



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

BULLETIN NO. : 26 (ARB/02/2020)

TIME OF ISSUE: 1230 HOURS IST

DATED: 03.06.2020

FROM: INDIA METEOROLOGICAL DEPARTMENT (FAX NO. 24643965/24699216/24623220)

TO: CONTROL ROOM, NDM, MINISTRY OF HOME AFFAIRS (FAX.NO. 23092398/23093750)

CONTROL ROOM NDMA (FAX.NO. 26701729)

CABINET SECRETARIAT (FAX.NO.23012284, 23018638)

PS TO HON'BLE MINISTER FOR S & T AND EARTH SCIENCES (FAX NO.23316745)

SECRETARY, MOES (FAX NO. 24629777)

H.Q. (INTEGRATED DEFENCE STAFF AND CDS) (FAX NO. 23005137/23005147)

DIRECTOR GENERAL, DOORDARSHAN (23385843) DIRECTOR GENERAL, AIR (23421101, 23421105, 23421219)

PIB MOES (FAX NO. 23389042)

UNI (FAX NO. 23355841)

D.G. NATIONAL DISASTER RESPONSE FORCE (NDRF) (FAX NO. 26105912, 2436 3260)

DIRECTOR, PUNCTUALITY, INDIAN RAILWAYS (FAX NO. 23388503)

CHIEF SECRETARY, KERALA (FAX NO. 0471-2327176)

ADMINISTRATOR, LAKSHADWEEP ISLANDS (FAX NO. 0413-262184)

ADMINISTRATOR, UNION TERRITORY OF DAMAN & DIU (0260-2230775)

ADMINISTRATOR, UNION TERRITORY OF DADRA NAGAR HAVELI (0260-2230775)

CHIEF SECRETARY, KARNATAKA (FAX NO. 080-22258913)

CHIEF SECRETARY, GOA (FAX NO. 0832-2415201)

CHIEF SECRETARY, MAHARASHTRA (FAX NO. 022- 22028594)

CHIEF SECRETARY, GUJARAT (FAX NO. 079-23250305)

CHIEF SECRETARY, DAMAN & DIU (FAX NO. 0260-2230775)

CHIEF SECRETARY, DADRA & NAGAR HAVELI (FAX NO. 0260-2645466)

Sub: Severe Cyclonic Storm 'NISARGA' over Eastcentral Arabian Sea: To cross Maharashtra coast close to south of Alibagh during next 3 hours - Cyclone Warning for north Maharashtra & adjoining south Gujarat coasts: Red message

The **Severe Cyclonic Storm 'NISARGA'** over Eastcentral Arabian Sea moved northeastwards with a speed of about 19 kmph during past 06 hours and lay centred at 1130 hours IST of today the 03rd June, 2020 over Eastcentral Arabian Sea, close to Maharashtra (Raigad District) coast near latitude 18.1°N and longitude 72.8°E, about 60 km south of Alibagh (Maharashtra), 110 km south of Mumbai (Maharashtra) and 340 km south of Surat (Gujarat).

It is very likely to move northeastwards very close to coast and cross north Maharashtra coast **close to south of Alibagh (Raigad District, Maharashtra) during the afternoon (1300 -1600 Hours IST) of today the 03rd June as a Severe Cyclonic Storm with maximum sustained wind speed of 100-110 kmph gusting to 120 kmph.**

The system is now being continuously tracked by the Doppler Weather Radars (DWRs) at Mumbai (Maharashtra) and Goa.

As per the latest satellite and Radar observations at 1230 hrs IST of today the **Landfall process has started and will be completed during next 03 hours.**

Forecast track and intensity are given in the following table:

Date/Time(IST)	Position (Lat. °N/ long. °E)	Maximum surface (Kmph)	sustained wind speed	Category of cyclonic disturbance
03.06.20/1130	18.1/72.8	100-110 gusting to 120		Severe Cyclonic Storm
03.06.20/1730	18.7/73.3	80-90 gusting to 100		Cyclonic Storm
03.06.20/2330	19.4/73.9	50-60 gusting to 70		Deep Depression
04.06.20/0530	20.2/74.6	40-50 gusting to 60		Depression
04.06.20/1130	20.8/75.1	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.

Warnings:

(i) **Rainfall:**

- Light to moderate rainfall at most places with heavy to very heavy falls at a few places and **extremely heavy falls (≥ 20 cm in 24 hours)** at isolated places very likely over north Konkan (Mumbai, Palghar, Thane, Raigad districts) and north Madhya Maharashtra during next 24 hours.
- Light to moderate rainfall at most places with heavy to very heavy falls at isolated places over south Konkan (Ratnagiri & Sindhudurg districts) & Goa and south Gujarat region (Valsad, Navsari, Dang, Daman, Dadra & Nagar Haveli and Surat districts) during next 24 hours.
- Light to moderate rainfall at most places with heavy falls at isolated places over west Madhya Pradesh and Vidarbha during next 24 hours.

(ii) **Wind warning**

- Gale wind, speed reaching 100-110 kmph gusting to 120 kmph, is prevailing over Eastcentral Arabian Sea along & off north Maharashtra coast (Raigad, Mumbai and adjoining Thane), 85-95 kmph gusting to 105 kmph along & off Ratnagiri, Sindhudurg, Palghar and remaining areas of Thane. Gale wind, speed reaching 60-80 kmph gusting to 90 kmph, likely along & off Valsad, Navsari districts of Gujarat, Daman, Dadra & Nagar Haveli and along & off northeast Arabian Sea and 60-70 kmph gusting to 80 kmph along & off Surat & Bharuch districts of south Gujarat during next 06 hours and will reduce gradually thereafter.
- Squally wind, speed reaching 50-60 kmph gusting to 70 kmph is likely to prevail over northeast Arabian Sea along & off remaining districts of south Gujarat coast during next 06 hours and will reduce gradually thereafter.
- Squally wind, speed reaching 50-60 kmph gusting to 70 kmph is likely prevail over eastcentral Arabian Sea along and off Karnataka-Goa coasts during next 06 hours and will reduce gradually thereafter.

(iii) **Sea condition**

The Sea condition will be High to Very High over eastcentral Arabian Sea and along & off Maharashtra & Goa coasts till today, the 3rd June evening. The Sea condition is very likely to be very rough to High over northeast Arabian Sea along & off south Gujarat coast till today, the 3rd June evening

(iv) **Storm Surge Warning:**

Storm surge of about 1-2 meters height above astronomical tide is very likely to inundate low lying areas of Mumbai, Thane and Raigad districts and 0.5-1 meter height above the astronomical tide likely to inundate low lying areas of Ratnagiri district during the time of landfall.

(v) **Fishermen Warning**

Fishermen are advised not to venture into Eastcentral and Northeast Arabian Sea and along & off Karnataka-Goa-Maharashtra-south Gujarat coasts during next 12 hours.

(vi) **Damage Expected:**

- Major damage to thatched houses/ huts. Roof tops may blow off. Unattached metal sheets may fly.

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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.

- Damage to power and communication lines.
- Major damage to Kutcha and some damage to Pucca roads. Flooding of escape routes.
- Breaking of tree branches, uprooting of large avenue trees. Damage to banana and papaya trees. Large dead limbs blown from trees.
- Major damage to coastal crops.
- Damage to embankments/ salt pans.

(vii) Fishermen Warning & Action Suggested:

- Total suspension of fishing operations.
- Mobilise evacuation from low lying areas.
- Judicious regulation of rail and road traffic.
- People in affected areas to remain indoors.
- Movement in motor boats and small ships unsafe.

Post Landfall Outlook:

After the landfall the Severe Cyclonic Storm is very likely to maintain its Cyclonic Storm intensity for about 06 hours, while moving north-northeastwards across north Madhya Maharashtra. Under its influence Gale wind reaching 60-70 kmph gusting to 80 kmph very likely to prevail over Pune, Ahmadnagar and 55-65 kmph gusting to 75 kmph adjoining Beed, Nashik & Aurangabad districts of Maharashtra. Light to moderate rainfall at most places with heavy to very heavy falls at isolated places are also very likely over these districts on 3rd June, 2020.

Damage Expected and Action suggested for interior districts of Maharashtra (Pune, Ahmadnagar, Nashik, Aurangabad and adjoining Beed).

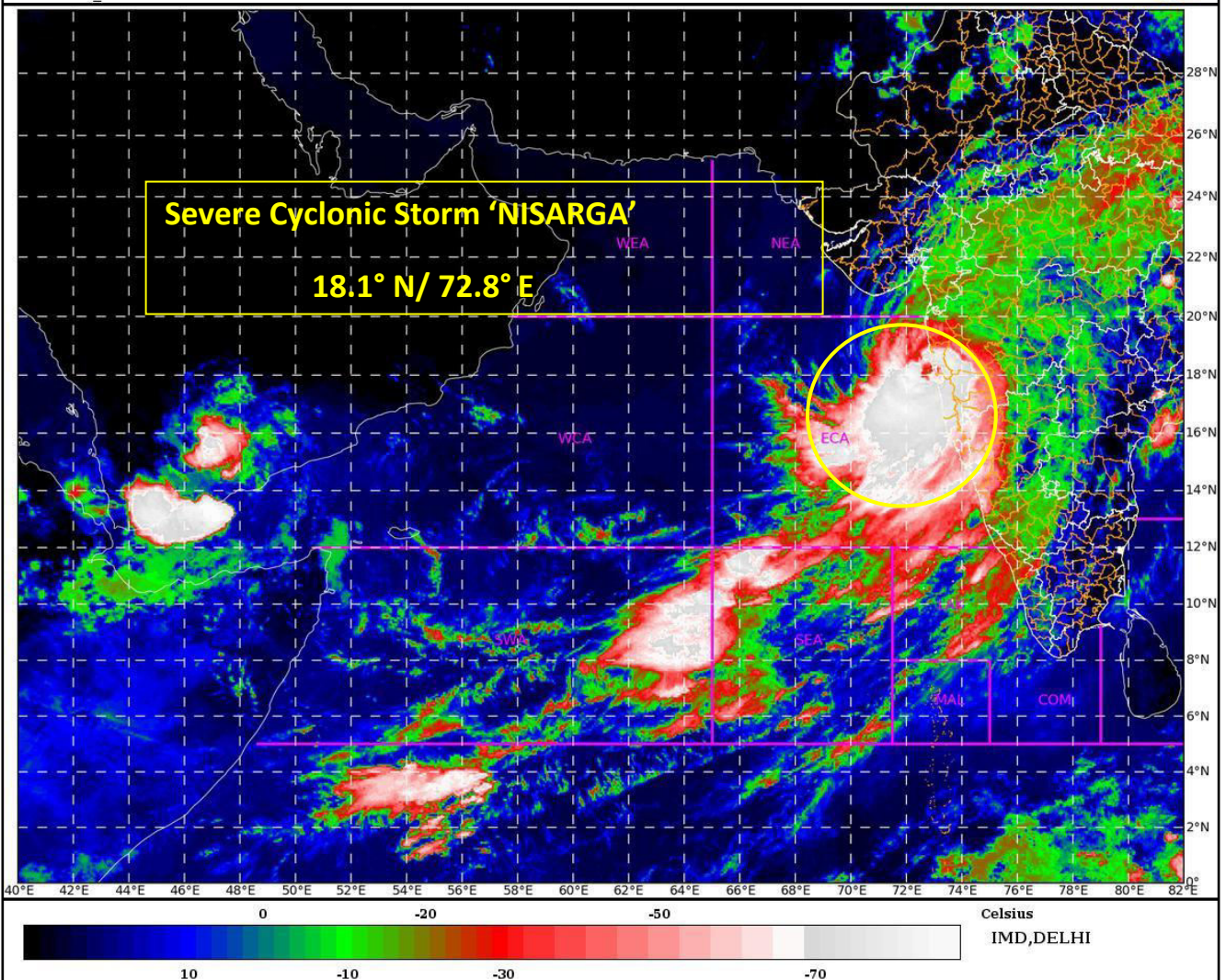
(i) Minor damage to power and communication lines. (ii) Damage to Kutcha and some damage to Pucca roads. (iii) Breaking of tree branches, uprooting of small trees. (iv) Damage to banana and papaya trees. (v) People in affected areas to remain indoors.

The next bulletin will be issued at 1730 hrs IST of today, the 03rd June, 2020.

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

Copy to: ACWC Chennai/ ACWC Mumbai/ MC Goa/ MC Bengaluru/ CWC Ahmedabad/ Thiruvananthapuram.

Spatial rainfall distribution: Isolated: <25%, A few: 26-50%, Many: 51-75%, Most: 76-100%
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Legend: ECA- east-Central Arabian Sea

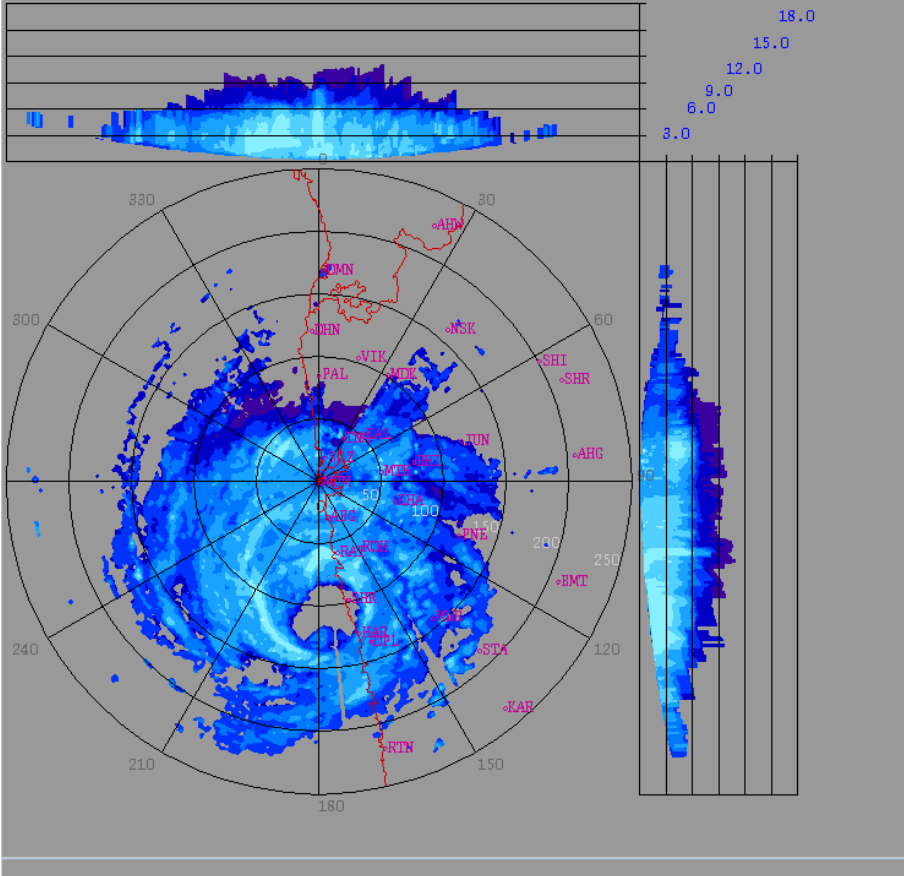
Spatial rainfall distribution: Isolated: <25%, A few: 26-50%, Many: 51-75%, Most: 76-100%
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2020/06/03

05:49:12 (UTC)

MAX(Z)

DWR MUMBAI
(18.9013N , 72.8076E , 100.00 mts)

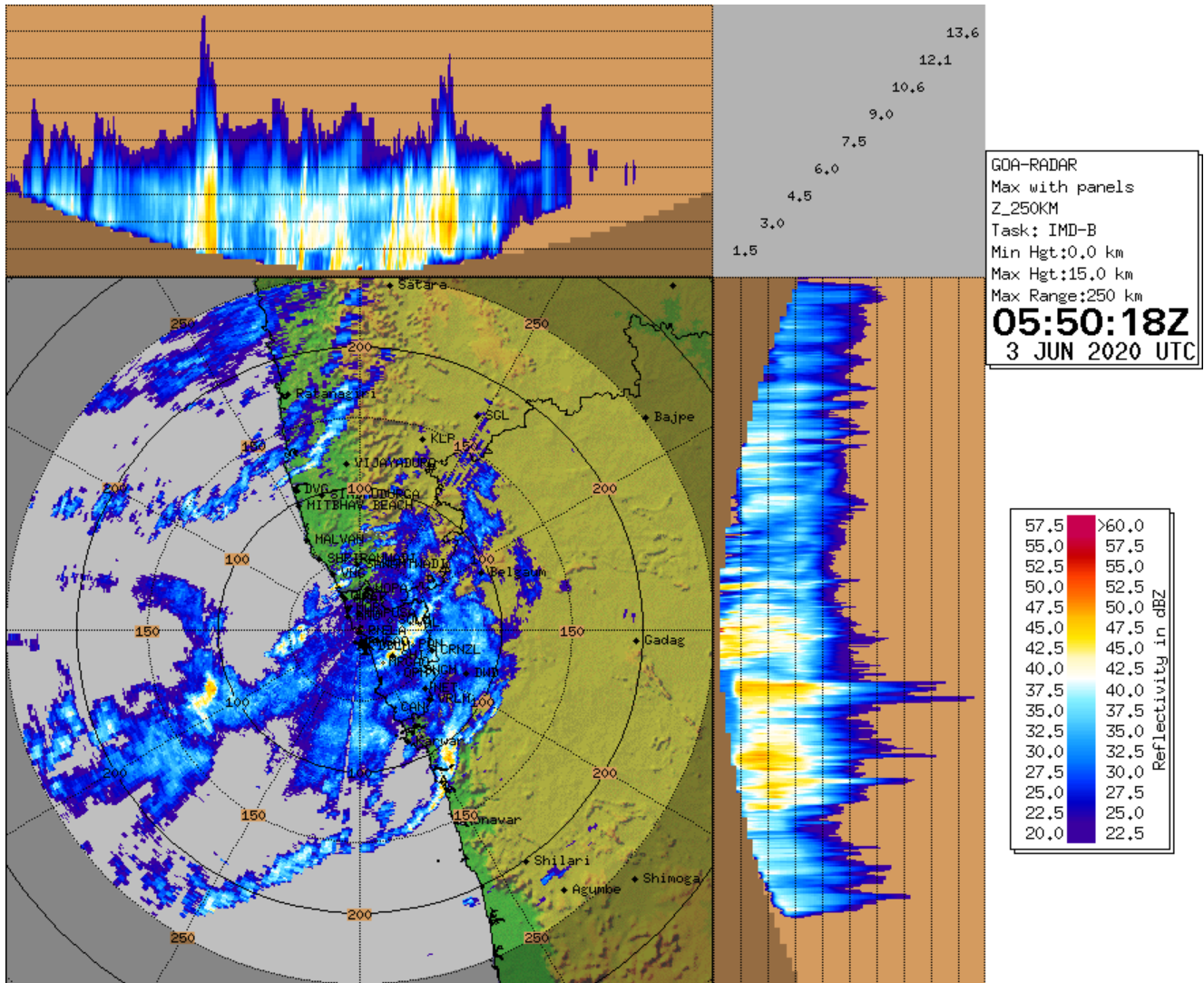


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 Display Res : 1.0 Km/Pix
 DDR Enable : Yes
 Scan Elev (Lo, Hi) : 0.2, 21.0 Deg
 PRF (Lo, Hi) : 450, 600 Hz
 Scan Res : 150 mts
 Scan RPM : 2.0
 Log Threshold : 2 dB
 DTP : 42
 Pulse Width : 1.0
 Notch Width : 54.0 Hz
 SQI : 0.25
 CSR : 20
 Scan Range : 240 Km
 Preprocessings : NONE

dBZ	
No Data	
60.7 : > 65.0	
56.4 : 60.7	
52.1 : 56.4	
47.8 : 52.1	
43.5 : 47.8	
39.2 : 43.5	
34.9 : 39.2	
30.7 : 34.9	
26.4 : 30.7	
22.1 : 26.4	
17.8 : 22.1	
13.5 : 17.8	
9.2 : 13.5	
4.9 : 9.2	
0.6 : 4.9	

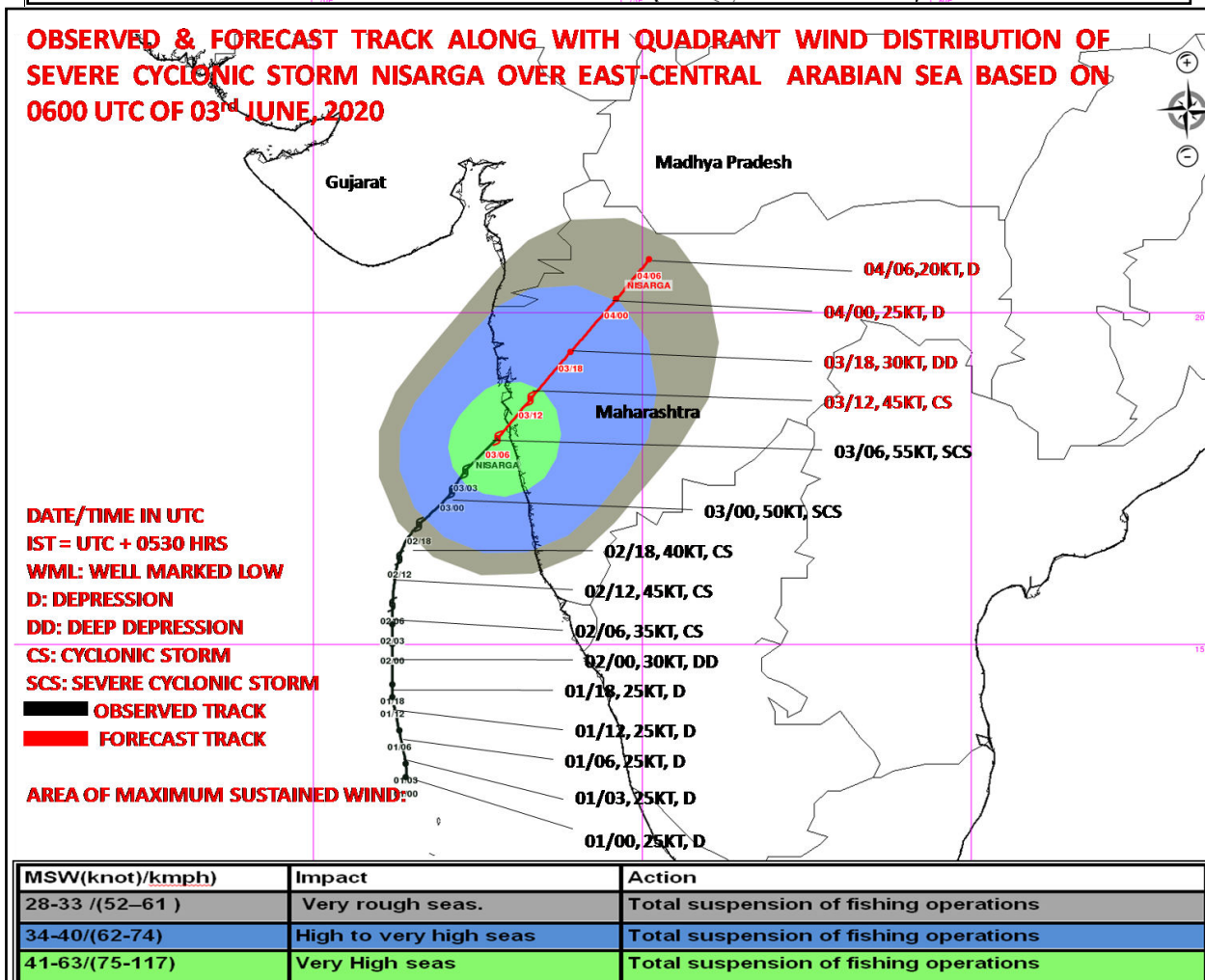
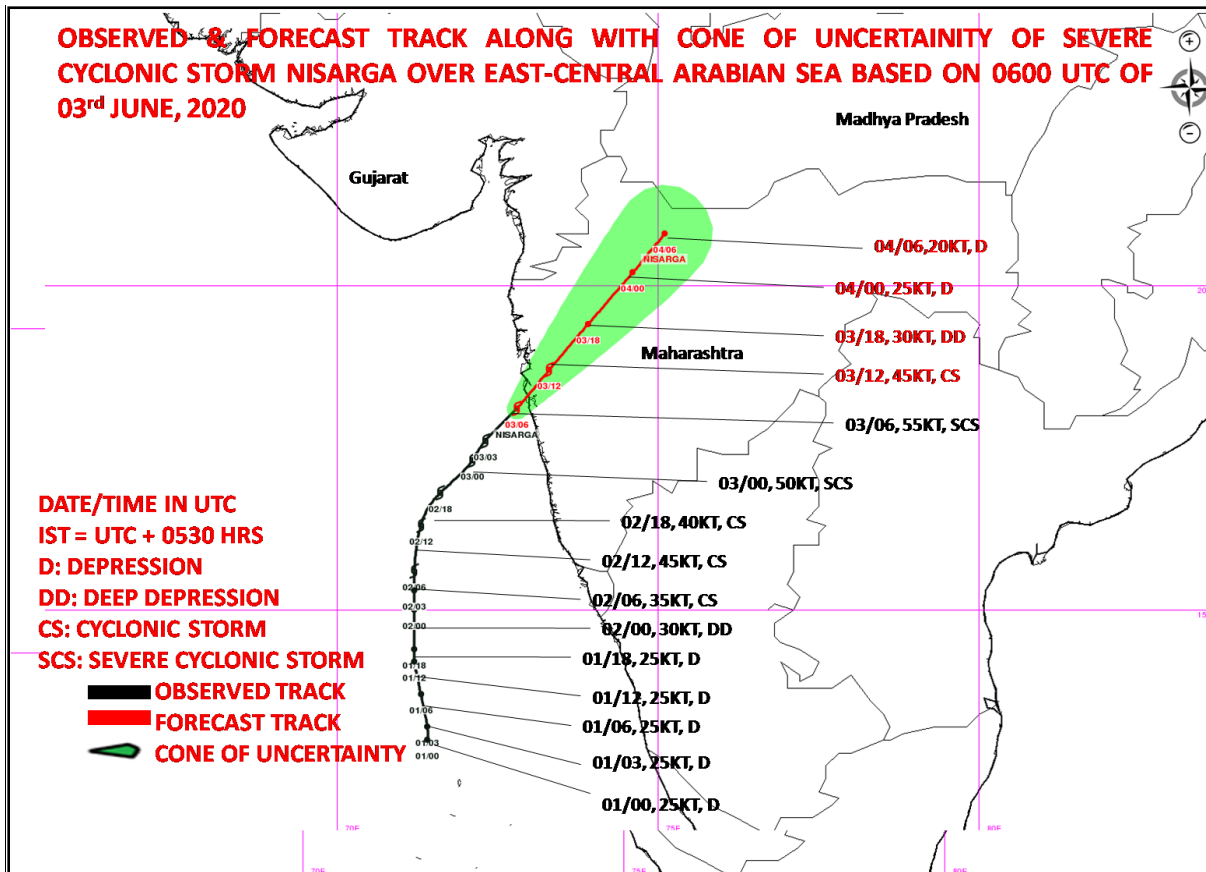
DOPLER WEATHER RADAR MUMBAI AT 11:30 HOURS IST OF 03.06.2020

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.



DOPLER WEATHER RADAR GOA AT 11:30 HOURS IST OF 03.06.2020

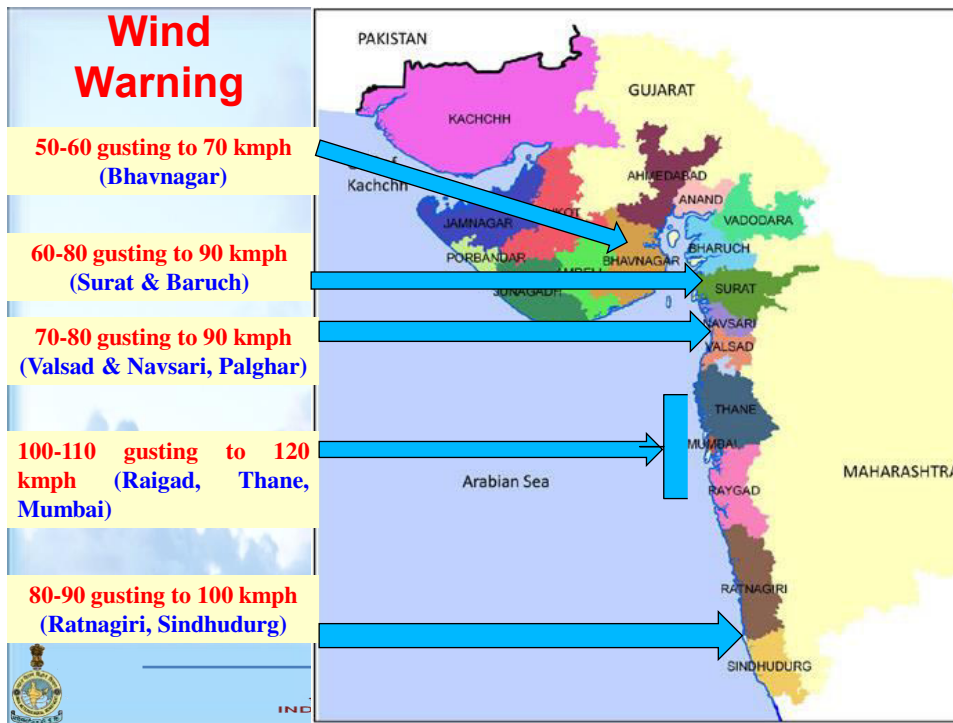
Spatial rainfall distribution: Isolated: <25%, A few: 26-50%, Many: 51-75%, Most: 76-100%
Rainfall amount (mm): Heavy rain: 64.5 – 115.5, Very heavy rain: 115.6 – 204.4, Extremely heavy rain: 204.5 or more.



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

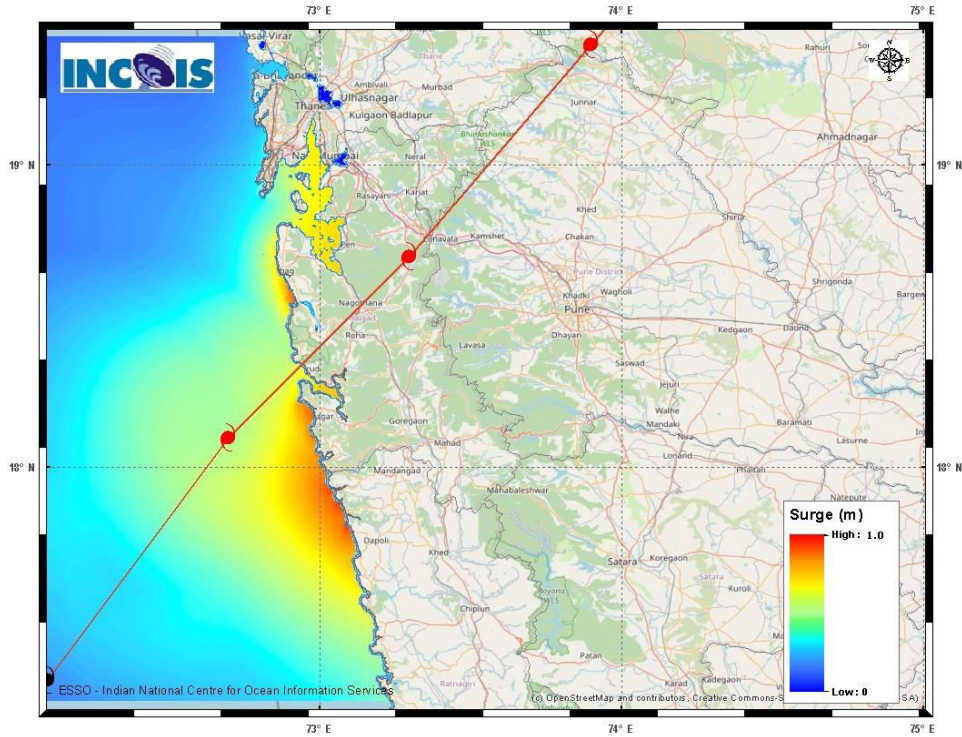
Spatial rainfall distribution: Isolated: <25%, A few: 26-50%, Many: 51-75%, Most: 76-100%
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District Level Wind Warning



Storm surge Warning

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.



The below listed surge heights over and above astronomical tide.

MANDAL/TALUK	DISTRICT	STATE / UNION TERRITORY	NEAREST PLACE OF HABITATION	* STORM SURGE (m)	* EXPECTED INUNDATION EXTENT (km)
ALIBAG	RAIGAD	MAHARASHTRA	ALIBAG	0.5-1.3	Around 1.4
DAPOLI	RATNAGIRI	MAHARASHTRA	DAPOLI	0.6-0.9	Around 0.3
PEN	RAIGAD	MAHARASHTRA	PEN	0.7-0.9	Around 2.2
THANE	GREATER MUMBAI	MAHARASHTRA	THANE	0.7-0.9	Around 0.3

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.