



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

**Tropical Cyclone Forecast Programme  
Report Dated 17<sup>th</sup> December 2022**

**Time of Issue: 1000 UTC**

**Synoptic features (based on 0600 UTC analysis):**

- ❖ Yesterday's Deep Depression over Eastcentral & adjoining Westcentral Arabian Sea moved nearly west-northwestwards and weakened into a Depression over Westcentral & adjoining eastcentral Arabian Sea in the evening (1200 UTC/1730 hours IST) of 17th December, 2022. It continued to move nearly west-northwestwards till 17th morning (0000 UTC/0530 hours IST). Thereafter, it moved west-southwestwards and lay centered at 1130 hrs IST of today, the 17th December 2022 over the westcentral Arabian Sea near latitude 13.9°N and longitude 61.4°E about 1270 km west-northwest of Aminidivi (Lakshadweep), 1350 km west-southwest of Panjim (Goa) and 850 km east-southeast of Salalah (Oman).

It is very likely to move nearly westwards and weaken into a well marked low pressure area during next 12 hours.

- ❖ Yesterday's Low Pressure Area over Southeast Bay of Bengal & adjoining East Equatorial Indian Ocean persists over the same region at 0600 UTC of today, the 17<sup>th</sup> December, 2022. It is likely to move westwards slowly over South Bay of Bengal during next 48 hours.

**Dynamical and thermo-dynamical features**

Parameter	Bay of Bengal (BoB)	Arabian Sea (AS)
Sea Surface Temperature (SST) °C	28-29°C over entire BoB except southern parts of southwest BoB and Gulf of Mannar where the same is 26-28.	26-27°C around the system and over Eastcentral and southeast and adjoining southwest AS, 26-27 over Westcentral and southwest AS.
Tropical Cyclone Heat Potential (TCHP) kJ/cm <sup>2</sup>	90-100 over eastcentral BoB, 90-100 over south Andaman Sea, southeast BoB adjoining Equatorial Indian Ocean (EIO). Less than 40 along the Andhra Pradesh and Tamil Nadu coasts, Gulf of Mannar, western parts of southwest BoB.	70-90 over southeast and adjoining eastcentral and adjoining southwest AS, and less than 40 over remaining AS and also off west coast of India, Comorin area.
Cyclonic Relative vorticity (X10 <sup>-6</sup> s <sup>-1</sup> )	30-50 over southeast and adjoining EIO.	50-100 around the system center and 25 along the forecasted track.
Low Level convergence (X10 <sup>-5</sup> s <sup>-1</sup> )	5-10 over southeast BoB and adjoining EIO and adjoining southwest BoB.	5 to south of the system center.

<b>Upper Level divergence (<math>\times 10^{-5} \text{ s}^{-1}</math>)</b>	5-10 over southeast BoB and adjoining EIO.	5-10 northwest of system center. 5 along the forecasted path.
<b>Vertical Wind Shear (VWS knots)</b>	20-25 over south BoB and 10 over the Andaman Sea.	10 -15 around system center. 20-25 along the forecasted path.
<b>Wind Shear Tendency (knots)</b>	Decreasing over southeast BoB and adjoining EIO and over eastcentral BoB.	Decreasing around system.
<b>Upper tropospheric Ridge</b>	Along 15.0°N over the BoB.	Along 15.0°N over the AS.
<b>Trough in westerlies</b>	No significant trough	

**Satellite observations based on INSAT imagery (0600 UTC):**

**a) Over the BoB & Andaman Sea: -**

Scattered to broken low and medium clouds with embedded intense to very intense convection lay over south Bay of Bengal and south Andaman Sea. Scattered low/med clouds with embedded isolated weak to convection over central Bay of Bengal.

**b) Over the Arabian Sea: -**

Scattered to broken low and medium clouds with embedded intense to very intense convection lay over central parts of central AS. Scattered low and medium clouds with embedded moderate to intense convection lay over Southeast Arabian Sea. Scattered low and medium clouds with embedded weak to moderate lay convection over north Arabian Sea, Gulf of Kutch and Comorin area.

The Vortex (D) over westcentral Arabian Sea and neighbourhood lay centered within half a degree of 14.0N / 64.9E. Intensity T1.5/1.5. Associated Scattered to broken low and medium clouds with embedded intense to very intense convection lay over central parts of central Arabian sea. Minimum Cloud Top Temperature is -80 degree Celsius.

**M.J.O. Index:**

The Madden Julian Oscillation (MJO) Index is currently in Phase 2 with amplitude less than 1. It will remain in same phase for next three days with increasing in amplitude. Thereafter, it will move to phase 3.

**Storms and Depression over South China Sea/ South Indian Ocean:**

NIL

**Model guidance 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>	No significant system	The well marked low pressure area over Westcentral & adjoining Eastcentral Arabian Sea as of today, 00UTC of 17 <sup>th</sup> Dec will move westwards and weaken further into Low pressure during next 12 hours. It will become less marked thereafter.

<b>IMD-GEFS</b>	No significant system	The Low pressure area of Westcentral AS of today will move westwards and weaken further in next 12 hours. It will become less marked thereafter.
<b>GEFS Probabilistic guidance</b>	-	-
<b>IMD WRF</b>	No significant system.	The Well marked low pressure area (LPA) over Westcentral and adjoining southwest Arabian Sea as of Today of 17 <sup>th</sup> Dec, will weaken further and will become less marked thereafter.
<b>NCMRWF-NCUM</b>	No significant system	The Low-pressure area over Westcentral and adjoining Eastcentral Arabian Sea as of today of 17 <sup>th</sup> Dec will move westwards and weaken further in next 12 hours. It will become less marked thereafter.
<b>NCMRWF-NEPS</b>	No significant system	The Low-pressure area over Westcentral and adjoining Eastcentral Arabian Sea as of today. It will move westwards and weaken further in next 12 hours. It will become less marked thereafter.
<b>NCMRWF-UM (Regional)</b>	No significant system.	The Low-pressure area over Westcentral and adjoining Eastcentral Arabian Sea as of today. It will move westwards and weaken further in next 12 hours. It will become less marked thereafter.
<b>ECMWF</b>	No significant system	The Low pressure area over Westcentral and adjoining Eastcentral Arabian Sea as of today of 00 UTC of 17 <sup>th</sup> Dec. It will move westwards and weaken further in next 12 hours and become less marked thereafter.
<b>ECMWF ensemble</b>	No significant system	-
<b>NCEP-GFS</b>	No significant system	A low pressure area (LPA) over Westcentral and adjoining southwest Arabian Sea as on today will have west-southwestwards movement with further weakening.
<b>IMD MME</b>	No guidance	The low pressure area over Westcentral and adjoining Eastcentral will move in westward direction with further weakening.
<b>IMD HWRF</b>	No guidance	No guidance
<b>IMD-Genesis Potential Parameter</b>	-	No Significant area

### Summary and conclusion:

- ❖ Most of the models are indicating that the depression over westcentral Arabian Sea is very likely to move nearly westwards and weaken gradually into a well marked low pressure area by 17<sup>th</sup> December evening (1200 UTC).
- ❖ Most of the models are indicating that the low pressure area over southeast Bay of Bengal and adjoining Equatorial Indian Ocean is likely to move nearly westwards slowly over south Bay of Bengal during next 48 hours without any significant intensification.

**In view of all the above, it is inferred that**

**1. For the Bay of Bengal:**

The Low Pressure Area over Southeast Bay of Bengal & adjoining East Equatorial Indian Ocean persists over the same region at 1130 hrs IST of today, the 17<sup>th</sup> December. It is likely to move westwards slowly over South Bay of Bengal during next 48 hours.

**2. For Arabian Sea:**

The depression over westcentral Arabian Sea is very likely to move nearly westwards and weaken into a well marked low pressure area during next 12 hours.

**Probability of cyclogenesis (formation of depression and above intensity systems) over the BAY OF BENGAL of Bengal and Andaman Sea during next 168 hours**

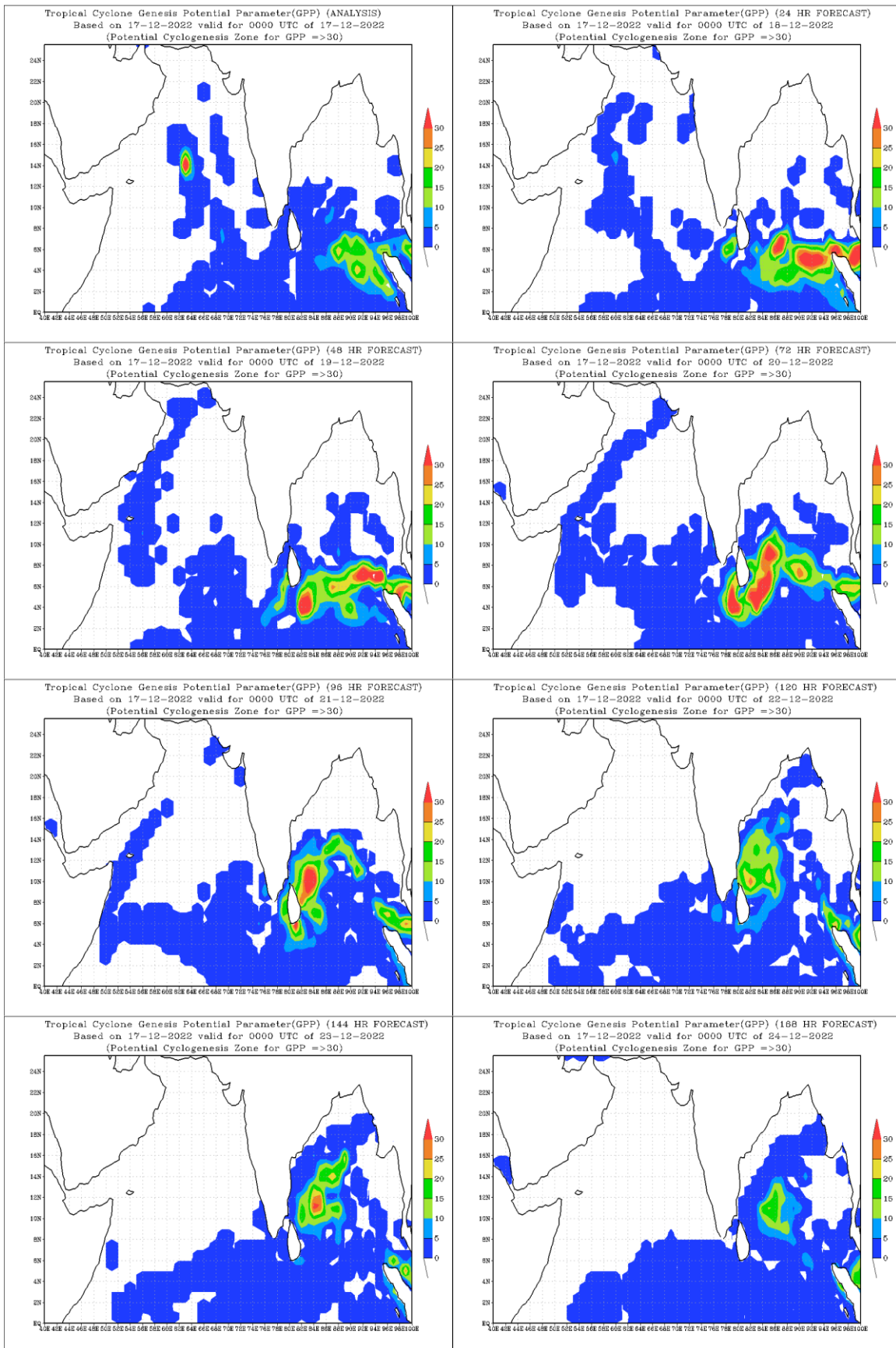
24 HOURS	24-48 HOURS	48-72 HOURS	72-96 HOURS	96-120 HOURS	120-144 HOURS	144-168 HOURS
Nil	Nil	Nil	NIL	NIL	NIL	NIL

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

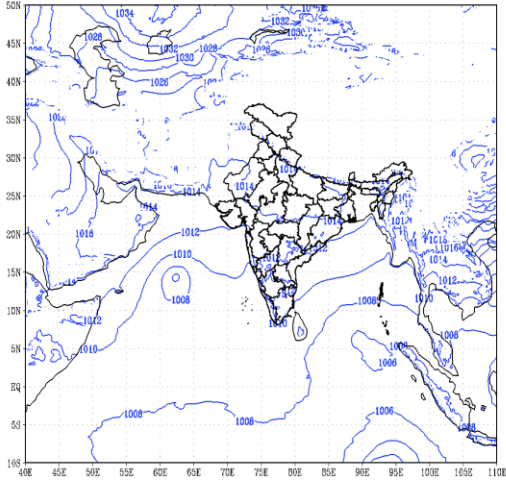
24 HOURS	24-48 HOURS	48-72 HOURS	72-96 HOURS	96-120 HOURS	120-144 HOURS	144-168 HOURS
-	NIL	NIL	Nil	NIL	NIL	NIL

**Advisory: The movement of both the systems need to be monitored.**

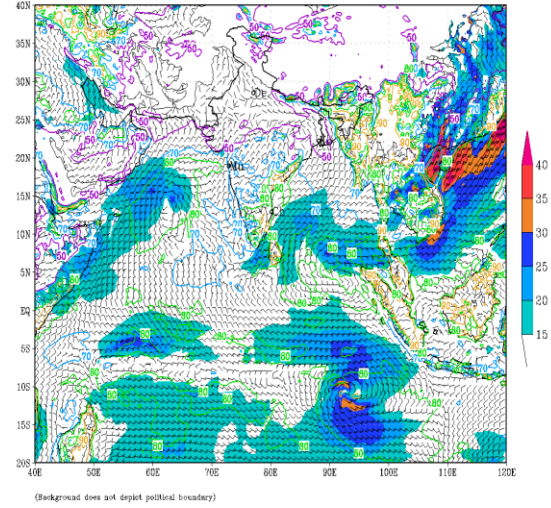
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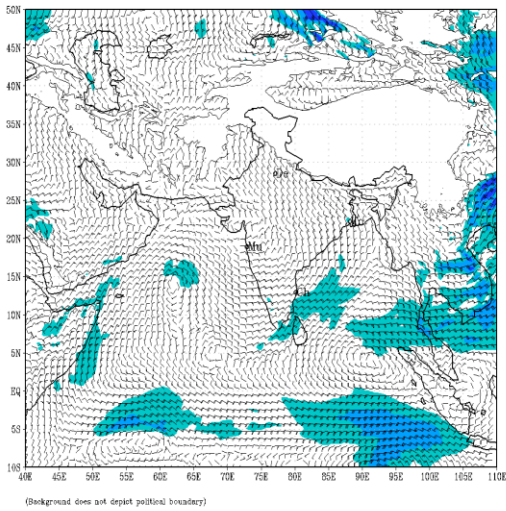
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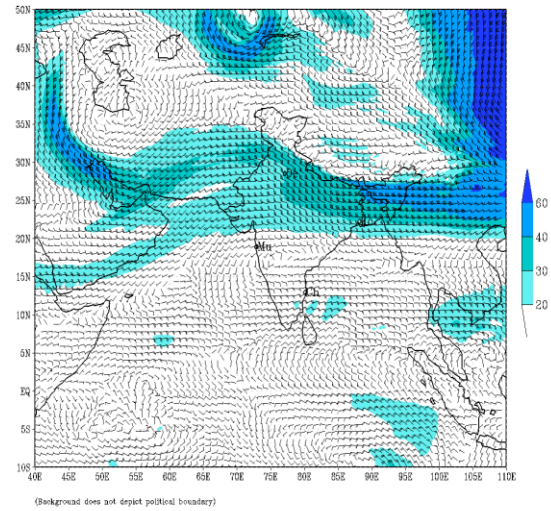
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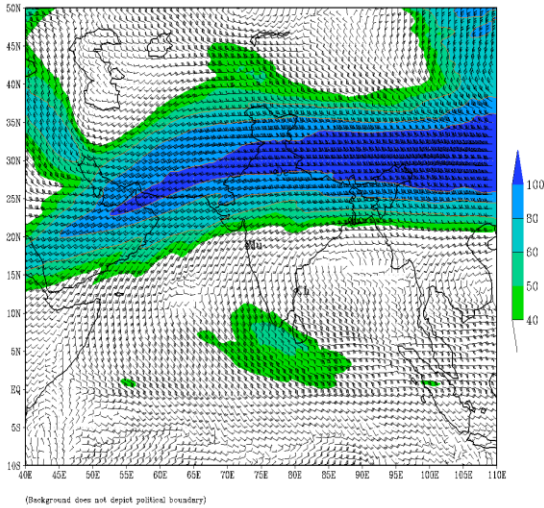
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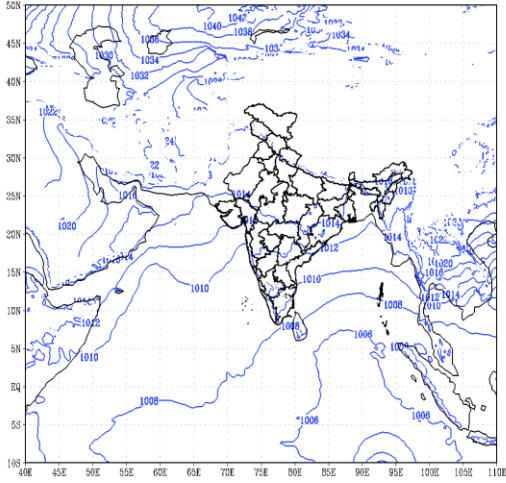
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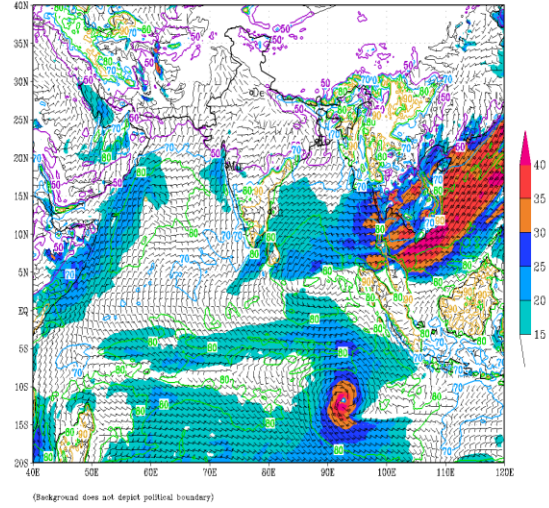
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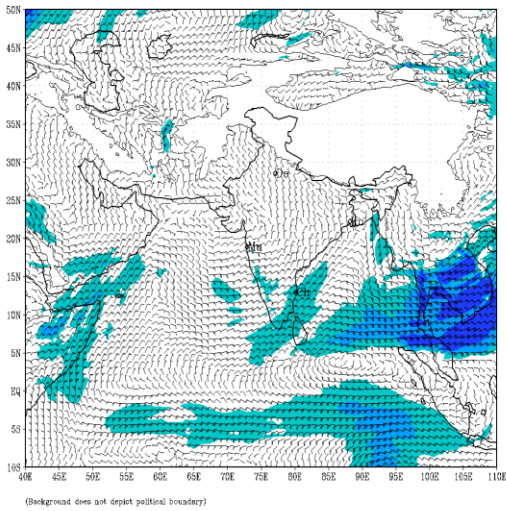
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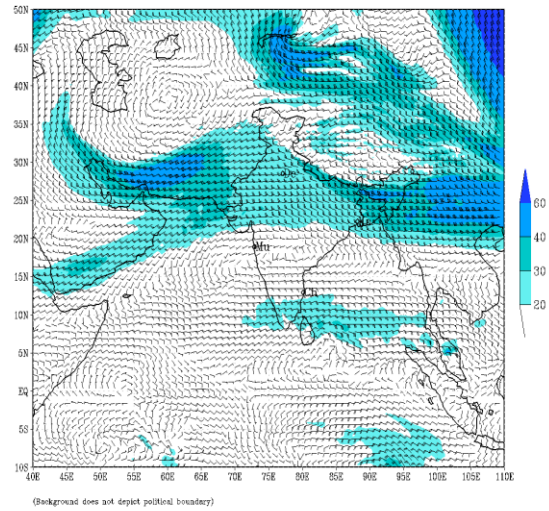
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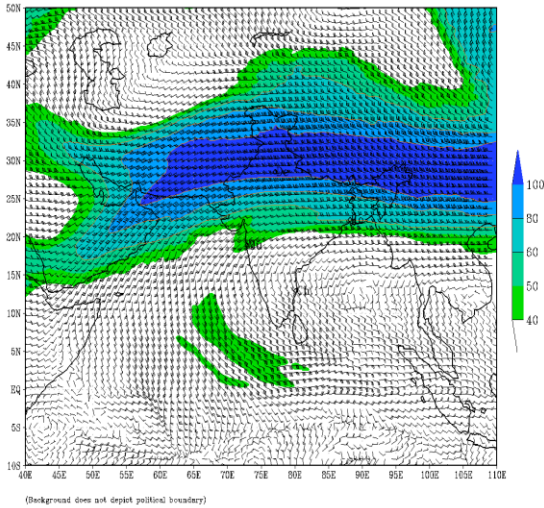
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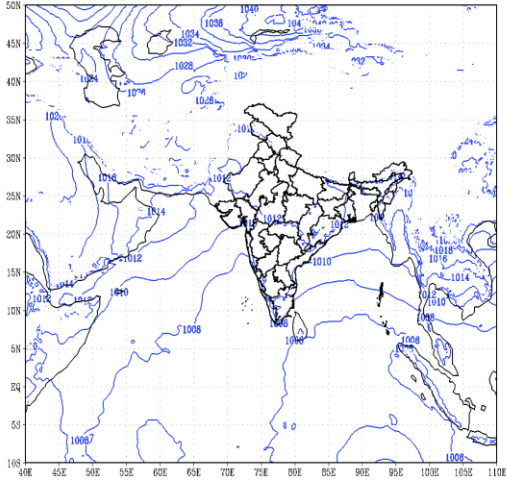
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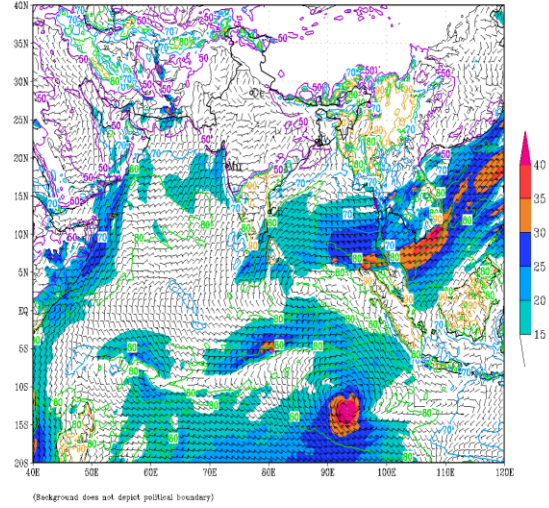
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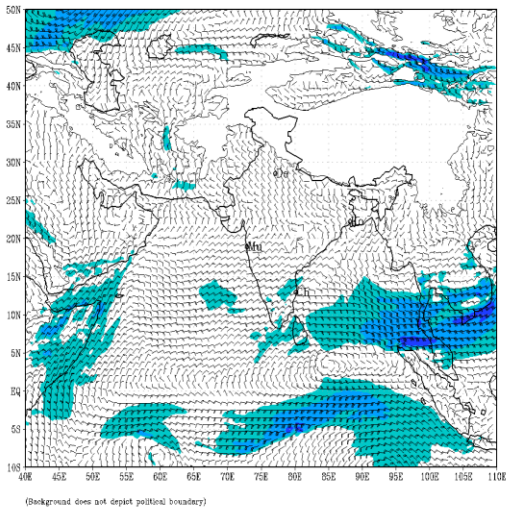
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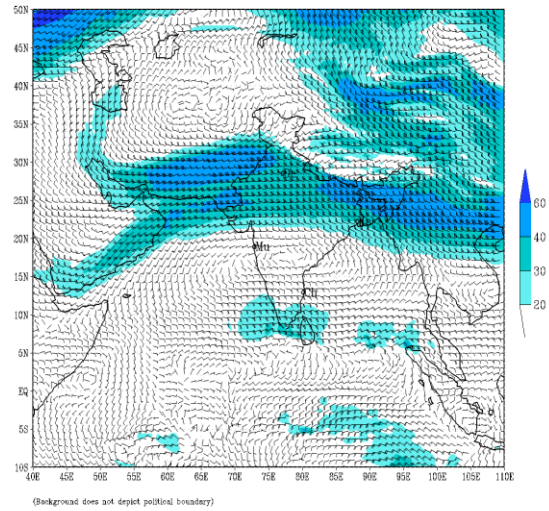
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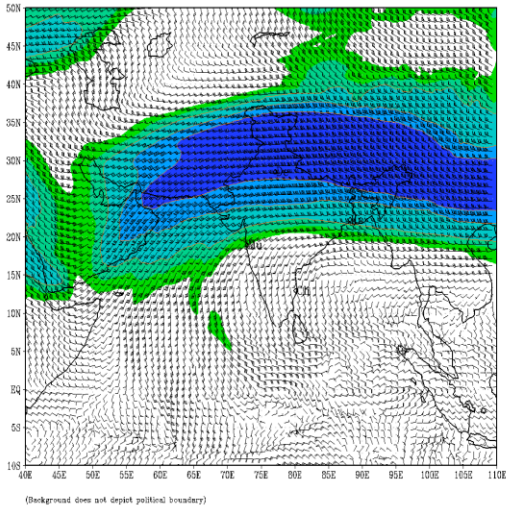
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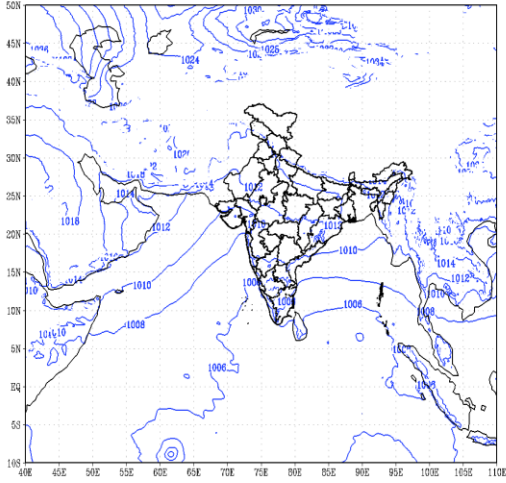


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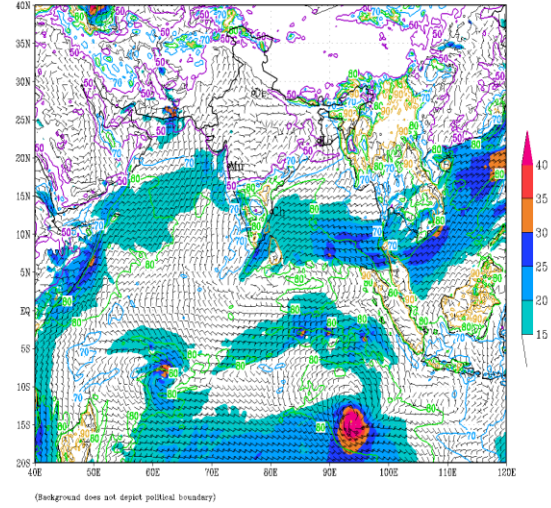




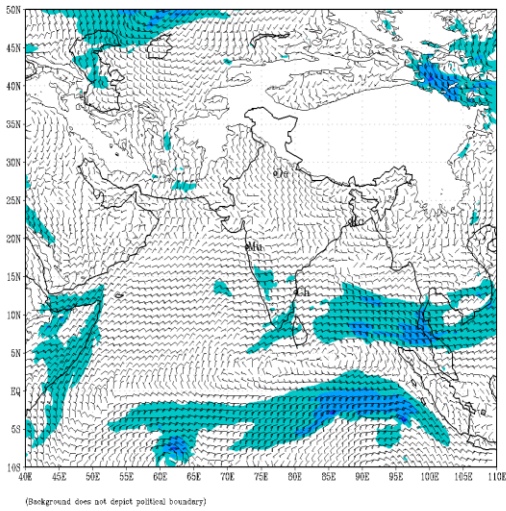
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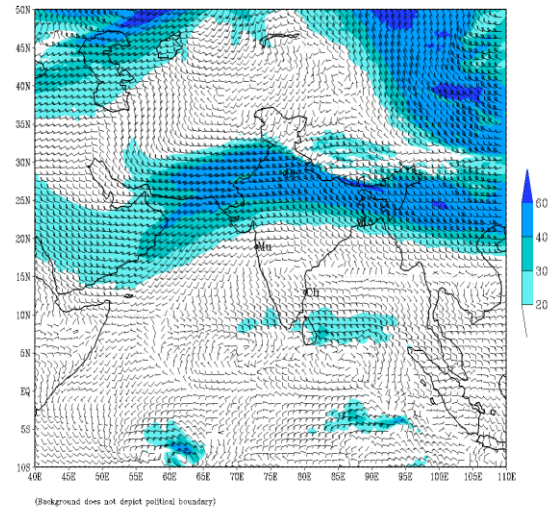
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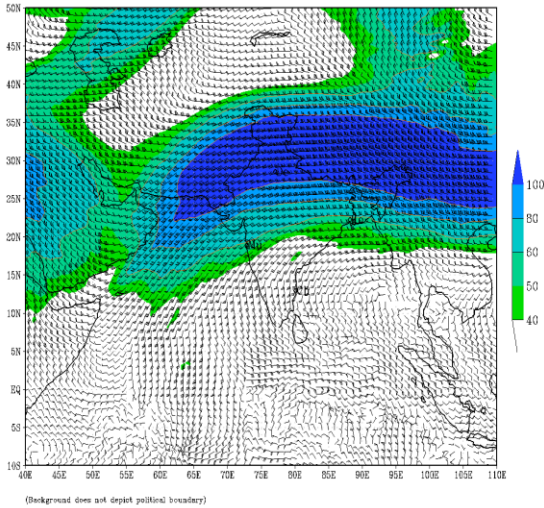
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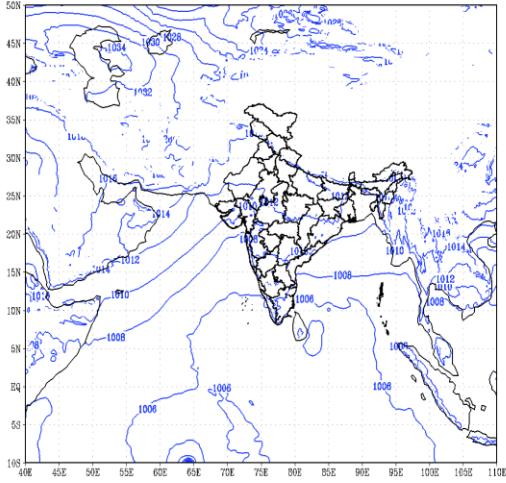
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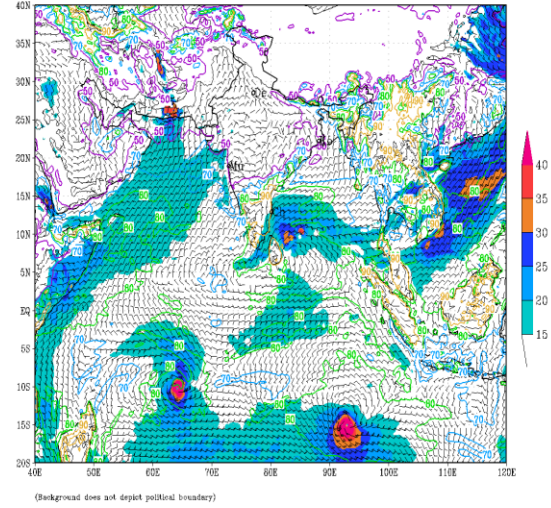
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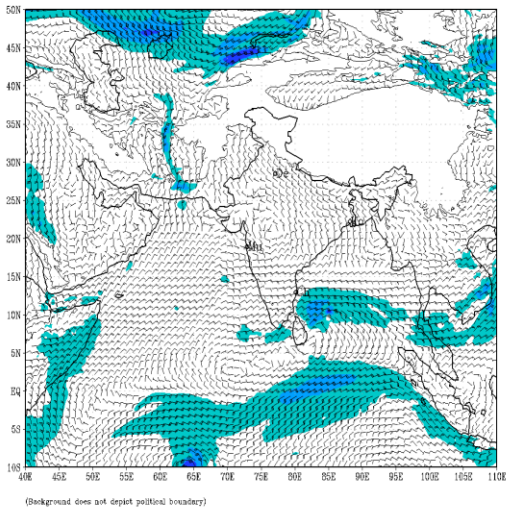
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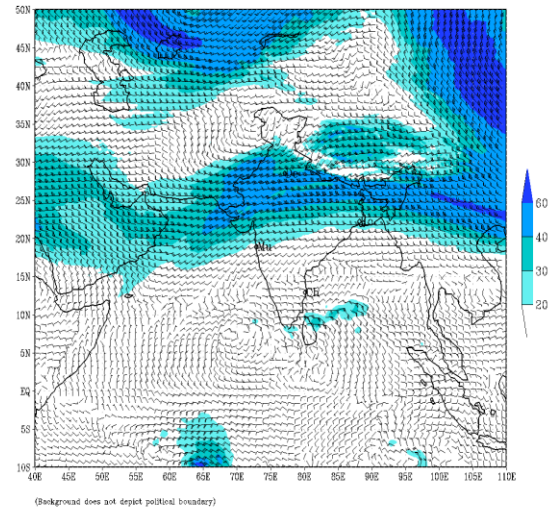
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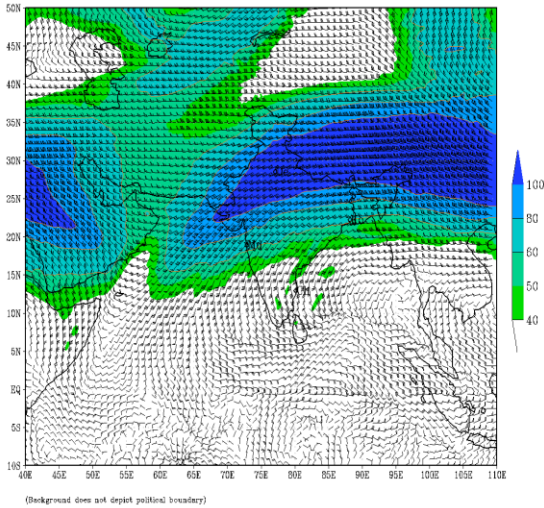
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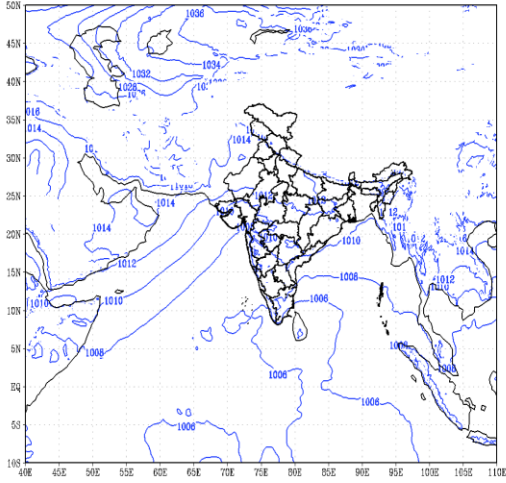
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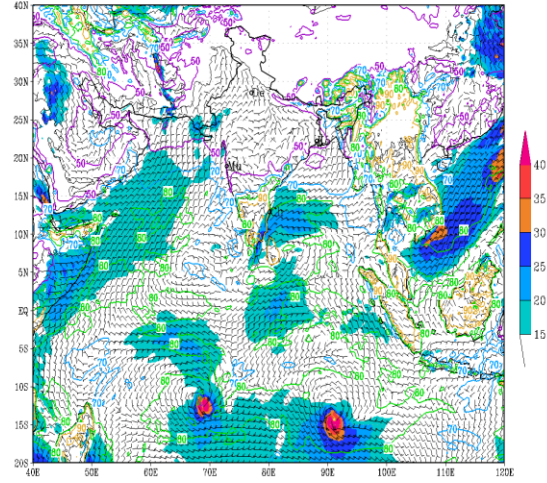


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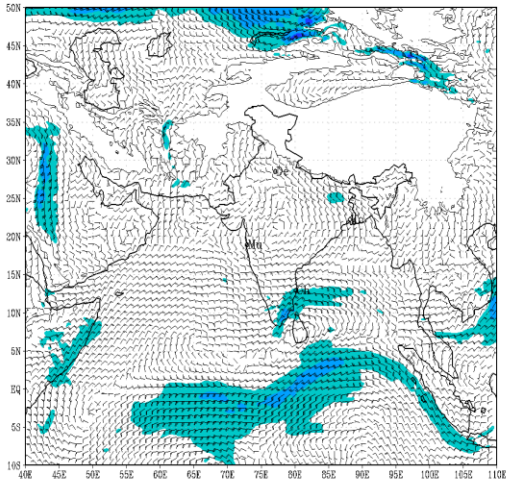
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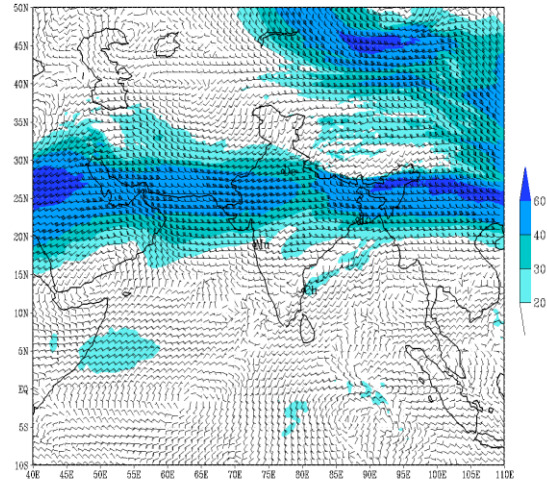
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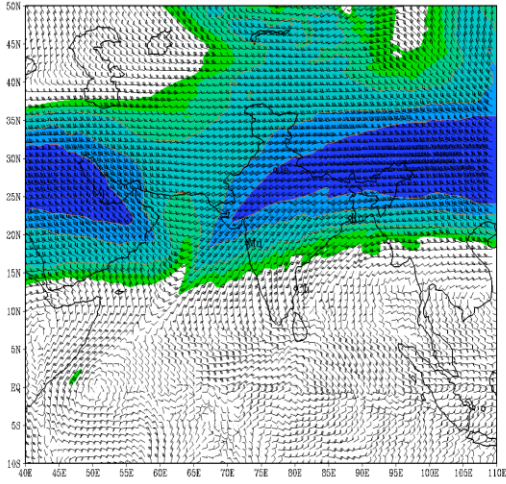
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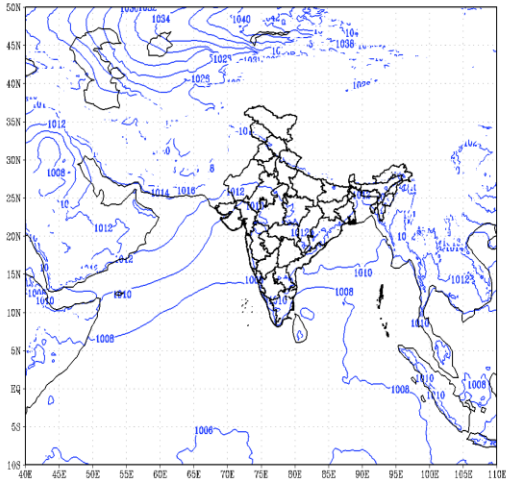
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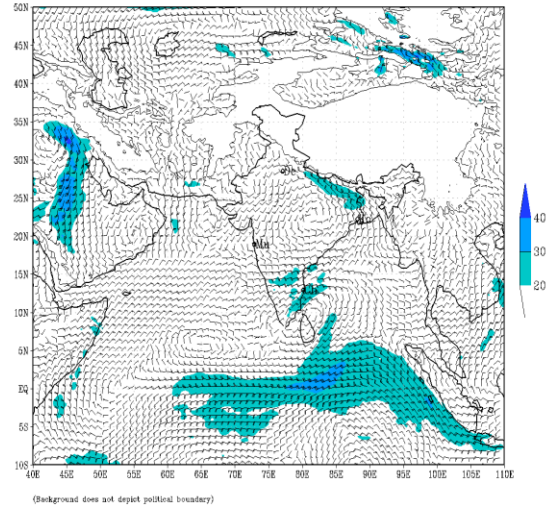
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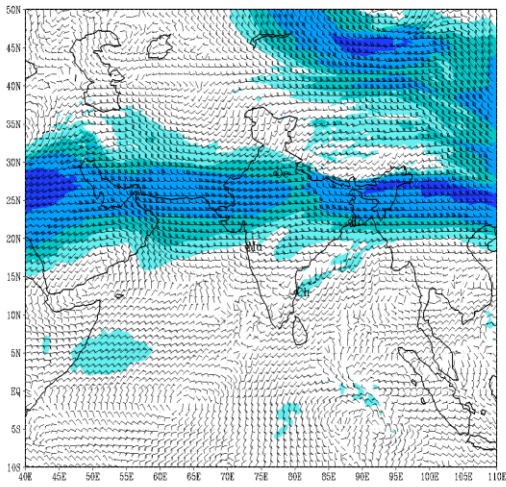
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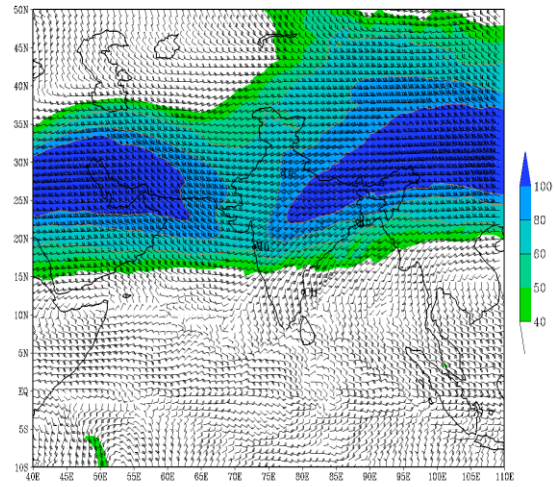
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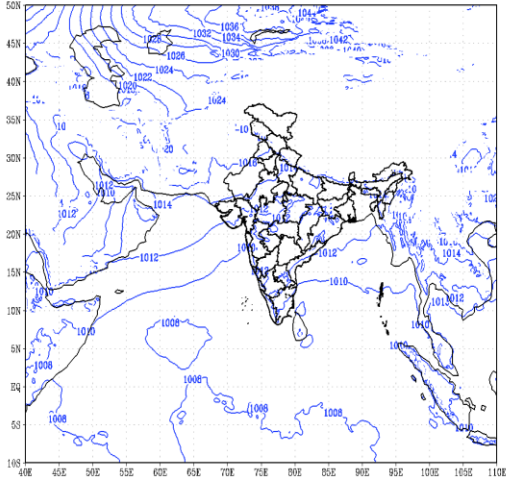
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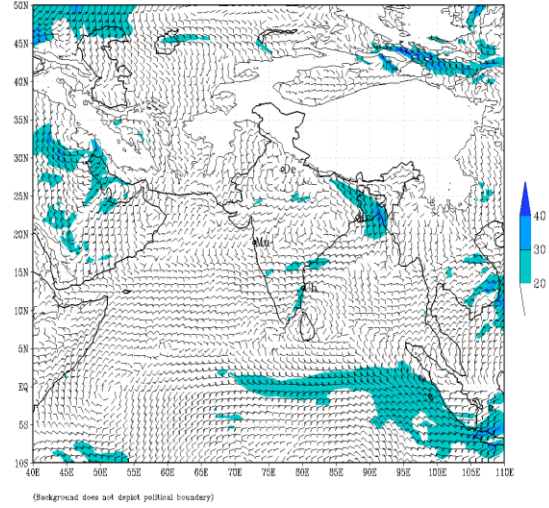


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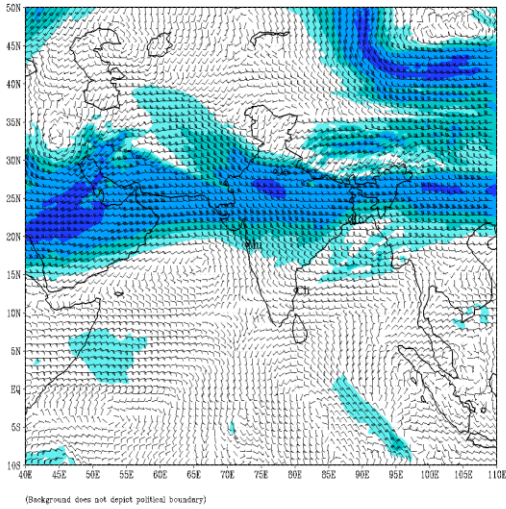
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based on 00 UTC of 17-12-2022 valid for 00 UTC of 24-12-2022



IMD :GFS MODEL(12 Km) 200 hPa WIND (kt) FORECAST (168 HR)  
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