



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. 9 FOR NORTH INDIAN OCEAN (THE BAY OF BENGAL AND ARABIAN SEA) VALID FOR NEXT 120 HOURS ISSUED AT 1400 UTC OF 26.09.2021 BASED ON 1200 UTC OF 26.09.2021.

Sub: Cyclonic Storm 'Gulab' (pronounced as Gul-Aab) over Northwest & adjoining west-central Bay of Bengal: Cyclone warning & 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 24 KMPH DURING LAST 06 HOURS AND LAY CENTERED AT 1200 UTC OF 26TH SEPTEMBER 2021, OVER NORTHWEST AND ADJOINING WESTCENTRAL BAY OF BENGAL NEAR LAT. 18.4°N AND LONG. 84.6°E, ABOUT 100 KM SOUTH-SOUTHWEST OF GOPALPUR (43049) & 50 KM EAST-NORTHEAST OF KALINGAPATNAM (43105). THE SYSTEM IS LYING CLOSE TO COAST AND THE CENTRE IS ABOUT 30 KM TO THE EAST OF THE EXPECTED LANDFALL POINT.

AS PER THE LATEST METEOROLOGICAL OBSERVATIONS, THE CLOUD BANDS HAVE TOUCHED THE COASTAL REGIONS AND THUS THE LANDFALL PROCESS HAS COMMENCED OVER NORTH COASTAL ANDHRA PRADESH AND ADJOINING SOUTH COASTAL ODISHA. THE SYSTEM IS LIKELY TO CROSS NORTH ANDHRA PRADESH - SOUTH ODISHA COASTS BETWEEN KALINGAPATNAM (43105) & GOPALPUR (43049), ABOUT 25 KM TO THE NORTH OF KALINGAPATNAM AS A CYCLONIC STORM WITH MAXIMUM SUSTAINED WIND SPEED OF 75-85 KMPH GUSTING TO 95 KMPH DURING NEXT 3 HOURS.

THE CYCLONE IS BEING MONITORED BY DOPPLER WEATHER RADAR AT VISHAKHAPATNAM (43149) AS WELL AS BY THE COASTAL METEOROLOGICAL OBSERVATORIES. LIGHT TO MODERATE RAINFALL IN ASSOCIATION WITH THE INNER BANDS OF THE SYSTEM HAS COMMENCED OVER SOUTH COASTAL ODISHA AND COASTAL ANDHRA PRADESH. ALSO A GRADUAL & STEADY INCREASE IN WIND SPEED IS BEING RECORDED BY THE COASTAL STATIONS OF SOUTH ODISHA, SINCE 0700 UTC. AT 1200 UTC, PURI REPORTED A MAXIMUM WIND SPEED OF 31 KMPH, FOLLOWED BY GOPALPUR, 26 KMPH.

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
26.09.21/1200	18.4/84.6	75-85 gusting to 95	Cyclonic Storm
26.09.21/1800	18.5/83.8	60-70 gusting to 80	Cyclonic Storm
27.09.21/0000	18.6/82.5	55-65 gusting to 75	Deep Depression
27.09.21/0600	18.7/81.4	40-50 gusting to 60	Depression

AS PER INSAT-3D IMAGERY AT 1200 UTC OF 26th SEP., THE INTENSITY OF THE SYSTEM IS CATEGORISED AS T 2.5. MINIMUM CLOUD TOP TEMPERATURE IS -93^oC. 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 45 KNOTS GUSTING TO 55 KNOTS. THE SEA CONDITION IS HIGH OVER NORTHWEST & ADJOINING WESTCENTRAL BOB AROUND THE SYSTEM CENTRE DURING NEXT 24 HOURS. THE ESTIMATED CENTRAL PRESSURE IS 994 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:

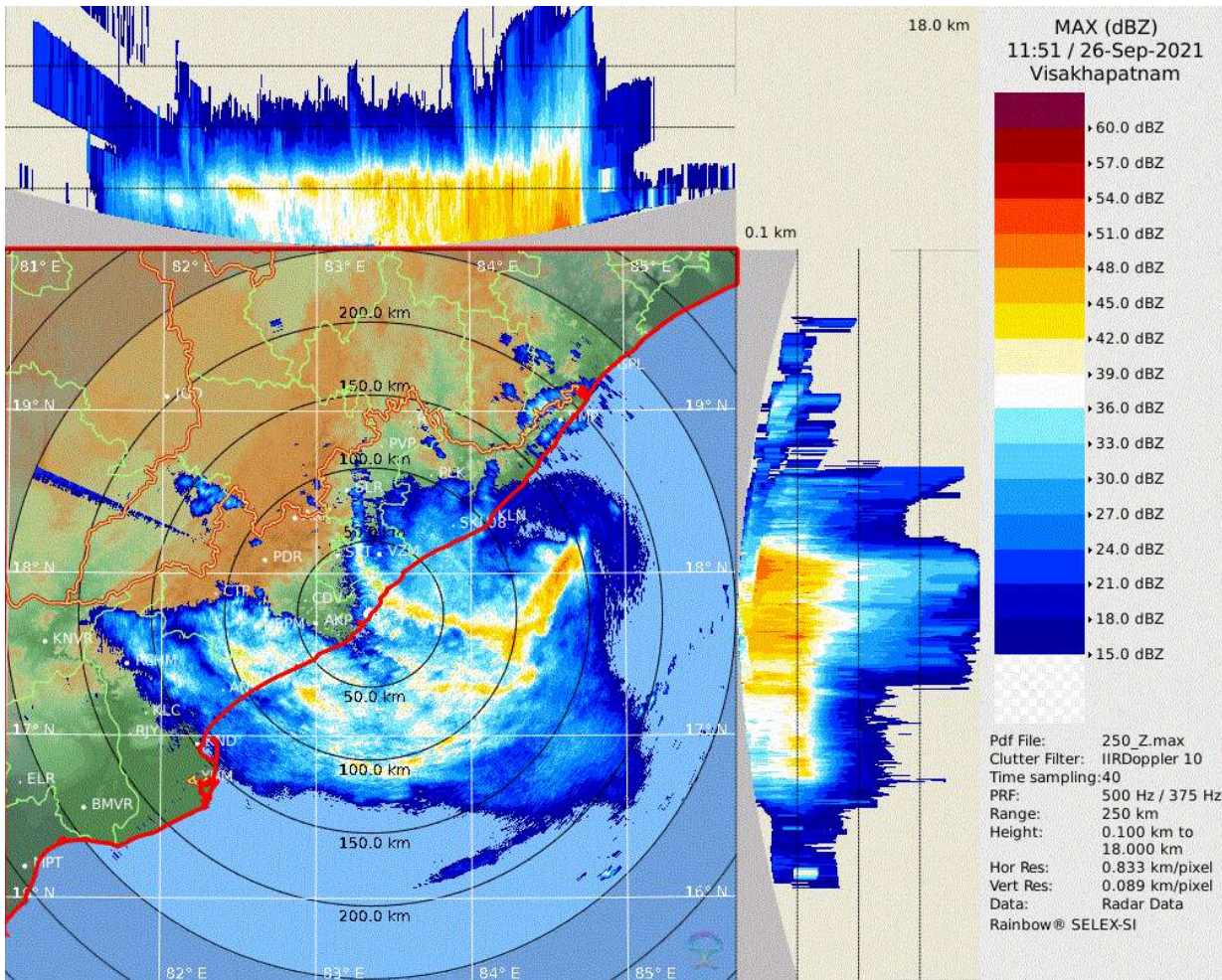
SEA SURFACE TEMPERATURE (SST) IS ABOUT 28-29°C OVER CENTRAL & ADJOINING NORTH BAY OF BENGAL (BOB) AND TROPICAL CYCLONE HEAT POTENTIAL (TCHP) IS ABOUT 80-90 KJ/CM² OVER THE SAME AREA. MADDEN JULIAN OSCILLATION (MJO) INDEX IS LYING IN PHASE 4 WITH AMPLITUDE MORE THAN 1. A ZONE OF POSITIVE LOW LEVEL VORTICITY ($150 \times 10^{-6} \text{S}^{-1}$) 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 10-15 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.

THE WARM SEA, FAVOURABLE MJO CONDITIONS, LOW TO MODERATE VERTICAL WIND SHEAR WILL HELP SYSTEM MAINTAIN IT'S CYCLONIC STORM INTENSITY DURING NEXT 12 HOURS. THE SYSTEM WILL TRACK NEARLY WESTWARDS AND WEAKEN GRADUALLY AFTER LANDFALL DURING NEXT 24 HOURS.

THE NEXT BULLETIN WILL BE ISSUED AT 1800 UTC OF 26TH SEPTEMBER, 2021.

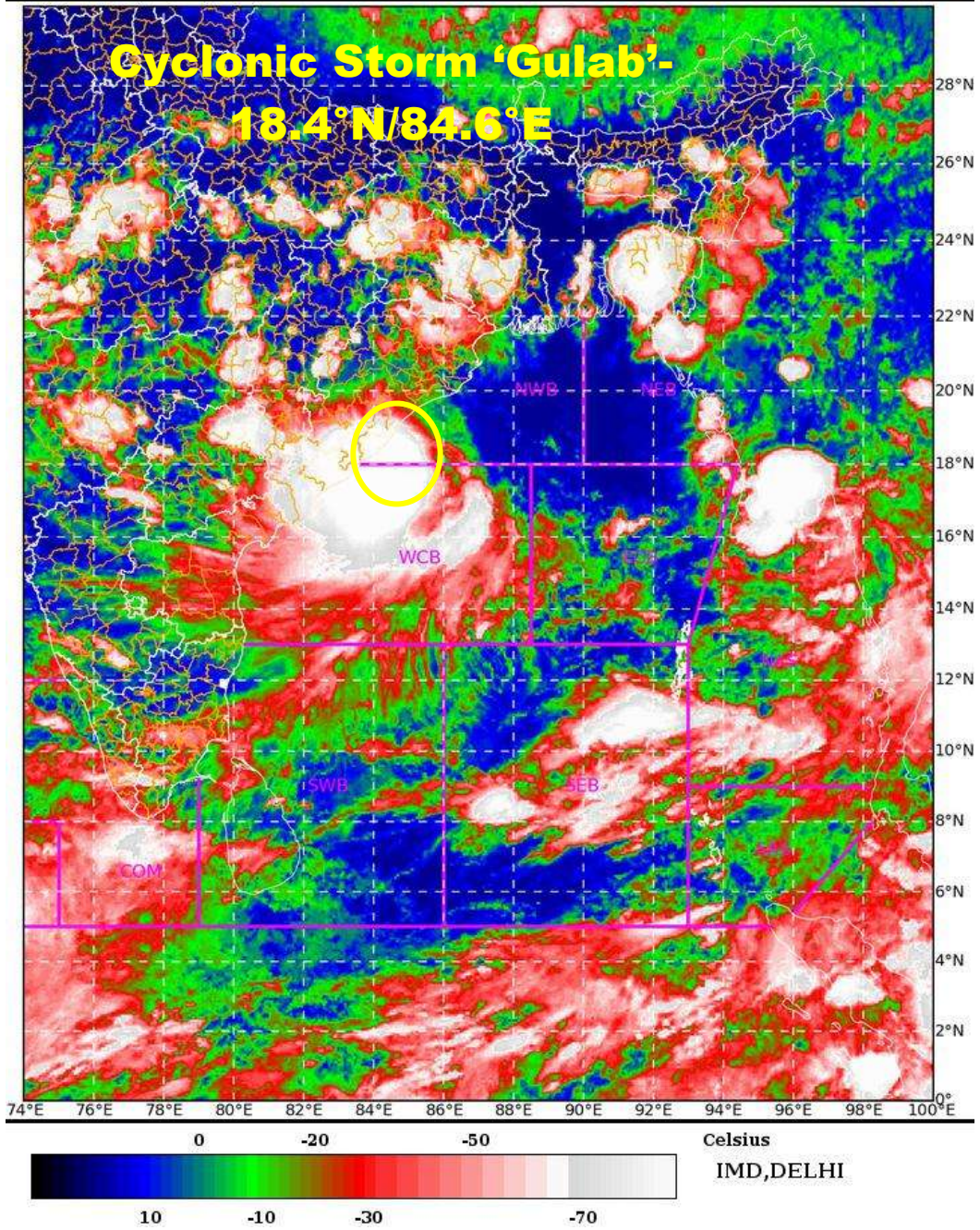
(SUNITHA DEVI S.)

SCIENTIST-F, RSMC, NEW DELHI



Reflectivity imagery from Doppler weather RADAR Vishakhapatnam based on 1720 IST of 26th September 2021.

SAT : INSAT-3D IMG 26-09-2021/(1200 to 1226) GMT
IMG_TIR1_TEMP 10.8 um 26-09-2021/(1730 to 1756) IST
L1C Mercator



PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION):NIL: 0%, LOW: 1-25%, FAIR: 26-50%, MODERATE: 51-75% AND HIGH: 76-100%
This is a guidance Bulletin for the WMO/ESCAP Panel Member countries., Please visit respective National websites for Country specific Bulletins



OBSERVED AND FORECAST TRACK OF CYCLONIC STORM GULAB OVER NORTHWEST AND ADJOINING WESTCENTRAL BAY OF BENGAL BASED ON 1200 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 (\geq 120 KT)

- LESS THAN 34 KT
- 34-47 KT
- \geq 48 KT
- OBSERVED TRACK
- FORECAST TRACK
- CONE OF UNCERTAINTY



OBSERVED AND FORECAST TRACK ALONGWITH QUADRANT WIND DISTRIBUTION OF CYCLONIC STORM GULAB OVER NORTHWEST AND ADJOINING WESTCENTRAL BAY OF BENGAL BASED ON 1200 UTC OF 26TH SEPTEMBER, 2021



DATE/TIME IN UTC

IST=UTC + 0530

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WML: WELL MARKED LOW PRESSURE AREA

D: DEPRESSION (17-27 KT)

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○ 34-47 KT

○ \geq 48 KT

— OBSERVED TRACK

— FORECAST TRACK

▲ CONE OF UNCERTAINTY

AREA OF MAXIMUM SUSTAINED WIND SPEED:

■ 28-33 KT (52-61 KMPH)

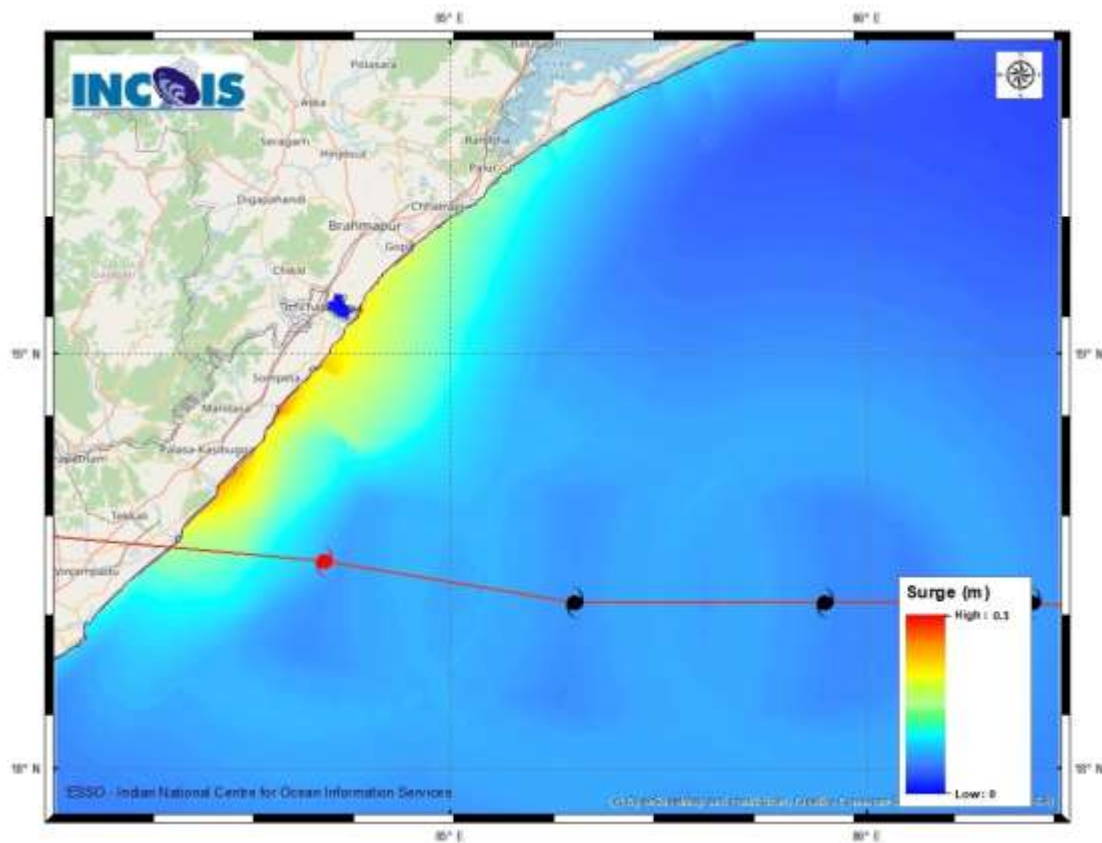
■ 34-49 KT (62-91 KMPH)

■ 50-63 KT (92-117 KMPH)

■ \geq 64 KT (\geq 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
\geq 64 (\geq 118)	Phenomenal	Total suspension of fishing operations



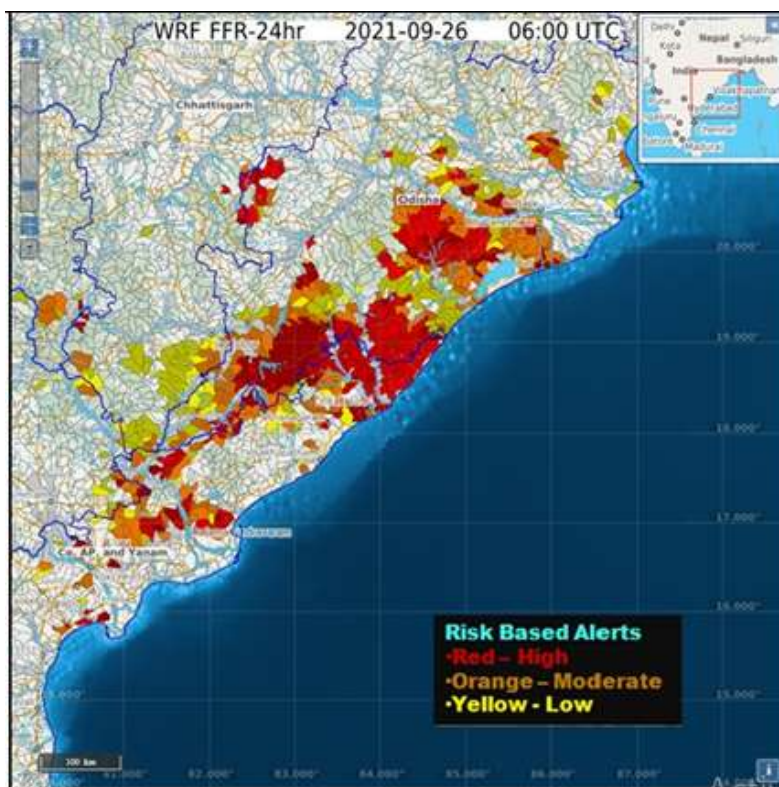
Storm surge graphics from INCOIS for the current system (BoB/04/2021)

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.