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Earth System Science Organisation
(Ministry of Earth Sciences)

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Sub: Super Cyclonic Storm 'AMPHAN' (pronounced as UM-PUN) over Northwest 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 Bay of Bengal moved north-northeastwards with a speed of 20 kmph during past 06 hours and lay centred at 1430 hrs IST of today, the 20th May, 2020 as an Extremely Severe Cyclonic Storm over **Northwest Bay of Bengal** near latitude 21.4°N and longitude 88.1°E, about 190 km east-northeast of Paradip (Odisha), 65 km east-southeast of Digha (West Bengal), 35 km nearly south of Sagar Islands and 225 km south-southwest of Khepupara (Bangladesh).

Landfall process has commenced and the forward sector of the wall cloud region is entering into land in West Bengal. During next 2-3 hours it is very likely cross West Bengal – Bangladesh coasts between Digha (West Bengal) and Hatiya Islands (Bangladesh) close Sundarbans with maximum sustained wind speed of 155-165 kmph gusting to 185 kmph. After landfall, the system is likely to move north-northeastwards close to Kolkata.

Kolkata (Alipur) reported 105 kmph winds at 1430 hrs IST of today, the 20th May 2020.

The system is now being continuously tracked by the Doppler Weather Radar (DWR) at Kolkata (West Bengal).

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
20.05.20/1430	21.4/88.1	160-170 gusting to 190	Extremely Severe Cyclonic Storm
20.05.20/1730	22.0/88.4	150-160 gusting to 180	Very Severe Cyclonic Storm
20.05.20/2330	23.2/88.8	110-120 gusting to 135	Severe Cyclonic Storm
21.05.20/0530	24.6/89.3	60-70 gusting to 80	Cyclonic Storm
21.05.20/1130	26.0/90.3	30-40 gusting to 50	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

Heavy to very heavy rainfall very likely at isolated places over north coastal Odisha (Balasore, Bhadrak, Mayurbhanj, Jajpur, Kendrapara and Keonjhar Districts) and isolated heavy falls over Jagatsinghpur district on 20th May 2020.

West Bengal

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 falls at isolated places over Meghalaya on 20th May and 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 80 to 90 kmph gusting to 100 kmph is prevailing along and off Jagatsinghpur, Kendrapara, Bhadrak, Balasore and Mayurbhanj districts of Odisha. It will gradually decrease from tonight.
- **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).**

Deep Sea area

- Gale wind speed reaching 160-170 gusting to 190 kmph is prevailing over northwest Bay of Bengal. It will gradually decrease becoming 155-165 kmph gusting to 185 kmph over North Bay of Bengal during the evening hours of today, the 20th May.

(3) Sea condition:

- Sea condition is Phenomenal is very likely to continue over Northwest Bay of Bengal for next 06 hours.
- Sea condition high to very high over Northeast Bay of Bengal for next 06 hours.

(4) Fishermen Warning

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

(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)

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.

(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) till today Afternoon and over (Bhadrak, Balasore) till today evening.

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.

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.

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.

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

- (i) Minor damage to power and communication lines. (ii) Major damage to Kutchha 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 2030 hours IST of today, the 20th May, 2020.

Please follow the hourly bulletin on the link:

<http://www.rsmcnewdelhi.imd.gov.in/images/bulletin/hourly.pdf>

**(Sunitha Devi S)
Scientist-E, RSMC, New Delhi**

Copy to: CRS, Pune/ ACWC Chennai/ ACWC Kolkata/CWC Bhubaneswar/ /CWC Visakhapatnam

SAT : INSAT-3D IMG

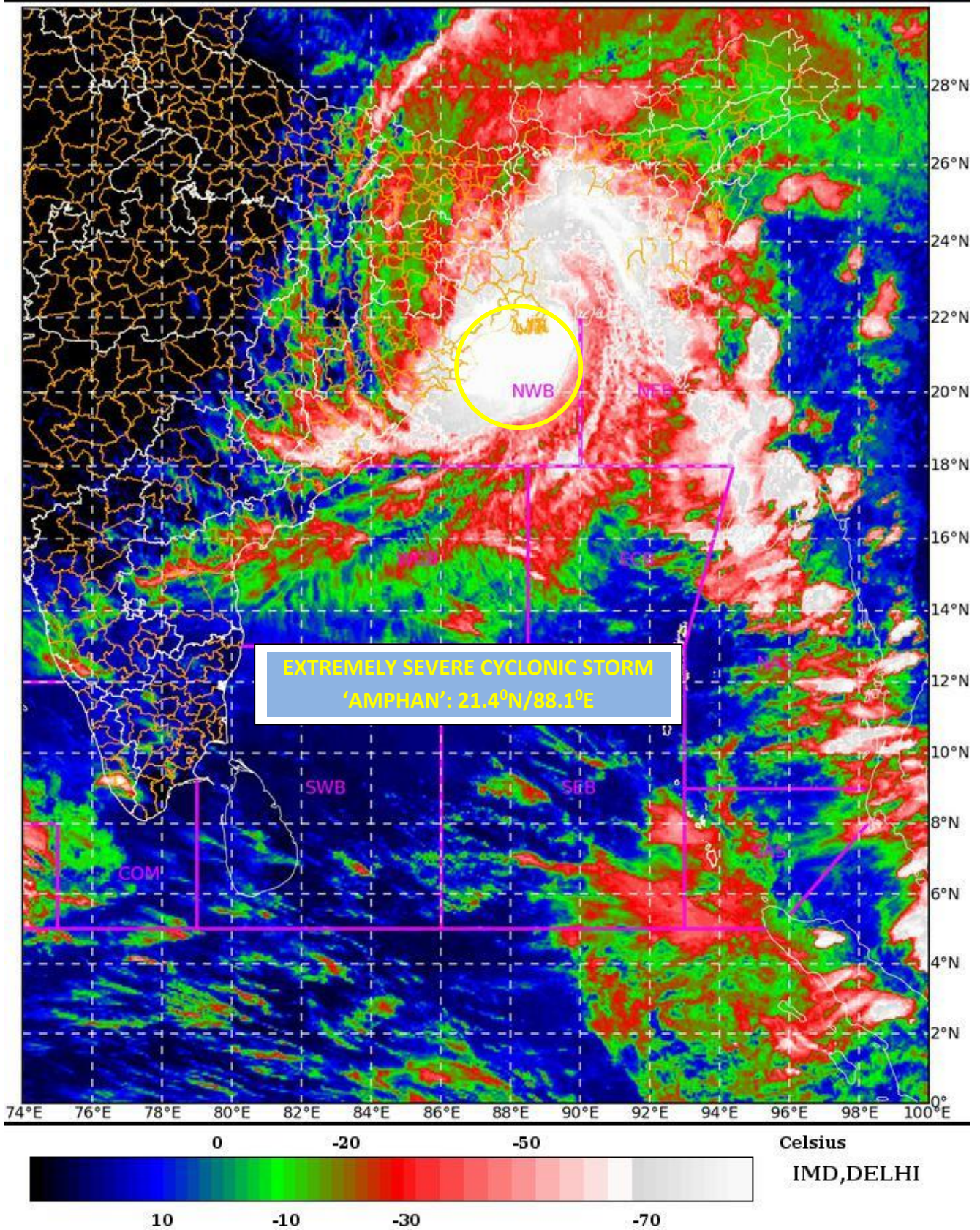
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20-05-2020/(1530 to 1556) IST

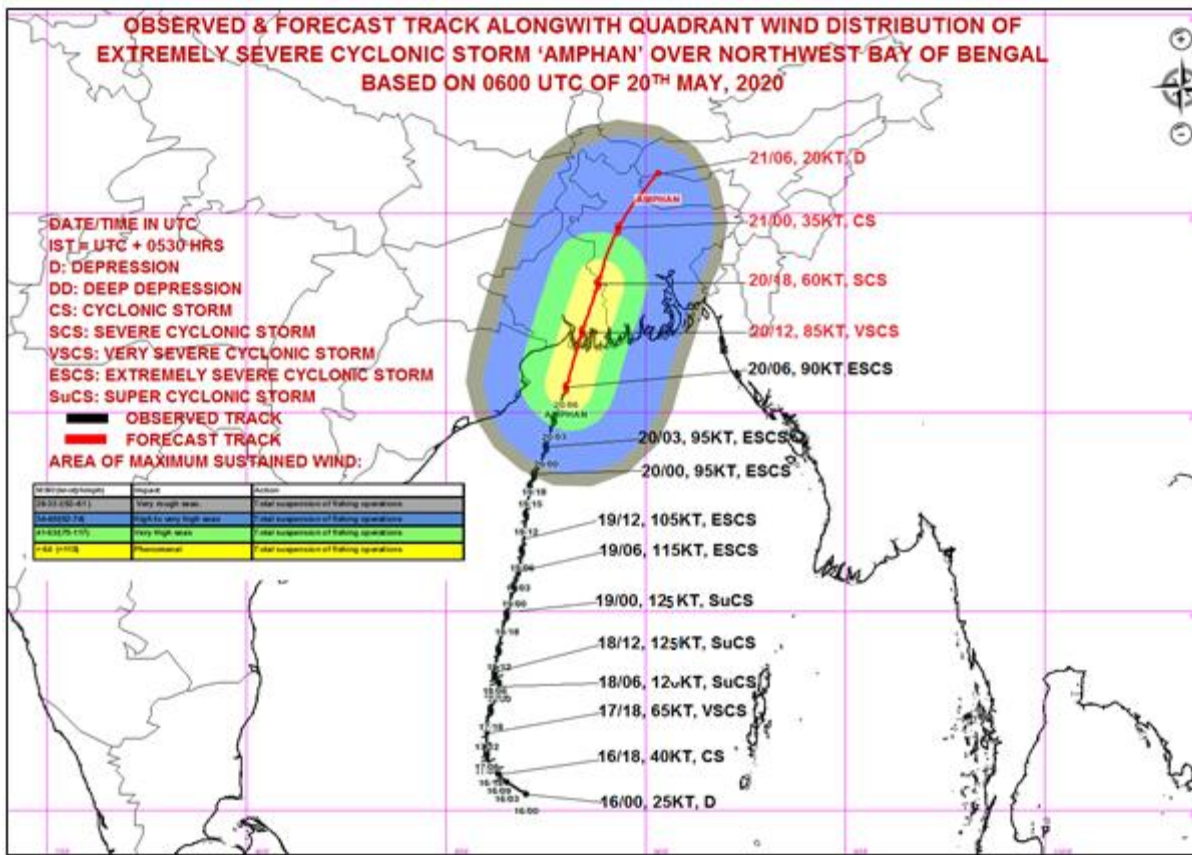
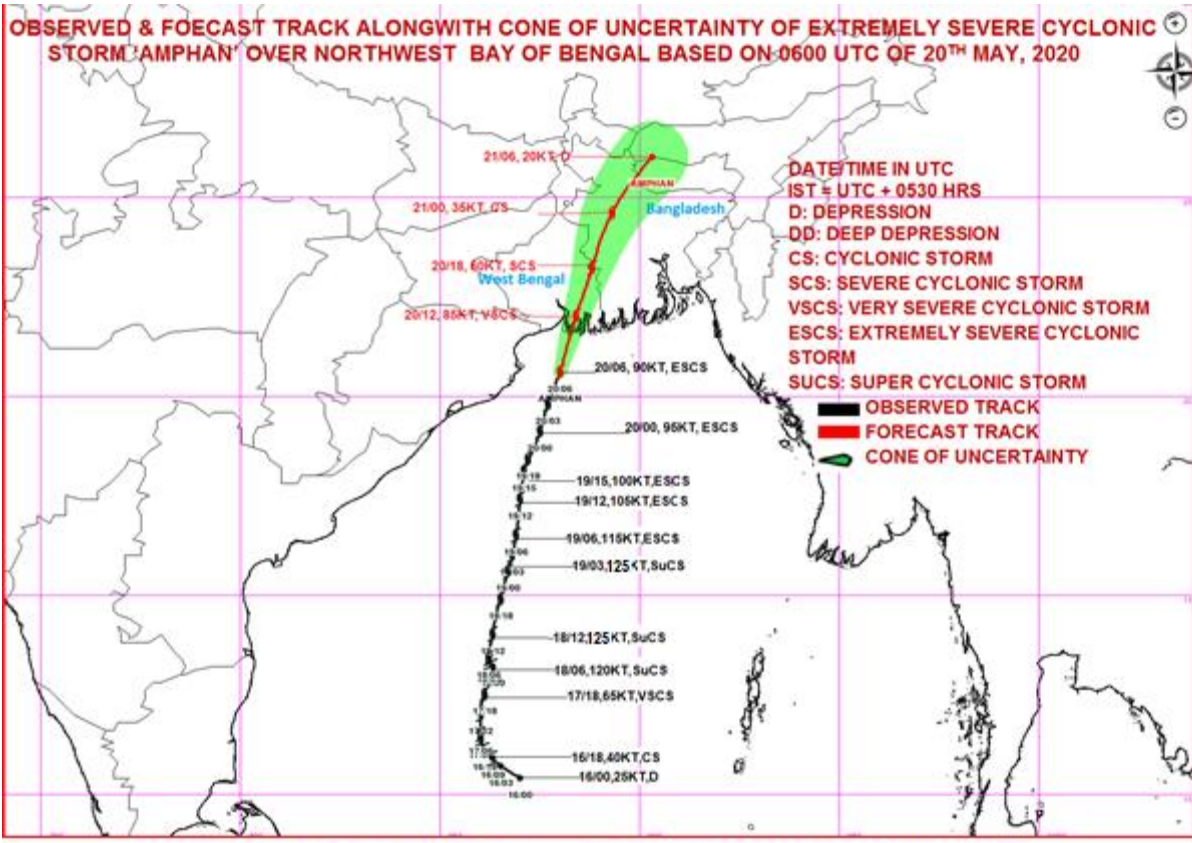


L1C Mercator



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%
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Spatial rainfall distribution: Isolated: <25%, A few: 26-50%, Many: 51-75%, Most: 76-100%
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Figure: Storm Surge forecast from INCOIS issued at 1500 IST of 20th May 2020

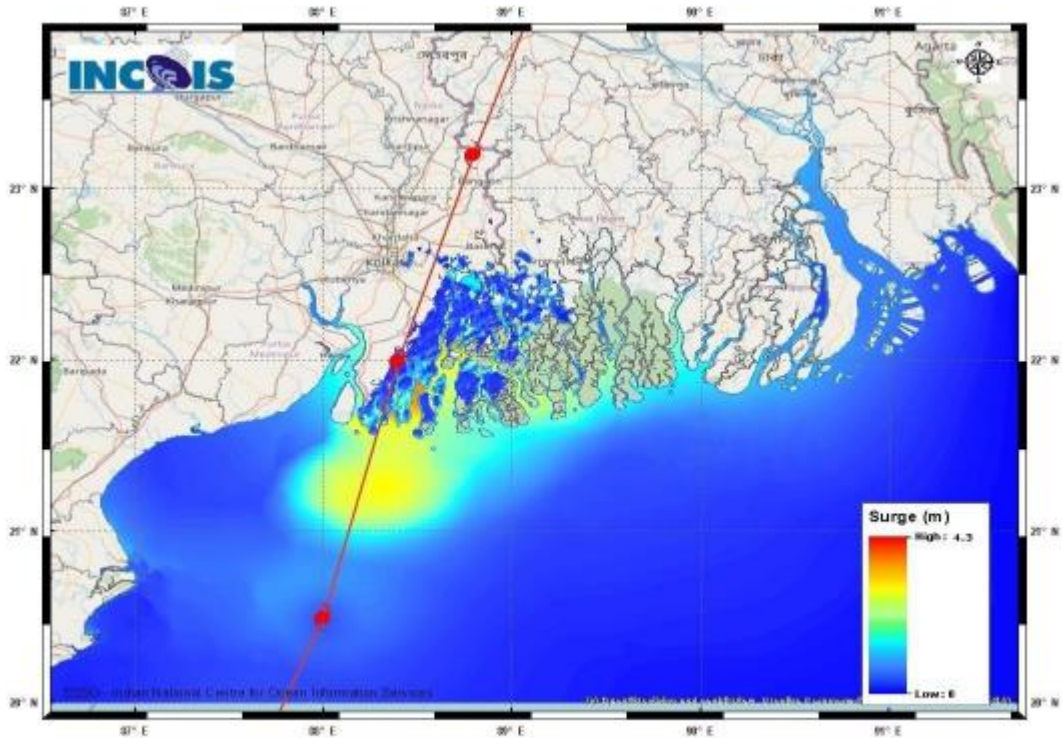


Fig: Computed storm surge & Inundation based on the IMD track forecast

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. Given below is the direct model output from INCIOS Strom Surge model.

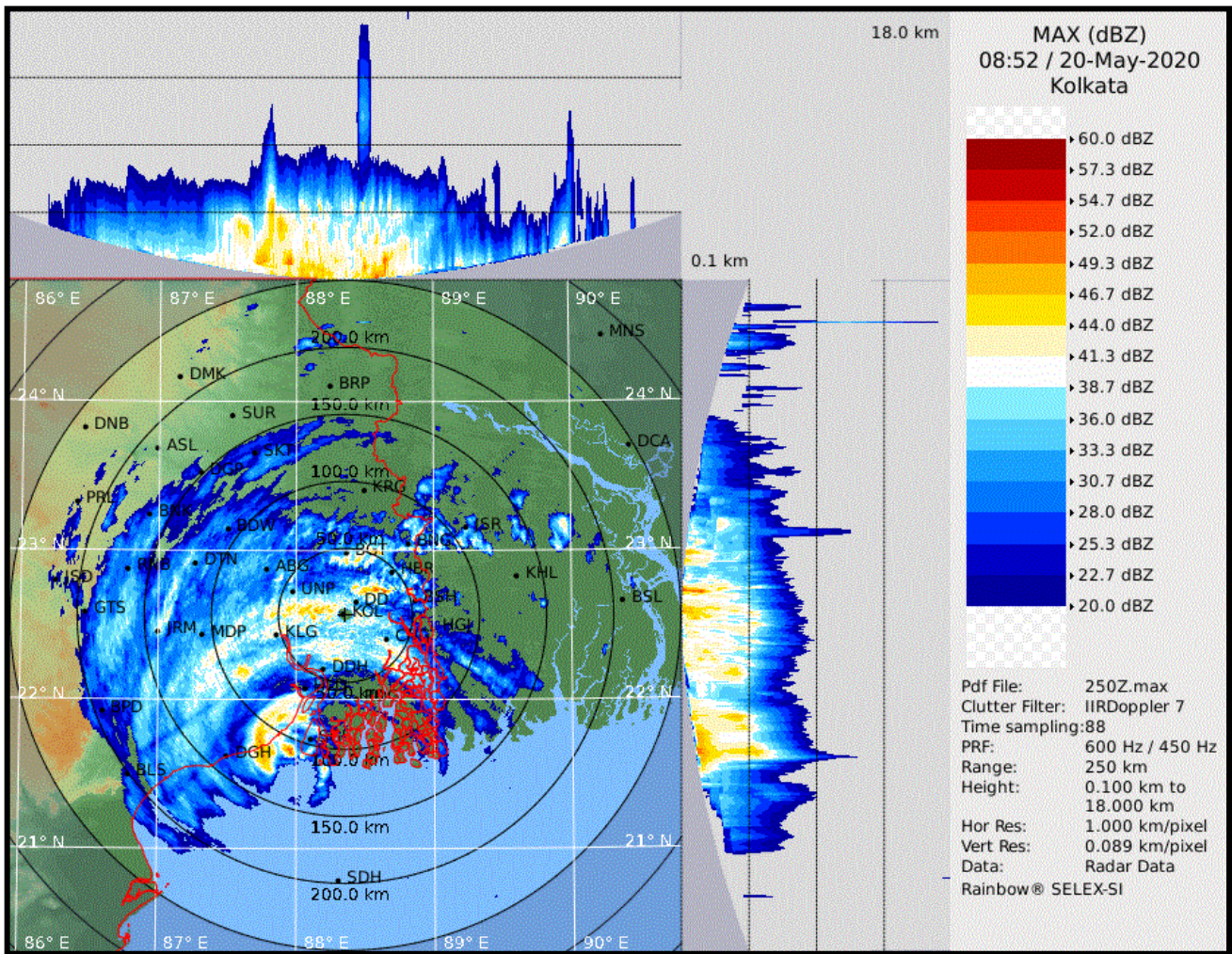
STORM SURGE HEIGHT INFORMATION:

* 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)
Bhangar-I	South 24 Parganas	West Bengal	Bhangar-I	0.5-4.3	Around 17
Basirhat	North 24 Parganas	West Bengal	Basirhat	0.5-3.9	Around 10
Diamond Harbour	South 24 Parganas	West Bengal	Daimond Harbor	0.5-3.5	Around 17
Bagnan-II	Haora	West Bengal	Bagnan-II	0.5-1.0	Around 0.4
Mahisadal	Medhinipur	West Bengal	Tentul Berya	0.5-1.0	Around 0.4
Nandigram-I	Medhinipur	West Bengal	Nakchira Chara	0.5-0.8	Around 0.4
off Haldia	Purba Medhinipur	West Bengal	Nayachar Island	0.5-1.5	Around 0.5
Sutahata-I	Medinipur	West Bengal	Maniruddin Chara	0.5-1.6	Around 0.4
Sutahata-II	Medinipur	West Bengal	Haldia	0.5-1.5	Around 0.3
Digha	Purba Medhinipur	West Bengal	Digha	0.5-0.7	Around 0.3
Tamluk	East Midnapore	West Bengal	Tamluk	0.5-1.5	Around 0.3
Bhadrak	Bhadrak	Odisha	Mohanpur	0.5-1.1	Around 0.8
Kendrapara	Kendraparha	Odisha	Baligarh	0.5-0.8	Around 2.6
Baleshwar	Baleshwar	Odisha	Sahapur	0.5-0.7	Around 0.7

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: Reflectivity of Kolkatta Doppler Weather Radar at 0852 UTC of 20th May 2020



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