REGIONAL SPECIALISED METEOROLOGICAL CENTRE-TROPICAL CYCLONES, NEW DELHI

TROPICAL CYCLONE ADVISORY BULLETIN NO. 2

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. 2 FOR NORTH INDIAN OCEAN (THE BAY OF BENGAL AND ARABIAN SEA) VALID FOR NEXT 120 HOURS ISSUED AT 1100 UTC OF 02.06.2020 BASED ON 0900 UTC OF 02.06.2020.

SUB: CYCLONIC STORM "NISARGA" OVER EASTCENTRAL ARABIAN SEA

THE **CYCLONIC STORM 'NISARGA'** OVER EASTCENTRAL ARABIAN SEA MOVED NORTHWARDS WITH A SPEED OF 13 KMPH DURING PAST 06 HOURS, AND LAY CENTRED AT 0900 UTC OF TODAY, THE 02ND JUNE, 2020 OVER EASTCENTRAL ARABIAN SEA NEAR LATITUDE 16.0°N AND LONGITUDE 71.2°E, ABOUT 290 KM WEST-NORTHWEST OF PANJIM (43192), 380 KM SOUTH-SOUTHWEST OF MUMBAI (43003) AND 600 KM SOUTH-SOUTHWEST OF SURAT (42840).

IT IS VERY LIKELY TO INTENSIFY INTO A SEVERE CYCLONIC STORM DURING NEXT 12 HOURS. IT IS VERY LIKELY TO MOVE NEARLY NORTHWARDS DURING NEXT FEW HOURS, RECURVE NORTH-NORTHEASTWARDS THEREAFTER AND CROSS NORTH MAHARASHTRA AND ADJOINING SOUTH GUJARAT COAST BETWEEN HARIHARESHWAR AND DAMAN(42916), **CLOSE TO ALIBAG (RAIGAD DISTRICT, MAHARASHTRA STATE) AROUND 0900 UTC OF 03RD JUNE AS A SEVERE CYCLONIC STORM WITH A MAXIMUM SUSTAINED WIND SPEED OF 100-110 KMPH GUSTING TO 120 KMPH.**

Forecast track and intensity are given in the following table:

DATE/TIME(UTC)	POSITION (LAT. ^{0}N/ LONG. ^{0}E)	MAXIMUM SUSTAINED SURFACE WIND SPEED (KMPH)	CATEGORY OF CYCLONIC DISTURBANCE
02.06.20/0900	16.0/71.2	60-70 GUSTING TO 80	CYCLONIC STORM
02.06.20/1200	16.3/71.3	80-90 GUSTING TO 100	CYCLONIC STORM
02.06.20/1800	17.0/71.5	90-100 GUSTING TO 110	SEVERE CYCLONIC STORM
03.06.20/0000	17.7/72.0	100-110 GUSTING TO 120	SEVERE CYCLONIC STORM
03.06.20/0600	18.5/72.7	100-110 GUSTING TO 120	SEVERE CYCLONIC STORM
03.06.20/1800	19.9/73.9	70-80 GUSTING TO 90	CYCLONIC STORM
04.06.20/0600	21.3/75.2	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%

AS PER INSAT-3D SATELLITE IMAGERY BASED ON 0900 UTC OF 02nd JUNE, THE CURRENT INTENSITY OF THE SYSTEM IS T 2.5 ASSOICATED WITH CURVED BAND PATTERN WITH WRAP 0.5 ON 10 DEGREE LOG SPIRAL. THE SYSTEM HAS BEEN FURTHER WELL ORGANISED IN LAST 3-HOURS. ASSOCIATED BROKEN LOW/MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION OBSERVED OVER EASTCENTRAL ARABIAN SEA BETWEEN LATITUDE 13.0N TO 18.0N AND LONGITUDE 66.0E TO 74.0E. MINIMUM CLOUD TOP TEMPERATURE (CTT) IS MINUS 93°C.

THE ESTIMATED MAXIMUM SUSTAINED WIND SPEED IS 35 KNOTS GUSTING TO 45 KNOTS. THE SEA CONDITION IS ROUGH TO VERY ROUGH AROUND THE SYSTEM CENTER. THE ESTIMATED CENTRAL PRESSURE IS 998 HPA.

AT 0900 UTC OF 02nd JUNE, A BOUY (23451) LOCATED AT 14.9°N/68.9°E REPORTED A MEAN SEA LEVEL PRESSURE OF 1004.7 HPA AND MEAN SURFACE WIND SPEED OF 040°/23.3 KNOTS. A BOUY (23452) LOCATED AT 12.0°N/68.6°E REPORTED A MEAN SEA LEVEL PRESSURE OF 1005.7 HPA AND MEAN SURFACE WIND SPEED OF 320°/21.4 KNOTS.

STORM SURGE GUIDANCE

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.

REMARKS:

THE MADDEN JULIAN OSCILLATION (MJO) INDEX LIES CURRENTLY IN PHASE 1 WITH AMPLITUDE MORE THAN 1. IT WILL CONTINUE TO BE IN SAME PHASE DURING NEXT 7 DAYS WITH AMPLITUDE REMAINING MORE THAN 1.

THE SEA SURFACE TEMPERATURE (SST) IS 30-31˚C OVER EASTCETNRAL ARABIAN SEA. THE TROPICAL CYCLONE HEAT POTENTIAL IS 100-120 KJ/CM^2 OVER EASTCENTRAL ARABIAN SEA AND BECOMING 80-100 KJ/CM^2 NEAR KARNATAKA, MAHARASHTRA AND GUJARAT COAST.

THE LOWER LEVEL VORTICITY CONTINUES TO LIE AROUND THE SYSTEM CENTER AND FURTHER INCREASED IN PAST 3-HOURS WITH THE VALUE OF ABOUT 200 TO 250 X10^{-5} SEC^{-1} OVER EASTCENTRAL ARABIAN SEA. THE LOWER LEVEL CONVERGENCE AND THE UPPER LEVEL DIVERGENCE CONTINUE TO BE AROUND VALUE OF 40X10^{-5} SEC^{-1} AND 40X10^{-5} SEC^{-1} RESPECTIVELY AND LIE AROUND THE SYSTEM CENTER. VERTICAL WIND SHEAR IS NOW LOW TO MODERATE (15-20 KTS) AROUND THE SYSTEM CENTRE AND IS MODERATE (20-30 KTS) ALONG THE FORECAST TRACK. ALL THESE ENVIRONMENTAL AND DYNAMICAL CONDITIONS HIGHLY FAVOURING ITS INTENSIFICATION INTO A SEVERE CYCLONIC STORM DURING NEXT 12-HOURS.

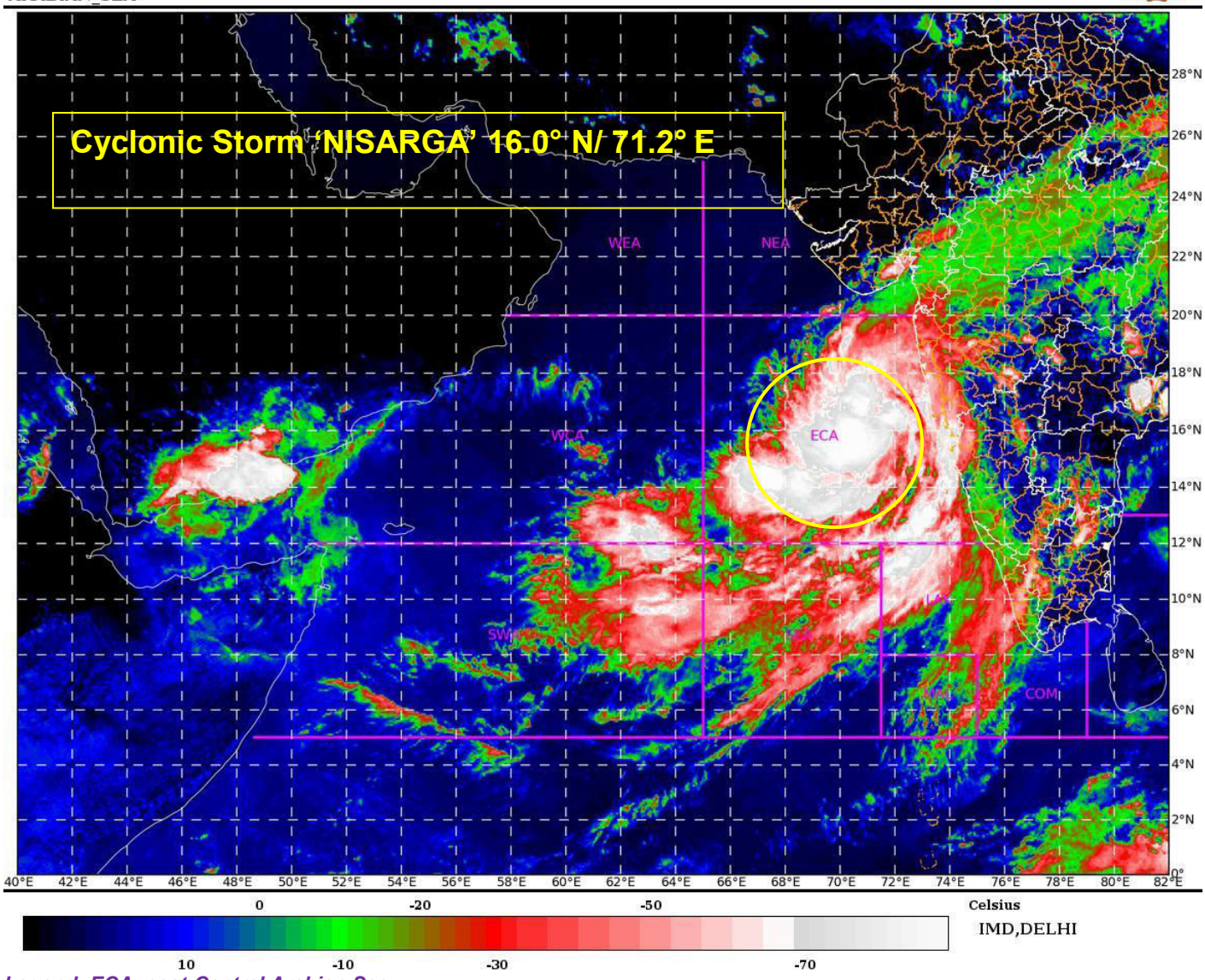
MOST OF THE NUMERICAL MODELS INCLUDING ECMWF, IMD GFS, NCEP GFS, GEFS, NEPS, NCUM ETC., ARE INDICATING FURTHER INTENSIFICATION OF THE SYSTEM, INITIAL NORTHWARD MOVEMENT AND NORTH-NORTHEASTWARD RE-CURVATURE THEREAFTER. UNDER FAVOURABLE ENVIRONMENTAL CONDITIONS LIKE LOW TO MODERATE VERTICAL WIND SHEAR AND HIGH OCEAN HEAT CONTENT, ALONG WITH THE WIND SURGE ASSOCIATED WITH THE SOUTHWEST MONSOON FLOW OVER THE REGION, THE SYSTEM IS VERY LIKELY TO INTENSIFY **INTO A SEVERE CYCLONIC STORM DURING THE SUBSEQUENT 12 HOURS**. IT IS VERY LIKELY TO MOVE NEARLY NORTHWARDS FOR NEXT FEW HOURS AND THEN RECURVE NORTH-NORTHEASTWARDS THEREAFTER.

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

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
IMG_TIR1_TEMP 10.8 um
ARABIAN_SEA

02-06-2020/(0930 to 0956) GMT
02-06-2020/(1500 to 1526) IST



Legend: ECA- east-Central Arabian Sea

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)
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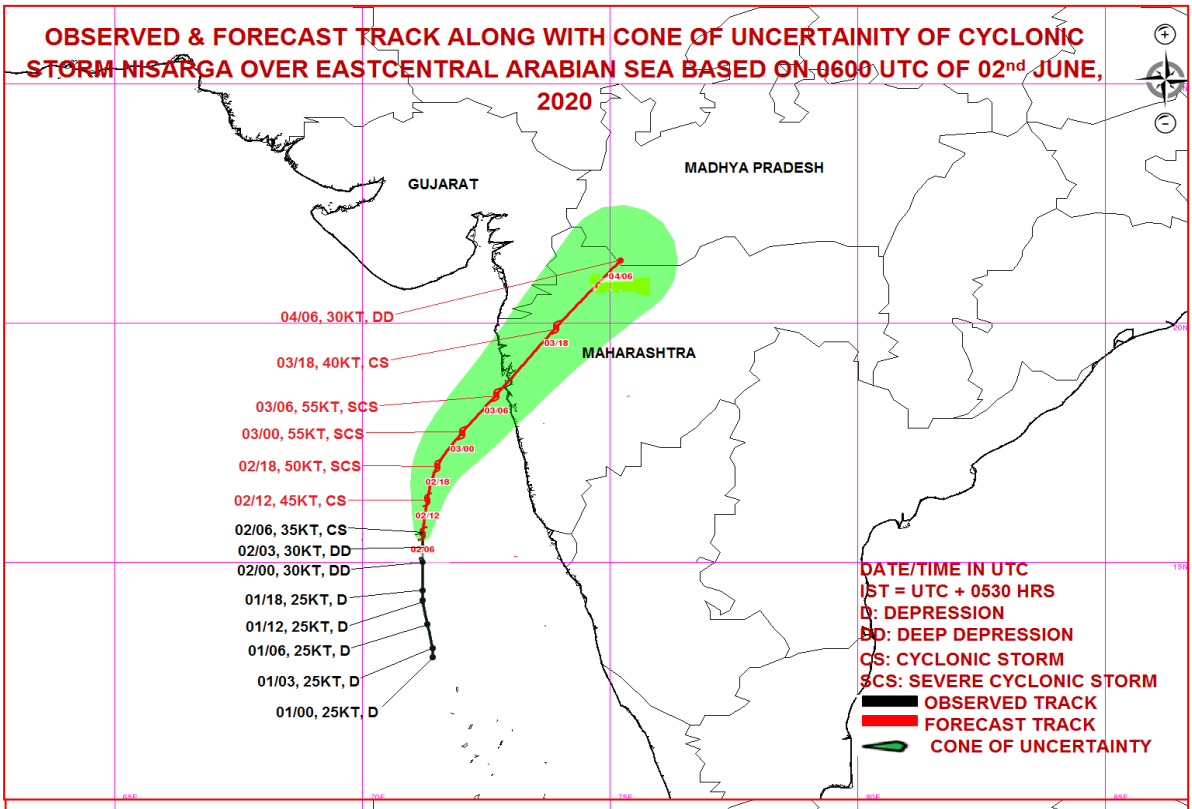
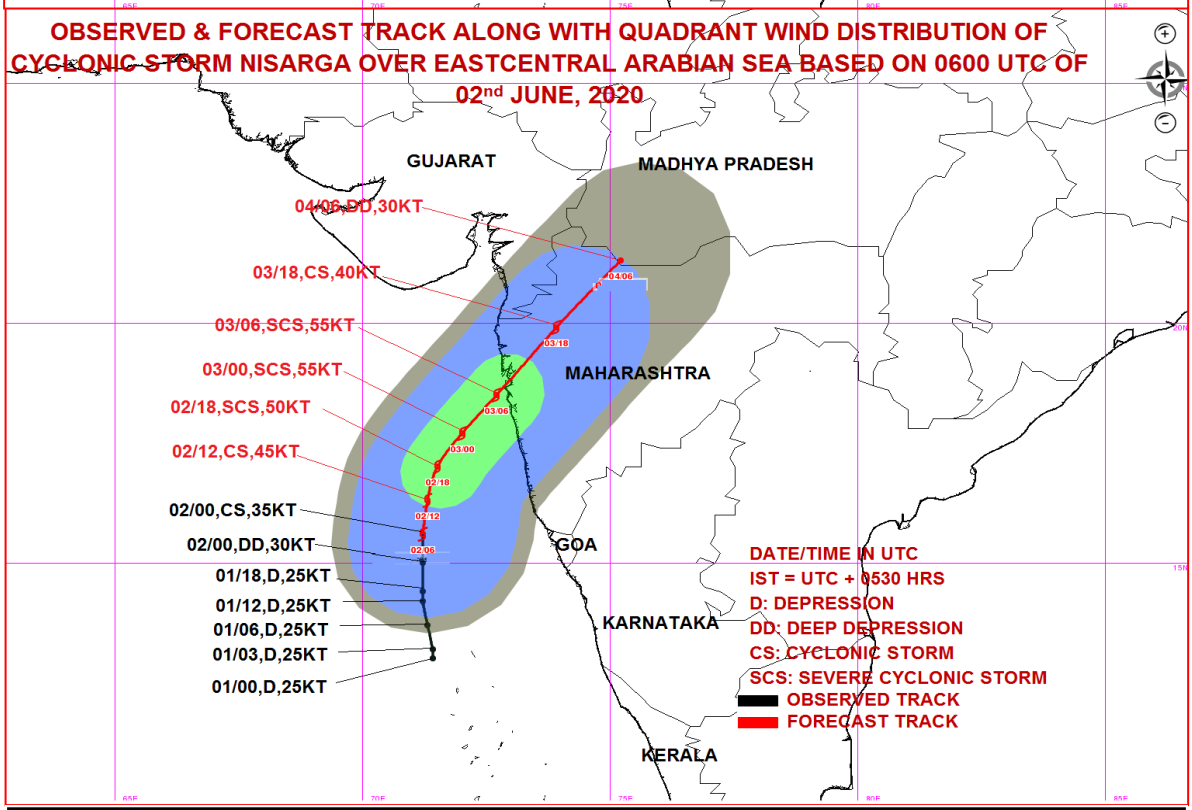
OBSERVED & FORECAST TRACK ALONG WITH CONE OF UNCERTAINITY OF CYCLONIC STORM NISARGA OVER EASTCENTRAL ARABIAN SEA BASED ON 0600 UTC OF 02nd JUNE, 2020



OBSERVED & FORECAST TRACK ALONG WITH QUADRANT WIND DISTRIBUTION OF CYCLONIC STORM NISARGA OVER EASTCENTRAL ARABIAN SEA BASED ON 0600 UTC OF 02nd JUNE, 2020



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

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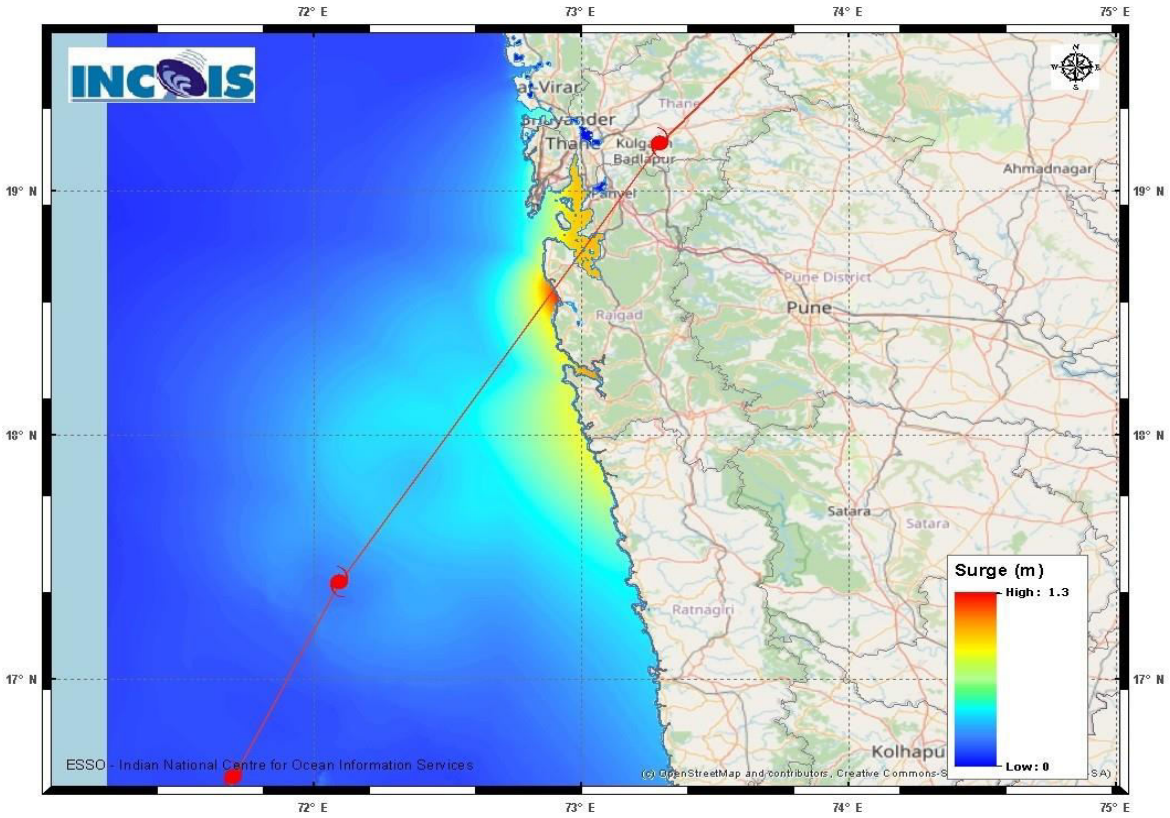
STORM SURGE GUIDANCE



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	Upto 1.9
DAPOLI	RATNAGIRI	MAHARASHTRA	DAPOLI	0.6-0.8	Upto 0.1
PEN	RAIGAD	MAHARASHTRA	PEN	0.8-1.0	Upto 1.4
THANE	GREATER MUMBAI	MAHARASHTRA	THANE	0.8-1.0	Upto 0.2
VASAI	THANE	MAHARASHTRA	VASAI	0.5-0.7	Upto 1.1

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