



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

**Tropical Cyclone Forecast Programme
Report Dated 31st October, 2024**

Time of Issue: 1130 UTC

Synoptic features (based on 0300 UTC analysis):

- ❖ Yesterday's upper air cyclonic circulation over southwest Arabian Sea extending upto 1.5 km above mean sea level persisted at 0300 UTC of today, the 31st of October.
- ❖ Yesterday's cyclonic circulation over Gulf of Mannar & neighbourhood at 0.9 km above mean sea level persisted at 0300 UTC of today, the 31st of October.
- ❖ Yesterday's upper air cyclonic circulation lay over southwest Bay of Bengal off south Andhra Pradesh coast between 3.1 & 5.8 km above mean sea level persisted at 0300 UTC of today, the 31st of October.

Environmental Features:

Parameter	Bay of Bengal (BoB)	Arabian Sea (AS)
Sea Surface Temperature (SST) °C	30°C over entire BoB	➤ 27°C over the western parts southwest AS. ➤ 28-30°C over rest of AS.
Tropical Cyclone Heat Potential (TCHP) kJ/cm²	➤ >100 KJcm ⁻² over north BoB off Bangladesh-Myanmar coasts and south Andaman Sea. ➤ 80-100 KJcm ⁻² over central BoB & north Andaman Sea. ➤ <50 over southwest BoB and adjoining areas of southeast BoB.	➤ 90-100 KJcm ⁻² over central parts of south AS and adjoining Equatorial Indian Ocean (EIO). ➤ 60-70 KJcm ⁻² over eastern & northern parts of AS. ➤ <40 KJcm ⁻² over westcentral & southwest AS off Oman & Somalia coasts.
Cyclonic Relative vorticity (X10⁻⁶s⁻¹)	30-40 over westcentral BoB off Andhra Pradesh coast with vertical extension upto 200 hPa level.	30-40 over southwest, central parts of central AS with vertical extension upto 200 hPa level & 20-30 over Comorin area & Gulf of Mannar.
Low Level convergence (X10⁻⁵ s⁻¹)	5-10 over southwest BoB.	5-10 over southwest AS & adjoining southeast AS and Comorin area & gulf of Mannar with east-west orientation.
Upper Level divergence (X10⁻⁵ s⁻¹)	5-10 over southwest BoB & adjoining EIO.	10-30 over southwest AS & adjoining southeast AS.
Vertical Wind Shear (VWS knots) Low: 05-10 knots Moderate: 10-20 knots	Low to Moderate over entire BoB.	Low Moderate over entire AS except extreme north AS.

High: >20 knots		
Wind Shear Tendency (knots)	Increasing over Andaman Sea.	Decreasing over southeast AS, Comorin area and southwest AS.
Upper tropospheric Ridge	Along 21.0°N.	Around 21.0°N.

Satellite observations based on INSAT imagery (0300 UTC):

(a) Over the BoB & Andaman Sea: -

Scattered low & medium clouds with embedded moderate to intense convection lay over south Bay of Bengal, Andaman Sea & Gulf of Martaban.

(b) Over the Arabian Sea:

No significant clouds over the region.

(c) Outside India:

Scattered low & medium clouds with embedded moderate to intense convection lay over China, east China Sea, Taiwan, north Myanmar, Vietnam, Sumatra, strait of Malacca, Malaysia, Borneo, south China sea, Java Islands & Sea, Celebes Islands & Sea, Philippines, Sulu Sea, Madagascar, Mozambique channel and over Indian Ocean between latitude 5.0°N to 30.0°S long 40.0°E to 100.0°E.

M.J.O. Index:

Madden Julian Oscillation (MJO) index is currently in Phase 7 with amplitude greater than 1. It is likely to move across phases 7 & 8 during next seven days with amplitude remaining more than 1.

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

Super Cyclone “Kong-Rey” over East China Sea centered near 22.4N & 122.4E. Intensity t5.5/5.5. Maximum sustained winds of 90-119 Kts. Associated broken low & medium clouds with embedded intense to very intense convection over area between latitude 18.0N to 27.0N long 118.0E to 127.0E Philippines & Taiwan.

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	IMD GFS is indicating an extended feeble low over Andaman & Nicobar Islands and neighbourhood on 3 rd November which move westwards to become a trough of low pressure area over central parts of south BoB on 4 th November and likely to persist over south BoB till 9 th November moving slowly westwards reaching Tamil Nadu coast. Associated upper-air cyclonic circulation over southeast BoB on 4 th	IMD GFS model analysis and forecast indicate the existing upper-air cyclonic circulation over Gulf of Munnar and adjoining area and likely to persist and move slowly westwards over southeast Arabian Sea. Continuing to move nearly westwards, it is likely to persist over south AS and reach southwest by 6 th November and become less marked thereafter.

	reach southwest BoB off Tamil Nadu coast on 5 th November with slow westwards movement over Tamil Nadu coast around 9 th November.	Cyclonic circulation over southwest Arabian Sea on today with westwards movement till 02 nd November.
IMD-GEFS	The GEFS forecast at the surface and lower tropospheric pressure levels indicates respective pressure and wind circulation features nearly similar to IMD GFS model for next 7 days. No significant difference could not be noticed.	There is a feeble cyclonic circulation over southwest Arabian Sea on today with westwards movement towards Somalia coast till 03 rd November. Another feeble cyclonic circulation is moving westwards from Gulf of Munnar to southeast AS till 3 rd November.
IMD-WRF	No significant system over BoB during next 3 days.	The model indicates the existing upper-air cyclonic circulation over Gulf of Munnar. It is likely northwestward movement for next 2 days to emerge over southeast AS off Kerala-Karnataka coasts on 1 st and further moving nearly westwards over southeast AS on 3 rd November. Cyclonic circulation over southwest Arabian Sea on today with westwards movement till 02 nd November.
NCMRWF-NCUM(G)	Trough over south BoB on 04 th Nov, cyclonic circulation over southwest BoB during 5 th to 8 th November off Tamil Nadu coast.	Cyclonic circulation over southwest Arabian Sea on today with westwards movement till 03 rd November.
NCMRWF-NCUM(R)	No significant system over BoB during next 3 days.	No significant system over AS during next 3 days.
NCMRWF-NEPS	Trough over south BoB on 04 th Nov, cyclonic circulation over southwest BoB during 5 th to 8 th November off Tamil Nadu coast.	Cyclonic circulation over southwest Arabian Sea on today with westwards movement till 03 rd November.
ECMWF	No significant low pressure system over BoB during next 7 days. There is likely formation of a extended low pressure/trough of low over south BoB during 3 rd to 9 th November. Associated cyclonic circulation also move westward over south BoB. The low pressure area reaching southwest BoB off Sri Lanka coast on 8 th is likely to persist during subsequent 2 days.	The model indicates the cyclonic circulation over southwest AS in its vorticity filed at 850 hPa which is likely to persists till 2 nd November. Cyclonic circulation over Gulf of Munnar moves westward and emerge over southeast AS as a trough on 1 st November. Then it is likely to become a cyclonic circulation on 3 rd and move further westward over southwest AS on 1 5 th November. No other significant system over AS during next 7 days.
ECMM	Low to moderate probability (20-40%) of formation of depression over southwest BoB around 9-10 th November.	No significant system over AS during next 10 days.

NCEP-GFS	No significant low pressure system over BoB during next 7 days except the trough of low during 3 rd to 9 th November across south BoB. Associated cyclonic circulation moves westwards from southeast BoB up to Tamil Nadu coast.	No significant system over AS during next 7 days. A feeble east-west trough in low level easterlies is persisting across south AS for next 7 days. The trough is guiding cyclonic circulations to move westwards.
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Summary:

(a) Bay of Bengal:

Models like IMD-GFS, GEFS, NCEP-GFS, ECMWF, NCUM(G), NEPS are indicating likely formation of a feeble low pressure area or a trough of low over Andaman & Nicobar Islands and adjoining southeast Bay of Bengal around 3rd November. The system is likely to move westwards gradually till 9th November reaching up to Tamil Nadu coast. Associated upper-air cyclonic circulation in lower troposphere is likely to be seen over southeast Bay of Bengal on 3rd November. It would be over southwest Bay of Bengal around and 5th November and with gradual westwards movement over Tamil Nadu coast around 9th November. However, ECMM is indicating moderate probability of formation of depression over southwest Bay of Bengal around 9-10th November.

(b) Arabian Sea

No significant cyclonic disturbance is indicated by any of the models. Only the existing cyclonic circulation over southwest AS till 2nd November. Another cyclonic circulation over Gulf of Munnar is likely to move westwards and emerge over southeast Arabian Sea on 3rd November.

Inference:

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

No fresh cyclogenesis is likely over Bay of Bengal & Arabian Sea for the next seven days. However, likely formation of a cyclonic circulation over southeast Bay of Bengal around 4th November leading to formation of Low-pressure Area over southwest Bay of Bengal off Tamil Nadu-Sri Lanka coasts around 7th November need to be monitored.

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
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:

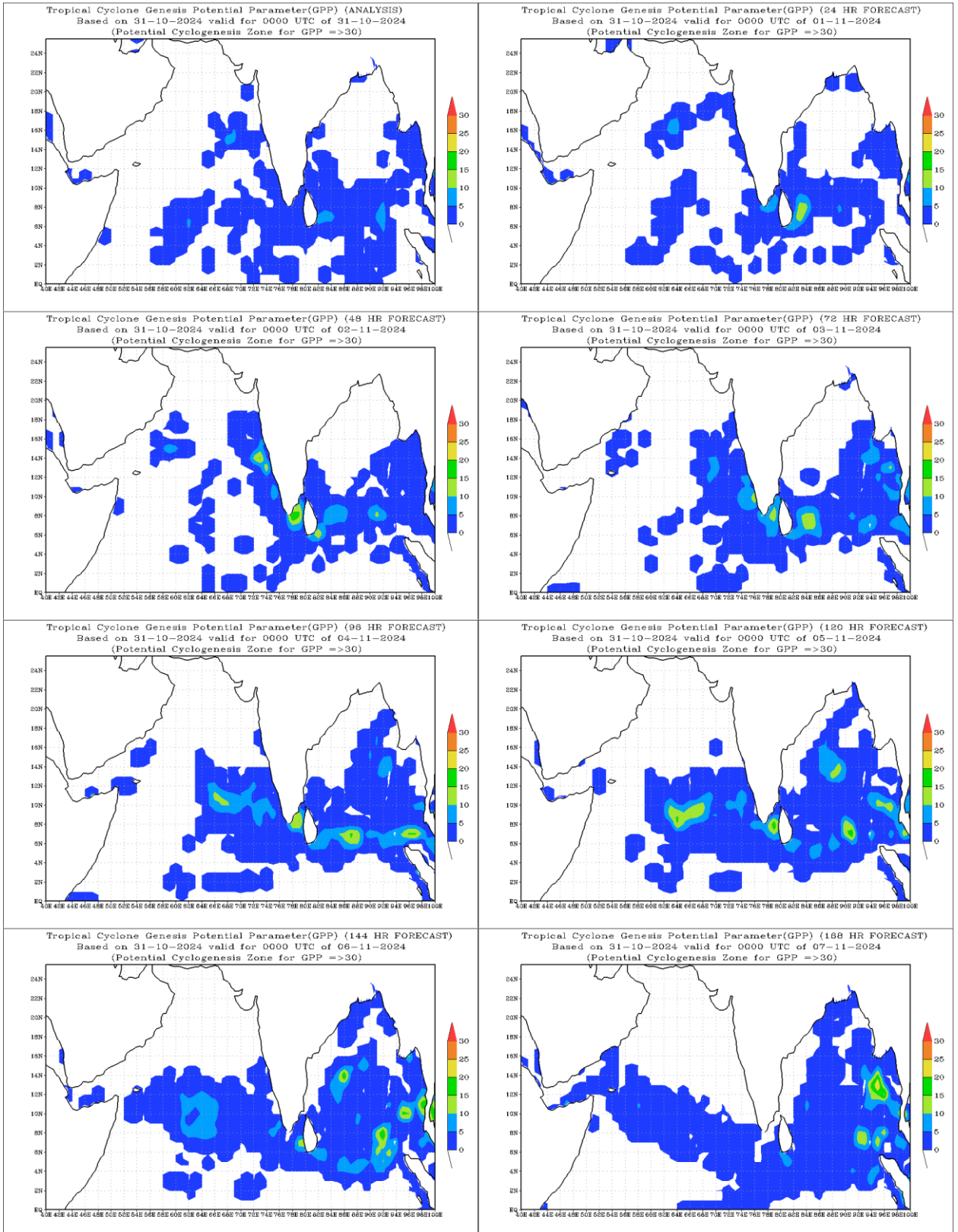
24 HOURS	24-48 HOURS	48-72 HOURS	72-96 HOURS	96-120 HOURS	120-144 HOURS	144-168 HOURS
NIL	NIL	NIL	NIL	NIL	NIL	NIL

“-“ indicate genesis has already occurred.

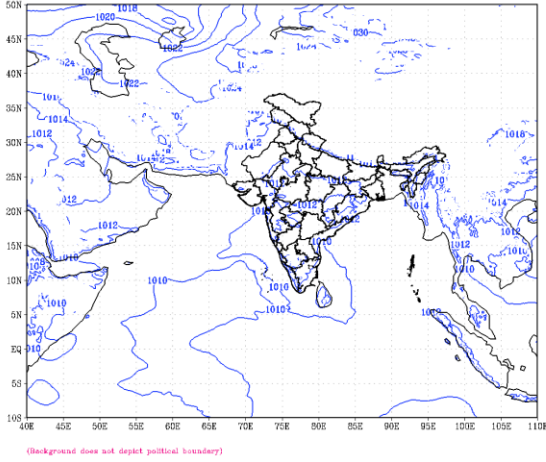
Probability is indicated as NIL for 0%, LOW for 1-33%, MOD for 34-67% and High for 68-100%.

Intense Observation Period (IOP): NIL

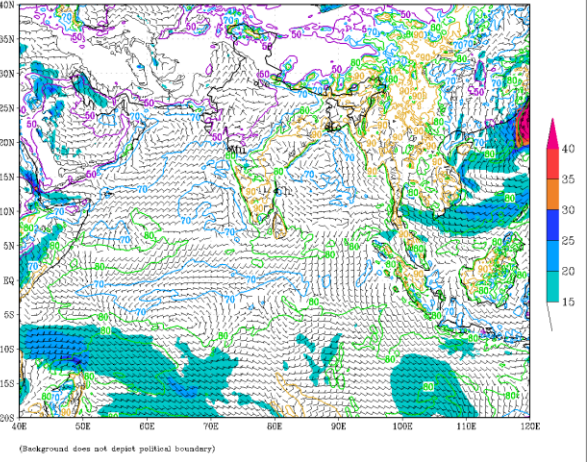
ANNEXURE



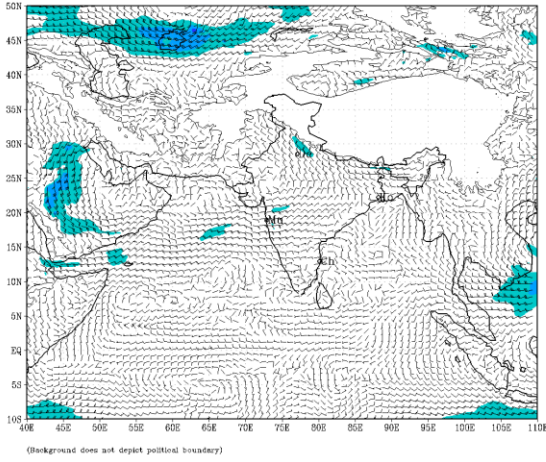
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based on 00 UTC of 31-10-2024 valid for 00 UTC of 31-10-2024



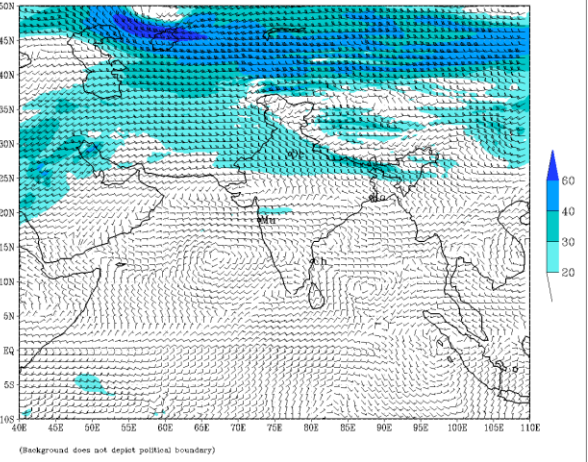
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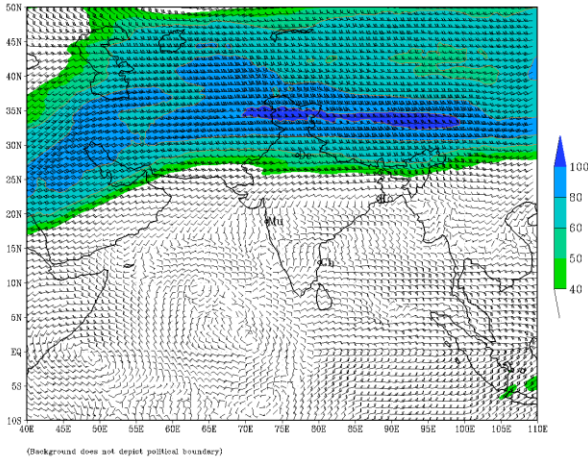
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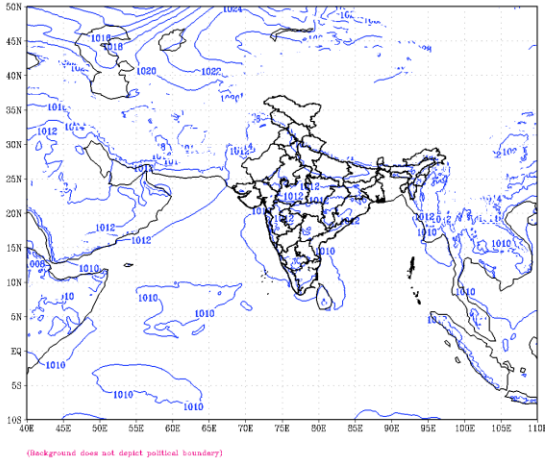
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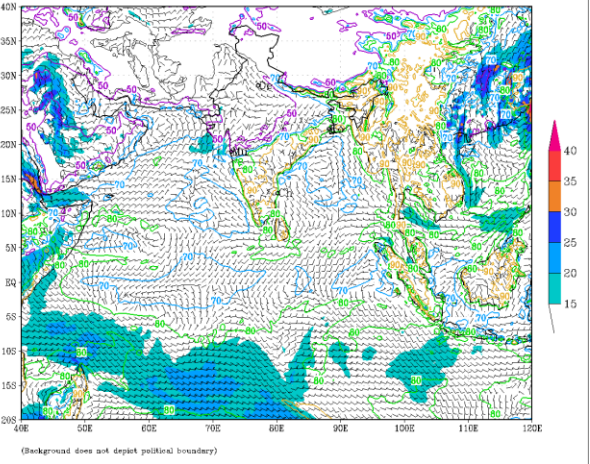
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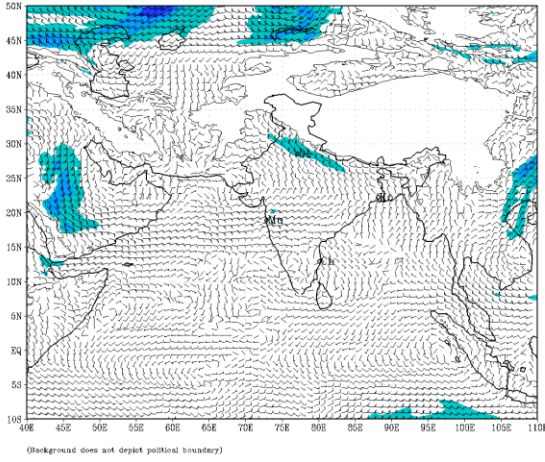
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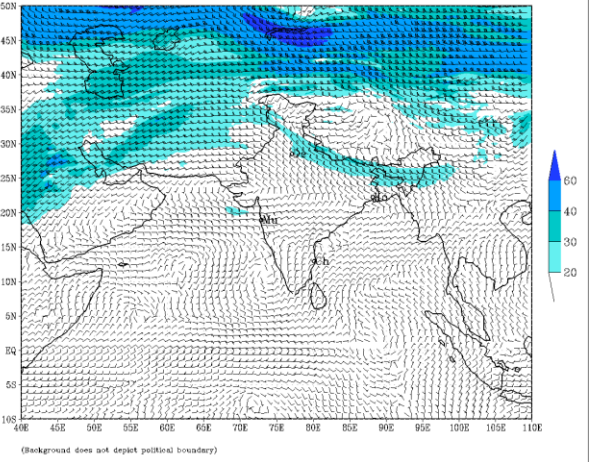
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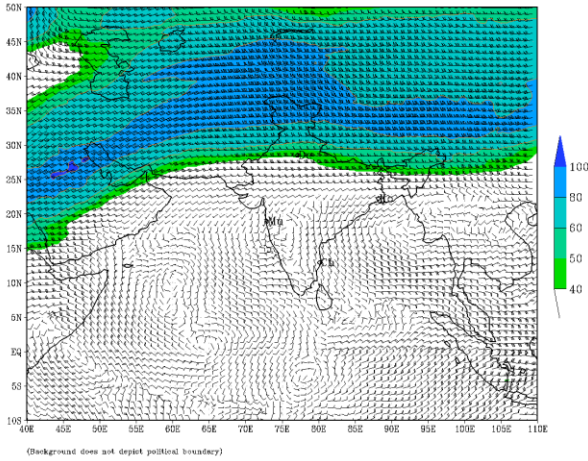
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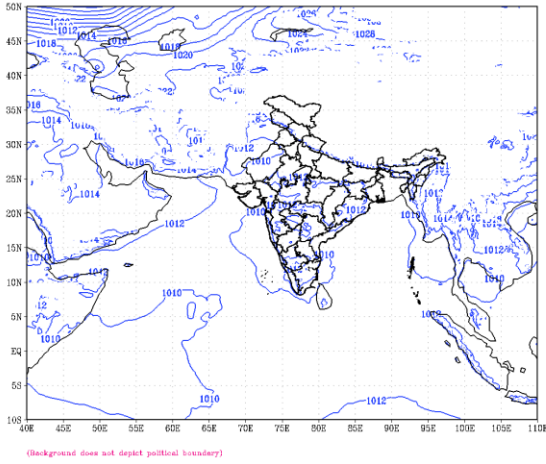
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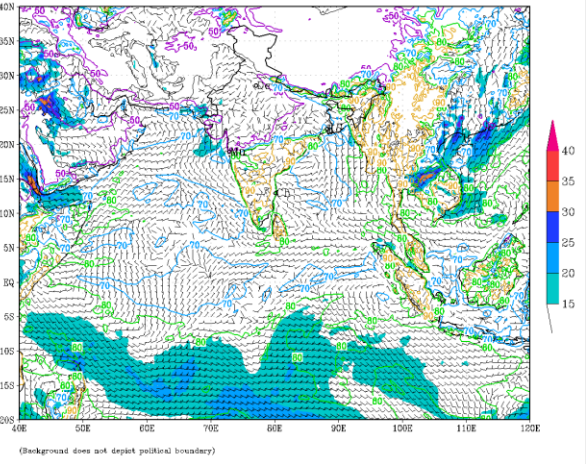
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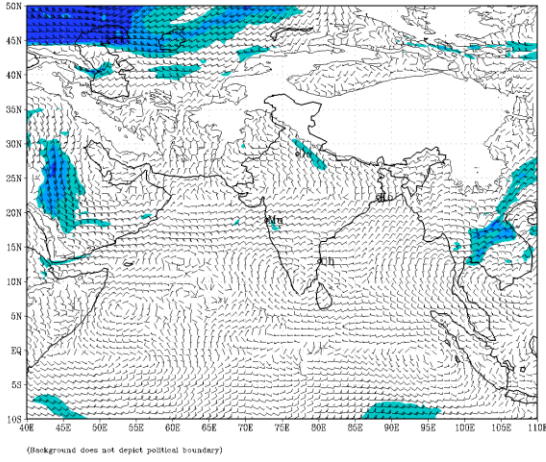
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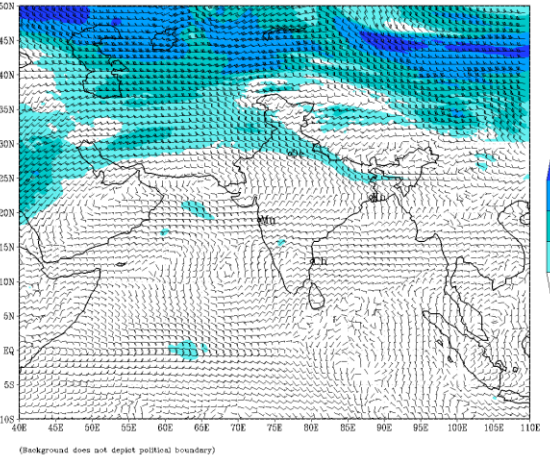
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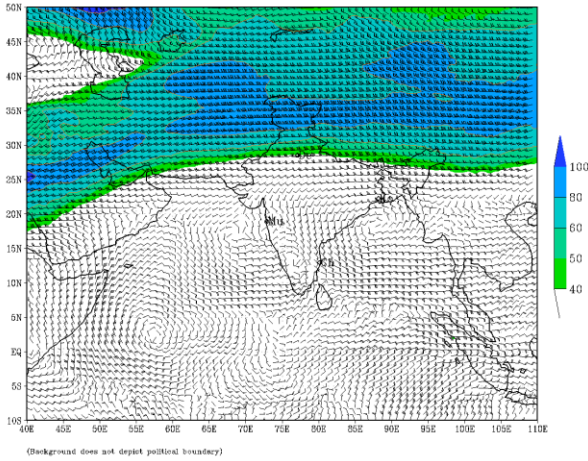
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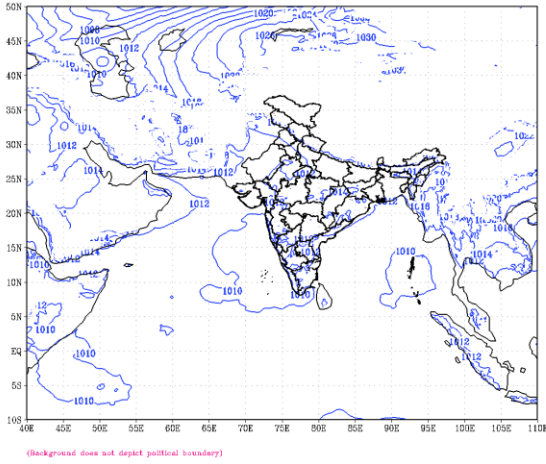
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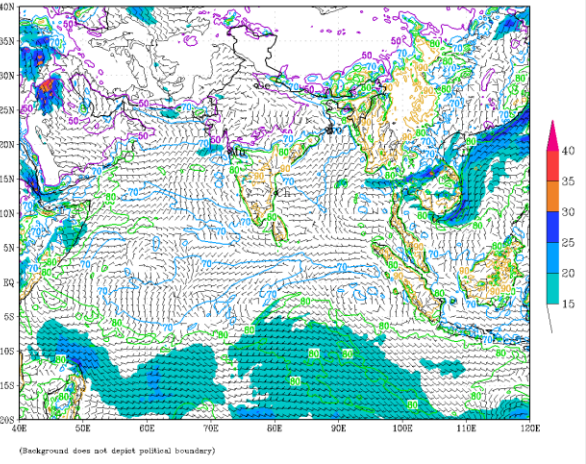
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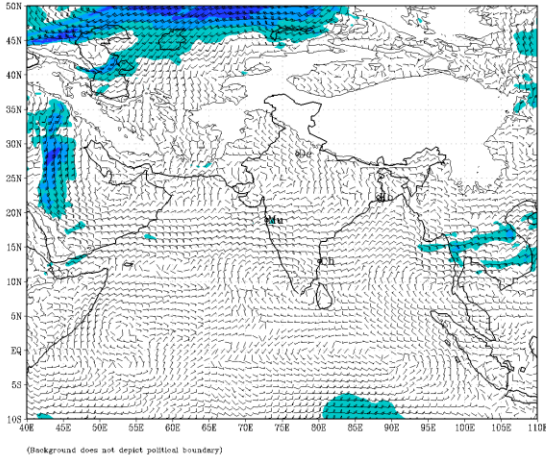
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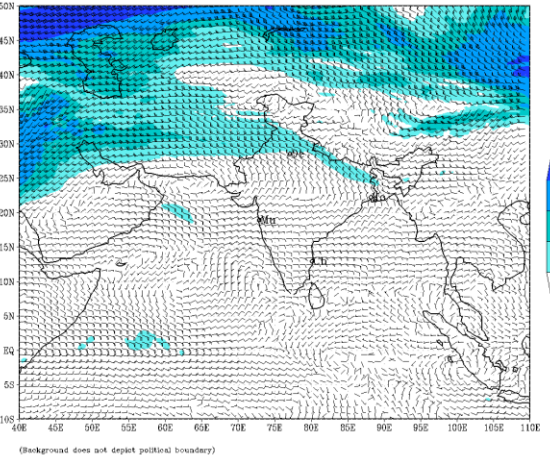
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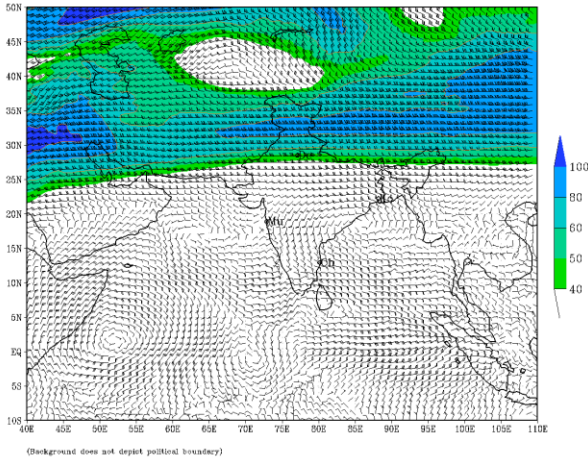
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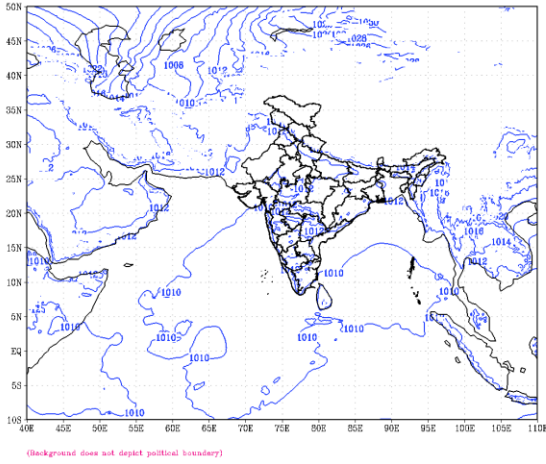
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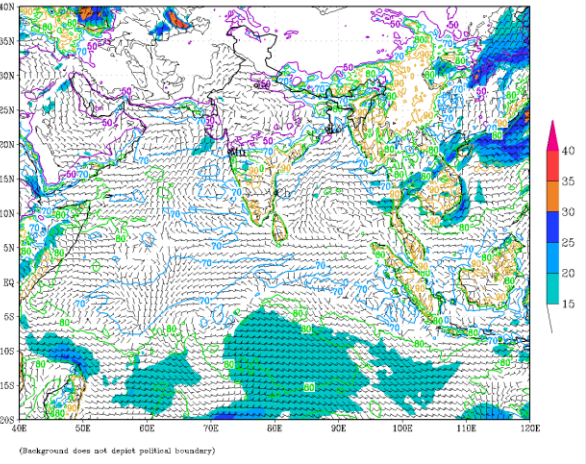
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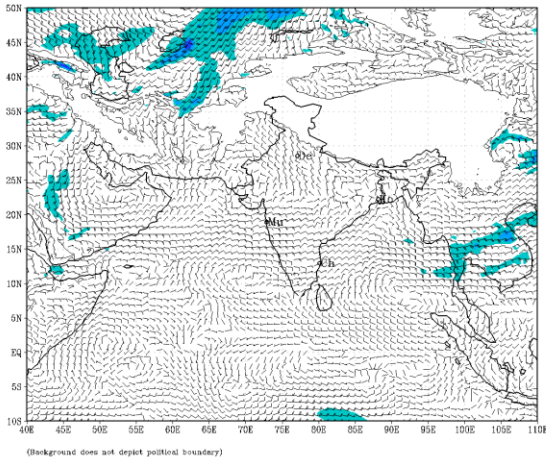
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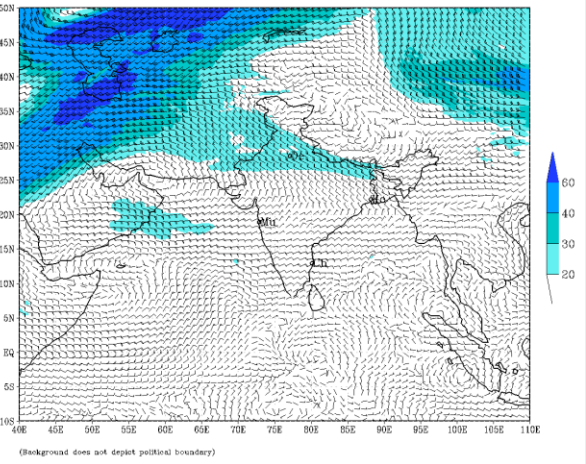
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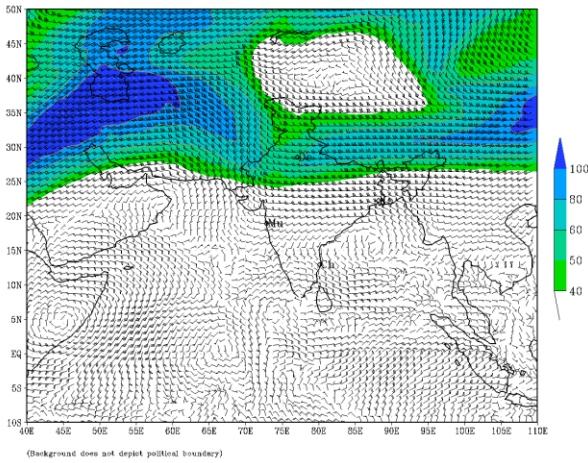
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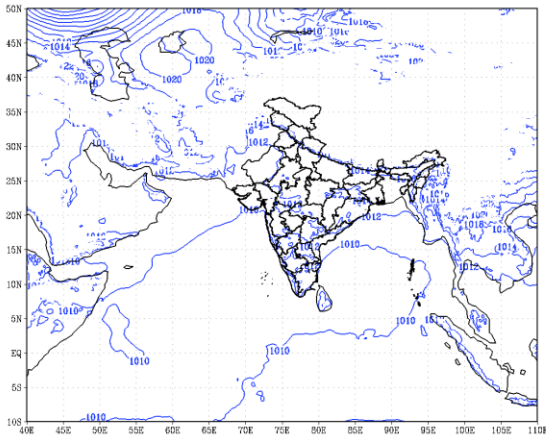
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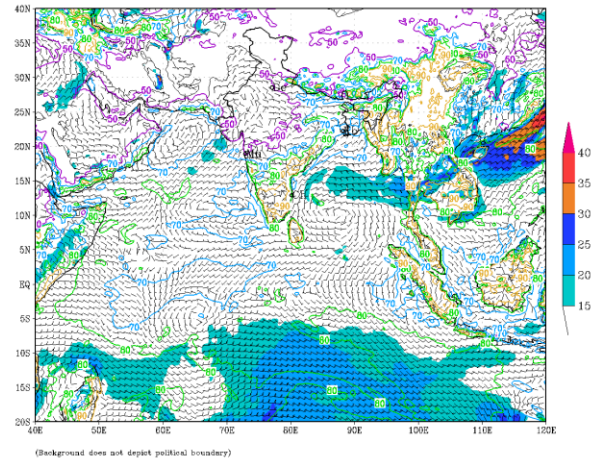
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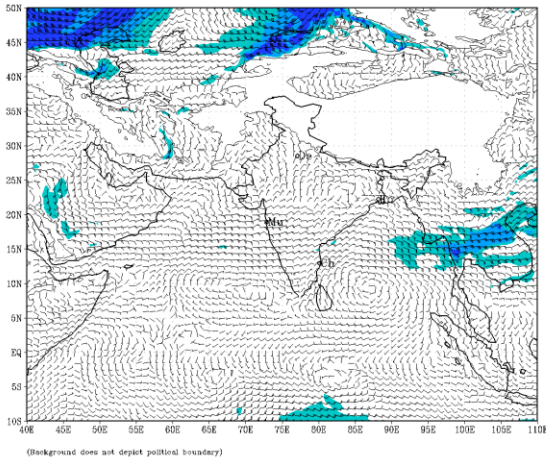
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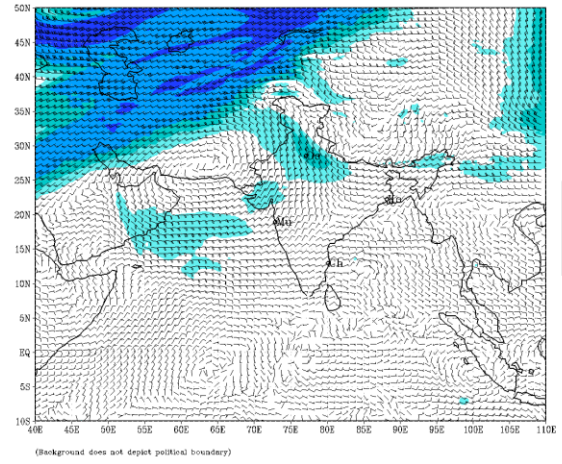
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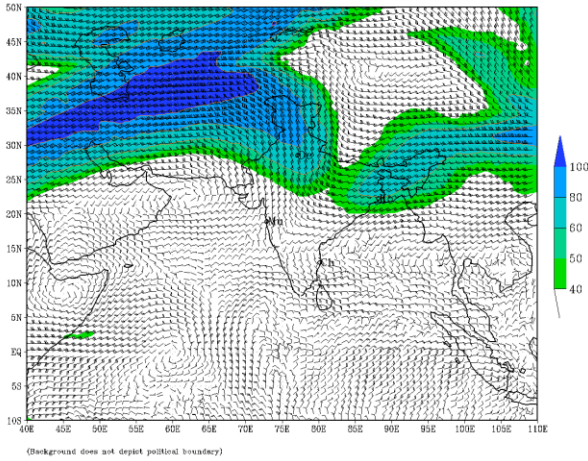
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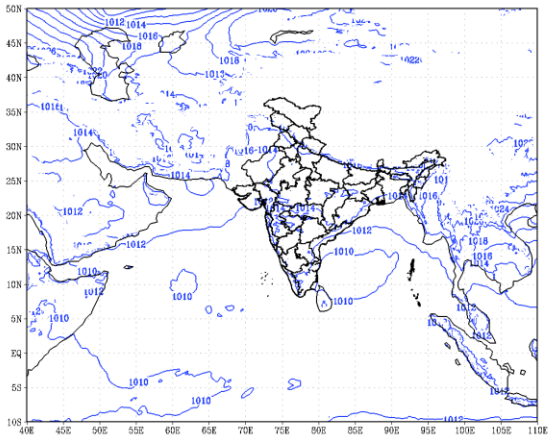
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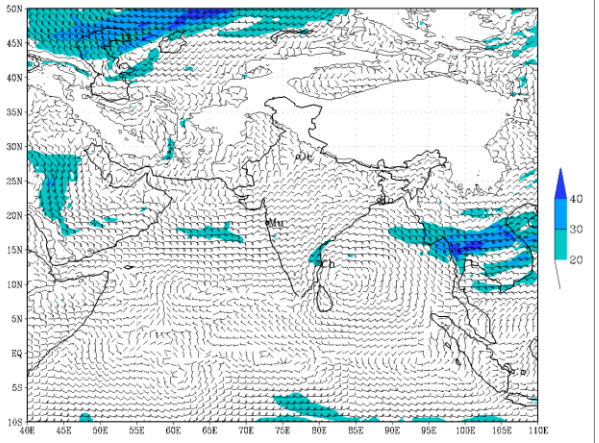


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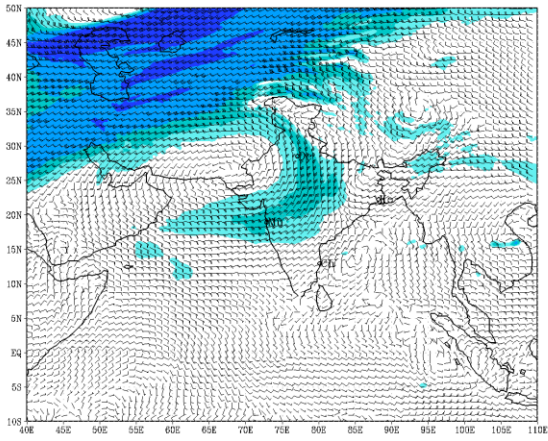
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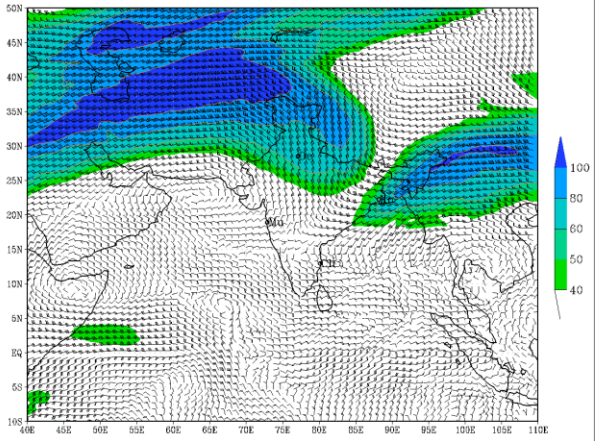
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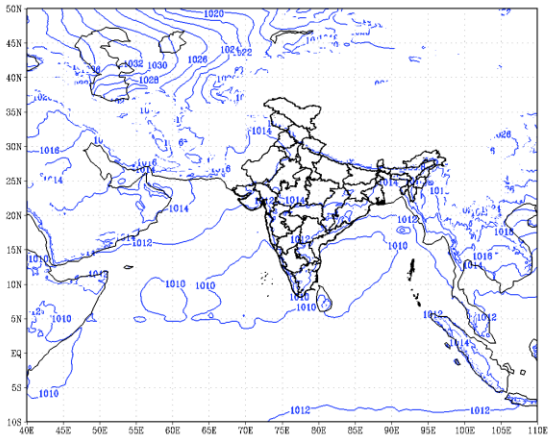
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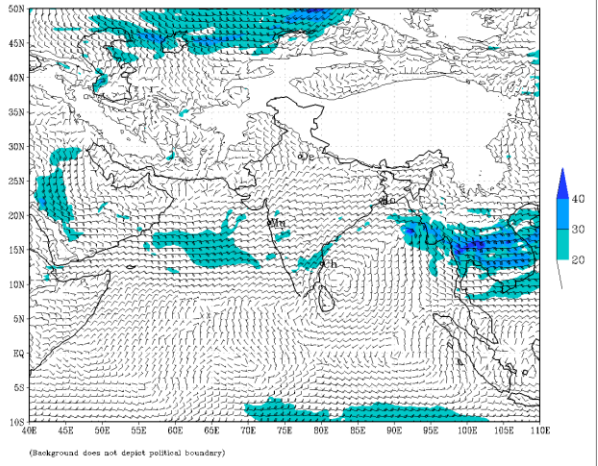


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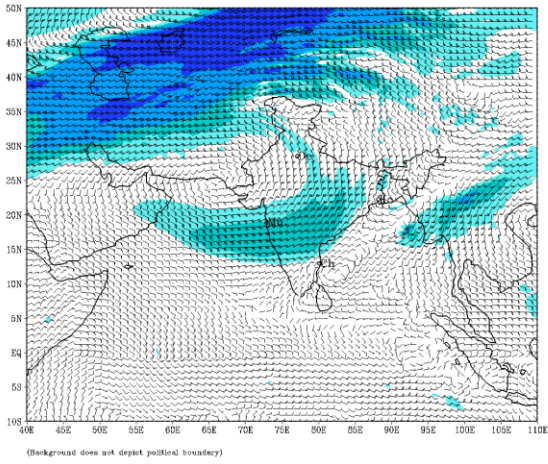
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IMD:GFS MODEL(12 Km) 850 hPa WIND (kt) FORECAST (168 HR)
based on 00 UTC of 31-10-2024 valid for 00 UTC of 07-11-2024



IMD:GFS MODEL(12 Km) 500 hPa WIND (kt) FORECAST (168 HR)
based on 00 UTC of 31-10-2024 valid for 00 UTC of 07-11-2024



IMD :GFS MODEL(12 Km) 200 hPa WIND (kt) FORECAST (168 HR)
based on 00 UTC of 31-10-2024 valid for 00 UTC of 07-11-2024

