



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

FROM: RSMC –TROPICAL CYCLONES, NEW DELHI

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

TROPICAL CYCLONE ADVISORY NO. 19 FOR NORTH INDIAN OCEAN (THE BAY OF BENGAL AND ARABIAN SEA) VALID FOR NEXT 120 HOURS ISSUED AT 2100 UTC OF 18.05.2020 BASED ON 1800 UTC OF 18.05.2020.

**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 AND ADJOINING CENTRAL PARTS OF SOUTH BAY OF BENGAL MOVED NEARLY NORTH-NORTHEASTWARDS WITH A SPEED OF 17 KMPH DURING PAST 06 HOURS AND LAY CENTRED AT 1800 UTC OF THE 18<sup>TH</sup> MAY, 2020 NEAR LATITUDE 14.9°N AND LONGITUDE 86.5°E OVER **WESTCENTRAL BAY OF BENGAL** ABOUT 600 KM NEARLY SOUTH OF PARADIP (42976), 750 KM SOUTH-SOUTHWEST OF DIGHA (42901) AND 880 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 AS AN EXTREMELY SEVERE CYCLONIC STORM WITH MAXIMUM SUSTAINED WIND SPEED OF 165-175 KMPH GUSTING TO 195 KMPH.

THE SUPER CYCLONIC STORM 'AMPHAN' IS NOW 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 (UTC)	POSITION (LAT. <sup>0</sup> N/ LONG. <sup>0</sup> E)	MAXIMUM SUSTAINED SURFACE WIND SPEED (KMPH)	CATEGORY OF CYCLONIC DISTURBANCE
18.05.20/1800	14.9/86.5	240-250 GUSTING TO 275	SUPER CYCLONIC STORM
19.05.20/0000	15.9/86.7	240-250 GUSTING TO 275	SUPER CYCLONIC STORM
19.05.20/0600	17.1/87.0	225-235 GUSTING TO 260	SUPER CYCLONIC STORM
19.05.20/1200	17.7/87.2	200-210 GUSTING TO 230	EXTREMELY SEVERE CYCLONIC STORM
19.05.20/1800	18.6/87.5	180-190 GUSTING TO 210	EXTREMELY SEVERE CYCLONIC STORM
20.05.20/0600	20.7/88.1	170-180 GUSTING TO 200	EXTREMELY SEVERE CYCLONIC STORM
20.05.20/1800	22.8/88.8	100-110 GUSTING TO 120	SEVERE CYCLONIC STORM
21.05.20/0600	24.8/89.5	50-60 GUSTING TO 70	DEEP DEPRESSION

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

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

## REMARKS:

AS PER INSAT-3D SATELLITE IMAGERY BASED ON 1500 UTC OF 18<sup>TH</sup> MAY, THE SYSTEM CONTINUED TO MAINTAIN CURRENT INTENSITY **T6.5**. WALL CLOUD TEMPERATURE IS -93°C. ASSOCIATED BROKEN LOW/MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION PREVAILS BETWEEN LAT 10.1°N TO 21.5°N LONG 81.5°E TO 92.5°E. THE ESTIMATED MAXIMUM SUSTAINED WIND SPEED IS 130 KNOTS GUSTING TO 150 KNOTS. THE SEA CONDITION IS PHENOMENAL AROUND THE SYSTEM CENTER. THE ESTIMATED CENTRAL PRESSURE IS **925** HPA.

NOW THE CYCLONE IS TRACKED BY THE DOPPLER WEATHER RADAR (DWR) AT VISHAKHAPATANAM (43149). THE SYSTEM IS AT DISTANCE OF 460 KM FROM THE RADAR AND THE EYE DIAMETER IS MEASURED AS 28 KM.

AT 1800 UTC OF 18<sup>TH</sup> MAY, THE BOUY (**23094**) LOCATED AT 13.3°N/84.0°E REPORTED MEAN SEA LEVEL PRESSURE OF 995.2 HPA, BOUY (23092) AT 17.5°N/89.3°E REPORTED MEAN SEA LEVEL PRESSURE OF 998.5 HPA.

THE MADDEN JULIAN OSCILLATION (MJO) INDEX IS IN PHASE 2 WITH AMPLITUDE MORE THAN 1 DURING 18<sup>TH</sup>-20<sup>TH</sup> MAY. IT WILL REMAIN IN PHASE 3 WITH AMPLITUDE MORE THAN 1 DURING SUBSEQUENT 3 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 AND THE TROPICAL CYCLONE HEAT POTENTIAL IS MORE THAN 100 KJ/CM<sup>2</sup> OVER MAJOR PARTS OF SOUTH & CENTRAL BAY OF BENGAL. IT IS ABOUT 60-80 KJ/CM<sup>2</sup> OVER BOB TO THE NORTH OF 17°N AND IS DECREASING TOWARDS EXTREME NORTH BAY OF BENGAL.

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 AROUND 60X10<sup>-5</sup> SEC<sup>-1</sup> LOCATED AROUND THE SYSTEM CENTRE. THE UPPER LEVEL DIVERGENCE IS ABOUT 30X10<sup>-5</sup> SEC<sup>-1</sup> AROUND TO NORTH OF THE SYSTEM CENTRE. VERTICAL WIND SHEAR (VWS) IS LOW TO MODERATE (10-15 KTS) AROUND THE SYSTEM CENTRE. IT IS INCREASING TO 20-25 KTS TO THE NORTH BETWEEN 15-20°N ALONG THE EXPECTED TRACK. THE UPPER TROPOSPHERIC RIDGE LIES NEAR 17.0°N OVER BAY OF BENGAL. AT PRESENT THE SYSTEM IS MOVING NEAR NORTHWARD ALONG THE PERIPHERY OF THE ANTICYCLONE AND IT IS LIKELY TO CONTINUE IN THE SAME DIRECTION FOR SOME MORE TIMES. THEREAFTER, THE SYSTEM LIKELY TO MOVE IN THE NORTH-NORTHEASTWARD DIRECTION.

TOTAL PRECIPITABLE WATER IMAGERY OF 18<sup>TH</sup> MAY INDICATES CONTINUED WARM MOIST AIR INCURSION OVER THE SYSTEM AREA, MAINLY IN ITS NORTHWESTERN SECTOR.

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 4-6 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 ENCLOSED)

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

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PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

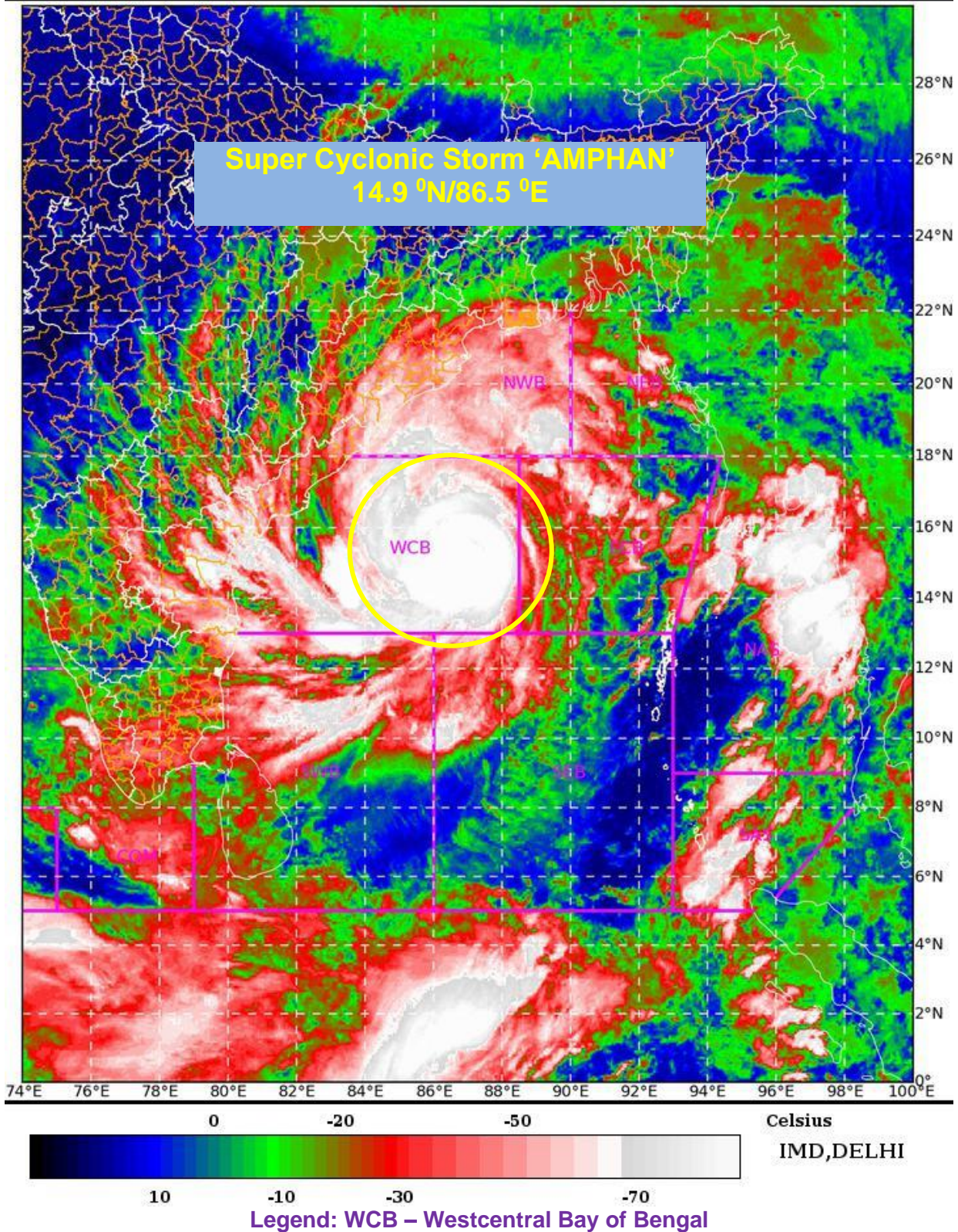
NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%



SAT : INSAT-3D IMG 18-05-2020/(1930 to 1956) GMT

IMG\_TIR1\_TEMP 10.8 um 19-05-2020/(0100 to 0126) IST

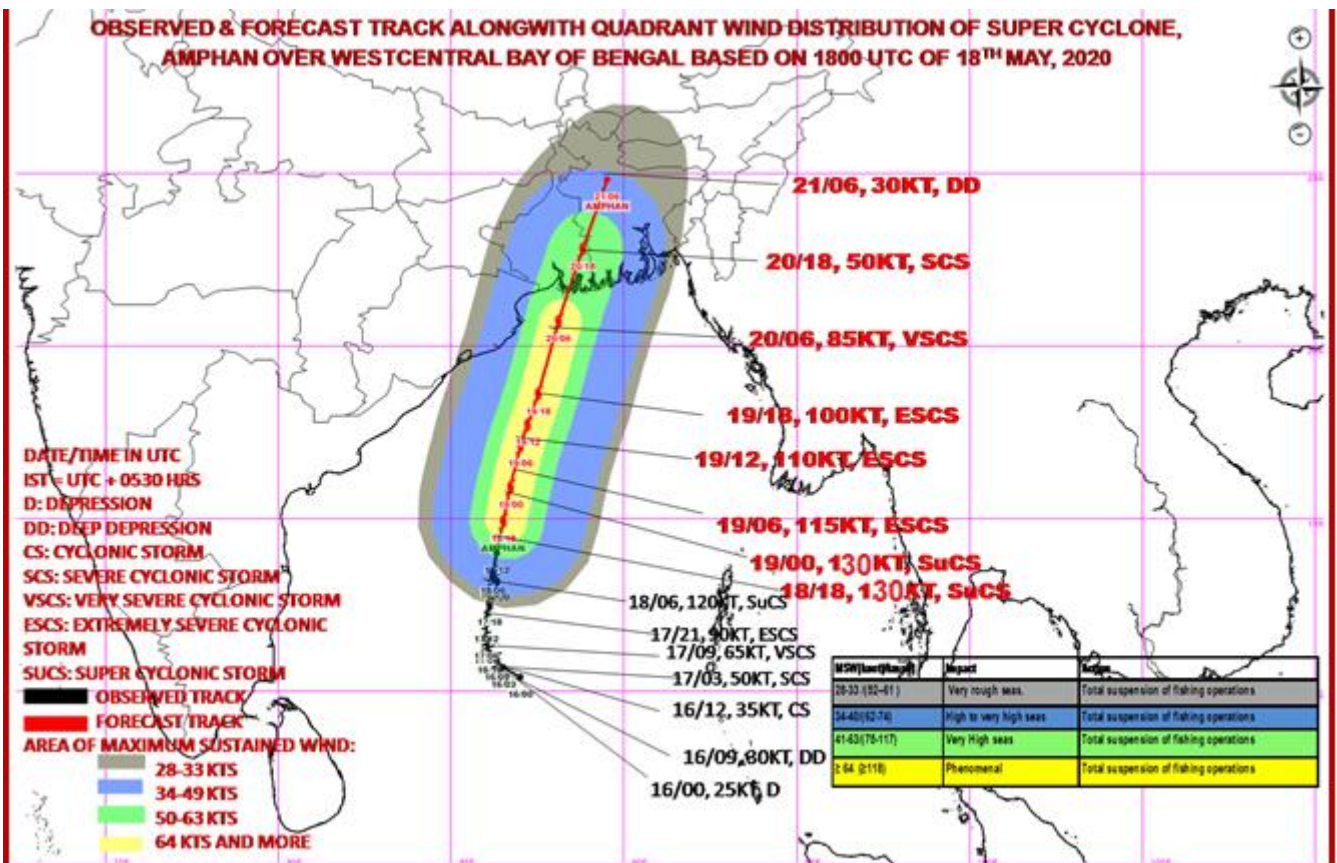
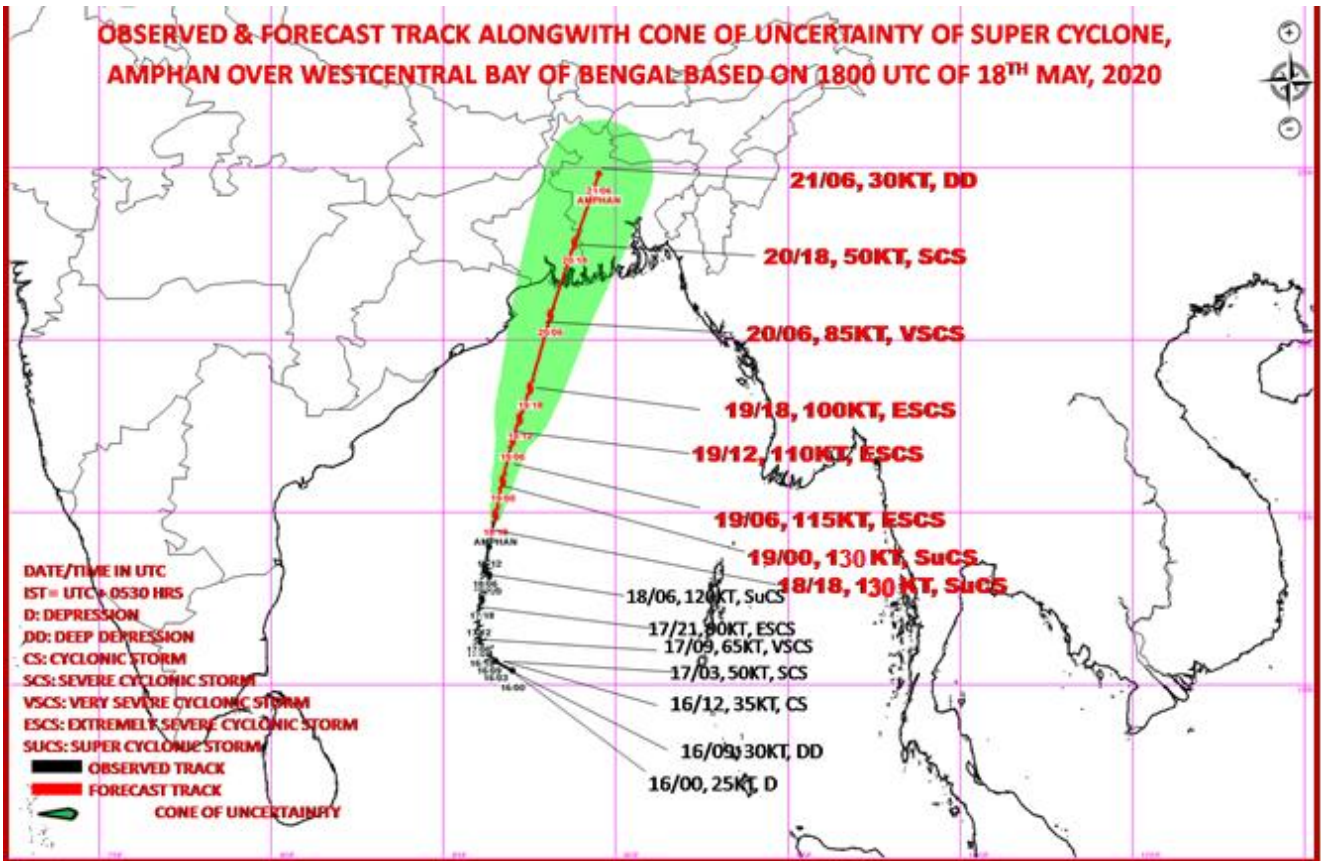
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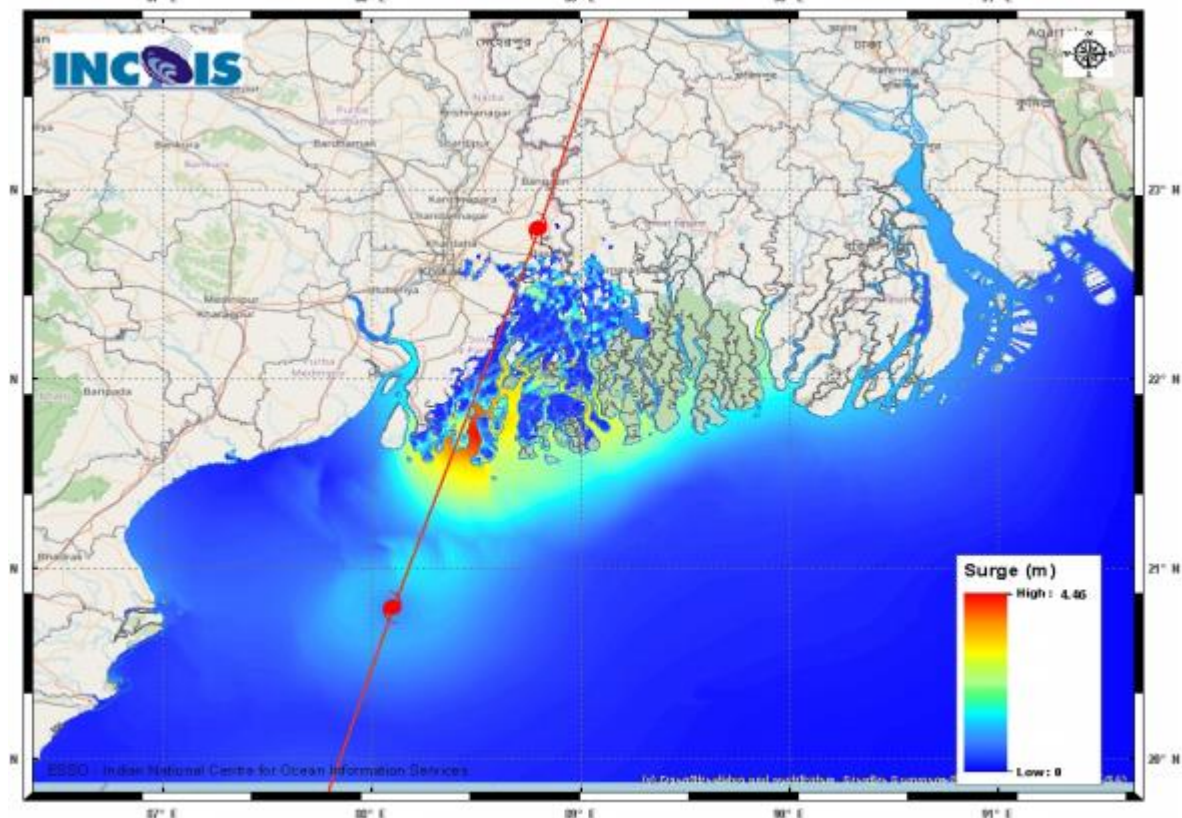


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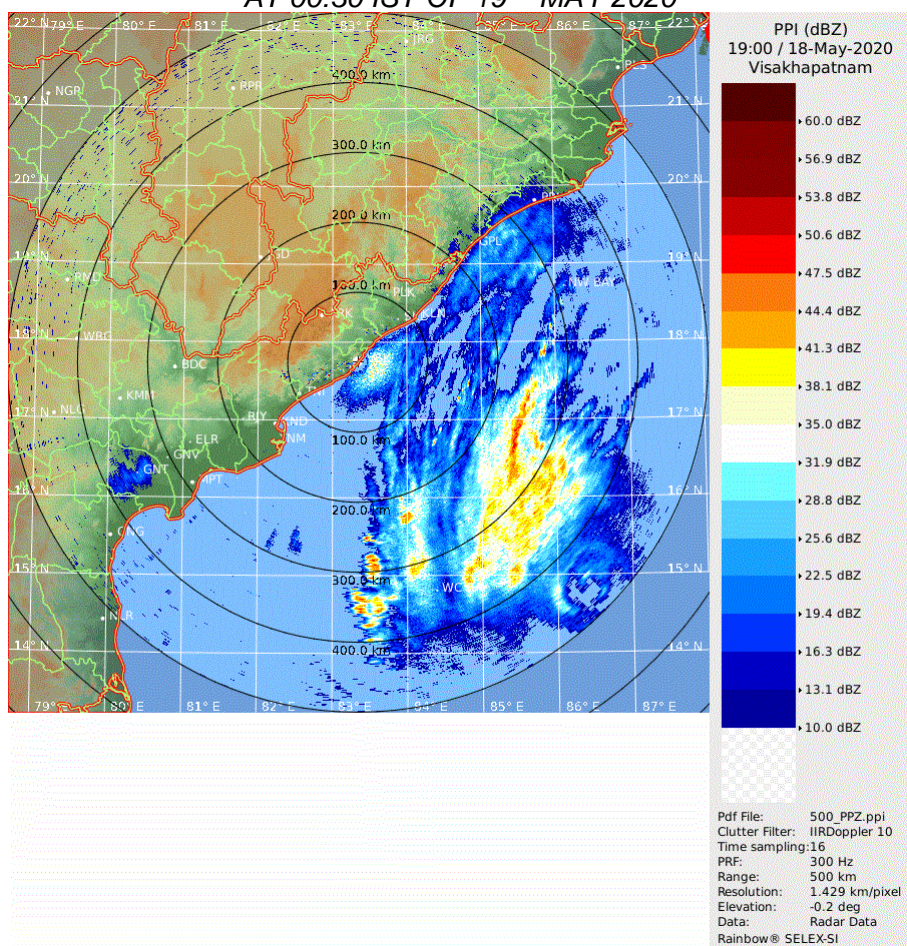


FIGURE: STORM SURGE FORECAST FROM INCOIS ISSUED AT 1837 IST OF 18<sup>TH</sup> MAY 2020



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: REFLECTIVITY OF VISHAKHAPATNAM DOPPLER WEATHER RADAR AT 00:30 IST OF 19<sup>TH</sup> MAY 2020



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

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