



REGIONAL SPECIALISED METEOROLOGICAL CENTRE-TROPICAL CYCLONES, NEW DELHI
TROPICAL CYCLONE ADVISORY BULLETIN NO. 4

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. 4 FOR NORTH INDIAN OCEAN (THE BAY OF BENGAL AND ARABIAN SEA) VALID FOR NEXT 120 HOURS ISSUED AT 1730 UTC OF 02.06.2020 BASED ON 1500 UTC OF 02.06.2020.

SUB: CYCLONIC STORM “NISARGA” OVER EASTCENTRAL ARABIAN SEA

THE **CYCLONIC STORM ‘NISARGA’** OVER EASTCENTRAL ARABIAN SEA MOVED NORTH-NORTHEASTWARDS WITH A SPEED OF 11 KMPH DURING PAST 06 HOURS, AND LAY CENTRED AT 1500 UTC OF TODAY, THE 02ND JUNE, 2020 OVER EASTCENTRAL ARABIAN SEA NEAR LATITUDE 16.6°N AND LONGITUDE 71.4°E, ABOUT 290 KM WEST-NORTHWEST OF PANJIM (43192), 310 KM SOUTH-SOUTHWEST OF MUMBAI (43003), 270 KM SOUTH-SOUTHWEST OF ALIBAGH (43058) AND 530 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 NORTH-NORTHEASTWARDS AND CROSS NORTH MAHARASHTRA AND ADJOINING SOUTH GUJARAT COAST BETWEEN HARIHARESHWAR AND DAMAN, **CLOSE TO ALIBAGH (RAIGAD DISTRICT, MAHARASHTRA) DURING THE AFTERNOON 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. °N/ LONG. °E)	MAXIMUM SURFACE (KMPH)	SUSTAINED WIND SPEED	CATEGORY OF CYCLONIC DISTURBANCE
02.06.20/1500	16.0/71.4	75-85 GUSTING TO 95		CYCLONIC STORM
02.06.20/1800	17.0/71.5	80-90 GUSTING TO 100		CYCLONIC STORM
03.06.20/0000	17.7/72.0	90-100 GUSTING TO 110		SEVERE CYCLONIC STORM
03.06.20/0600	18.5/72.7	100-110 GUSTING TO 120		SEVERE CYCLONIC STORM
03.06.20/1200	19.2/73.3	90-100 GUSTING TO 110		SEVERE CYCLONIC STORM
04.06.20/0000	20.6/74.5	50-60 GUSTING TO 70		DEEP DEPRESSION
04.06.20/1200	22.0/75.7	30-40 GUSTING TO 50		DEPRESSION

AS PER INSAT-3D SATELLITE IMAGERY BASED ON 1500 UTC OF 02ND JUNE, THE CURRENT INTENSITY OF THE SYSTEM IS T 2.5 ASSOCIATED WITH CURVED BAND PATTERN WITH

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

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

WRAP 0.5 ON 10° 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 12.0°N TO 19.0°N AND LONGITUDE 66.0°E TO 75.0°E. MINIMUM CLOUD TOP TEMPERATURE (CTT) IS MINUS 93°C.

THE ESTIMATED MAXIMUM SUSTAINED WIND SPEED IS 40 KNOTS GUSTING TO 50 KNOTS. THE SEA CONDITION IS HIGH TO VERY HIGH AROUND THE SYSTEM CENTER. THE ESTIMATED CENTRAL PRESSURE IS 996 HPA.

AT 1500 UTC OF 02nd JUNE, A BOUY (23452) LOCATED AT 12.0°N/68.7°E REPORTED A MEAN SEA LEVEL PRESSURE OF 1007.4 HPA, MEAN SURFACE WIND SPEED OF 350°/14 KNOTS AND SEA SURFACE TEMPERATURE 30.4 °C.

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 AROUND THE SYSTEM CENTER OVER EASTCENTRAL ARABIAN SEA AND IT DECREASES ALONG THE TRACK TOWARDS COAST TO 29-30°C. THE TROPICAL CYCLONE HEAT POTENTIAL IS 100-120 KJ/CM² OVER EASTCENTRAL ARABIAN SEA AND BECOMING 80-100 KJ/CM² NEAR KARNATAKA, MAHARASHTRA AND GUJARAT COAST.

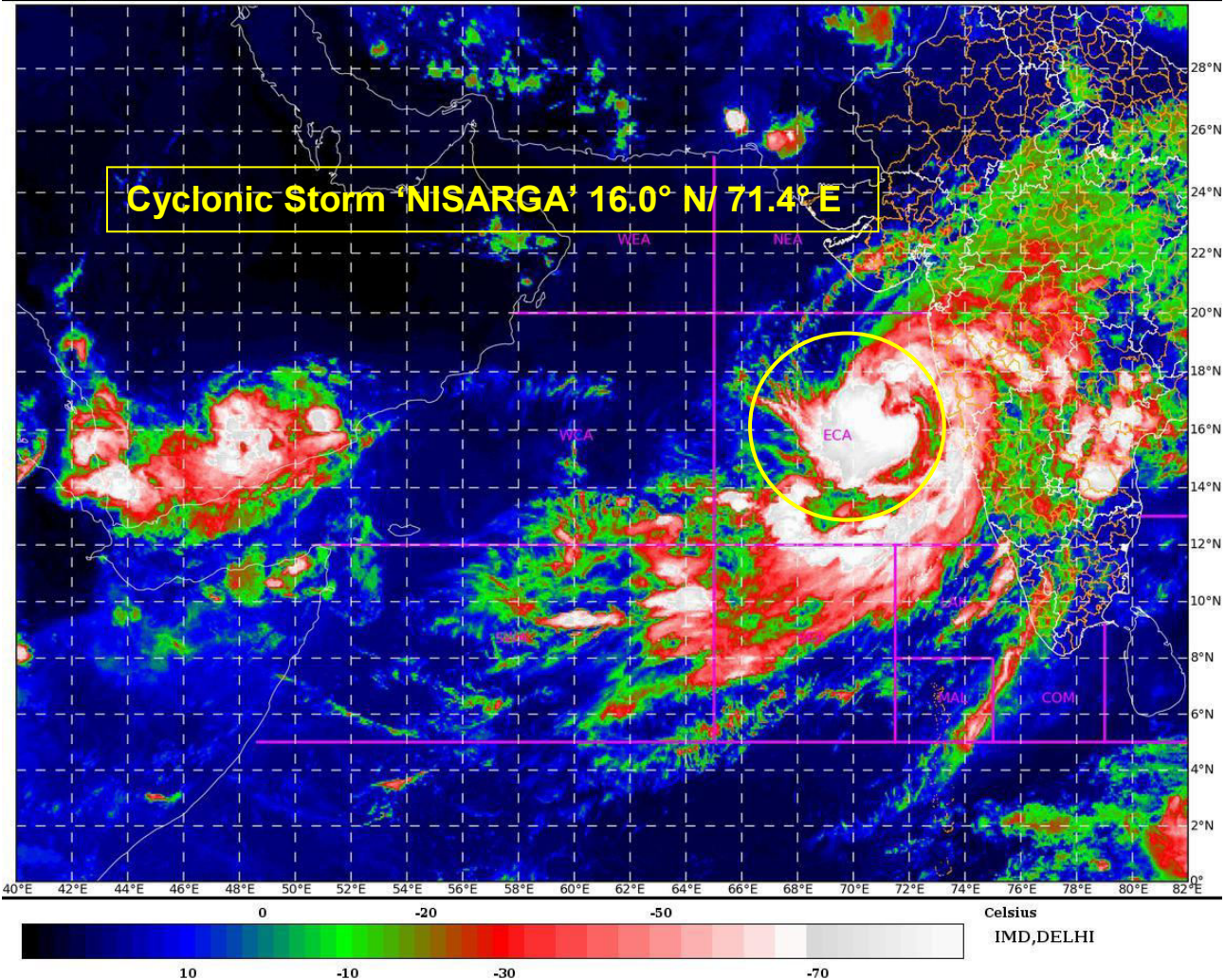
THE LOWER LEVEL VORTICITY IS ABOUT $200 \times 10^{-5} \text{ SEC}^{-1}$ AROUND THE SYSTEM CENTER. THE LOWER LEVEL CONVERGENCE IS ABOUT $30 \times 10^{-5} \text{ SEC}^{-1}$ AROUND THE SYSTEM CENTRE AND THE UPPER LEVEL DIVERGENCE IS ABOUT $20 \times 10^{-5} \text{ SEC}^{-1}$ AROUND THE SYSTEM CENTER. THE VERTICAL WIND SHEAR IS LOW TO MODERATE (05-15 KTS) AROUND THE SYSTEM CENTRE. ALL THESE ENVIRONMENTAL AND DYNAMICAL CONDITIONS FAVOURING ITS INTENSIFICATION INTO A SEVERE CYCLONIC STORM DURING NEXT 12-HOURS. **PRESENTLY THE SYSTEM IS BEING STEERED BY AN ANTICYCLONIC CIRCULATION TO THE EAST OF THE SYSTEM CENTER OVER PENINSULAR INDIA. AS THE SYSTEM LIES IN THE WESTERN PERIPHERI OF THE ANTICYCLONE, IT WILL GRADUALLY MOVE NORTHNORTHEASTWARDS MAHARASHTRA COAST.**

THERE IS A CONSENSUS AMONG NUMERICAL WEATHER PREDICTION MODELS INCLUDING ECMWF, IMD GFS, NCEP GFS, GEFS, NEPS, NCUM ETC FOR FURTHER INTENSIFICATION OF THE SYSTEM INTO A SEVERE CYCLONIC STORM WITH WINDS UPTO 50-60KTS DURING NEXT 12-HOURS. IT IS LIKELY TO MOVE TO NORTH-NORTHEASTWARDS TOWARDS NORTH MAHARASHTRA AND ADJOINING SOUTH GUJARAT COAST AND MAKE LANDFALL **CLOSE TO ALIBAG (43058) BY 0900UTC OF 3RD JUNE.**

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

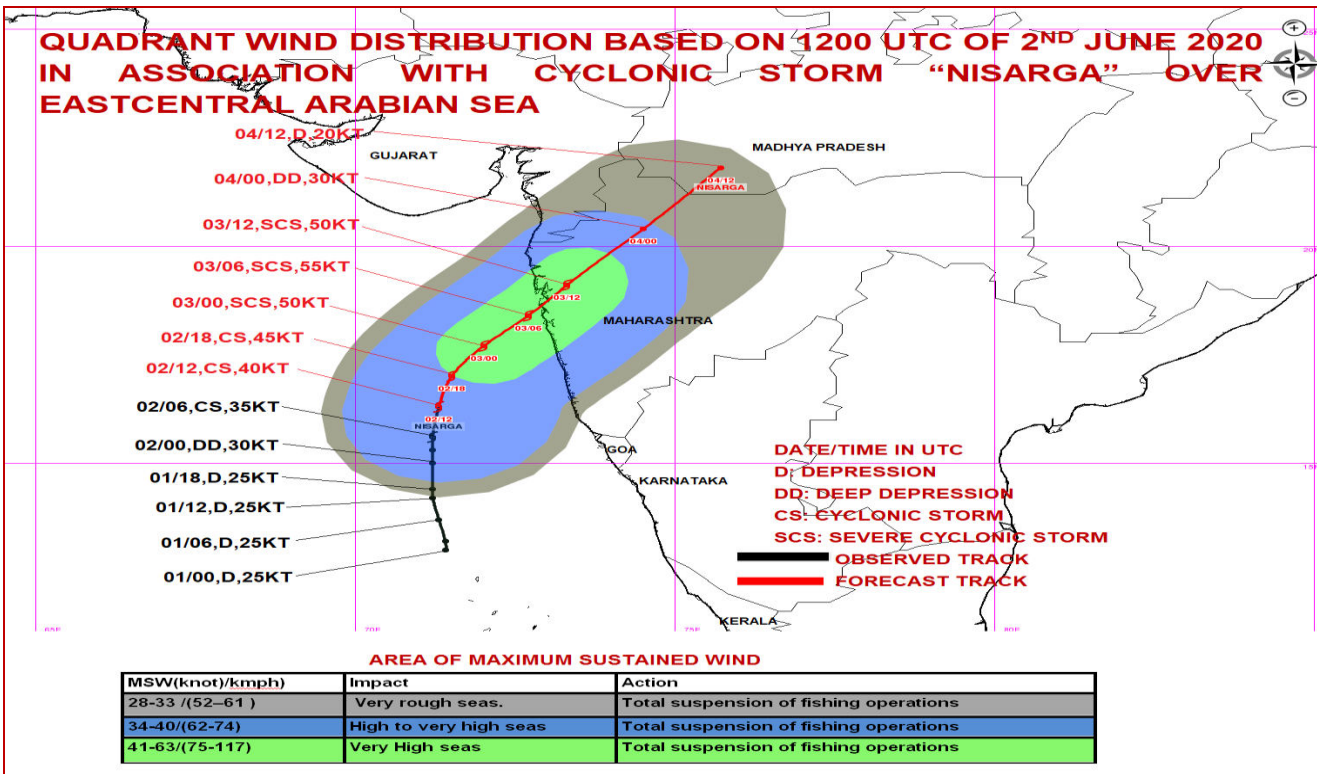
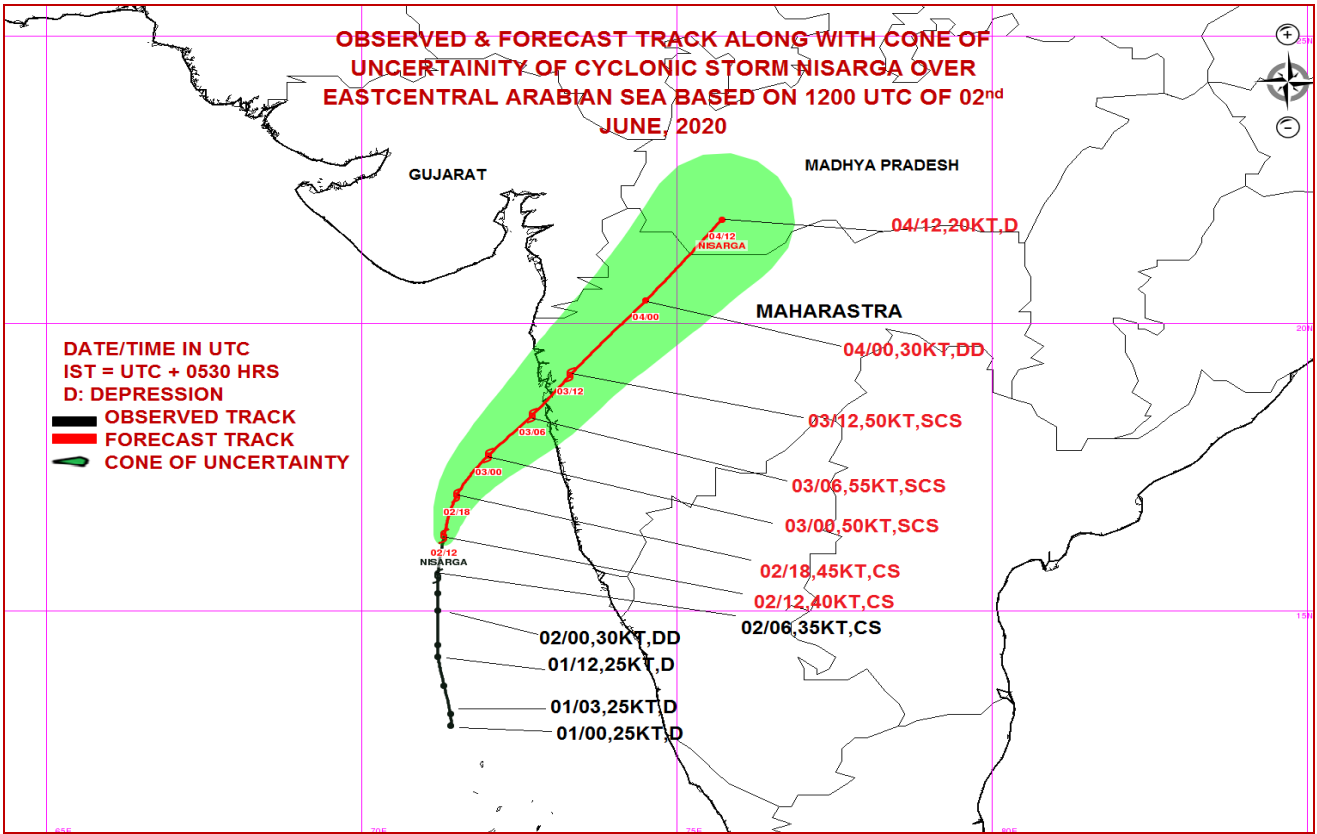
PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION)

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



Legend: ECA- east-Central Arabian Sea

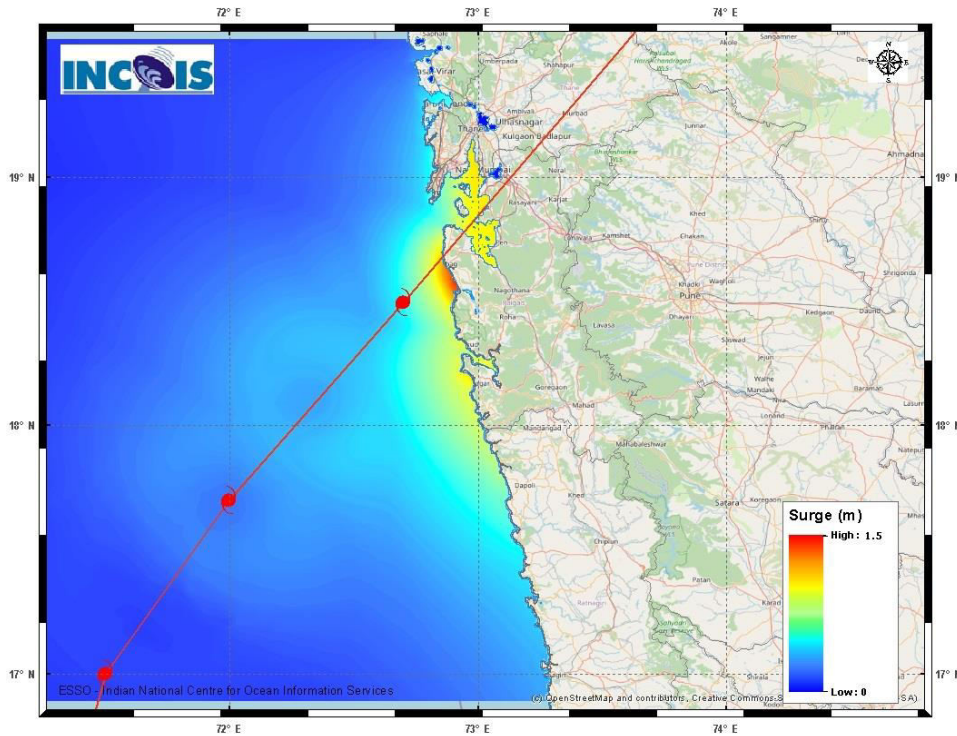
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Storm surge Warning



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	RAIGARH	MAHARASHTRA	ALIBAG	0.5-1.5	Upto 1.4
PEN	RAIGARH	MAHARASHTRA	PEN	0.8-1.1	Upto 2.2
THANE	GREATER MUMBAI	MAHARASHTRA	THANE	0.5-1.1	Upto 0.34
DAPOLI	RATNAGIRI	MAHARASHTRA	DAPOLI	0.5-0.8	Upto 0.1
GUHAGAR	RATNAGIRI	MAHARASHTRA	GUHAGAR	0.5-0.6	Upto 0.22
VASAI	THANE	MAHARASHTRA	VASAI	0.5-0.6	Upto 1.11

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