



**Ministry of Earth Sciences
India Meteorological Department
Cyclone Warning Division, New Delhi**

**Tropical Cyclone Forecast Programme
Report Dated 26th November 2024**

Time of Issue: 1200 UTC

Synoptic features (based on 0600 UTC analysis):

The Deep Depression over Southwest Bay of Bengal moved north-northwestwards with a speed of 12 kmph during past 6 hours and lay centred at 0600 UTC of today, the 26th November 2024 over the same region near latitude 6.6°N and longitude 82.8°E, about 280 km southeast of Trincomalee, 570 km south-southeast of Nagappattinam, 680 km south-southeast of Puducherry and 770 km south-southeast of Chennai. It is very likely to continue to move north-northwestwards and intensify further into a cyclonic storm on 27th November. Thereafter, it will continue to move north-northwestwards towards Tamil Nadu coast skirting Sri Lanka coast during subsequent 2 days.

Environmental Features:

Parameter	Bay of Bengal (BoB)	Arabian Sea (AS)
Sea Surface Temperature (SST) °C	➤ 28-30°C over BoB.	➤ 29-30°C over most parts of AS. ➤ 26-28°C over southwest AS along and off Somalia coast and parts of westcentral AS.
Tropical Cyclone Heat Potential (TCHP) kJ/cm²	➤ 100-120 over south BoB & adjoining EIO. ➤ 40-60 over southwest & adjoining eastcentral BoB and along & off Sri Lanka/Tamil Nadu/ Andhra Pradesh coasts	➤ 80-100 over most parts of south, central AS, Lakshadweep Island. ➤ 20-40 over rest of the area.
Cyclonic Relative vorticity (X10⁻⁶s⁻¹)	➤ 100-120 over southwest BoB along & off Sri Lanka & adjoining east EIO. ➤ 20-30 over north BoB.	➤ 10-20 over eastcentral AS, extreme South AS, westcentral AS along the coast of Somalia.
Low Level convergence(X10⁻⁵ s⁻¹)	➤ 30-40 over southwest BoB, along & off Sri Lanka & adjoining east EIO.	➤ 5 over southwest and adjoining southeast AS.
Upper-Level divergence (X10⁻⁵ s⁻¹)	➤ 20-30 over south BoB & adjoining east EIO.	➤ 10-20 over southeast AS
Vertical Wind Shear (VWS knots) Low: 05-10 knots Moderate: 10-20 knots High: >20 knots	➤ High over north & central BoB. ➤ Low-Moderate over south BoB, South Andaman Sea.	➤ High over north & central AS. ➤ Low-Moderate over rest of AS.

Wind Shear Tendency (knots)	<ul style="list-style-type: none"> ➤ Increasing over North and extreme south BoB. ➤ Decreasing over south and adjoining westcentral BoB. 	<ul style="list-style-type: none"> ➤ Decreasing over north & central AS. ➤ Increasing over South AS.
Upper tropospheric Ridge	➤ At 13 ⁰ N.	➤ At 11 ⁰ N.

Satellite observations based on INSAT imagery (0300 UTC):

a) Over the BoB & Andaman Sea: -

Scattered to broken low and medium clouds with embedded intense to very intense convection lay over south, central Bay of Bengal, Palk strait, Gulf of Mannar & Andaman Sea (Minimum Cloud Top Temperature is minus 80-93 degrees Celsius). Scattered low and medium clouds with embedded Isolated weak to moderate convection lay over north Bay of Bengal.

b) Over the Arabian Sea:

Scattered to broken low and medium clouds with embedded intense to very intense convection lay over Comorin area (Minimum Cloud Top Temperature is minus 70-80 degrees Celsius). Scattered low and medium clouds with embedded moderate to intense convection lay over south Arabian Sea, Lakshadweep Islands area & Maldives area and Isolated weak to moderate convection lay over central Arabian Sea.

c) Outside India:

Scattered low/med clouds with embedded moderate to intense convection lay over Sri Lanka, Palk strait, Gulf of Mannar, Maldives, China, Myanmar, Thailand, Gulf of Thailand, Cambodia, Vietnam, Sumatra, Strait of Malacca, Malaysia, Borneo, south China Sea, Java Islands & Sea, Celebes Islands & Sea, Philippines, Sulu Sea, north Mozambique Channel and over Indian Ocean between Lat 5.0N to 20.0S Long 55.0E to 120.0E.

M.J.O. Index:

Madden Julian Oscillation (MJO) is in phase 3 with amplitude more than 1 and would move across phases 3 & 4 during next 7 days with amplitude remaining more than 1

NWP Guidance for FDP Cyclone based on 0000 UTC for the next 7 days:

MODEL GUIDANCE	Bay of Bengal (BoB)	Arabian Sea (AS)
IMD-GFS	Model is indicating D/ DD over c (5.7 ⁰ N/82.3 ⁰ E) as on today, moving north-northeastwards and lay over southwest BoB (8.8 ⁰ N/83.5 ⁰ E) (DD) on 27 th , moving then northwestwards and lay over southwest BoB (11.4 ⁰ N/81.4 ⁰ E) as CS/SCS on 28 th . Moving north-northeastwards & lay over westcentral BoB (12.4 ⁰ N/81.7 ⁰ E) as CS on 29 th . Moving again north-northwestwards and lay over westcentral BoB (13.1 ⁰ N/81.2 ⁰ E) as DD on 30 th Moving	No significant circulation over AS.

	then east-northeastwards and lay over westcentral BoB (13.6 ⁰ N/82.0 ⁰ E) as D on 01 st Dec. Weakening further over the same region & less marked on 3 rd .	
IMD-GEFS	Model is indicating LPA over southwest BoB & adjoining Sri Lanka coast as on today. Moving northwestwards and lay over southwest BoB close to Tamil Nadu coast (10.0 ⁰ N/81.0 ⁰ E) as D on 27 th , moving nearly northwards and lay over southwest & adjoining westcentral BoB close the coast (12.0 ⁰ N/81.0 ⁰ E) as D on 28 th . Moving in the same direction & touch the south Andhra coast as LPA on 29 th & less marked thereafter.	No Significant circulation over AS.
IMD-WRF	Model is indicating DD over southwest BoB close to south Sri Lanka coasts on today, moving north-northeastwards & lay over southwest BoB off Sri Lanka coast as DD/CS on 27 th . Moving in the same direction & lay over southwest BoB north of Sri Lanka coasts as CS/SCS on 28 th . Moving then northwestwards and lay close Tamil Nadu coast as SCS/VSCS on 29 th .	No Significant circulation over AS.
NCMRWF-NCUM(G)	Model is indicating LPA over southwest BoB close to south Sri Lanka coasts as on today, moving northwestwards direction and lay over southwest BoB close to Sri Lanka coasts(9.0 ⁰ N/81.0 ⁰ E) as D on 27 th . Moving then northeastwards & lay over southwest BoB (10.0 ⁰ N/82.0 ⁰ E) as DD on 28 th . Moving then north- northwestwards and lay over southwest & adjoining westcentral BoB (12.0 ⁰ N/81.0 ⁰ E) as DD/CS on 29 th . Moving in the same direction towards Tamil Nadu coast & cross the north Tamil Nadu coast & adjoining south Andhra Pradesh coast on (13.5 ⁰ N/80.0 ⁰ E) around 30 th /0000 UTC.	Model is indicating, emergence of BoB system as WML / D ON 2 nd Dec into southeast AS. It will have southwestwards movement.
NCMRWF-NCUM(R)	Model is indicating a WML/ D over southwest BoB close to south Sri Lanka coasts as on today, moving in the northwestwards direction with slight intensification till 29 th .	No Significant circulation over AS.
NCMRWF-NEPS	Model is indicating LPA over southwest BoB close to south Sri Lanka coasts as on today, moving northwestwards direction and lay over southwest BoB close to Sri Lanka coasts(9.0 ⁰ N/81.0 ⁰ E) as D on 27 th . Moving then northeastwards & lay over southwest	Model is indicating, emergence of BoB system as WML / D ON 2 nd Dec into southeast AS. It will have southwestwards movement.

	BoB (10.0 ⁰ N/82.0 ⁰ E) as DD on 28 th . Moving then north- northwestwards and lay over southwest & adjoining westcentral BoB (12.0 ⁰ N/81.0 ⁰ E) as DD/CS on 29 th . Moving in the same direction towards Tamil Nadu coast & cross the north Tamil Nadu coast & adjoining south Andhra Pradesh coast on (13.5 ⁰ N/80.0 ⁰ E) around 30 th /0000 UTC.	
ECMWF	Model is indicating D/DD over southwest BoB (5.8 ⁰ N/83.6 ⁰ E) as on today, moving in the north-northwestwards and lay over (9.1 ⁰ N/81.6 ⁰ E) as D/DD on 27 th /1200 UTC and moving in the same direction towards Tamil Nadu coast & cross the north Tamil Nadu coast & adjoining south Andhra Pradesh coast (12.7 ⁰ N/80.1 ⁰ E) as LPA around 30 th /0600 UTC.	No Significant cyclonic circulation over AS.
NCEP-GFS	Model is indicating D over southwest BoB (6.2 ⁰ N/83.4 ⁰ E) as on today, moving Northwestwards and lay over southwest BoB(9.5 ⁰ N/82.4 ⁰ E) as CS on 27 th /1200 UTC. Moving then north-northeastwards and lay over southwest BoB(11.1 ⁰ N/84.7 ⁰ E) as CS on 28 th /1200 UTC. Moving in the same direction & lay over westcentral BoB (15.5 ⁰ N/86.2 ⁰ E) as CS/SCS on 30 th /1200 UTC. Moving in the same direction & lay over westcentral BoB & adjoining areas (17.5 ⁰ N/88.7 ⁰ E) as SCS on 02 nd Dec /0000 UTC. Moving then west-northwestwards slowly while weakening & less marked by 5 th Dec / 0600 UTC.	No Significant cyclonic circulation over AS.

Summary:

(a) Bay of Bengal:

Model guidance indicates that, there is still divergence among various models with respect to landfall and peak intensification. However, all models are indicating gradual weakening of the system and also slow movement near Tamil Nadu coast.

(b) Arabian Sea

Most of the models are indicating no significant cyclonic circulation over Arabian Sea for the next seven days.

Inference:

Considering various environmental conditions and model guidance, it is inferred that:

Considering all the above, it is inferred that the deep depression over Southwest Bay of Bengal is very likely to continue to move north-northwestwards and intensify further into a cyclonic storm on 27th November. Thereafter, it will continue to move north-northwestwards towards Tamil Nadu coast skirting Sri Lanka coast during subsequent 2 days

Probability of cyclogenesis (formation of depression and above intensity systems) over the Bay of Bengal during next 168 hours:

24 HOURS	24-48 HOURS	48-72 HOURS	72-96 HOURS	96-120 HOURS	120-144 HOURS	144-168 HOURS
-	-	-	-	-	-	-

Probability of cyclogenesis (formation of depression and above intensity systems) over the Arabian Sea during next 168 hours:

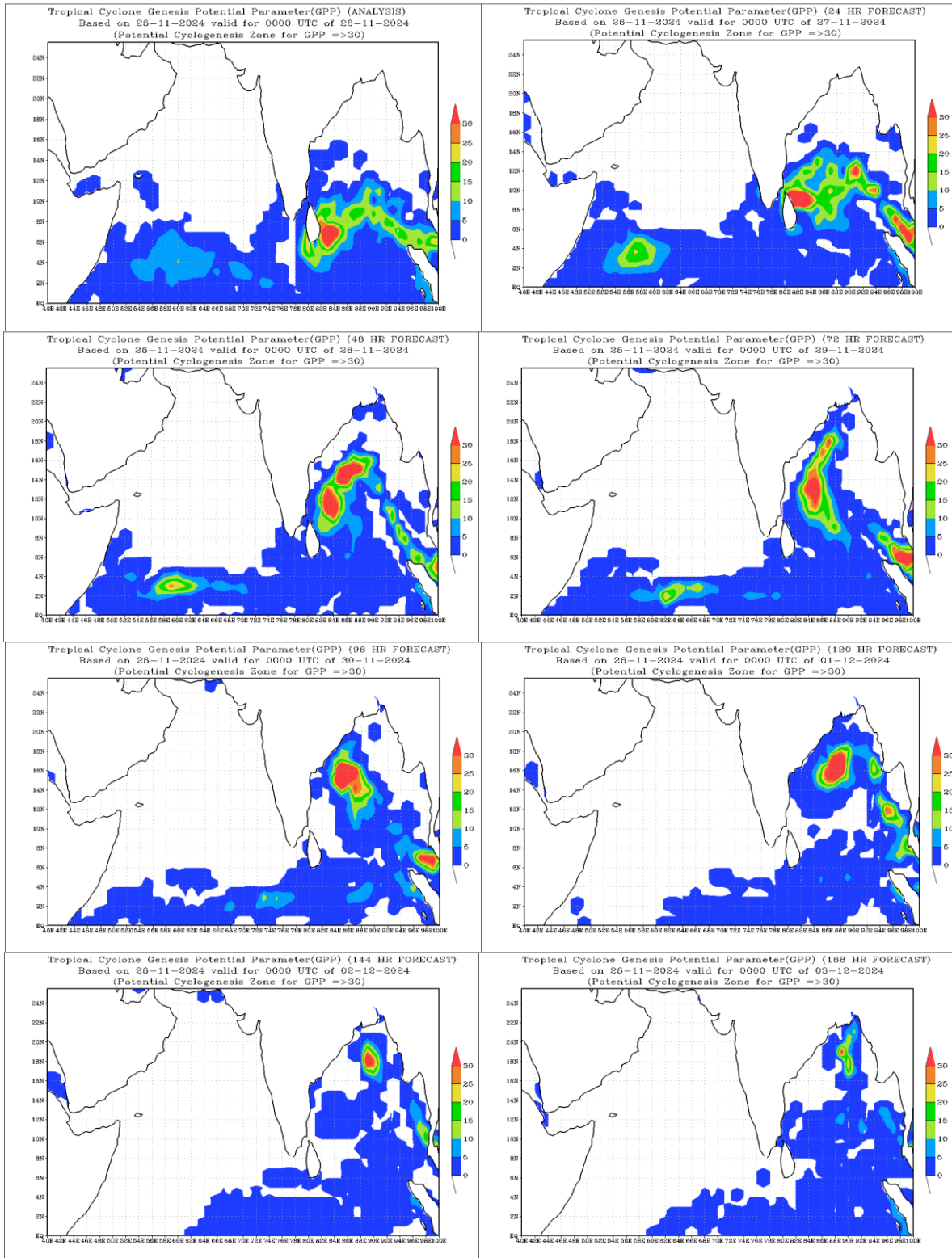
24 HOURS	24-48 HOURS	48-72 HOURS	72-96 HOURS	96-120 HOURS	120-144 HOURS	144-168 HOURS
NIL	NIL	NIL	NIL	NIL	NIL	NIL

“- “indicates genesis has already occurred.

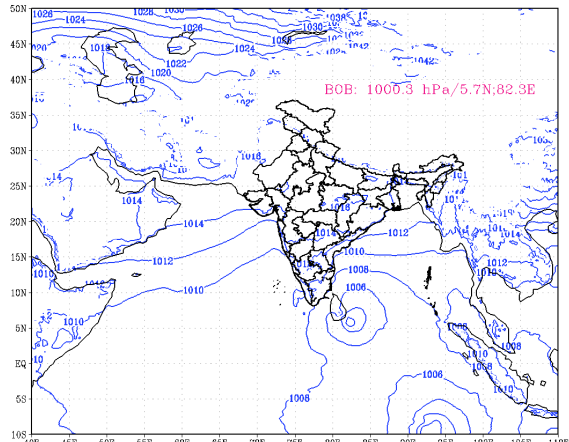
Probability is indicated as NIL for 0%, LOW for 1-33%, MOD for 34-67% and High for 68-100%.

Intense Observation Period (IOP): Sri Lanka coasts during 26th-29th, Tamil Nadu coast during 26th-30th November and south Andhra Pradesh coast during 27-30th.

ANNEXURE

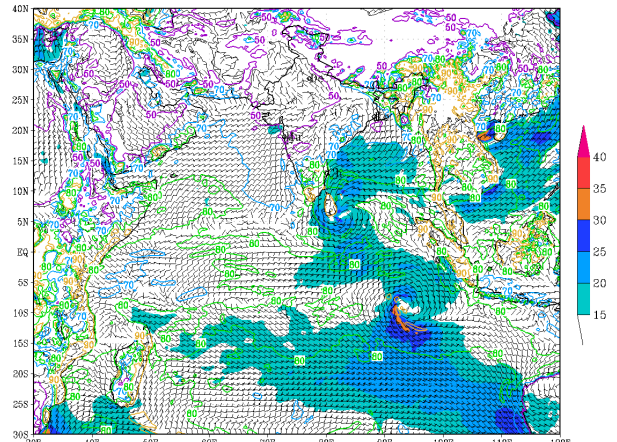


IMD :GFS MODEL(12 Km) MSL Pressure (hPa) FORECAST (00 HR)
 based on 00 UTC of 26-11-2024 valid for 00 UTC of 26-11-2024



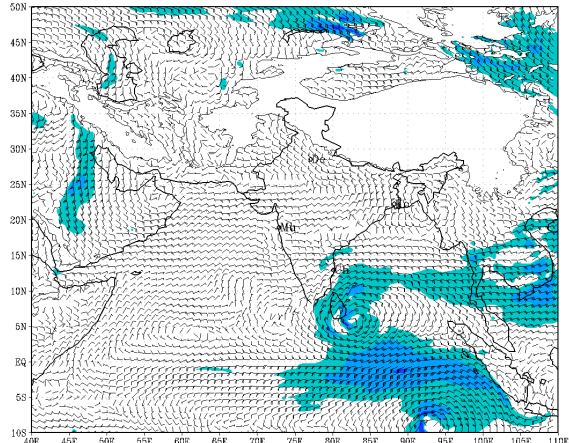
(Background does not depict political boundary)

IMD GFS (T1534) 10m WIND (kt) AND 2m RH (%) FORECAST (00 HR)
 based on 00 UTC of 26-11-2024 valid for 00 UTC of 26-11-2024



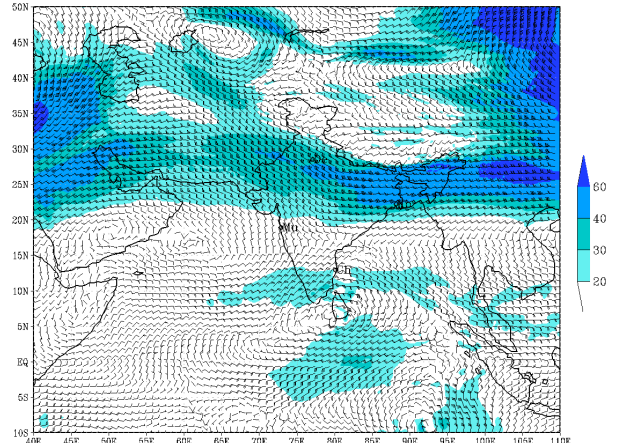
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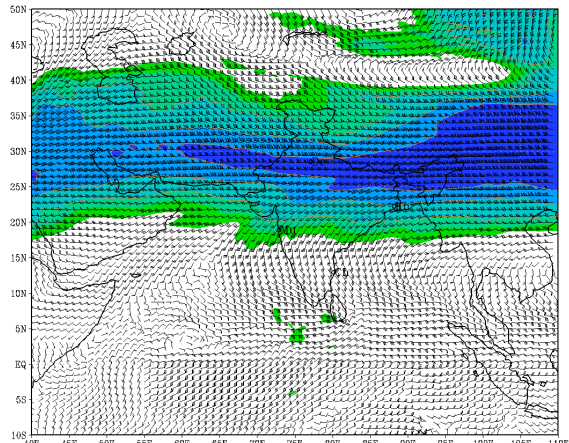
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IMD:GFS MODEL(12 Km) 500 hPa WIND (kt) FORECAST (00 HR)
 based on 00 UTC of 26-11-2024 valid for 00 UTC of 26-11-2024



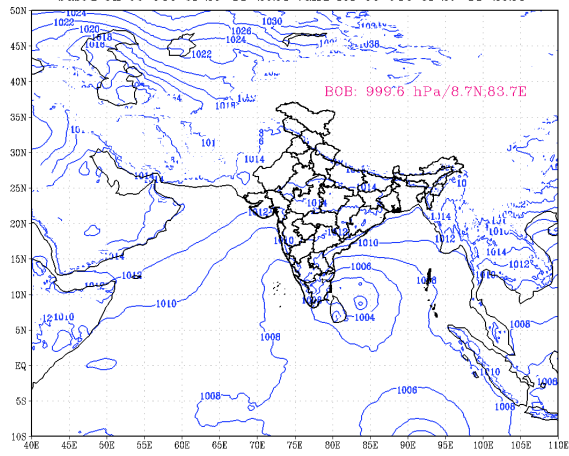
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IMD :GFS MODEL(12 Km) 200 hPa WIND (kt) FORECAST (00 HR)
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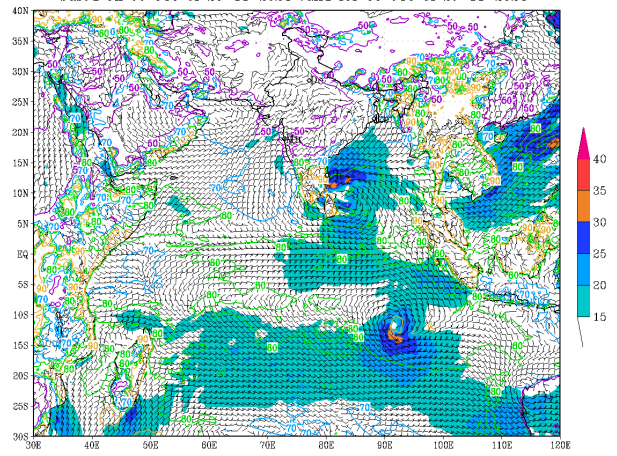
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IMD :GFS MODEL(12 Km) MSL Pressure (hPa) FORECAST (24 HR)
 based on 00 UTC of 26-11-2024 valid for 00 UTC of 27-11-2024



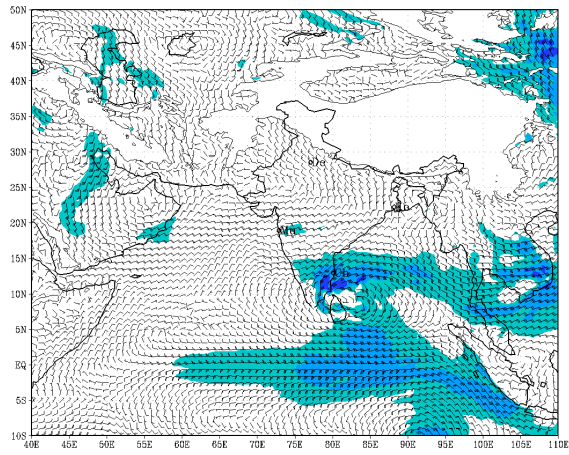
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IMD GFS (T1534) 10m WIND (kt) AND 2m RH (%) FORECAST (24 HR)
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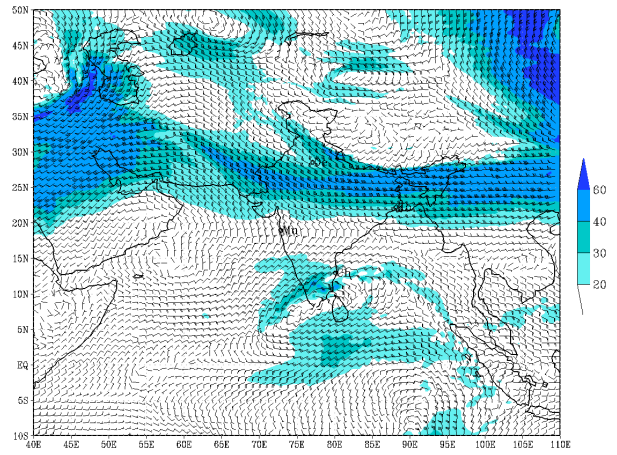
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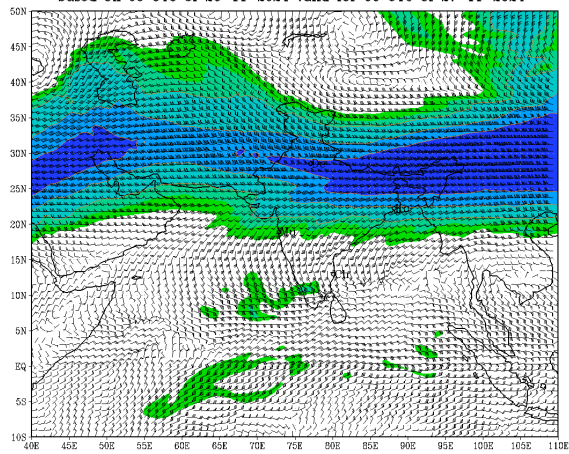
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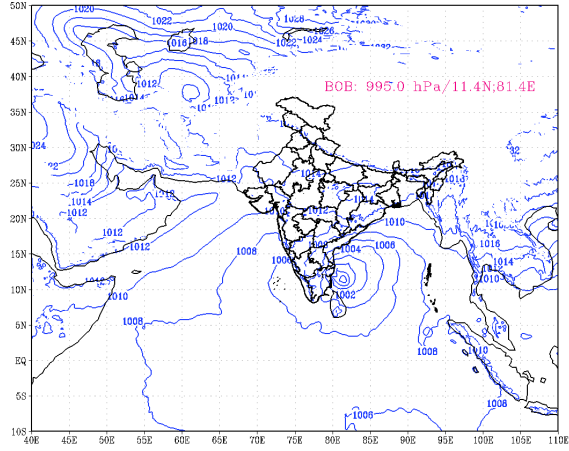
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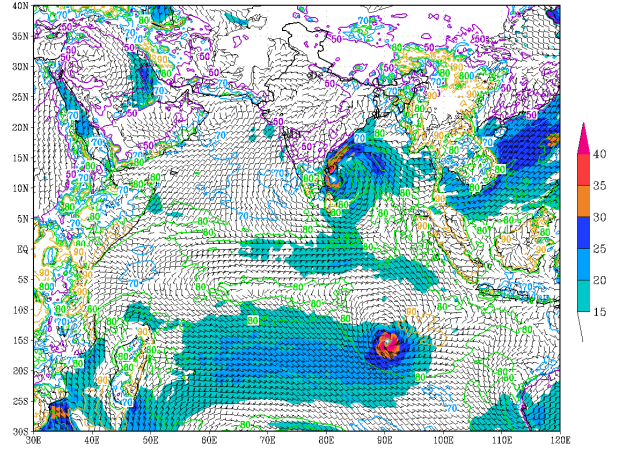


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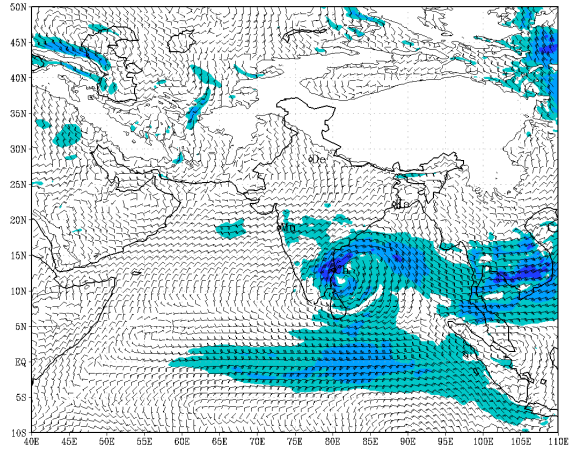
IMD :GFS MODEL(12 Km) MSL Pressure (hPa) FORECAST (48 HR)
based on 00 UTC of 26-11-2024 valid for 00 UTC of 28-11-2024



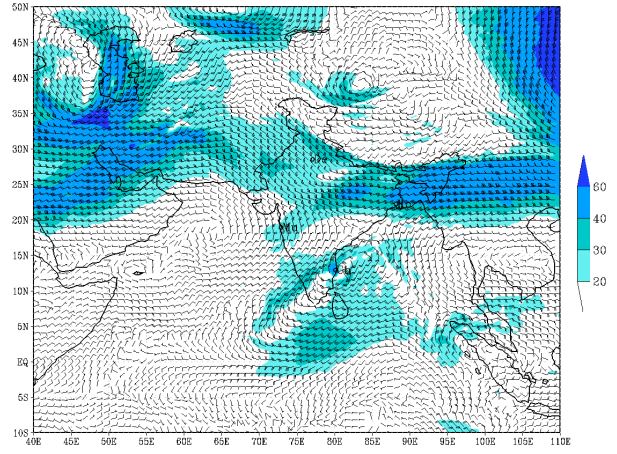
IMD GFS (T1534) 10m WIND (kt) AND 2m RH (%) FORECAST (48 HR)
based on 00 UTC of 26-11-2024 valid for 00 UTC of 28-11-2024



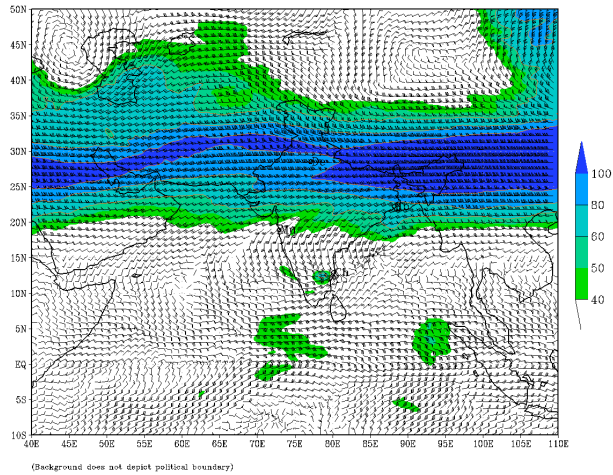
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based on 00 UTC of 26-11-2024 valid for 00 UTC of 28-11-2024



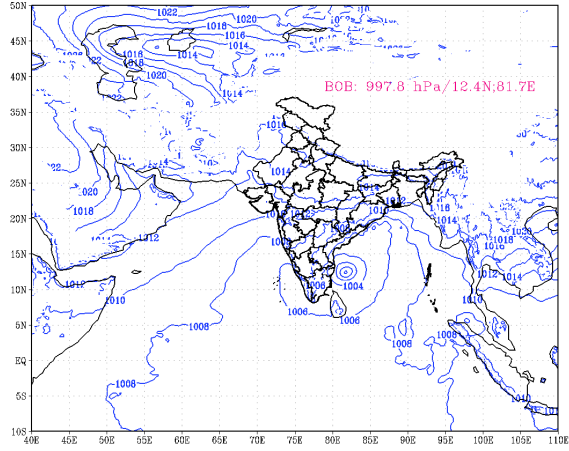
IMD:GFS MODEL(12 Km) 500 hPa WIND (kt) FORECAST (48 HR)
based on 00 UTC of 26-11-2024 valid for 00 UTC of 28-11-2024



IMD :GFS MODEL(12 Km) 200 hPa WIND (kt) FORECAST (48 HR)
based on 00 UTC of 26-11-2024 valid for 00 UTC of 28-11-2024

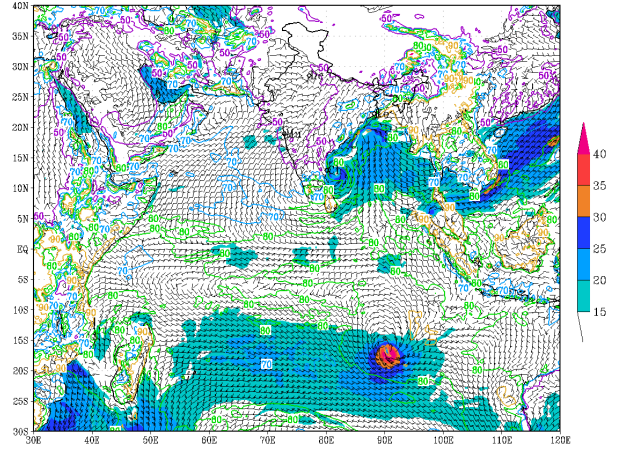


IMD :GFS MODEL(12 Km) MSL Pressure (hPa) FORECAST (72 HR)
based on 00 UTC of 28-11-2024 valid for 00 UTC of 29-11-2024



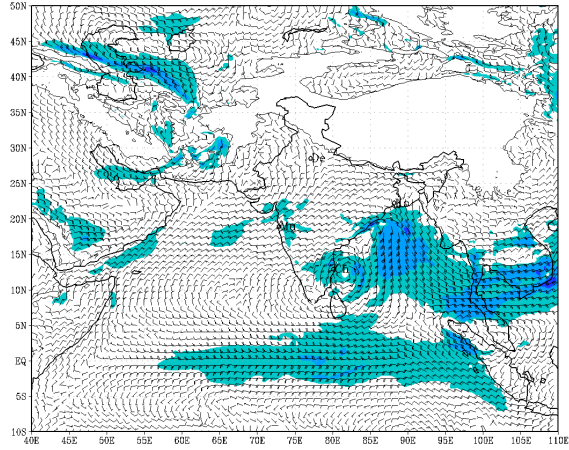
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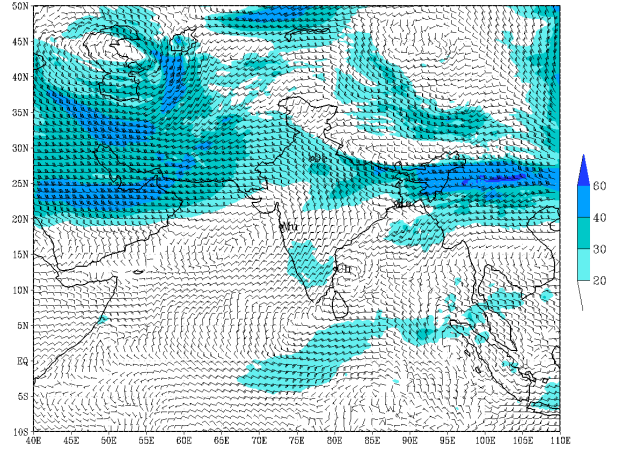
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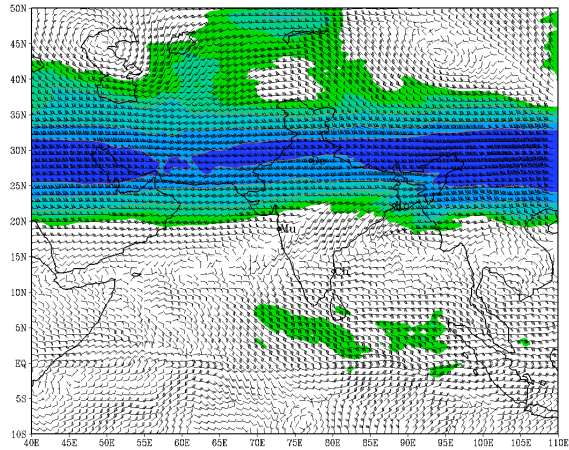
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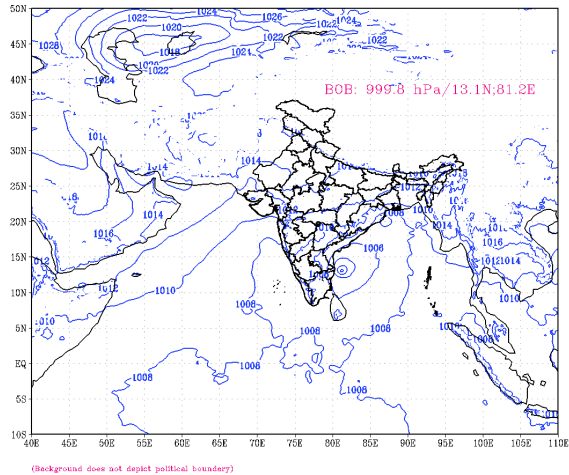
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IMD :GFS MODEL(12 Km) 200 hPa WIND (kt) FORECAST (72 HR)
based on 00 UTC of 28-11-2024 valid for 00 UTC of 29-11-2024

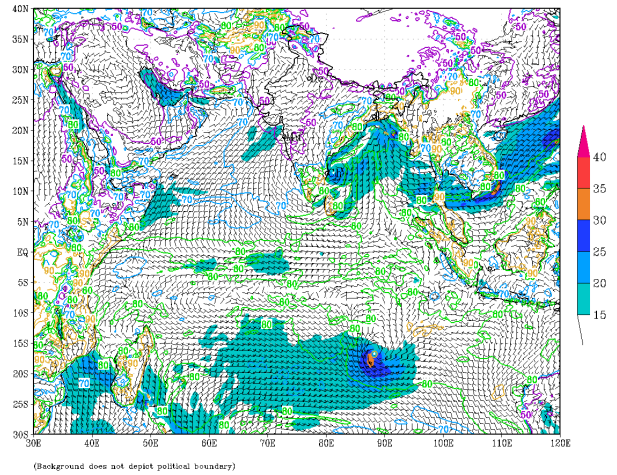


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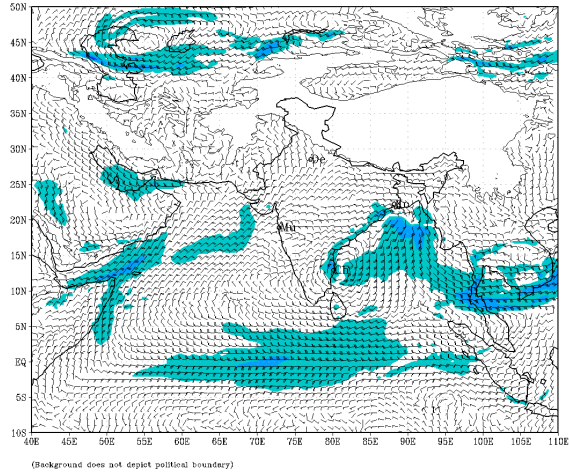
IMD :GFS MODEL(12 Km) MSL Pressure (hPa) FORECAST (96 HR)
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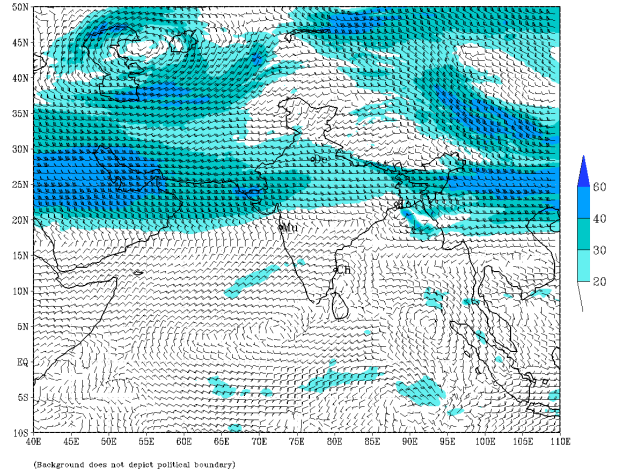
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IMD:GFS MODEL(12 Km) 850 hPa WIND (kt) FORECAST (96 HR)
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