



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

**Tropical Cyclone Forecast Programme
Report Dated 11th December 2022**

Time of Issue: 1200 UTC

Synoptic features (based on 0600 UTC analysis):

Yesterday's Deep Depression (remnant of cyclonic storm "MANDOUS" pronounced as "ManDous") over north Tamil Nadu weakened into a Depression on yesterday's forenoon, further into a Well Marked Low Pressure Area over north interior Tamil Nadu & neighbourhood yesterday's evening and into a Low Pressure Area at 0530 hours IST of today over north interior Tamil Nadu and adjoining South Interior Karnataka & north Kerala. It became less marked at 0830 hours IST of today, 11th December, 2022. However, the associated cyclonic circulation persists over the same region and extends upto mid-tropospheric levels. It is very likely to emerge into Southeast & adjoining Eastcentral Arabian Sea off north Kerala-Karnataka coast. Under its influence, a Low Pressure Area is likely to form over the same region around 13th December and move west-northwestwards away from the Indian coast thereafter.

Dynamical and thermo-dynamical features

Parameter	Bay of Bengal (BoB)	Arabian Sea (AS)
Sea Surface Temperature (SST) °C	Around 28-30 over almost entire BoB, 26-28 Over southwestern parts of southwest BoB, Gulf of Mannar.	About 28-30 over the southeast and adjoining eastcentral, southwest AS, along and off south Gujarat, Maharashtra coasts, north AS. About 26-28 over along and off Kerala, Karnataka coasts, central AS, southwest AS. Less than 24 along and off Oman and Yemen coasts and adjoining sea areas.
Tropical Cyclone Heat Potential (TCHP) kJ/cm²	90-100 over eastcentral BoB, 90-100 over south Andaman Sea and adjoining southeast BoB. 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 (X10⁻⁶s⁻¹)	50-60 over along and off south Tamil Nadu coast, Gulf of Mannar, 20-30 over southern parts of south BoB, westcentral BoB, south Andaman Sea.	50-60 over along and off Kerala coast, 20-30 over central parts of AS, southwest AS, along and off north Gujarat coast and adjoining sea areas.
Low Level convergence (X10⁻⁵ s⁻¹)	5-10 over westcentral BoB	5-15 over southeast AS and adjoining EIO.
Upper Level divergence (X10⁻⁵ s⁻¹)	5 over small pockets of westcentral BoB.	10-20 over central parts of south AS and adjoining central AS.

Vertical Wind Shear (VWS knots)	15 over central parts of BoB, 20-30 over north BoB and adjoining central BoB.	10-15 over south AS and adjoining central AS, 25-40 over north and adjoining central AS.
Wind Shear Tendency (knots)	Decreasing over southwest BoB, increasing over central BoB and Andaman Sea.	Decreasing over south AS & adjoining EIO.
Upper tropospheric Ridge	Along 17.0°N over the BoB.	Along 15.0°N over the AS.
Trough in westerlies	No significant trough	

Satellite observations based on INSAT imagery (0600 UTC):

a) Over the BoB & Andaman Sea: -

Scattered to broken low/med clouds with embedded intense to very intense convtn over westcentral BoB and north Andhra Pradesh coasts. Scattered low/med clouds with embedded moderate to intense convection over south BoB and Andaman Sea.

b) Over the Arabian Sea: -

Scattered to broken low and medium clouds with embedded moderate to intense convection lay over south Arabian sea and Comorin area. Scattered low and medium clouds with embedded isolated weak to moderate convection northwest and eastcentral Arabian Sea, Goa-Karnataka coasts.

M.J.O. Index:

The Madden Julian Oscillation (MJO) Index is currently in Phase 7 with amplitude less than 1. It will be in phase 4 tomorrow, it will continue in phase 5 till 18th Dec.

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

NIL

Model guidance based on 0000 UTC for the next 7 days

MODEL GUIDANCE	Bay of Bengal (BoB)	Arabian Sea (AS)
IMD-GFS	No significant system.	A cycir over southeast and adjoining eastcentral AS on 13 th Dec. Under its influence, a LPA will form over the same region and it will have west-northwest ward movement.
IMD-GEFS	No significant system.	A cycir over southeast and adjoining eastcentral AS on 13 th . Under its influence, a LPA will form over the same region and it will have west-northwest ward movement.
GEFS Probabilistic guidance	-	-
IMD WRF	No significant system.	A cycir over southeast and adjoining eastcentral AS on 13 th .

NCMRWF-NCUM	No significant system.	The LPA over southeast and adjoining AS on 13 th dec will have its west-northwest ward movement till 17 th Dec with slight intensification.
NCMRWF-NEPS	No significant system.	The cycir over southeast and adjoining AS on 13 th dec. Under its influence, a LPA will form over the same region and it will have west-northwest ward movement till 17 th Dec with slight intensification.
NCMRWF-UM (Regional)	No significant system.	A cycir over southeast and adjoining eastcentral AS on 13 th .
ECMWF	No significant system.	A cycir over southeast and adjoining eastcentral AS on 13 th Dec. Under its influence, a LPA will form over the same region and it will have west-northwest ward movement.
ECMWF ensemble	-	-
NCEP-GFS	No significant system.	A cycir over southeast and adjoining eastcentral AS on 13 th . Under its influence, a LPA will form over the same region and it will have west-northwest ward movement till 16 th Dec.
IMD MME	nil	No significant system
IMD HWRF	nil	No significant system
IMD-Genesis Potential Parameter	-	A potential zone over southeast and adjoining eastcentral AS, off Kerala coast on 12 th Dec will have its west-northwest ward movement.

Summary and conclusion:

- Most of the NWP models are indicating that Yesterday's Deep Depression (remnant of cyclonic storm "MANDOUS" pronounced as "ManDous") over north Tamil Nadu weakened into a Low Pressure Area at 0530 hours IST of today over north interior Tamil Nadu and adjoining South Interior Karnataka & north Kerala. It became less marked at 0830 hours IST of today, 11th December, 2022.
- All the models are unanimously indicating that a cyclonic circulation over southeast and adjoining east central Arabian Sea on 13th December. All these models are showing its west-northwest ward movement till 16th December. However, the further intensification of the system is to be monitored.

In view of all the above, it is inferred that

1. For the Bay of Bengal:

Yesterday's Deep Depression (remnant of cyclonic storm "MANDOUS" pronounced as "ManDous") over north Tamil Nadu weakened into a Depression on yesterday's forenoon, further into a Well Marked Low Pressure Area over north interior Tamil Nadu & neighbourhood yesterday's evening and into a Low Pressure Area at 0530 hours IST of today over north interior Tamil Nadu and adjoining South Interior Karnataka & north Kerala. It became less marked at 0830 hours IST of today, 11th December, 2022.

However, the associated cyclonic circulation persists over the same region and extends upto mid-tropospheric levels.

2. For Arabian Sea:

The remnant of the above-mentioned system over BoB is very likely to emerge into Southeast & adjoining eastcentral Arabian Sea off north Kerala-Karnataka coast. Under its influence, a LPA is likely to form over the same region around 13th December and move west-northwestwards away from the Indian coast thereafter.

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

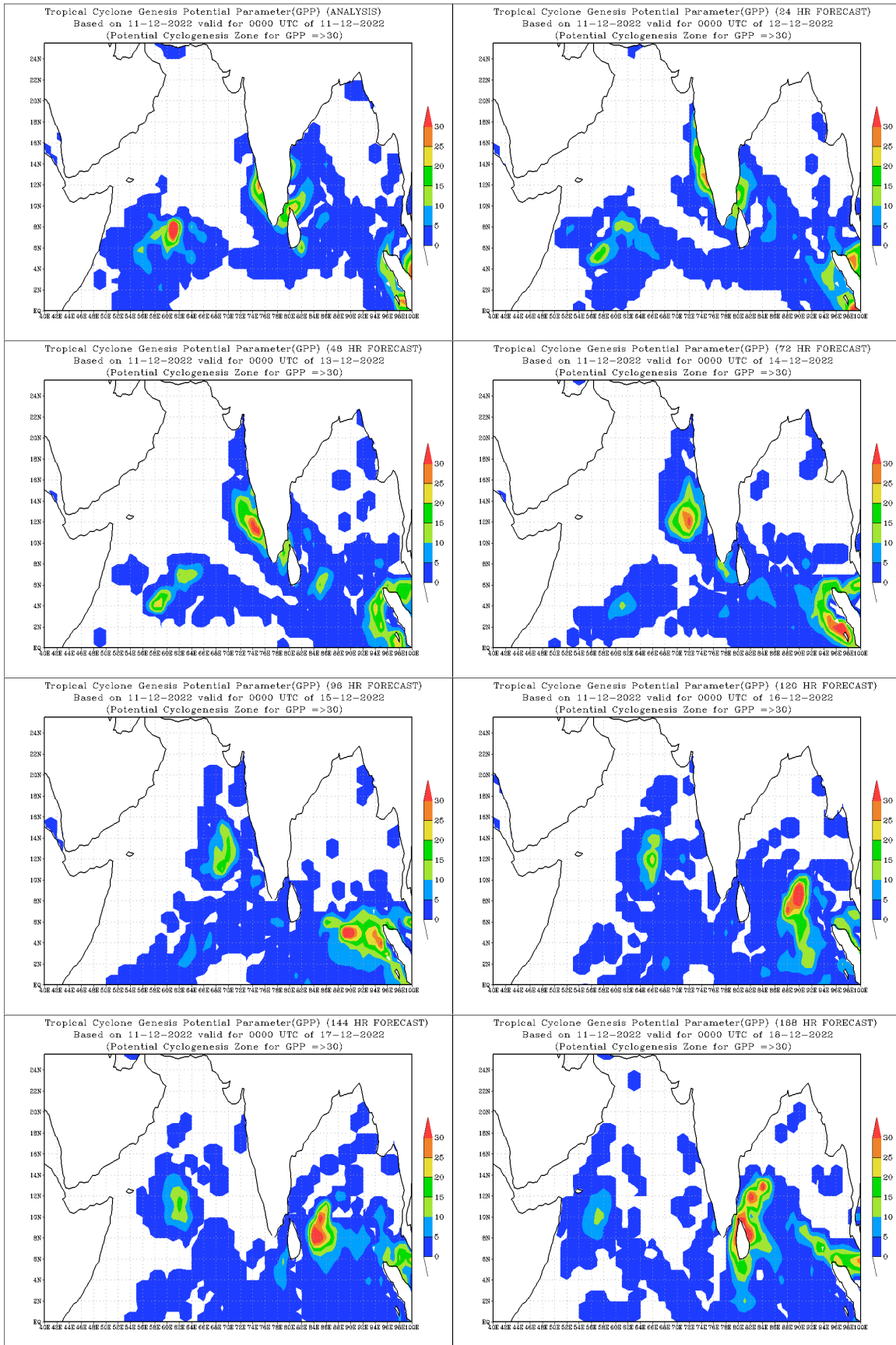
Probability of cyclogenesis (formation of depression and above intensity systems) over the Arabian Sea during next 168 hours:

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	NIL

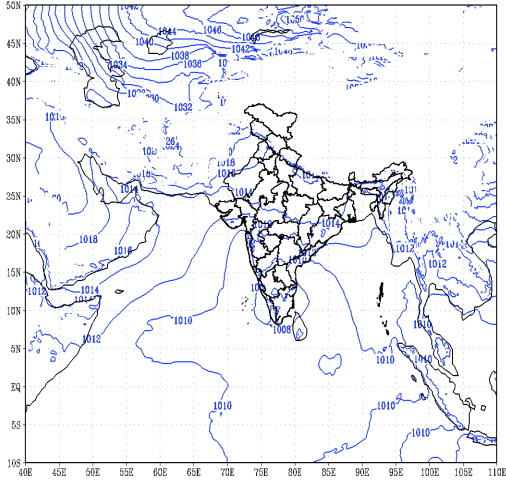
Advisory:

In view of some models show a likely low pressure area formation over east central Arabian Sea off north Karnataka coast on 15th Dec we have to get latest updates on model products about this new system

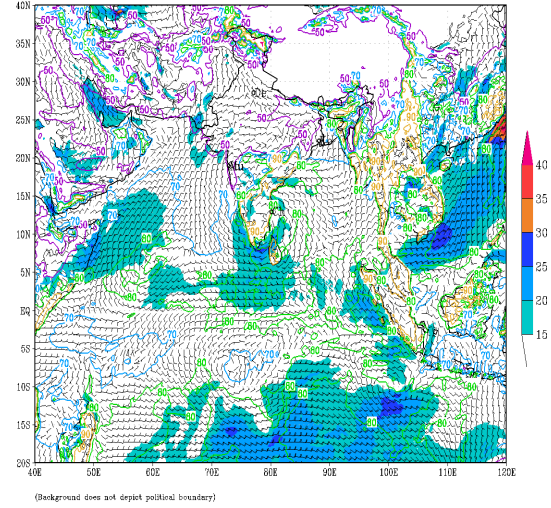
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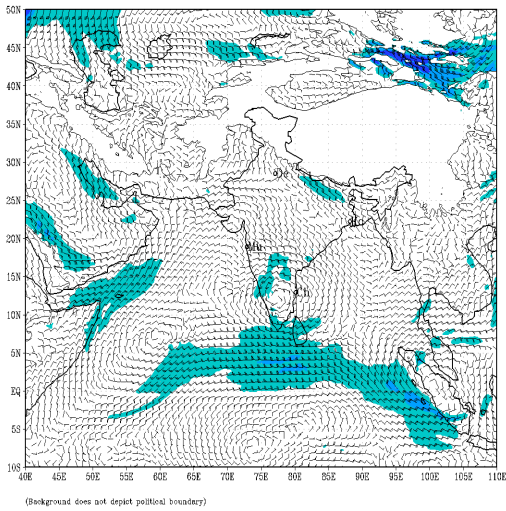
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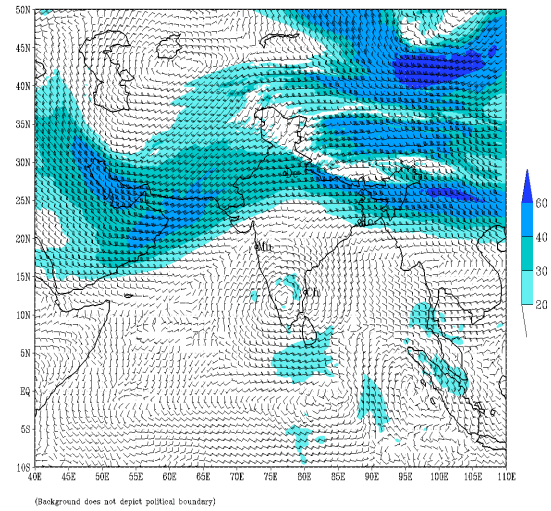
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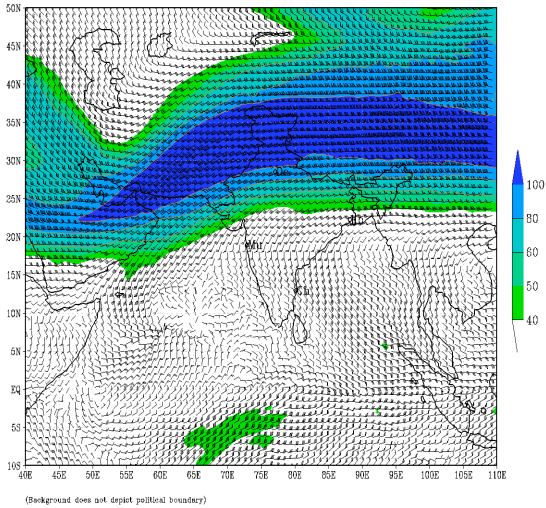
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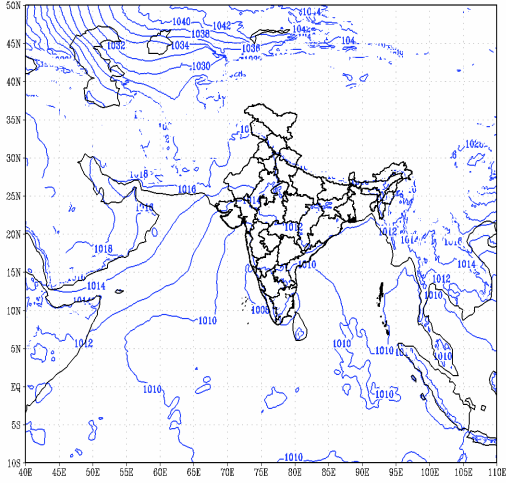
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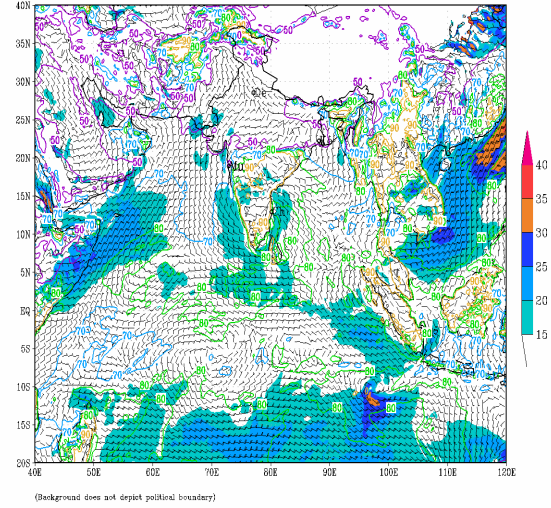
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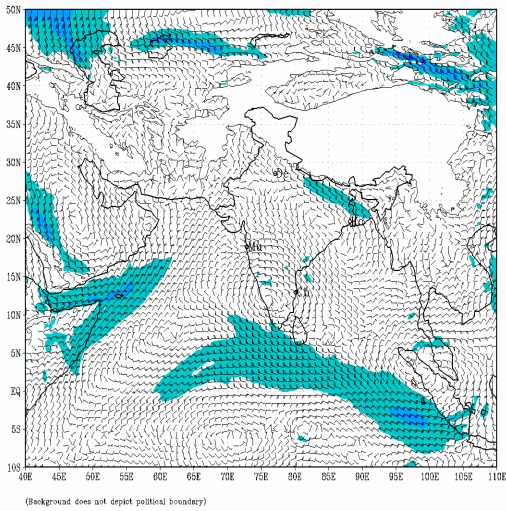
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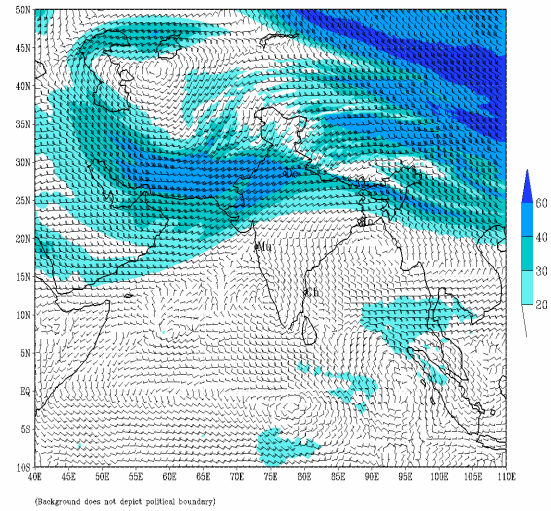
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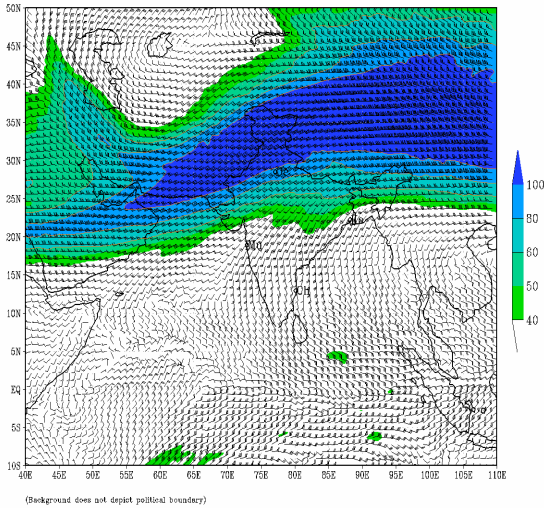
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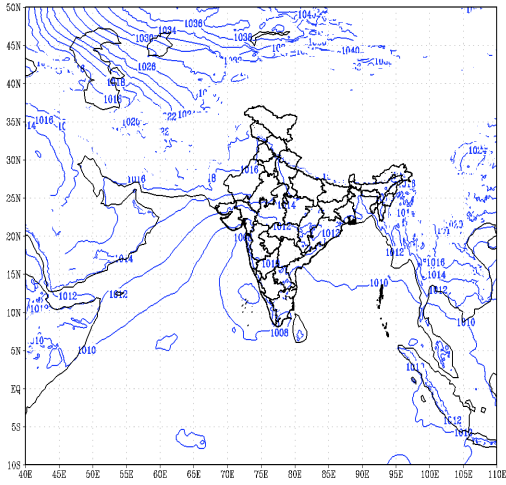
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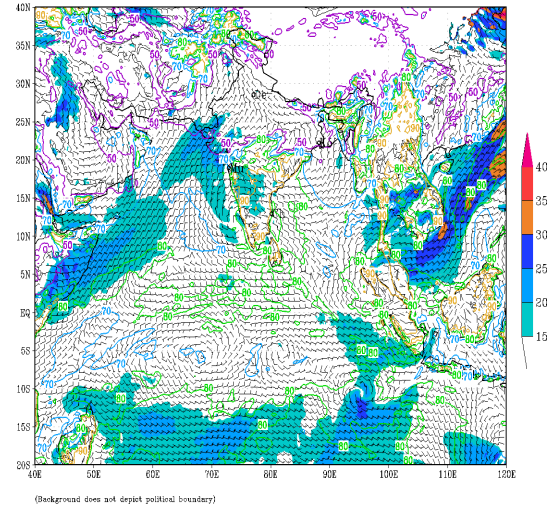
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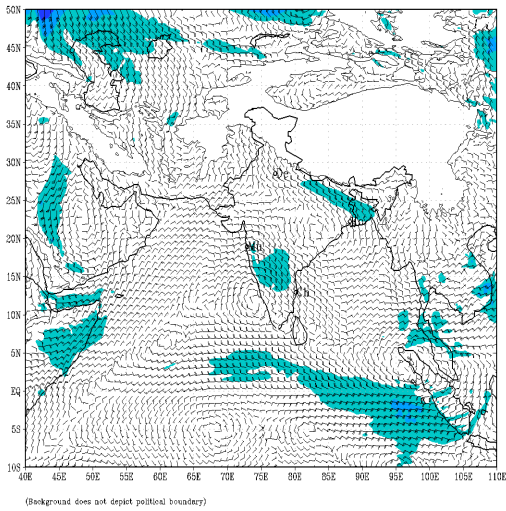
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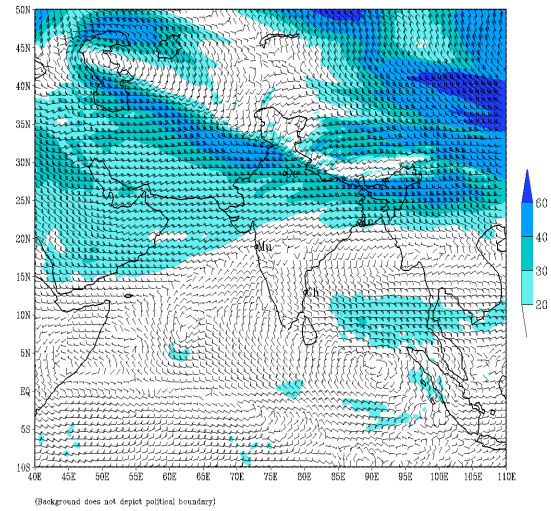
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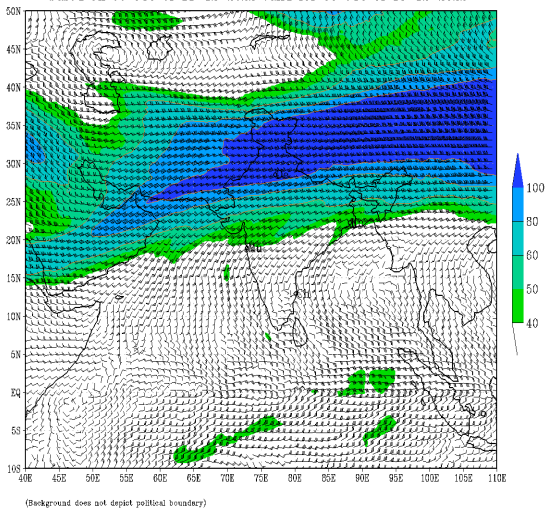
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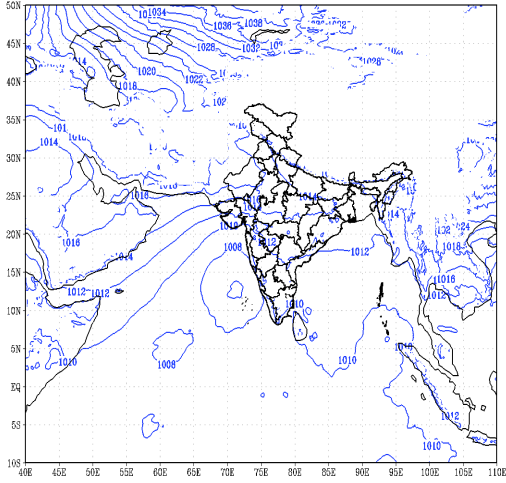
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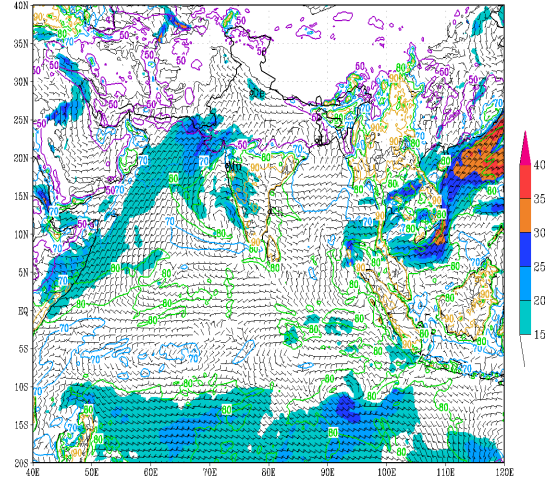


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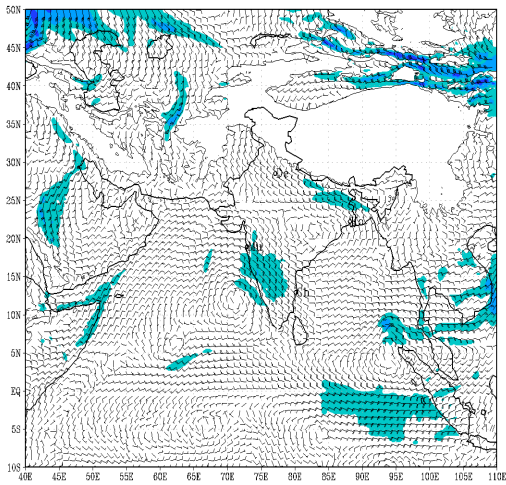
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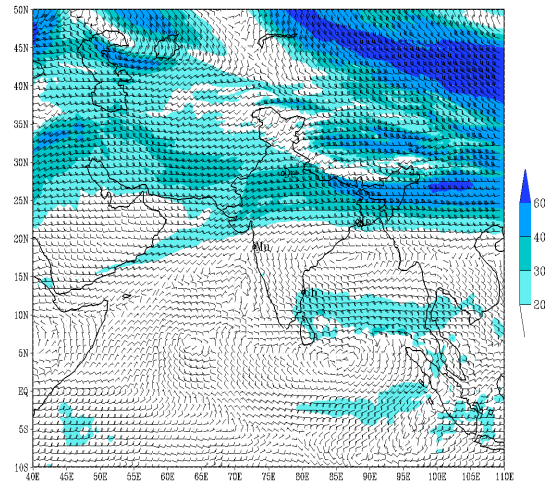
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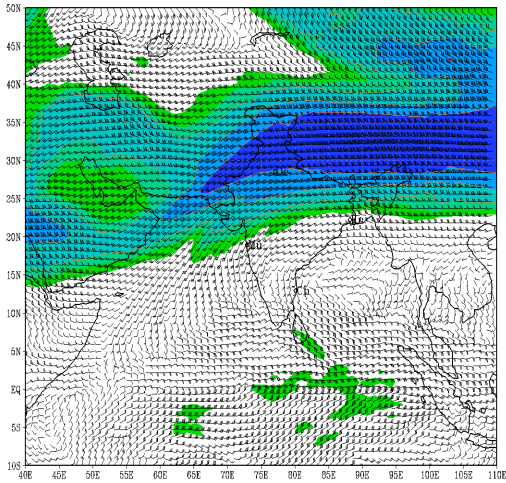
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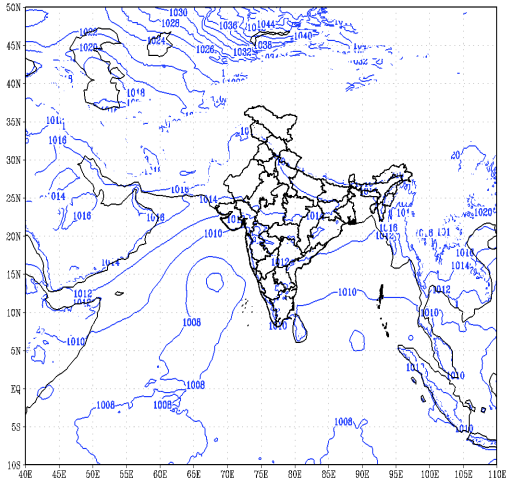
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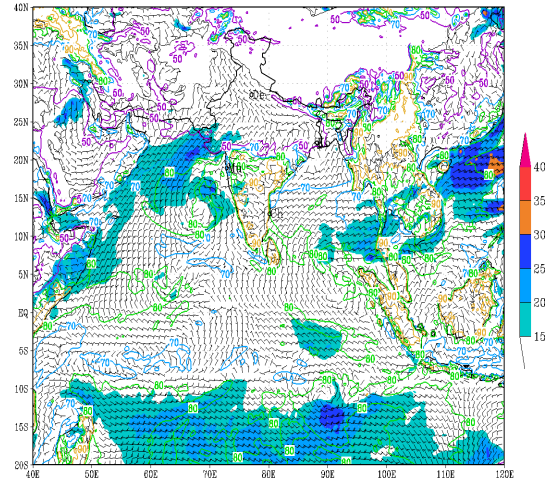
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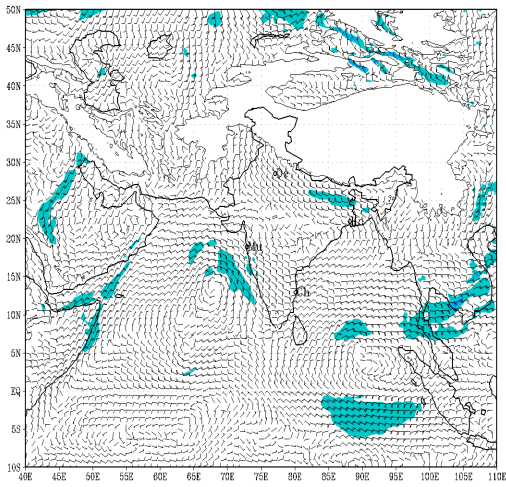
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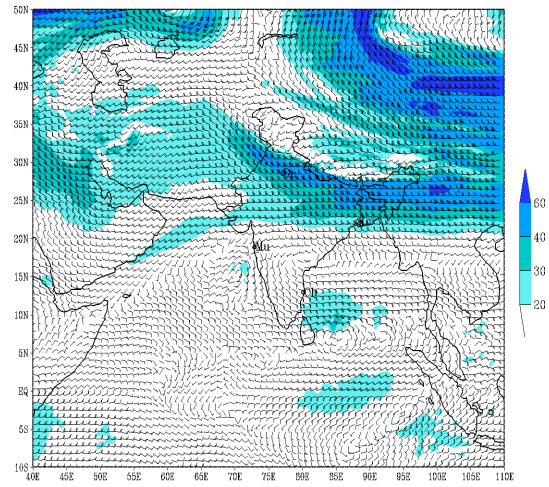
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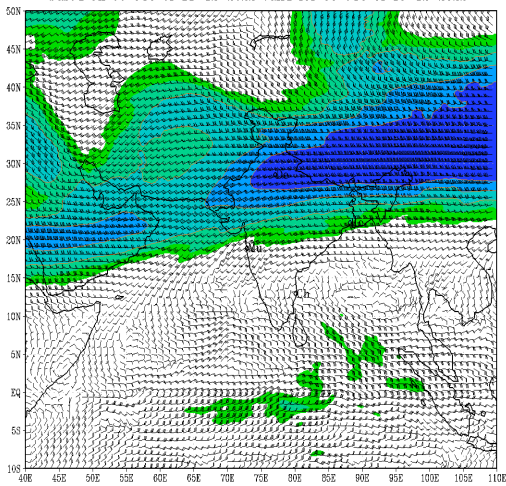
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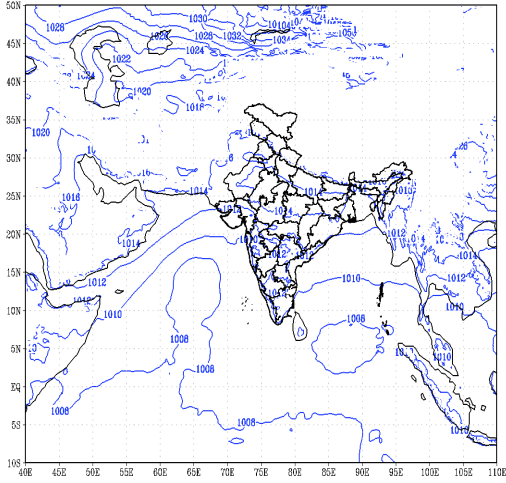
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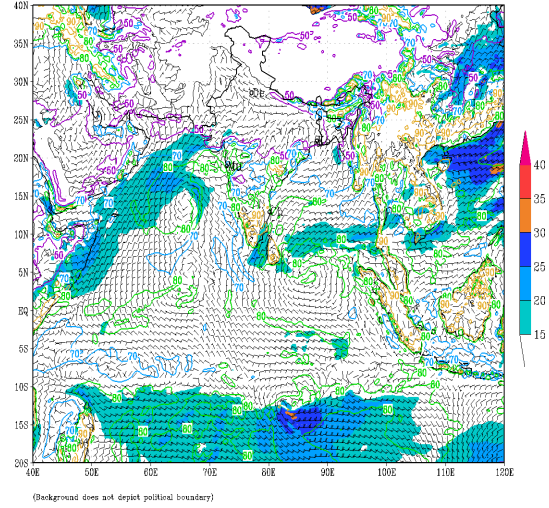


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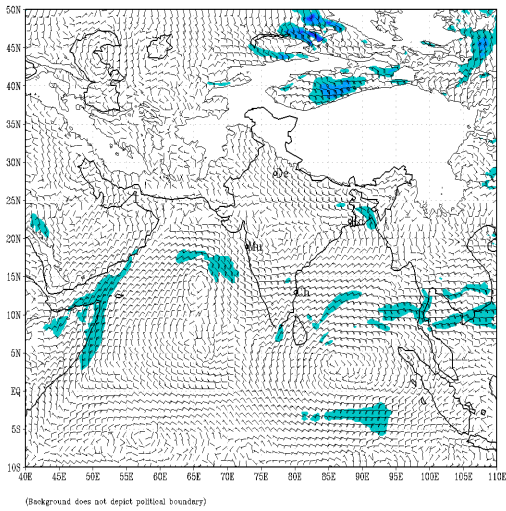
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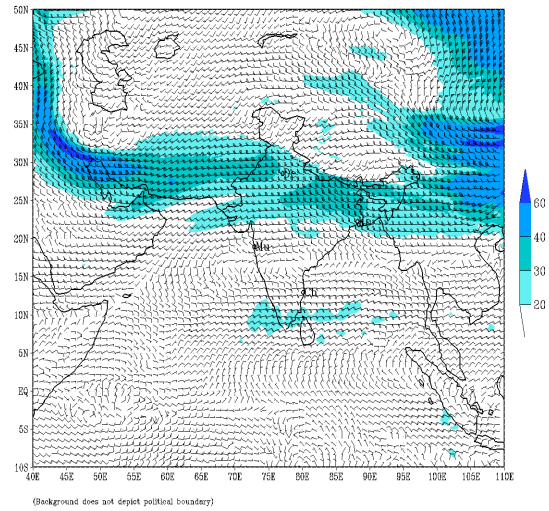
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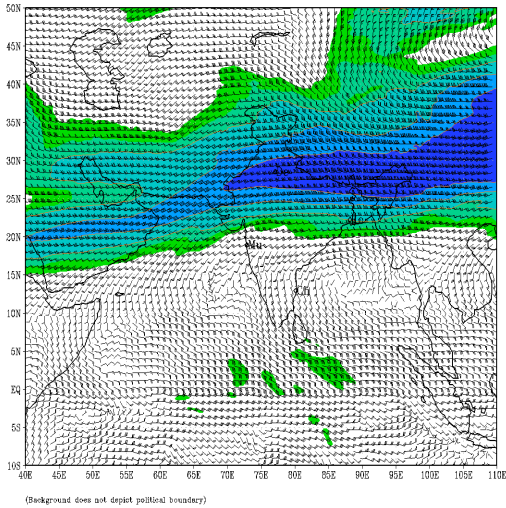
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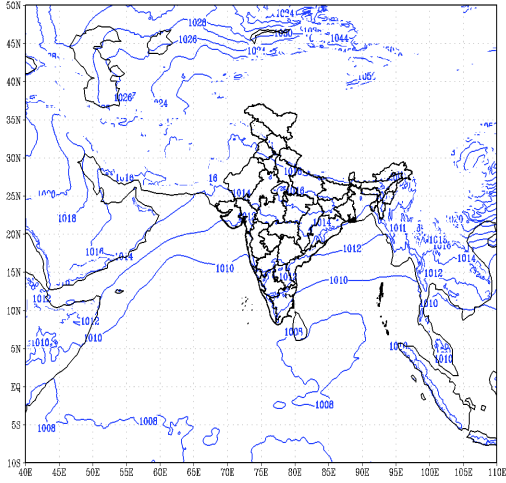
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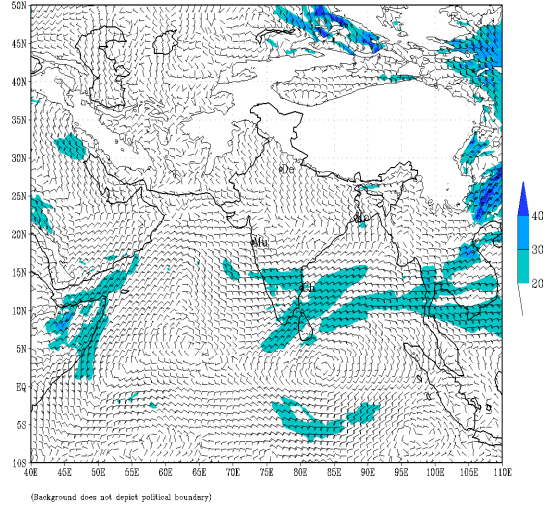
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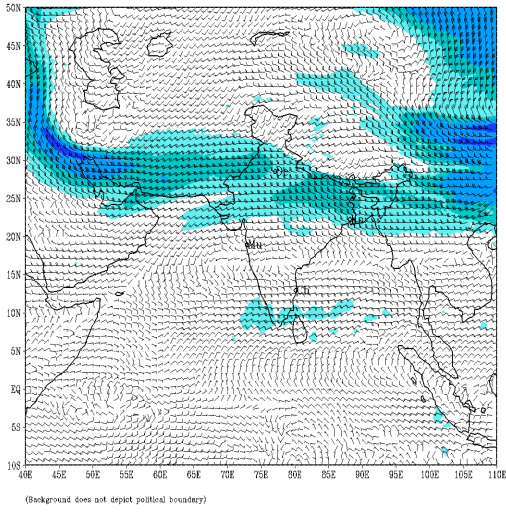
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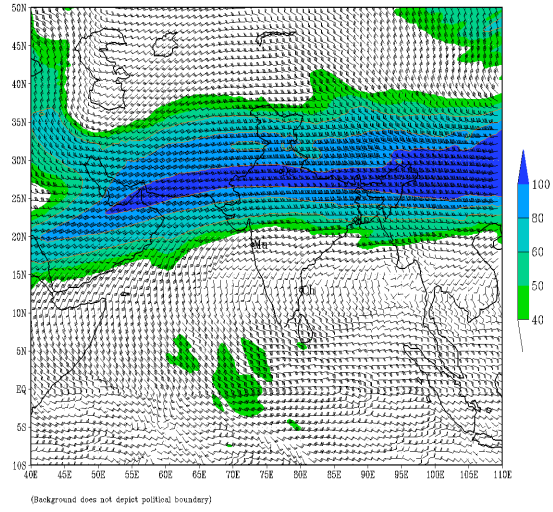
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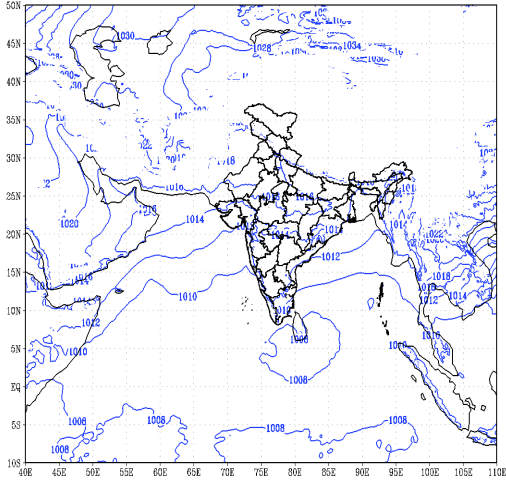
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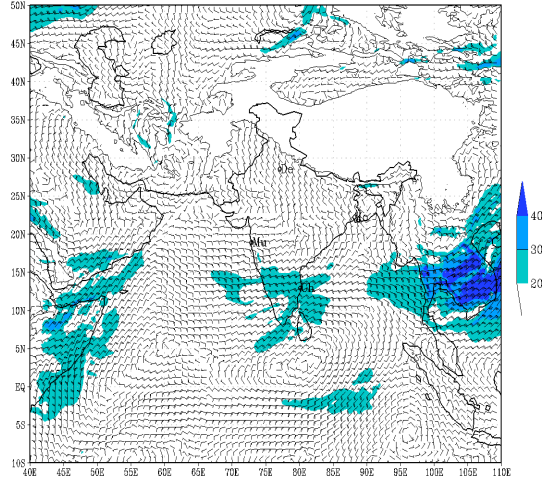


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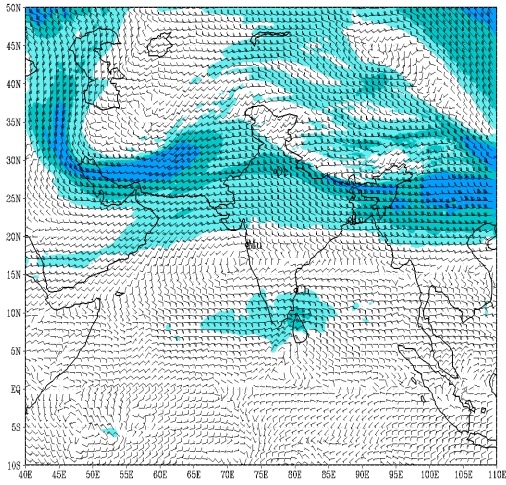
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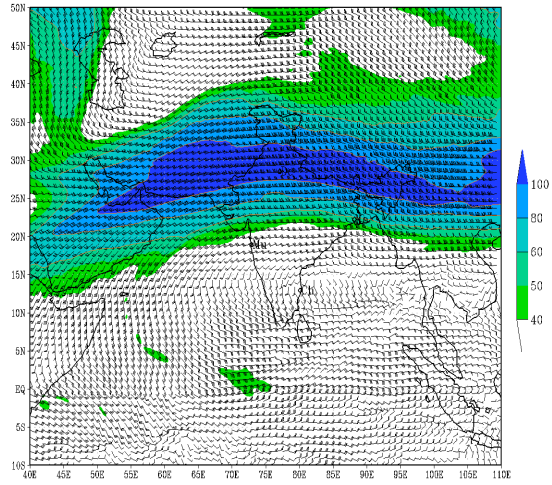
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