



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

FROM: RSMC –TROPICAL CYCLONES, NEW DELHI

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

TROPICAL CYCLONE ADVISORY NO. 23 FOR NORTH INDIAN OCEAN (THE BAY OF BENGAL AND ARABIAN SEA) VALID FOR NEXT 120 HOURS ISSUED AT 0900 UTC OF 19.05.2020 BASED ON 0600 UTC OF 19.05.2020.

**SUB:** SUPER CYCLONIC STORM 'AMPHAN' (PRONOUNCED AS **UM-PUN**) OVER WEST CENTRAL BAY OF BENGAL

THE SUPER CYCLONIC STORM 'AMPHAN' (PRONOUNCED AS **UM-PUN**) OVER WESTCENTRAL BAY OF BENGAL MOVED NORTH-NORTHEASTWARDS WITH A SPEED OF 17 KMPH DURING PAST 06 HOURS AND LAY CENTRED AT 0600UTC OF 19<sup>TH</sup> MAY, 2020 AS AN EXTREMELY SEVERE CYCLONIC STORM NEAR LATITUDE 16.5°N AND LONGITUDE 86.9°E OVER **WESTCENTRAL BAY OF BENGAL** ABOUT 420 KM NEARLY SOUTH OF PARADIP (42976), 570 KM SOUTH-SOUTHWEST OF DIGHA (42901) AND 700 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 (42901) AND HATIYA ISLANDS (41963) CLOSE TO SUNDARBANS DURING 0900-1200 UTC OF 20<sup>TH</sup> MAY 2020 WITH MAXIMUM SUSTAINED WIND SPEED OF 155-165 KMPH GUSTING TO 185 KMPH.

THE SUPER CYCLONIC STORM 'AMPHAN' IS BEING TRACKED BY THE DOPPLER WEATHER RADARS AT VISHAKHAPATNAM (43149) ALONG WITH OTHER OBSERVING PLATFORMS.

**FORECAST TRACK AND INTENSITY ARE GIVEN IN THE FOLLOWING TABLE:**

DATE/TIME(U TC)	POSITION (LAT. °N/ LONG. °E)	MAXIMUM SUSTAINED SURFACE WIND SPEED (KMPH)	CATEGORY OF CYCLONIC DISTURBANCE
19.05.20/0600	16.5/86.9	210-220 GUSTING TO 240	EXTREMELY SEVERE CYCLONIC STORM
19.05.20/1200	17.1/87.1	200-210 GUSTING TO 230	EXTREMELY SEVERE CYCLONIC STORM
19.05.20/1800	18.0/87.3	190-200 GUSTING TO 220	EXTREMELY SEVERE CYCLONIC STORM
20.05.20/0000	19.3/87.7	180-190 GUSTING TO 210	EXTREMELY SEVERE CYCLONIC STORM
20.05.20/0600	20.9/88.2	160-170 GUSTING TO 190	VERY SEVERE CYCLONIC STORM
20.05.20/1800	22.7/88.7	95-105 GUSTING TO 115	CYCLONIC STORM
21.05.20/0600	24.3/89.3	50-60 GUSTING TO 70	DEPRESSION
21.05.20/1800	25.6/90.2	20-30 GUSTING TO 40	LOW PRESSURE AREA

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

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

## REMARKS:

AS PER INSAT-3D SATELLITE IMAGERY BASED ON 0600 UTC OF 19<sup>TH</sup> MAY, THE SYSTEM INTENSITY IS **T5.5/6.0 WITH** RAGGED EYE OF DIAMETER AROUND 25 KM VISIBLE. WALL CLOUD TOP TEMPERATURE IS -93°.1C. ASSOCIATED BROKEN LOW/MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION PREVAILS BETWEEN LAT 13.0°N TO 19.5°N LONG 83.5°E TO 90.0°E.

THE ESTIMATED MAXIMUM SUSTAINED WIND SPEED IS 115 KNOTS GUSTING TO 125 KNOTS. THE SEA CONDITION IS PHENOMENAL AROUND THE SYSTEM CENTER. THE ESTIMATED CENTRAL PRESSURE IS **950** HPA.

THE CYCLONE IS TRACKED BY THE DOPPLER WEATHER RADAR (DWR) AT VISHAKHAPATANAM (43149). THE SYSTEM IS AT DISTANCE OF 397 KM FROM THE RADAR AND THE EYE DIAMETER IS MEASURED AS 34 KM.

AT 0600 UTC OF 19<sup>TH</sup> MAY, THE BOUY (**23092**) AT 17.2°N/89.1°E REPORTED MEAN SEA LEVEL PRESSURE OF 991.8 HPA AND WIND DIRECTION AND SPEED 130°/31 KNOTS, BOUY (**23459**) LOCATED AT 13.6°N/87.0°E REPORTED WIND DIRECTION/SPEED AS 140°/35 KNOTS AND ANOTHER BOUY (**23094**) AT 13.3°N/84.1°E REPORTED MEAN SEA LEVEL PRESSURE OF 998.0 HPA.

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 50X10<sup>-5</sup> SEC<sup>-1</sup> LOCATED AROUND THE SYSTEM CENTRE. THE UPPER LEVEL DIVERGENCE HAS DECREASED AND IS ABOUT 20X10<sup>-5</sup> SEC<sup>-1</sup> AROUND TO NORTHEAST OF THE SYSTEM CENTRE. VERTICAL WIND SHEAR (VWS) IS MODERATE TO HIGH (20-25 KTS) AROUND THE SYSTEM CENTRE. IT IS INCREASING TO 30-40 KTS TO THE NORTH BETWEEN 15-20°N ALONG THE EXPECTED TRACK. THE UPPER TROPOSPHERIC RIDGE HAS SHIFTED NORTH AND NOW LIES NEAR 19.0°N OVER BAY OF BENGAL. AT PRESENT THE SYSTEM IS MOVING NORTH-NORTHEASTWARD ALONG THE PERIPHERY OF THE ANTICYCLONE.

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)

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

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

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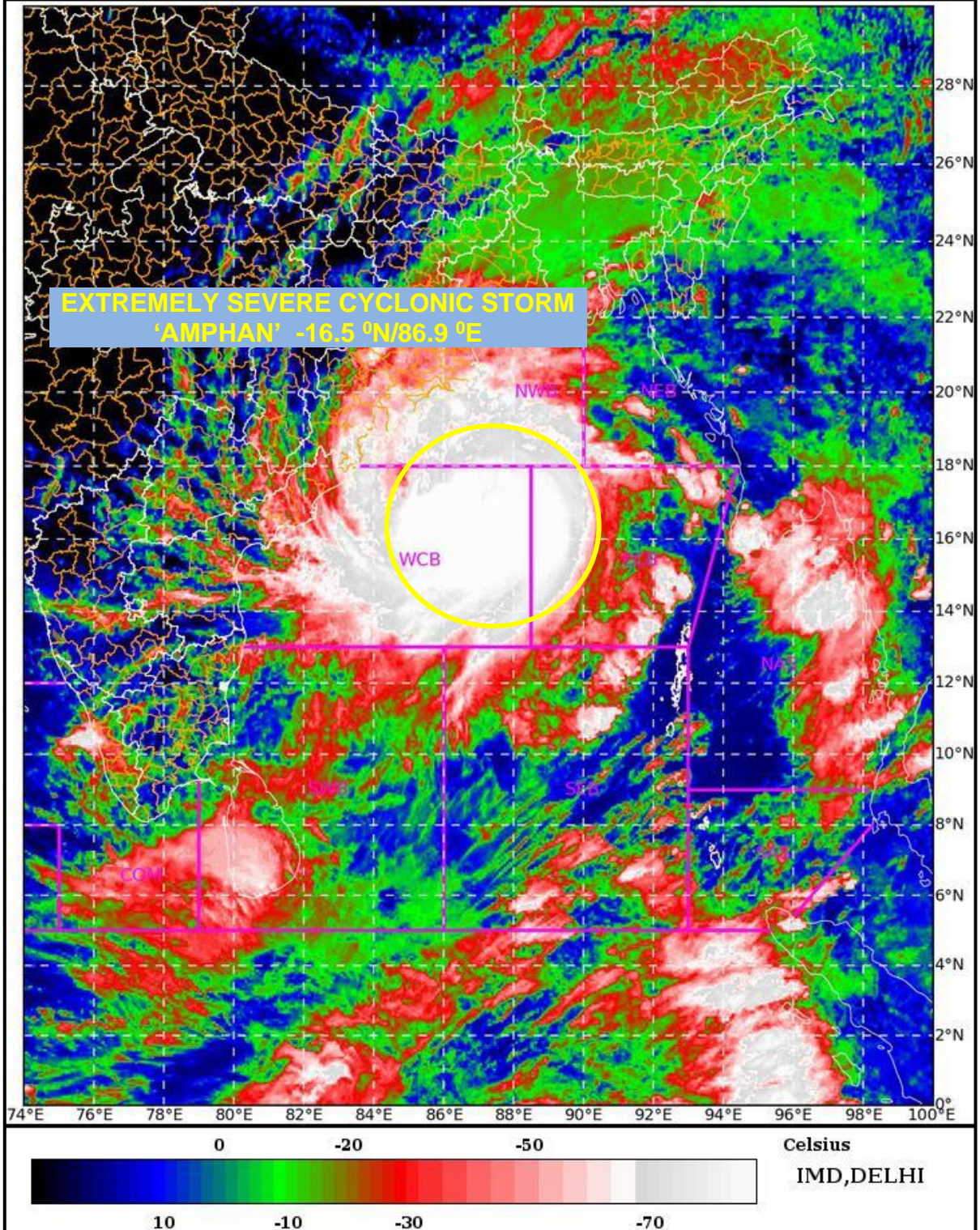
SAT : INSAT-3D IMG

19-05-2020/(0600 to 0627) GMT

IMG\_TIR1\_TEMP 10.8 um

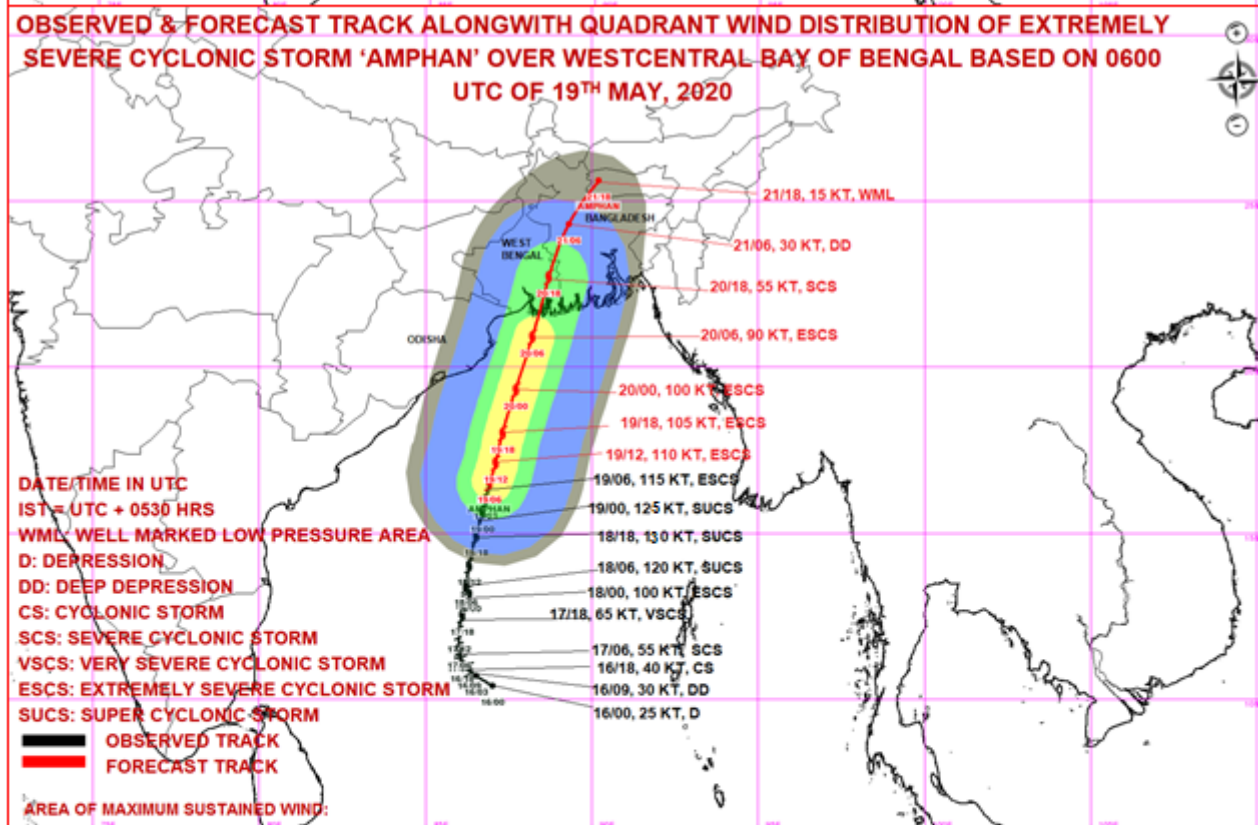
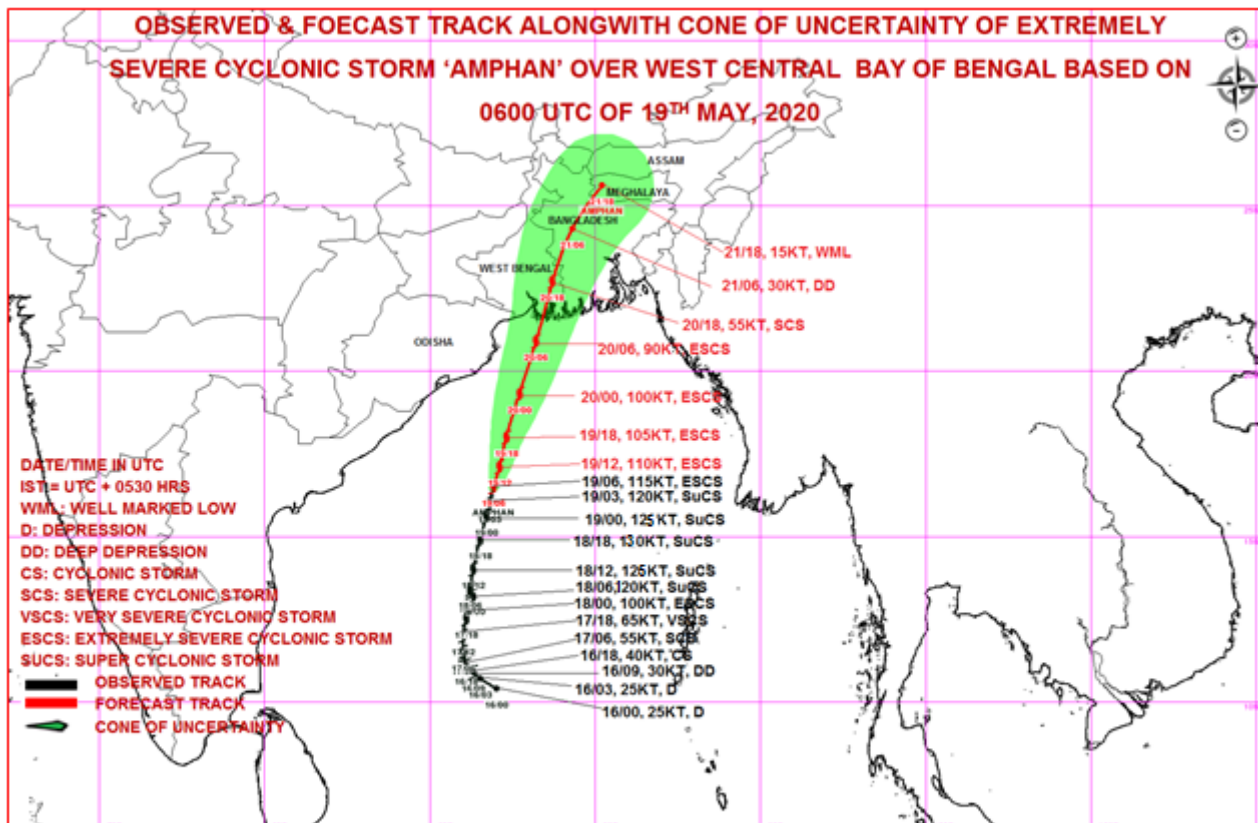
19-05-2020/(1130 to 1157) IST

L1C Mercator



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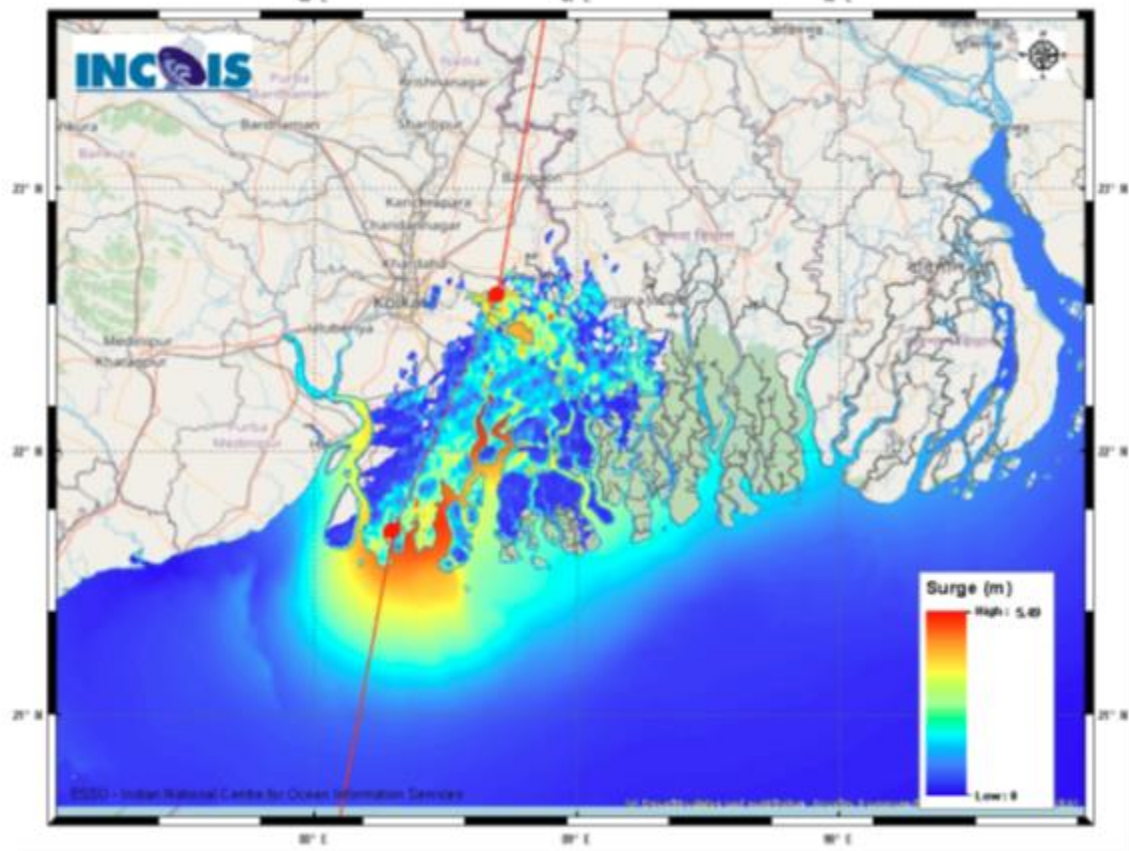


MSW(knot)/kmph)	Impact	Action
28-33 (52-61)	Very rough seas.	Total suspension of fishing operations
34-40(62-74)	High to very high seas	Total suspension of fishing operations
41-63/(75-117)	Very High seas	Total suspension of fishing operations
≥ 64 (≥118)	Phenomenal	Total suspension of fishing operations

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

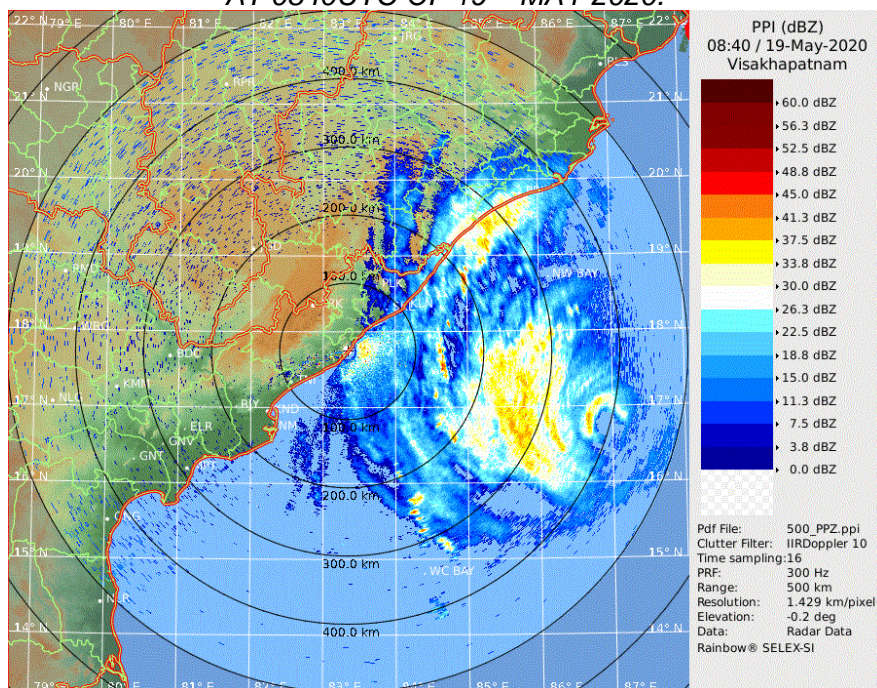
NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%

FIGURE: STORM SURGE FORECAST FROM INCOIS ISSUED AT 0600 UTC OF 19<sup>TH</sup> MAY 2020



STORM SURGE OF ABOUT 4-6 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(BELOW): REFLECTIVITY OF VISHAKHAPATNAM DOPPLER WEATHER RADAR AT 0840UTC OF 19<sup>TH</sup> MAY 2020.



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

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