



REGIONAL SPECIALISED METEOROLOGICAL CENTRE-TROPICAL CYCLONES, NEW DELHI
TROPICAL WEATHER OUTLOOK

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. 10 FOR NORTH INDIAN OCEAN (THE BAY OF BENGAL AND ARABIAN SEA) VALID FOR NEXT 120 HOURS ISSUED AT 1700 UTC OF 26.09.2021 BASED ON 1500 UTC OF 26.09.2021.

Sub: Cyclonic Storm 'Gulab' (pronounced as Gul-Aab) crossed north Andhra Pradesh and south Odisha coasts: Post landfall outlook for north Andhra Pradesh and south Odisha coasts – **Red Message**

THE CYCLONIC STORM 'GULAB' (PRONOUNCED AS GUL-AAB) OVER NORTHWEST AND ADJOINING WESTCENTRAL BAY OF BENGAL MOVED NEARLY WESTWARDS WITH A SPEED OF 27 KMPH DURING LAST 06 HOURS, CROSSED NORTH ANDHRA PRADESH–SOUTH ODISHA COASTS, NEAR LATITUDE 18.4° N AND LONGITUDE 84.2°E, ABOUT 20 KM NORTH OF KALINGAPATNAM WITH A MAXIMUM SUSTAINED WIND SPEED OF 75-85 KMPH GUSTING TO 95 KMPH DURING 1400 & 1500 UTC AND LAY CENTERED AT 2030 HRS IST OF 26TH SEPTEMBER 2021, OVER NORTH COASTAL ANDHRA PRADESH NEAR LAT. 18.3°N AND LONG. 83.8°E, ABOUT 160 KM SOUTH-SOUTHWEST OF GOPALPUR (43049) & 30 KM WEST OF KALINGAPATNAM (43105).

IT IS LIKELY TO MOVE WEST-NORTHWESTWARDS AND WEAKEN INTO A DEEP DEPRESSION DURING NEXT 06 HOURS.

FORECAST TRACK AND INTENSITY ARE GIVEN IN THE FOLLOWING TABLE:

Date/Time(UTC)	Position (Lat. °N/ long. °E)	Maximum sustained surface wind speed (Kmph)	Category of cyclonic disturbance
26.09.21/1500	18.3/83.8	70-80 gusting to 90	CYCLONIC STORM
26.09.21/1800	18.3/83.4	60-70 gusting to 80	CYCLONIC STORM
27.09.21/0000	18.4/82.5	50-60 gusting to 70	DEEP DEPRESSION
27.09.21/0600	18.5/81.6	40-50 gusting to 60	DEPRESSION
27.09.21/1200	18.6/80.7	30-40 gusting to 50	WELL MARKED LOW

AS PER INSAT-3D IMAGERY AT 1500 UTC OF 26TH SEP., THE INTENSITY OF THE SYSTEM IS CATEGORISED AS T 2.5. MINIMUM CLOUD TOP TEMPERATURE IS -93°C. ASSOCIATED BROKEN LOW AND MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE

CONVECTION LAY OVER NORTHWEST AND ADJOINING WESTCENTRAL BAY OF BENGAL BETWEEN LATITUDE 15.5°N & 19.0°N AND LONGITUDE 81.5°E & 85.5°E AND SOUTH COASTAL ODISHA & NORTH COASTAL ANDHRA PRADESH.

THE ESTIMATED MAXIMUM SUSTAINED WIND SPEED IS 40 KNOTS GUSTING TO 50 KNOTS. THE SEA CONDITION WILL BE HIGH OVER NORTHWEST & ADJOINING WESTCENTRAL BOB FOR NEXT 6 HOURS AND ROUGH TO VERY ROUGH DURING SUBSEQUENT 24 HOURS. THE ESTIMATED CENTRAL PRESSURE IS 992 HPA.

STORM SURGE GUIDANCE: TIDAL WAVE OF ABOUT 0.5 M HEIGHT ABOVE THE ASTRONOMICAL TIDE LIKELY TO INUNDATE LOW LYING AREAS OF SRIKAKULAM, VIZIANAGARAM, GANJAM DISTRICTS DURING THE TIME OF LANDFALL.

REMARKS:

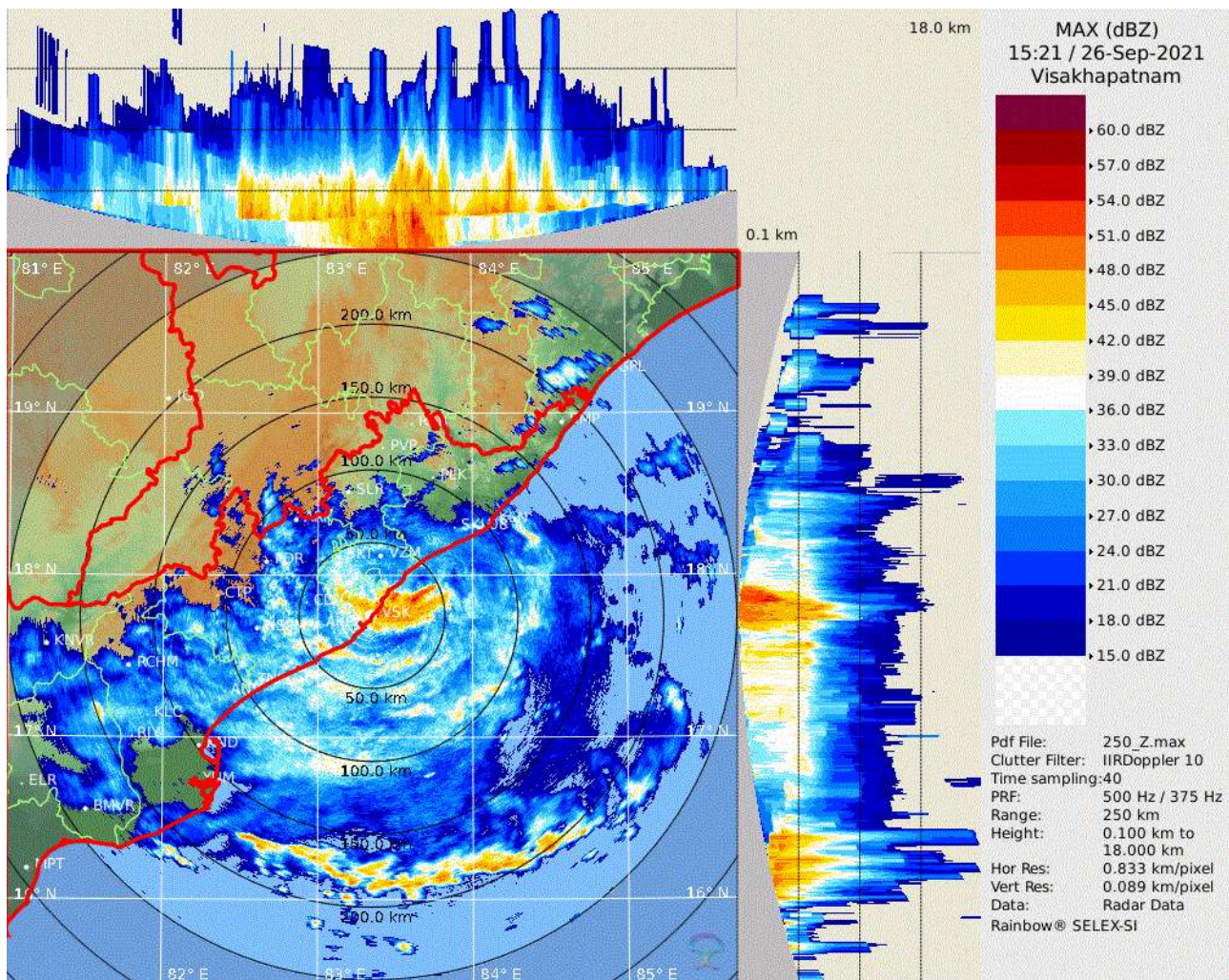
SEA SURFACE TEMPERATURE (SST) IS ABOUT 28-29°C OVER CENTRAL & ADJOINING NORTH BAY OF BENGAL (BOB) AND TROPICAL CYCLONE HEAT POTENTIAL (TCHP) IS ABOUT 80-90 KJ/CM² OVER THE SAME AREA. MADDEN JULIAN OSCILLATION (MJO) INDEX IS LYING IN PHASE 4 WITH AMPLITUDE MORE THAN 1. A ZONE OF POSITIVE LOW LEVEL VORTICITY ($150 \times 10^{-6} \text{S}^{-1}$) LIES AROUND THE SYSTEM CENTRE WITH VERTICAL EXTENSION UPTO UPPER TROPOSPHERIC LEVEL. A ZONE OF POSITIVE LOWER LEVEL CONVERGENCE OF $20 \times 10^{-5} \text{S}^{-1}$ LIES TO THE SOUTHWEST OF SYSTEM CENTRE. POSITIVE UPPER LEVEL DIVERGENCE OF $10 \times 10^{-5} \text{S}^{-1}$ IS ALSO SEEN TO THE SOUTHWEST OF SYSTEM CENTRE. VERTICAL WIND SHEAR (VWS) IS ABOUT 15-20 KTS OVER NORTHWEST AND ADJOINING CENTRAL BOB AND ALONG THE FORECAST TRACK. THE UPPER TROPOSPHERIC RIDGE IS SEEN NEAR 25°N. THE SYSTEM IS LYING IN THE SOUTHERN PERIPHERY OF THE RIDGE NEAR 25°N AND WILL BE STEERED NEARLY WESTWARDS DURING NEXT 24 HOURS.

AS THE SYSTEM HAS CROSSED THE COAST, IT IS LIKELY TO WEAKEN INTO A DEEP DEPRESSION DURING NEXT 06 HOURS. THE WARM SEA, FAVOURABLE MJO CONDITIONS, LOW TO MODERATE VERTICAL WIND SHEAR WILL HELP SYSTEM MAINTAIN IT'S CYCLONIC STORM INTENSITY DURING NEXT 06 HOURS. THE SYSTEM WILL TRACK NEARLY WESTWARDS DURING NEXT 12 HOURS.

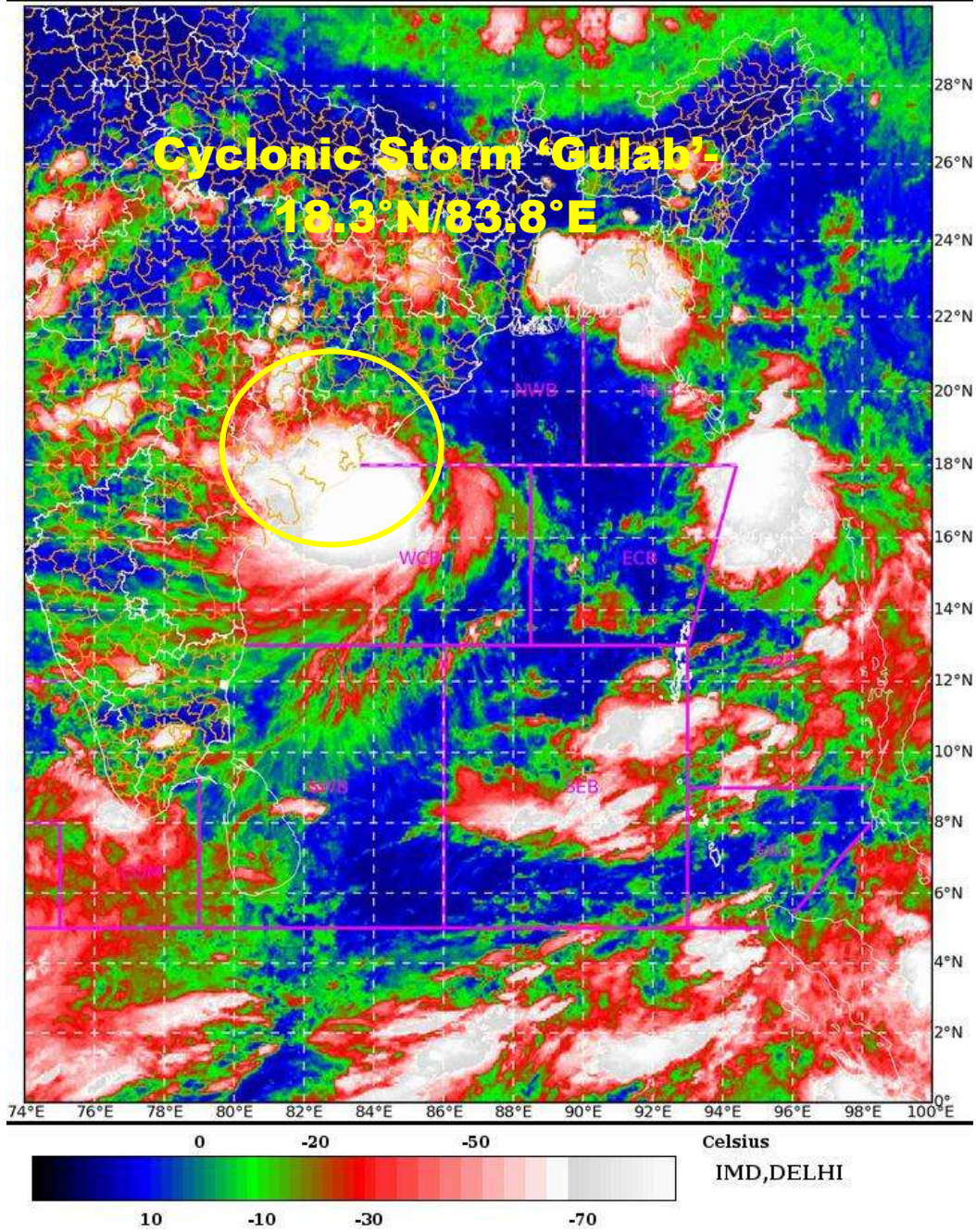
THE NEXT BULLETIN WILL BE ISSUED AT 2100 UTC OF 26TH SEPTEMBER, 2021.

(RK JENAMANI)

SCIENTIST-F, RSMC, NEW DELHI



Reflectivity imagery from Doppler weather RADAR Vishakhapatnam based on 2051 IST of 26th September 2021.





OBSERVED AND FORECAST TRACK ALONGWITH QUADRANT WIND DISTRIBUTION OF CYCLONIC STORM GULAB OVER NORTH COASTAL ANDHRA PRADESH BASED ON 1500 UTC OF 26TH SEPTEMBER, 2021



DATE/TIME IN UTC

IST=UTC + 0530

L: LOW PRESSURE AREA

WML: WELL MARKED LOW PRESSURE AREA

D: DEPRESSION (17-27 KT)

DD: DEEP DEPRESSION (28-33 KT)

CS: CYCLONIC STORM (34-47 KT)

SCS: SEVERE CYCLONIC STORM (48-63KT)

VSCS: VERY SEVERE CYCLONIC STORM (64-89 KT)

ESCS: EXTREMELY SEVERE CYCLONIC STORM (90-119 KT)

SuCS: SUPER CYCLONIC STORM (≥ 120 KT)

- LESS THAN 34 KT
- 34-47 KT
- ≥ 48 KT
- OBSERVED TRACK
- FORECAST TRACK
- ▲ CONE OF UNCERTAINTY
- AREA OF MAXIMUM SUSTAINED WIND SPEED:
- 28-33 KT (52-61 KMPH)
- 34-49 KT (62-91 KMPH)
- 50-63 KT (92-117 KMPH)
- ≥ 64 KT (≥ 118 KMPH)

IMPACT OVER THE SEA

MSW (knot/kmph)	Impact	Action
28-33 (52-61)	Very rough seas	Total suspension of fishing operations
34-49 (62-91)	High to very high seas	Total suspension of fishing operations
50-63 (92-117)	Very high seas	Total suspension of fishing operations
≥ 64 (≥ 118)	Phenomenal	Total suspension of fishing operations



OBSERVED AND FORECAST TRACK OF CYCLONIC STORM GULAB OVER NORTH COASTAL ANDHRA PRADESH BASED ON 1500 UTC OF 26TH SEPTEMBER, 2021



DATE/TIME IN UTC
IST=UTC + 0530

L: LOW PRESSURE AREA

WML: WELL MARKED LOW PRESSURE AREA

D: DEPRESSION (17-27 KT)

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SuCS: SUPER CYCLONIC STORM (\geq 120 KT)

LESS THAN 34 KT

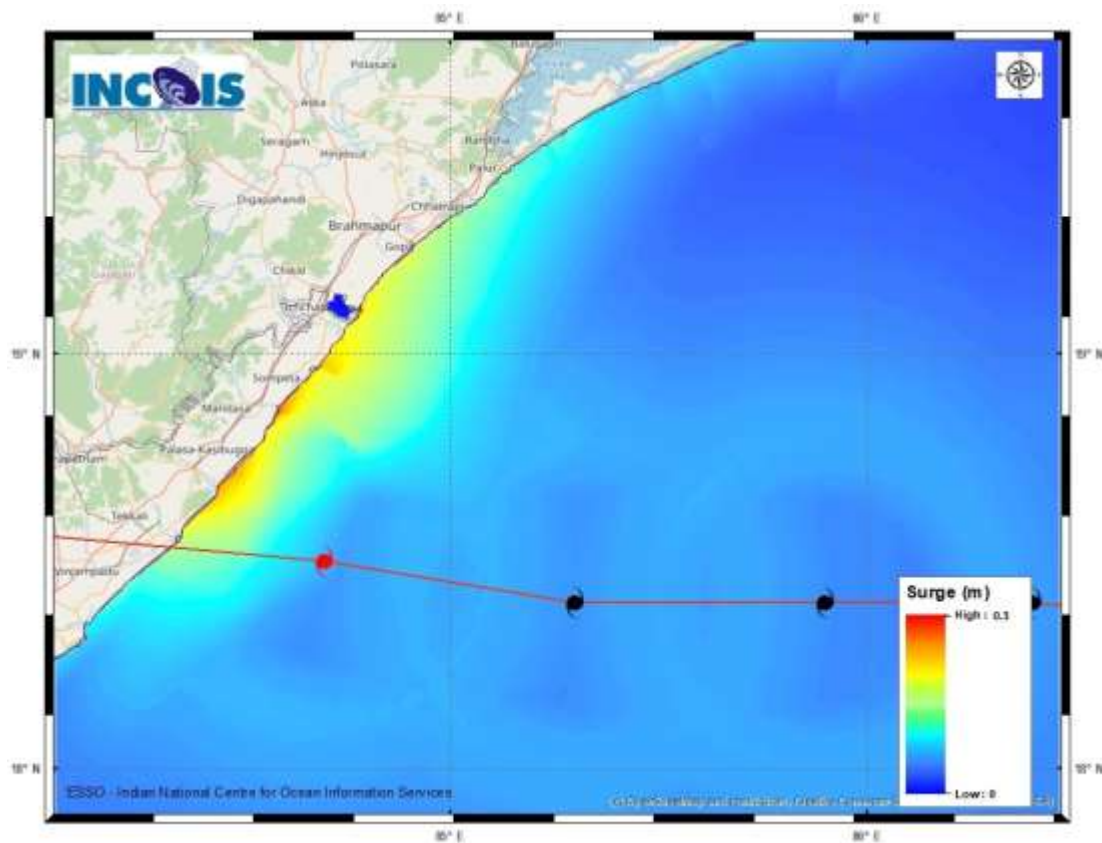
34-47 KT

\geq 48 KT

OBSERVED TRACK

FORECAST TRACK

CONE OF UNCERTAINTY



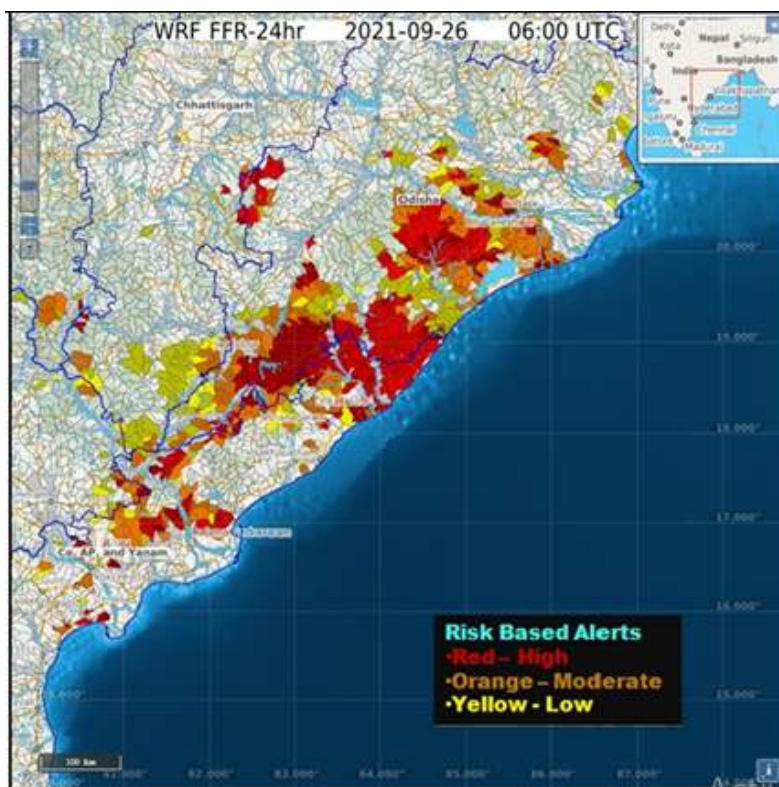
Storm surge graphics from INCOIS for the current system (BoB/04/2021)

Peak storm surge upto 0.5 m over and above the astronomical tide near Tekkali, Srikakulam, Andhra Pradesh and Ganjam District of Odisha.

24 hours Outlook for the Flash Flood Risk(FFR) till 1130 IST of 27.09.2021:

High Risk likely over few watersheds and neighborhoods of **North Coastal Andhra Pradesh and adjoining South Odisha & South Chhattisgarh districts** in next 24 hours.

Surface runoff/ Inundation may occur at some fully saturated soils & low-lying areas over the area as depicted in map **due to the expected rainfall of Cyclonic Storm “Gulab” approaching landfall in next 24 hours.**



Flash Flood Risk (FFR)

Flash Flood Risk products of 12-hour, 24-hour and 36-hour are relative frequencies of positive flash flood threat for the entire forecast lead time interval. This is a measure of the forecast flash flood occurrence frequency and may be considered as a flash flood outlook.