



India Meteorological Department
Earth System Science Organisation
(Ministry of Earth Sciences)

BULLETIN NO.: 31 (BAY OF BENGAL 01/2020)

TIME OF ISSUE: 0230 HOURS IST

DATED: 20.05.2020

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Sub: Super Cyclonic Storm 'AMPHAN' (pronounced as UM-PUN) over Northwest and adjoining Westcentral Bay of Bengal: Cyclone Warning for West Bengal and north Odisha coasts: Red Message.

The Super Cyclonic Storm 'AMPHAN' (pronounced as **UM-PUN**) over Northwest and adjoining Westcentral Bay of Bengal moved nearly northwards with a speed of 19 kmph during past 06 hours and lay centred at 2330 hrs IST of 19th May, 2020 as an Extremely Severe Cyclonic Storm over **Northwest and adjoining Westcentral Bay of Bengal** near latitude 18.4°N and longitude 87.1°E, about 210 km nearly south of Paradip (Odisha), 360 km south-southwest of Digha (West Bengal) and 510 km south-southwest of Khepupara (Bangladesh).

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 20th 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(IST)	Position (Lat. °N/ long. °E)	Maximum sustained surface wind speed (Kmph)	Category of cyclonic disturbance
19.05.20/2330	18.4/87.1	180-190 gusting to 210	Extremely Severe Cyclonic Storm
20.05.20/0530	19.4/87.5	170-180 gusting to 200	Extremely Severe Cyclonic Storm
20.05.20/1130	20.9/87.9	160-170 gusting to 190	Extremely Severe Cyclonic Storm
20.05.20/1730	22.1/88.3	150-160 gusting to 180	Very Severe Cyclonic Storm
20.05.20/2330	23.1/88.7	110-120 gusting to 135	Severe Cyclonic Storm
21.05.20/1130	24.6/89.6	60-70 gusting to 80	Cyclonic Storm
21.05.20/2330	25.6/90.1	35-45 gusting to 55	Depression

Spatial rainfall distribution: Isolated: <25%, A few: 26-50%, Many: 51-75%, Most: 76-100%

Rainfall amount (mm): Heavy rain: 64.5 – 115.5, Very heavy rain: 115.6 – 204.4, Extremely heavy rain: 204.5 or more.

(1) Heavy rainfall Warning:

Odisha

Light to moderate rainfall is very likely at most places of coastal Odisha with heavy to very heavy rainfall at isolated places Jagatsinghpur, Kendrapara and Bhadrak Districts and isolated heavy falls over Jajpur, Balasore, Cuttack, Mayurbhanj, Khordha & Puri districts on 19th May and isolated heavy to very heavy rainfall at isolated places over north coastal Odisha (Balasore, Bhadrak, Mayurbhanj, Jajpur, Kendrapara and Keonjhar Districts) on 20th May 2020.

West Bengal

Coastal districts of Gangetic West Bengal (East Medinipur, South & North 24 Parganas) are likely to experience light to moderate rainfall at many places commencing from today, the 19th May evening. **Rainfall intensity is likely to increase gradually and become maximum on 20th May.** Rainfall at most places with heavy to very heavy falls at a few places & extremely heavy falls at isolated places likely over Gangetic West Bengal (east & west Medinipur, south & north 24 Parganas, Howrah, Hoogli, Kolkata and adjoining districts) on 20th May and isolated heavy rain over interior districts on 21st May, 2020.

Sub-Himalayan West Bengal and Sikkim

Light to moderate rainfall at most places with heavy to very heavy falls at a few places over Malda & Dinajpur districts on 20th May and over most of the districts of Sub-Himalayan West Bengal & Sikkim on 21st May, 2020.

Assam & Meghalaya

Light to moderate rainfall at most places with heavy to very heavy falls at a few places over the western districts of Assam & Meghalaya on 21st May.

(2) Wind warning

West Bengal & Odisha

- Gale wind, speed reaching 70 to 80 kmph gusting to 90 kmph is prevailing along and off Jagatsinghpur and Kendrapara districts of Odisha and squally wind speed reaching 55 to 65 kmph gusting to 75 kmph is prevailing along & off remaining coastal districts of Odisha. Paradip reported wind speed of 67 kmph at 2230 IST of 19th May 2020.
- The wind speed will gradually increase becoming gale wind speed reaching 75 to 85 kmph gusting to 95 kmph from 20th morning along and off north Odisha coast (Jagatsinghpur, Kendrapara, Bhadrak, Balasore and Mayurbhanj districts) and West Bengal coast (east & west Medinipur, south & north 24 Parganas, Howrah, Hoogli, Kolkata Districts). **It will gradually increase thereafter becoming 100 to 110 kmph gusting to 125 kmph along & off the above mentioned districts of North Odisha during forenoon to afternoon of 20th May 2020.**
- **Gale wind speed reaching 155 to 165 kmph gusting to 185 kmph very likely along & off east Medinipur and north & south 24 Parganas districts and 110-120 kmph gusting to 130 kmph over Kolkata, Hoogli, Howrah and West Medinipur Districts of West Bengal during the time of landfall (20th afternoon to night).**
- Squally wind speed reaching 55-65 kmph gusting to 75 kmph likely to prevail over Puri, Khordha, Cuttack, Jajpur districts of Odisha during 20th May 2020.

Deep Sea area

- Gale wind speed reaching 180-190 gusting to 210 kmph is prevailing over westcentral and adjoining northwest Bay of Bengal. Gale wind speed reaching 170-180 gusting to 200 kmph is likely to prevail over northern parts of central Bay of Bengal and adjoining North Bay of Bengal from the morning of 20th May. It will gradually decrease becoming 155-165 kmph gusting to 185 kmph over North Bay of Bengal during landfall.

(3) Sea condition:

- Sea condition is Phenomenal and is very likely to continue for next 12 hours over Westcentral Bay and adjoining northwest Bay of Bengal. It will become Phenomenal over north Bay of Bengal and adjoining central Bay of Bengal from morning of 20th May 2020.

Spatial rainfall distribution: Isolated: <25%, A few: 26-50%, Many: 51-75%, Most: 76-100%

Rainfall amount (mm): Heavy rain: 64.5 – 115.5, Very heavy rain: 115.6 – 204.4, Extremely heavy rain: 204.5 or more.

(4) Fishermen Warning

- The fishermen are advised not to venture into westcentral Bay of Bengal during next 24 hours, North Bay of Bengal and adjoining central Bay of Bengal during 19th to 20th May 2020.
- Also, fishermen are advised not to venture into North Bay of Bengal along and off North Odisha, West Bengal and adjoining Bangladesh coasts till 20th May 2020.

(5) Storm Surge expected

- 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)

(6) Damage Expected and Action suggested

(a) West Bengal (east Medinipur, south & north 24 Parganas, Howrah, Hoogli, Kolkata districts)

Damage Expected:

- Extensive damage to all types of kutcha houses, some damage to old badly managed Pucca structures. Potential threat from flying objects.
- Extensive uprooting of communication and power poles.
- Disruption of rail/road link at several places.
- Extensive damage to standing crops, plantations, orchards.
- Blowing down of Palm and coconut trees.
- Uprooting of large bushy trees.
- Large boats and ships may get torn from their moorings.

Fishermen Warning & Action Suggested:

- Total suspension of fishing operations till 20th May 2020.
- Diversion or suspension of rail and road traffic.
- People in affected areas to remain indoors. Mobilise evacuation from Low lying areas.
- Movement in motor boats and small ships not advisable.

(b) Odisha (Jagatsinghpur, Kendrapara, Bhadrak, Balasore, Jajpur & Mayurbhanj)

Damage Expected:

- Total destruction of thatched houses/ extensive damage to kutcha houses. Potential threat from flying objects.
- Bending/ uprooting of power and communication poles.
- Major damage to Kutcha and Pucca roads. Minor disruption of railways, overhead power lines and signalling systems.
- Widespread damage to standing crops, plantations, orchards, falling of green coconuts and tearing of palm fronds. Blowing down of bushy trees like mango.
- Small boats, country crafts may get detached from moorings.

Fishermen Warning & Action Suggested:

- Total suspension of fishing operations till 20th May 2020.
- Diversion or suspension of rail and road traffic.
- People in affected areas to remain indoors.
- Movement in motor boats and small ships not advisable.

7. Post Landfall Outlook:

After the landfall the system is very likely to continue to move north-northeastwards, across Gangetic West Bengal & Bangladesh and weaken gradually. It is likely to maintain the intensity of Cyclonic Storm till the morning of 21st May and thereafter it will weaken into a Deep Depression over Bangladesh.

Under its influence gale wind speed reaching 70-80 kmph gusting to 90 kmph likely over interior Districts (Murshidabad & Nadia) of Gangetic West Bengal during 20th night to 21st morning.

Spatial rainfall distribution: Isolated: <25%, A few: 26-50%, Many: 51-75%, Most: 76-100%

Rainfall amount (mm): Heavy rain: 64.5 – 115.5, Very heavy rain: 115.6 – 204.4, Extremely heavy rain: 204.5 or more.

Light to moderate rainfall at most places with isolated heavy falls very likely over interior Districts of Gangetic West Bengal on 21st. Light to moderate rainfall at most places with heavy to very heavy falls at a few places over Malda & Dinajpur districts on 20th May and over most of the districts of Sub-Himalayan West Bengal & Sikkim on 21st May, 2020. Light to moderate rainfall at most places with heavy to very heavy falls at a few places over the western districts of Assam & Meghalaya on 21st May.

Damage Expected and Action suggested for interior districts of Gangetic West Bengal.

(i) Minor damage to power and communication lines. (ii) Major damage to Kutcha and some damage to Pucca roads. (iii) Breaking of tree branches, uprooting of small trees. (iv) Damage to banana and papaya trees. (v) People in affected areas to remain indoors.

Kindly visit www.rsmcnewdelhi.imd.gov.in and www.mausam.imd.gov.in for updates on the system.

Next Bulletin will be issued at 0530 hours IST of 20th May, 2020.

(D. R. Pattanaik)
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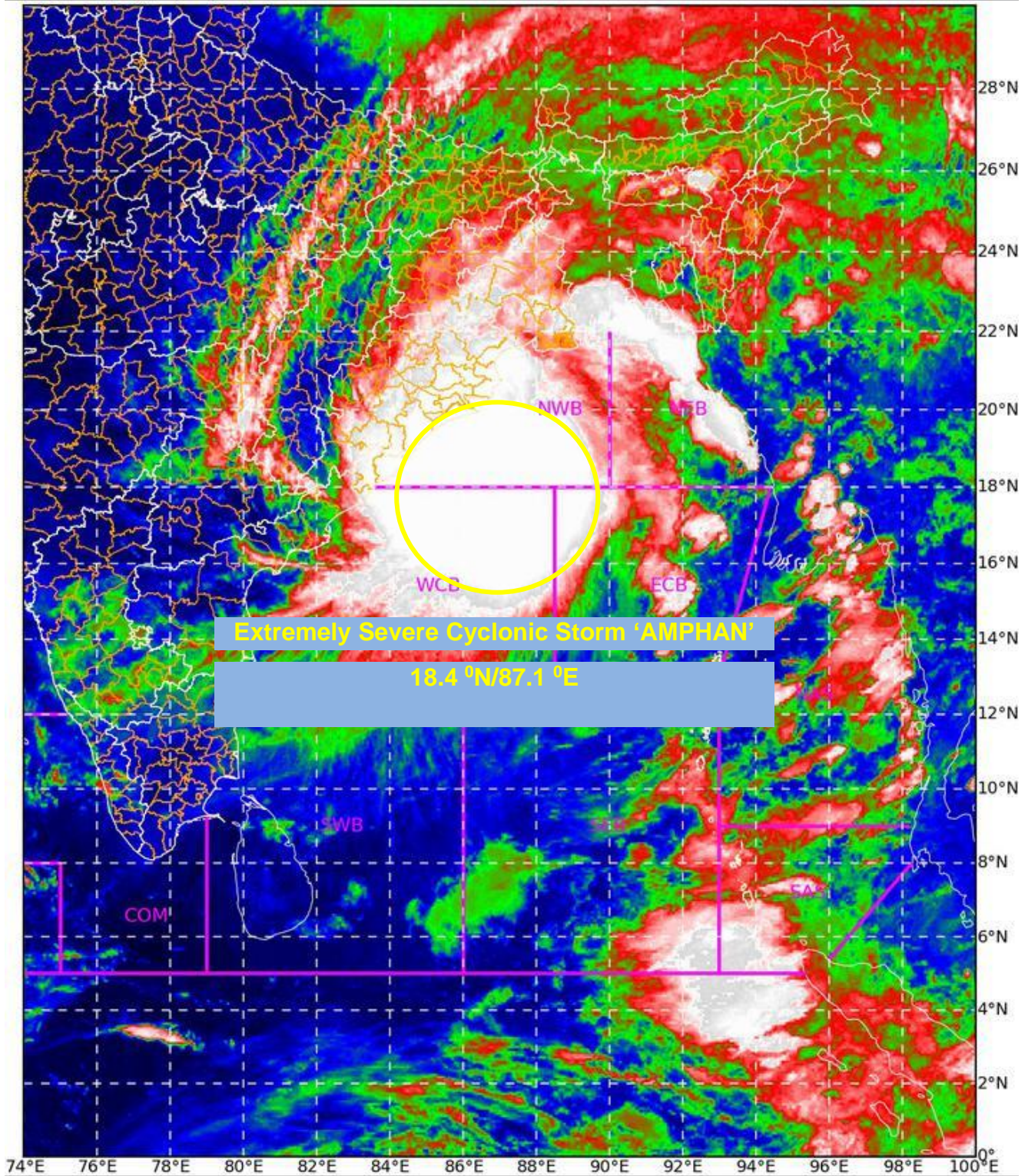
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19-05-2020/(2000 to 2026) GMT

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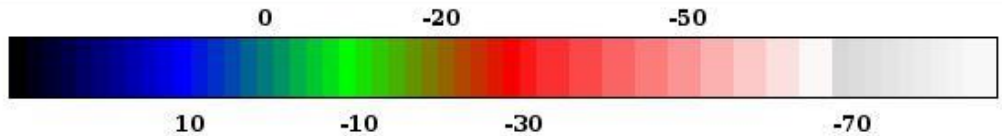
20-05-2020/(0130 to 0156) IST

L1C Mercator



Extremely Severe Cyclonic Storm 'AMPHAN'

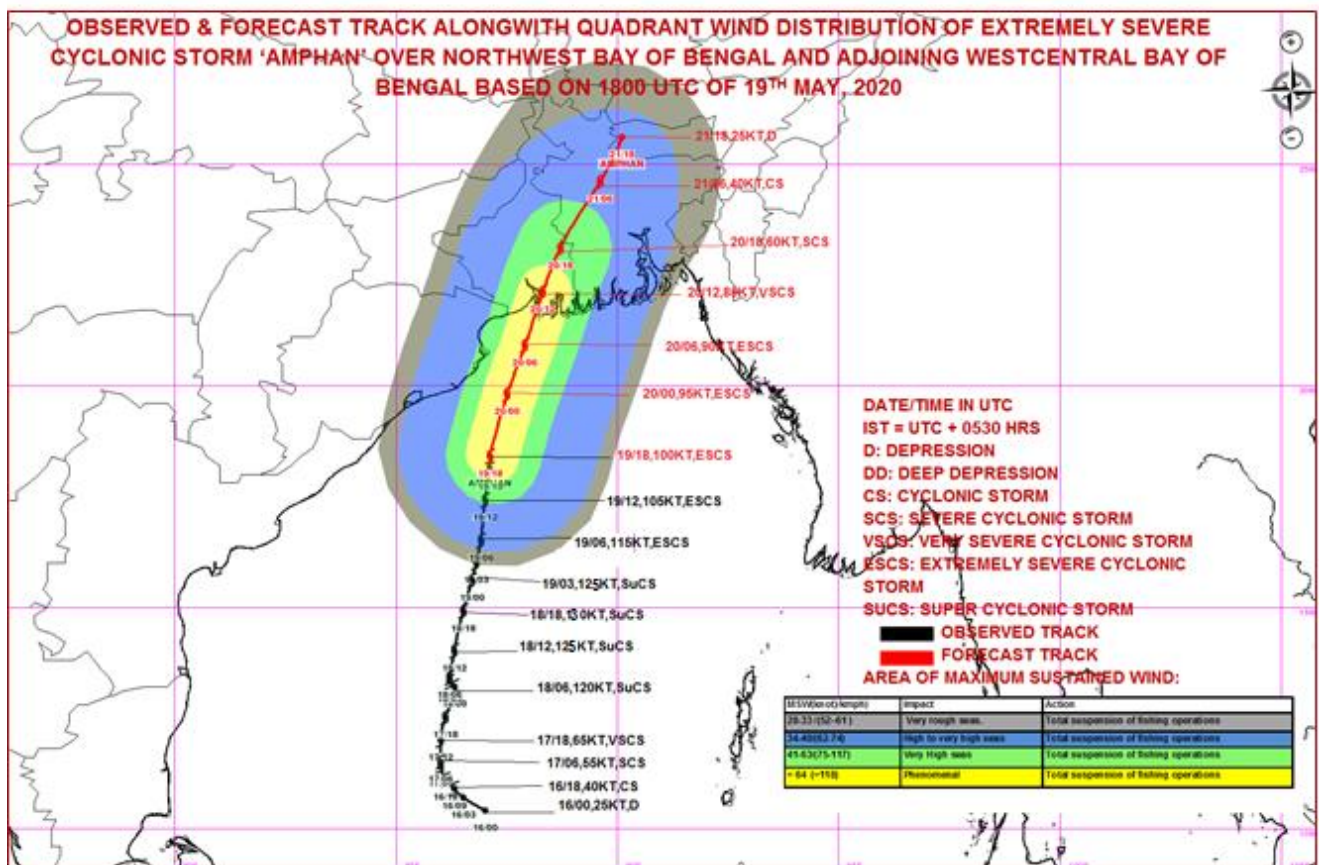
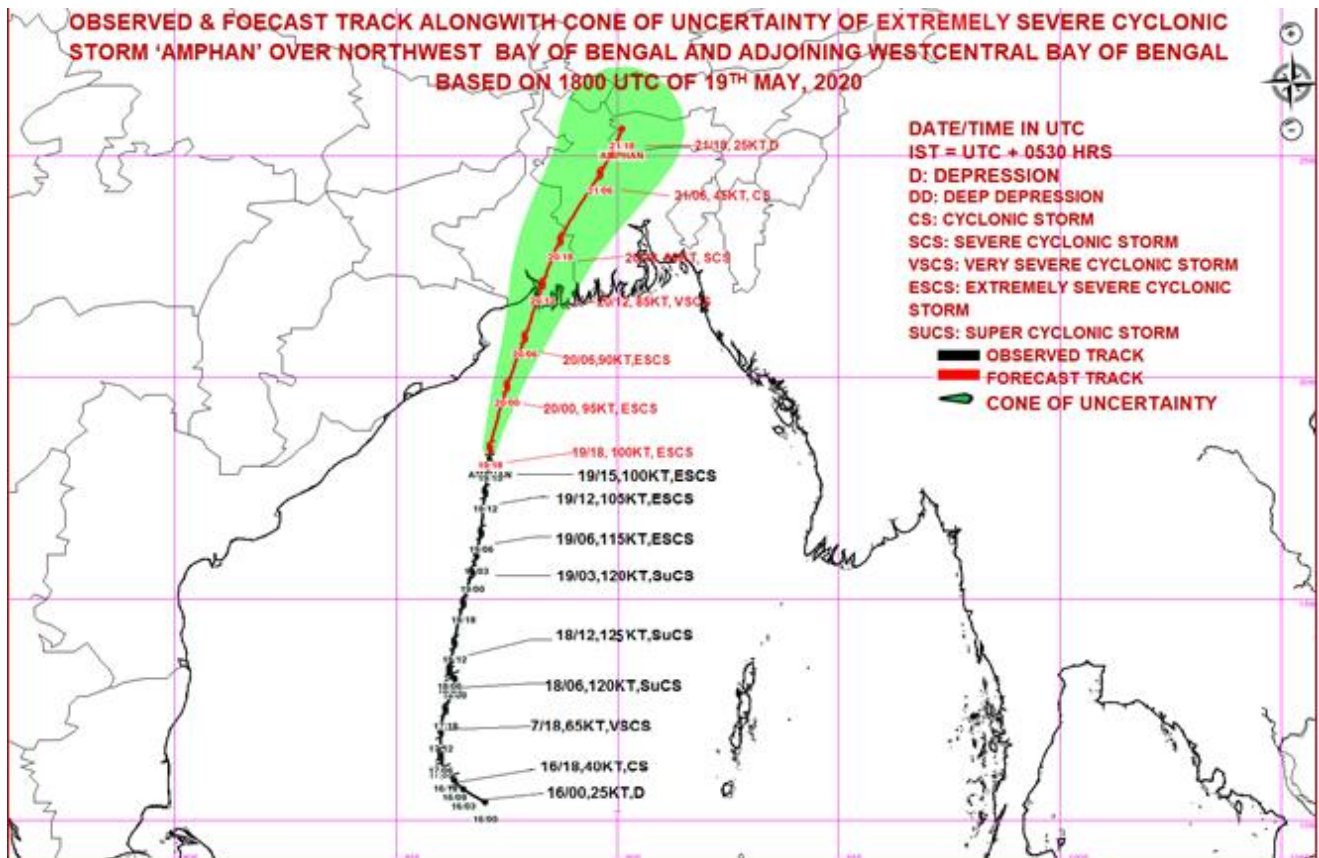
18.4 °N/87.1 °E



Celsius
IMD, DELHI

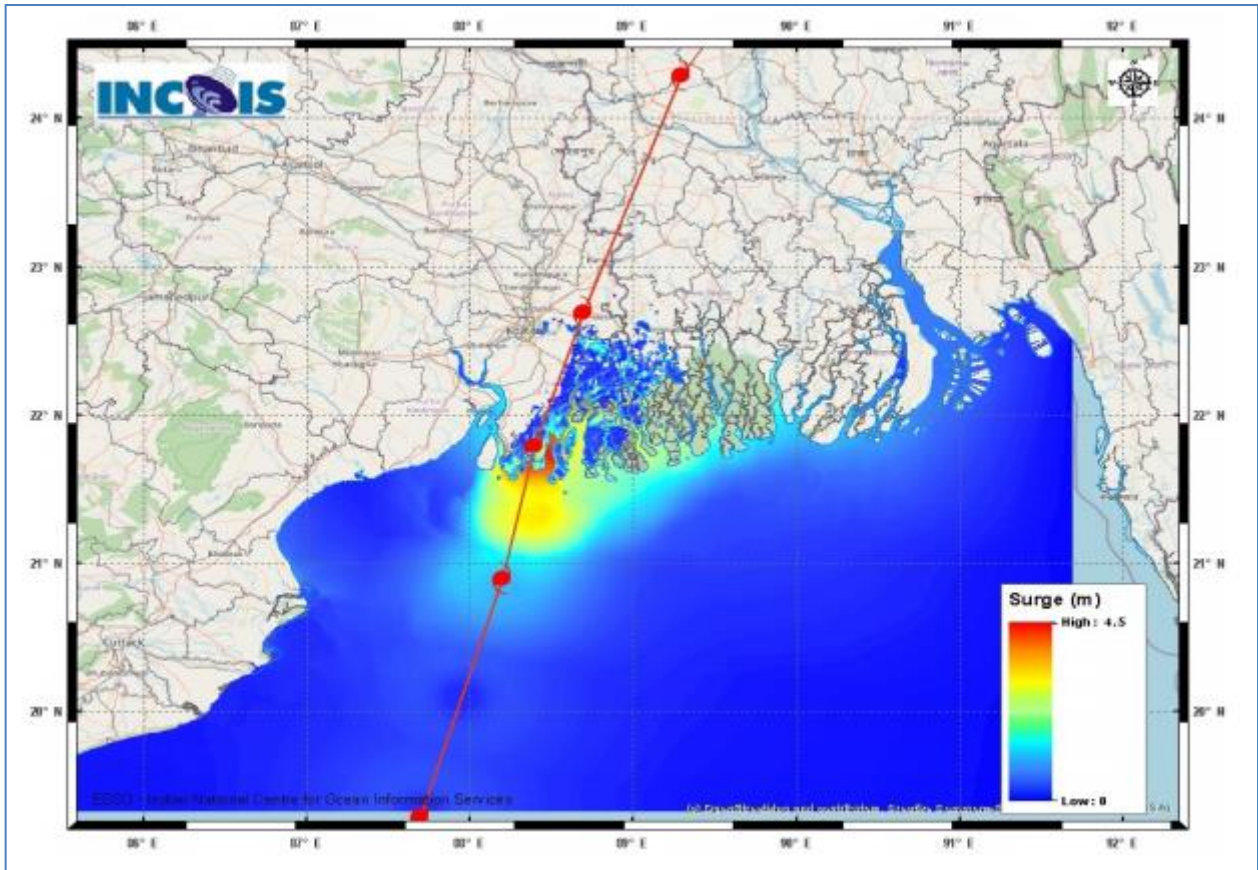
Legend: WCB – Westcentral Bay of Bengal
NWB – Northwest Bay of Bengal

Spatial rainfall distribution: Isolated: <25%, A few: 26-50%, Many: 51-75%, Most: 76-100%
Rainfall amount (mm): Heavy rain: 64.5 – 115.5, Very heavy rain: 115.6 – 204.4, Extremely heavy rain: 204.5 or more.



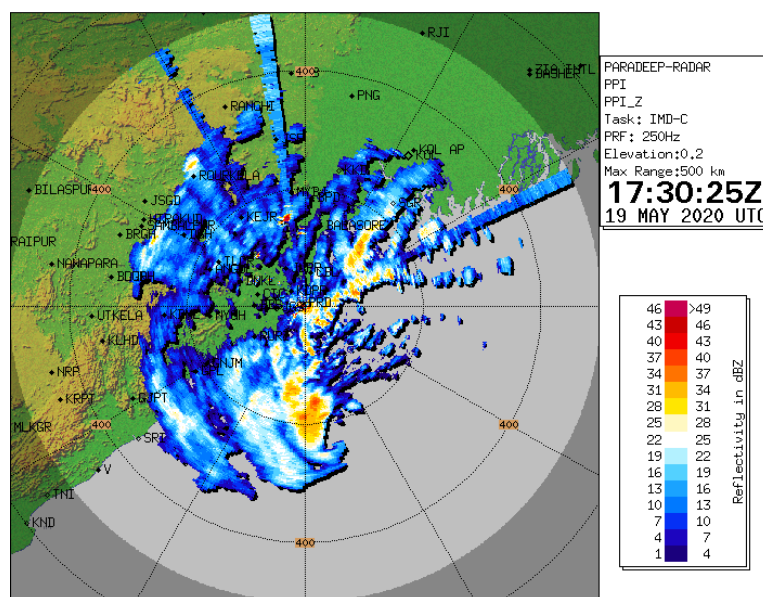
Spatial rainfall distribution: Isolated: <25%, A few: 26-50%, Many: 51-75%, Most: 76-100%
Rainfall amount (mm): Heavy rain: 64.5 – 115.5, Very heavy rain: 115.6 – 204.4, Extremely heavy rain: 204.5 or more.

Figure: Storm Surge forecast from INCOIS issued at 1800 IST of 19th 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 2300 hrs IST of 19th May 2020



Spatial rainfall distribution: Isolated: <25%, A few: 26-50%, Many: 51-75%, Most: 76-100%
Rainfall amount (mm): Heavy rain: 64.5 – 115.5, Very heavy rain: 115.6 – 204.4, Extremely heavy rain: 204.5 or more.