



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

**Tropical Cyclone Forecast Programme  
Report Dated 25<sup>th</sup> November 2024**

**Time of Issue: 1000 UTC**

**Synoptic features (based on 0300 UTC analysis):**

Yesterday's **Well marked low pressure area** over southeast Bay of Bengal and adjoining East Equatorial Indian Ocean moved west-northwestwards, intensified into a **depression** and lay centred at 0300 UTC of today, the 25<sup>th</sup> November 2024 over central parts of south Bay of Bengal and adjoining East Equatorial Indian Ocean near latitude 5.0°N and longitude 85.3°E, about 600 km southeast of Trincomalee (4418), 880 km southeast of Nagappattinam (43347), 980 km southeast of Puducherry (433331) and 1050 km south-southeast of Chennai (43279). It is likely to move northwestwards and intensify into a deep depression during next 24 hours. Thereafter, it is likely to continue to move northwestwards towards Tamil Nadu-Sri Lanka coasts during subsequent 2 days.

**Environmental Features:**

Parameter	Bay of Bengal (BoB)	Arabian Sea (AS)
<b>Sea Surface Temperature (SST) °C</b>	➤ 28-30°C over BoB.	➤ 29-30°C over most parts of Arabian Sea. ➤ 26-28°C over southwest Arabian Sea along and off Somalia coast and parts of westcentral AS.
<b>Tropical Cyclone Heat Potential (TCHP) kJ/cm<sup>2</sup></b>	➤ 100-120 over south BoB & adjoining EIO. ➤ 40-60 over southwest & adjoining eastcentral BoB and along & off Sri Lanka/Tamil Nadu/ Andhra Pradesh coasts	➤ 70-90 over most parts of south, central and north AS. ➤ 20-40 over rest of the area.
<b>Cyclonic Relative vorticity (X10<sup>-6</sup>s<sup>-1</sup>)</b>	➤ 100-120 over southwest BoB & adjoining east EIO. ➤ 20-30 over north BoB.	➤ 10-20 over eastcentral AS adjoining northeast AS and over extreme South AS, westcentral AS along the coast of Somalia.
<b>Low Level convergence (X10<sup>-5</sup> s<sup>-1</sup>)</b>	➤ 20-30 over southwest BoB & adjoining east EIO.	➤ 5 over southwest and adjoining southeast AS.
<b>Upper-Level divergence (X10<sup>-5</sup> s<sup>-1</sup>)</b>	➤ 20-30 over southwest BoB & adjoining east EIO.	➤ 5-10 over central parts of south AS.

<b>Vertical Wind Shear (VWS knots)</b> <b>Low: 05-10 knots</b> <b>Moderate: 10-20 knots</b> <b>High: &gt;20 knots</b>	➤ High over north & central BoB & adjoining EIO. ➤ Low-Moderate over south BoB, South Andaman Sea.	➤ High over north & central AS and extreme south AS. ➤ Low-Moderate over rest of AS.
<b>Wind Shear Tendency (knots)</b>	➤ Decreasing over southeast and adjoining southwest BoB, Andaman Sea.	➤ Decreasing over central parts of extreme south AS and adjoining EIO. ➤ Increasing over Northeast AS.
<b>Upper tropospheric Ridge</b>	➤ At 10 <sup>0</sup> N.	➤ At 10 <sup>0</sup> 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, westcentral Bay of Bengal & Andaman Sea (Minimum Cloud Top Temperature is minus 80-93 degrees Celsius). Scattered low and medium clouds with embedded moderate to intense convection lay over east central Bay of Bengal and Isolated weak to moderate convection lay over north Bay of Bengal.

**b) Over the Arabian Sea:**

Scattered low and medium clouds with embedded intense to very intense convection lay over Comorin area. Scattered low and medium clouds with embedded moderate to intense convection lay over south Arabian Sea, 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, south Myanmar, Thailand, Gulf of Thailand, Cambodia, Laos, Vietnam, Sumatra, Strait of Malacca, Malaysia, Borneo, south China Sea, Java Islands & Sea, Celebes Islands & Sea, Philippines, east China Sea, Yellow Sea, Madagascar and over Indian Ocean between Lat 5.0N to 20.0S Long 50.0E 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:**

<b>MODEL GUIDANCE</b>	<b>Bay of Bengal (BoB)</b>	<b>Arabian Sea (AS)</b>
<b>IMD-GFS</b>	Model is indicating depression(D) over Equatorial Indian Ocean (EIO) & adjoining southwest BoB as on today, moving in the northwestwards direction and lay over southwest BoB close to Sri Lanka coast as deep depression (DD) on 26 <sup>th</sup> , moving then northwestwards and lay over southwest BoB north of Sri	No significant circulation over AS.

	Lanka coast as D/DD on 27 <sup>th</sup> , lay over southwest BoB off Tamil Nadu coasts as DD/D on 28 <sup>th</sup> . Weaken further over the same region.	
<b>IMD-GEFS</b>	Model is indicating D over Equatorial Indian Ocean (EIO) & adjoining southwest BoB as on today, lay over southwest BoB close to Sri Lanka coast as D/DD on 26 <sup>th</sup> , moving then northwestwards and touch the Tamil Nadu coast on 27 <sup>th</sup> as D. It will move along the coast while weakening & less marked thereafter.	No Significant circulation over AS.
<b>IMD-WRF</b>	Model is indicating D/DD over Equatorial Indian Ocean (EIO) & adjoining southwest BoB as on today, move northwestwards close to Sri Lanka coast as DD on 26 <sup>th</sup> , moving in the same direction & cross the Sri Lanka coasts and lay over Sri Lanka coasts as CS on 27 <sup>th</sup> . Moving in the same direction and lay over southwest BoB & north of Sri Lanka coasts as CS/SCS on 28 <sup>th</sup> .	No Significant circulation over AS.
<b>NCMRWF-NCUM(G)</b>	Model is indicating a low pressure area (LPA) over EIO & adjoining southwest BoB as on today, moving in the northwestwards direction and lay over southwest BoB close to south of Sri Lanka coasts as WML/D on 26 <sup>th</sup> . Moving in the same direction & lay over southwest BoB, off north Sri Lanka coasts as DD on 27 <sup>th</sup> . Moving in the same direction towards Tamil Nadu coast & touch the north Tamil Nadu coast & south Andhra Pradesh coast on 29 <sup>th</sup> as CS/SCS. It will cross the coast on the same day & lay over land as DD on 30 <sup>th</sup> .	No Significant circulation over AS.
<b>NCMRWF-NCUM(R)</b>	Model is indicating a low pressure area (LPA) over EIO & adjoining southwest BoB as on today, moving in the northwestwards direction and lay over southwest BoB close to south of Sri Lanka coasts as WML/D on 26 <sup>th</sup> . Moving in the same direction & lay over southwest BoB, off north Sri Lanka coasts as DD on 27 <sup>th</sup> . Moving in the same direction towards Tamil Nadu coast & touch the north Tamil Nadu coast & south Andhra Pradesh coast on 29 <sup>th</sup> as CS/SCS. It will cross the coast on the same day & lay over land as DD on 30 <sup>th</sup> .	No Significant circulation over AS.
<b>NCMRWF-</b>	Model is indicating a low pressure area (	No Significant cyclonic circulation

<b>NEPS</b>	LPA) over EIO & adjoining southwest BoB as on today, moving in the northwestwards direction and lay over southwest BoB close to south of Sri Lanka coasts as WML/D on 26 <sup>th</sup> . Moving in the same direction & lay over southwest BoB, off north Sri Lanka coasts as DD on 27 <sup>th</sup> . Moving in the same direction towards Tamil Nadu coast & touch the north Tamil Nadu coast & south Andhra Pradesh coast on 29 <sup>th</sup> as CS/SCS. It will cross the coast on the same day & lay over land as DD on 30 <sup>th</sup> .	over AS.
<b>ECMWF</b>	Model is indicating D over EIO & adjoining southwest BoB as on today, will move northwestwards and lay over southwest BoB as DD/D on 26 <sup>th</sup> . Moving in the same direction & lay over southwest BoB close to Sri Lanka coasts D/DD on 27 <sup>th</sup> . Continue to move in the same direction and cross the Tamil Nadu coast as D/DD on 27 <sup>th</sup> .	No Significant cyclonic circulation over AS.
<b>NCEP-GFS</b>	Model is indicating D over EIO & adjoining southwest BoB as on today, will move northwestwards till 27 <sup>th</sup> /0000 UTC and lay over c as DD. It will then move Northeast wards and lay over westcentral BoB as SCS/SCS. It will continue to move in the same direction towards Myanmar-Bangladesh coasts while intensifying further.	No Significant cyclonic circulation over AS.

## Summary:

### (a) Bay of Bengal:

Model guidance indicates that, there is a variation (though reduced) among various models with respect to track, intensification and landfall of system. Peak intensification is varying from depression to marginal cyclonic storm stage. However, most of the models are indicating the system to make landfall over the Tamil Nadu coast and weaken slightly prior to landfall. The landfall point is varying between Puducherry and Chennai (12-13N), landfall time is varying between 29/1200 UTC & 30/0600 UTC and intensity from 15-30 KT.

### (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 **depression over central parts of South Bay of Bengal and adjoining East Equatorial Indian Ocean** is likely to move northwestwards and intensify into a deep depression during next 24 hours. Thereafter,

it is likely to continue to move northwestwards towards Tamil Nadu-Sri Lanka coasts 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:**

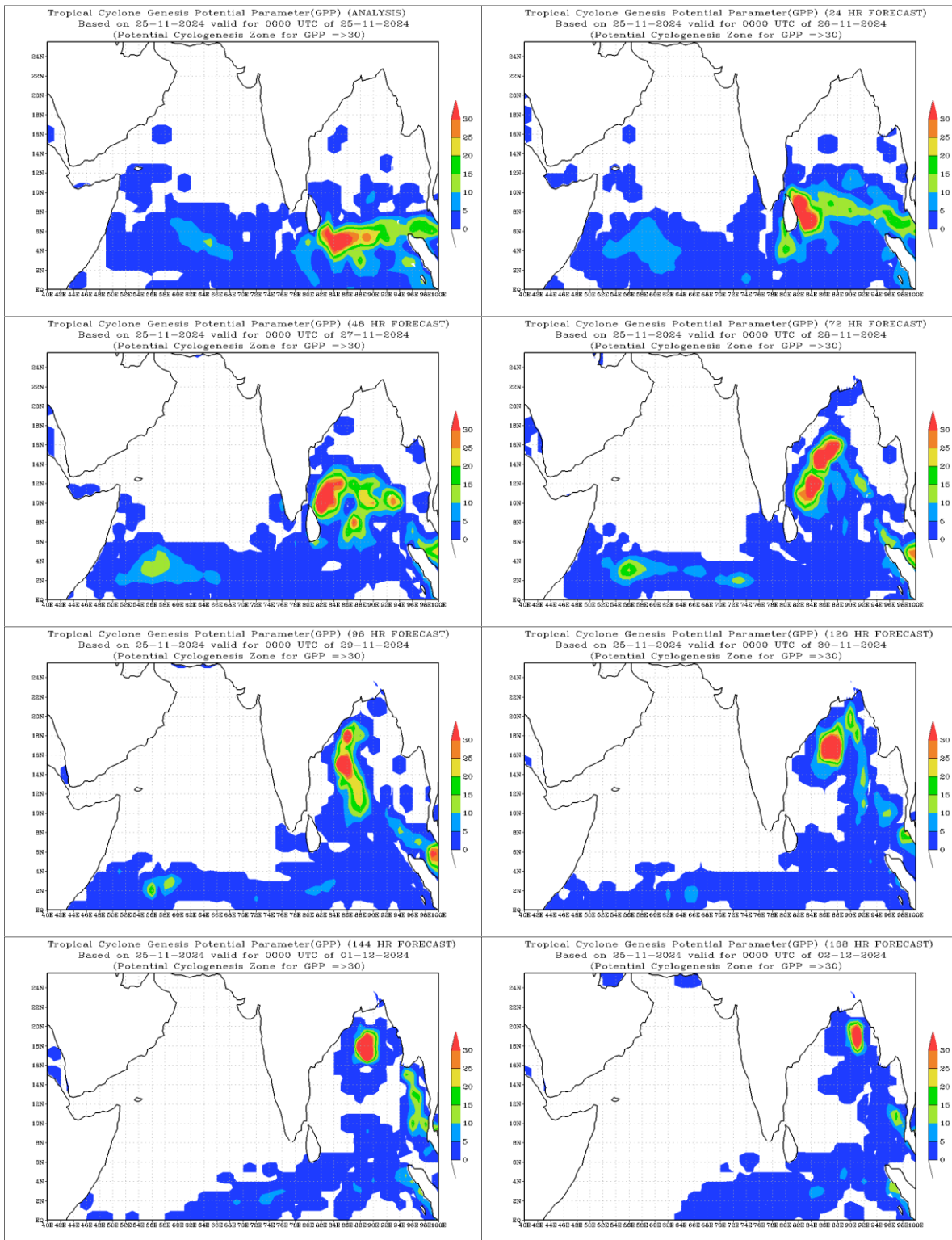
24 HOURS	24-48 HOURS	48-72 HOURS	72-96 HOURS	96-120 HOURS	120-144 HOURS	144-168 HOURS
NIL	NIL	NIL	NIL	NIL	NIL	NIL

“- “indicates genesis has already occurred.

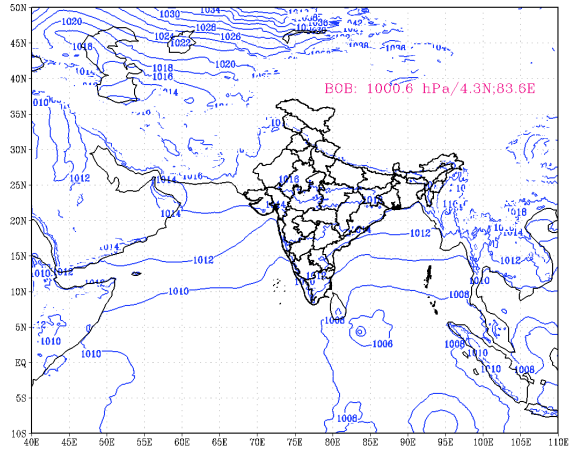
Probability is indicated as NIL for 0%, LOW for 1-33%, MOD for 34-67% and High for 68-100%.

**Intense Observation Period (IOP):** Sri Lanka coasts during 25<sup>th</sup>-27<sup>th</sup>, Tamil Nadu coast during 25<sup>th</sup>-29<sup>th</sup> November and south Andhra Pradesh coast during 26-30<sup>th</sup> .

# ANNEXURE

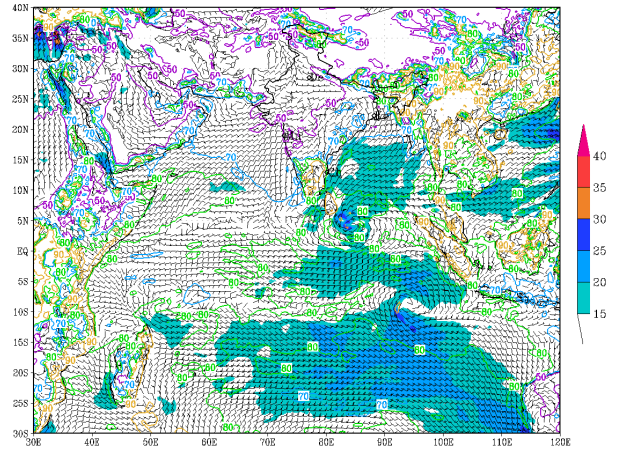


IMD :GFS MODEL(12 Km) MSL Pressure (hPa) FORECAST (00 HR)  
based on 00 UTC of 25-11-2024 valid for 00 UTC of 25-11-2024



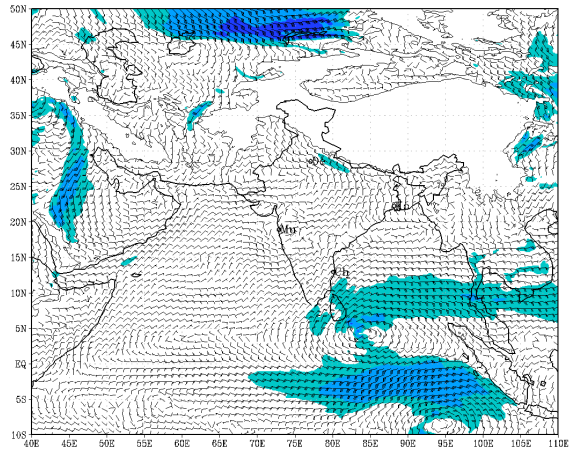
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IMD GFS (T1534) 10m WIND (kt) AND 2m RH (%) FORECAST (00 HR)  
based on 00 UTC of 25-11-2024 valid for 00 UTC of 25-11-2024



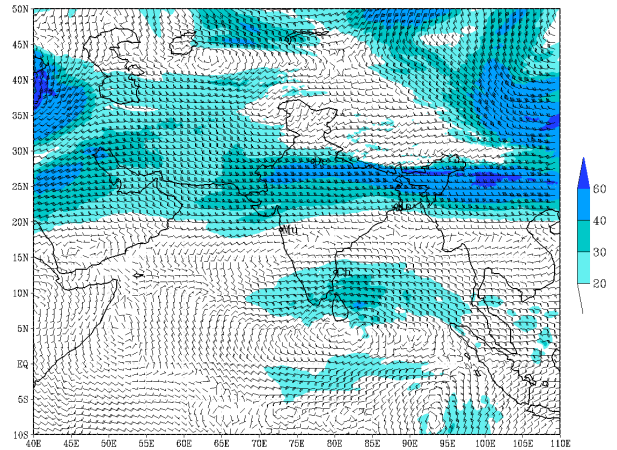
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based on 00 UTC of 25-11-2024 valid for 00 UTC of 25-11-2024



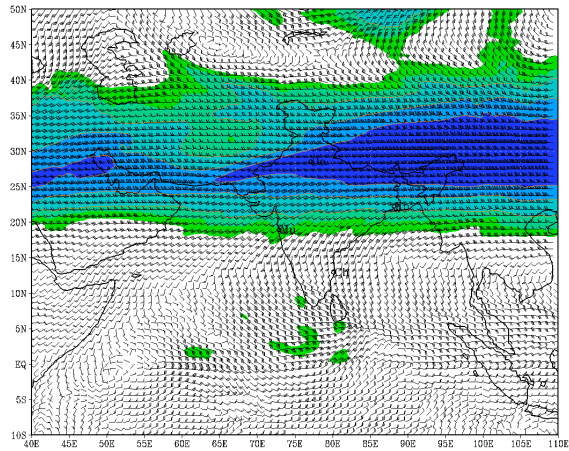
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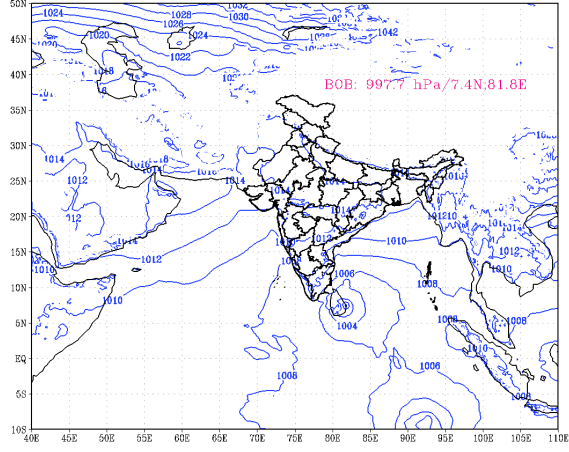
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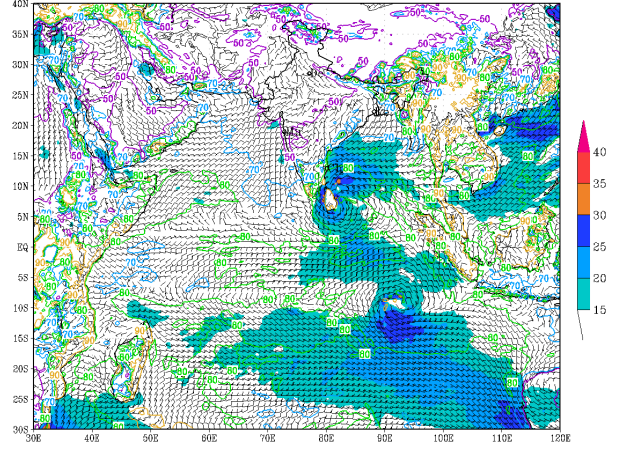
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IMD :GFS MODEL(12 Km) MSL Pressure (hPa) FORECAST (24 HR)  
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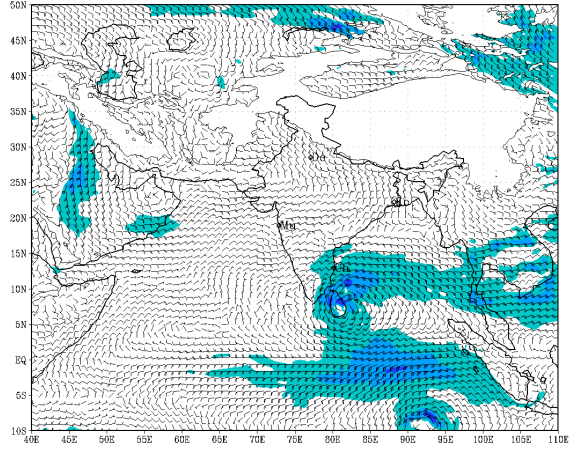
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IMD GFS (T1534) 10m WIND (kt) AND 2m RH (%) FORECAST (24 HR)  
based on 00 UTC of 25-11-2024 valid for 00 UTC of 26-11-2024



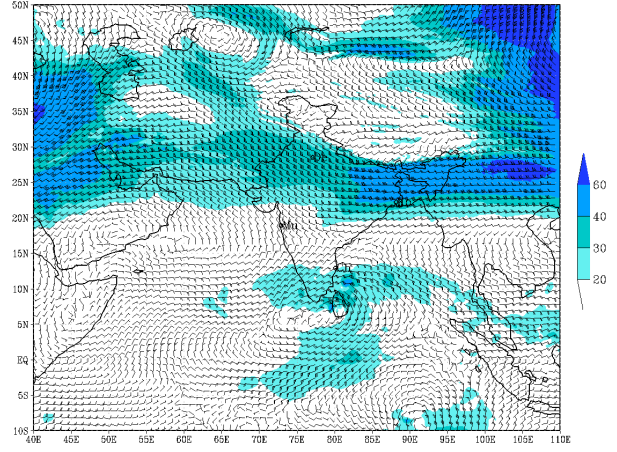
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IMD:GFS MODEL(12 Km) 850 hPa WIND (kt) FORECAST (24 HR)  
based on 00 UTC of 25-11-2024 valid for 00 UTC of 26-11-2024



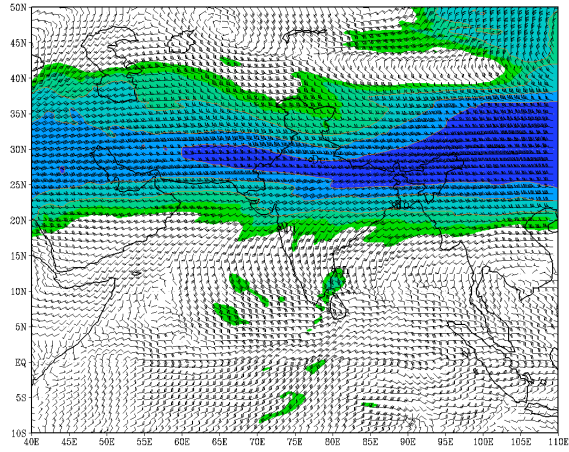
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IMD:GFS MODEL(12 Km) 500 hPa WIND (kt) FORECAST (24 HR)  
based on 00 UTC of 25-11-2024 valid for 00 UTC of 26-11-2024



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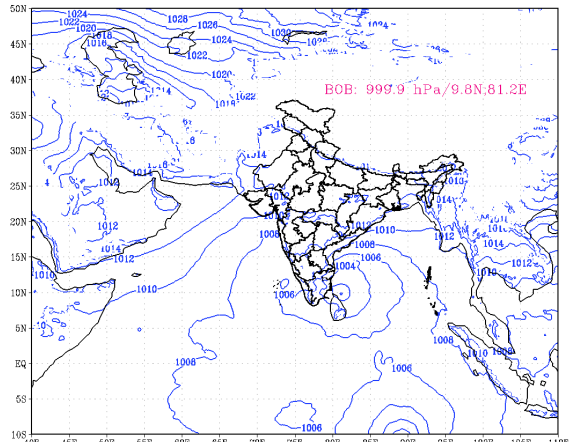
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based on 00 UTC of 25-11-2024 valid for 00 UTC of 26-11-2024



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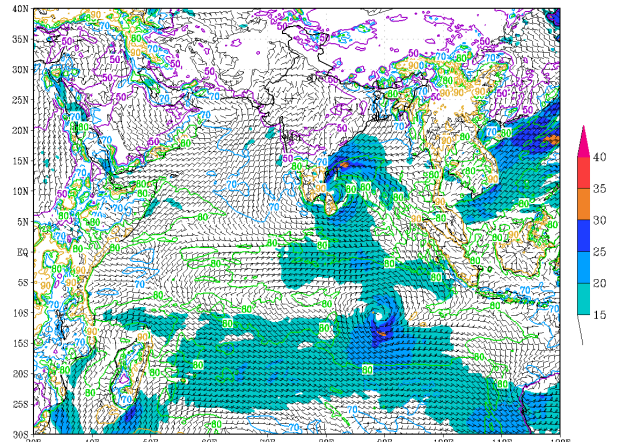


IMD :GFS MODEL(12 Km) MSL Pressure (hPa) FORECAST (48 HR)  
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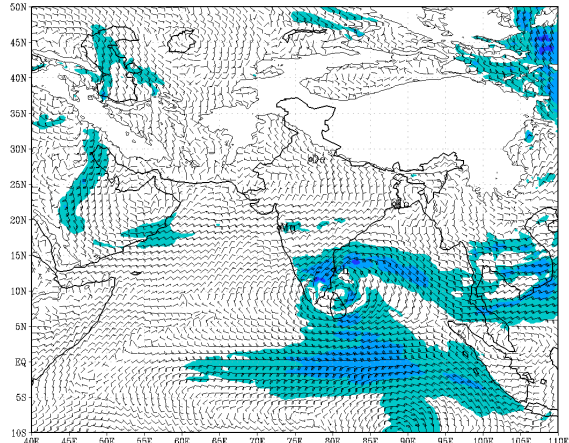
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IMD GFS (T1534) 10m WIND (kt) AND 2m RH (%) FORECAST (48 HR)  
 based on 00 UTC of 25-11-2024 valid for 00 UTC of 27-11-2024



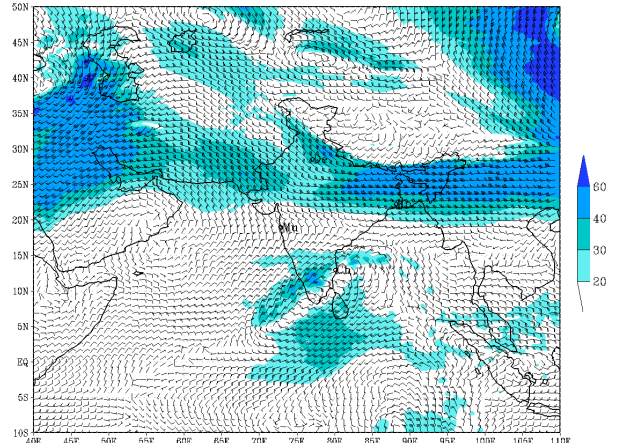
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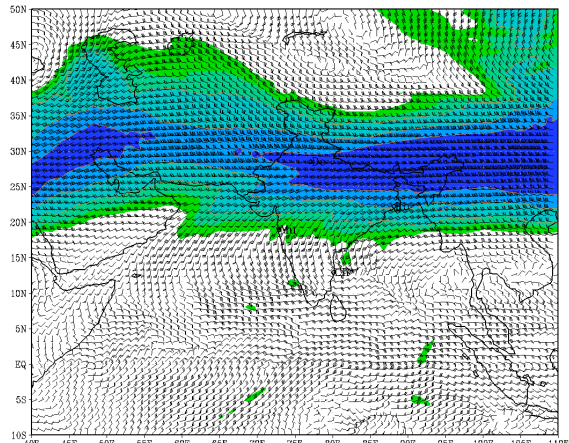
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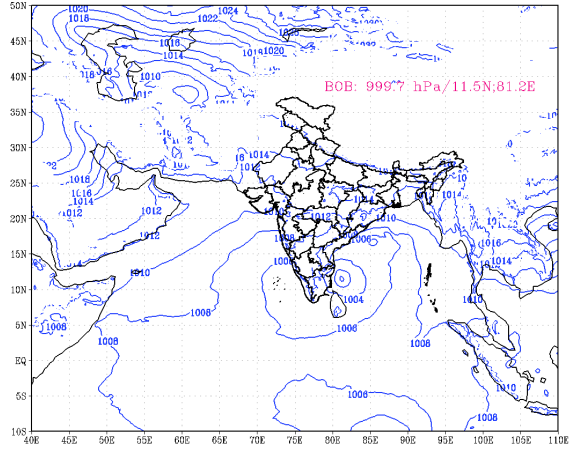
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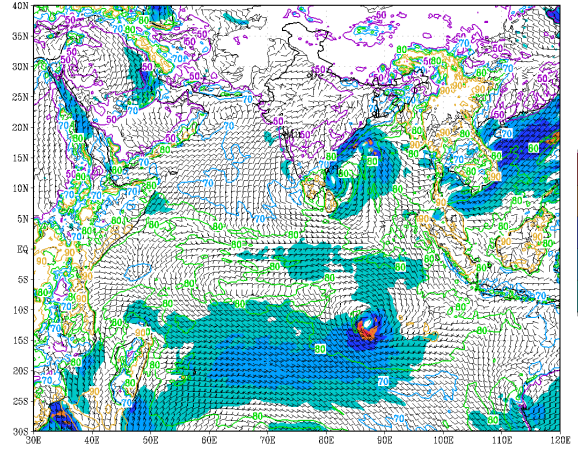
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IMD :GFS MODEL(12 Km) MSL Pressure (hPa) FORECAST (72 HR)  
based on 00 UTC of 25-11-2024 valid for 00 UTC of 28-11-2024



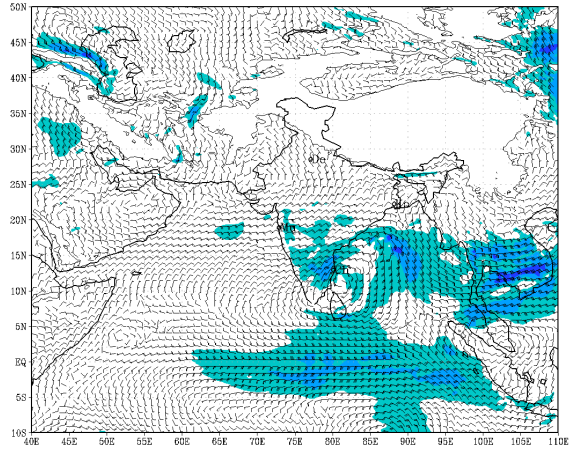
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IMD GFS (T1534) 10m WIND (kt) AND 2m RH (%) FORECAST (72 HR)  
based on 00 UTC of 25-11-2024 valid for 00 UTC of 28-11-2024



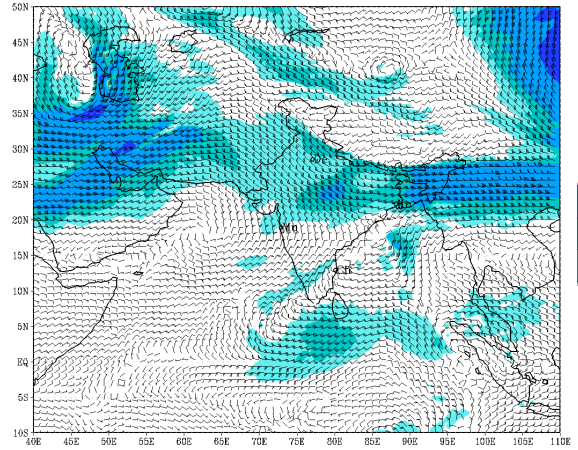
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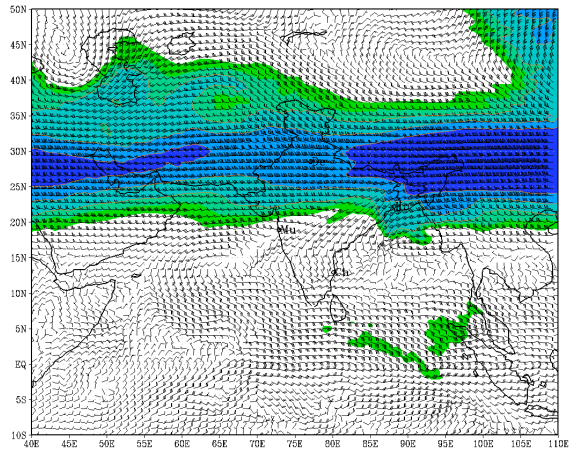
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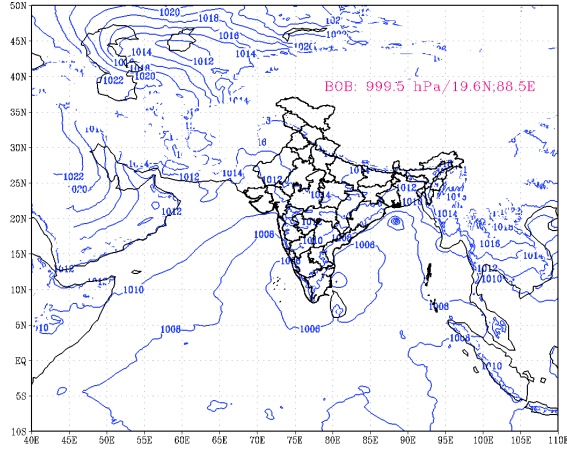
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based on 00 UTC of 25-11-2024 valid for 00 UTC of 28-11-2024



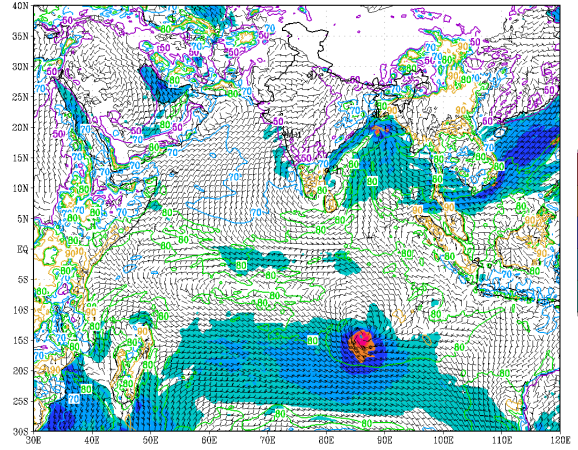
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IMD :GFS MODEL(12 Km) MSL Pressure (hPa) FORECAST (96 HR)  
based on 00 UTC of 25-11-2024 valid for 00 UTC of 29-11-2024



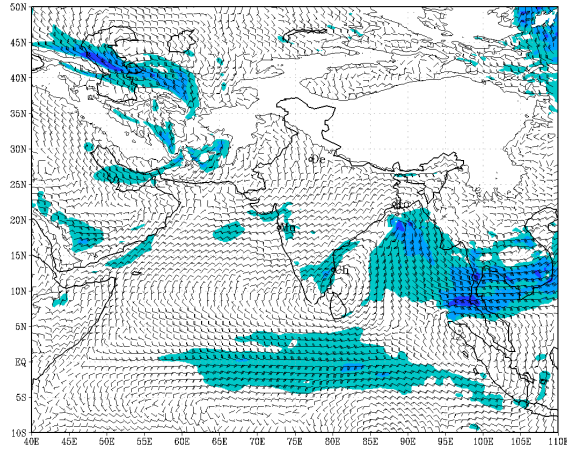
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IMD GFS (T1534) 10m WIND (kt) AND 2m RH (%) FORECAST (96 HR)  
based on 00 UTC of 25-11-2024 valid for 00 UTC of 29-11-2024



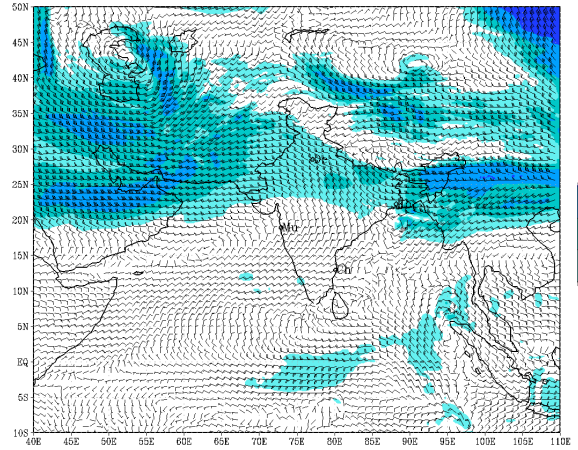
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IMD:GFS MODEL(12 Km) 850 hPa WIND (kt) FORECAST (96 HR)  
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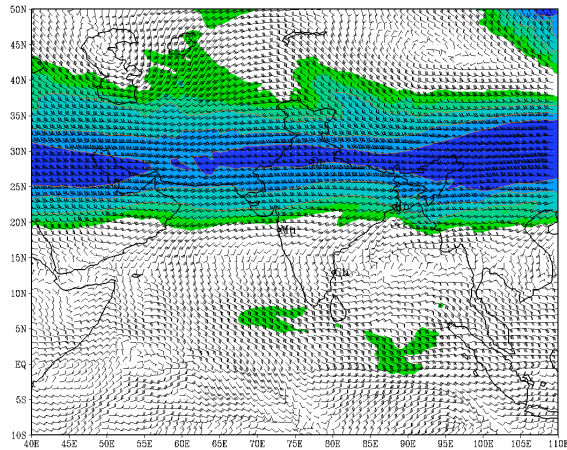
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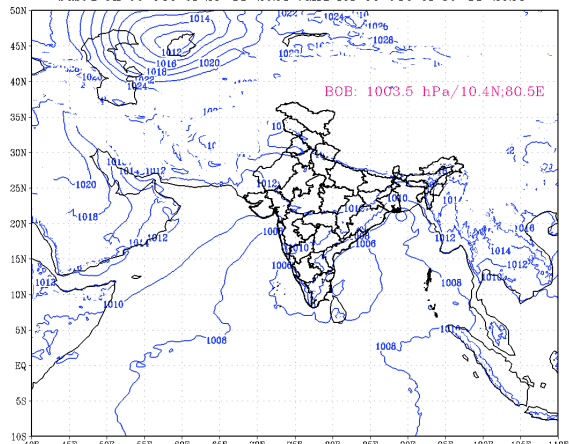
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based on 00 UTC of 25-11-2024 valid for 00 UTC of 29-11-2024



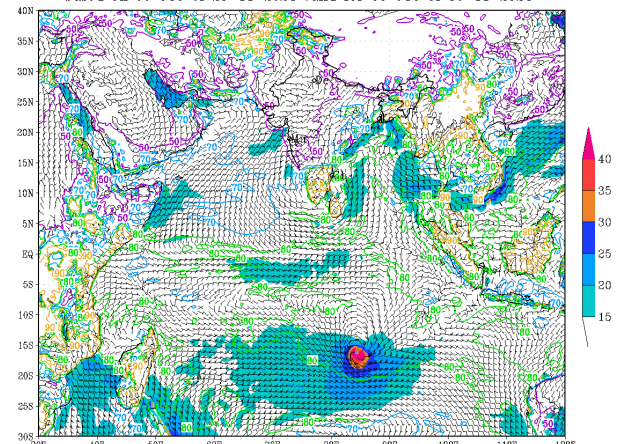
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IMD :GFS MODEL(12 Km) MSL Pressure (hPa) FORECAST (120 HR)  
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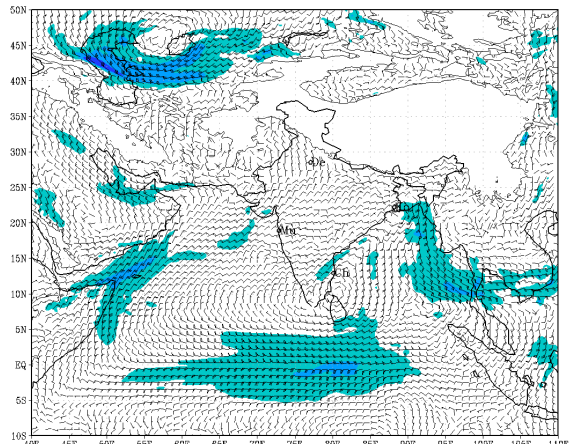
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IMD GFS (T1534) 10m WIND (kt) AND 2m RH (%) FORECAST (120 HR)  
 based on 00 UTC of 25-11-2024 valid for 00 UTC of 30-11-2024



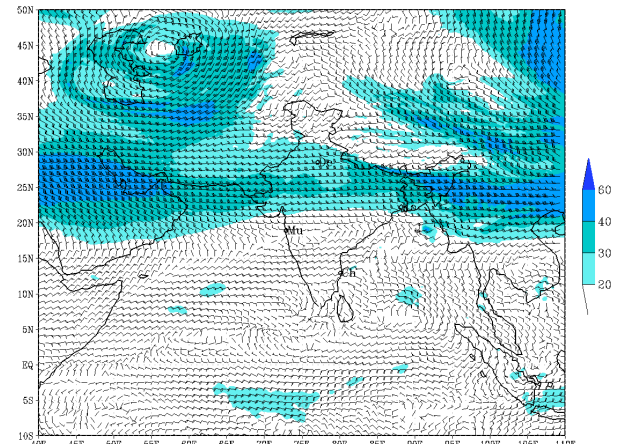
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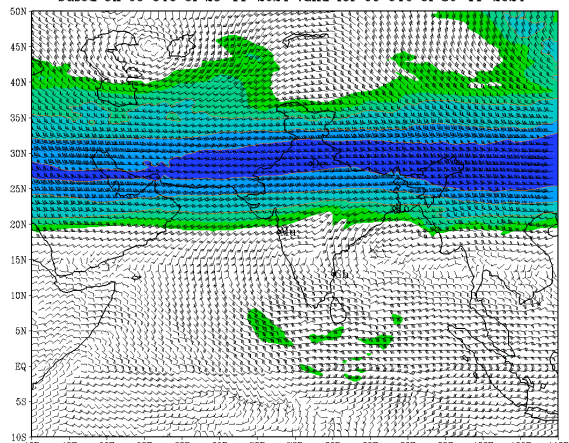
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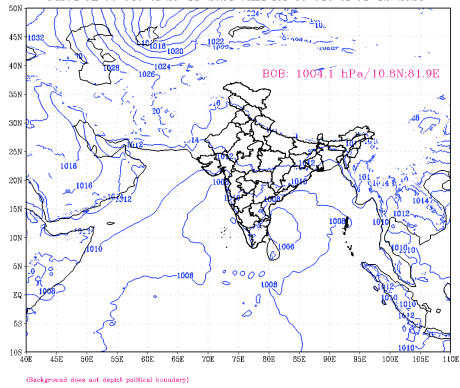
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IMD :GFS MODEL(12 Km) 200 hPa WIND (kt) FORECAST (120 HR)  
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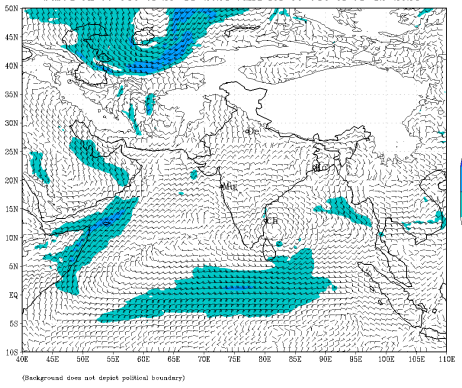


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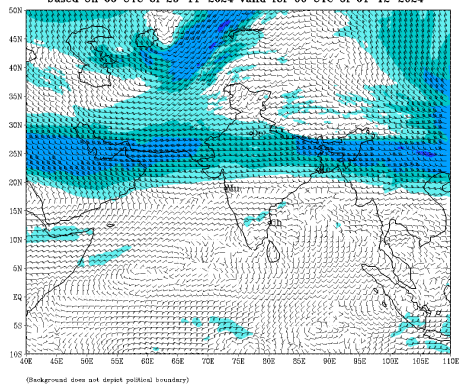
IMD-GFS MODEL(12 Km) MSL Pressure (hPa) FORECAST (144 HR)  
based on 00 UTC of 25-11-2024 valid for 00 UTC of 01-12-2024



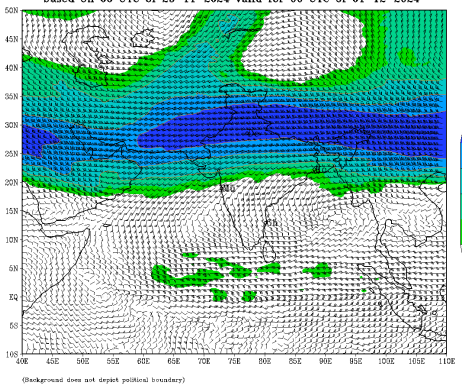
IMD-GFS MODEL(12 Km) 850 hPa WIND (kt) FORECAST (144 HR)  
based on 00 UTC of 25-11-2024 valid for 00 UTC of 01-12-2024



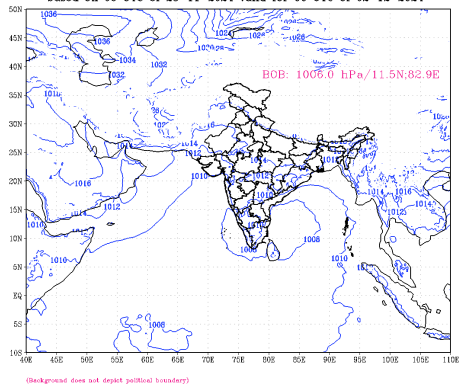
IMD-GFS MODEL(12 Km) 500 hPa WIND (kt) FORECAST (144 HR)  
based on 00 UTC of 25-11-2024 valid for 00 UTC of 01-12-2024



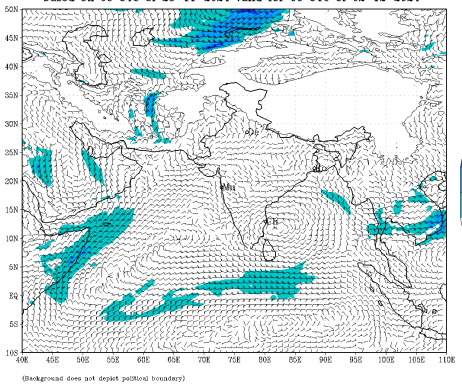
IMD-GFS MODEL(12 Km) 200 hPa WIND (kt) FORECAST (144 HR)  
based on 00 UTC of 25-11-2024 valid for 00 UTC of 01-12-2024



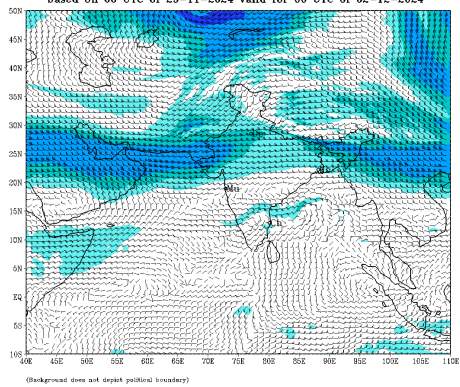
IMD-GFS MODEL(12 Km) MSL Pressure (hPa) FORECAST (168 HR)  
based on 00 UTC of 25-11-2024 valid for 00 UTC of 02-12-2024



IMD-GFS MODEL(12 Km) 850 hPa WIND (kt) FORECAST (168 HR)  
based on 00 UTC of 25-11-2024 valid for 00 UTC of 02-12-2024



IMD-GFS MODEL(12 Km) 500 hPa WIND (kt) FORECAST (168 HR)  
based on 00 UTC of 25-11-2024 valid for 00 UTC of 02-12-2024



IMD-GFS MODEL(12 Km) 200 hPa WIND (kt) FORECAST (168 HR)  
based on 00 UTC of 25-11-2024 valid for 00 UTC of 02-12-2024

