



## 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 1500 UTC OF 28.11.2024 BASED ON 1200 UTC OF 28.11.2024.**

##### **Sub: Deep Depression over Southwest Bay of Bengal**

The Deep Depression over Southwest Bay of Bengal moved northeastwards with a speed of 10 Kmph during past 6 hours and lay centred at 1200 UTC of today, the 28th November 2024 over the same region near latitude 9.6°N and longitude 82.7°E, about 200 km northeast of Trincomalee (43418), 340 km east-southeast of Nagappattinam (43347), 410 km southeast of Puducherry (43331) and 470 km southeast of Chennai (43279).

It is very likely to move nearly northwards and maintain its intensity of deep depression till morning of 29th November. Thereafter, it will move northwestwards, weaken gradually into a depression by evening of 29th November. Continuing to move further northwestwards it is very likely to cross north Tamil Nadu-Puducherry coasts between Karaikal and Mahabalipuram around 0300 UTC of 30th November as a depression with a wind speed of 45-55 kmph gusting to 65 kmph.

The system is being continuously monitored.

Estimated Central Pressure in association with the system is 1000 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 29<sup>th</sup> November 0600 UTC, thereafter rough Sea condition is likely till 30<sup>th</sup> November 0000 UTC and improve gradually thereafter.

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 with minimum cloud top temperature as minus 80-93°C. Moderate to intense convection lay over Sri Lanka, Palk Strait, Gulf of Mannar, Coastal Tamil Nadu and Coastal Andhra Pradesh with minimum cloud top temperature as minus 40-70°C.

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
28.11.24/1200	9.6/82.7	55-65 gusting to 75	Deep Depression
28.11.24/1800	10.0/82.8	55-65 gusting to 75	Deep Depression
29.11.24/0000	10.5/82.5	50-60 gusting to 70	Deep Depression
29.11.24/0600	11.0/81.9	50-60 gusting to 70	Deep Depression
29.11.24/1200	11.4/81.2	45-55 gusting to 65	Deep Depression
30.11.24/0000	11.7/80.3	45-55 gusting to 65	Deep Depression
30.11.24/1200	12.0/79.4	40-50 gusting to 60	Depression

## Remarks:

The system is over an area with sea surface temperature (SST) about 29°C. 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<sup>2</sup> 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 29<sup>th</sup> 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 28<sup>th</sup> - 30<sup>th</sup> 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°N/70°E to 35°N/82°E. In its association, there is a jet stream over central 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 is also seen to the northeast of system area. Low level positive cyclonic vorticity at 850 hPa level is the same during past 6 hours and is around 100x10<sup>-5</sup> s<sup>-1</sup> over the system area with vertical extension upto 500 hPa level. The low level convergence has increased in past 3 hours and is around 20 x10<sup>-5</sup> s<sup>-1</sup> to the northeast of system area. Upper level divergence has decreased during past 3 hours and is around 30x10<sup>-5</sup> s<sup>-1</sup> to the northeast of system centre. Vertical wind shear is moderate (20 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.

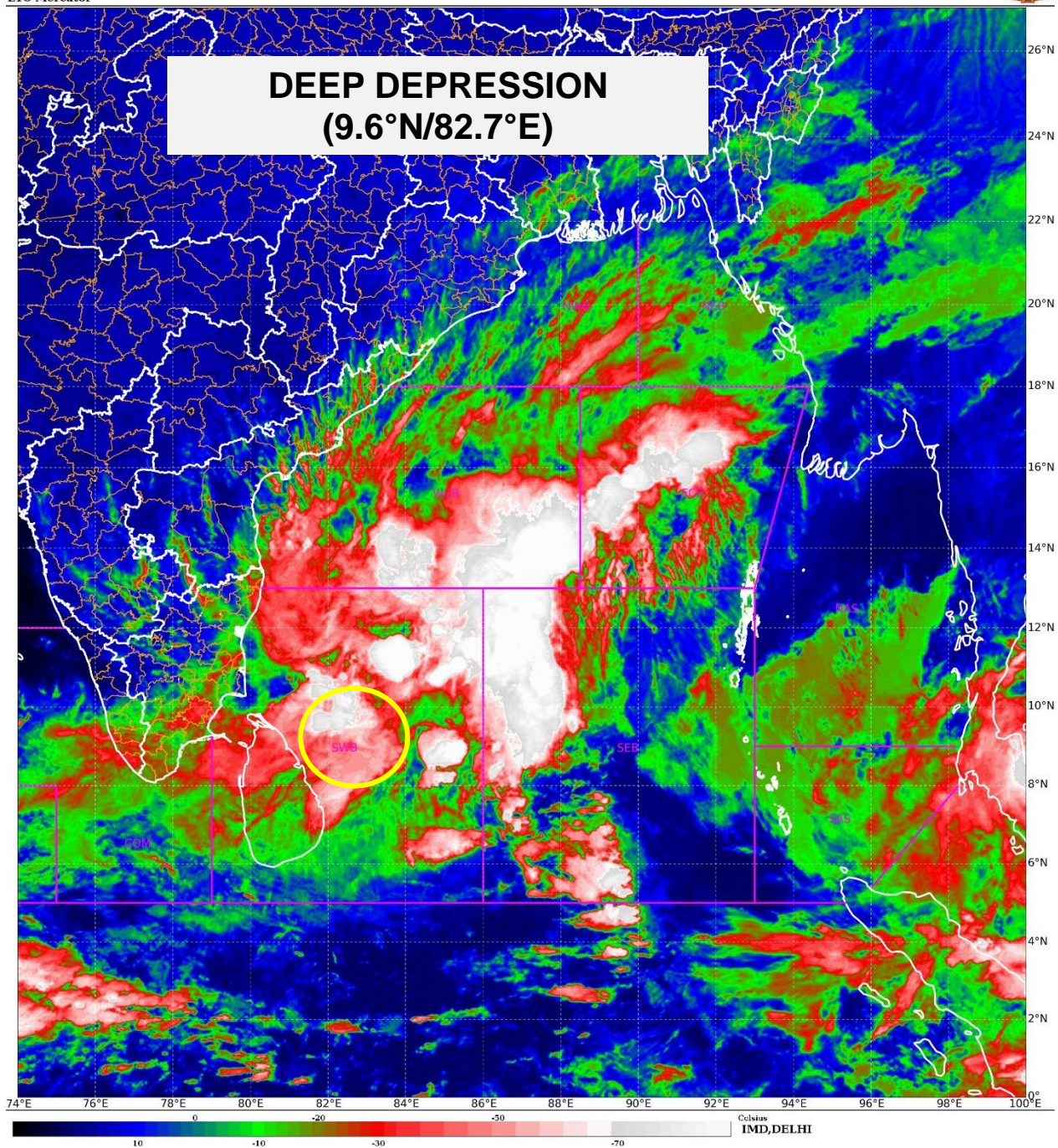
There is still lack of consensus among various models with respect to movement and intensity. Some of the models are indicating intensification into marginal cyclonic storm during 28<sup>th</sup> /1200 UTC to 29<sup>th</sup> /0000 UTC. However, most of the models are indicating gradual weakening of the 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 and maintain its intensity of deep depression till morning of 29<sup>th</sup> November. Thereafter, it will move northwestwards, weaken gradually into a depression by 1200 UTC of 29<sup>th</sup> November. Continuing to move further northwestwards, it is very likely to cross north Tamil Nadu-Puducherry coasts between Karaikal and Mahabalipuram around 0300 UTC of 30<sup>th</sup> November as a depression with a wind speed of 45-55 kmph gusting to 65 kmph.

**Next bulletin will be issued at 2100 UTC of 28<sup>th</sup> November, 2024.**

**(Monica Sharma)**  
**Scientist D, RSMC, New Delhi**



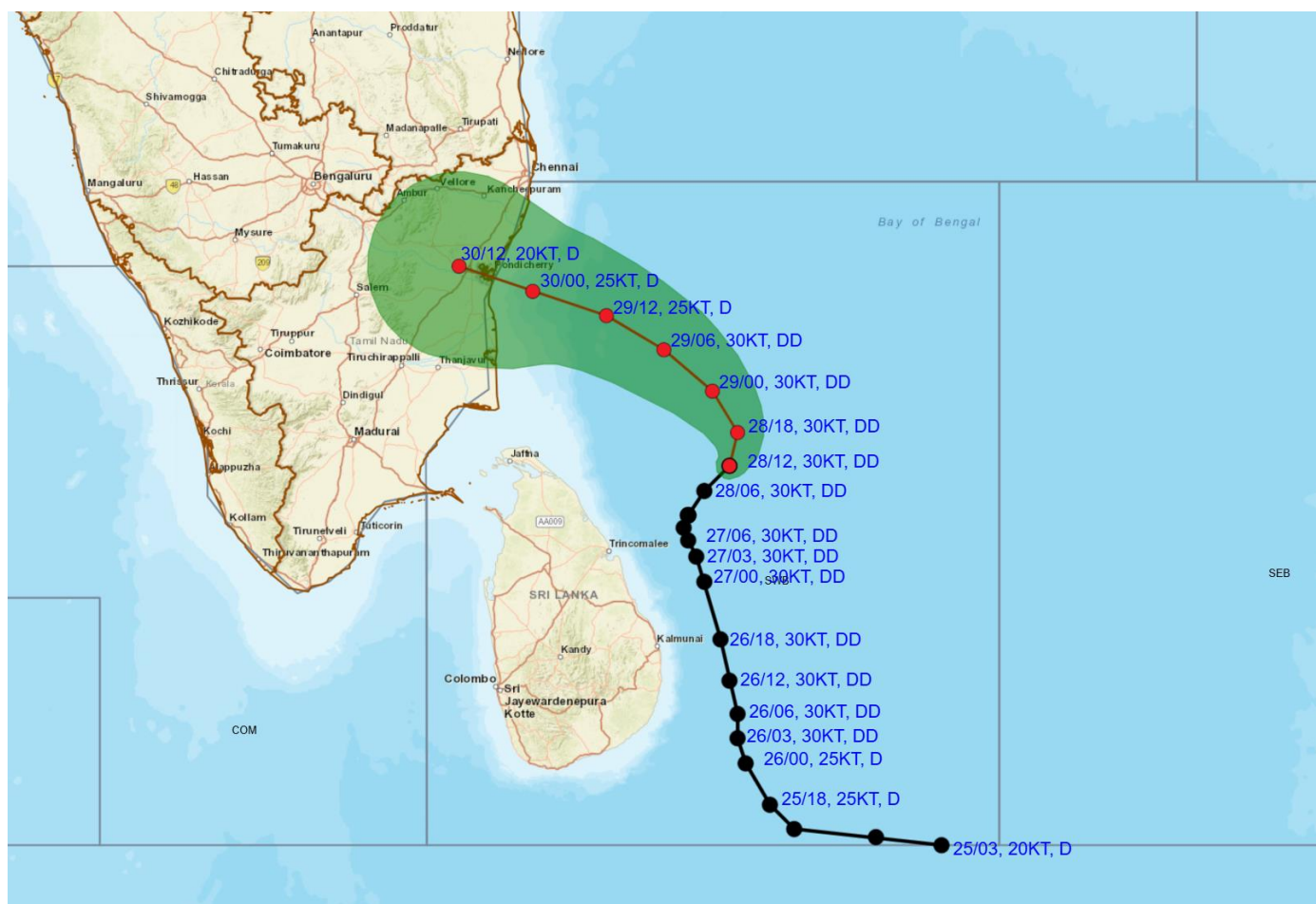


Cloud distribution: (a) Isolated: <25%, Scattered: 25-50%, Broken: 51-75%, Solid: >75%, Convection Intensity: (a) Weak: Cloud Top Temperature (CTT) >-25°C, (b) Moderate: CTT: - 25°C to -40°C, (c) Intense: CTT: - 41°C to -70°C and (d) Very Intense: : Less than -70°C  
PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION): NIL: 0%, LOW: 1-33%, MODERATE: 34-66% AND HIGH: 67-100%  
This is a guidance Bulletin for WMO/ESCAP Panel Member countries. Visit respective National websites for Country specific Bulletins





**OBSERVED AND FORECAST TRACK ALONG WITH CONE OF UNCERTAINTY OF DEEP DEPRESSION OVER SOUTHWEST BAY OF BENGAL BASED ON 1200 UTC (1730 HRS. IST) OF 28<sup>TH</sup> NOVEMBER, 2024**



DATE/TIME : IN UTC  
IST : UTC + 0530  
KT : NAUTICAL MILE/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)  
E SCS : EXTREMELY SEVERE CYCLONIC STORM (90-119 KT)  
SuCS : SUPER CYCLONIC STORM ( $\geq 120$  KT)

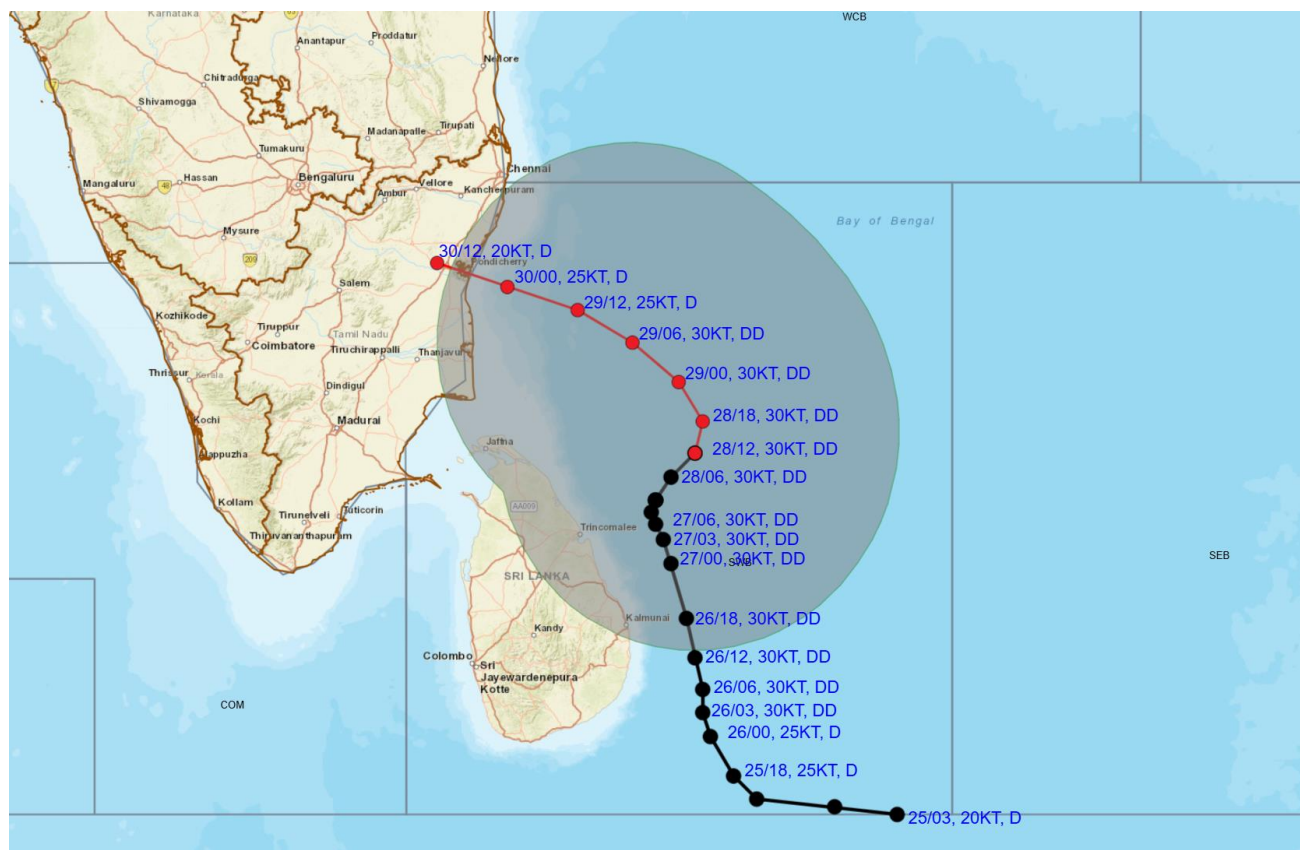
● LESS THAN 34 KT  
⌀ 34-47 KT  
⌀  $\geq 48$  KT  
— OBSERVED TRACK  
— FORECAST TRACK  
■ CONE OF UNCERTAINTY

Forecast	DISTANCE (KM) AND DIRECTION FROM STATIONS				
Date and Time (UTC)	TRINCOMALEE	BATTICALOA	NAGAPPATTINAM	PUDUCHERRY	CHENNAI/MINAMBAKKAM
28.11.24/1200	200, NE	240, NNE	340, ESE	410, SE	470, SE
29.11.24/1200	310, N	410, N	160, ENE	160, ESE	210, SSE
30.11.24/1200	430, NNW	540, NNW	150, NNW	50, W	140, SW

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PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION): NIL: 0%, LOW: 1-33%, MODERATE: 34-66% AND HIGH: 67-100%  
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## OBSERVED AND FORECAST TRACK ALONGWITH QUADRANT WIND DISTRIBUTION OF DEEP DEPRESSION OVER SOUTHWEST BAY OF BENGAL BASED ON 1200 UTC (1730 HRS. IST) OF 28<sup>TH</sup> NOVEMBER, 2024.



DATE/TIME : IN UTC  
IST : UTC + 0530  
KT : NAUTICAL MILE S/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)  
ECS : 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

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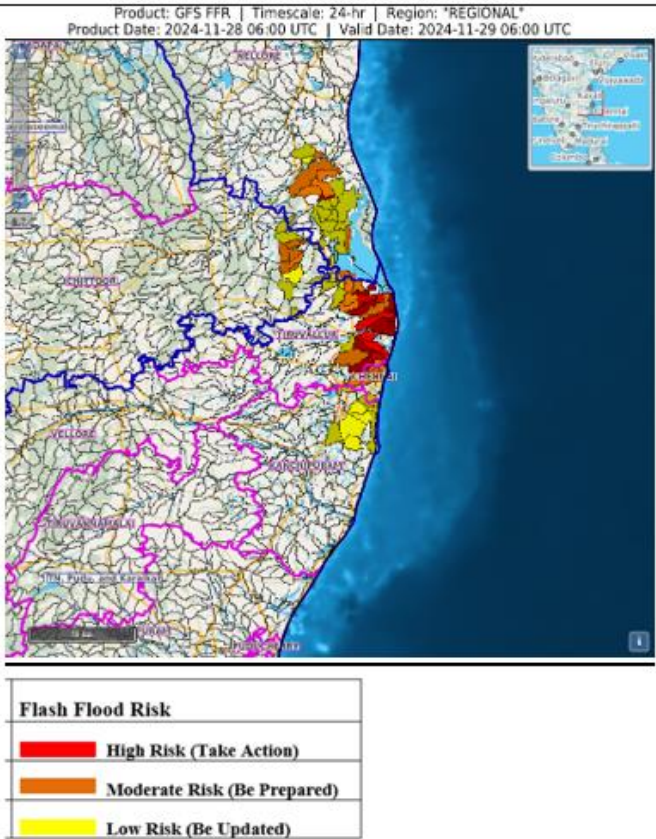
# Flash Flood Guidance

## 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.

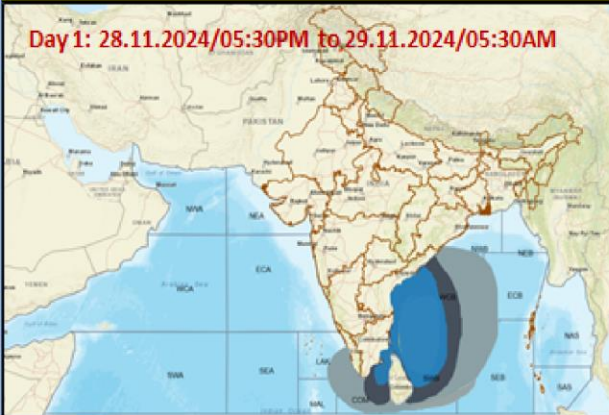
Surface runoff/ Inundation may occur at some fully saturated soils & low-lying areas over Area of Concern as shown in map due to expected rainfall occurrence in next 24 hours.





## Fishermen Warning Graphics

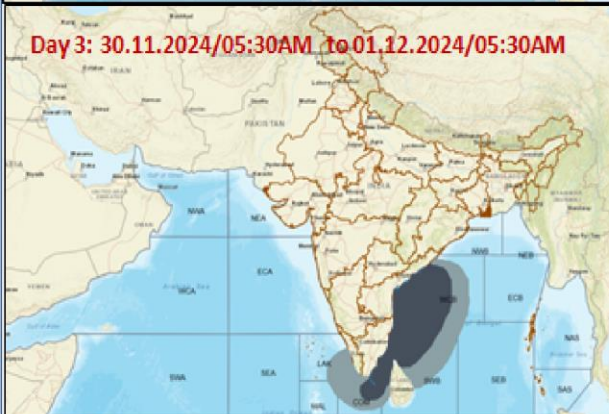
**Day 1: 28.11.2024/05:30PM to 29.11.2024/05:30AM**



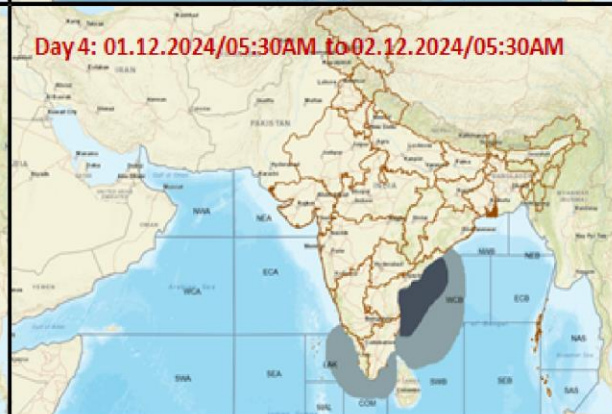
**Day 2: 29.11.2024/05:30AM to 30.11.2024/05:30AM**



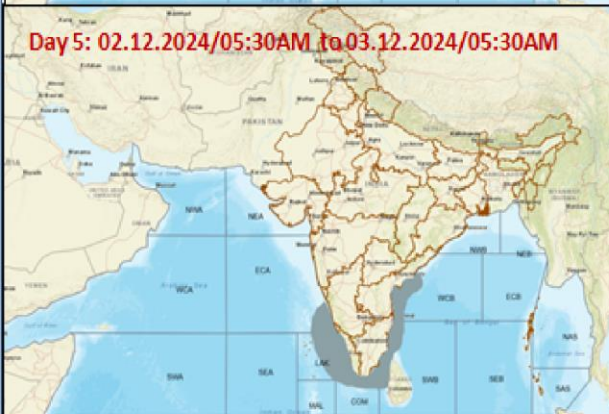
**Day 3: 30.11.2024/05:30AM to 01.12.2024/05:30AM**



**Day 4: 01.12.2024/05:30AM to 02.12.2024/05:30AM**



**Day 5: 02.12.2024/05:30AM to 03.12.2024/05:30AM**



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.**