PUDUCHERRY (43328) AND 630 KM SOUTH-SOUTHEAST OF CHENNAI (43279). IT IS VERY LIKELY TO INTENSIFY INTO A CYCLONIC STORM DURING NEXT 24 HOURS. IT IS VERY LIKELY TO MOVE NORTHWESTWARDS AND CROSS TAMIL NADU AND PUDUCHERRY COASTS BETWEEN KARAIKAL AND MAMALLAPURAM AROUND 25TH NOVEMBER 2020 AFTERNOON.

Date/Time(UTC)	Position (Lat. ^{0}N/ long. ^{0}E)	Maximum sustained surface wind speed (Kmph)	Category of cyclonic disturbance
23.11.20/0000	9.3/84.5	40-50 GUSTING TO 60	DEPRESSION
23.11.20/1200	10.0/83.4	55-65 GUSTING TO 75	DEEP DEPRESSION
24.11.20/0000	10.3/82.3	65-75 GUSTING TO 85	CYCLONIC STORM
24.11.20/1200	10.6/81.5	90-100 GUSTING TO 110	SEVERE CYCLONIC STORM
25.11.20/0000	11.2/80.8	100-110 GUSTING TO 120	SEVERE CYCLONIC STORM
25.11.20/1200	12.0/79.8	90-100 GUSTING TO 110	SEVERE CYCLONIC STORM
26.11.20/0000	13.0/78.5	55-65 GUSTING TO 75	DEEP DEPRESSION

AS PER SATELLITE IMAGERY, THE VORTEX ASSOCIATED WITH THIS SYSTEM LIES OVER CENTRAL PARTS OF SOUTH BAY OF BENGAL CENTERED 9.0^{0}N/84.6^{0}E (.) AND INTENSITY T1.5/1.5. BROKEN LOW AND MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION LAY OVER SOUTH BAY OF BENGAL, BETWEEN LATITUDE 8.5^{0}N & 12.5^{0}N AND LONGITUDE 82.0^{0}E & 89.0^{0}E IN ASSOCIATION WITH THE SYSTEM. MINIMUM CLOUD TOP TEMPERATURE IS -93.0^{0}C.

PROBABILITY OF CYCLOGENESIS(FORMATION OF DEPRESSION) DURING NEXT 120 HRS:

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

REMARKS:

THE MADDEN JULIAN OSCILLATION (MJO) INDEX IS CURRENTLY IN PHASE 3 WITH AMPLITUDE EQUAL TO 1. IT WILL CONTINUE IN SAME PHASE WITH AMPLITUDE BECOMING LESS THAN 1 DURING SUBSEQUENT 4 DAYS. THUS MJO WILL SUPPORT ENHANCEMENT OF CONVECTIVE ACTIVITY OVER THE NORTH INDIAN OCEAN INCLUDING BAY OF BENGAL (BOB) AND ARABIAN SEA (AS) FOR NEXT 5 DAYS.

A. SEVERE CYCLONIC STORM "GATI" OVER SOMALIA WEAKENED INTO A CYCLONIC STORM

CONSIDERING THE ENVIRONMENTAL CONDITIONS **OVER ARABIAN SEA**, RELATIVE VORTICITY ZONE (50X10^{-6}S^{-1}) PREVAIL SOUND THE SYSTEM. AN AREA OF POSITIVE DIVERGENCE (10X10^{-5}S^{-1}) AND AREA OF NEGATIVE CONVERGENCE ZONE (05 X 10^{-5}S^{-1}) PREVAILS AROUND THE SYSTEM. THE VERTICAL WIND SHEAR (VWS) IS LOW TO MODERATE (15-20 KTS) OVER AND WEST OF THE SYSTEM THE UPPER TROPOSPHERIC RIDGE AT 200 HPA RUNS ALONG 15°N.

B. DEPRESSION OVER SOUTHWEST AND ADJOINING SOUTHEAST BAY OF BENGAL—(CYCLONE ALERT FOR TAMILNADU AND PUDUCHERRY COASTS):

CONSIDERING THE SEA CONDITIONS, SST IS AROUND 29-30°C OVER MOST PARTS OF BAY OF BENGAL (BOB). HIGH TCHP (120-140 KJ/CM^2) PREVAILS IN THE NEAR EQUATORIAL BELT OF NORTH INDIAN OCEAN (NIO) AND ADJOINING SOUTH BOB.

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 **OVER BOB**, POSITIVE RELATIVE VORTICITY ($150X10^{-6}S^{-1}$) PREVAILS OVER THE SOUTH OF THE SYSTEM AREA OVER CENTRAL PARTS OF SOUTH BOB WITH VERTICAL EXTENSION UPTO 500 HPA LEVEL. AREA OF POSITIVE DIVERGENCE ($40X10^{-5}S^{-1}$) PREVAILS OVER THE SYSTEM AREA OVER SOUTHWEST BOB. AREA OF POSITIVE CONVERGENCE ZONE ($30 X 20^{-5}S^{-1}$) PREVAILS OVER THE SAME AREA. THE VERTICAL WIND SHEAR (VWS) IS LOW (05-10 KTS) OVER SOUTH AND ADJOINING CENTRAL BOB. THE UPPER TROPOSPHERIC RIDGE AT 200 HPA RUNS ALONG 11.5°N OVER THE BOB.

NWP MODELS LIKE ECMWF, IMD GFS, NCEP GFS, GEFS, NCUM AND NEPS ARE INDICATING INTENSIFICATION OF THE SYSTEM INTO A CYCLONIC STORM OVER SOUTHWEST BOB DURING NEXT 24 HOURS AND LIKELY MOVEMENT TOWARDS TAMIL NADU-PUDUCHERRY COASTS SKIRTING NORTHEAST SRILANKA COAST.

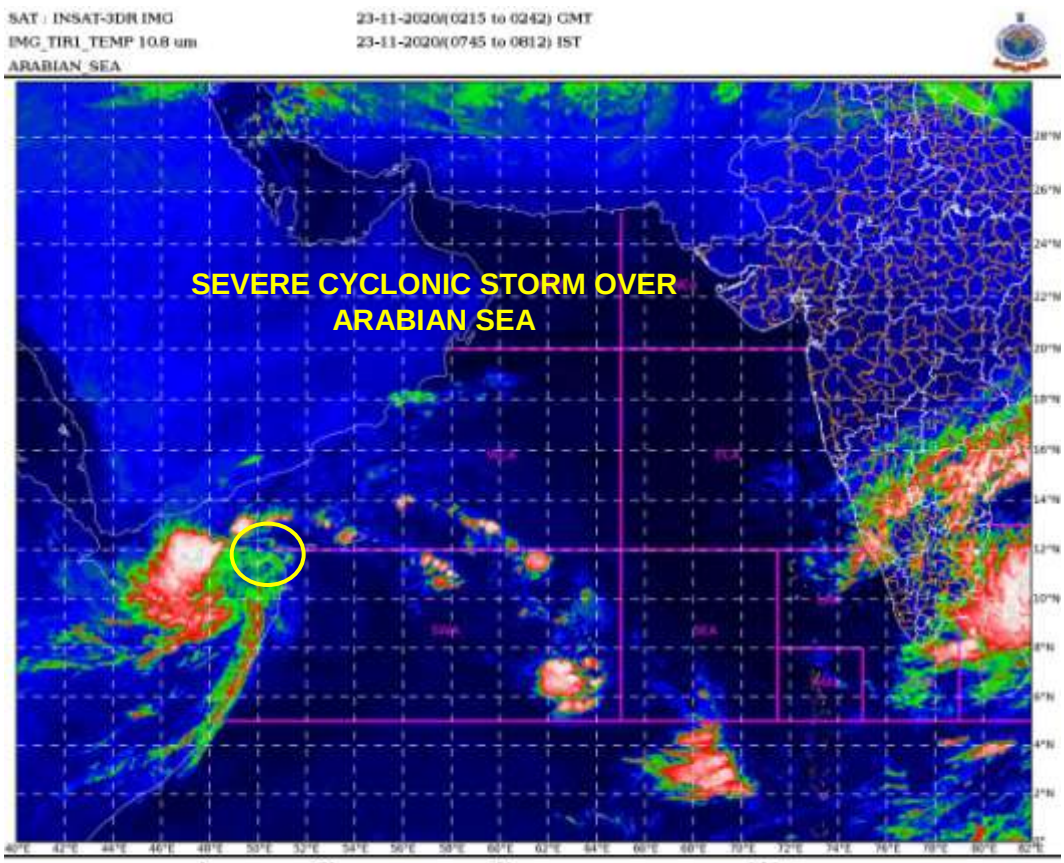
CONCLUSION:

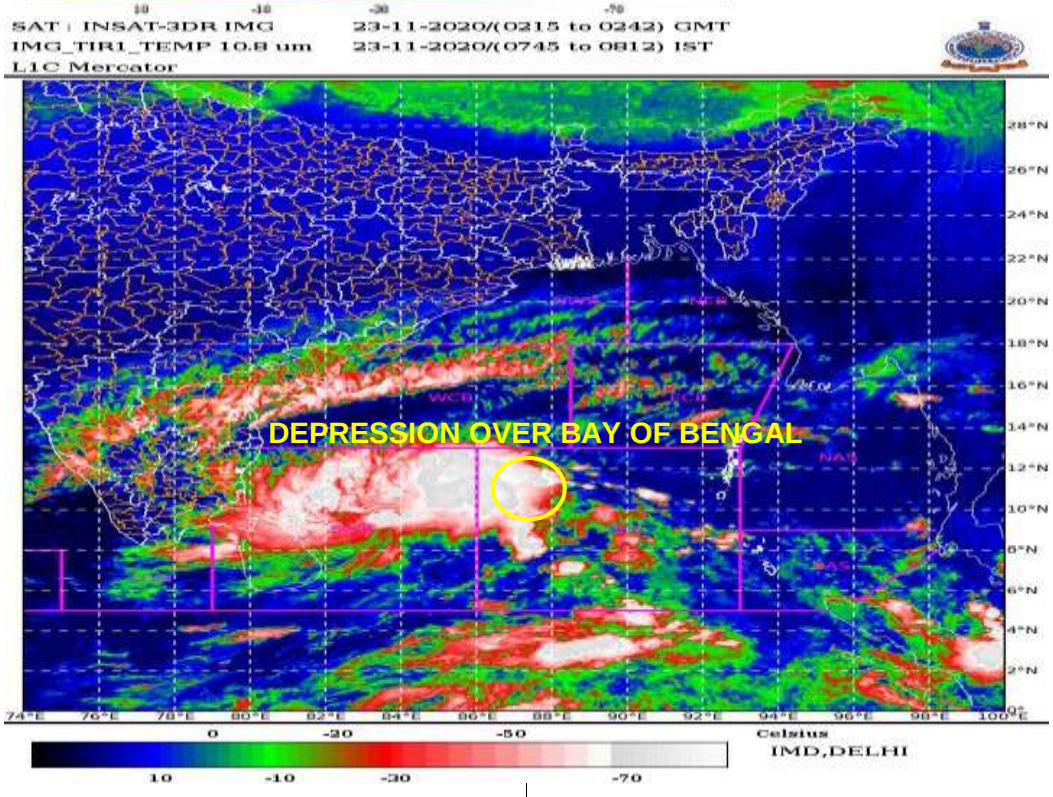
THE SEVERE CYCLONIC STORM “GATI” OVER NORTH SOMALIA MOVED NEARLY WESTWARDS AND WEAKENED INTO CYCLONIC STORM OVER THE SAME REGION. IT IS VERY LIKELY TO MOVE NEARLY WESTWARDS AND WEAKEN GRADUALLY INTO A DEEP DEPRESSION DURING NEXT 6 HOURS.

THE DEPRESSION OVER SOUTHWEST IS LIKELY TO INTENSIFY FURTHER INTO A CYCLONIC STORM DURING NEXT 24 HOURS AND LIKELY TO MOVE NORTHWESTWARDS AND CROSS TAMIL NADU AND PUDUCHERRY COASTS BETWEEN 0900-1500 UTC OF 25TH NOVEMBER 2020.

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

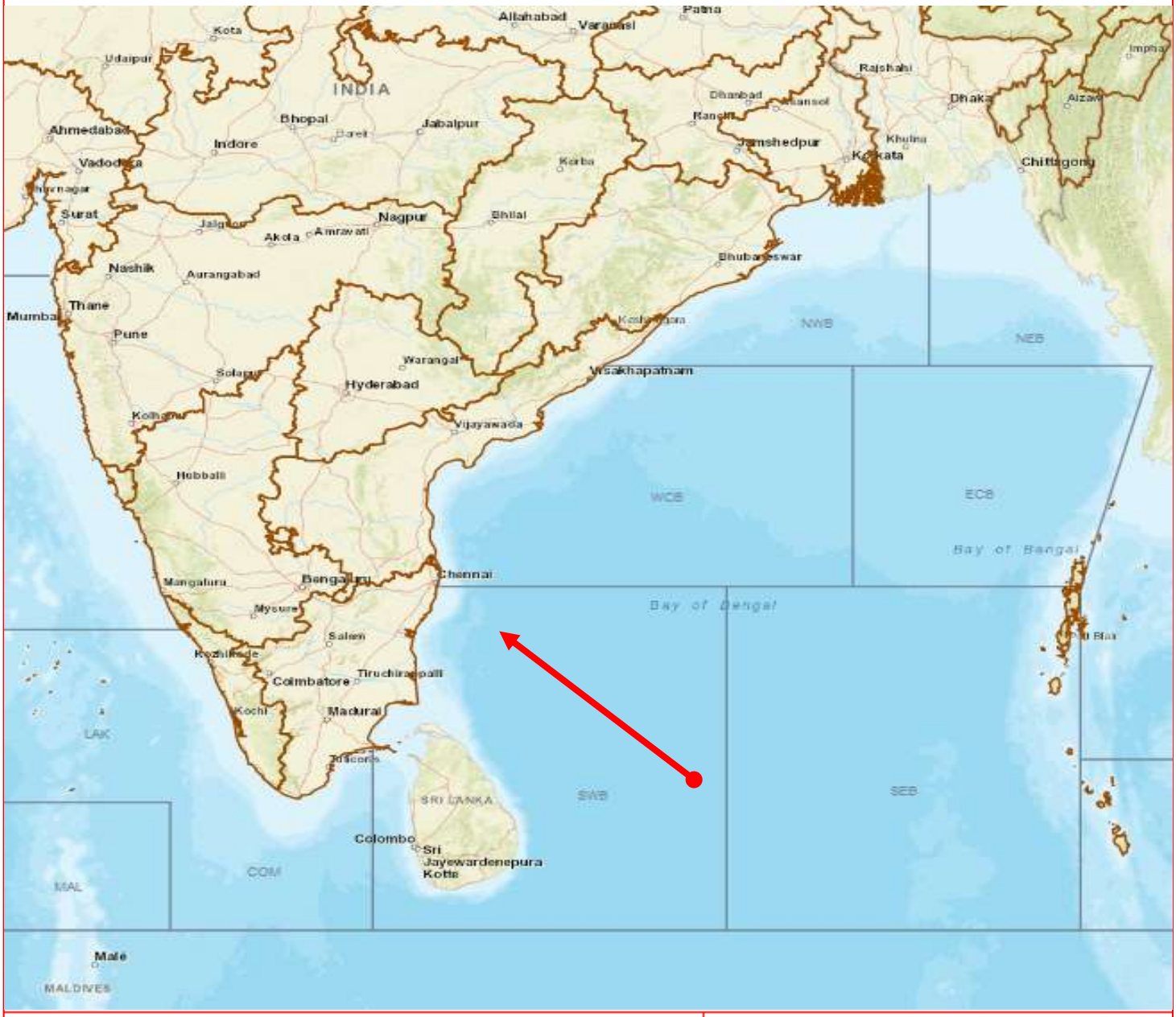
PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)
NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%





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

OBSERVED AND FORECAST TRACK ALONGWITH CONE OF UNCERTAINITY OF DEPRESSION SOUTHWEST BAY OF BENGAL BASED ON 2100 UTC OF 22nd Nov, 2020

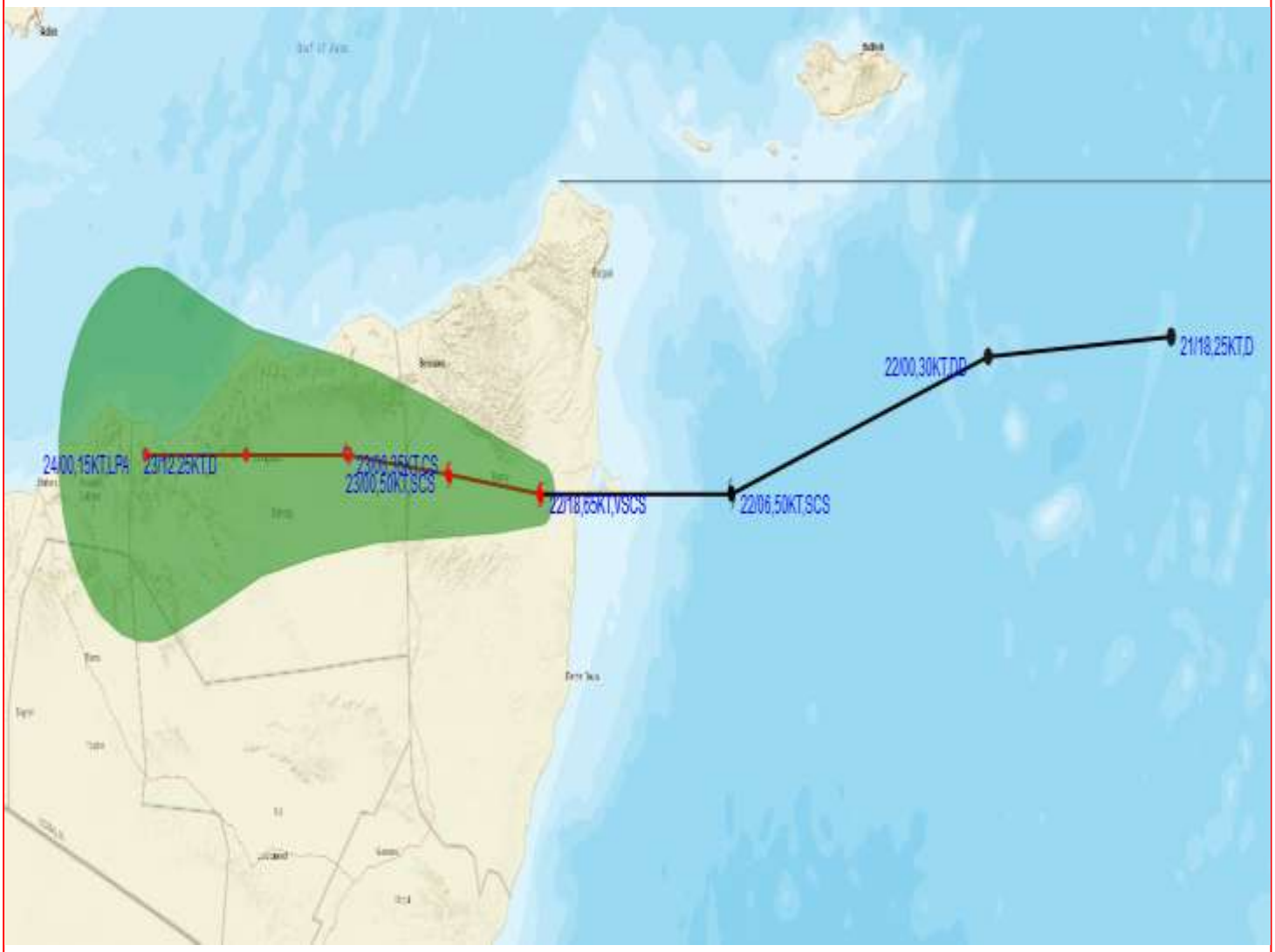


DATE/TIME IN UTC
IST=UTC + 0530
L: LOW PRESSURE AREA
WML: WELL MARKED LOW PRESSURE AREA
D: DEPRESSION (17-27 KT)
DD: DEEP DEPRESSION (28-33 KT)
CS: CYCLONIC STORM (34-47 KT)
SCS: SEVERE CYCLONIC STORM (48-63KT)
VSCS: VERY SEVERE CYCLONIC STORM (64-89 KT)
ESCS: EXTREMELY SEVERE CYCLONIC STORM (90-119 KT)
SuCS: SUPER CYCLONIC STORM (≥120 KT)

LESS THAN 34 KT
34-47 KT
≥ 48 KT
OBSERVED TRACK
FORECAST TRACK
CONE OF UNCERTAINTY

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

OBSERVED AND FORECAST TRACK ALONGWITH CONE OF UNCERTAINITY OF VERY SEVERE CYCLONIC STORM GATI OVER NORTH SOMALIA BASED ON 1800 UTC OF 22nd Nov, 2020



DATE/TIME IN UTC
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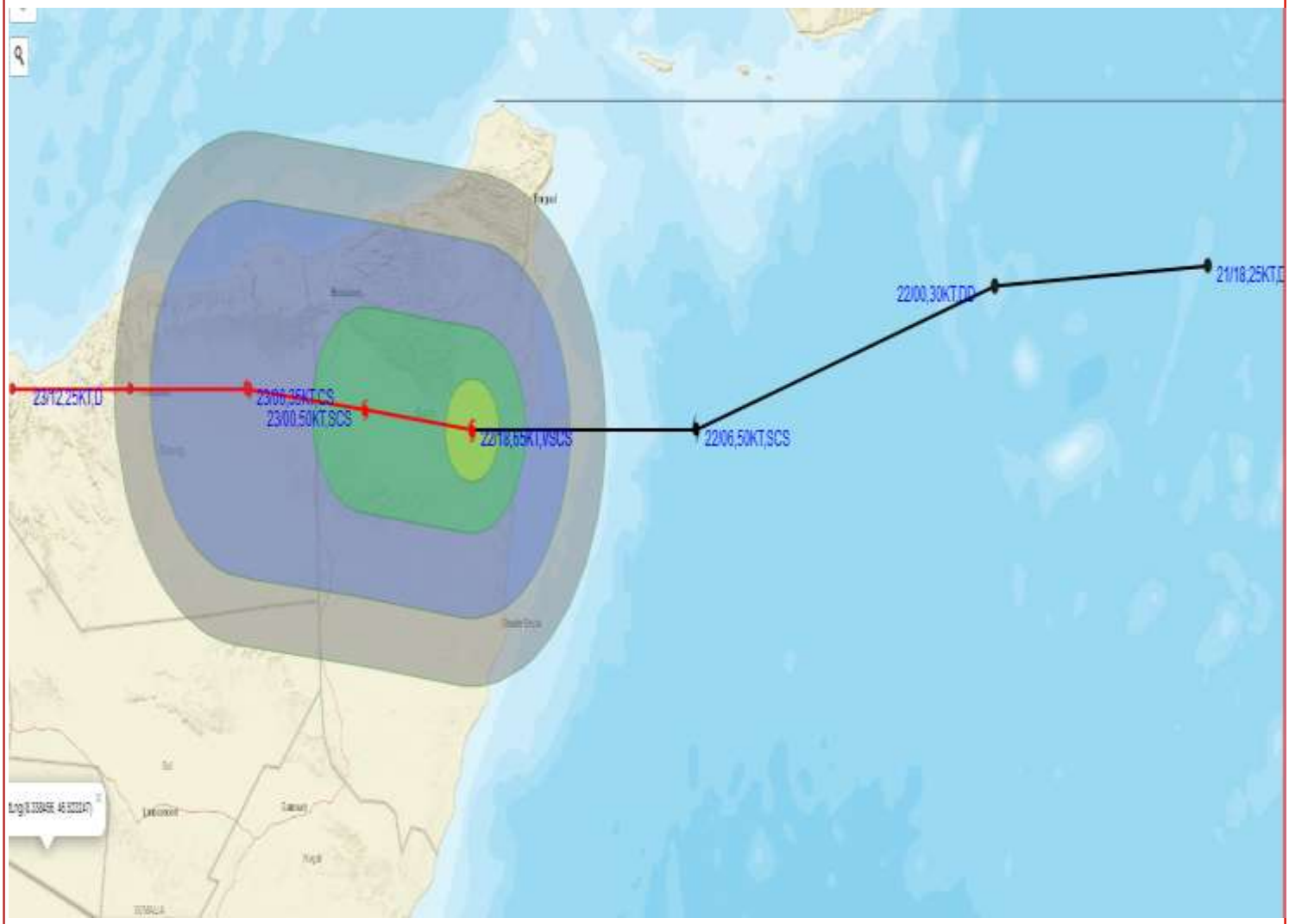
WML: WELL MARKED LOW PRESSURE AREA
D: DEPRESSION (17-27 KT)
DD: DEEP DEPRESSION (28-33 KT)
CS: CYCLONIC STORM (34-47 KT)
SCS: SEVERE CYCLONIC STORM (48-63KT)
VSCS: VERY SEVERE CYCLONIC STORM (64-89 KT)
ESCS: EXTREMELY SEVERE CYCLONIC STORM (90-119 KT)
SuCS: SUPER CYCLONIC STORM (≥20 KT)

LESS THAN 34 KT
34-47 KT
≥ 48 KT
OBSERVED TRACK
FORECAST TRACK
CONE OF UNCERTAINTY

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

OBSERVED AND FORECAST TRACK ALONGWITH QUADRANT WIND DISTRIBUTION OF VERY SEVERE CYCLONIC STORM GATI OVER NORTH SOMALIA BASED ON 1800 UTC OF 22nd Nov, 2020



DATE/TIME IN UTC
IST=UTC + 0530
L: LOW PRESSURE AREA
WML: WELL MARKED LOW PRESSURE AREA
D: DEPRESSION (17-27 KT)
DD: DEEP DEPRESSION (28-33 KT)
CS: CYCLONIC STORM (34-47 KT)
SCS: SEVERE CYCLONIC STORM (48-63KT)
VSCS: VERY SEVERE CYCLONIC STORM (64-89 KT)
ESCS: EXTREMELY SEVERE CYCLONIC STORM (90-119 KT)
SuCS: SUPER CYCLONIC STORM (≥20 KT)

- LESS THAN 34 KT
- 34-47 KT
- ≥ 48 KT
- OBSERVED TRACK
- FORECAST TRACK
- CONE OF UNCERTAINTY

AREA OF MAXIMUM SUSTAINED WIND SPEED:
- 28-33 KT (52-61 KMPH)
- 34-49 KT (62-91 KMPH)
- 50-63 KT (92-117 KMPH)
- ≥ 64 KT (≥118 KMPH)

IMPACT OVER THE SEA

MSW (knot/kmph)	Impact	Action
28-33 (52-61)	Very rough seas	Total suspension of fishing operations
34-49 (62-91)	High to very high seas	Total suspension of fishing operations
50-63 (92-117)	Very high seas	Total suspension of fishing operations
≥ 64 (≥118)	Phenomenal	Total suspension of fishing operations

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

REGIONAL SPECIALISED METEOROLOGICAL CENTRE-TROPICAL CYCLONES, NEW DELHI

TROPICAL CYCLONE ADVISORY BULLETIN NO. 9

FROM: RSMC –TROPICAL CYCLONES, NEW DELHI

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

TROPICAL CYCLONE ADVISORY NO. 9 FOR NORTH INDIAN OCEAN (THE BAY OF BENGAL AND ARABIAN SEA) VALID FOR NEXT 120 HOURS ISSUED AT 0600 UTC OF 23.11.2020 BASED ON 0300 UTC OF 23.11.2020.

A. CYCLONIC STORM "GATI" OVER SOMALIA

THE CYCLONIC STORM "GATI" OVER NORTH SOMALIA MOVED NEARLY WESTWARDS WITH A SPEED OF ABOUT 08 KMPH DURING PAST 06 HOURS AND LAY CENTERED AT 0300 UTC OF 23RD NOVEMBER 2020 OVER THE SAME REGION NEAR LATITUDE 10.5°N AND LONGITUDE 49.7°E, 180 KM WEST-SOUTHWEST OF RAS BINNAH (SOMALIA). IT IS VERY LIKELY TO MOVE NEARLY WESTWARDS AND WEAKEN GRADUALLY INTO A DEEP DEPRESSION DURING NEXT 03 HOURS AND INTO A DEPRESSION DURING SUBSEQUENT 06 HOURS.

FORECAST TRACK AND INTENSITY ARE GIVEN BELOW:

DATE/TIME(UTC)	POSITION (LAT. ^{0}N/ LONG. ^{0}E)	MAXIMUM SUSTAINED SURFACE WIND SPEED (KMPH)	CATEGORY OF CYCLONIC DISTURBANCE
23.11.20/0300	10.5/49.7	60-70 Gusting TO 80	Cyclonic Storm
23.11.20/0600	10.6/49.2	55-65 Gusting TO 75	Deep Depression
23.11.20/1200	10.6/48.5	40-50 Gusting TO 60	Depression
23.11.20/1800	10.7/47.6	20-30 Gusting TO 40	Low Pressure Area

AS PER SATELLITE IMAGERY, ASSOCTATED BROKEN LOW AND MEDIUM CLOUDS WITH EMBEDDED MODERATE TO INTENSE CONVECTION LAY OVER NORTH SOMALIA AND SOUTHWEST ARABIAN SEA BETWEEN LATITUDE 8.5^{0}N & 12.5^{0}N AND LONGITUDE 44.0^{0}E & 50.5^{0}E IN ASSOCIATION WITH THE SYSTEM. MINIMUM CLOUD TOP TEMPERATURE IS -62.0^{0}C.
THE ESTIMATED MAXIMUM SUSTAINED WIND SPEED IS 35 KNOTS GUSTING TO 45 KNOTS. THE ESTIMATED CENTRAL PRESSURE IS 997 HPA.

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

B. DEPRESSION OVER SOUTHWEST AND ADJOINING SOUTHEAST BAY OF BENGAL—(CYCLONE ALERT FOR TAMILNADU AND PUDUCHERRY COASTS)

THE DEPRESSION OVER SOUTHWEST AND ADJOINING SOUTHEAST BAY OF BENGAL MOVED NORTHWESTWARDS WITH A SPEED OF 25 KMPH DURING PAST 06 HOURS AND LAY CENTRED AT 0300UTC OF 23RD NOVEMBER, 2020 OVER THE SAME REGION NEAR LATITUDE 9.5°N AND LONGITUDE 84.2°E, ABOUT 550 KM EAST-SOUTHEAST OF PUDUCHERRY(43328) AND 590 KM SOUTHEAST OF CHENNAI(43279). IT IS VERY LIKELY TO INTENSIFY INTO A CYCLONIC STORM DURING NEXT 24 HOURS. IT IS VERY LIKELY TO MOVE NORTHWESTWARDS AND CROSS TAMIL NADU AND PUDUCHERRY COASTS BETWEEN KARAIKAL AND MAMALLAPURAM AROUND 25TH NOVEMBER 2020 AFTERNOON.

Date/Time(UTC)	Position (Lat. ^{0}N/ long. ^{0}E)	Maximum sustained surface wind speed (Kmph)	Category of cyclonic disturbance
23.11.20/0300	9.5/84.2	40-50 GUSTING TO 60	DEPRESSION
23.11.20/1200	10.0/83.4	55-65 GUSTING TO 75	DEEP DEPRESSION
24.11.20/0000	10.3/82.3	65-75 GUSTING TO 85	CYCLONIC STORM
24.11.20/1200	10.6/81.5	90-100 GUSTING TO 110	SEVERE CYCLONIC STORM
25.11.20/0000	11.2/80.8	100-110 GUSTING TO 120	SEVERE CYCLONIC STORM
25.11.20/1200	12.0/79.8	90-100 GUSTING TO 110	SEVERE CYCLONIC STORM
26.11.20/0000	13.0/78.5	55-65 GUSTING TO 75	DEEP DEPRESSION

AS PER SATELLITE IMAGERY, THE VORTEX ASSOCIATED WITH THIS SYSTEM LIES OVER CENTRAL PARTS OF SOUTH BAY OF BENGAL CENTERED 9.5^{0}N/84.2^{0}E (.) AND INTENSITY T1.5/1.5. BROKEN LOW AND MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION LAY OVER SOUTH BAY OF BENGAL, BETWEEN LATITUDE 8.5^{0}N & 12.5^{0}N AND LONGITUDE 82.0^{0}E & 89.0^{0}E IN ASSOCIATION WITH THE SYSTEM. MINIMUM CLOUD TOP TEMPERATURE IS -93.0^{0}C.

REMARKS:

THE MADDEN JULIAN OSCILLATION (MJO) INDEX IS CURRENTLY IN PHASE 3 WITH AMPLITUDE EQUAL TO 1. IT WILL CONTINUE IN SAME PHASE WITH AMPLITUDE BECOMING LESS THAN 1 DURING SUBSEQUENT 4 DAYS. THUS MJO WILL SUPPORT ENHANCEMENT OF CONVECTIVE ACTIVITY OVER THE NORTH INDIAN OCEAN INCLUDING BAY OF BENGAL (BOB) AND ARABIAN SEA (AS) FOR NEXT 5 DAYS.

A. SEVERE CYCLONIC STORM "GATI" OVER SOMALIA WEAKENED INTO A CYCLONIC STORM

CONSIDERING THE ENVIRONMENTAL CONDITIONS **OVER ARABIAN SEA**, RELATIVE VORTICITY ZONE (50X10^{-6}S^{-1}) PREVAIL SOUND THE SYSTEM. AN AREA OF POSITIVE DIVERGENCE (10X10^{-5}S^{-1}) AND AREA OF NEGATIVE CONVERGENCE ZONE (05 X 10^{-5}S^{-1}) PREVAILS AROUND THE SYSTEM. THE VERTICAL WIND SHEAR (VWS) IS LOW TO MODERATE (15-20 KTS) OVER AND WEST OF THE SYSTEM THE UPPER TROPOSPHERIC RIDGE AT 200 HPA RUNS ALONG 15°N.

B. DEPRESSION OVER SOUTHWEST AND ADJOINING SOUTHEAST BAY OF BENGAL—(CYCLONE ALERT FOR TAMILNADU AND PUDUCHERRY COASTS):

CONSIDERING THE SEA CONDITIONS, SST IS AROUND 29-30°C OVER MOST PARTS OF BAY OF BENGAL (BOB). HIGH TCHP (120-140 KJ/CM^2) PREVAILS IN THE NEAR EQUATORIAL BELT OF NORTH INDIAN OCEAN (NIO) AND ADJOINING SOUTH BOB.

CONSIDERING THE ENVIRONMENTAL CONDITIONS **OVER BOB**, POSITIVE RELATIVE VORTICITY (150X10^{-6}S^{-1}) PREVAILS OVER THE SOUTH OF THE SYSTEM AREA OVER CENTRAL PARTS OF SOUTH BOB WITH VERTICAL EXTENSION UPTO 500 HPA LEVEL.

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

AREA OF POSITIVE DIVERGENCE ($40X10^{-5}S^{-1}$) PREVAILS OVER THE SYSTEM AREA OVER SOUTHWEST BOB. AREA OF POSITIVE CONVERGENCE ZONE ($10 X 20^{-5}S^{-1}$) PREVAILS OVER THE SAME AREA. THE VERTICAL WIND SHEAR (VWS) IS LOW (10-15 KTS) OVER SOUTH AND ADJOINING CENTRAL BOB. THE UPPER TROPOSPHERIC RIDGE AT 200 HPA RUNS ALONG 13.5°N OVER THE BOB.

NWP MODELS LIKE ECMWF, IMD GFS, NCEP GFS, GEFS, NCUM AND NEPS ARE INDICATING INTENSIFICATION OF THE SYSTEM INTO A CYCLONIC STORM OVER SOUTHWEST BOB DURING NEXT 24 HOURS AND LIKELY MOVEMENT TOWARDS TAMIL NADU-PUDUCHERRY COASTS SKIRTING NORTHEAST SRILANKA COAST.

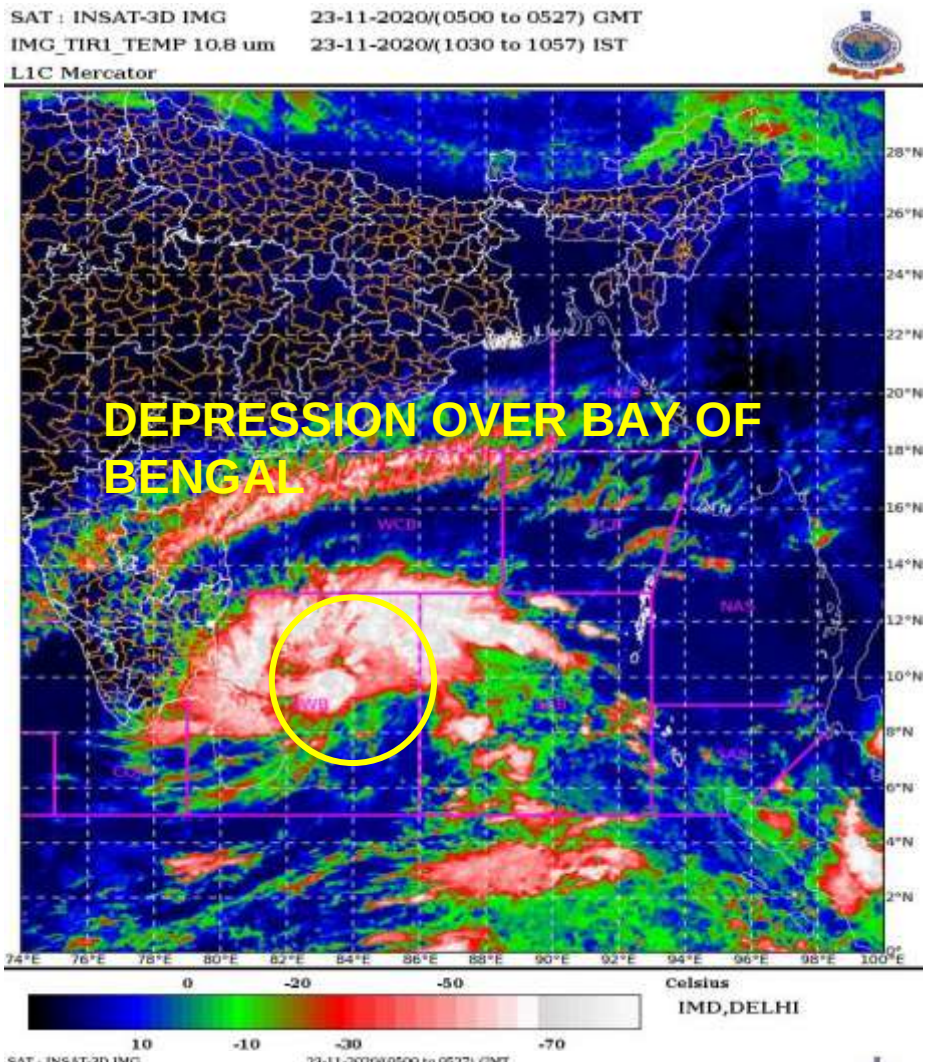
CONCLUSION:

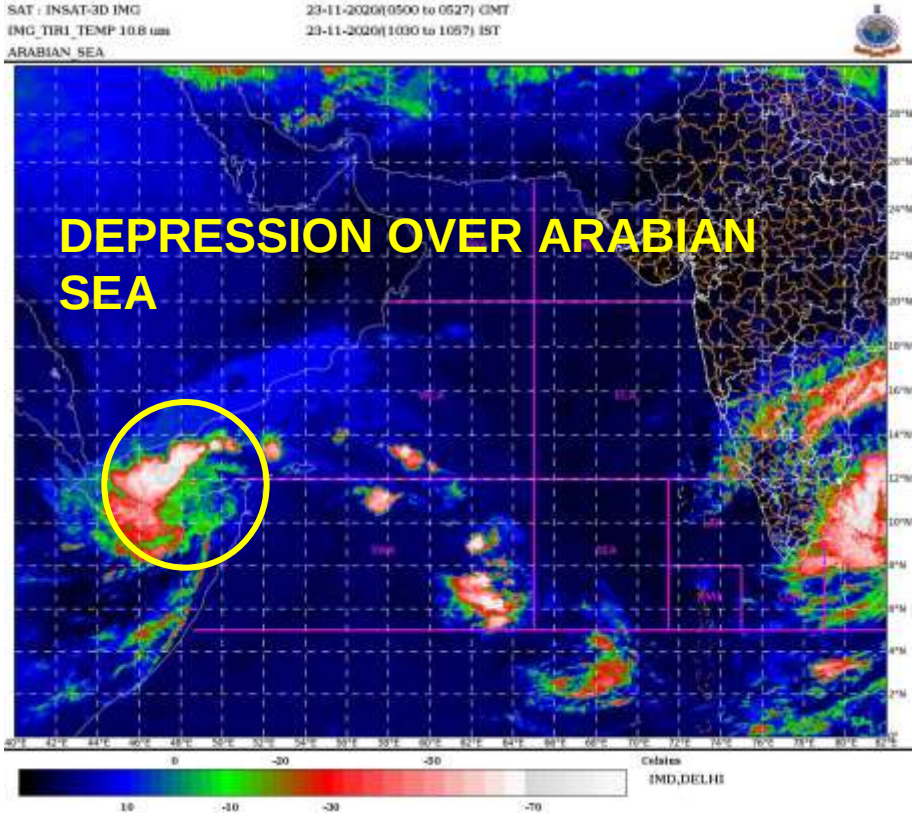
THE CYCLONIC STORM “GATI” OVER NORTH SOMALIA LIKELY MOVE NEARLY WESTWARDS AND WEAKEN INTO DEEP DEPRESSION OVER THE SAME REGION DURING NEXT 3 HOURS AND DEPRESSION DURING SUBSEQUENT 6 HOURS.

THE DEPRESSION OVER SOUTHWEST IS LIKELY TO INTENSIFY FURTHER INTO A CYCLONIC STORM DURING NEXT 24 HOURS AND LIKELY TO MOVE NORTHWESTWARDS AND CROSS TAMIL NADU AND PUDUCHERRY COASTS BETWEEN 0900-1500 UTC OF 25TH NOVEMBER 2020.

(RK JENAMANI)
SCIENTIST- F, RSMC
NEW DELHI

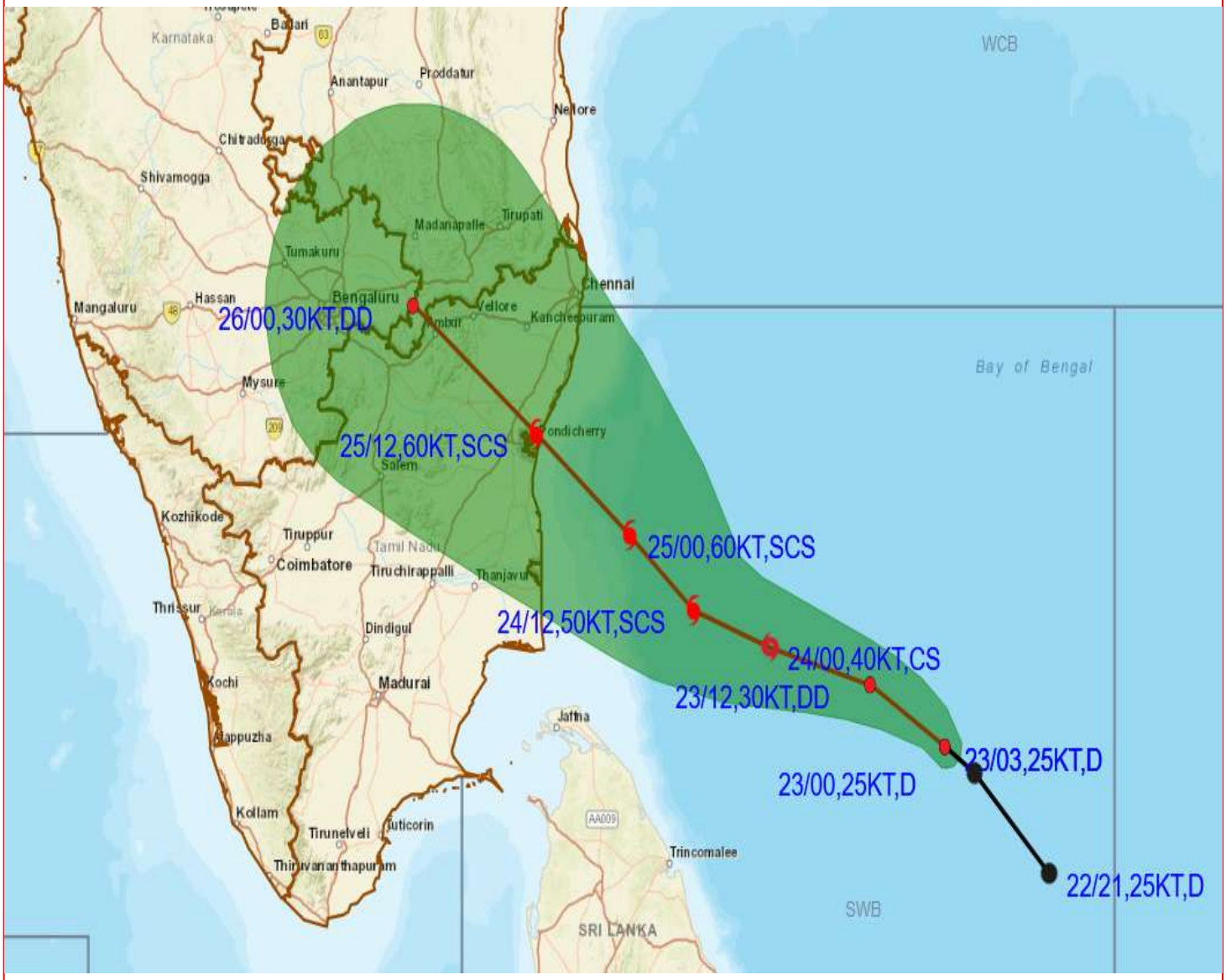
PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)
NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%





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

OBSERVED AND FORECAST TRACK ALONGWITH CONE OF UNCERTAINITY OF DEPRESSION OVER SOUTHWEST BAY OF BENGAL BASED ON 0300UTC OF 23rd Nov, 2020

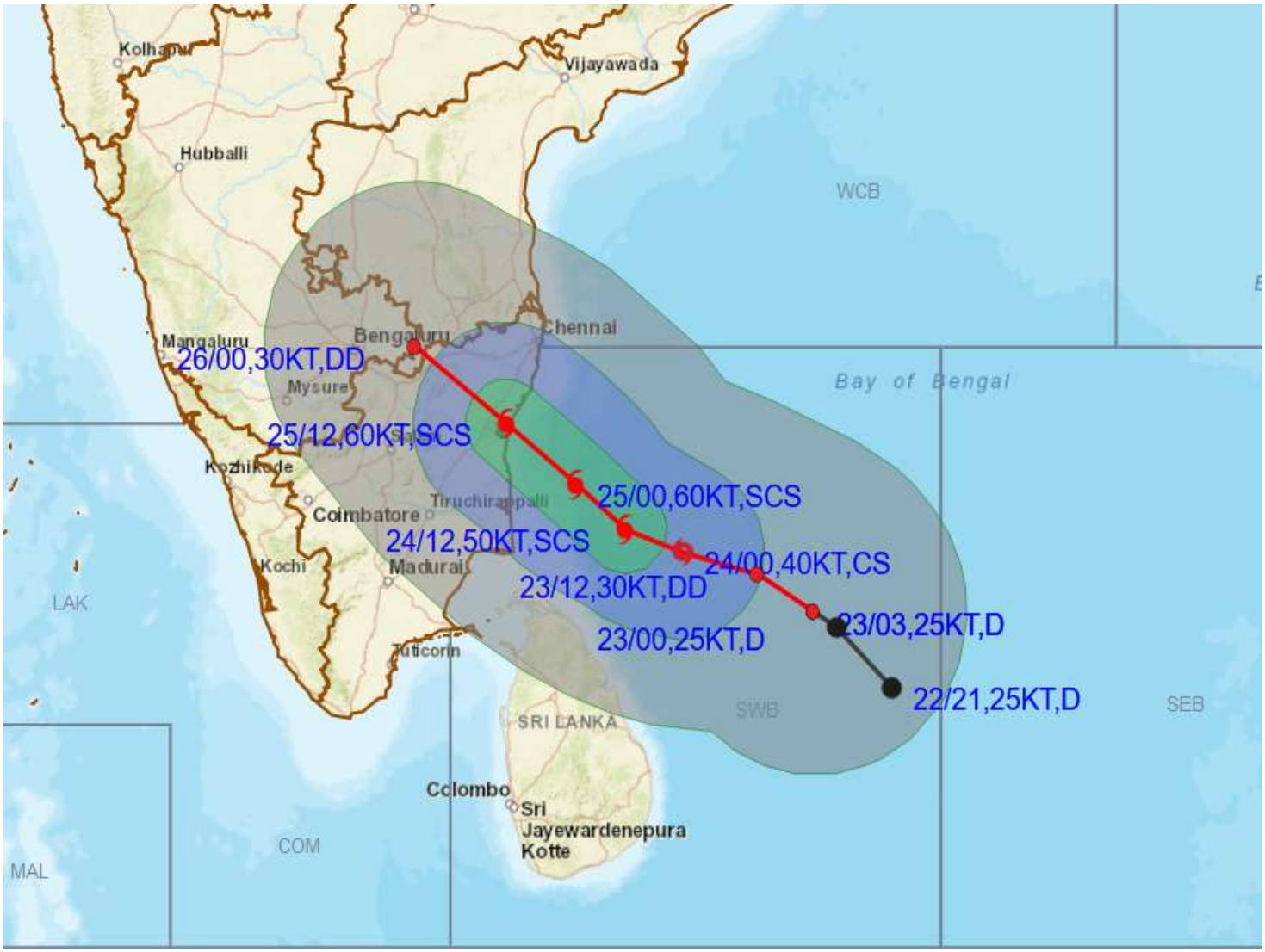


DATE/TIME IN UTC
IST=UTC + 0530
L: LOW PRESSURE AREA
WML: WELL MARKED LOW PRESSURE AREA
D: DEPRESSION (17-27 KT)
DD: DEEP DEPRESSION (28-33 KT)
CS: CYCLONIC STORM (34-47 KT)
SCS: SEVERE CYCLONIC STORM (48-63KT)
VSCS: VERY SEVERE CYCLONIC STORM (64-89 KT)
ESCS: EXTREMELY SEVERE CYCLONIC STORM (90-119 KT)
SuCS: SUPER CYCLONIC STORM (≥ 120 KT)

LESS THAN 34 KT
34-47 KT
≥ 48 KT
OBSERVED TRACK
FORECAST TRACK
CONE OF UNCERTAINTY

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

OBSERVED AND FORECAST TRACK ALONGWITH QUADRANT WIND DISTRIBUTION OF DEPRESSION OVER SOUTHWEST BAY OF BENGAL BASED ON 0300UTC OF 23rd Nov, 2020



DATE/TIME IN UTC
IST=UTC + 0530
L: LOW PRESSURE AREA
WML: WELL MARKED LOW PRESSURE AREA
D: DEPRESSION (17-27 KT)
DD: DEEP DEPRESSION (28-33 KT)
CS: CYCLONIC STORM (34-47 KT)
SCS: SEVERE CYCLONIC STORM (48-63KT)
VSCS: VERY SEVERE CYCLONIC STORM (64-89 KT)
ESCS: EXTREMELY SEVERE CYCLONIC STORM (90-119 KT)
SuCS: SUPER CYCLONIC STORM (≥ 120 KT)

LESS THAN 34 KT
34-47 KT
≥ 48 KT
OBSERVED TRACK
FORECAST TRACK
CONE OF UNCERTAINTY
AREA OF MAXIMUM SUSTAINED WIND SPEED:
28-33 KT (52-61 KMPH)
34-49 KT (62-91 KMPH)
50-63 KT (92-117 KMPH)
≥ 64 KT (≥118 KMPH)

IMPACT OVER THE SEA

MSW (knot/kmph)	Impact	Action
28-33 (52-61)	Very rough seas	Total suspension of fishing operations
34-49 (62-91)	High to very high seas	Total suspension of fishing operations
50-63 (92-117)	Very high seas	Total suspension of fishing operations
≥ 64 (≥118)	Phenomenal	Total suspension of fishing operations

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

REGIONAL SPECIALISED METEOROLOGICAL CENTRE-TROPICAL CYCLONES, NEW DELHI

TROPICAL CYCLONE ADVISORY BULLETIN NO. 10

FROM: RSMC –TROPICAL CYCLONES, NEW DELHI

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

TROPICAL CYCLONE ADVISORY NO. 10 FOR NORTH INDIAN OCEAN (THE BAY OF BENGAL AND ARABIAN SEA) VALID FOR NEXT 120 HOURS ISSUED AT 0930 UTC OF 23.11.2020 BASED ON 0600 UTC OF 23.11.2020.

A. DEPRESSION OVER SOUTHWEST AND ADJOINING SOUTHEAST BAY OF BENGAL— (CYCLONE ALERT FOR TAMILNADU AND PUDUCHERRY COASTS)

THE DEPRESSION OVER SOUTHWEST AND ADJOINING SOUTHEAST BAY OF BENGAL MOVED WEST-NORTHWESTWARDS WITH A SPEED OF 11 KMPH DURING PAST 06 HOURS AND LAY CENTRED AT 0600UTC OF 23RD NOVEMBER, 2020 OVER THE SAME REGION NEAR LATITUDE 9.6°N AND LONGITUDE 84.0°E, ABOUT 520 KM EAST-SOUTHEAST OF PUDUCHERRY AND 560 KM SOUTHEAST OF CHENNAI. IT IS VERY LIKELY TO INTENSIFY INTO A CYCLONIC STORM DURING NEXT 24 HOURS. IT IS VERY LIKELY TO MOVE NORTHWESTWARDS AND CROSS TAMIL NADU AND PUDUCHERRY COASTS BETWEEN KARAIKAL AND MAMALLAPURAM AROUND 25TH NOVEMBER 2020 AFTERNOON AS A SEVERE CYCLONIC STORM WITH A WIND SPEED OF 100-110 KMPH GUSTING TO 120 KMPH.

Date/Time(UTC)	Position (Lat. ^{0}N/ long. ^{0}E)	Maximum sustained surface wind speed (Kmph)	Category of cyclonic disturbance
23.11.20/0600	9.6/84.0	45-55 GUSTING TO 65	DEPRESSION
23.11.20/1800	10.1/82.8	55-65 GUSTING TO 75	DEEP DEPRESSION
24.11.20/0600	10.5/81.9	70-80 GUSTING TO 90	CYCLONIC STORM
24.11.20/1800	10.9/81.1	90-100 GUSTING TO 110	SEVERE CYCLONIC STORM
25.11.20/0600	11.6/80.3	110-120 GUSTING TO 135	SEVERE CYCLONIC STORM
25.11.20/1800	12.5/79.2	70-80 GUSTING TO 90	CYCLONIC STORM
26.11.20/0600	13.5/78.3	30-40 GUSTING TO 50	DEPRESSION

AS PER SATELLITE IMAGERY, THE VORTEX ASSOCIATED WITH THIS SYSTEM LIES OVER CENTRAL PARTS OF SOUTH BAY OF BENGAL CENTERED 9.6^{0}N/84.0^{0}E (.) AND INTENSITY T1.5/1.5. SHEAR PATTERN. BROKEN LOW AND MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION LAY OVER SOUTH BAY OF BENGAL, BETWEEN

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

LATITUDE 8.5^{0}N & 14.5^{0}N AND LONGITUDE 802.0^{0}E & 90.0^{0}E IN ASSOCIATION WITH THE SYSTEM. MINIMUM CLOUD TOP TEMPERATURE IS -93.0^{0}C.

B.CYCLONIC STORM "GATI" WEAKENED INTO A DEEP DEPRESSION

THE CYCLONIC STORM "GATI" OVER NORTH SOMALIA MOVED NEARLY WESTWARDS WITH A SPEED OF ABOUT 15 KMPH DURING PAST 06 HOURS, WEAKENED INTO A DEEP DEPRESSION AND LAY CENTERED AT 0600 UTC OF 23RD NOVEMBER 2020 OVER THE SAME REGION NEAR LATITUDE 10.7°N AND LONGITUDE 49.2°E, 220 KM WEST-SOUTHWEST OF RAS BINNAH (SOMALIA). IT IS VERY LIKELY TO MOVE NEARLY WESTWARDS AND WEAKEN GRADUALLY INTO A DEPRESSION DURING NEXT 06 HOURS AND INTO A WELL MARKED LOW PRESSURE AREA DURING SUBSEQUENT 06 HOURS.

FORECAST TRACK AND INTENSITY ARE GIVEN BELOW:

DATE/TIME(UTC)	POSITION (LAT. ^{0}N/ LONG. ^{0}E)	MAXIMUM SUSTAINED SURFACE WIND SPEED (KMPH)	CATEGORY OF CYCLONIC DISTURBANCE
23.11.20/0600	10.7/49.2	55-65 GUSTING TO 75	DEEP DEPRESSION
23.11.20/1200	10.6/48.5	40-50 GUSTING TO 60	DEPRESSION
23.11.20/1800	10.7/47.6	20-30 GUSTING TO 40	LOW PRESSURE AREA
23.11.20/0600	10.7/49.2	55-65 GUSTING TO 75	DEEP DEPRESSION

AS PER SATELLITE IMAGERY, ASSOCTATED BROKEN LOW AND MEDIUM CLOUDS WITH EMBEDDED MODERATE TO INTENSE CONVECTION LAY OVER NORTH SOMALIA COAST AND ADJOINING GULF OF ADEN. MINIMUM CLOUD TOP TEMPERATURE IS -80.0^{0}C.
THE ESTIMATED MAXIMUM SUSTAINED WIND SPEED IS 30 KNOTS GUSTING TO 40 KNOTS. THE ESTIMATED CENTRAL PRESSURE IS 999 HPA.

REMARKS:

THE MADDEN JULIAN OSCILLATION (MJO) INDEX IS CURRENTLY IN PHASE 3 WITH AMPLITUDE EQUAL TO 1. IT WILL CONTINUE IN SAME PHASE WITH AMPLITUDE BECOMING LESS THAN 1 DURING SUBSEQUENT 4 DAYS. THUS MJO WILL SUPPORT ENHANCEMENT OF CONVECTIVE ACTIVITY OVER THE NORTH INDIAN OCEAN INCLUDING BAY OF BENGAL (BOB) AND ARABIAN SEA (AS) FOR NEXT 5 DAYS.

A. SEVERE CYCLONIC STORM "GATI" OVER SOMALIA WEAKENED INTO A CYCLONIC STORM

CONSIDERING THE ENVIRONMENTAL CONDITIONS **OVER ARABIAN SEA**, RELATIVE VORTICITY ZONE (50X10^{-6}S^{-1}) PREVAIL SOUND THE SYSTEM. AN AREA OF POSITIVE DIVERGENCE (10X10^{-5}S^{-1}) AND AREA OF NEGATIVE CONVERGENCE ZONE (20 X 10^{-5}S^{-1}) PREVAILS AROUND THE SYSTEM. THE VERTICAL WIND SHEAR (VWS) IS LOW TO MODERATE (15-20 KTS) OVER AND WEST OF THE SYSTEM THE UPPER TROPOSPHERIC RIDGE AT 200 HPA RUNS ALONG 16°N.

B. DEPRESSION OVER SOUTHWEST AND ADJOINING SOUTHEAST BAY OF BENGAL—(CYCLONE ALERT FOR TAMILNADU AND PUDUCHERRY COASTS):

CONSIDERING THE SEA CONDITIONS, SST IS AROUND 29-30°C OVER MOST PARTS OF BAY OF BENGAL (BOB). HIGH TCHP (120-140 KJ/CM^2) PREVAILS IN THE NEAR EQUATORIAL BELT OF NORTH INDIAN OCEAN (NIO) AND ADJOINING SOUTH BOB.

CONSIDERING THE ENVIRONMENTAL CONDITIONS **OVER BOB**, POSITIVE RELATIVE VORTICITY (150X10^{-6}S^{-1}) PREVAILS OVER THE SOUTH OF THE SYSTEM AREA OVER CENTRAL PARTS OF SOUTH BOB WITH VERTICAL EXTENSION UPTO 500 HPA LEVEL. AREA OF POSITIVE DIVERGENCE (30X10^{-5}S^{-1}) PREVAILS OVER THE SYSTEM AREA OVER SOUTHWEST BOB. AREA OF POSITIVE CONVERGENCE ZONE (20 X 20^{-5}S^{-1}) PREVAILS OVER THE SAME AREA. THE VERTICAL WIND SHEAR (VWS) IS LOW (05-15 KTS) OVER

SOUTH AND ADJOINING CENTRAL BOB. THE UPPER TROPOSPHERIC RIDGE AT 200 HPA RUNS ALONG 13.5°N OVER THE BOB.

NWP MODELS LIKE ECMWF, IMD GFS, NCEP GFS, GEFS, NCUM AND NEPS ARE INDICATING INTENSIFICATION OF THE SYSTEM INTO A CYCLONIC STORM OVER SOUTHWEST BOB DURING NEXT 24 HOURS AND LIKELY MOVEMENT TOWARDS TAMIL NADU-PUDUCHERRY COASTS SKIRTING NORTHEAST SRILANKA COAST.

CONCLUSION:

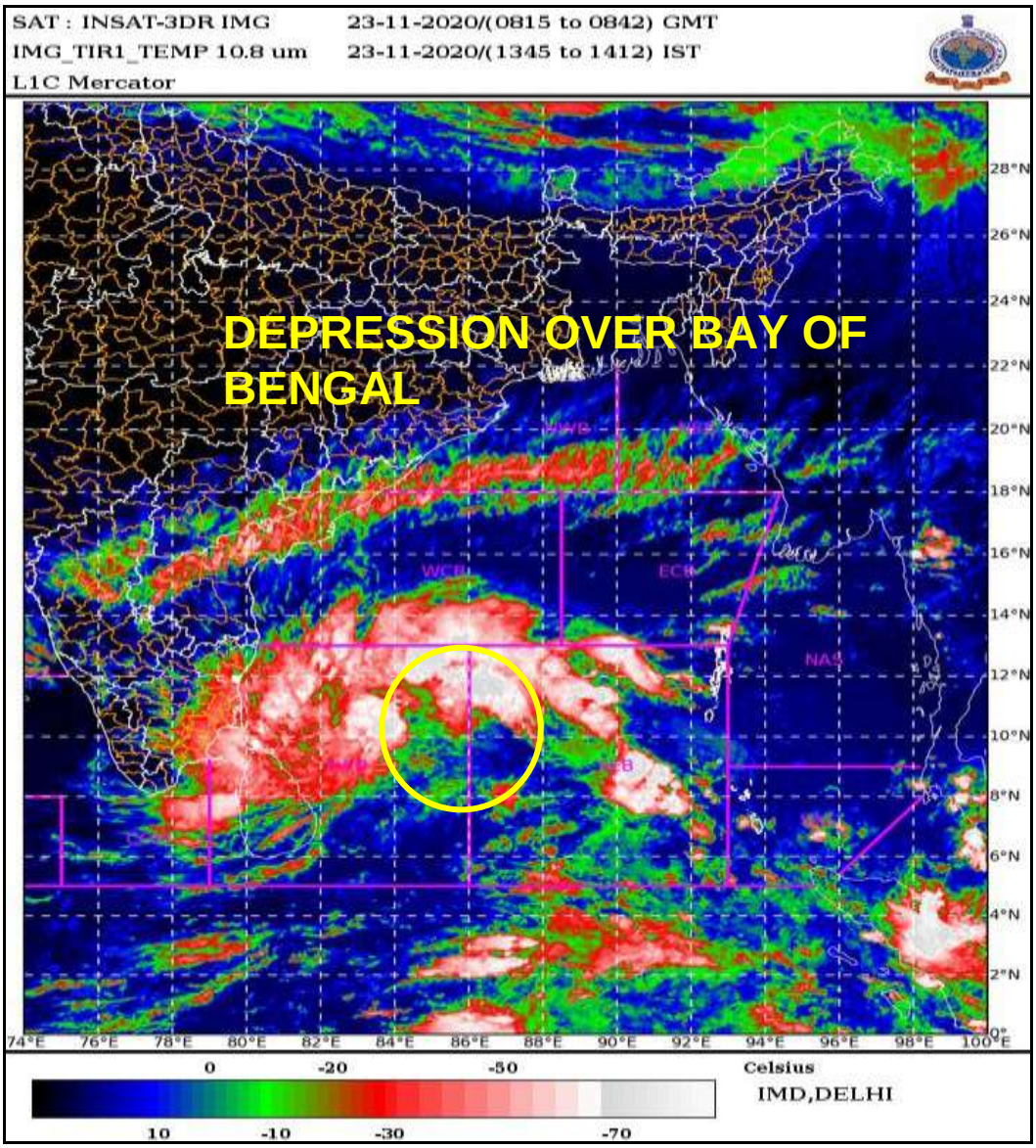
THE DEEP DEPRESSION “GATI” OVER NORTH SOMALIA LIKELY MOVE NEARLY WESTWARDS AND WEAKEN INTO DEPRESSION OVER THE SAME REGION DURING NEXT 6 HOURS AND LOW PRESSURE DURING SUBSEQUENT 6 HOURS.

THE DEPRESSION OVER SOUTHWEST IS LIKELY TO INTENSIFY FURTHER INTO A CYCLONIC STORM DURING NEXT 24 HOURS AND LIKELY TO MOVE NORTHWESTWARDS AND CROSS TAMIL NADU AND PUDUCHERRY COASTS BETWEEN 0900-1500 UTC OF 25TH NOVEMBER 2020.

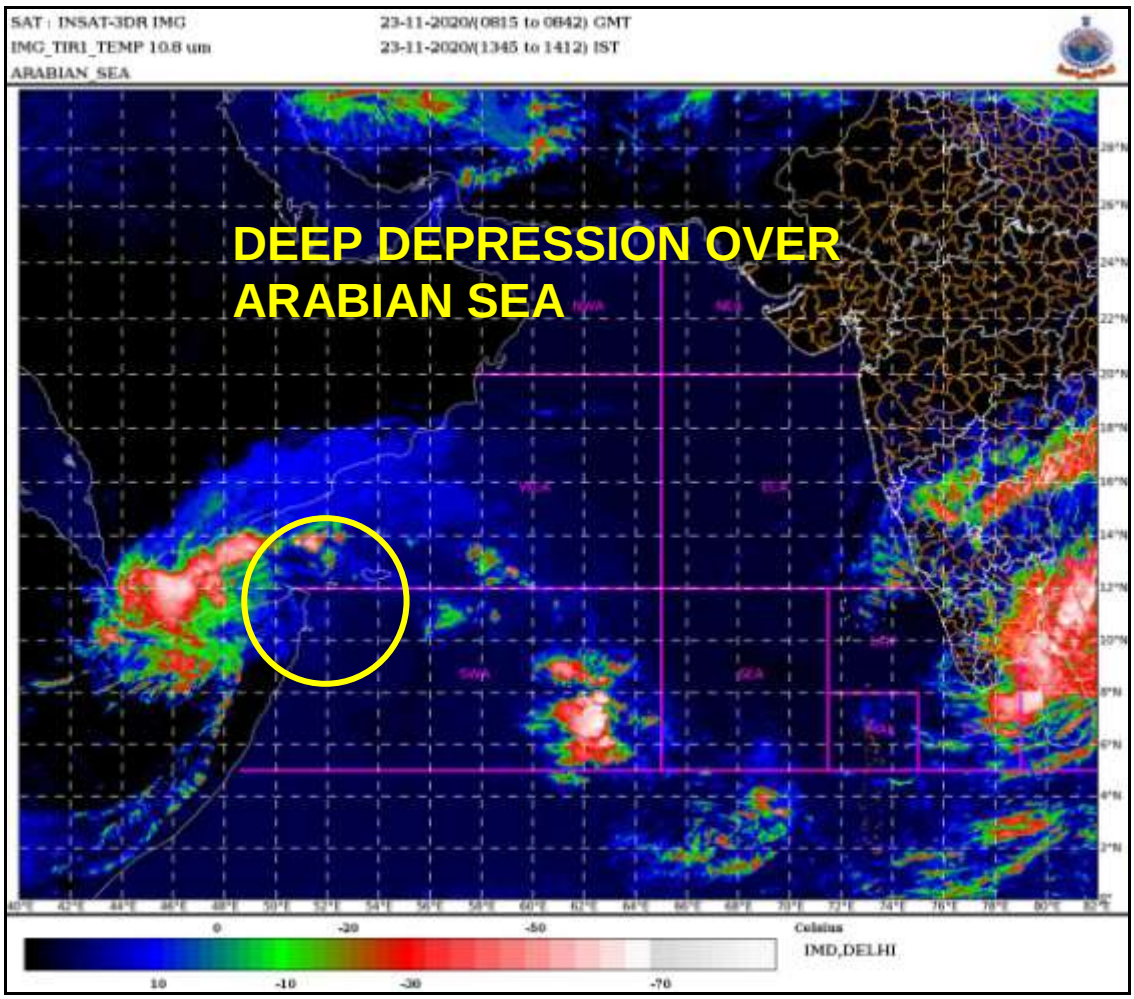
(RK JENAMANI)
SCIENTIST- F, RSMC

NEW DELHI

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



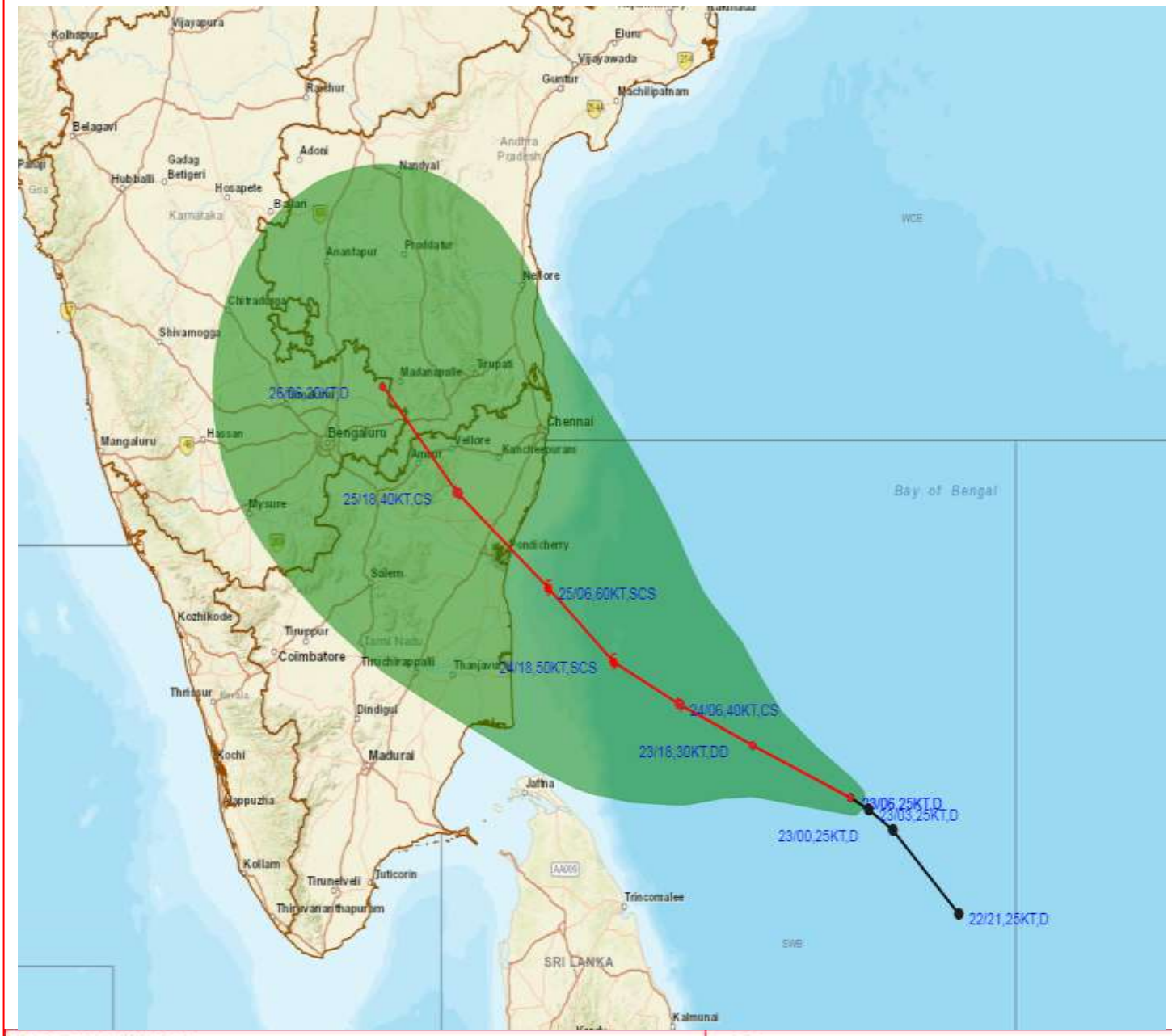
PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)
NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%



PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

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

OBSERVED AND FORECAST TRACK ALONGWITH CONE OF UNCERTAINITY OF DEPRESSION OVER SOUTHWEST BAY OF BENGAL BASED ON 0600UTC OF 23rd Nov, 2020

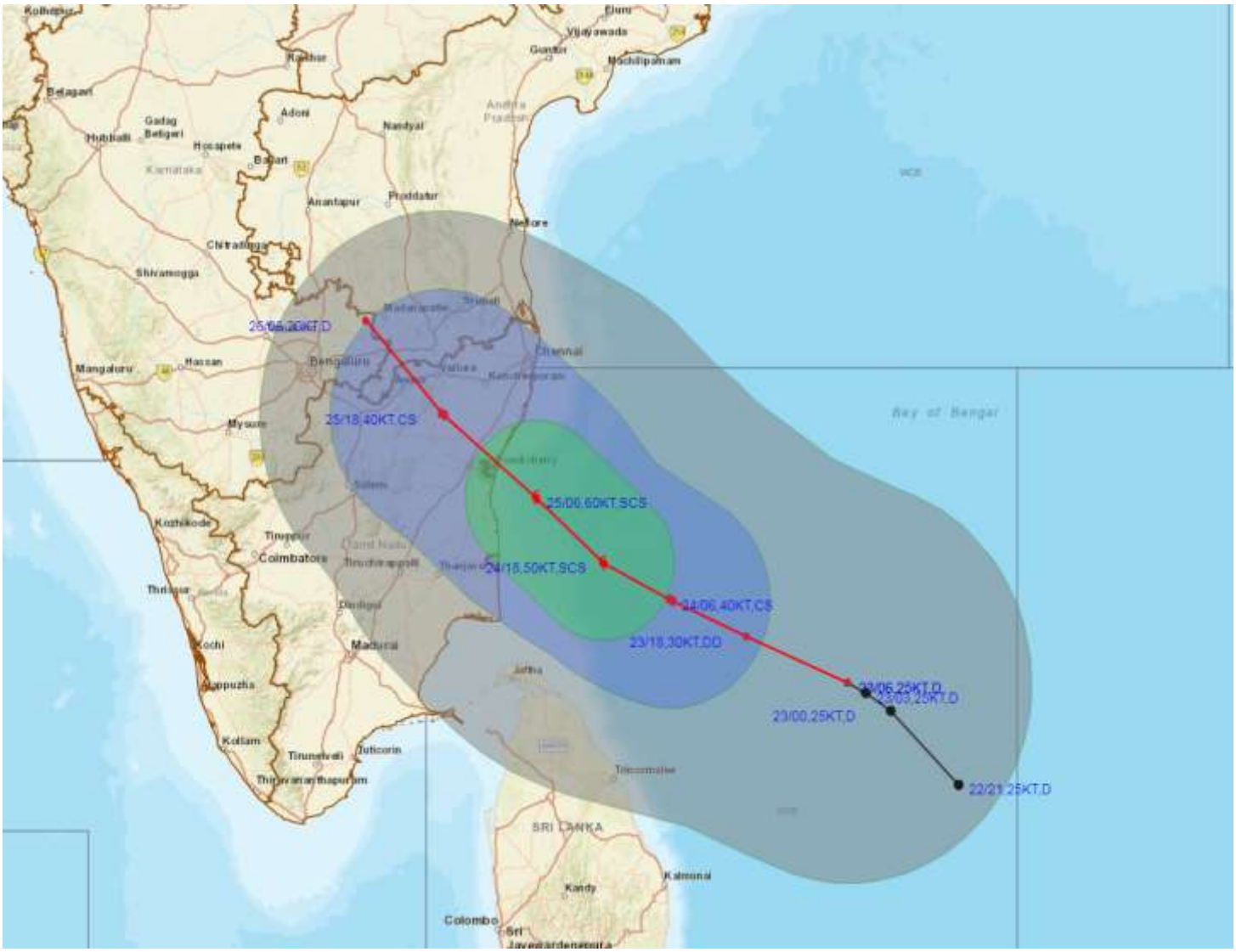


DATE/TIME IN UTC
IST=UTC + 0530
L: LOW PRESSURE AREA
WML: WELL MARKED LOW PRESSURE AREA
D: DEPRESSION (17-27 KT)
DD: DEEP DEPRESSION (28-33 KT)
CS: CYCLONIC STORM (34-47 KT)
SCS: SEVERE CYCLONIC STORM (48-63KT)
VSCS: VERY SEVERE CYCLONIC STORM (64-89 KT)
ESCS: EXTREMELY SEVERE CYCLONIC STORM (90-119 KT)
SuCS: SUPER CYCLONIC STORM (≥ 120 KT)

LESS THAN 34 KT
34-47 KT
≥ 48 KT
OBSERVED TRACK
FORECAST TRACK
CONE OF UNCERTAINTY

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

OBSERVED AND FORECAST TRACK ALONGWITH QUADRANT WIND DISTRIBUTION OF DEPRESSION OVER SOUTHWEST BAY OF BENGAL BASED ON 0600UTC OF 23rd Nov, 2020



DATE/TIME IN UTC
IST=UTC + 0530
L: LOW PRESSURE AREA
WML: WELL MARKED LOW PRESSURE AREA
D: DEPRESSION (17-27 KT)
DD: DEEP DEPRESSION (28-33 KT)
CS: CYCLONIC STORM (34-47 KT)
SCS: SEVERE CYCLONIC STORM (48-63KT)
VSCS: VERY SEVERE CYCLONIC STORM (64-89 KT)
ESCS: EXTREMELY SEVERE CYCLONIC STORM (90-119 KT)
SuCS: SUPER CYCLONIC STORM (≥ 120 KT)

- LESS THAN 34 KT
- 34-47 KT
- ≥ 48 KT
- OBSERVED TRACK
- FORECAST TRACK
- CONE OF UNCERTAINTY

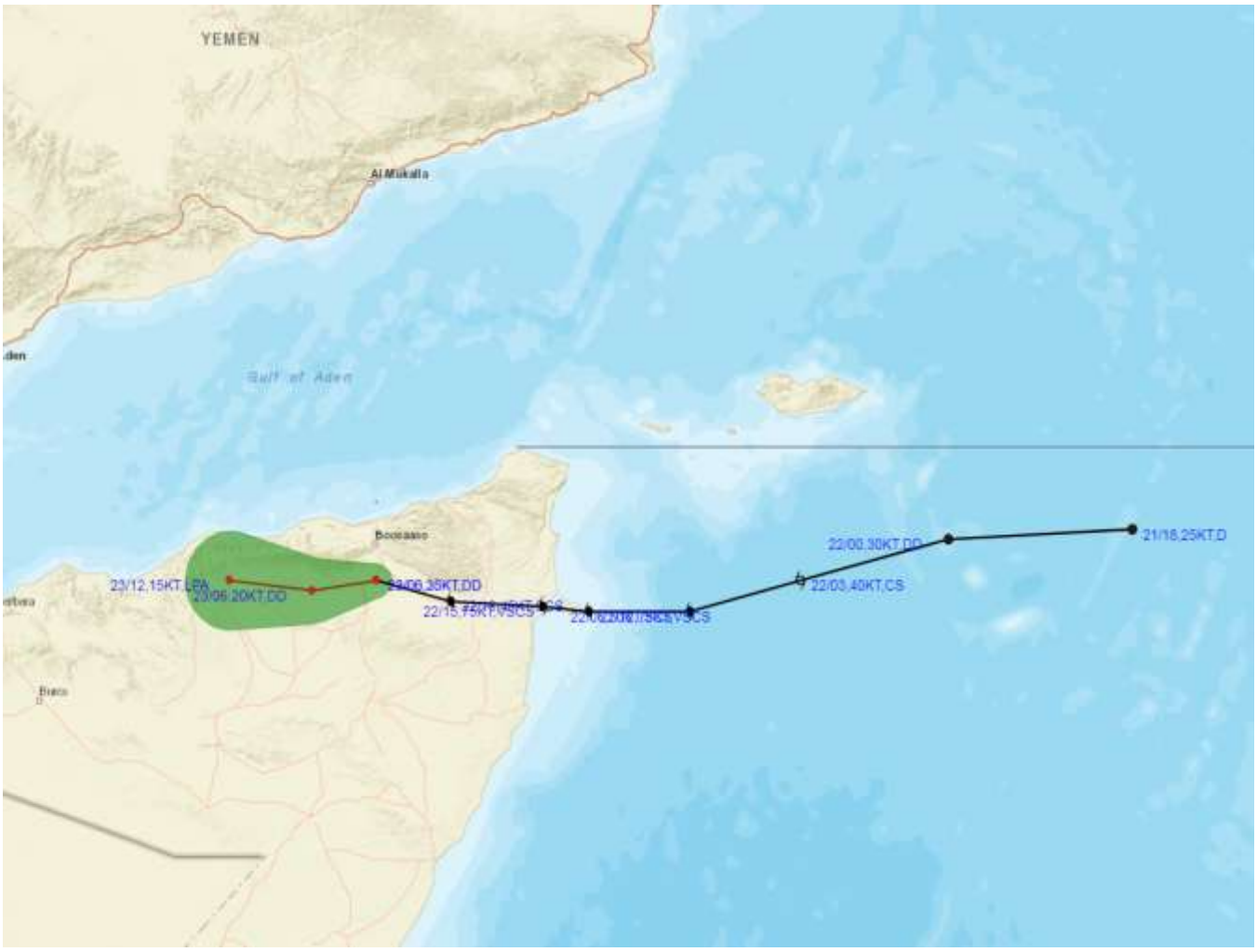
AREA OF MAXIMUM SUSTAINED WIND SPEED:
- 28-33 KT (52-61 KMPH)
- 34-49 KT (62-91 KMPH)
- 50-63 KT (92-117 KMPH)
- ≥ 64 KT (≥118 KMPH)

IMPACT OVER THE SEA

MSW (knot/kmph)	Impact	Action
28-33 (52-61)	Very rough seas	Total suspension of fishing operations
34-49 (62-91)	High to very high seas	Total suspension of fishing operations
50-63 (92-117)	Very high seas	Total suspension of fishing operations
≥ 64 (≥118)	Phenomenal	Total suspension of fishing operations

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

OBSERVED AND FORECAST TRACK ALONGWITH CONE OF UNCERTAINITY OF DEEP DEPRESSION OVER SOMALIA BASED ON 0600 UTC OF 23nd Nov, 2020



DATE/TIME IN UTC
IST=UTC + 0530
L: LOW PRESSURE AREA
WML: WELL MARKED LOW PRESSURE AREA
D: DEPRESSION (17-27 KT)
DD: DEEP DEPRESSION (28-33 KT)
CS: CYCLONIC STORM (34-47 KT)
SCS: SEVERE CYCLONIC STORM (48-63KT)
VSCS: VERY SEVERE CYCLONIC STORM (64-89 KT)
ESCS: EXTREMELY SEVERE CYCLONIC STORM (90-119 KT)
SuCS: SUPER CYCLONIC STORM (≥20 KT)

LESS THAN 34 KT
34-47 KT
≥ 48 KT
OBSERVED TRACK
FORECAST TRACK
CONE OF UNCERTAINTY

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

REGIONAL SPECIALISED METEOROLOGICAL CENTRE-TROPICAL CYCLONES, NEW DELHI

TROPICAL CYCLONE ADVISORY BULLETIN NO. 11

FROM: RSMC –TROPICAL CYCLONES, NEW DELHI

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

TROPICAL CYCLONE ADVISORY NO. 11 FOR NORTH INDIAN OCEAN (THE BAY OF BENGAL AND ARABIAN SEA) VALID FOR NEXT 120 HOURS ISSUED AT 1600 UTC OF 23.11.2020 BASED ON 1200 UTC OF 23.11.2020.

A. DEPRESSION INTENSIFIED INTO A DEEP DEPRESSION OVER SOUTHWEST BAY OF BENGAL —(CYCLONE ALERT FOR TAMILNADU AND PUDUCHERRY COASTS)

THE DEPRESSION OVER SOUTHWEST AND ADJOINING SOUTHEAST BAY OF BENGAL MOVED WEST-NORTHWESTWARDS WITH A SPEED OF 14 KMPH DURING PAST 06 HOURS, INTENSIFIED INTO A DEEP DEPRESSION AND LAY CENTRED AT 1200UTC OF TODAY, THE 23RD NOVEMBER, 2020 OVER SOUTHWEST BAY OF BENGAL NEAR LATITUDE 9.9°N AND LONGITUDE 83.3°E, ABOUT 450 KM EAST-SOUTHEAST OF PUDUCHERRY AND 480 KM SOUTHEAST OF CHENNAI. IT IS VERY LIKELY TO INTENSIFY INTO A CYCLONIC STORM DURING NEXT 12 HOURS AND INTO A SEVERE CYCLONIC STORM DURING SUBSEQUENT 24 HOURS. IT IS VERY LIKELY TO MOVE NORTHWESTWARDS AND CROSS TAMIL NADU AND PUDUCHERRY COASTS BETWEEN KARAIKAL AND MAMALLAPURAM AROUND PUDUCHERRY DURING 25TH NOVEMBER 2020 EVENING AS A SEVERE CYCLONIC STORM WITH A WIND SPEED OF 100-110 KMPH GUSTING TO 120 KMPH.

FORECAST TRACK AND INTENSITY ARE GIVEN BELOW:

DATE/TIME(UTC)	POSITION (LAT. ^{0}N/ LONG. ^{0}E)	MAXIMUM SUSTAINED SURFACE WIND SPEED (KMPH)	CATEGORY OF CYCLONIC DISTURBANCE
23.11.20/1200	9.9/83.3	50-60 GUSTING TO 70	DEEP DEPRESSION
23.11.20/1800	10.1/82.8	55-65 GUSTING TO 75	DEEP DEPRESSION
24.11.20/0000	10.3/82.3	65-75 GUSTING TO 85	CYCLONIC STORM
24.11.20/0600	10.5/81.9	75-85 GUSTING TO 95	CYCLONIC STORM
24.11.20/1200	10.7/81.5	90-100 GUSTING TO 110	SEVERE CYCLONIC STORM
25.11.20/0530	11.3/80.7	100-110 GUSTING TO 120	SEVERE CYCLONIC STORM
25.11.20/1200	12.0/79.8	100-110 GUSTING TO 120	SEVERE CYCLONIC STORM
26.11.20/0000	13.0/78.9	65-75 GUSTING TO 85	CYCLONIC STORM
26.11.20/1200	14.0/78.0	30-40 GUSTING TO 50	DEPRESSION

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

AS PER SATELLITE IMAGERY, THE VORTEX ASSOCIATED WITH THIS SYSTEM LIES OVER CENTRAL PARTS OF SOUTH BAY OF BENGAL CENTERED 9.7^0N/83.7^0E (.) AND INTENSITY T2.0/2.0. SHEAR PATTERN. BROKEN LOW AND MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION LAY OVER SOUTH BAY OF BENGAL, BETWEEN LATITUDE 9.0^0N & 12.5^0N AND LONGITUDE 80.0^0E & 84.0^0E IN ASSOCIATION WITH THE SYSTEM. MINIMUM CLOUD TOP TEMPERATURE IS -80.0^0C.
THE ESTIMATED MAXIMUM SUSTAINED WIND SPEED IS 30 KNOTS GUSTING TO 40 KNOTS. THE ESTIMATED CENTRAL PRESSURE IS 999 HPA.

B.DEEP DEPRESSION OVER GULF OF ADEN AND ADJOINING SOMALIA

THE DEEP DEPRESSION OVER NORTH SOMALIA MOVED NEARLY NORTHWESTWARDS WITH A SPEED OF ABOUT 17 KMPH DURING PAST 06 HOURS AND LAY CENTERED AT 1200UTC OF 23RD NOVEMBER 2020 OVER THE GULF OF ADEN AND ADJOINING SOMALIA NEAR LATITUDE 11.3°N AND LONGITUDE 48.5°E, ABOUT 290 KM WEST OF RAS BINNAH (SOMALIA). IT IS VERY LIKELY TO MOVE NEARLY WESTWARDS AND WEAKEN GRADUALLY INTO A DEPRESSION DURING NEXT 12 HOURS AND INTO A WELL MARKED LOW PRESSURE AREA DURING SUBSEQUENT 06 HOURS.

Forecast track and intensity are given below:

DATE/TIME(UTC)	POSITION (LAT. ^{0}N/ LONG. ^{0}E)	MAXIMUM SUSTAINED SURFACE WIND SPEED (KMPH)	CATEGORY OF CYCLONIC DISTURBANCE
23.11.20/1200	11.3/48.5	45-55 GUSTING TO 65	DEEP DEPRESSION
24.11.20/0000	11.7/47.5	40-50 GUSTING TO 60	DEPRESSION
24.11.20/1200	11.7/46.4	20-30 GUSTING TO 40	LOW PRESSURE AREA

AS PER SATELLITE IMAGERY, VORTEX LIES OVER NORTH SOMALIA COAST ADJ GULF OF ADEN CENTERD AT 11.7N/48.9E WITH T1.5. ASSOCTATED BROKEN LOW AND MEDIUM CLOUDS WITH EMBEDDED MODERATE TO INTENSE CONVECTION LAY OVER NORTH SOMALIA COAST AND ADJOINING GULF OF ADEN. MINIMUM CLOUD TOP TEMPERATURE IS -61.0^0C.
THE ESTIMATED MAXIMUM SUSTAINED WIND SPEED IS 30 KNOTS GUSTING TO 40 KNOTS. THE ESTIMATED CENTRAL PRESSURE IS 999 HPA.

REMARKS:

THE MADDEN JULIAN OSCILLATION (MJO) INDEX IS CURRENTLY IN PHASE 3 WITH AMPLITUDE EQUAL TO 1. IT WILL CONTINUE IN SAME PHASE WITH AMPLITUDE BECOMING LESS THAN 1 DURING SUBSEQUENT 4 DAYS. THUS MJO WILL SUPPORT ENHANCEMENT OF CONVECTIVE ACTIVITY OVER THE NORTH INDIAN OCEAN INCLUDING BAY OF BENGAL (BOB) AND ARABIAN SEA (AS) FOR NEXT 5 DAYS.

A. DEPRESSION INTENSIFIED INTO A DEEP DEPRESSION OVER SOUTHWEST BAY OF BENGAL

CONSIDERING THE SEA CONDITIONS, SST IS AROUND 29-30°C OVER MOST PARTS OF BAY OF BENGAL (BOB). HIGH TCHP (120-140 KJ/CM^2) PREVAILS IN THE NEAR EQUATORIAL BELT OF NORTH INDIAN OCEAN (NIO) AND ADJOINING SOUTH BOB.

CONSIDERING THE ENVIRONMENTAL CONDITIONS **OVER BOB**, POSITIVE RELATIVE VORTICITY ($150X10^{-6}S^{-1}$) PREVAILS OVER THE SOUTH OF THE SYSTEM AREA OVER CENTRAL PARTS OF SOUTH BOB WITH VERTICAL EXTENSION UPTO 300 HPA LEVEL. AREA OF POSITIVE DIVERGENCE ($30X10^{-5}S^{-1}$) PREVAILS OVER THE SYSTEM AREA OVER SOUTHWEST BOB. AREA OF POSITIVE CONVERGENCE ZONE (20 X $20^{-5}S^{-1}$) PREVAILS OVER THE SAME AREA. THE VERTICAL WIND SHEAR (VWS) IS LOW (05-15 KTS) OVER SOUTH AND ADJOINING CENTRAL BOB. THE UPPER TROPOSPHERIC RIDGE AT 200 HPA RUNS ALONG 13.5°N OVER THE BOB.

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

NWP MODELS LIKE ECMWF, IMD GFS, NCEP GFS, GEFS, NCUM AND NEPS ARE INDICATING INTENSIFICATION OF THE SYSTEM INTO A CYCLONIC STORM OVER SOUTHWEST BOB DURING NEXT 12 HOURS AND LIKELY MOVEMENT TOWARDS TAMIL NADU-PUDUCHERRY COASTS SKIRTING NORTHEAST SRILANKA COAST.

B. DEEP DEPRESSION OVER GULF OF ADEN AND ADJOINING SOMALIA

CONSIDERING THE ENVIRONMENTAL CONDITIONS **OVER ARABIAN SEA**, RELATIVE VORTICITY ZONE ($50X10^{-6}S^{-1}$) PREVAIL SOUND THE SYSTEM. AN AREA OF POSITIVE DIVERGENCE ($10X10^{-5}S^{-1}$) AND AREA OF NEGATIVE CONVERGENCE ZONE ($20 X 10^{-5}S^{-1}$) PREVAILS AROUND THE SYSTEM. THE VERTICAL WIND SHEAR (VWS) IS LOW TO MODERATE (15-20 KTS) OVER AND WEST OF THE SYSTEM THE UPPER TROPOSPHERIC RIDGE AT 200 HPA RUNS ALONG 16°N.

CONCLUSION:

THE DEEP DEPRESSION "GATI" OVER NORTH SOMALIA LIKELY MOVE NEARLY WESTWARDS AND WEAKEN INTO DEPRESSION OVER THE SAME REGION DURING NEXT 12 HOURS AND LOW PRESSURE DURING SUBSEQUENT 12 HOURS.

THE DEPRESSION OVER SOUTHWEST IS LIKELY TO INTENSIFY FURTHER INTO A CYCLONIC STORM DURING NEXT 12 HOURS AND LIKELY TO MOVE NORTHWESTWARDS AND CROSS TAMIL NADU AND PUDUCHERRY COASTS BETWEEN 0900-1500 UTC OF 25TH NOVEMBER 2020.

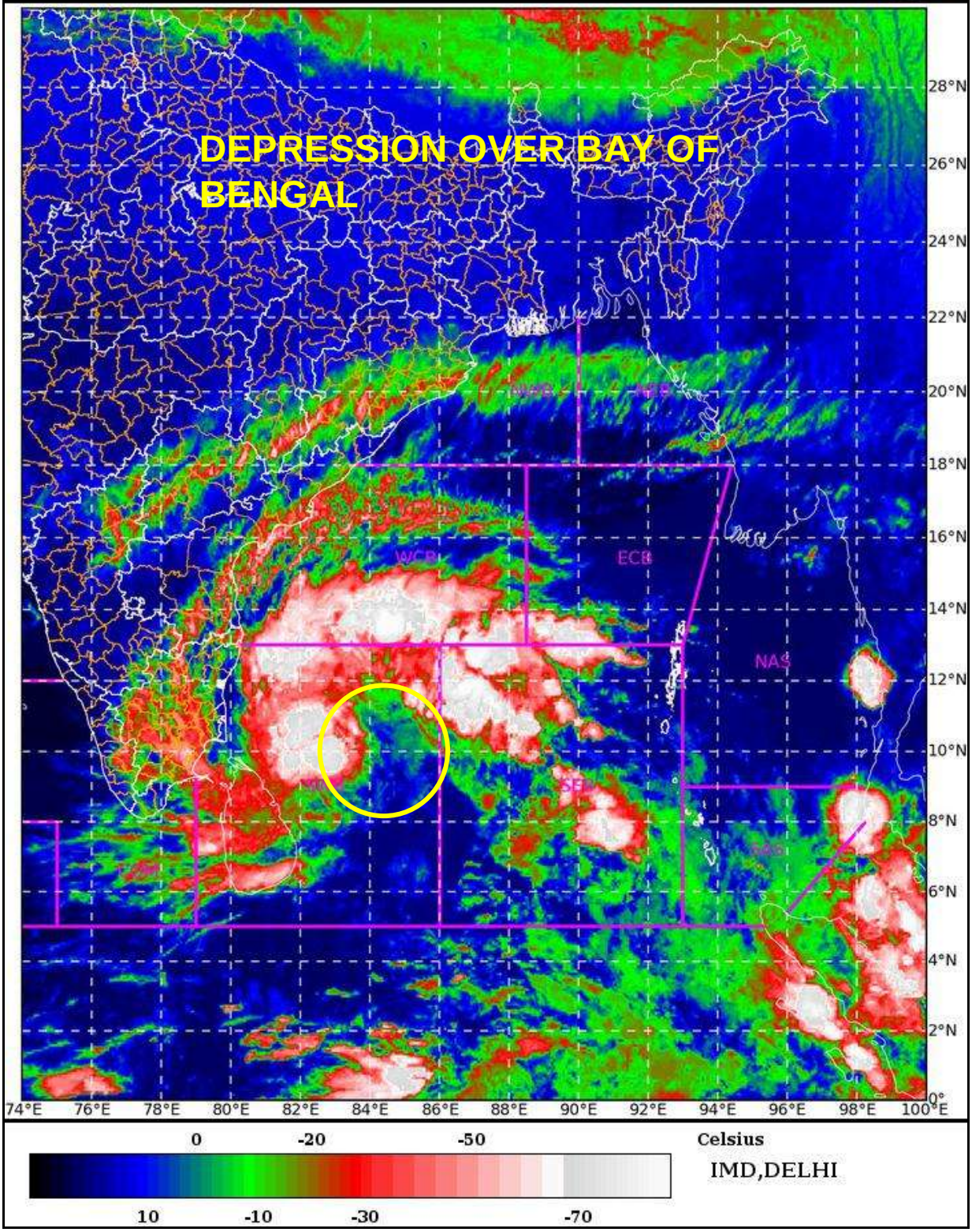
(RK JENAMANI)
SCIENTIST- F
RSMC, NEW DELHI

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

SAT : INSAT-3D IMG 23-11-2020/(1330 to 1356) GMT

IMG_TIR1_TEMP 10.8 um 23-11-2020/(1900 to 1926) IST

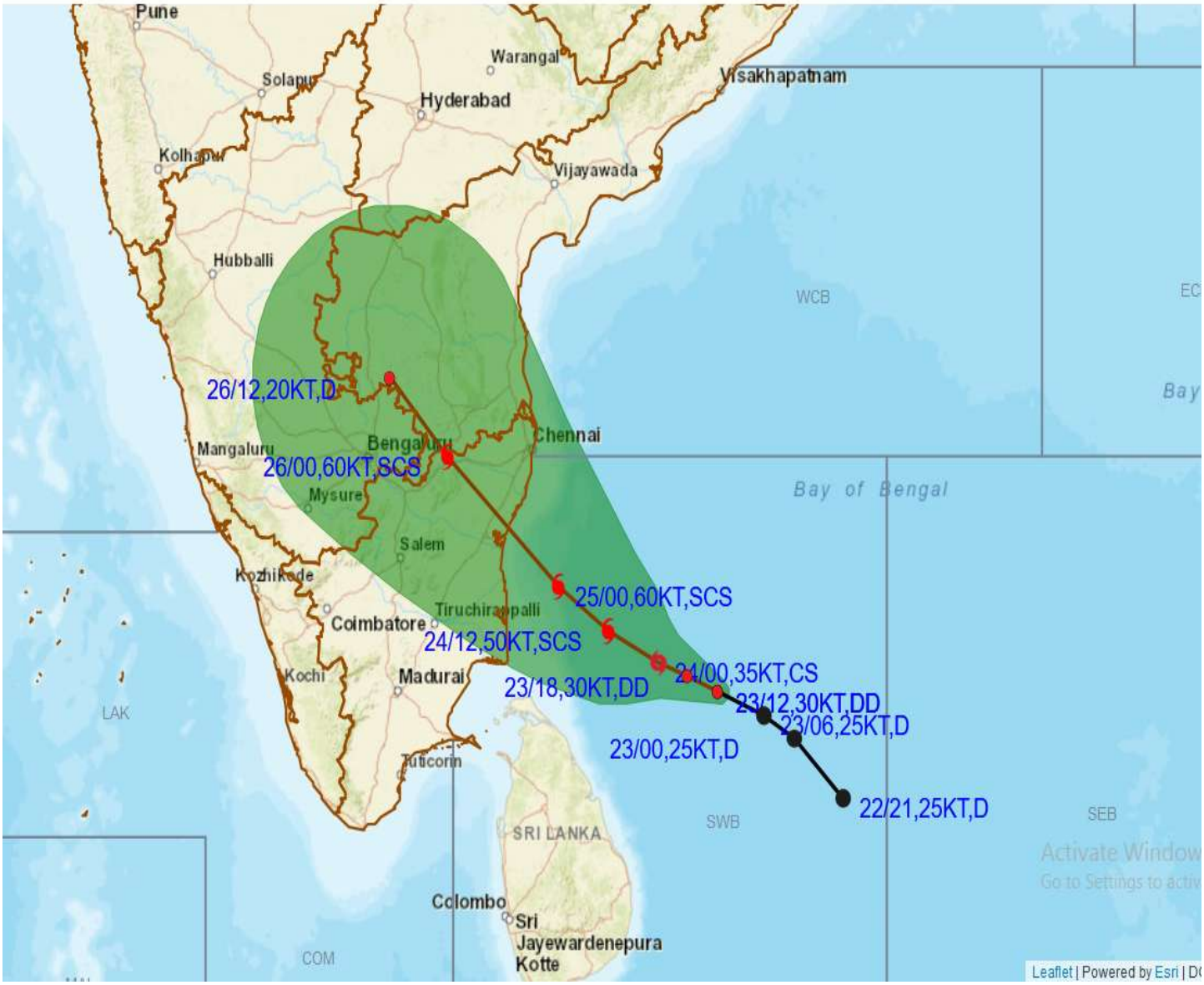
L1C Mercator



PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

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

OBSERVED AND FORECAST TRACK ALONGWITH CONE OF UNCERTAINITY OF DEEP DEPRESSION OVER SOUTHWEST BAY OF BENGAL BASED ON 1200 UTC OF 23RD NOVEMBER, 2020

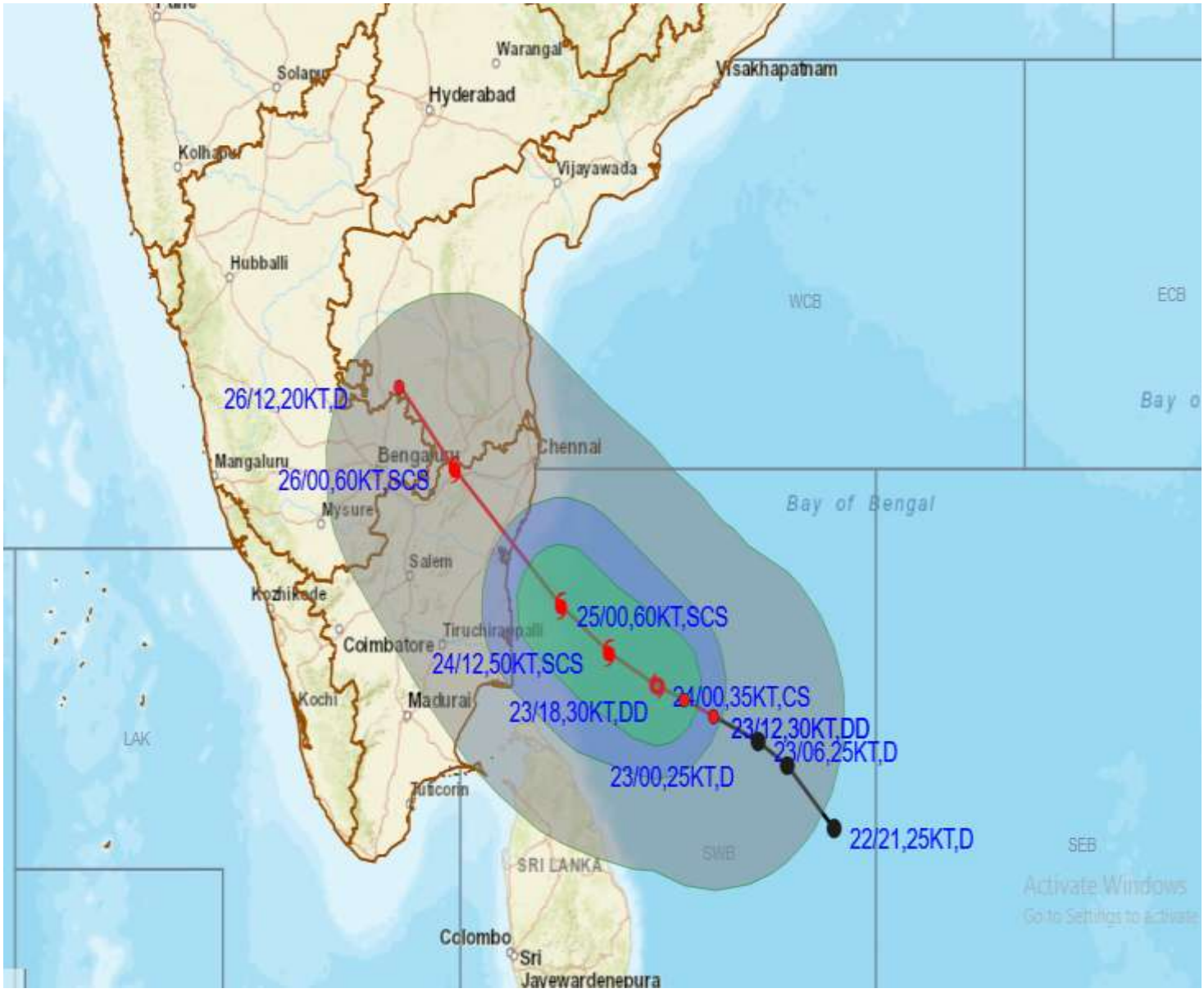


DATE/TIME IN UTC
IST=UTC + 0530
L: LOW PRESSURE AREA
WML: WELL MARKED LOW PRESSURE AREA
D: DEPRESSION (17-27 KT)
DD: DEEP DEPRESSION (28-33 KT)
CS: CYCLONIC STORM (34-47 KT)
SCS: SEVERE CYCLONIC STORM (48-63KT)
VSCS: VERY SEVERE CYCLONIC STORM (64-89 KT)
ESCS: EXTREMELY SEVERE CYCLONIC STORM (90-119 KT)
SuCS: SUPER CYCLONIC STORM (≥20 KT)

LESS THAN 34 KT
34-47 KT
≥ 48 KT
OBSERVED TRACK
FORECAST TRACK
CONE OF UNCERTAINTY

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

OBSERVED AND FORECAST TRACK OF DEEP DEPRESSION OVER SOUTHWEST BAY OF BENGAL ALONGWITH QUADRANT WIND DISTRIBUTION BASED ON 1200 UTC OF 23RD NOV, 2020



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SCS: SEVERE CYCLONIC STORM (48-63KT)
VSCS: VERY SEVERE CYCLONIC STORM (64-89 KT)
ESCS: EXTREMELY SEVERE CYCLONIC STORM (90-119 KT)
SuCS: SUPER CYCLONIC STORM (≥20 KT)

LESS THAN 34 KT
34-47 KT
≥ 48 KT
OBSERVED TRACK
FORECAST TRACK
CONE OF UNCERTAINTY
AREA OF MAXIMUM SUSTAINED WIND SPEED:
28-33 KT (52-61 KMPH)
34-49 KT (62-91 KMPH)
50-63 KT (92-117 KMPH)
≥ 64 KT (≥118 KMPH)

IMPACT OVER THE SEA

MSW (knot/kmph)	Impact	Action
28-33 (52-61)	Very rough seas	Total suspension of fishing operations
34-49 (62-91)	High to very high seas	Total suspension of fishing operations
50-63 (92-117)	Very high seas	Total suspension of fishing operations
≥ 64 (≥118)	Phenomenal	Total suspension of fishing operations

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

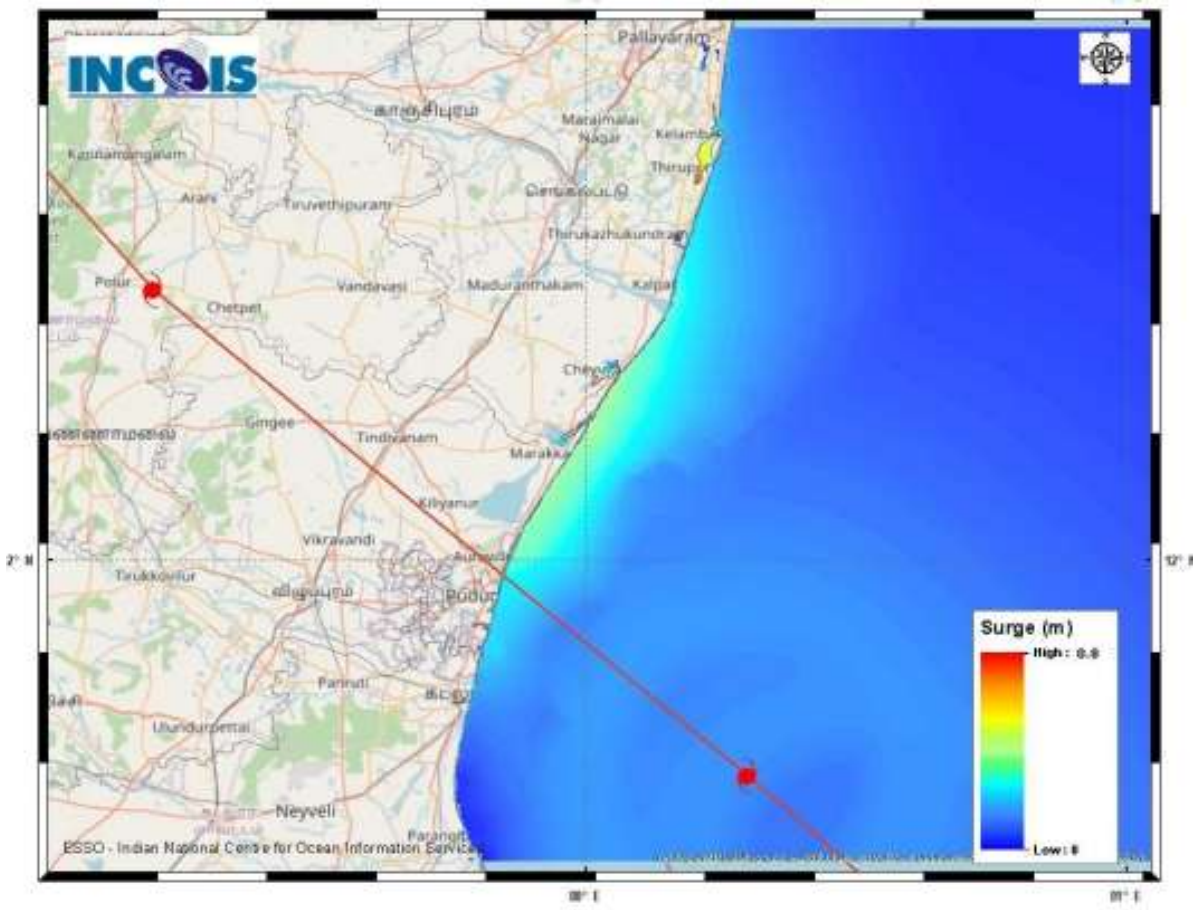


Figure: Storm surge map

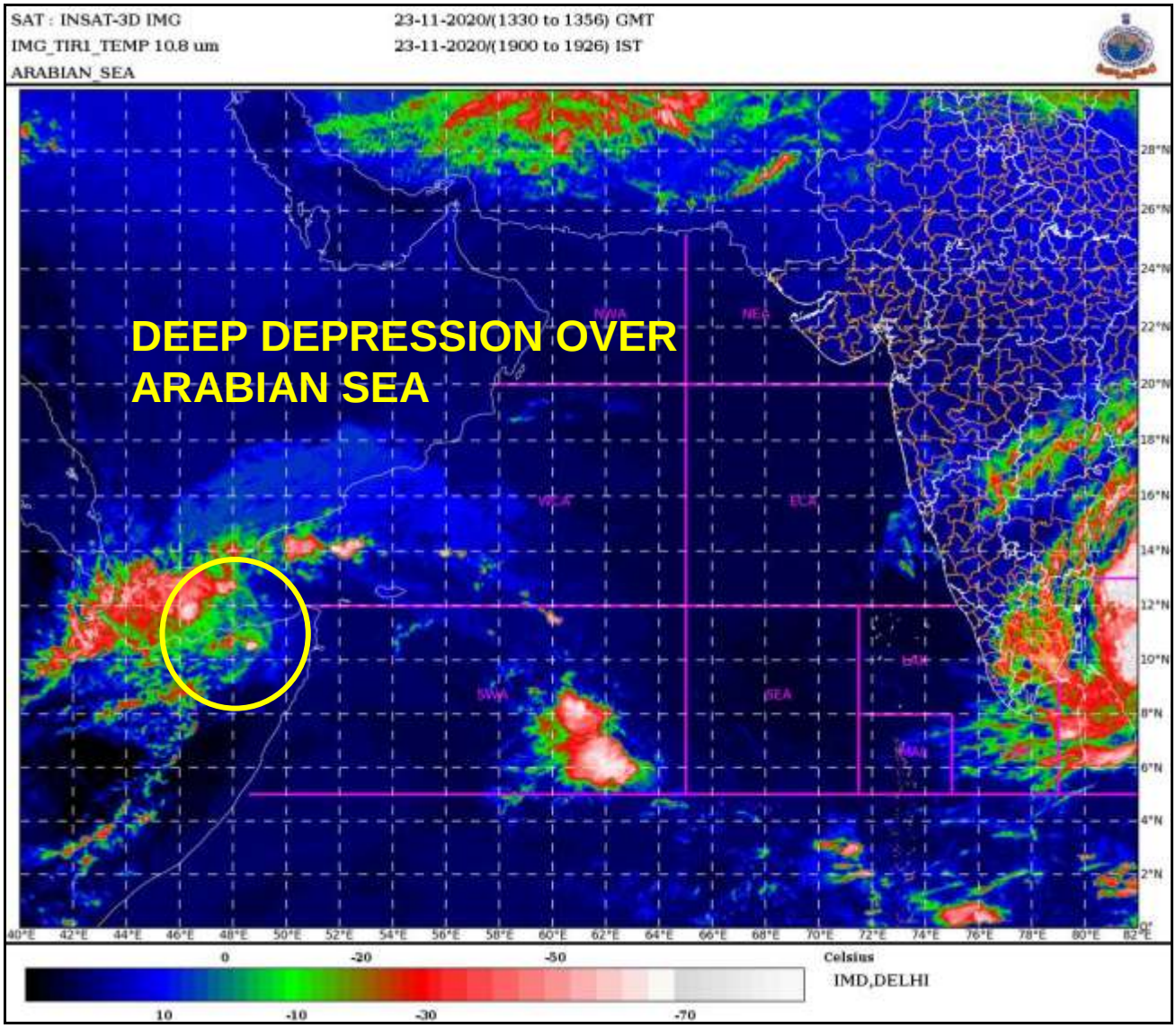
STORM SURGE HEIGHT INFORMATION:

* The below listed surge heights are over and above astronomical tide.

MANDAL/TALUK	DISTRICT	STATE / UNION TERRITORY	NEAREST PLACE OF HABITATION	STORM SURGE (m) *	EXPECTED INUNDATION EXTENT (km)
Chengalpattu	Kancheepuram	Tamil Nadu	Thiruporur	0.5-0.8	Upto 0.20
Cheyyur	Kancheepuram	Tamil Nadu	Kadalur	0.3-0.4	Nil
Cuddalore	Cuddalore	Tamil Nadu	Cuddalore	0.3-0.4	Nil
Tindivanam	Viluppuram	Tamil Nadu	OZHUKARAI MUNICIPALITY	0.3-0.6	Upto 0.11
Tirutturaippundi	Nagappattinam	Tamil Nadu	Vaimedu west	0.3-0.5	Upto 0.11

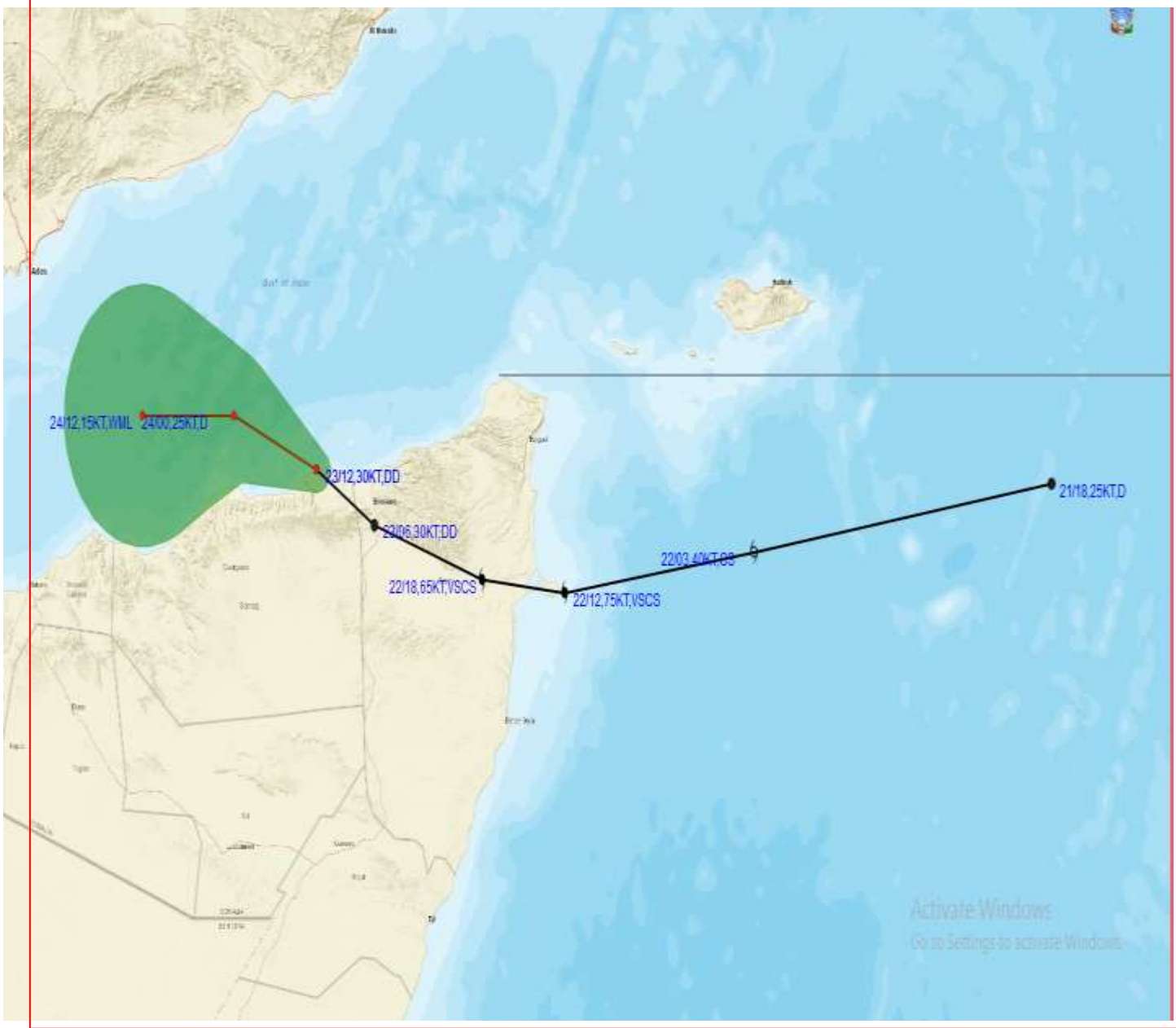
PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

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



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

OBSERVED AND FORECAST TRACK ALONGWITH CONE OF UNCERTAINITY OF DEEP DEPRESSION OVER GULD OF ADEN BASED ON 1200 UTC OF 23RD NOV, 2020



DATE/TIME IN UTC
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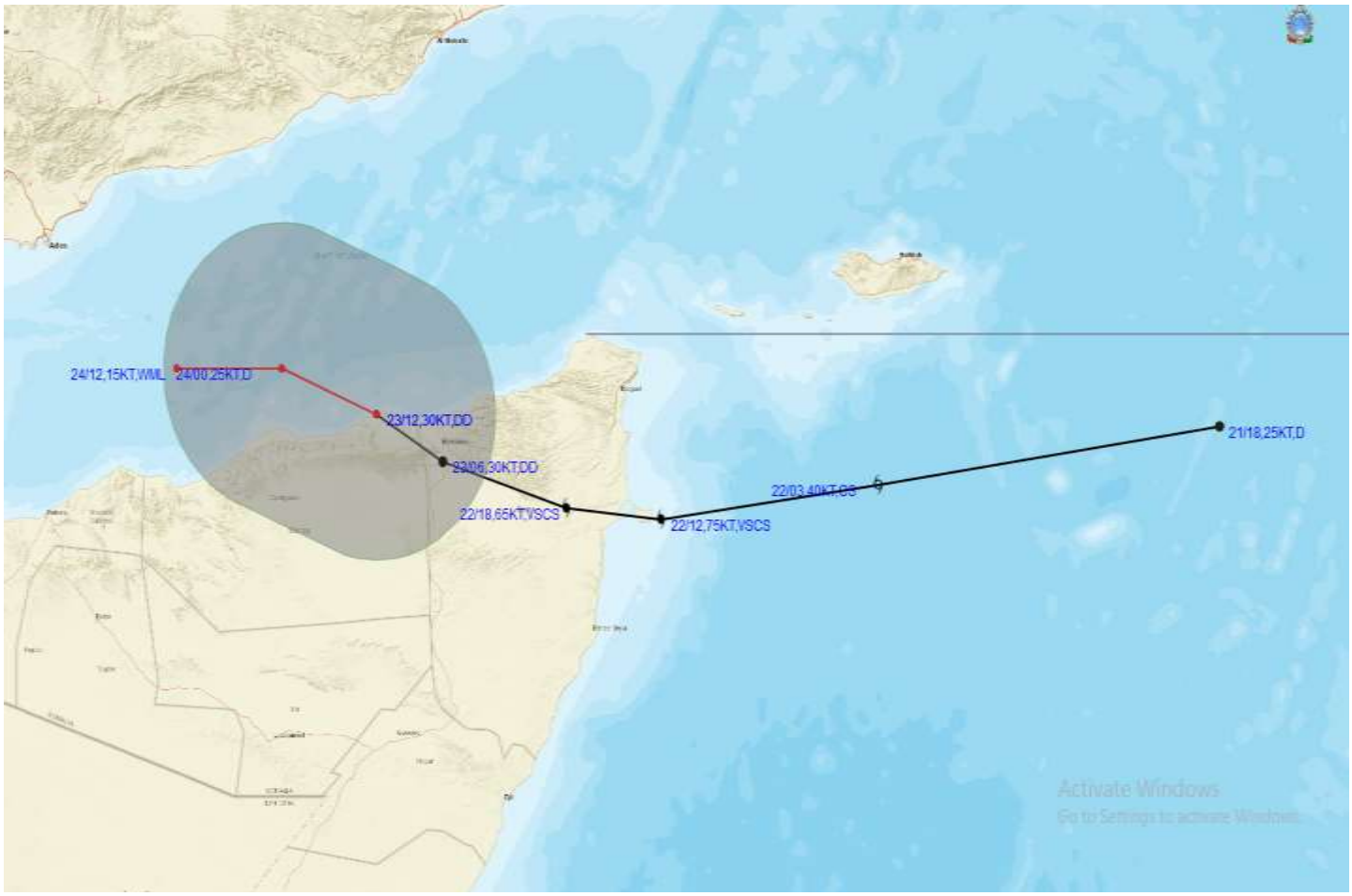
ESCS: EXTREMELY SEVERE CYCLONIC STORM (90-119 KT)
SuCS: SUPER CYCLONIC STORM (≥20 KT)

LESS THAN 34 KT
34-47 KT
≥ 48 KT
OBSERVED TRACK
FORECAST TRACK
CONE OF UNCERTAINTY

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

OBSERVED AND FORECAST TRACK OF DEEP DEPRESSION (REMNANT OF CYCLONE GATI) OVER GULF OF ADEN ALONGWITH QUADRANT WIND DISTRIBUTION BASED ON 1200 UTC OF 23RD NOV, 2020



DATE/TIME IN UTC
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L: LOW PRESSURE AREA
WML: WELL MARKED LOW PRESSURE AREA
D: DEPRESSION (17-27 KT)
DD: DEEP DEPRESSION (28-33 KT)
CS: CYCLONIC STORM (34-47 KT)
SCS: SEVERE CYCLONIC STORM (48-63KT)
VSCS: VERY SEVERE CYCLONIC STORM (64-89 KT)
ESCS: EXTREMELY SEVERE CYCLONIC STORM (90-119 KT)
SuCS: SUPER CYCLONIC STORM (≥20 KT)

- LESS THAN 34 KT
- 34-47 KT
- ≥ 48 KT
- OBSERVED TRACK
- FORECAST TRACK
- CONE OF UNCERTAINTY

AREA OF MAXIMUM SUSTAINED WIND SPEED:
- 28-33 KT (52-61 KMPH)
- 34-49 KT (62-91 KMPH)
- 50-63 KT (92-117 KMPH)
- ≥ 64 KT (≥118 KMPH)

IMPACT OVER THE SEA

MSW (knot/kmph)	Impact	Action
28-33 (52-61)	Very rough seas	Total suspension of fishing operations
34-49 (62-91)	High to very high seas	Total suspension of fishing operations
50-63 (92-117)	Very high seas	Total suspension of fishing operations
≥ 64 (≥118)	Phenomenal	Total suspension of fishing operations

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

REGIONAL SPECIALISED METEOROLOGICAL CENTRE-TROPICAL CYCLONES, NEW DELHI

TROPICAL CYCLONE ADVISORY BULLETIN NO. 12

FROM: RSMC –TROPICAL CYCLONES, NEW DELHI

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

TROPICAL CYCLONE ADVISORY NO. 12 FOR NORTH INDIAN OCEAN (THE BAY OF BENGAL AND ARABIAN SEA) VALID FOR NEXT 120 HOURS ISSUED AT 2100 UTC OF 23.11.2020 BASED ON 1800 UTC OF 23.11.2020.

A. DEEP DEPRESSION OVER SOUTHWEST BAY OF BENGAL —(CYCLONE ALERT FOR TAMILNADU AND PUDUCHERRY COASTS)

THE DEEP DEPRESSION OVER SOUTHWEST BAY OF BENGAL MOVED NORTHWESTWARDS WITH A SPEED OF 04 KMPH DURING PAST 06 HOURS AND LAY CENTRED AT 1800 UTC OF 23RD NOVEMBER, 2020 OVER SOUTHWEST BAY OF BENGAL NEAR LATITUDE 10.0°N AND LONGITUDE 83.3°E, ABOUT 440 KM EAST-SOUTHEAST OF PUDUCHERRY AND 470 KM SOUTHEAST OF CHENNAI. IT IS VERY LIKELY TO INTENSIFY INTO A CYCLONIC STORM DURING NEXT 12 HOURS AND INTO A SEVERE CYCLONIC STORM DURING SUBSEQUENT 12 HOURS. IT IS VERY LIKELY TO MOVE NORTHWESTWARDS AND CROSS TAMIL NADU AND PUDUCHERRY COASTS BETWEEN KARAIKAL AND MAMALLAPURAM AROUND PUDUCHERRY DURING 25TH NOVEMBER 2020 EVENING AS A SEVERE CYCLONIC STORM WITH A WIND SPEED OF 100-110 KMPH GUSTING TO 120 KMPH.

FORECAST TRACK AND INTENSITY ARE GIVEN BELOW:

DATE/TIME(UTC)	POSITION (LAT. ^{0}N/ LONG. ^{0}E)	MAXIMUM SUSTAINED SURFACE WIND SPEED (KMPH)	CATEGORY OF CYCLONIC DISTURBANCE
23.11.20/1800	10.0/83.3	55-65 GUSTING TO 75	DEEP DEPRESSION
24.11.20/0000	10.1/82.8	65-75 GUSTING TO 85	CYCLONIC STORM
24.11.20/0600	10.4/82.2	75-85 GUSTING TO 95	CYCLONIC STORM
24.11.20/1200	10.7/81.6	90-100 GUSTING TO 110	SEVERE CYCLONIC STORM
24.11.20/1800	11.0/81.1	95-105 GUSTING TO 115	SEVERE CYCLONIC STORM
25.11.20/0600	11.5/80.4	100-110 GUSTING TO 120	SEVERE CYCLONIC STORM
25.11.20/1800	12.5/79.3	75-85 GUSTING TO 95	CYCLONIC STORM
26.11.20/0600	13.5/78.5	40-50 GUSTING TO 60	DEPRESSION
26.11.20/1800	14.4/77.7	20-30 GUSTING TO 40	WELL MARKED LOW PRESSURE AREA

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

AS PER SATELLITE IMAGERY, THE VORTEX ASSOCIATED WITH THIS SYSTEM LIES OVER SOUTH BAY OF BENGAL AND NEIGHBOURHOOD WITHIN A HALF DEGREE OF 9.7^0N/83.6^0E (.) AND INTENSITY T2.0/2.0. SHEAR PATTERN. ASSOCIATED SCATTERED TO BROKEN LOW AND MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION LAY OVER SOUTH AND ADJOINING CENTRAL BAY OF BENGAL, BETWEEN LATITUDE 8.5^0N & 12.0^0N AND LONGITUDE 79.0^0E & 84.0^0E IN ASSOCIATION WITH THE SYSTEM. MINIMUM CLOUD TOP TEMPERATURE IS -93.0^0C.

THE ESTIMATED MAXIMUM SUSTAINED WIND SPEED IS 30 KNOTS GUSTING TO 40 KNOTS. THE ESTIMATED CENTRAL PRESSURE IS 999 HPA.

B. DEEP DEPRESSION OVER GULF OF ADEN AND ADJOINING SOMALIA

THE DEEP DEPRESSION OVER GULF OF ADEN AND ADJOINING SOMALIA MOVED NEARLY WEST-NORTHWESTWARDS WITH A SPEED OF ABOUT 19 KMPH DURING PAST 06 HOURS AND LAY CENTERED AT 1800 UTC OF 23RD NOVEMBER 2020 OVER THE GULF OF ADEN AND ADJOINING SOMALIA NEAR LATITUDE 11.7°N AND LONGITUDE 47.5°E, ABOUT 400 KM NEARLY WEST OF RAS BINNAH (SOMALIA). IT IS VERY LIKELY TO MOVE NEARLY WESTWARDS AND WEAKEN GRADUALLY INTO A DEPRESSION DURING NEXT 06 HOURS AND INTO A LOW PRESSURE AREA DURING SUBSEQUENT 06 HOURS.

FORECAST TRACK AND INTENSITY ARE GIVEN BELOW:

DATE/TIME(UTC)	POSITION (LAT. ^{0}N/ LONG. ^{0}E)	MAXIMUM SUSTAINED SURFACE WIND SPEED (KMPH)	CATEGORY OF CYCLONIC DISTURBANCE
23.11.20/1800	11.7/47.5	45-55 GUSTING TO 65	DEEP DEPRESSION
24.11.20/0000	11.7/46.5	40-50 GUSTING TO 60	DEPRESSION
24.11.20/1200	11.6/45.5	20-30 GUSTING TO 40	LOW PRESSURE AREA

AS PER SATELLITE IMAGERY, VORTEX LIES OVER GULF OF ADEN AND ADJOINING SOMALIA COAST AND NEIGHBOURHOOD CENTERD AT 11.8N/47.7E WITH T1.5. CONVECTIVE CLOUDS HAVE SHEARED AWAY TO THE NORTH-WEST OF THE SYSTEM. ASSOCTATED SCATTERED LOW AND MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION LAY OVER NORTH SOMALIA AND ADJOINING GULF OF ADEN AND NEIGHBOURHOOD. MINIMUM CLOUD TOP TEMPERATURE IS -69.0^0C.
THE ESTIMATED MAXIMUM SUSTAINED WIND SPEED IS 30 KNOTS GUSTING TO 40 KNOTS. THE ESTIMATED CENTRAL PRESSURE IS 999 HPA.

REMARKS:

THE MADDEN JULIAN OSCILLATION (MJO) INDEX IS CURRENTLY IN PHASE 3 WITH AMPLITUDE EQUAL TO 1. IT WILL CONTINUE IN SAME PHASE WITH AMPLITUDE BECOMING LESS THAN 1 DURING SUBSEQUENT 4 DAYS. THUS MJO WILL SUPPORT ENHANCEMENT OF CONVECTIVE ACTIVITY OVER THE NORTH INDIAN OCEAN INCLUDING BAY OF BENGAL (BOB) AND ARABIAN SEA (AS) FOR NEXT 5 DAYS.

A. DEPRESSION INTENSIFIED INTO A DEEP DEPRESSION OVER SOUTHWEST BAY OF BENGAL

CONSIDERING THE SEA CONDITIONS, SST IS AROUND 29-30°C OVER MOST PARTS OF BAY OF BENGAL (BOB). HIGH TCHP (120-140 KJ/CM^2) PREVAILS IN THE NEAR EQUATORIAL BELT OF NORTH INDIAN OCEAN (NIO) AND ADJOINING SOUTH BOB.

CONSIDERING THE ENVIRONMENTAL CONDITIONS **OVER BOB**, POSITIVE RELATIVE VORTICITY ($150X10^{-6}S^{-1}$) PREVAILS OVER THE SOUTH OF THE SYSTEM AREA OVER CENTRAL PARTS OF SOUTH BOB WITH VERTICAL EXTENSION UPTO 200 HPA LEVEL. AREA OF POSITIVE DIVERGENCE ($30X10^{-5}S^{-1}$) PREVAILS OVER THE SOUTH OF THE SYSTEM CENTER. AREA OF POSITIVE CONVERGENCE ZONE ($30 X 20^{-5}S^{-1}$) PREVAILS OVER SOUTHEAST OF THE SYSTEM CENTER. THE VERTICAL WIND SHEAR (VWS) IS LOW

(05-15 KTS) OVER SOUTH AND ADJOINING CENTRAL BOB. THE UPPER TROPOSPHERIC RIDGE AT 200 HPA RUNS ALONG 15.0°N OVER THE BOB.

NWP MODELS LIKE ECMWF, IMD GFS, NCEP GFS, GEFS, NCUM AND NEPS ARE INDICATING INTENSIFICATION OF THE SYSTEM INTO A CYCLONIC STORM OVER SOUTHWEST BOB DURING NEXT 06 HOURS AND LIKELY MOVEMENT TOWARDS TAMIL NADU-PUDUCHERRY COASTS SKIRTING NORTHEAST SRILANKA COAST.

B. **DEEP DEPRESSION OVER GULF OF ADEN AND ADJOINING SOMALIA** CONSIDERING THE ENVIRONMENTAL CONDITIONS **OVER ARABIAN SEA**, RELATIVE VORTICITY ZONE ($50X10^{-6}S^{-1}$) PREVAIL SOUND THE SYSTEM. AN AREA OF POSITIVE DIVERGENCE ($10X10^{-5}S^{-1}$) AND AREA OF CONVERGENCE ZONE ($20 X 10^{-5}S^{-1}$) PREVAILS AROUND THE SYSTEM. THE VERTICAL WIND SHEAR (VWS) IS LOW TO MODERATE (15-20 KTS) OVER AND WEST OF THE SYSTEM.

CONCLUSION:

THE DEEP DEPRESSION OVER GULF OF ADEN LIKELY TO MOVE NEARLY WESTWARDS AND WEAKEN INTO DEPRESSION OVER THE SAME REGION DURING NEXT 12 HOURS AND LOW PRESSURE DURING SUBSEQUENT 12 HOURS.

THE DEEP DEPRESSION OVER SOUTHWEST BAY OF BENGAL IS LIKELY TO INTENSIFY FURTHER INTO A CYCLONIC STORM DURING NEXT 06 HOURS AND LIKELY TO MOVE NORTHWESTWARDS AND CROSS TAMIL NADU AND PUDUCHERRY COASTS BETWEEN 1200-1500 UTC OF 25TH NOVEMBER 2020.

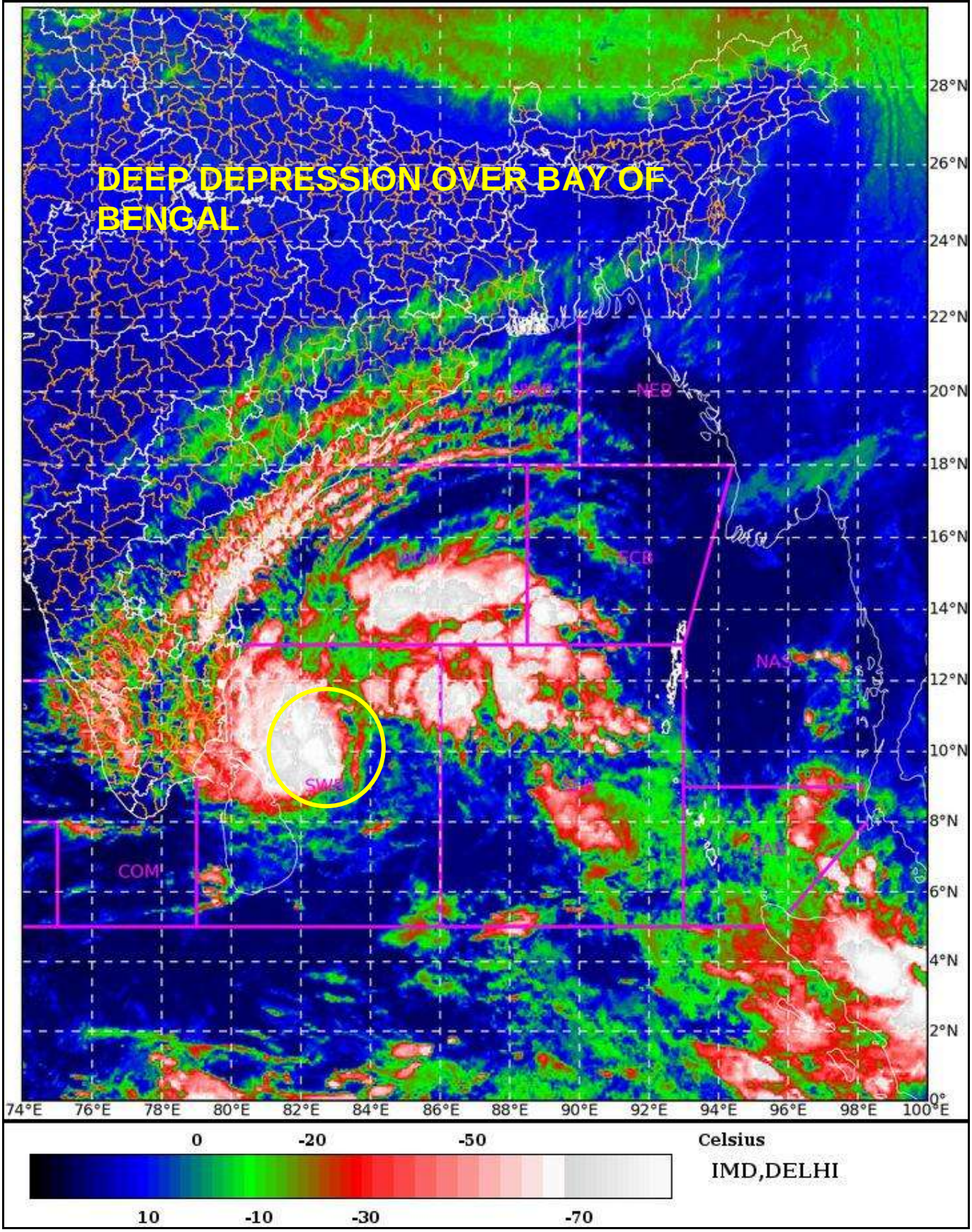
(SHOBHIT KATIYAR)
SCIENTIST- C
RSMC, NEW DELHI

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

SAT : INSAT-3D IMG 23-11-2020/(1930 to 1956) GMT

IMG_TIR1_TEMP 10.8 um 24-11-2020/(0100 to 0126) IST

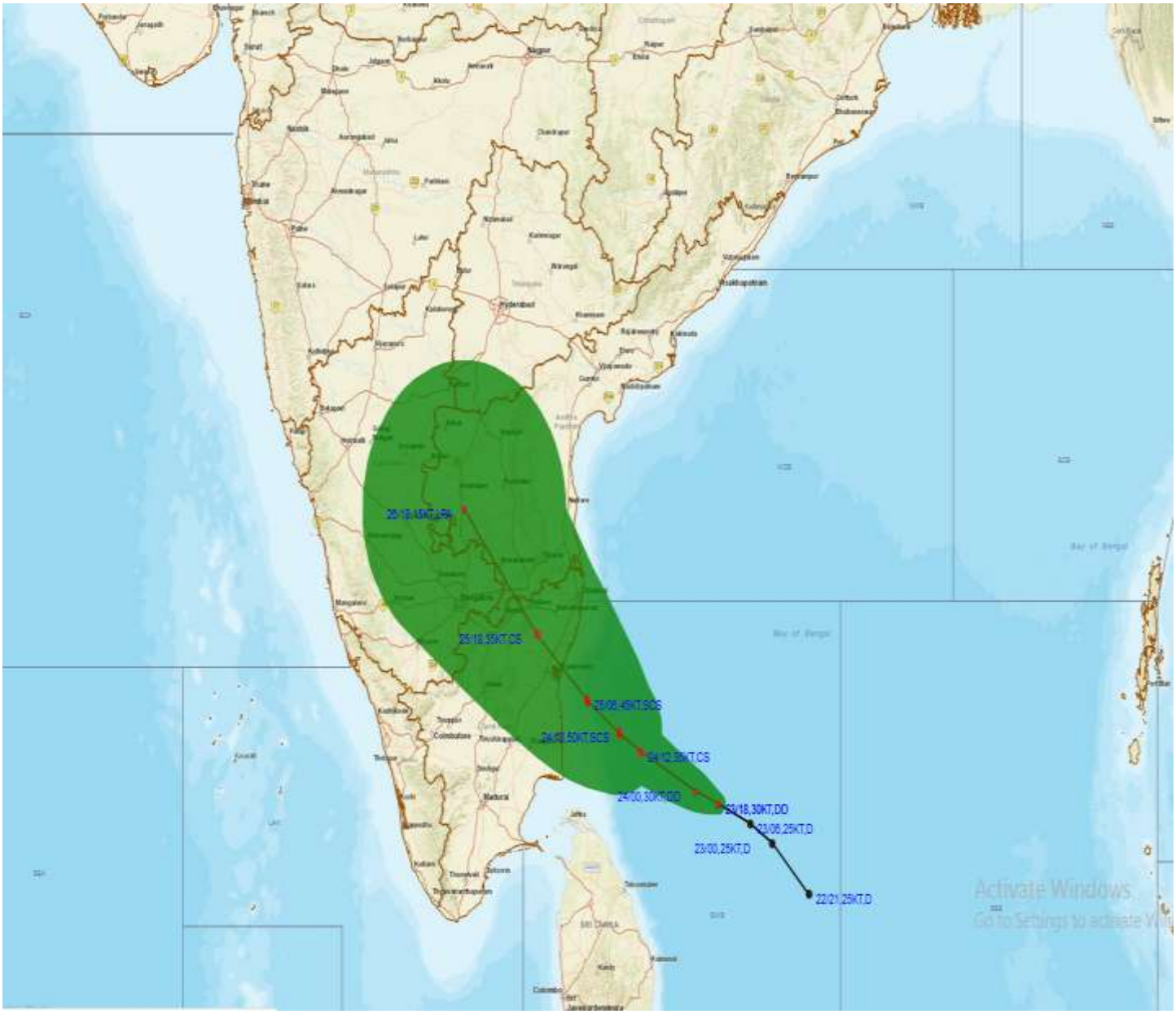
L1C Mercator



PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

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

OBSERVED AND FORECAST TRACK ALONGWITH CONE OF UNCERTAINITY OF DEEP DEPRESSION OVER SOUTHWEST BAY OF BENGAL BASED ON 1800 UTC OF 23RD NOVEMBER, 2020

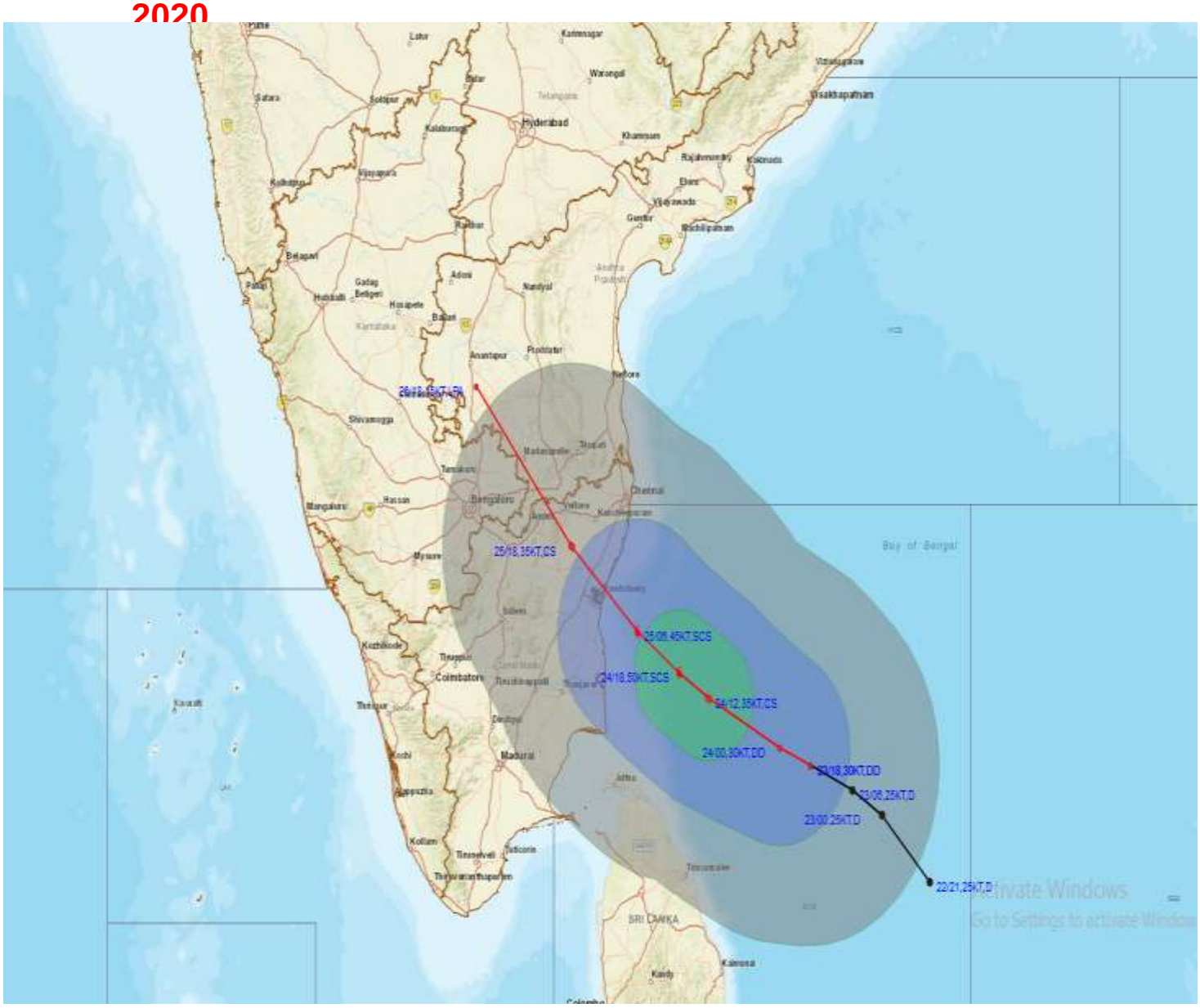


DATE/TIME IN UTC
IST=UTC + 0530
L: LOW PRESSURE AREA
WML: WELL MARKED LOW PRESSURE AREA
D: DEPRESSION (17-27 KT)
DD: DEEP DEPRESSION (28-33 KT)
CS: CYCLONIC STORM (34-47 KT)
SCS: SEVERE CYCLONIC STORM (48-63KT)
VSCS: VERY SEVERE CYCLONIC STORM (64-89 KT)
ESCS: EXTREMELY SEVERE CYCLONIC STORM (90-119 KT)
SuCS: SUPER CYCLONIC STORM (≥20 KT)

LESS THAN 34 KT
34-47 KT
≥ 48 KT
OBSERVED TRACK
FORECAST TRACK
CONE OF UNCERTAINTY

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

OBSERVED AND FORECAST TRACK OF DEEP DEPRESSION OVER SOUTHWEST BAY OF BENGAL ALONGWITH QUADRANT WIND DISTRIBUTION BASED ON 1800 UTC OF 23RD NOVEMBER 2020



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ESCS: EXTREMELY SEVERE CYCLONIC STORM (90-119 KT)
SuCS: SUPER CYCLONIC STORM (≥20 KT)

- LESS THAN 34 KT
- 34-47 KT
- ≥ 48 KT
- OBSERVED TRACK
- FORECAST TRACK
- CONE OF UNCERTAINTY

AREA OF MAXIMUM SUSTAINED WIND SPEED:

- 28-33 KT (52-61 KMPH)
- 34-49 KT (62-91 KMPH)
- 50-63 KT (92-117 KMPH)
- ≥ 64 KT (≥118 KMPH)

IMPACT OVER THE SEA

MSW (knot/kmph)	Impact	Action
28-33 (52-61)	Very rough seas	Total suspension of fishing operations
34-49 (62-91)	High to very high seas	Total suspension of fishing operations
50-63 (92-117)	Very high seas	Total suspension of fishing operations
≥ 64 (≥118)	Phenomenal	Total suspension of fishing operations

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

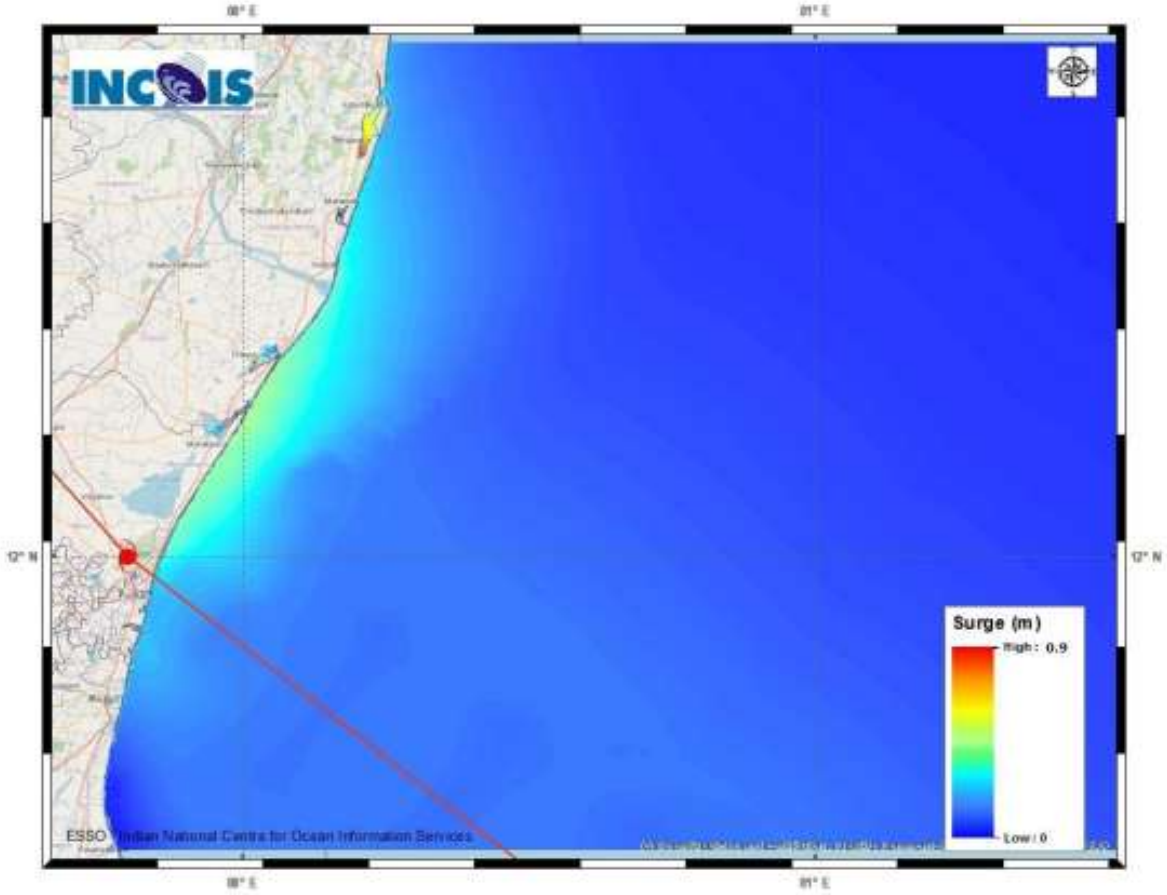


Figure: Storm surge map

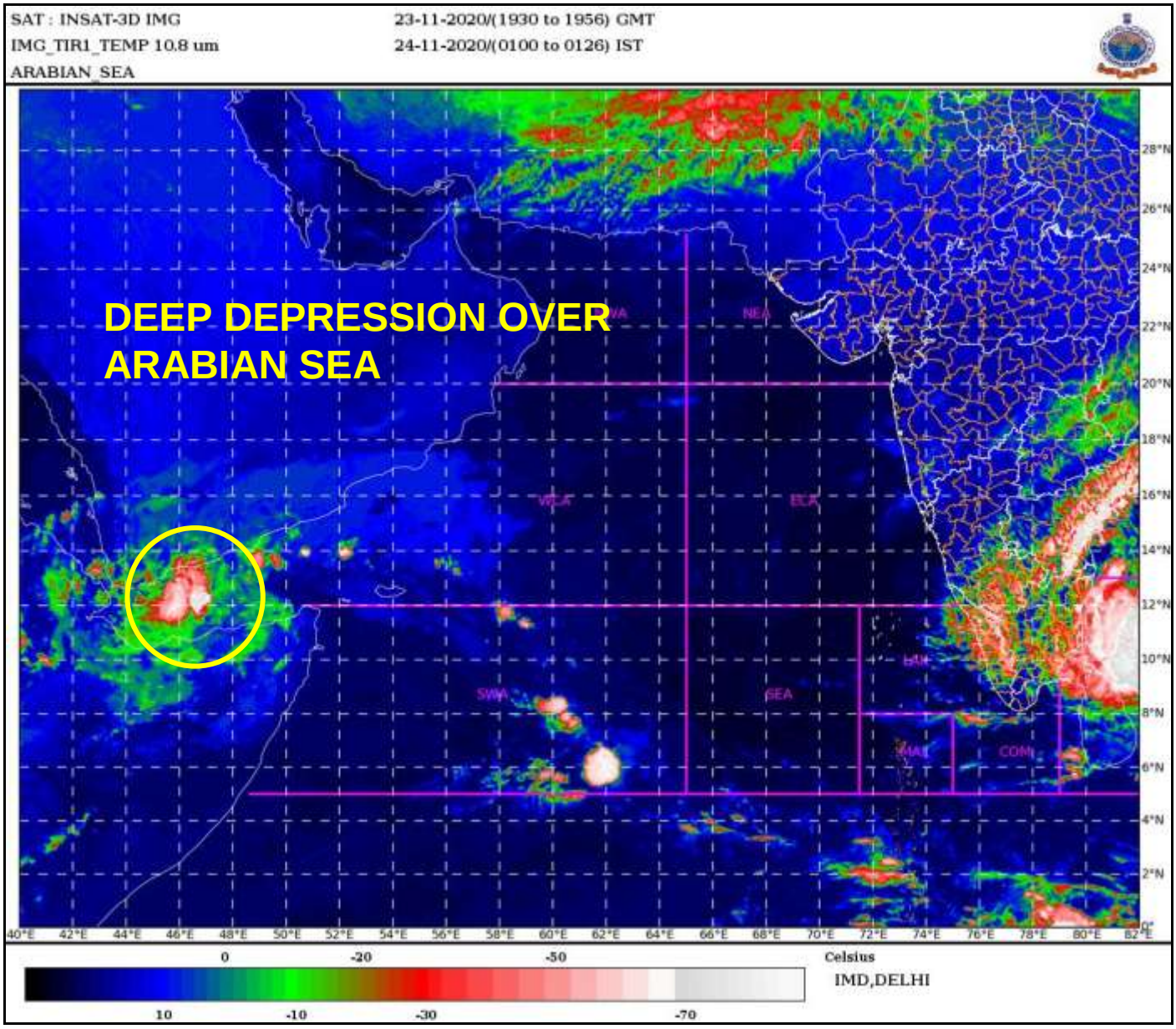
STORM SURGE HEIGHT INFORMATION:

* The below listed surge heights are over and above astronomical tide.

MANDAL/TALUK	DISTRICT	STATE / UNION TERRITORY	NEAREST PLACE OF HABITATION	STORM SURGE (m) *	EXPECTED INUNDATION EXTENT (km)
Chengalpattu	Kancheepuram	Tamil Nadu	Thiruporur	0.5-0.9	Upto 0.20
Cheyyur	Kancheepuram	Tamil Nadu	Kadalur	0.3-0.4	Nil
Cuddalore	Cuddalore	Tamil Nadu	Cuddalore	0.3-0.4	Nil
Tindivanam	Viluppuram	Tamil Nadu	OZHUKARAI MUNICIPALITY	0.3-0.6	Upto 0.11
Tirutturaippundi	Nagappattinam	Tamil Nadu	Vaimedu west	0.3-0.5	Upto 0.11

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

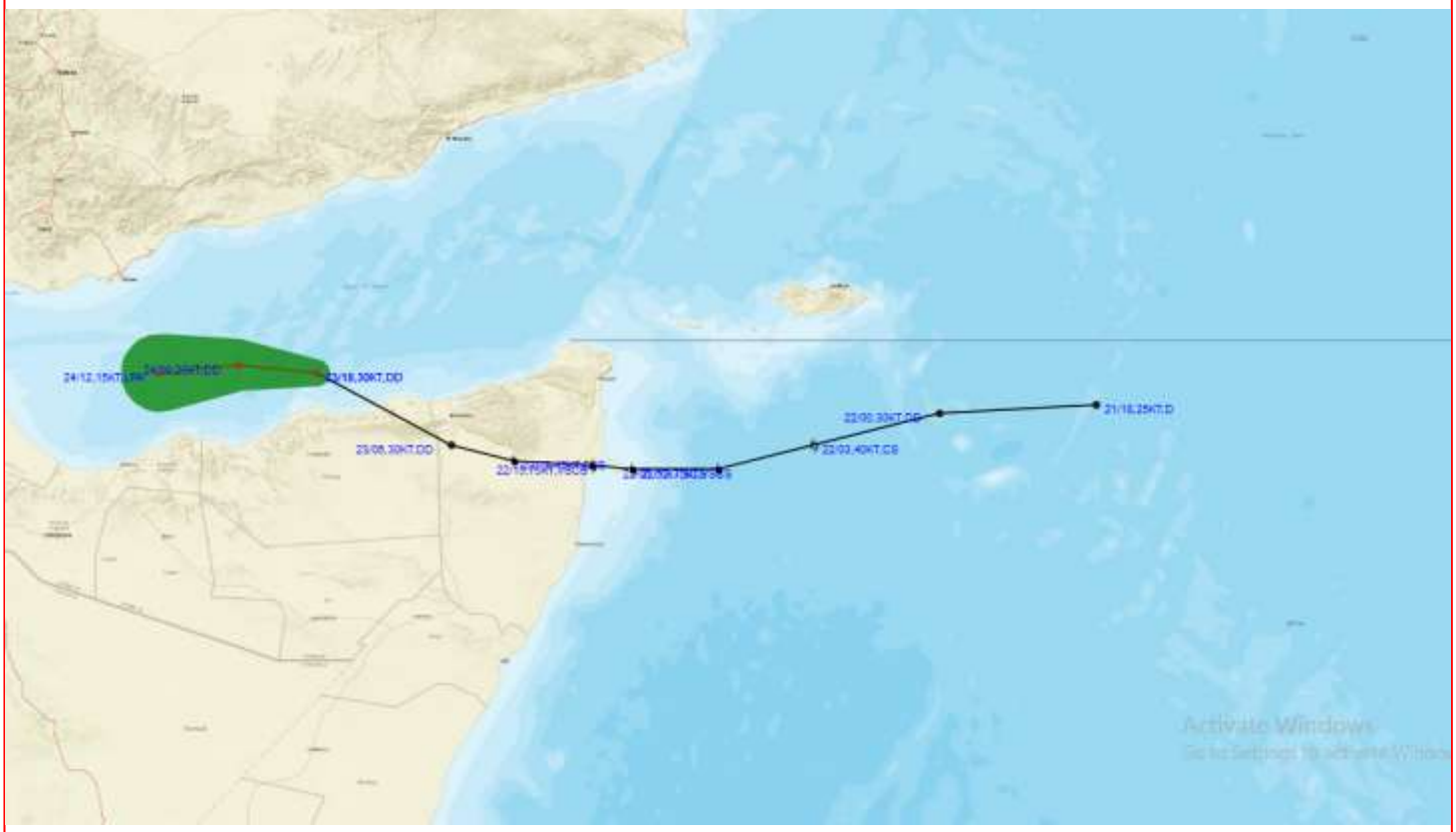
NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%



PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

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

OBSERVED AND FORECAST TRACK ALONGWITH CONE OF UNCERTAINITY OF DEEP DEPRESSION OVER GULD OF ADEN BASED ON 1800 UTC OF 23RD NOV, 2020



DATE/TIME IN UTC
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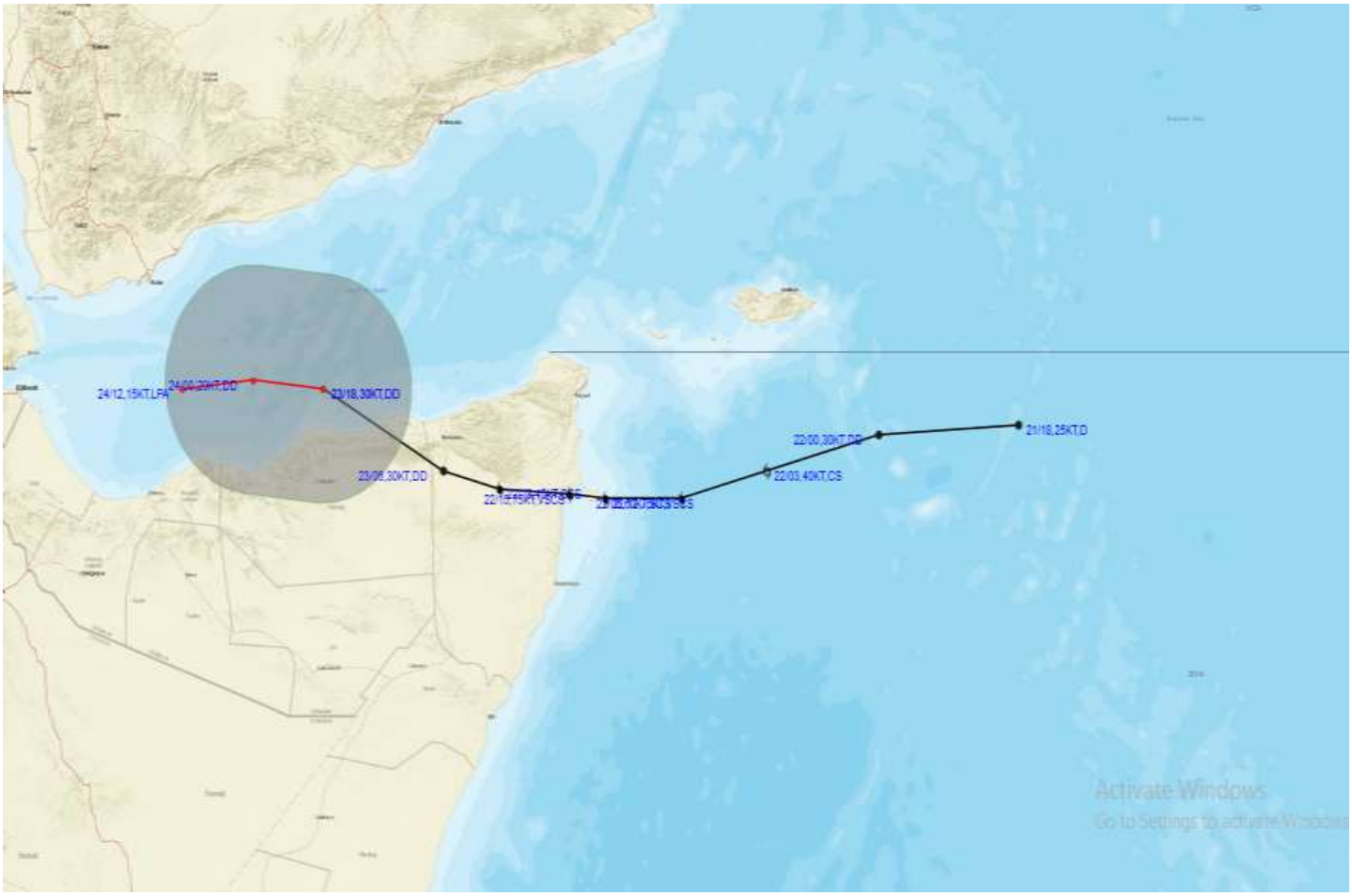
LESS THAN 34 KT
34-47 KT
≥ 48 KT
OBSERVED TRACK
FORECAST TRACK
CONE OF UNCERTAINTY

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

OBSERVED AND FORECAST TRACK OF DEEP DEPRESSION (REMNANT OF CYCLONE GATI) OVER GULF OF ADEN ALONGWITH QUADRANT WIND DISTRIBUTION BASED ON 1800 UTC OF 23RD NOV, 2020



DATE/TIME IN UTC
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D: DEPRESSION (17-27 KT)
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SCS: SEVERE CYCLONIC STORM (48-63KT)
VSCS: VERY SEVERE CYCLONIC STORM (64-89 KT)
ESCS: EXTREMELY SEVERE CYCLONIC STORM (90-119 KT)
SuCS: SUPER CYCLONIC STORM (≥20 KT)

LESS THAN 34 KT
34-47 KT
≥ 48 KT
OBSERVED TRACK
FORECAST TRACK
CONE OF UNCERTAINTY

AREA OF MAXIMUM SUSTAINED WIND SPEED:
28-33 KT (52-61 KMPH)
34-49 KT (62-91 KMPH)
50-63 KT (92-117 KMPH)
≥ 64 KT (≥118 KMPH)

IMPACT OVER THE SEA

MSW (knot/kmph)	Impact	Action
28-33 (52-61)	Very rough seas	Total suspension of fishing operations
34-49 (62-91)	High to very high seas	Total suspension of fishing operations
50-63 (92-117)	Very high seas	Total suspension of fishing operations
≥ 64 (≥118)	Phenomenal	Total suspension of fishing operations

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

REGIONAL SPECIALISED METEOROLOGICAL CENTRE-TROPICAL CYCLONES, NEW DELHI

TROPICAL CYCLONE ADVISORY BULLETIN NO. 13

FROM: RSMC –TROPICAL CYCLONES, NEW DELHI

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

TROPICAL CYCLONE ADVISORY NO. 13 FOR NORTH INDIAN OCEAN (THE BAY OF BENGAL AND ARABIAN SEA) VALID FOR NEXT 120 HOURS ISSUED AT 0330 UTC OF 24.11.2020 BASED ON 0000 UTC OF 24.11.2020.

A. **DEEP DEPRESSION INTENSIFIED INTO A CYCLONIC STORM "NIVAR" OVER SOUTHWEST BAY OF BENGAL—(CYCLONE ALERT FOR TAMILNADU AND PUDUCHERRY COASTS- YELLOW MESSAGE)**

THE DEEP DEPRESSION OVER SOUTHWEST BAY OF BENGAL MOVED WEST-NORTHWESTWARDS WITH A SPEED OF 05 KMPH DURING PAST 06 HOURS, INTENSIFIED INTO A CYCLONIC STORM "NIVAR" AND LAY CENTRED AT 0000 UTC OF 24TH NOVEMBER, 2020 OVER SOUTHWEST BAY OF BENGAL NEAR LATITUDE 10.0°N AND LONGITUDE 83.0°E, ABOUT 410 KM EAST-SOUTHEAST OF PUDUCHERRY AND 450 KM SOUTHEAST OF CHENNAI. IT IS VERY LIKELY TO INTENSIFY FURTHER INTO A SEVERE CYCLONIC STORM DURING NEXT 24 HOURS. IT IS VERY LIKELY TO MOVE WEST-NORTHWESTWARDS FOR NEXT 12 HOURS AND THEN NORTHWESTWARDS. IT IS VERY LIKELY TO CROSS TAMIL NADU AND PUDUCHERRY COASTS BETWEEN KARAIKAL AND MAMALLAPURAM AROUND PUDUCHERRY DURING 25TH NOVEMBER 2020 EVENING AS A SEVERE CYCLONIC STORM WITH A WIND SPEED OF 100-110 KMPH GUSTING TO 120 KMPH.

FORECAST TRACK AND INTENSITY ARE GIVEN BELOW:

DATE/TIME(UTC)	POSITION (LAT. ^{0}N/ LONG. ^{0}E)	MAXIMUM SUSTAINED SURFACE WIND SPEED (KMPH)	CATEGORY OF CYCLONIC DISTURBANCE
24.11.20/0000	10.0/83.0	65-75 GUSTING TO 85	CYCLONIC STORM
24.11.20/0600	10.1/82.7	75-85 GUSTING TO 95	CYCLONIC STORM
24.11.20/1200	10.2/82.4	85-95 GUSTING TO 105	CYCLONIC STORM
24.11.20/1800	10.4/81.9	90-100 GUSTING TO 110	SEVERE CYCLONIC STORM
25.11.20/0000	10.9/81.2	100-110 GUSTING TO 120	SEVERE CYCLONIC STORM
25.11.20/1200	11.7/80.0	100-110 GUSTING TO 120	SEVERE CYCLONIC STORM
26.11.20/0000	12.5/79.0	80-90 GUSTING TO 100	CYCLONIC STORM
26.11.20/1200	13.5/77.8	50-60 GUSTING TO 70	DEEP DEPRESSION
27.11.20/0000	14.3/76.9	30-40 GUSTING TO 50	DEPRESSION

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

AS PER SATELLITE IMAGERY, THE INTENSITY T2.5. ASSOCIATED SCATTERED TO BROKEN LOW AND MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION LAY OVER SOUTH AND ADJOINING CENTRAL BAY OF BENGAL, BETWEEN LATITUDE 8.0^0N & 14.0^0N AND LONGITUDE 79.0^0E & 84.0^0E IN ASSOCIATION WITH THE SYSTEM. MINIMUM CLOUD TOP TEMPERATURE IS -93.0^0C.

THE ESTIMATED MAXIMUM SUSTAINED WIND SPEED IS 35 KNOTS GUSTING TO 45 KNOTS. THE ESTIMATED CENTRAL PRESSURE IS 996 HPA.

B. DEEP DEPRESSION WEAKENED INTO A DEPRESSION OVER GULF OF ADEN AND ADJOINING SOMALIA

THE DEEP DEPRESSION OVER GULF OF ADEN AND ADJOINING SOMALIA MOVED WEST-SOUTHWESTWARDS WITH A SPEED OF ABOUT 09 KMPH DURING PAST 06 HOURS, WEAKENED INTO A DEPRESSION AND LAY CENTERED AT 0000 UTC OF 24^{TH} NOVEMBER 2020 OVER THE GULF OF ADEN AND ADJOINING SOMALIA NEAR LATITUDE 11.6°N AND LONGITUDE 47.0°E, ABOUT 460 KM WEST-NORTHWEST OF RAS BINNAH (SOMALIA). IT IS VERY LIKELY TO MOVE NEARLY WEST-SOUTHWESTWARDS AND WEAKEN INTO A WELL MARKED LOW PRESSURE AREA DURING NEXT 12 HOURS.

AS PER SATELLITE IMAGERY, INTENSITY IS WITH T1.5. CONVECTIVE CLOUDS HAVE SHEARED AWAY TO THE NORTH-WEST OF THE SYSTEM. ASSOCTATED SCATTERED LOW AND MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION LAY OVER NORTH SOMALIA AND ADJOINING GULF OF ADEN AND NEIGHBOURHOOD. MINIMUM CLOUD TOP TEMPERATURE IS -75.0^0C.

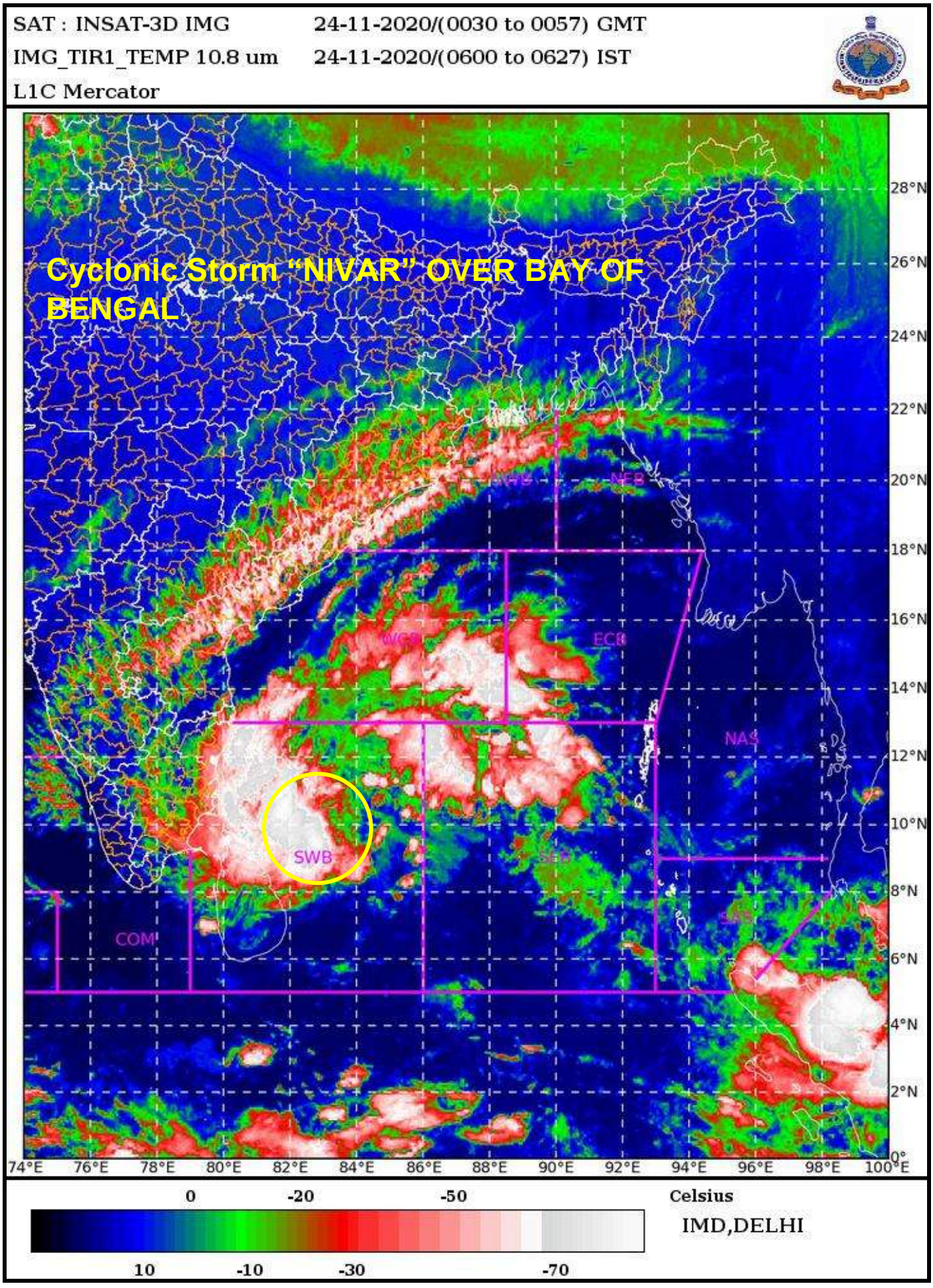
THE ESTIMATED MAXIMUM SUSTAINED WIND SPEED IS 25 KNOTS GUSTING TO 35 KNOTS. THE ESTIMATED CENTRAL PRESSURE IS 1000 HPA.

REMARKS:

CONSIDERING THE SEA CONDITIONS, SST IS AROUND 29-30°C OVER SOUTHWEST BAY OF BENGAL (BOB). THE TROPICAL CYCLONE HEAT POTENTIAL IS ABOUT 80-100 KJ/CM^2 OVER SOUTHWEST BOB. LOWER LEVEL POSITIVE RELATIVE VORTICITY ($200X10^{-6}S^{-1}$) PREVAILS AROUND SYSTEM CENTRE. UPPER LEVEL POSITIVE DIVERGENCE OF $40X10^{-5}S^{-1}$ PREVAILS AROUND THE SYSTEM CENTRE. THE LOWER LEVEL POSITIVE CONVERGENCE IS 30 X $20^{-5}S^{-1}$ AROUND SYSTEM CENTRE. THE VERTICAL WIND SHEAR (VWS) IS LOW (05-15 KTS) OVER THE REGION. THE UPPER TROPOSPHERIC RIDGE AT UPPER AND MIDDLE TROPOSPHERIC LEVELS RUNS ALONG 13.0°N OVER THE BOB IN ASSOCIATION WITH AN ANTICYCLONIC CIRCULATION TO THE NORTHEAST OF SYSTEM CENTRE THE SYSTEM LIES IN THE SOUTHERN PERIPHERRY OF THE ABOVE RIDGE. ASA RESULT, IT IS MOVING WEST NORTHWESTWARDS. IT IS EXPECTED TO BE STEERED BY THE ABOVE RIDGE RESULTING IN WEST-NORTHWESTWARD MOVEMENT FOR NEXT 12 HRS AND THEN NORTHWESTWARD MOVEMENT . THE ABOVE ENVIRONMENTAL CONDITIONS ARE FAVOURABLE FOR INTENSIFICATION OF THE SYSTEM DURING NEXT 24 HRS INTO A SEVERE CYCLONIC STORM.
NWP MODELS LIKE ECMWF, IMD GFS, NCEP GFS, GEFS, NCUM AND NEPS ARE INDICATING INTENSIFICATION OF THE SYSTEM INTO A SEVERE CYCLONIC STORM OVER SOUTHWEST BOB DURING NEXT 24 HOURS AND MOVEMENT TOWARDS TAMIL NADU-PUDUCHERRY COASTS SKIRTING NORTHEAST SRILANKA COAST.

(SHOBHIT KATIYAR)
SCIENTIST- C
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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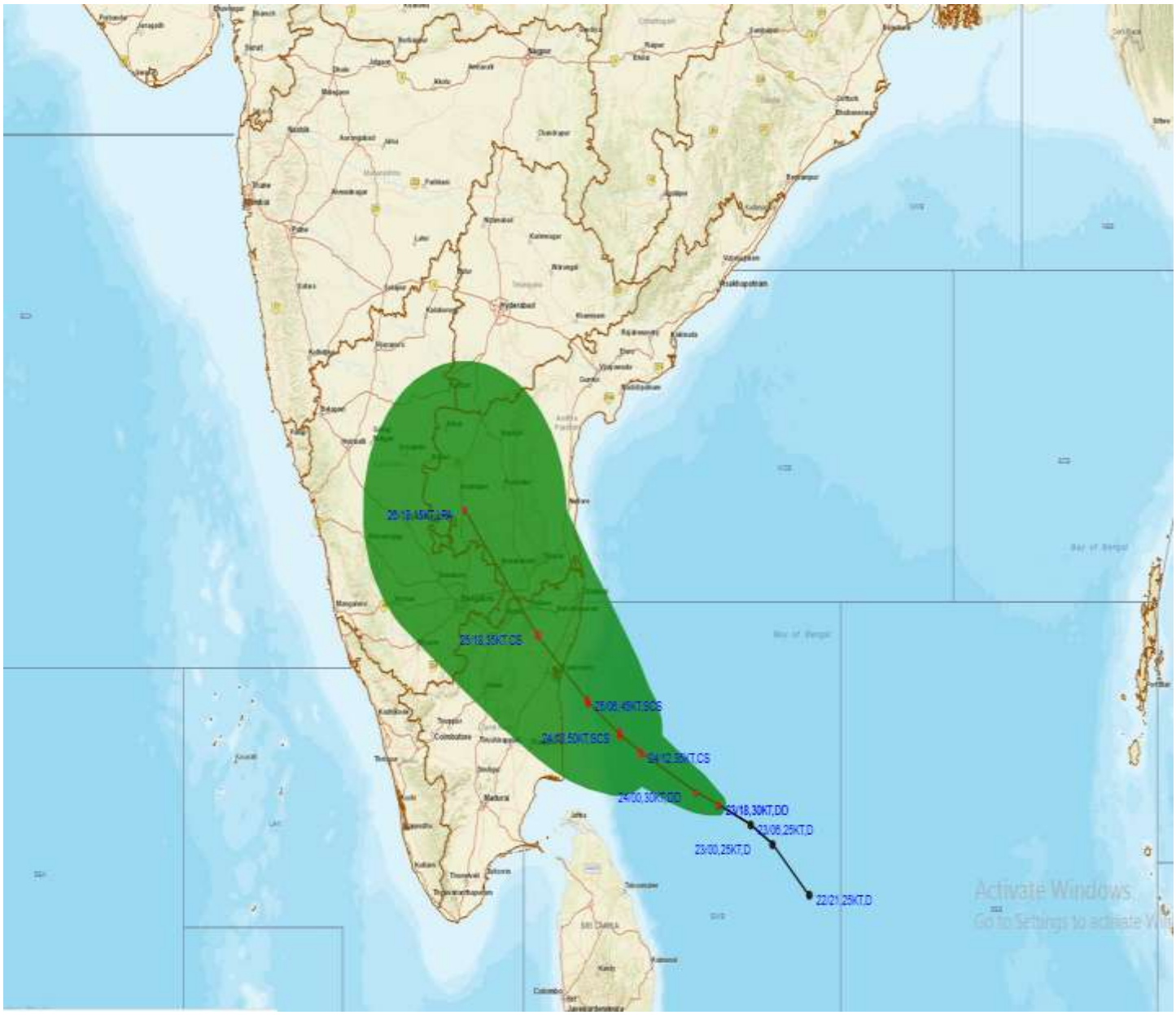
OBSERVED AND FORECAST TRACK ALONGWITH CONE OF UNCERTAINITY OF CYCLONIC STORM "NIVAR" OVER SOUTHWEST BAY OF BENGAL BASED ON 0000 UTC OF 24TH NOVEMBER, 2020.



PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)
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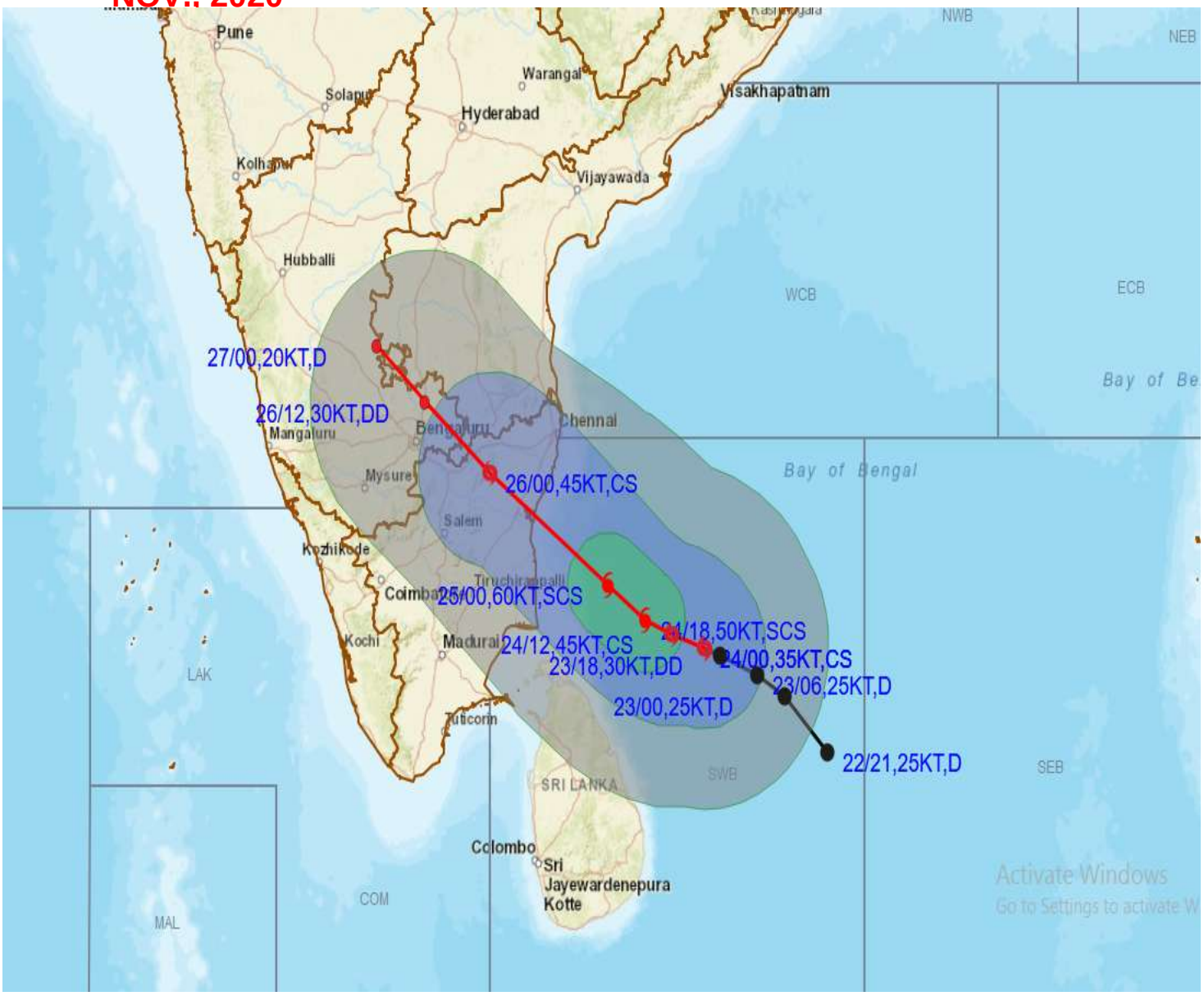
OBSERVED AND FORECAST TRACK OF CYCLONIC STORM "NIVAR" OVER SOUTHWEST BAY OF BENGAL ALONGWITH QUADRANT WIND DISTRIBUTION BASED ON 0000 UTC OF 24TH NOV., 2020



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DD: DEEP DEPRESSION (28-33 KT)
CS: CYCLONIC STORM (34-47 KT)
SCS: SEVERE CYCLONIC STORM (48-63KT)
VSCS: VERY SEVERE CYCLONIC STORM (64-89 KT)
ESCS: EXTREMELY SEVERE CYCLONIC STORM (90-119 KT)
SuCS: SUPER CYCLONIC STORM (≥20 KT)

- LESS THAN 34 KT
- 34-47 KT
- ≥ 48 KT
- OBSERVED TRACK
- FORECAST TRACK
- CONE OF UNCERTAINTY

AREA OF MAXIMUM SUSTAINED WIND SPEED:

- 28-33 KT (52-61 KMPH)
- 34-49 KT (62-91 KMPH)
- 50-63 KT (92-117 KMPH)
- ≥ 64 KT (≥118 KMPH)

IMPACT OVER THE SEA

MSW (knot/kmph)	Impact	Action
28-33 (52-61)	Very rough seas	Total suspension of fishing operations
34-49 (62-91)	High to very high seas	Total suspension of fishing operations
50-63 (92-117)	Very high seas	Total suspension of fishing operations
≥ 64 (≥118)	Phenomenal	Total suspension of fishing operations

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

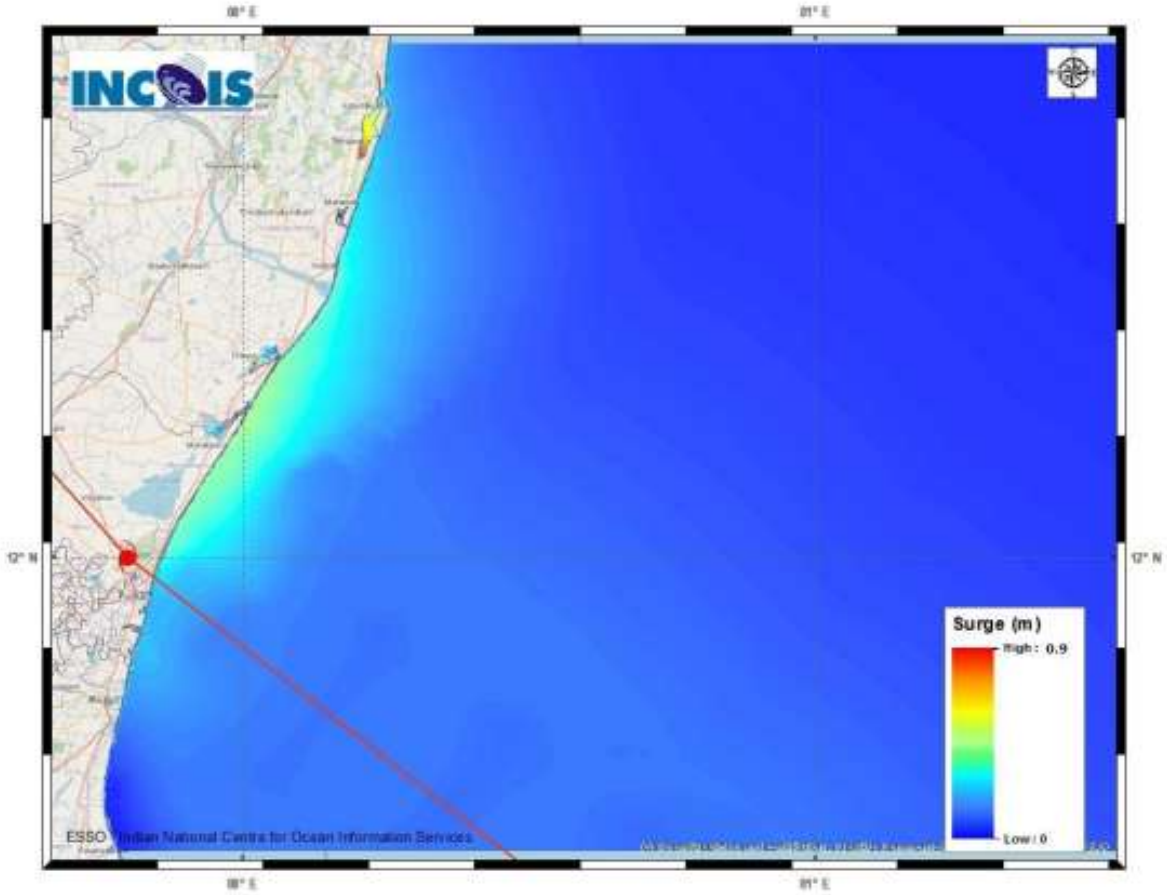


Figure: Storm surge map

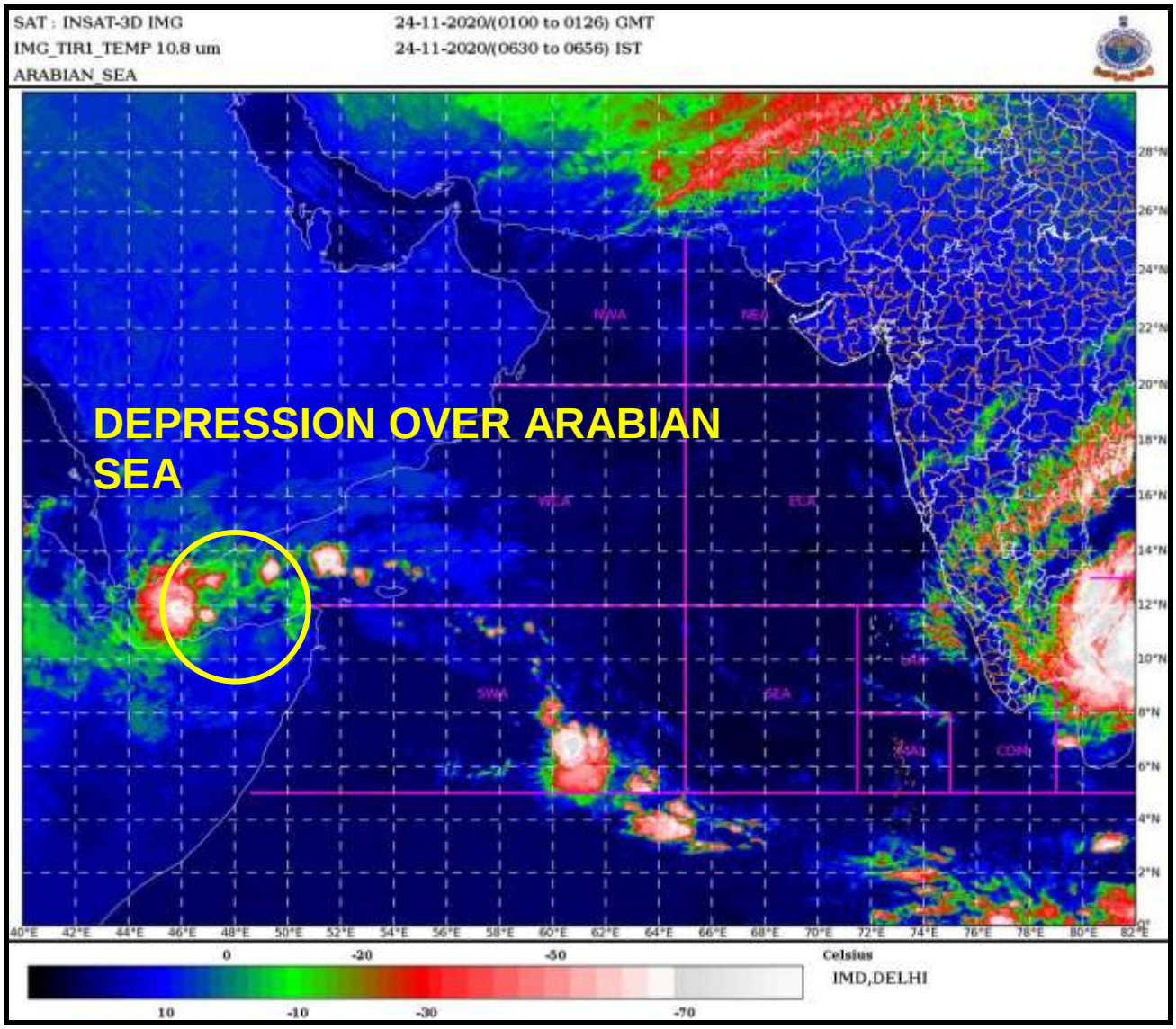
STORM SURGE HEIGHT INFORMATION:

* The below listed surge heights are over and above astronomical tide.

MANDAL/TALUK	DISTRICT	STATE / UNION TERRITORY	NEAREST PLACE OF HABITATION	STORM SURGE (m) *	EXPECTED INUNDATION EXTENT (km)
Chengalpattu	Kancheepuram	Tamil Nadu	Thiruporur	0.5-0.9	Upto 0.20
Cheyyur	Kancheepuram	Tamil Nadu	Kadalur	0.3-0.4	Nil
Cuddalore	Cuddalore	Tamil Nadu	Cuddalore	0.3-0.4	Nil
Tindivanam	Viluppuram	Tamil Nadu	OZHUKARAI MUNICIPALITY	0.3-0.6	Upto 0.11
Tirutturaippundi	Nagappattinam	Tamil Nadu	Vaimedu west	0.3-0.5	Upto 0.11

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

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



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

OBSERVED TRACK OF DEPRESSION OVER GULF OF ADEN BASED ON 0000 UTC OF 24TH NOV., 2020

DATE/TIME IN UTC
IST=UTC + 0530
L: LOW PRESSURE AREA
WML: WELL MARKED LOW PRESSURE AREA
D: DEPRESSION (17-27 KT)
DD: DEEP DEPRESSION (28-33 KT)
CS: CYCLONIC STORM (34-47 KT)
SCS: SEVERE CYCLONIC STORM (48-63KT)
VSCS: VERY SEVERE CYCLONIC STORM (64-89 KT)
ESCS: EXTREMELY SEVERE CYCLONIC STORM (90-119 KT)
SuCS: SUPER CYCLONIC STORM (≥120 KT)

LESS THAN 34 KT
34-47 KT
≥ 48 KT
OBSERVED TRACK
FORECAST TRACK
CONE OF UNCERTAINTY

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

REGIONAL SPECIALISED METEOROLOGICAL CENTRE-TROPICAL CYCLONES, NEW DELHI

TROPICAL CYCLONE ADVISORY BULLETIN NO. 14

FROM: RSMC –TROPICAL CYCLONES, NEW DELHI

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

TROPICAL CYCLONE ADVISORY NO. 14 FOR NORTH INDIAN OCEAN (THE BAY OF BENGAL AND ARABIAN SEA) VALID FOR NEXT 120 HOURS ISSUED AT 0630 UTC OF 24.11.2020 BASED ON 0300 UTC OF 24.11.2020.

A. Cyclonic Strom "NIVAR" over southwest Bay of Bengal

THE **CYCLONIC STORM 'NIVAR"** OVER SOUTHWEST BAY OF BENGAL REMAINED PRACTICALLY STATIONARY DURING PAST 03 HOURS AND LAY CENTRED AT 0300UTC OF 24TH NOVEMBER, 2020 OVER SOUTHWEST BAY OF BENGAL NEAR LATITUDE 10.0°N AND LONGITUDE 83.0°E, ABOUT 410 KM EAST-SOUTHEAST OF PUDUCHERRY(43328) AND 450 KM SOUTHEAST OF CHENNAI(43278). IT IS VERY LIKELY TO INTENSIFY FURTHER INTO A SEVERE CYCLONIC STORM DURING NEXT 24 HOURS.

A. FORECAST TRACK AND INTENSITY ARE GIVEN BELOW:

DATE/TIME(UTC)	POSITION (LAT. ^{0}N/ LONG. ^{0}E)	MAXIMUM SUSTAINED SURFACE WIND SPEED (KMPH)	CATEGORY OF CYCLONIC DISTURBANCE
24.11.20/0300	10.0/83.0	70-80 GUSTING TO 90	CYCLONIC STORM
24.11.20/0600	10.1/82.7	75-85 GUSTING TO 95	CYCLONIC STORM
24.11.20/1200	10.2/82.4	85-95 GUSTING TO 105	CYCLONIC STORM
24.11.20/1800	10.4/81.9	90-100 GUSTING TO 110	SEVERE CYCLONIC STORM
25.11.20/0000	10.9/81.2	100-110 GUSTING TO 120	SEVERE CYCLONIC STORM
25.11.20/1200	11.7/80.0	100-110 GUSTING TO 120	SEVERE CYCLONIC STORM
26.11.20/0000	12.5/79.0	80-90 GUSTING TO 100	CYCLONIC STORM
26.11.20/1200	13.5/77.8	50-60 GUSTING TO 70	DEEP DEPRESSION
27.11.20/0000	14.3/76.9	30-40 GUSTING TO 50	DEPRESSION

AS PER SATELLITE IMAGERY, THE INTENSITY IS T2.5. SHEAR PATTERN. ASSOCIATED SCATTERED TO BROKEN LOW AND MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION LAY OVER SOUTH WEST AND ADJOINING WEST CENTRAL BAY OF BENGAL, BETWEEN LATITUDE 8.5^{0}N & 12.0^{0}N AND LONGITUDE 79.0^{0}E & 84.0^{0}E IN ASSOCIATION WITH THE SYSTEM. MINIMUM CLOUD TOP TEMPERATURE IS -90.0^{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 MAXIMUM SUSTAINED WIND SPEED IS 35 KNOTS GUSTING TO 45 KNOTS. THE ESTIMATED CENTRAL PRESSURE IS 996 HPA.

B. DEPRESSION OVER GULF OF ADEN AND ADJOINING SOMALIA

THE DEPRESSION OVER GULF OF ADEN AND MOVED WESTSOUTHWEST WARDS AND LAY CENTERED AT 0300 UTC OF 24TH NOVEMBER 2020 OVER THE GULF OF ADEN AND ADJOINING SOMALIA NEAR LATITUDE 11.6°N AND LONGITUDE 46.8°E, ABOUT 480 KM WEST-NORTHWEST OF RAS BINNAH (SOMALIA) AND 230 KM EAST-SOUTHEAST OF ADEN (41480) (YEMEN). IT IS VERY LIKELY TO MOVE NEARLY WEST-SOUTHWESTWARDS AND WEAKEN INTO A WELL MARKED LOW PRESSURE AREA DURING NEXT 12 HOURS.

AS PER SATELLITE IMAGERY, INTENSITY IS WITH T1.5. CONVECTIVE CLOUDS HAVE SHEARED AWAY TO THE NORTH-WEST OF THE SYSTEM. ASSOCTATED SCATTERED LOW AND MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION LAY OVER NORTH SOMALIA AND ADJOINING GULF OF ADEN AND NEIGHBOURHOOD. MINIMUM CLOUD TOP TEMPERATURE IS -61.0^{0}C.

THE ESTIMATED MAXIMUM SUSTAINED WIND SPEED IS 25 KNOTS GUSTING TO 35 KNOTS. THE ESTIMATED CENTRAL PRESSURE IS 1000 HPA.

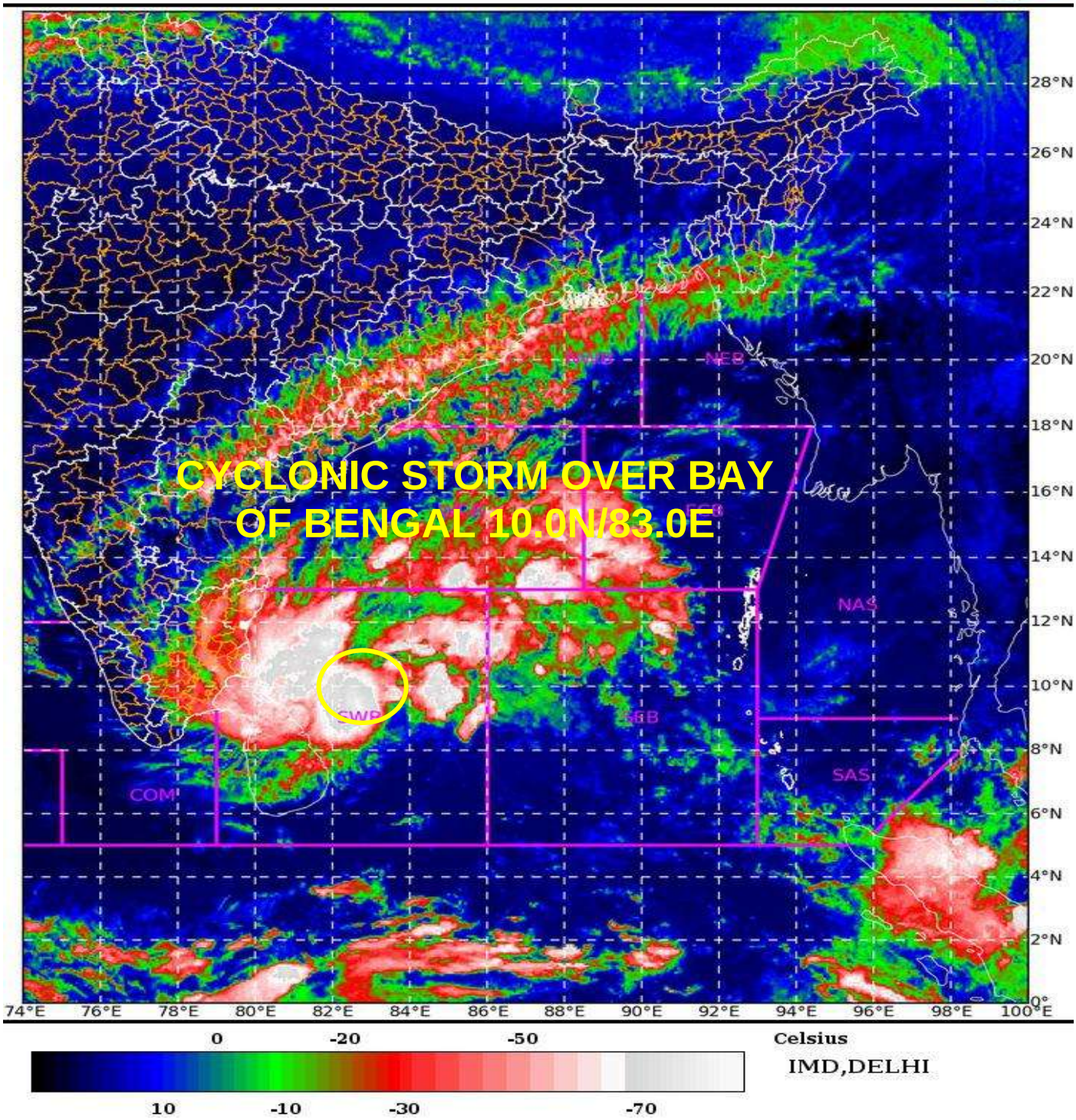
REMARKS:

CONSIDERING THE SEA CONDITIONS, SST IS AROUND 29-30°C OVER SOUTHWEST BAY OF BENGAL (BOB). THE TROPICAL CYCLONE HEAT POTENTIAL IS ABOUT 80-100 KJ/CM^{2} OVER SOUTHWEST BOB. LOWER LEVEL POSITIVE RELATIVE VORTICITY (200X10^{-6}S^{-1}) PREVAILS AROUND SYSTEM CENTRE. UPPER LEVEL POSITIVE DIVERGENCE OF 40X10^{-5}S^{-1} PREVAILS AROUND THE SYSTEM CENTRE. THE LOWER LEVEL POSITIVE CONVERGENCE IS 30 X 20^{-5}S^{-1} AROUND SYSTEM CENTRE. THE VERTICAL WIND SHEAR (VWS) IS LOW (05-15 KTS) OVER THE REGION. THE UPPER TROPOSPHERIC RIDGE AT UPPER AND MIDDLE TROPOSPHERIC LEVELS RUNS ALONG 13.0°N OVER THE BOB IN ASSOCIATION WITH AN ANTICYCLONIC CIRCULATION TO THE NORTHEAST OF SYSTEM CENTRE THE SYSTEM LIES IN THE SOUTHERN PERIPHERRY OF THE ABOVE RIDGE. ASA RESULT, IT IS MOVING WEST NORTHWESTWARDS. IT IS EXPECTED TO BE STEERED BY THE ABOVE RIDGE RESULTING IN WEST-NORTHWESTWARD MOVEMENT FOR NEXT 12 HRS AND THEN NORTHWESTWARD MOVEMENT . THE ABOVE ENVIRONMENTAL CONDITIONS ARE FAVOURABLE FOR INTENSIFICATION OF THE SYSTEM DURING NEXT 24 HRS INTO A SEVERE CYCLONIC STORM.
NWP MODELS LIKE ECMWF, IMD GFS, NCEP GFS, GEFS, NCUM AND NEPS ARE INDICATING INTENSIFICATION OF THE SYSTEM INTO A SEVERE CYCLONIC STORM OVER SOUTHWEST BOB DURING NEXT 24 HOURS AND MOVEMENT TOWARDS TAMIL NADU-PUDUCHERRY COASTS SKIRTING NORTHEAST SRILANKA COAST.

(RK JENAMANI)
SCIENTIST- F
RSMC, NEW DELHI

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

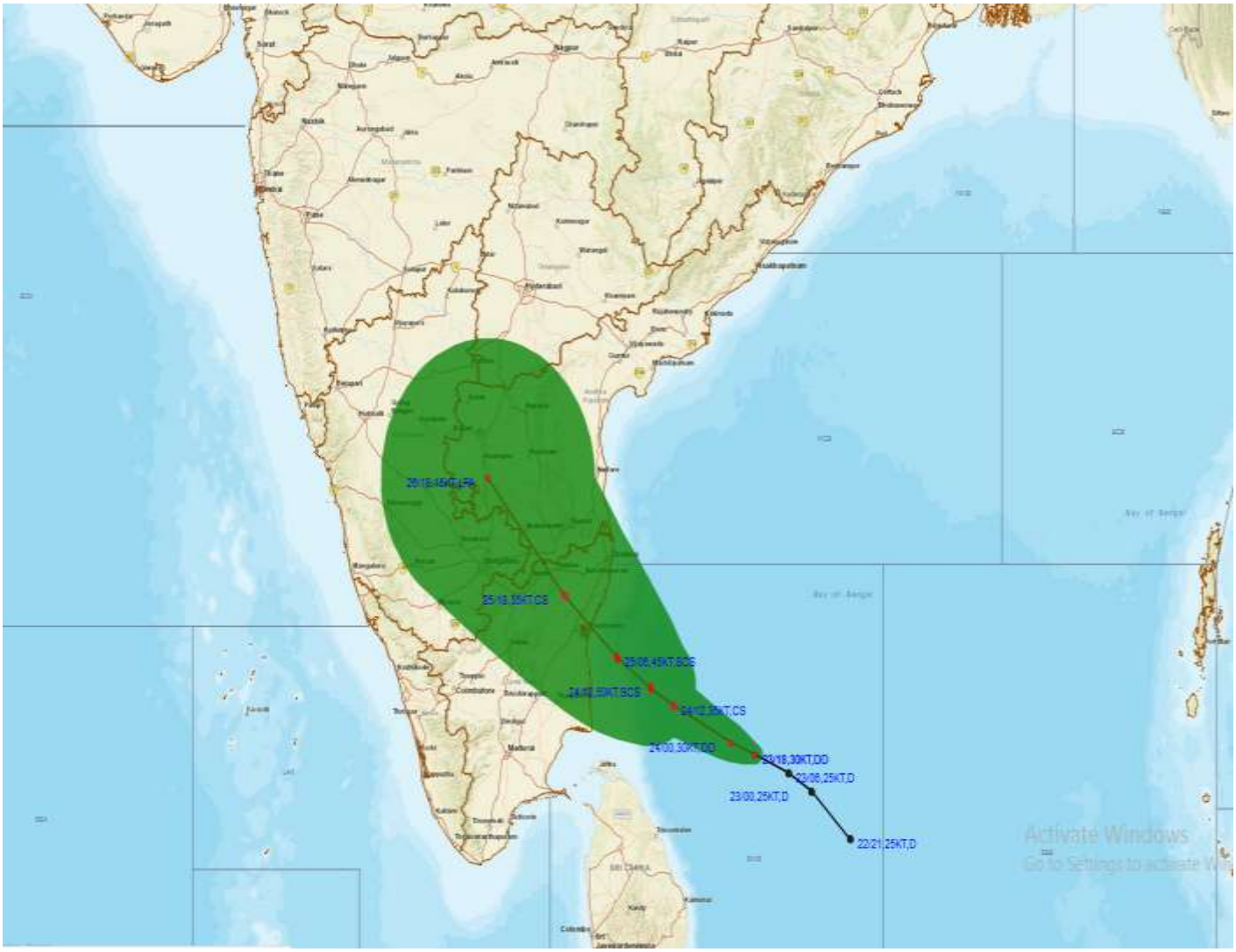
SAT : INSAT-3D IMG 24-11-2020/(0400 to 0427) GMT
IMG_TIR1_TEMP 10.8 um 24-11-2020/(0930 to 0957) IST
L1C Mercator



Celsius
IMD,DELHI

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

OBSERVED AND FORECAST TRACK ALONGWITH CONE OF UNCERTAINITY OF CYCLONIC STORM "NIVAR" OVER SOUTHWEST BAY OF BENGAL BASED ON 0300 UTC OF 24TH NOVEMBER, 2020.

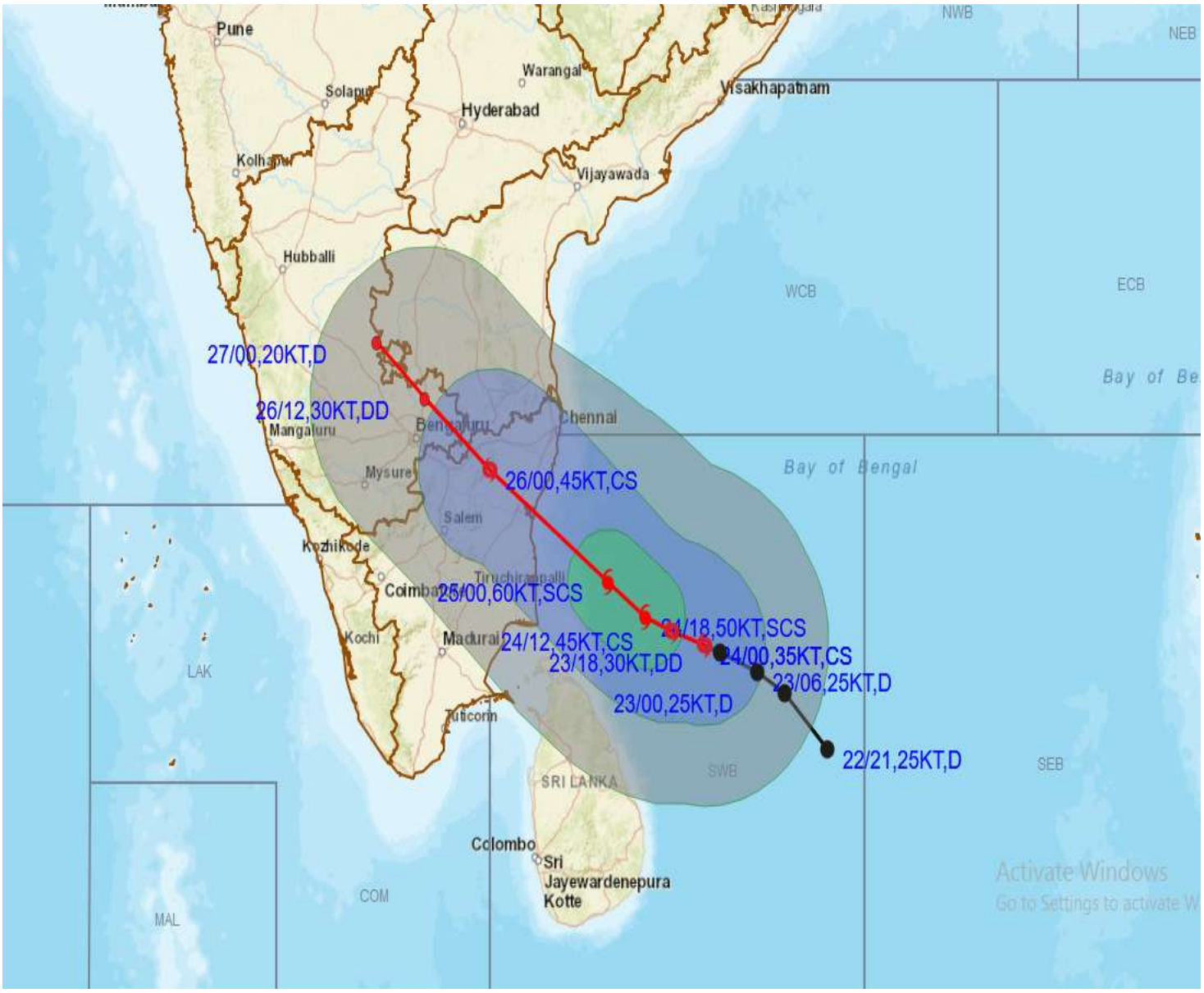


DATE/TIME IN UTC
IST=UTC + 0530
L: LOW PRESSURE AREA
WML: WELL MARKED LOW PRESSURE AREA
D: DEPRESSION (17-27 KT)
DD: DEEP DEPRESSION (28-33 KT)
CS: CYCLONIC STORM (34-47 KT)
SCS: SEVERE CYCLONIC STORM (48-63KT)
VSCS: VERY SEVERE CYCLONIC STORM (64-89 KT)
ESCS: EXTREMELY SEVERE CYCLONIC STORM (90-119 KT)
SuCS: SUPER CYCLONIC STORM ≥120 KT

LESS THAN 34 KT
34-47 KT
≥ 48 KT
OBSERVED TRACK
FORECAST TRACK
CONE OF UNCERTAINTY

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

OBSERVED AND FORECAST TRACK OF CYCLONIC STORM "NIVAR" OVER SOUTHWEST BAY OF BENGAL ALONGWITH QUADRANT WIND DISTRIBUTION BASED ON 0300 UTC OF 24TH NOV., 2020



DATE/TIME IN UTC
IST=UTC + 0530
L: LOW PRESSURE AREA
WML: WELL MARKED LOW PRESSURE AREA
D: DEPRESSION (17-27 KT)
DD: DEEP DEPRESSION (28-33 KT)
CS: CYCLONIC STORM (34-47 KT)
SCS: SEVERE CYCLONIC STORM (48-63KT)
VSCS: VERY SEVERE CYCLONIC STORM (64-89 KT)
ESCS: EXTREMELY SEVERE CYCLONIC STORM (90-119 KT)
SuCS: SUPER CYCLONIC STORM ≥120 KT

LESS THAN 34 KT
34-47 KT
≥ 48 KT
OBSERVED TRACK
FORECAST TRACK
CONE OF UNCERTAINTY
AREA OF MAXIMUM SUSTAINED WIND SPEED:
28-33 KT (52-61 KMPH)
34-49 KT (62-91 KMPH)
50-63 KT (92-117 KMPH)
≥ 64 KT (≥118 KMPH)

IMPACT OVER THE SEA

MSW (knot/kmph)	Impact	Action
28-33 (52-61)	Very rough seas	Total suspension of fishing operations
34-49 (62-91)	High to very high seas	Total suspension of fishing operations
50-63 (92-117)	Very high seas	Total suspension of fishing operations
≥ 64 (≥118)	Phenomenal	Total suspension of fishing operations

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

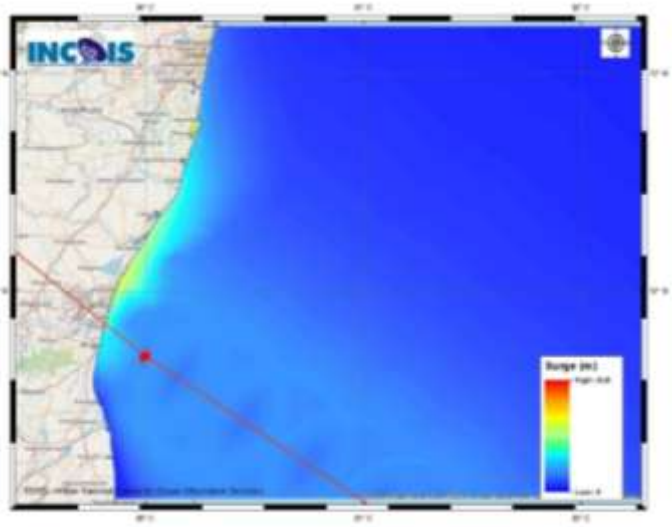


Figure: Storm surge map

Storm Surge Guidance based on 0000 UTC observations of 24th November

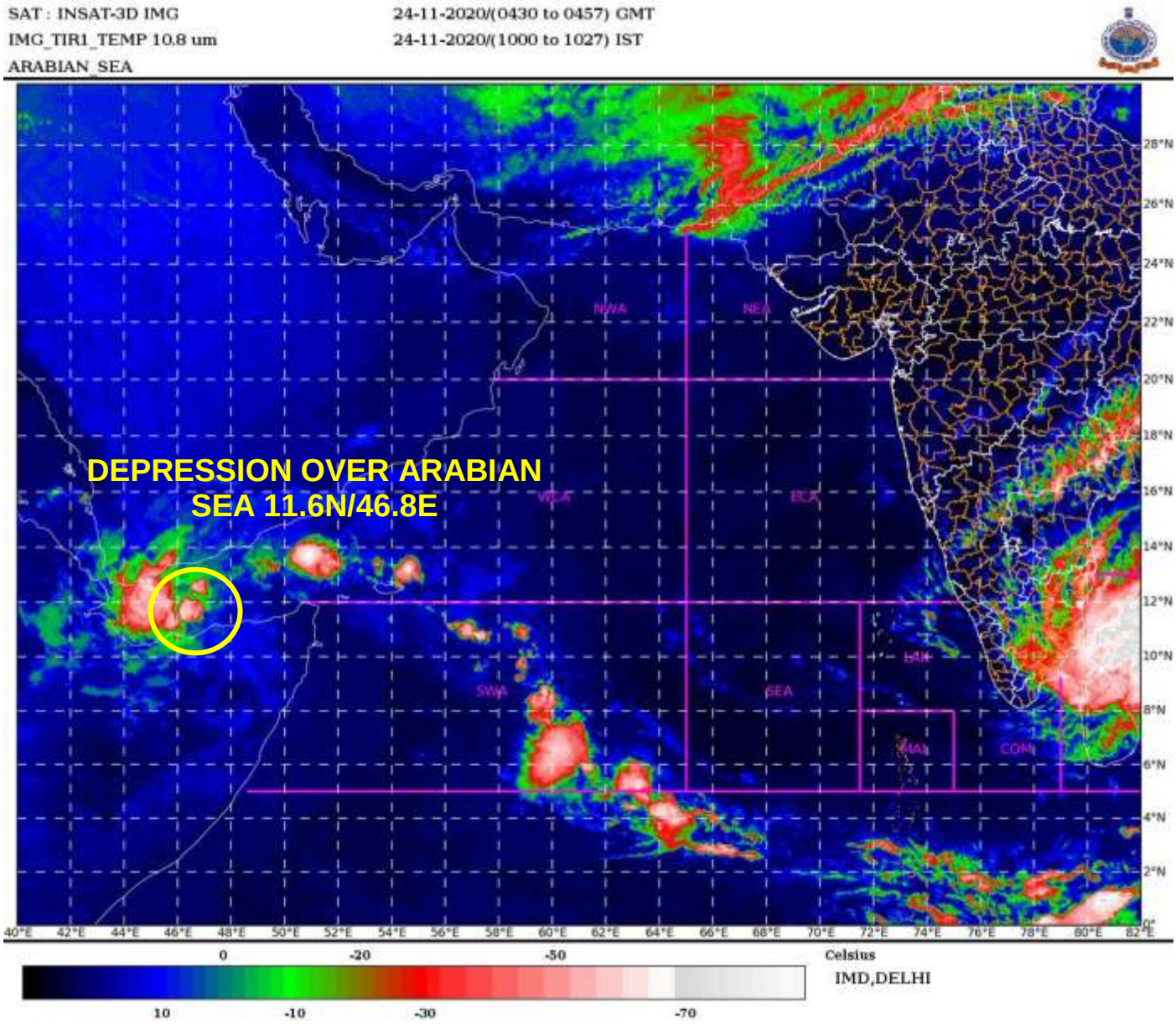
STORM SURGE HEIGHT INFORMATION:

* The below listed surge heights are over and above astronomical tide.

MANDAL/TALUK	DISTRICT	STATE / UNION TERRITORY	NEAREST PLACE OF HABITATION	STORM SURGE (m) *	EXPECTED INUNDATION EXTENT (km)
Chengalpattu	Kancheepuram	Tamil Nadu	Thiruporur	0.5-0.8	Upto 0.20
Cheyyur	Kancheepuram	Tamil Nadu	Kadalur	0.3-0.4	Nil
Cuddalore	Cuddalore	Tamil Nadu	Cuddalore	0.3-0.4	Nil
Tindivanam	Viluppuram	Tamil Nadu	OZHUKARAI MUNICIPALITY	0.3-0.5	Upto 0.10
Tirutturaippundi	Nagappattinam	Tamil Nadu	Vaimedu west	0.3-0.5	Upto 0.10

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

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



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

OBSERVED AND FORECAST TRACK OF DEPRESSION OVER GULF OF ADEN BASED ON 0300 UTC OF 24TH NOV., 2020

DATE/TIME IN UTC
IST=UTC + 0530
L: LOW PRESSURE AREA
WML: WELL MARKED LOW PRESSURE AREA
D: DEPRESSION (17-27 KT)
DD: DEEP DEPRESSION (28-33 KT)
CS: CYCLONIC STORM (34-47 KT)
SCS: SEVERE CYCLONIC STORM (48-63KT)
VSCS: VERY SEVERE CYCLONIC STORM (64-89 KT)
ESCS: EXTREMELY SEVERE CYCLONIC STORM (90-119 KT)
SuCS: SUPER CYCLONIC STORM ≥120 KT

LESS THAN 34 KT
34-47 KT
≥ 48 KT
OBSERVED TRACK
FORECAST TRACK
CONE OF UNCERTAINTY

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

REGIONAL SPECIALISED METEOROLOGICAL CENTRE-TROPICAL CYCLONES, NEW DELHI

TROPICAL CYCLONE ADVISORY BULLETIN NO. 15

FROM: RSMC –TROPICAL CYCLONES, NEW DELHI

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

TROPICAL CYCLONE ADVISORY NO. 15 FOR NORTH INDIAN OCEAN (THE BAY OF BENGAL AND ARABIAN SEA) VALID FOR NEXT 120 HOURS ISSUED AT 0900 UTC OF 24.11.2020 BASED ON 0600 UTC OF 24.11.2020.

A. CYCLONIC STROM "NIVAR" OVER SOUTHWEST BAY OF BENGAL

THE **CYCLONIC STORM 'NIVAR"** OVER SOUTHWEST BAY OF BENGAL MOVED WESTWARDS WITH A SPEED OF 05 KMPH DURING PAST SIX HOURS AND LAY CENTRED AT 0600 UTC OF 24TH NOVEMBER, 2020 OVER SOUTHWEST BAY OF BENGAL NEAR LATITUDE 10.0°N AND LONGITUDE 82.7°E, ABOUT 380 KM EAST-SOUTHEAST OF PUDUCHERRY(43328) AND 430 KM SOUTHEAST OF CHENNAI(43278). IT IS VERY LIKELY TO INTENSIFY FURTHER INTO A SEVERE CYCLONIC STORM DURING NEXT 12 HOURS AND INTO A VERY SEVERE CYCLONIC STORM DURING SUBSEQUENT 12 HOURS.

IT IS VERY LIKELY TO MOVE WEST-NORTHWESTWARDS FOR NEXT 12 HOURS AND THEN NORTHWESTWARDS. IT IS VERY LIKELY TO CROSS TAMIL NADU AND PUDUCHERRY COASTS BETWEEN KARAIKAL AND MAMALLAPURAM AROUND PUDUCHERRY DURING 25TH NOVEMBER 2020 LATE EVENING AS A VERY SEVERE CYCLONIC STORM WITH A WIND SPEED OF 120-130 KMPH GUSTING TO 145 KMPH.

A. FORECAST TRACK AND INTENSITY ARE GIVEN BELOW:

DATE/TIME(UTC)	POSITION (LAT. ^{0}N/ LONG. ^{0}E)	MAXIMUM SUSTAINED SURFACE WIND SPEED (KMPH)	CATEGORY OF CYCLONIC DISTURBANCE
24.11.20/0600	10.0/82.7	75-85 GUSTING TO 95	CYCLONIC STORM
24.11.20/1200	10.1/82.3	85-95 GUSTING TO 105	CYCLONIC STORM
24.11.20/1800	10.2/81.9	95-105 GUSTING TO 115	SEVERE CYCLONIC STORM
25.11.20/0000	10.6/81.3	110-120 GUSTING TO 135	SEVERE CYCLONIC STORM
25.11.20/0600	11.2/80.6	120-130 GUSTING TO 145	VERY SEVERE CYCLONIC STORM
25.11.20/1800	12.1/79.5	120-130 GUSTING TO 145	VERY SEVERE CYCLONIC STORM
26.11.20/0600	13.0/78.4	55-65 GUSTING TO 75	DEEP DEPRESSION
26.11.20/1800	13.8/77.5	35-45 GUSTING TO 55	DEPRESSION

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

AS PER SATELLITE IMAGERY, THE INTENSITY IS T2.5. SHEAR PATTERN. ASSOCIATED SCATTERED TO BROKEN LOW AND MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION LAY OVER SOUTH WEST AND ADJOINING WEST CENTRAL BAY OF BENGAL, BETWEEN LATITUDE 8.5^{0}N & 12.0^{0}N AND LONGITUDE 79.0^{0}E & 84.0^{0}E IN ASSOCIATION WITH THE SYSTEM. MINIMUM CLOUD TOP TEMPERATURE IS -89.0^{0}C.

THE ESTIMATED MAXIMUM SUSTAINED WIND SPEED IS 40 KNOTS GUSTING TO 50 KNOTS. THE ESTIMATED CENTRAL PRESSURE IS 994 HPA.

B. DEPRESSION OVER GULF OF ADEN WEAKENED INTO A WELL MARKED LOW PRESSURE AREA

THE DEPRESSION OVER GULF OF ADEN MOVED WESTSOUTHWEST WARDS AND WEAKENED INTO A WELL MARKED LOW PRESSURE AREA OVER THE SAME REGION AT 0600UTC OF TODAY THE 24 NOV.

AS PER SATELLITE IMAGERY, INTENSITY IS WITH T1.5. CONVECTIVE CLOUDS HAVE SHEARED AWAY TO THE NORTH-WEST OF THE SYSTEM. ASSOCTATED SCATTERED LOW AND MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION LAY OVER NORTH SOMALIA AND ADJOINING GULF OF ADEN AND NEIGHBOURHOOD. MINIMUM CLOUD TOP TEMPERATURE IS -61.0^{0}C.

THE ESTIMATED MAXIMUM SUSTAINED WIND SPEED IS 25 KNOTS GUSTING TO 35 KNOTS. THE ESTIMATED CENTRAL PRESSURE IS 1000 HPA.

THIS IS THE LAST BULLETIN FOR CYCLONE "GATI" AND 3-HOURLY UPDATE FOR CYCLONE "NIVAR" WILL CONTINUE.

REMARKS:

CONSIDERING THE SEA CONDITIONS, SST IS AROUND 29-30°C OVER SOUTHWEST BAY OF BENGAL (BOB). THE TROPICAL CYCLONE HEAT POTENTIAL IS ABOUT 80-100 KJ/CM^2 OVER SOUTHWEST BOB. LOWER LEVEL POSITIVE RELATIVE VORTICITY (200X10^{-6}S^{-1}) PREVAILS AROUND SYSTEM CENTRE. UPPER LEVEL POSITIVE DIVERGENCE OF 50X10^{-5}S^{-1} PREVAILS AROUND THE SYSTEM CENTRE. THE LOWER LEVEL POSITIVE CONVERGENCE IS 10 X 20^{-5}S^{-1} AROUND SYSTEM CENTRE. THE VERTICAL WIND SHEAR (VWS) IS LOW (05-15 KTS) OVER THE REGION. THE UPPER TROPOSPHERIC RIDGE AT UPPER AND MIDDLE TROPOSPHERIC LEVELS RUNS ALONG 13.0°N OVER THE BOB IN ASSOCIATION WITH AN ANTICYCLONIC CIRCULATION TO THE NORTHEAST OF SYSTEM CENTRE THE SYSTEM LIES IN THE SOUTHERN PERIPHERRY OF THE ABOVE RIDGE. ASA RESULT, IT IS MOVING WEST NORTHWESTWARDS. IT IS EXPECTED TO BE STEERED BY THE ABOVE RIDGE RESULTING IN WEST-NORTHWESTWARD MOVEMENT FOR NEXT 12 HRS AND THEN NORTHWESTWARD MOVEMENT . THE ABOVE ENVIRONMENTAL CONDITIONS ARE FAVOURABLE FOR INTENSIFICATION OF THE SYSTEM DURING NEXT 24 HRS INTO A SEVERE CYCLONIC STORM.
NWP MODELS LIKE ECMWF, IMD GFS, NCEP GFS, GEFS, NCUM AND NEPS ARE INDICATING INTENSIFICATION OF THE SYSTEM INTO A SEVERE CYCLONIC STORM OVER SOUTHWEST BOB DURING NEXT 24 HOURS AND MOVEMENT TOWARDS TAMIL NADU-PUDUCHERRY COASTS SKIRTING NORTHEAST SRILANKA COAST.

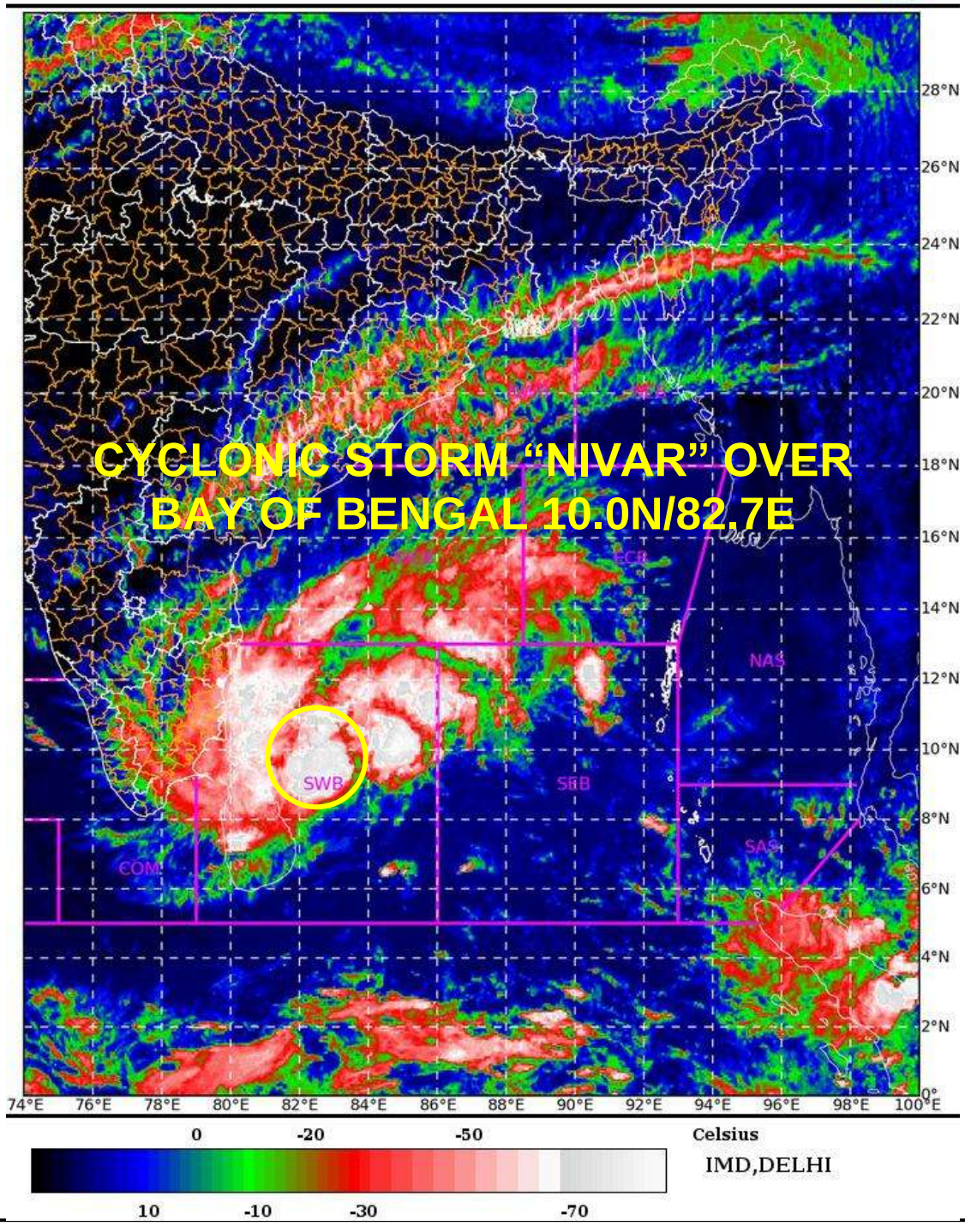
(RK JENAMANI)
SCIENTIST- F
RSMC, NEW DELHI

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

SAT : INSAT-3D IMG 24-11-2020/(0700 to 0727) GMT

IMG_TIR1_TEMP 10.8 um 24-11-2020/(1230 to 1257) IST

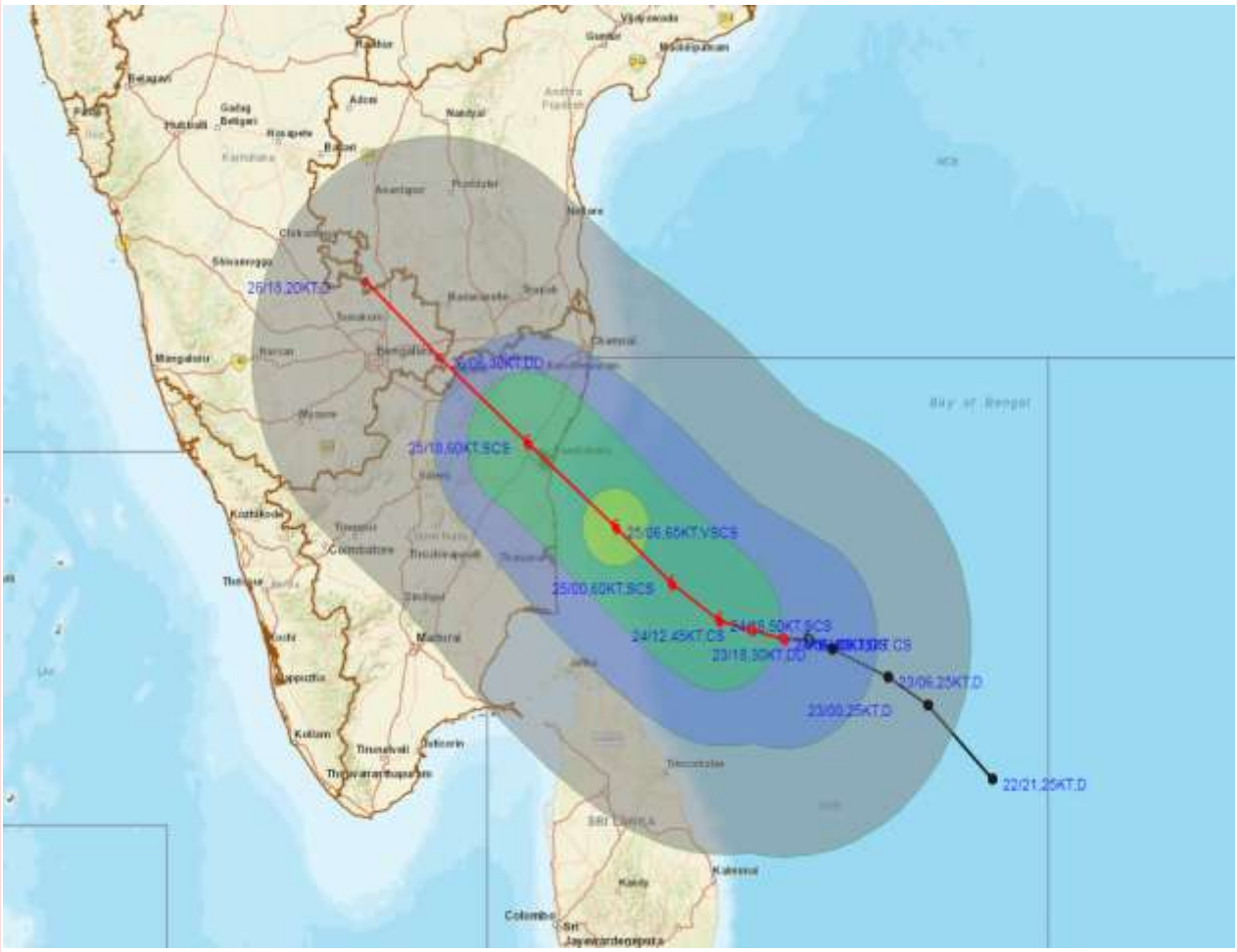
L1C Mercator



PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

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

OBSERVED AND FORECAST TRACK ALONGWITH QUADRANT WIND OBSERVED AND FORECAST TRACK OF CYCLONIC STORM NIVAR OVER SOUTHWEST BAY OF BENGAL ALONGWITH QUADRANT WIND DISTRIBUTION BASED ON 0600UTC OF 24TH NOV, 2020



DATE/TIME IN UTC
IST=UTC + 0530
L: LOW PRESSURE AREA
WML: WELL MARKED LOW PRESSURE AREA
D: DEPRESSION (17-27 KT)
DD: DEEP DEPRESSION (28-33 KT)
CS: CYCLONIC STORM (34-47 KT)
SCS: SEVERE CYCLONIC STORM (48-63KT)
VSCS: VERY SEVERE CYCLONIC STORM (64-89 KT)
ESCS: EXTREMELY SEVERE CYCLONIC STORM (90-119 KT)
SuCS: SUPER CYCLONIC STORM (≥ 120 KT)

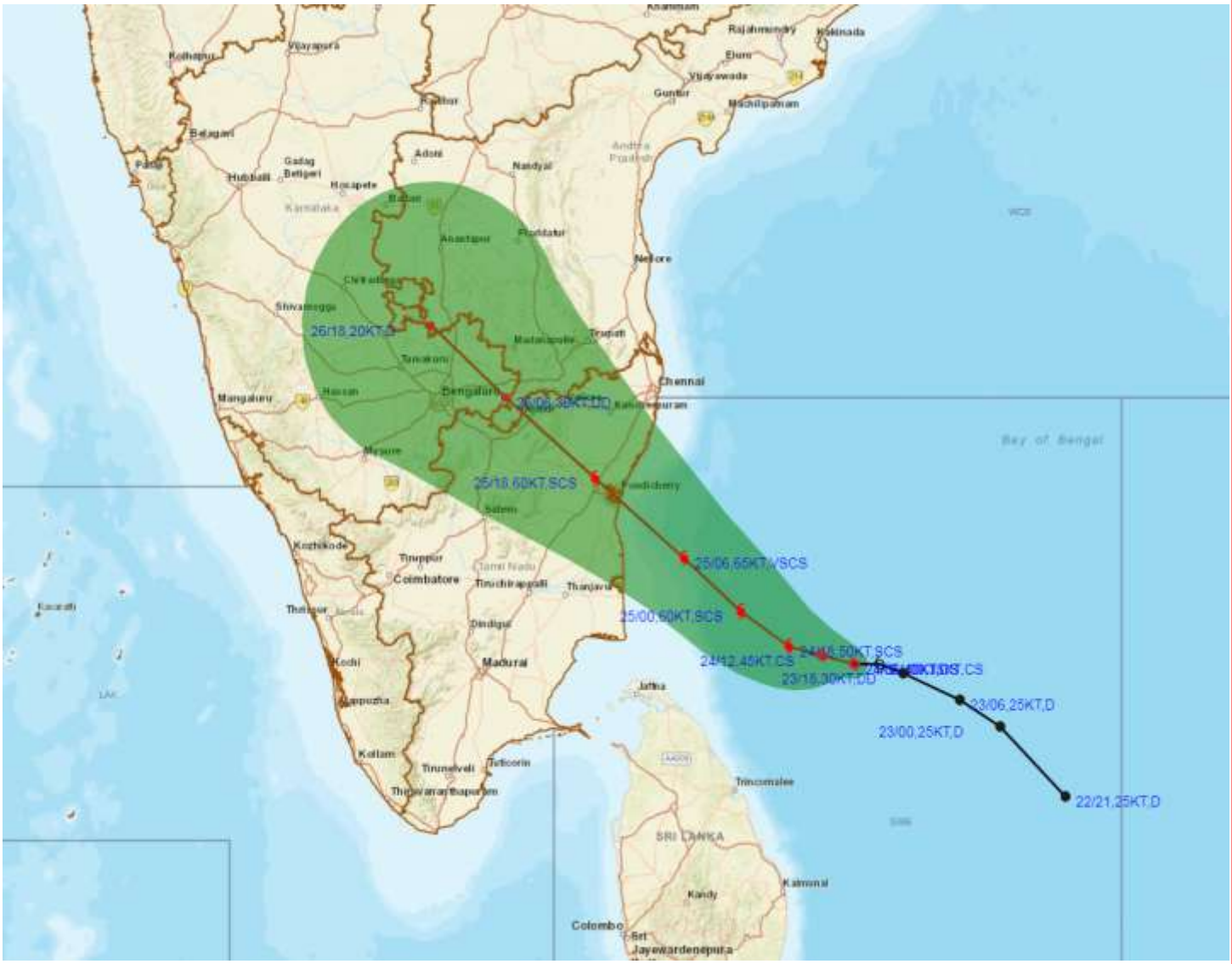
LESS THAN 34 KT
34-47 KT
≥ 48 KT
OBSERVED TRACK
FORECAST TRACK
CONE OF UNCERTAINTY
AREA OF MAXIMUM SUSTAINED WIND SPEED:
28-33 KT (52-61 KMPH)
34-49 KT (62-91 KMPH)
50-63 KT (92-117 KMPH)
≥ 64 KT (≥118 KMPH)

IMPACT OVER THE SEA

MSW (knot/kmph)	Impact	Action
28-33 (52-61)	Very rough seas	Total suspension of fishing operations
34-49 (62-91)	High to very high seas	Total suspension of fishing operations
50-63 (92-117)	Very high seas	Total suspension of fishing operations
≥ 64 (≥118)	Phenomenal	Total suspension of fishing operations

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

OBSERVED AND FORECAST TRACK ALONGWITH CONE OF UNCERTAINITY OF CYCLONIC STORM NIVAR OVER SOUTHWEST BAY OF BENGAL BASED ON 0600UTC OF 24TH NOVEMBER, 2020.



DATE/TIME IN UTC
IST=UTC + 0530
L: LOW PRESSURE AREA
WML: WELL MARKED LOW PRESSURE AREA
D: DEPRESSION (17-27 KT)
DD: DEEP DEPRESSION (28-33 KT)
CS: CYCLONIC STORM (34-47 KT)
SCS: SEVERE CYCLONIC STORM (48-63KT)
VSCS: VERY SEVERE CYCLONIC STORM (64-89 KT)
ESCS: EXTREMELY SEVERE CYCLONIC STORM (90-119 KT)
SuCS: SUPER CYCLONIC STORM (≥ 120 KT)

- LESS THAN 34 KT
- 34-47 KT
- ≥ 48 KT
- OBSERVED TRACK
- FORECAST TRACK
- CONE OF UNCERTAINTY

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

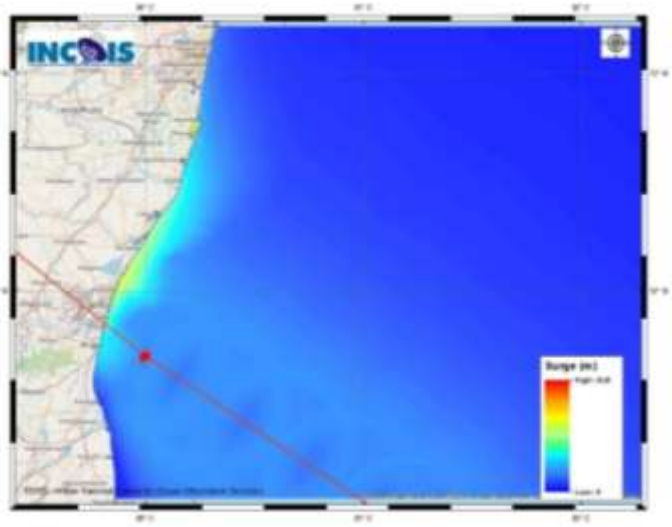


Figure: Storm surge map

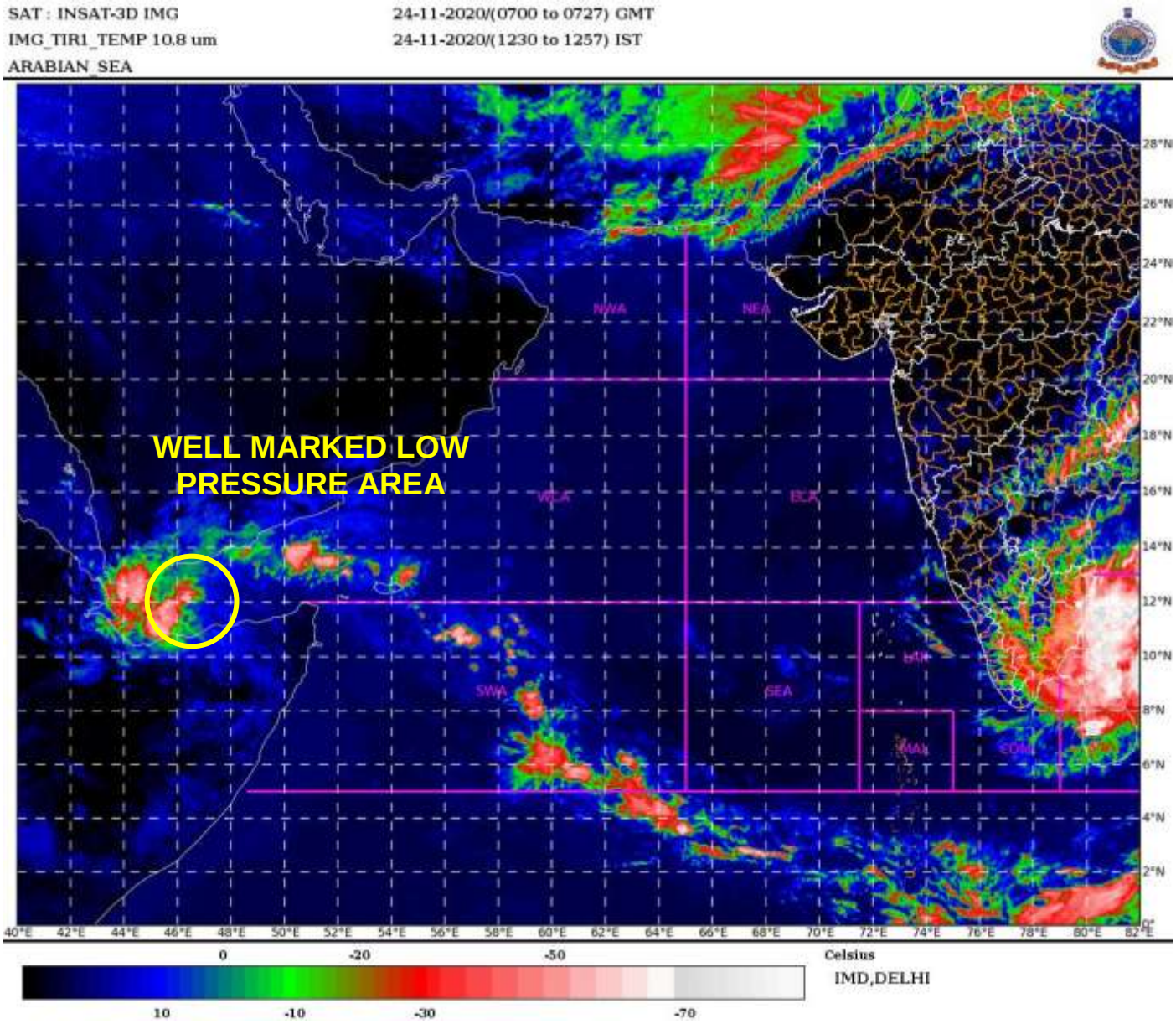
Storm Surge Guidance based on 0000 UTC observations of 24th November

STORM SURGE HEIGHT INFORMATION:

* The below listed surge heights are over and above astronomical tide.

MANDAL/TALUK	DISTRICT	STATE / UNION TERRITORY	NEAREST PLACE OF HABITATION	STORM SURGE (m) *	EXPECTED INUNDATION EXTENT (km)
Chengalpattu	Kancheepuram	Tamil Nadu	Thiruporur	0.5-0.8	Upto 0.20
Cheyyur	Kancheepuram	Tamil Nadu	Kadalur	0.3-0.4	Nil
Cuddalore	Cuddalore	Tamil Nadu	Cuddalore	0.3-0.4	Nil
Tindivanam	Viluppuram	Tamil Nadu	OZHUKARAI MUNICIPALITY	0.3-0.5	Upto 0.10
Tirutturaippundi	Nagappattinam	Tamil Nadu	Vaimedu west	0.3-0.5	Upto 0.10

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



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

OBSERVED AND FORECAST TRACK OF WELL MARKED LOW PRESSURE AREA (REMNANT OF VERY SEVERE CYCLONIC STORM "GATI" OVER GULF OF ADEN AND ADJOINING SOMALIA BASED ON 0600 UTC OF 24TH NOVEMBER, 2020

DATE/TIME IN UTC
IST=UTC + 0530
L: LOW PRESSURE AREA
WML: WELL MARKED LOW PRESSURE AREA
D: DEPRESSION (17-27 KT)
DD: DEEP DEPRESSION (28-33 KT)
CS: CYCLONIC STORM (34-47 KT)
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LESS THAN 34 KT
34-47 KT
≥ 48 KT
OBSERVED TRACK
FORECAST TRACK
CONE OF UNCERTAINTY

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