



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

**TROPICAL CYCLONE ADVISORY BULLETIN NO. 28**

**FROM: RSMC –TROPICAL CYCLONES, NEW DELHI**

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

**TROPICAL CYCLONE ADVISORY NO. 28 FOR NORTH INDIAN OCEAN (THE BAY OF BENGAL AND ARABIAN SEA) VALID FOR NEXT 120 HOURS ISSUED AT 0000 UTC OF 20.05.2020 BASED ON 2100 UTC OF 19.05.2020.**

**SUB: SUPER CYCLONIC STORM 'AMPHAN' (PRONOUNCED AS UM-PUN) OVER NORTHWEST AND ADJOINING WESTCENTRAL BAY OF BENGAL**

THE SUPER CYCLONIC STORM 'AMPHAN' (PRONOUNCED AS **UM-PUN**) OVER NORTHWEST AND ADJOINING WESTCENTRAL BAY OF BENGAL MOVED NORTH NORTH-EASTWARDS WITH A SPEED OF 11 KMPH DURING PAST 06 HOURS AND LAY CENTRED AT 2100 UTC OF 19<sup>TH</sup> MAY, 2020 AS AN EXTREMELY SEVERE CYCLONIC STORM OVER **NORTHWEST AND ADJOINING WESTCENTRAL BAY OF BENGAL** NEAR LATITUDE 18.7°N AND LONGITUDE 87.2°E, ABOUT 180 KM NEARLY SOUTH OF PARADIP (42976), 320 KM SOUTH-SOUTHWEST OF DIGHA (42901) AND 480 KM SOUTH-SOUTHWEST OF KHEPUPARA (41984).

IT IS VERY LIKELY TO MOVE NORTH-NORTHEASTWARDS ACROSS NORTHWEST BAY OF BENGAL AND CROSS WEST BENGAL – BANGLADESH COASTS BETWEEN DIGHA (WEST BENGAL) AND HATIYA ISLANDS (BANGLADESH) CLOSE TO SUNDARBANS DURING AFTERNOON TO EVENING HOURS OF 20<sup>TH</sup> MAY 2020 WITH MAXIMUM SUSTAINED WIND SPEED OF 155-165 KMPH GUSTING TO 185 KMPH.

THE SYSTEM IS NOW BEING CONTINUOUSLY TRACKED BY THE DOPPLER WEATHER RADAR (DWR) AT VISHAKHAPATNAM (ANDHRA PRADESH), PARADIP (ODISHA) AND GOPALPUR (ODISHA).

FORECAST TRACK AND INTENSITY ARE GIVEN IN THE FOLLOWING TABLE:

Date/Time(UTC)	Position (Lat. °N/ long. °E)	Maximum sustained surface wind speed (Kmph)	Category of cyclonic disturbance
19.05.20/2100	18.7/87.2	175-185 gusting to 205	Extremely Severe Cyclonic Storm
20.05.20/0000	19.5/87.5	170-180 gusting to 200	Extremely Severe Cyclonic Storm
20.05.20/0600	20.9/87.9	160-170 gusting to 190	Extremely Severe Cyclonic Storm

**PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)**

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

20.05.20/1200	22.1/88.3	150-160 gusting to 180	Very Severe Cyclonic Storm
20.05.20/1800	23.1/88.7	110-120 gusting to 135	Severe Cyclonic Storm
21.05.20/0600	24.6/89.6	60-70 gusting to 80	Cyclonic Storm
21.05.20/1800	25.6/90.1	35-45 gusting to 55	Depression

## REMARKS:

AS PER INSAT-3D SATELLITE IMAGERY BASED ON 2100 UTC OF 19<sup>TH</sup> MAY, THE SYSTEM VORTEX (AMPHAN) LIES OVER NORTHWEST AND ADJOINING WESTCENTRAL BAY & NEIGHBOURHOOD CENTERED NEAR 18.6°N/87.0°E. THE SYSTEM INTENSITY IS T5.5/5.5. THE ASSOCIATED BROKEN LOW/MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION OVER BAY BETWEEN LATITUDE 15.0°N TO 21.0°N LONGITUDE 84.0°E TO 90.0°E & ALSO OVER ODISHA ADJOINING NORTH COASTAL ANDHRA PRADESH. MINIMUM CLOUD TOP TEMPERATURE IS MINUS 93 DEG C.

THE ESTIMATED MAXIMUM SUSTAINED WIND SPEED IS 100 KNOTS GUSTING TO 110 KNOTS. THE SEA CONDITION IS PHENOMENAL AROUND THE SYSTEM CENTER. THE ESTIMATED CENTRAL PRESSURE IS **954** HPA.

THE CYCLONE IS TRACKED BY THE DOPPLER WEATHER RADAR (DWR) AT PARADIP (42976). THE SYSTEM IS AT DISTANCE OF 180 KM FROM THE RADAR.

AT 2100 UTC OF 19<sup>TH</sup> MAY, THE BOUY (**23092**) AT 17.4°N/89.1°E REPORTED MEAN SEA LEVEL PRESSURE OF 990 HPA AND WIND DIRECTION/SPEED AS 210°/35.0 KNOTS.

THE MADDEN JULIAN OSCILLATION (MJO) INDEX IS IN PHASE 2 WITH AMPLITUDE MORE THAN 1 FOR NEXT TWO DAYS. IT WILL REMAIN IN PHASE 3 WITH AMPLITUDE MORE THAN 1 DURING SUBSEQUENT THREE DAYS. THUS MJO PHASE AND AMPLITUDE WILL SUPPORT ENHANCEMENT OF CONVECTIVE ACTIVITY OVER BAY OF BENGAL DURING NEXT 5 DAYS.

CONSIDERING THE SEA CONDITIONS, THE SEA SURFACE TEMPERATURE (SST) IS 30-31°C OVER ENTIRE BAY OF BENGAL, BUT SYSTEM IS ENTERING TO LOWER TROPICAL CYCLONE HEAT POTENTIAL OF 70-90 KJ/CM<sup>2</sup> AND IT IS FURTHER DECREASING TOWARDS NORTH BAY OF BENGAL ALONG THE SYSTEM TRACK.

CONSIDERING THE ENVIRONMENTAL CONDITIONS, THE POSITIVE VORTICITY IS AROUND (250-300)X10<sup>-6</sup> SEC<sup>-1</sup> AROUND THE SYSTEM CENTRE WITH VERTICAL EXTENSION UPTO 200 HPA LEVEL. THE LOWER LEVEL CONVERGENCE ZONE IS 50 TO 60X10<sup>-5</sup> SEC<sup>-1</sup> LOCATED SOUTH OF THE SYSTEM CENTRE. THE UPPER LEVEL DIVERGENCE IS OF THE ORDER 10 TO 20X10<sup>-5</sup> SEC<sup>-1</sup> AROUND THE SYSTEM CENTRE. VERTICAL WIND SHEAR (VWS) IS MODERATE TO HIGH (20-25 KTS) AROUND THE SYSTEM CENTRE. IT IS INCREASING TO 25-30 KTS TO THE NORTH BETWEEN 15-20°N ALONG THE EXPECTED TRACK. THE UPPER TROPOSPHERIC RIDGE HAS FURTHER SHIFTED NORTH AND NOW LIES NEAR 21.0°N OVER BAY OF BENGAL. AT PRESENT THE SYSTEM IS MOVING NORTH-NORTHEASTWARD ALONG THE PERIPHERY OF THE ANTICYCLONE LIES OVER MAYNMAR.

VARIOUS NUMERICAL MODELS INCLUDING ECMWF, IMD GFS, NCEP GFS, GEFS, NEPS AND NCUM ARE INDICATING THE SYSTEM IS LIKELY TO MOVE TOWARDS WEST BENGAL AND BANGLADESH COASTS AS AN EXTREMELY SEVERE CYCLONIC STORM DURING 0900-1200 UTC OF 20<sup>TH</sup> MAY 2020. THE FORECAST IS BASED ON THE CONSENSUS FROM VARIOUS MODELS.

## STORM SURGE GUIDANCE

STORM SURGE OF ABOUT 4-5 METERS ABOVE ASTRONOMICAL TIDE IS LIKELY TO INUNDATE LOW LYING AREAS OF SOUTH & NORTH 24 PARGANAS AND ABOUT 3-4 METERS OVER THE LOW LYING AREAS OF EAST MEDINIPUR DISTRICT OF WEST BENGAL DURING THE TIME OF LANDFALL (FIGURE ENCLOSED).

(D R PATTANAIAK)  
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%**

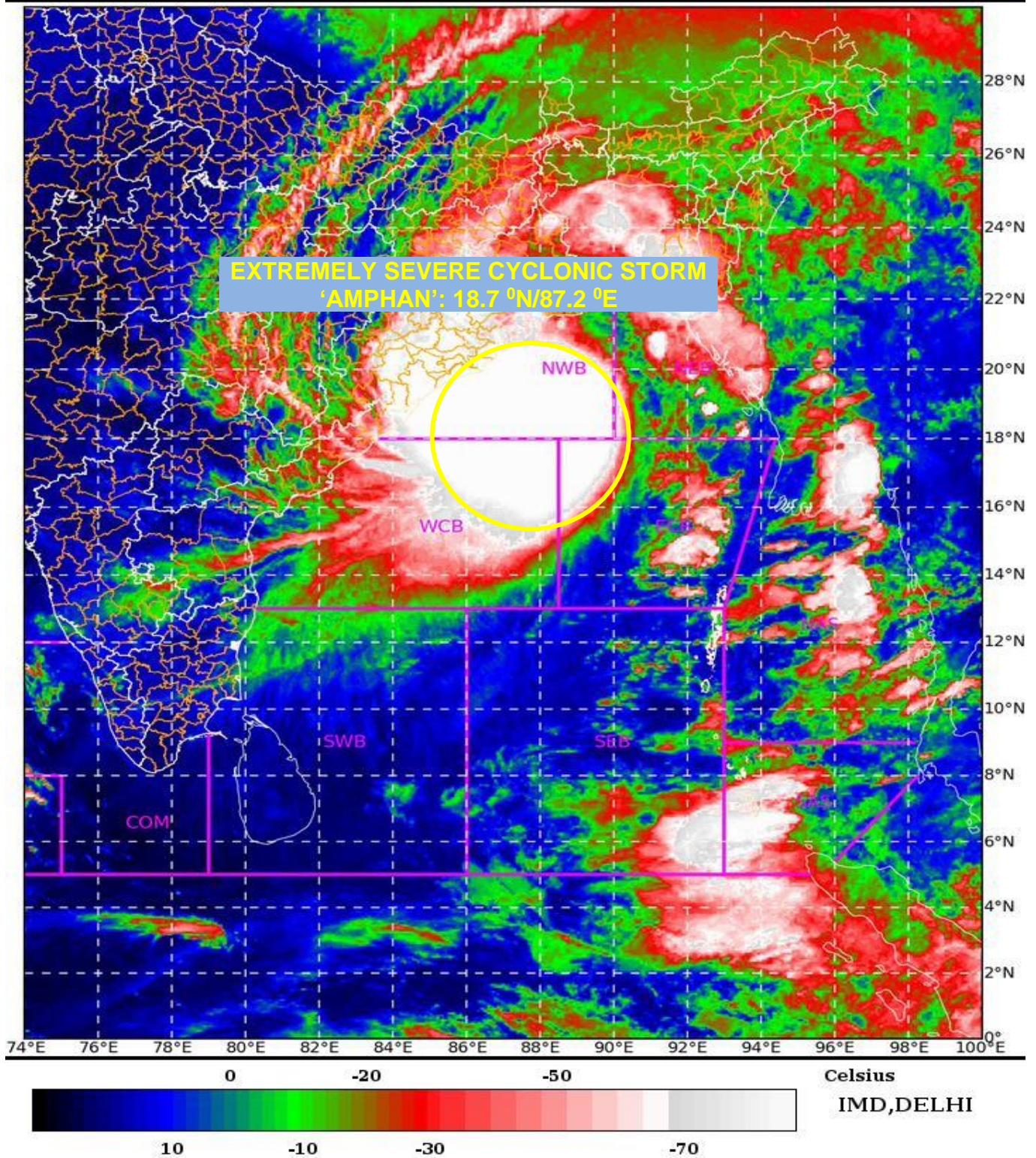
SAT : INSAT-3D IMG

19-05-2020/(2230 to 2256) GMT

IMG\_TIR1\_TEMP 10.8 um

20-05-2020/(0400 to 0426) IST

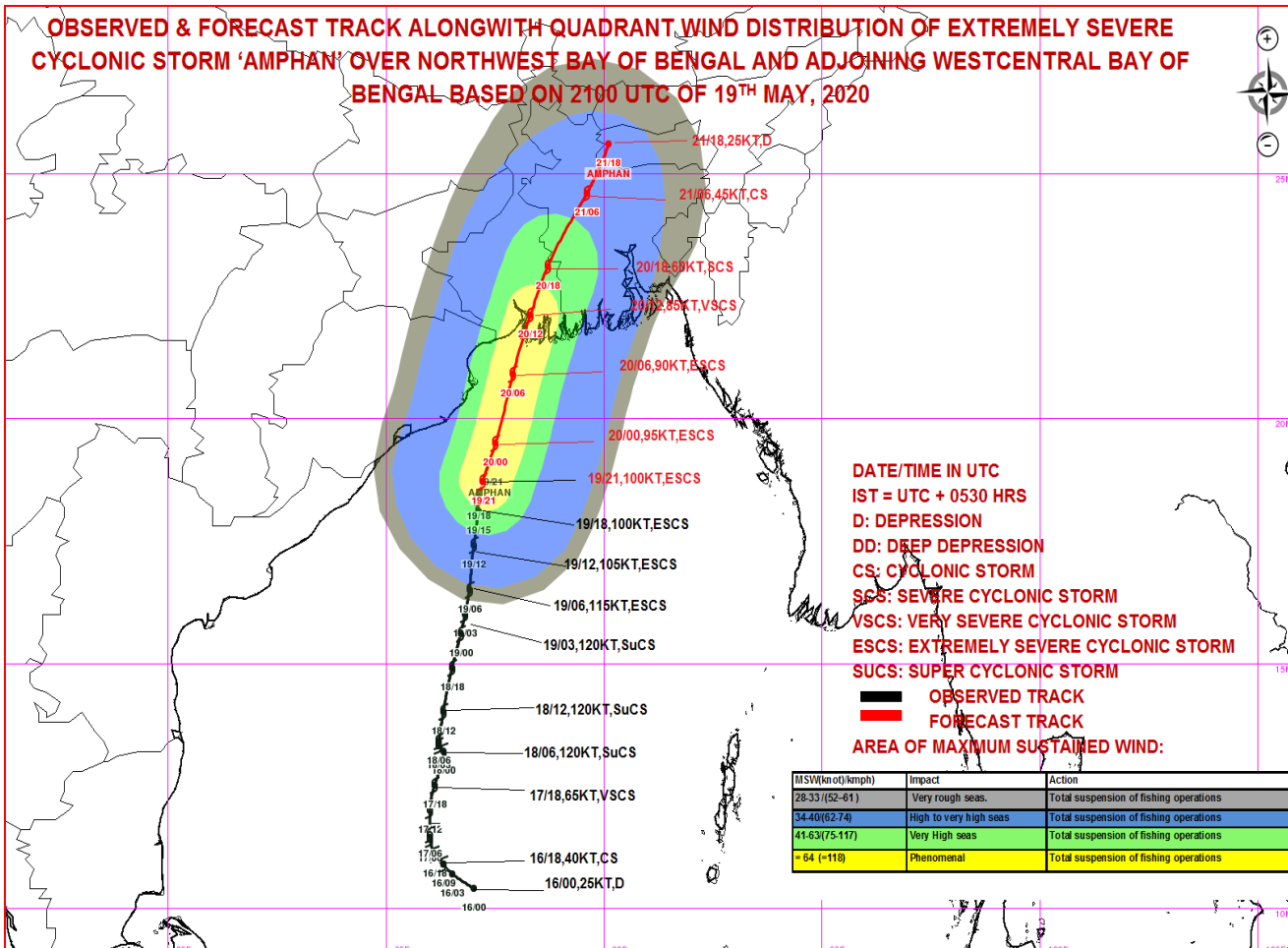
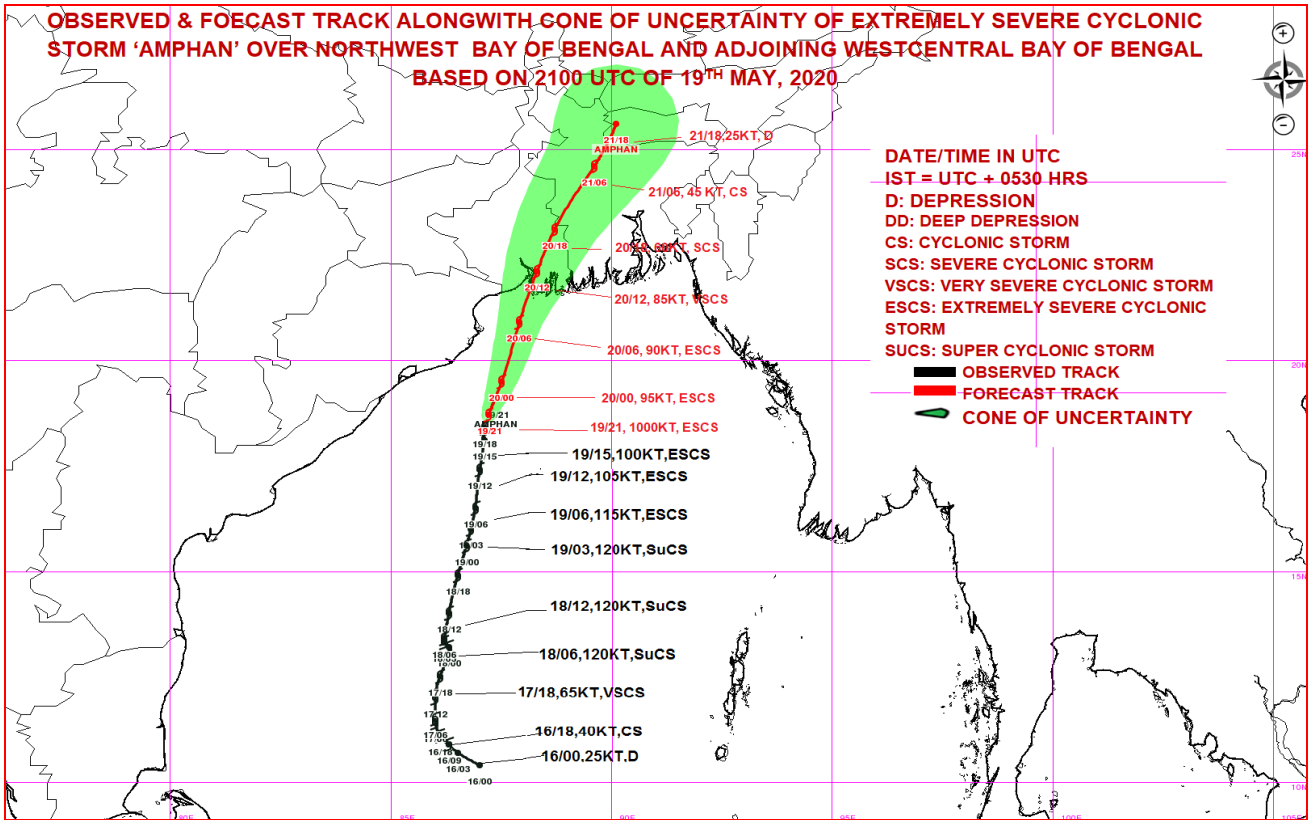
L1C Mercator



Legend: WCB – Westcentral Bay of Bengal  
NWB – Northwest Bay of Bengal

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

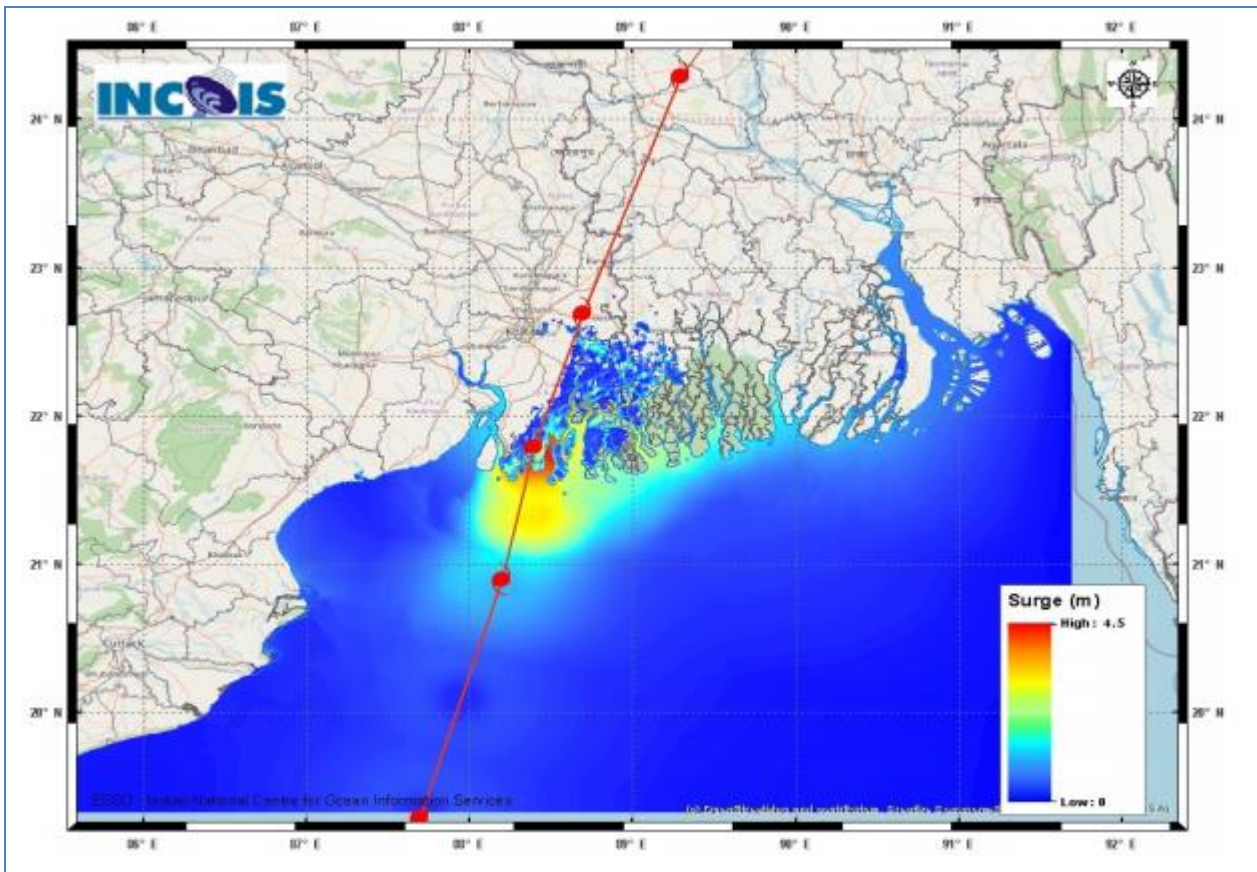
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**PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)**

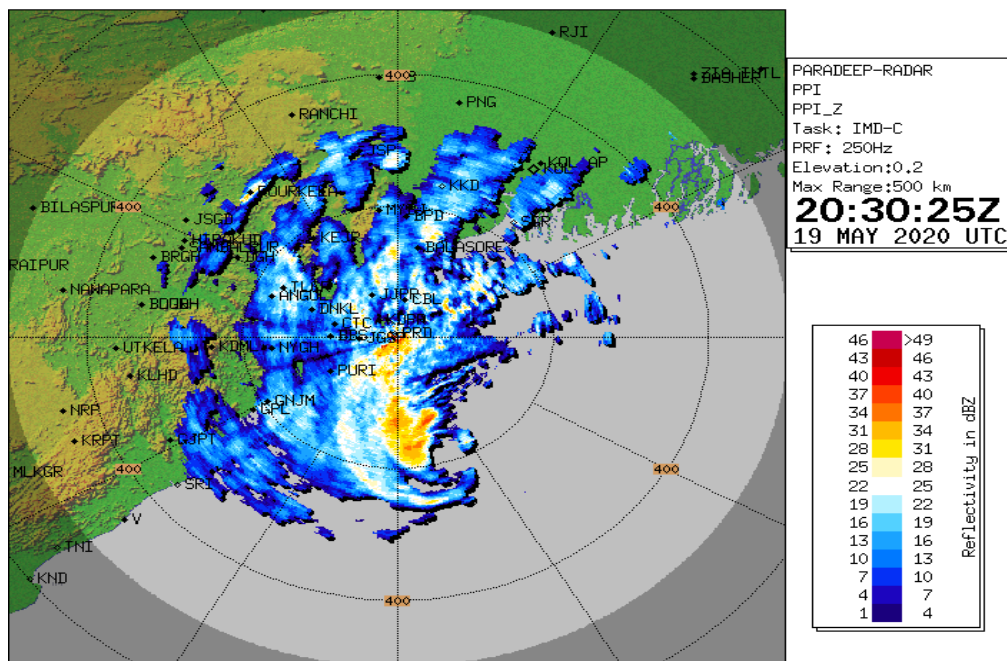
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**Figure: Storm Surge forecast from INCOIS issued at 1800 IST of 19<sup>th</sup> May 2020**



Storm Surge of about 4-5 meters above Astronomical Tide is likely to inundate low lying areas of south & north 24 Parganas and about 3-4 meters over the low lying areas of East Medinipur District of West Bengal during the time of Landfall.

**Figure: Reflectivity of Paradip Doppler Weather Radar at 2030 UTC of 19<sup>th</sup> May 2020**



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