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

DEMS-RSMC TROPICAL CYCLONES NEW DELHI DATED 28.11.2024

SPECIAL TROPICAL WEATHER OUTLOOK FOR THE NORTH INDIAN OCEAN (THE BAY OF BENGAL AND THE ARABIAN SEA) VALID FOR THE NEXT 120 HOURS ISSUED AT 1000 UTC OF 28.11.2024 BASED ON 0600 UTC OF 28.11.2024.

Sub: Deep Depression over Southwest Bay of Bengal

The Deep Depression over Southwest Bay of Bengal moved slowly north-northeastwards with a speed of 3 Kmph during past 6 hours and lay centred at 1130 hours IST of today, the 28th November 2024 over the same region near latitude 9.2°N and longitude 82.3°E, about 130 km east-northeast of Trincomalee (43418), 320 km east-southeast of Nagappattinam (43347), 410 km southeast of Puducherry (43331) and 480 km south-southeast of Chennai (43279).

It is very likely to move nearly northwards skirting Sri Lanka coast during next 12 hours. Thereafter, it will move north-northwestwards and cross north Tamil Nadu-Puducherry coasts between Karaikal and Mahabalipuram around morning of 30th November as a deep depression with a wind speed of 50-60 kmph gusting to 70 kmph.

There is a possibility of marginal intensification of the deep depression into a Cyclonic Storm with wind speed 60-70 kmph gusting to 80 kmph over southwest Bay of Bengal during the evening of 28th November to morning of 29th November 2024.

The system is being tracked by DWR Karaikal. A continuous watch is being maintained for the movement and intensification of system.

Estimated Central Pressure in association with the system is 999 hPa and associated maximum sustained wind speed is 30 kts gusting to 40 kts.Rough to very Rough Sea conditions is very likely over southwest Bay of Bengal adjoining areas of westcentral Bay of Bengal, Gulf of Mannar and along & off Tamil Nadu-Puducherry, South Andhra Pradesh and East Sri Lanka coasts till 30th November/ 1200 UTC. The Sea condition could be very rough to high over Southwest Bay of Bengal during 28th November/ 1200 UTC to 29th November/ 0000 UTC.

As per latest satellite imagery, intensity of the system is characterized as T2.0. Associated scattered to broken low and medium clouds with embedded intense to very intense convection lay over south & adjoining central Bay of Bengal and neighborhood between latitude 7.0N to 17.0N and longitude 80.0E to 92.0E, Sri Lanka, Palk Strait, Gulf of Mannar, Coastal Tamil Nadu and Coastal Andhra Pradesh. Minimum cloud top temperature is minus 80-93°C.

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
28.11.24/0600	9.2/82.3	55-65 gusting to 75	Deep Depression
28.11.24/1200	9.6/82.4	60-70 gusting to 80	Cyclonic storm
28.11.24/1800	10.1/82.2	60-70 gusting to 80	Cyclonic storm
29.11.24/0000	10.6/81.8	60-70 gusting to 80	Cyclonic storm
29.11.24/0600	11.0/81.4	50-60 gusting to 70	Deep Depression
29.11.24/1800	11.5/80.5	50-60 gusting to 70	Deep Depression
30.11.24/0600	12.0/79.7	40-50 gusting to 60	Depression

Cloud distribution: (a) Isolated: <25%, Scattered:25-50%, Broken: 51-75%, Solid:>75%, Convection Intensity: (a) Weak: Cloud Top Temperature (CTT) >-25°C, (b) Moderate: CTT: - 25°C to -40°C, (c) Intense: CTT: - 41°C to -70°C and (d) Very Intense: : Less than -70°C
PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION):NIL: 0%, LOW: 1-33%, , MODERATE: 34-66% AND HIGH: 67-100%
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Remarks:

The area of higher SST lying to the eastern side of the system has relatively cooled down because of the continuous rainfall over the region, upwelling and very slow movement of the system. As a result the system is not intensifying. The system is over an area with sea surface temperature (SST) about 29^0C. Further the SST is likely to be relatively less along & off the Tamil Nadu coast. The total precipitable water imagery is indicating warm moist air around system area. However, colder air incursion is seen in the southwest sector. The tropical cyclone heat potential is less than 40 KJ/cm^2 over southwest & adjoining westcentral BoB along & off Sri Lanka/Tamil Nadu/ Andhra Pradesh coasts. The increase in barrier layer depth over the southwest BoB may also lead to marginal weakening near coast. The land interactions with Sri Lanka coast is also inhibiting intensification of system.

Madden Julian Oscillation (MJO) is in phase 4 with amplitude more than 1 and would move across phase 5 from 29th onwards. Presence of Equatorial Rossby Waves over south BoB, MJO, strong westerly wind anomaly over south BoB and easterly wind anomaly to its north over South & adjoining central BoB during 28th - 30th November indicate a favourable environment for maintenance of the intensity of system as a deep depression/ depression.

There is a trough in westerly over north and central India extending between 18^oN/70^oE to 35^oN/82^oE. In its association, there is a jet stream over cental and northeast India. There is also an anticyclonic circulation over Myanmar. As a result the upper level divergence is seen in northeast sector and the cloud mass has also been sheered to the northeast of system area. Low level positive cyclonic vorticity at 850 hpa level is around $100x10^{-5}$ s^{-1} over the system area and is extending up to 500 hPa level. The low level convergence has decreased and is around 10 $x10^{-5}$ s^{-1} to the northeast of system area. Upper level divergence is the same during past 3 hours and around $50x10^{-5}$ s^{-1} to the northeast of system centre. Vertical wind shear is moderate to high (20-25 kt) over the system area. Thereafter, it will become high to the north of 10°N and along the Tamil Nadu coast leading to weakening of the system as it moves towards the Tamil Nadu coast. The system is being steered north-northwestwards along the periphery of upper tropospheric ridge near 12°N in association with anticyclonic circulation over Myanmar. The trough in westerly is blocking further northwestwards movement of the system.

Various environmental features are indicating moderately favourable environment (high SST, low wind shear, convergence, divergence and vorticity) for maintenance of intensity of system as a deep depression/ depression. However, various features like land interactions, high wind shear, lower SST, lower thermal energy, cold dry air incursion into the system area from Indian mainland would lead to gradual weakening as it moves towards Tamil Nadu coast.

There is still lack of consensus among various models with respect to movement and intensity. Some of the models are indicating intensification into marginal cyclonic storm during 28th /1200 UTC to 29th /0000 UTC. However, most of the models are indicating gradual weakening of the system thereafter as it moves towards the coast.

It is inferred that the deep depression over Southwest Bay of Bengal is very likely to move nearly northwards skirting Sri Lanka coast during next 12 hours. Thereafter, it will move north-northwestwards and cross north Tamil Nadu-Puducherry coasts between Karaikal and Mahabalipuram around morning of 30th November as a deep depression with a wind speed of 50-60 kmph gusting to 70 kmph.

Next bulletin will be issued at 1500 UTC of 28th November, 2024.

(Monica Sharma)
Scientist D, RSMC, New Delhi

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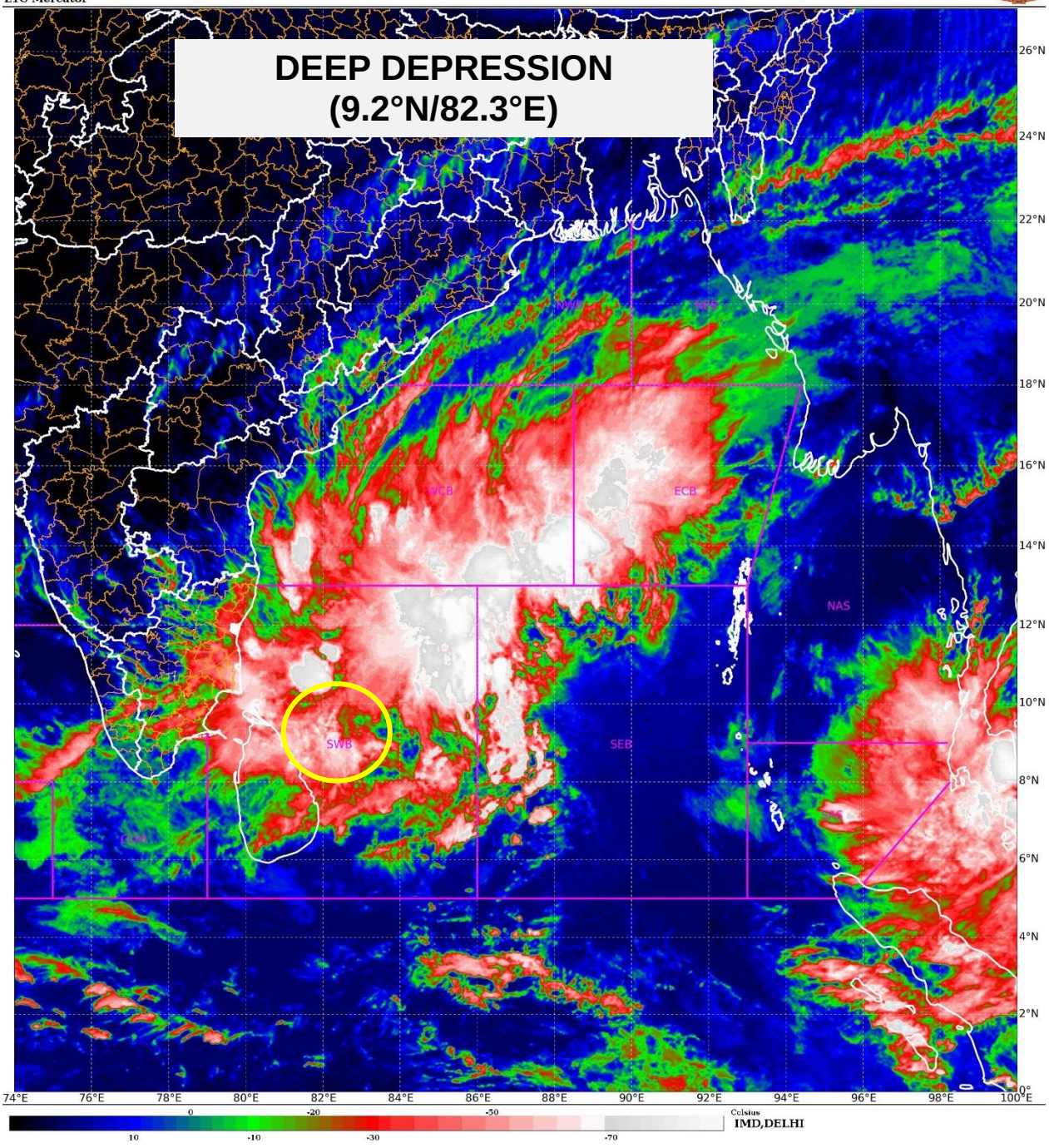
SAT : INSAT-3DR IMG
IMG_TIR1_TEMP 10.8 um
L1C Mercator

28-11-2024/(0545 to 0612) GMT
28-11-2024/(1115 to 1142) IST



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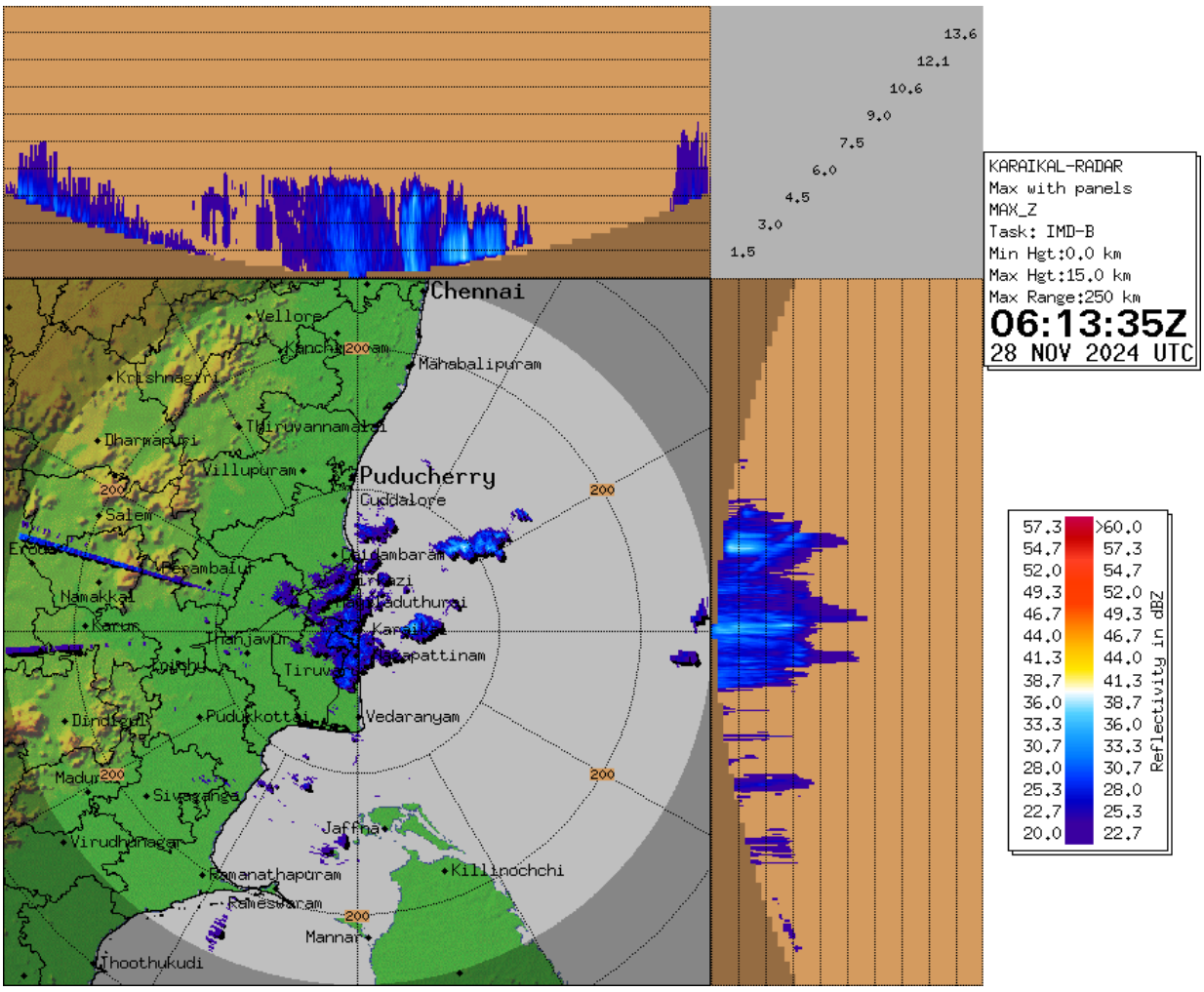
Doppler Weather Radar Observation (Max Z) at Karaikal



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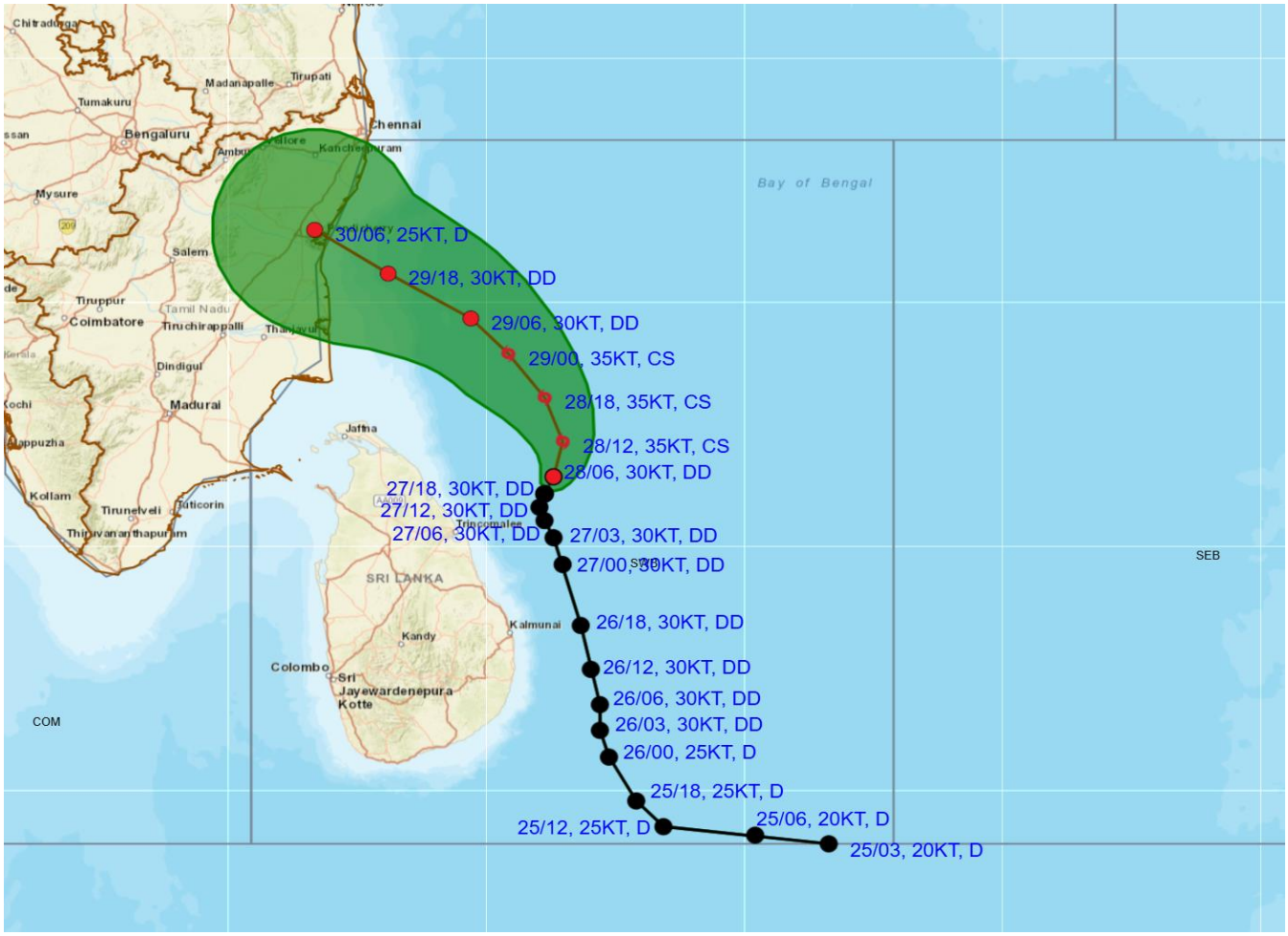
OBSERVED AND FORECAST TRACK ALONG WITH CONE OF UNCERTAINITY OF DEEP DEPRESSION OVER SOUTHWEST BAY OF BENGAL BASED ON 0600 UTC (1130 HRS. IST) OF 28TH NOVEMBER, 2024



DATE/TIME	:	IN UTC
IST	:	UTC + 0530
KT	:	NAUTICAL MILES/HOUR = 1.85 KM/HOUR
LPA	:	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 (48-63 KT)
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

Forecast	DISTANCE (KM) AND DIRECTION FROM STATIONS				
Date and Time (UTC)	TRINCOMALEE	BATTICALOA	NAGAPPATTINAM	PUDUCHERRY	CHENNAI/MINAMBAKKAM
28.11.24/0600	130, ENE	180, NNE	320, ESE	410, SE	480, SSE
29.11.24/0600	270, N	370, N	170, E	200, ESE	260, SSE
30.11.24/0600	420, NNW	520, NNW	140, N	10, WNW	120, SSW

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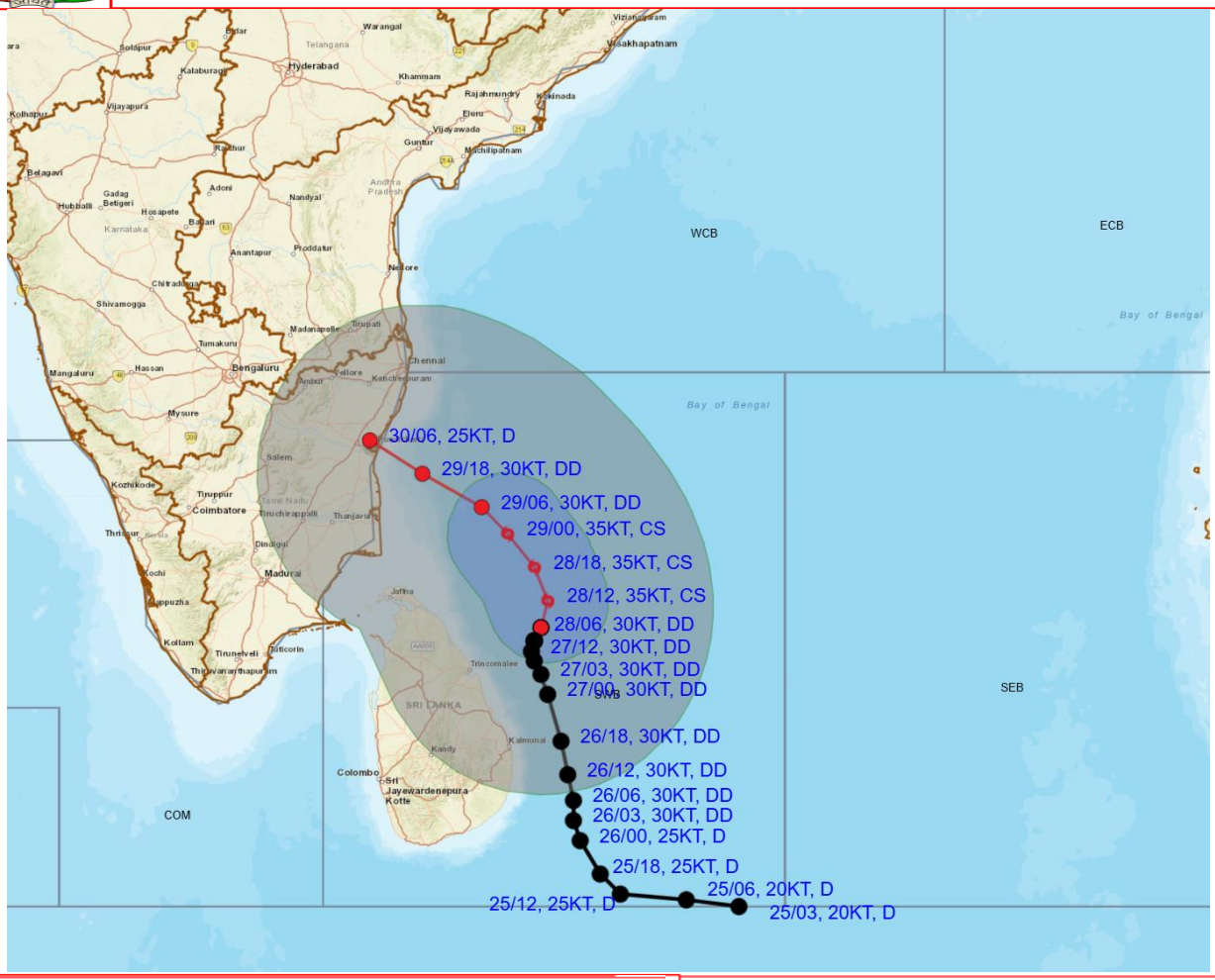
OBSERVED AND FORECAST TRACK ALONGWITH QUADRANT WIND DISTRIBUTION OF DEEP DEPRESSION OVER SOUTHWEST BAY OF BENGAL BASED ON 0600 UTC (1130 HRS. IST) OF 28TH NOVEMBER, 2024.



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KT	:	NAUTICAL MILES/HOUR = 1.85 KM/HOUR
LPA	:	LOW PRESSURE AREA
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D	:	DEPRESSION (17-27 KT)
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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

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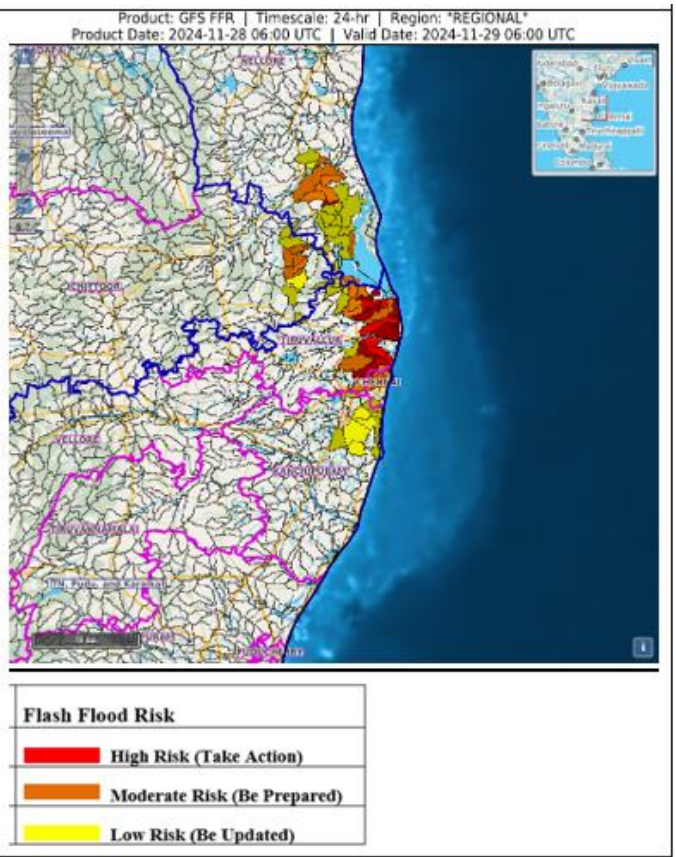
Flash Flood Guidance

24 hours Outlook for the Flash Flood Risk (FFR) till 1130 IST of 29-11-2024 :

Low to Moderate flash flood risk likely over few watersheds & neighbourhoods of following Meteorological Sub-divisions during next 24 hours.

Rayalaseema - Chittoor district.
Coastal Andhra Pradesh – Nellore district
Tamil Nadu - Puducherry & Karaikal - Chennai, Kanchipuram and Tiruvallur districts.

Surface runoff/ Inundation may occur at some fully saturated soils & low-lying areas over Area of Concern as shown in map due to expected rainfall occurrence in next 24 hours.



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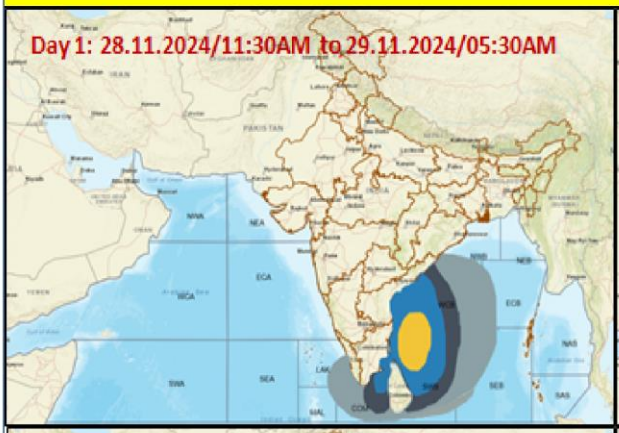
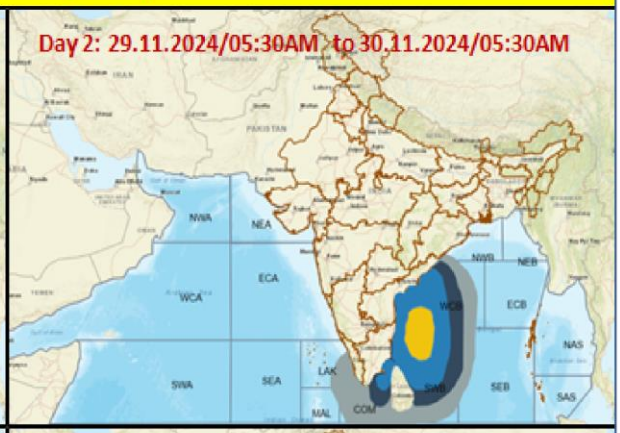
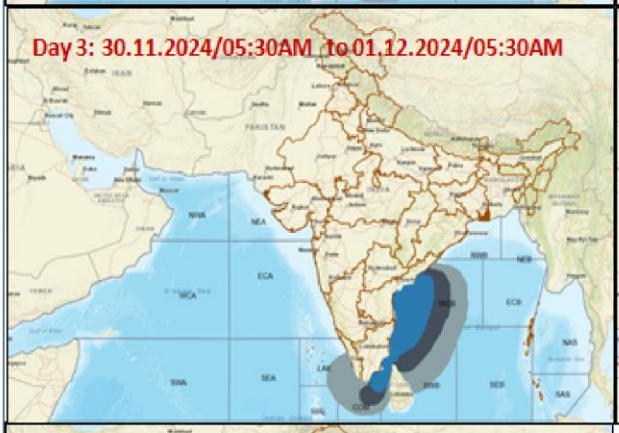
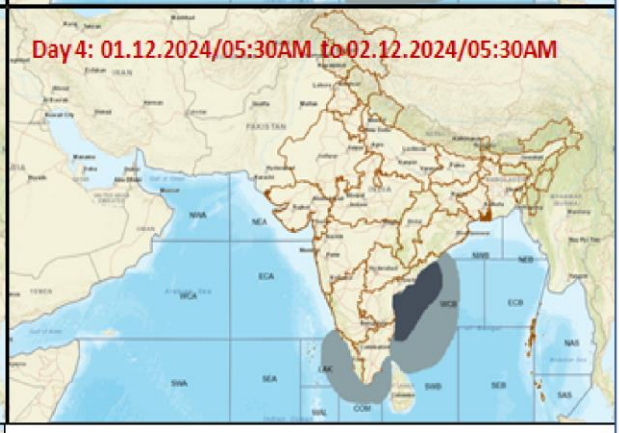
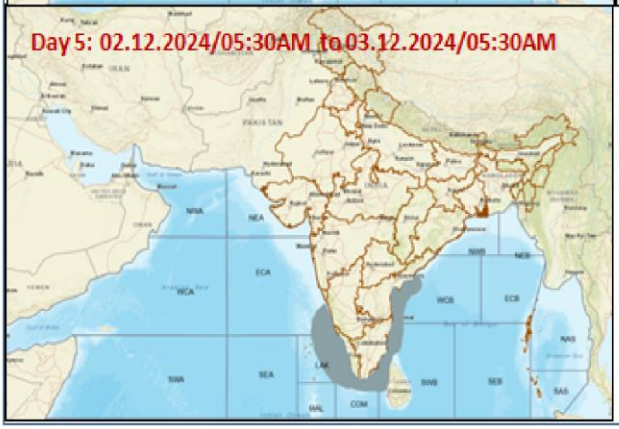
Fishermen Warning Graphics











	Squally Weather with wind speed 35-45 kmph gusting to 55 kmph
	Squally wind with speed 45-55 kmph gusting to 65 kmph
	Deep depression with wind speed 55-65 kmph gusting to 75 kmph
	CS with Gale winds with speed 60-80 kmph gusting to 90 kmph

Fishermen are advised not to venture into the marked areas.

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