



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

**Tropical Cyclone Forecast Programme
Report Dated 07th December, 2023**

Time of Issue: 1100 UTC

Synoptic features (based on 0600 UTC analysis):

- Yesterday's well marked low pressure area (remnant of severe cyclonic storm Michaung) over northeast Telangana and adjoining south Chhattisgarh-south interior Odisha-coastal Andhra Pradesh weakened into a low pressure area over northeast Telangana & neighbourhood in the evening of yesterday, the 6th December, 2023 and became less marked over south Chhattisgarh & neighbourhood at 0530 hours IST of today, the 7th December, 2023. However the associated cyclonic circulation lay over the same region and extends upto 3.1 km above mean sea level.
- A cyclonic circulation lies over southeast Arabian Sea & neighbourhood and extends upto 1.5 km above mean sea level.

Dynamical and thermo-dynamical features (0600 UTC)

Parameter	Bay of Bengal (BoB)	Arabian Sea (AS)
Sea Surface Temperature (SST) °C	27-28 over southeast major parts of BoB & Andaman sea and Comorin area. Around 26 over north and rest of BoB.	29-30 over southeast and adjoining eastcentral AS, along and off Karnataka, Kerala coasts. 26-27 over major parts of central and southwest AS and North AS, Around 27-28 over eastcentral adjoining southeast AS along and off the Maharashtra, Goa coast.
Tropical Cyclone Heat Potential (TCHP) kJ/cm²	70-80 over parts of Andaman Sea, parts of central BoB, Gulf of Mannar, southwest BoB close to Sri Lanka coast. 30-40 over the rest parts of BoB.	110-120 over southeast and adjoining westcentral AS. 80-100 over parts of eastcentral AS. 70-80 along and off the west coast.
Cyclonic Relative vorticity (X10⁻⁶s⁻¹)	10-20 over few parts of BoB and Gulf of Mannar.	10-20 over most parts of AS. 30-40 over southeast adjoining west EIO.
Low Level convergence (X10⁻⁵ s⁻¹)	-5 over few parts of BoB. 5-10 over north BoB.	10-20 over southeast AS adjoining to EIO. -5 over some parts of remaining AS.
Upper Level divergence (X10⁻⁵ s⁻¹)	-5 to -10 over few parts of westcentral and south BoB.	10-30 over central parts of south AS adjoining to EIO. -5 to -10 over eastcentral and adjoining northeast AS.

Vertical Shear (knots) Wind (VWS) Low: 05-10 knots Moderate:10-20 knots High: >20 knots	5-10 over the south and adjoining central BoB, Andaman Sea, Gulf of Mannar. 20 over parts of central BoB, south Andaman Sea. High (>20knots) over rest of BoB.	15-20 over southeast AS and Comorin area. 20 over parts of southwest and adjoining eastcentral AS. High (>20knots) over rest of AS.
Wind Shear Tendency (knots)	Decreasing over south BoB and south Andaman Sea, north BoB, along and off north Andhra Pradesh and Odisha coasts.	Decreasing over most parts of AS.
Upper Tropospheric Ridge	Along 13°N over BoB.	Along 10°N over AS.

Satellite observations based on INSAT imagery (0600 UTC):

(a) Over the Bay of Bengal & Andaman Sea:-

Scattered low and medium clouds with embedded isolated moderate to intense convection lay over Bay of Bengal and Andaman Sea.

(b) Over the Arabian Sea:-

Scattered low and medium clouds with embedded intense to very intense convection lay over southeast Arabian Sea and moderate to intense convection lay over southwest Arabian Sea.

(c) Convection outside India:-

Scattered low and medium clouds with embedded moderate to intense convection lay over Maldives, Nepal, Bhutan, Tibet, China, north Myanmar, south Thailand, Gulf of Thailand, Sumatra, strait of Malacca, Malaysia, Borneo, South China Sea, Java islands & sea, Celebes islands & sea, Philippines, Sulu Sea, north Madagascar, north Mozambique channel and over Indian Ocean between latitude 5.0N to 10.0S longitude 40.0E to 110.0E.

M.J.O. Index:

MJO index is currently in Phase 4 with amplitude greater than 1, it will move to phase 5 on 8th Dec with amplitude greater than 1, it remains in same phase and with amplitude greater than 1 till 10th Dec. Later on 11th Dec it moves to phase 6 with amplitude greater than 1. It remains in phase 6 till 12th December and enters phase 7 on 13th December, it remains in phase 7 till 17th December.

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

Input for FDP Cyclone based on 0000 UTC for the next 7 days

MODEL GUIDANCE	Bay of Bengal (BoB)	Arabian Sea (AS)
IMD-GFS	No significant system for the next 7 days.	Extended low over southeast AS on today i.e., 7 th Dec having its westward movement till 12 th Dec without intensification.
IMD-GEFS	No significant system for the next 7 days.	Extended low over southeast 8 th Dec having its westward movement and becomes LPA on 9 th Dec. Continue moving in same direction till 11 th Dec without intensification. Less marked thereafter.
IMD-WRF	No significant system during next 4 days.	LPA over southeast AS on today i.e., 7 th Dec having northwestward movement and will become depression on southeast AS (8N/72E) on 9 th Dec. It lay over southeast AS (9.5N/70E) as DD 10 th Dec.

NCMRWF-NCUM	No significant system during next 7 days.	LPA over southeast AS on 9 th Dec having westward movement till 11 th Dec. It will become less marked thereafter.
NCMRWF-NEPS	No significant system during next 7 days.	LPA over southeast AS on 9 th Dec having westward movement till 13 th Dec. It will become less marked thereafter.
NCMRWF-UM (Regional)	No significant system during next 3 days.	WML over southeast AS on 9 th Dec.
ECMWF	No significant system during next 7 days.	LPA over southeast AS (8N/72E) on 9 th Dec having northwestward movement without further intensification.
NCEP-GFS	No significant system during next 7 days.	LPA over southeast AS (8.5N/72E) on 18 UTC of 8 th Dec having northwestward movement till 14 th Dec without further intensification.
IMD-Genesis Potential Parameter	No potential zone over the BoB for the next seven days.	Potential zone over southeast Arabian Sea on 8 th December having westnorthwestward movement and lay over southwest and adjoining westcentral Arabian Sea on 13 th December.

Summary and conclusion:

1. For the Bay of Bengal:

No significant cyclogenesis over the Bay of Bengal for the next 7 days.

Probability of Cyclogenesis (formation of depression and above intensity systems) over Bay 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

*Note: Every 24 hour forecast is valid upto 0300 UTC of the next day.

2. For the Arabian Sea:

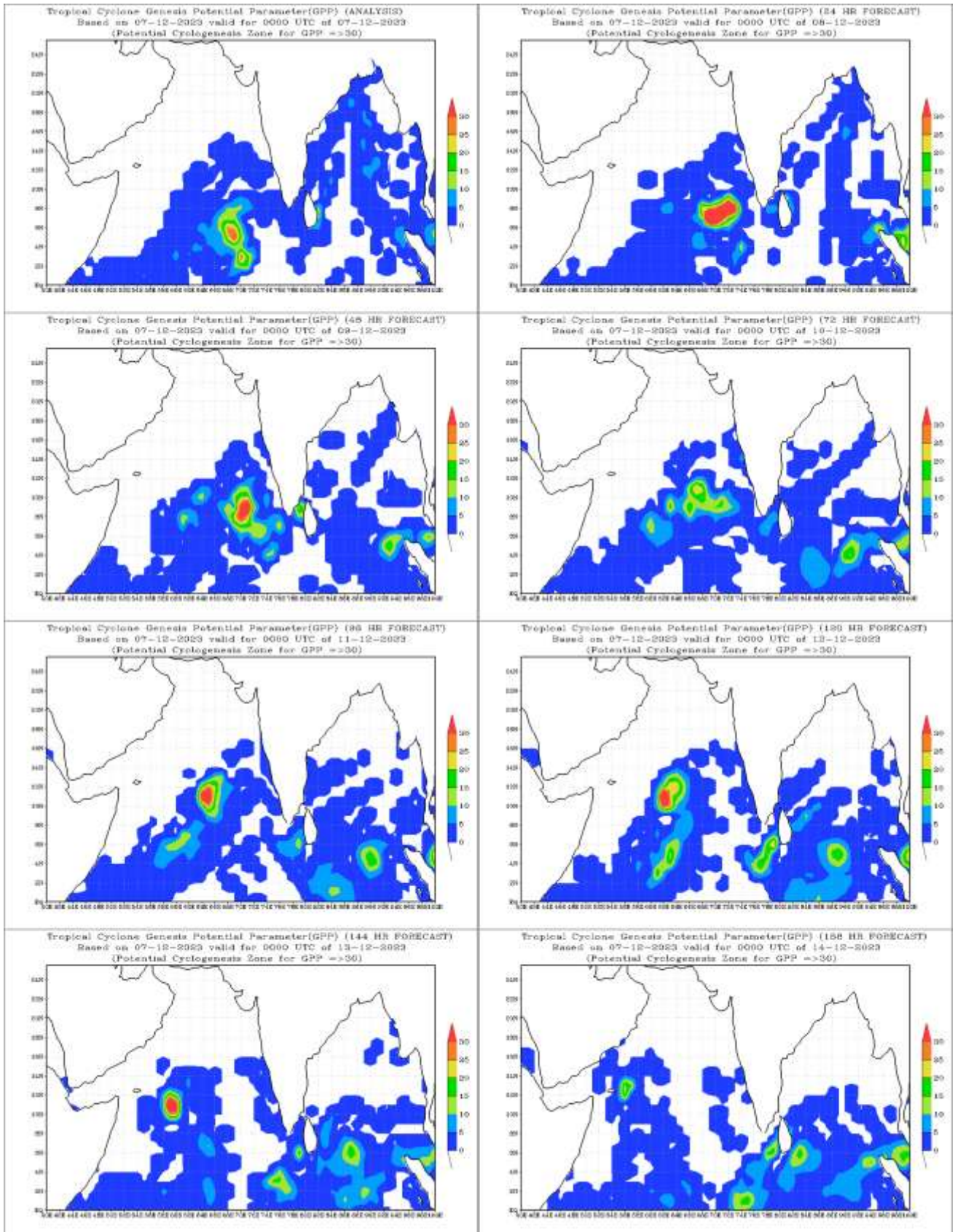
The IMD-GFS, IMD-GEFS, NCUM models are indicating an extended low as on today having westward movement till 12th December without any significant intensification. The NUCM, NCEP-GFS and ECMWF models are indicating a low pressure area (LPA) over southeast Arabian Sea around 9th Dec having northwestward movement without further intensification. However, IMD-WRF is indicating a low pressure area (LPA) over southeast Arabian Sea on today i.e., 7th Dec having northwestward movement and will become depression on southeast Arabian Sea on 9th Dec. IMD-WRF model also suggests further intensification by 10th December.

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

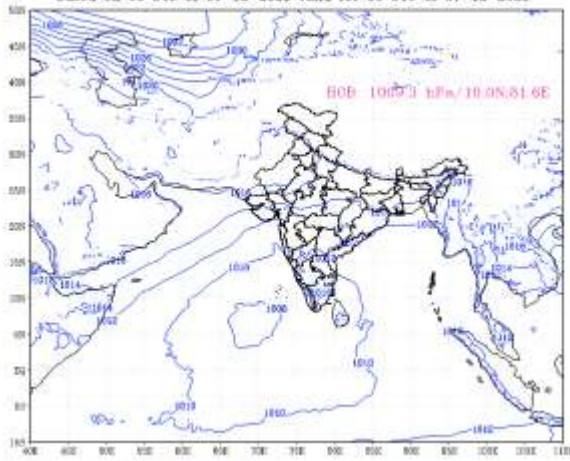
24 HOURS	24-48 HOURS	48-72 HOURS	72-96 HOURS	96-120 HOURS	120-144 HOURS	144-168 HOURS
NIL	NIL	NIL	NIL	NIL	NIL	NIL

*Note: Every 24 hour forecast is valid upto 0300 UTC of the next day.

IOP: Nil.

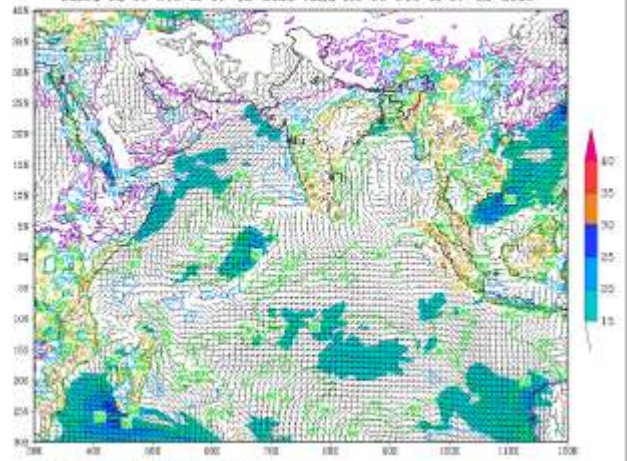


IMD :GFS MODEL(12 Km) MSL Pressure (hPa) FORECAST (00 HR)
based on 00 UTC of 07-12-2023 valid for 00 UTC of 07-12-2023



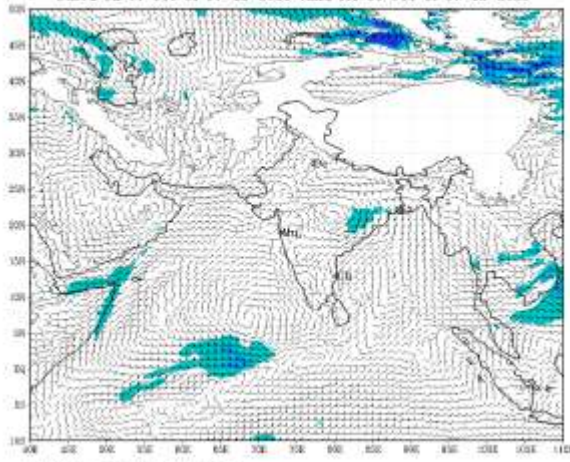
(Background line art depicts political boundary)

IMD GFS (T1534) 10m WIND (kt) AND 2m RH (%) FORECAST (00 HR)
based on 00 UTC of 07-12-2023 valid for 00 UTC of 07-12-2023



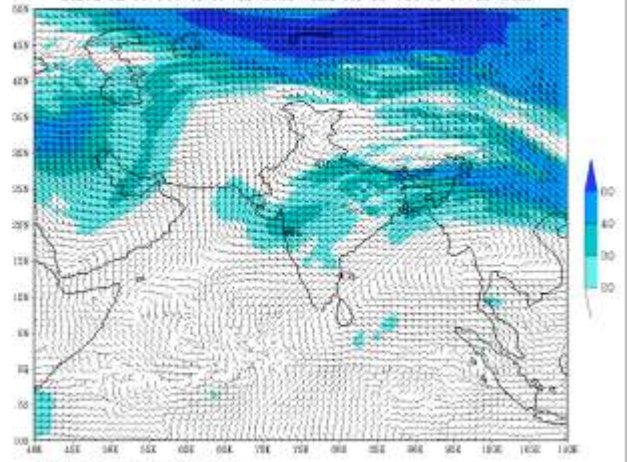
(Background line art depicts political boundary)

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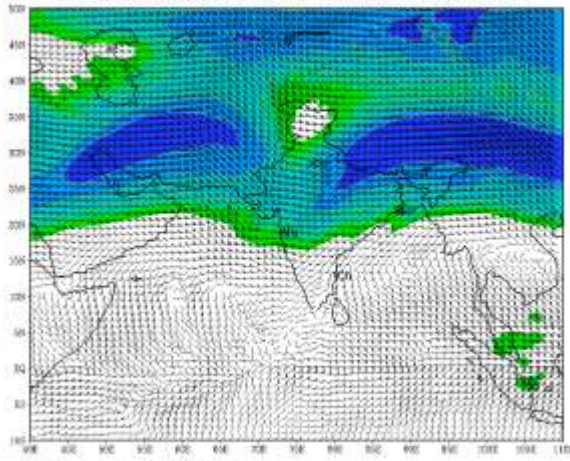
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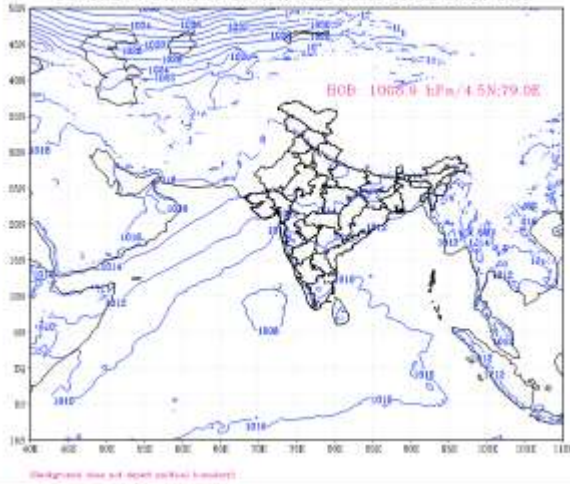
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based on 00 UTC of 07-12-2023 valid for 00 UTC of 07-12-2023

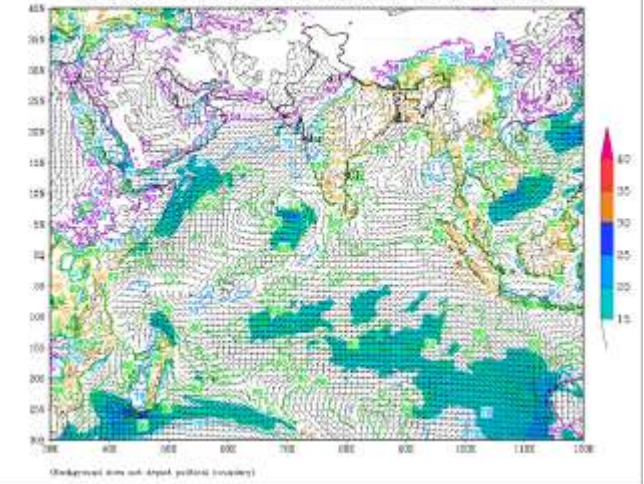


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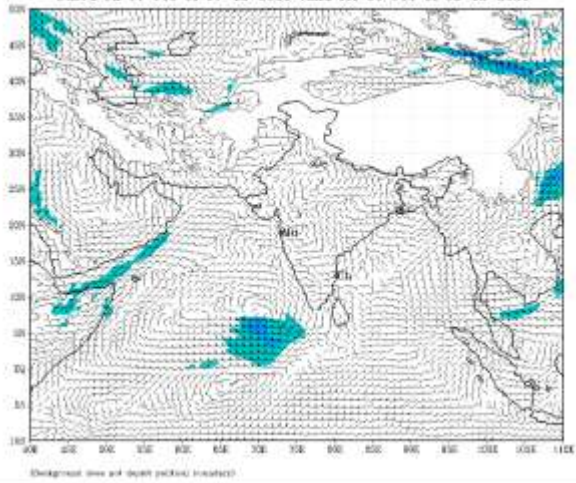
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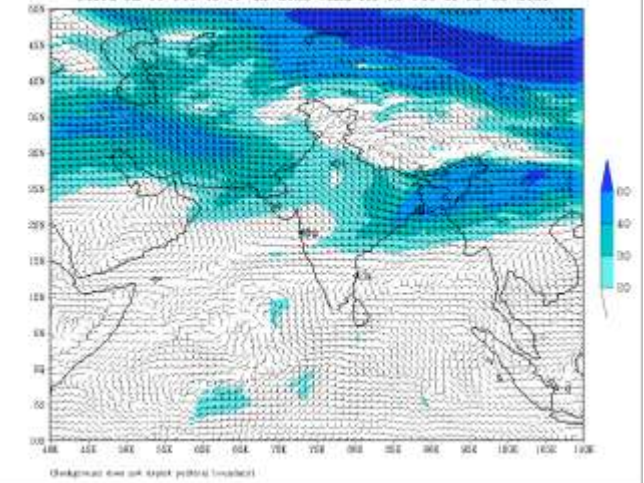
IMD GFS (T1534) 10m WIND (kt) AND 2m RH (%) FORECAST (24 HR)
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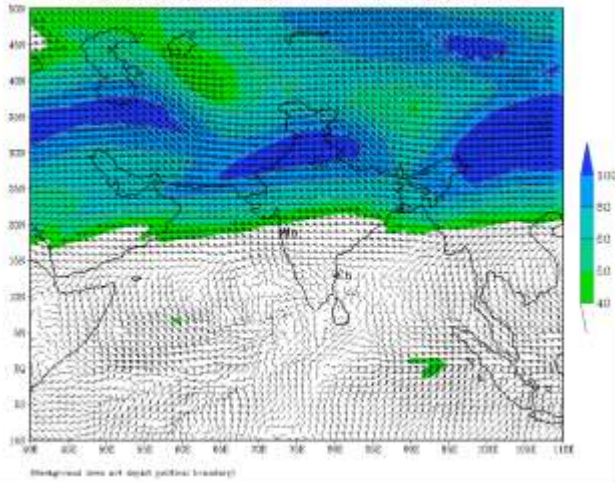
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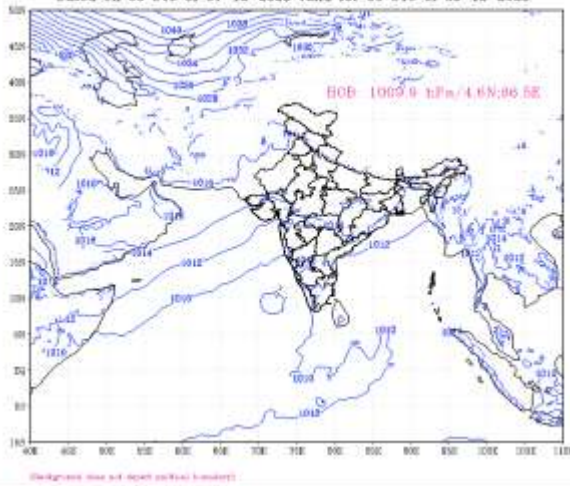
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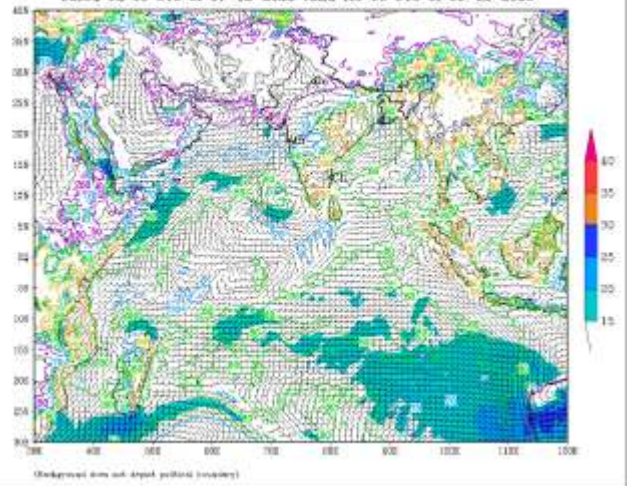
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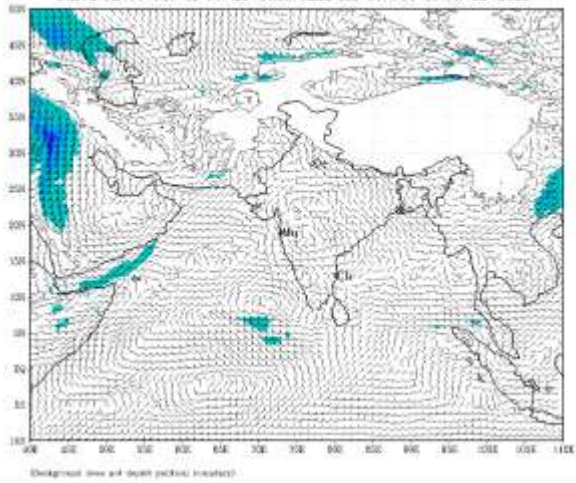
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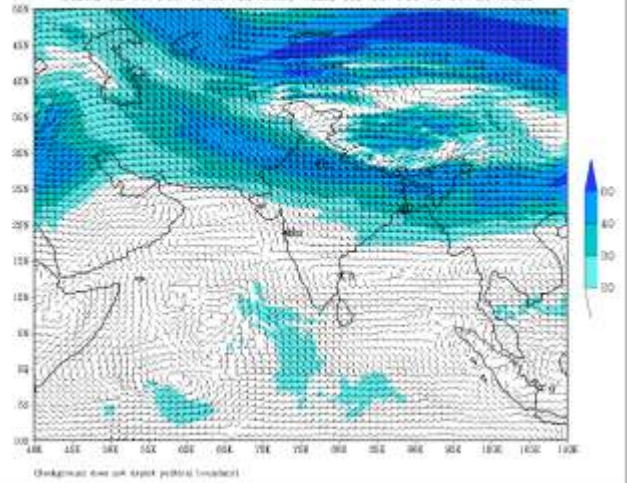
IMD GFS (T1534) 10m WIND (kt) AND 2m RH (%) FORECAST (48 HR)
based on 00 UTC of 07-12-2023 valid for 00 UTC of 09-12-2023



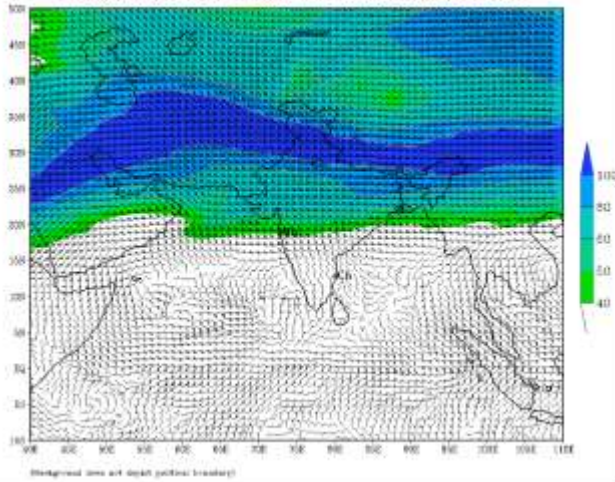
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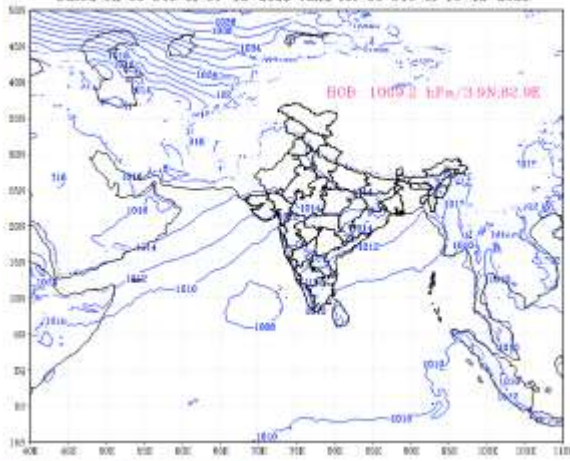
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based on 00 UTC of 07-12-2023 valid for 00 UTC of 09-12-2023



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based on 00 UTC of 07-12-2023 valid for 00 UTC of 09-12-2023

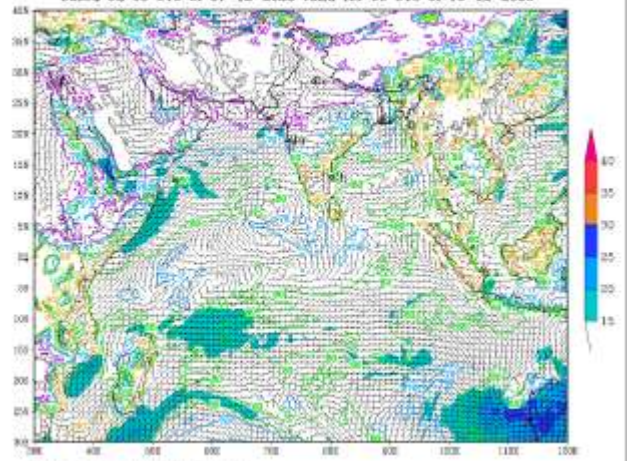


IMD :GFS MODEL(12 Km) MSL Pressure (hPa) FORECAST (72 HR)
 based on 00 UTC of 07-12-2023 valid for 00 UTC of 10-12-2023



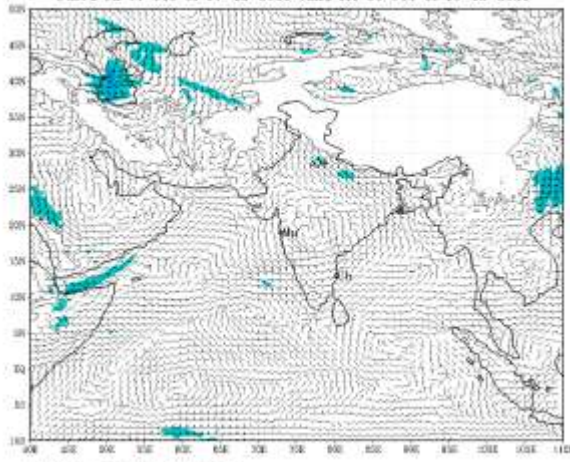
(Background does not depict political boundary)

IMD GFS (T1534) 10m WIND (kt) AND 2m RH (%) FORECAST (72 HR)
 based on 00 UTC of 07-12-2023 valid for 00 UTC of 10-12-2023



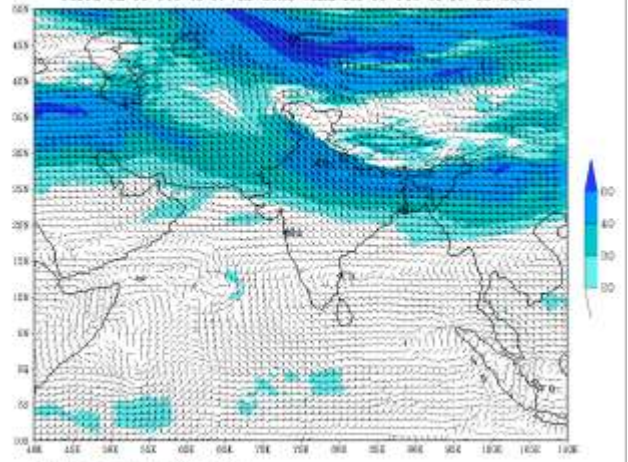
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 based on 00 UTC of 07-12-2023 valid for 00 UTC of 10-12-2023



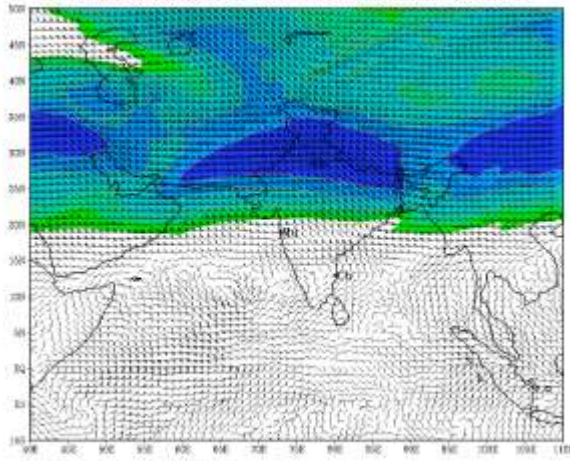
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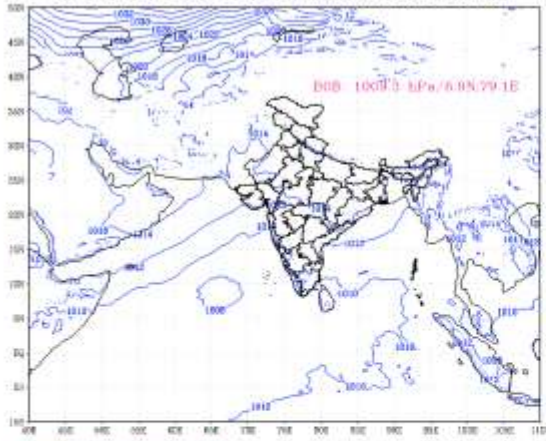
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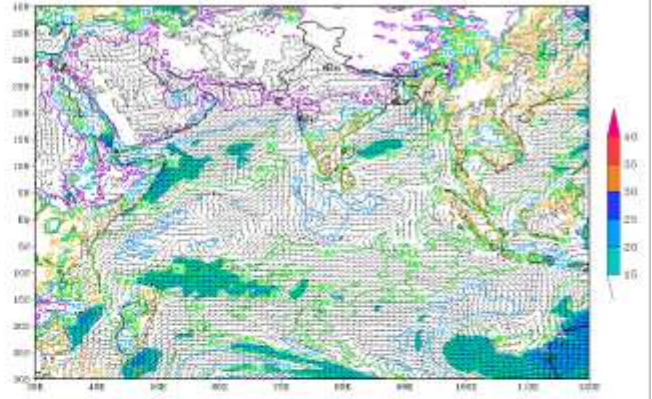
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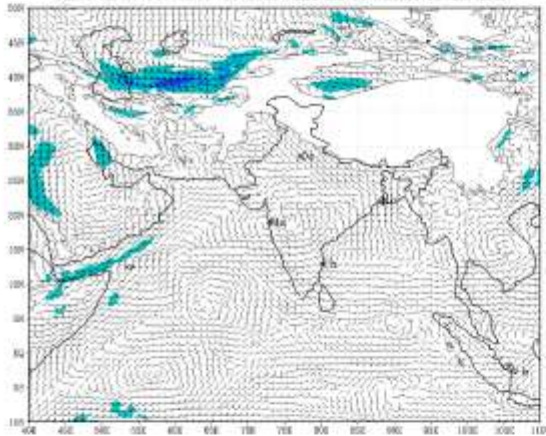
(Background uses air depth political boundary)

IMD GFS (T1534) 10m WIND (kt) AND 2m RH (%) FORECAST (96 HR)
based on 00 UTC of 07-12-2023 valid for 00 UTC of 11-12-2023



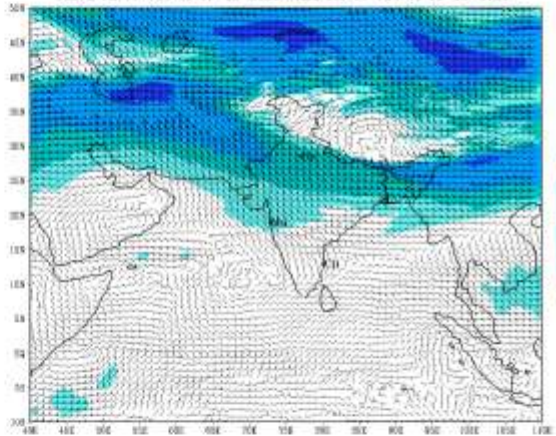
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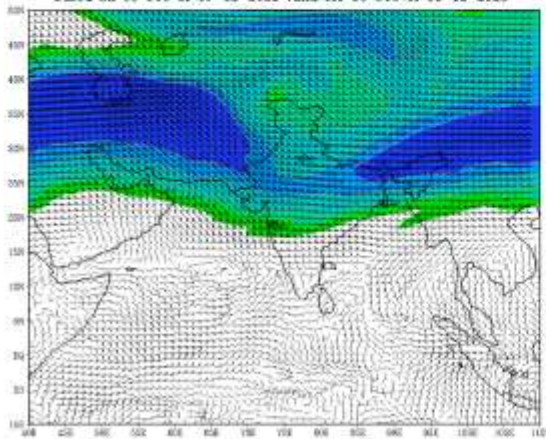
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IMD:GFS MODEL(12 Km) 500 hPa WIND (kt) FORECAST (96 HR)
based on 00 UTC of 07-12-2023 valid for 00 UTC of 11-12-2023



(Background uses air depth political boundary)

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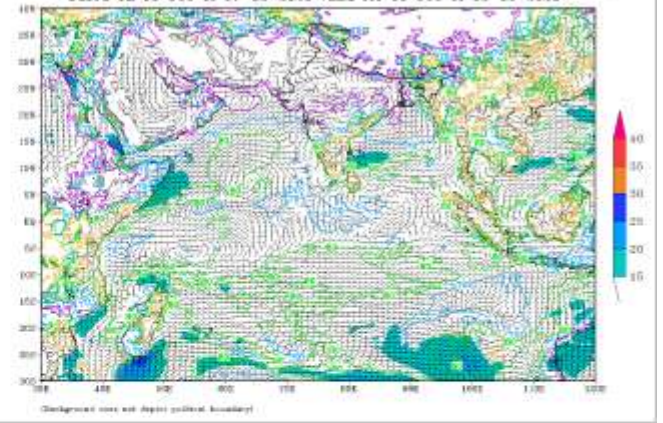


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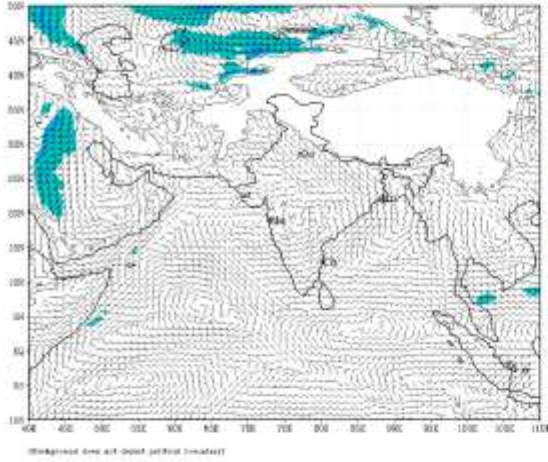
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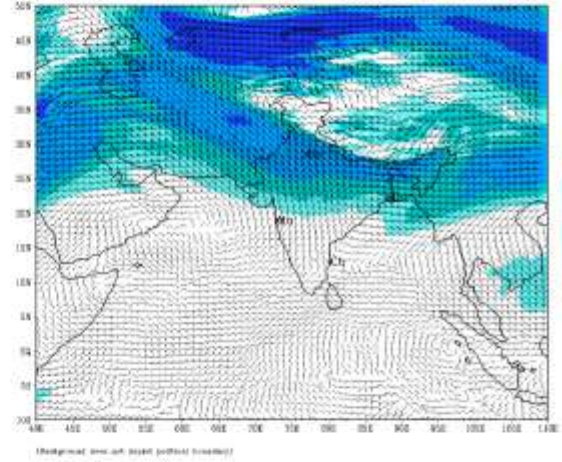
IMD GFS (T1534) 10m WIND (kt) AND 2m RH (%) FORECAST (120 HR)
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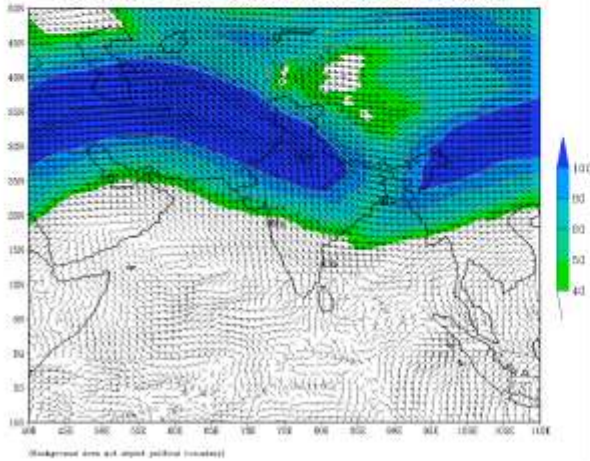
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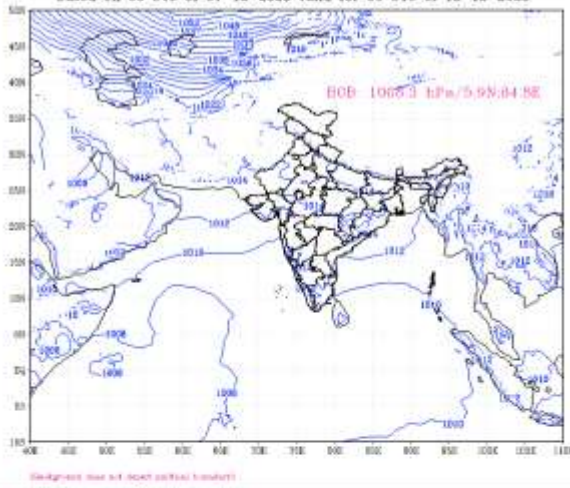
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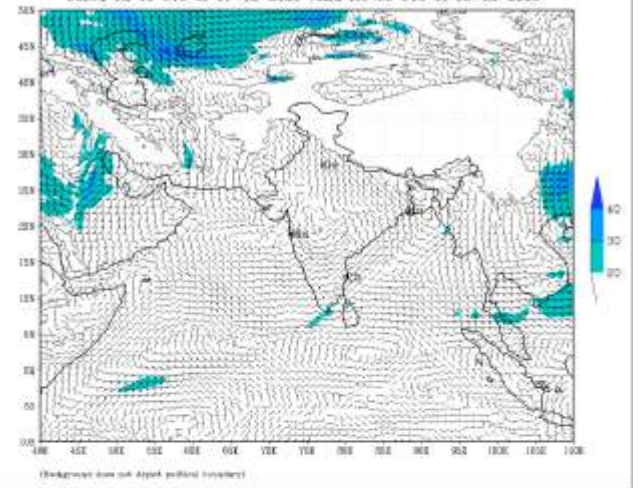
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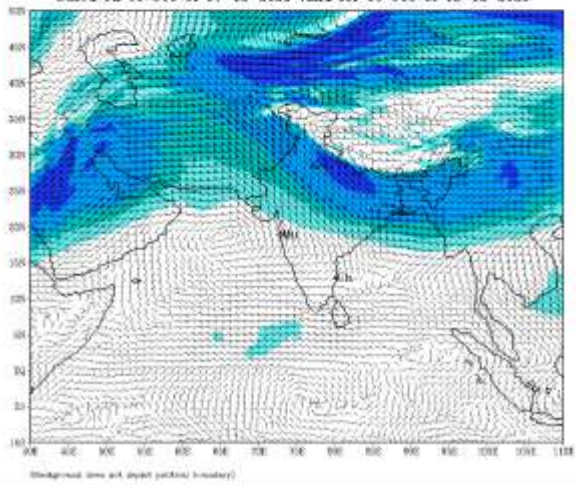
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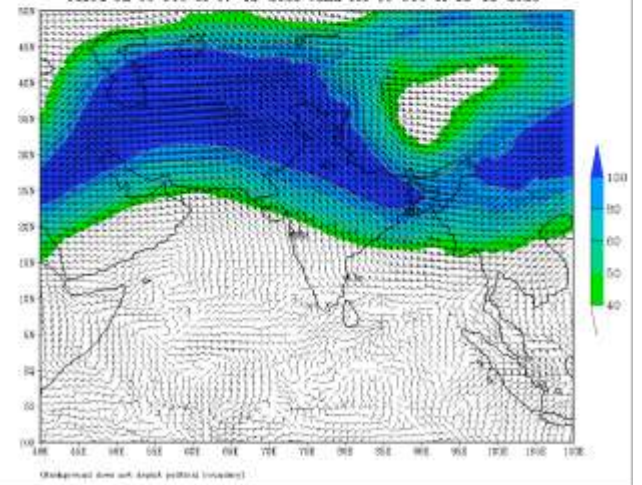
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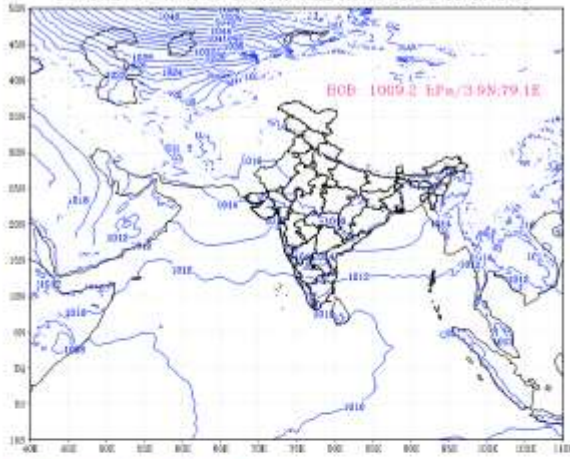
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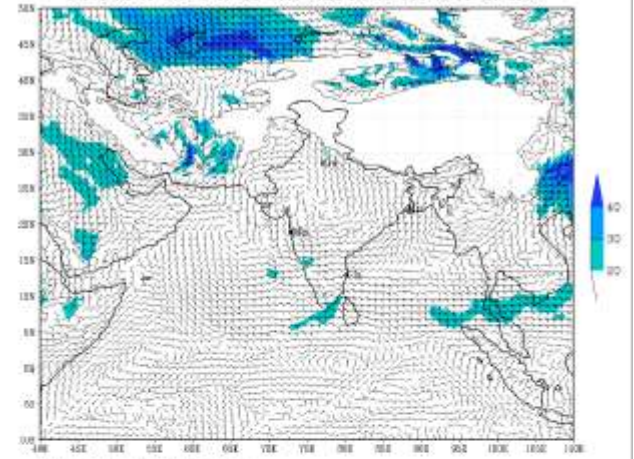


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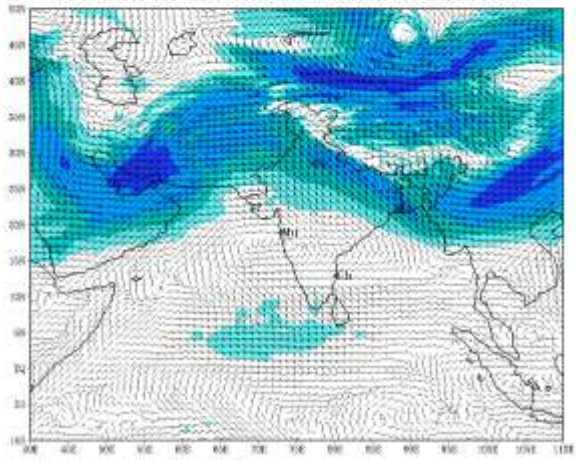
(Background line with depth plotted boundary)

IMD:GFS MODEL(12 Km) 850 hPa WIND (kt) FORECAST (168 HR)
based on 00 UTC of 07-12-2023 valid for 00 UTC of 14-12-2023



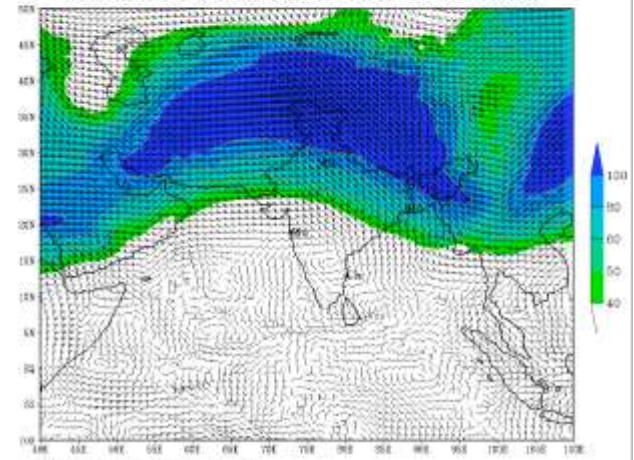
(Background line with depth plotted boundary)

IMD:GFS MODEL(12 Km) 500 hPa WIND (kt) FORECAST (168 HR)
based on 00 UTC of 07-12-2023 valid for 00 UTC of 14-12-2023



(Background line with depth plotted boundary)

IMD :GFS MODEL(12 Km) 200 hPa WIND (kt) FORECAST (168 HR)
based on 00 UTC of 07-12-2023 valid for 00 UTC of 14-12-2023



(Background line with depth plotted boundary)