



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

**Tropical Cyclone Forecast Programme
Report Dated 17th November, 2023**

Time of Issue: 1500 UTC

Synoptic features (based on 1200 UTC analysis):

Yesterday's deep depression over Westcentral Bay of Bengal moved north-northeastwards and intensified into the **Cyclonic Storm "Midhili"** (pronounced as "Midhili") over Northwest Bay of Bengal in the morning (0530 hours IST) of today, the 17th November, 2023. Continuing to move north-northeastwards, it crossed Bangladesh coast near Khepupara during 1430-1530 hrs IST. It further moved north-northeastwards across the Islands of Bangladesh as a Cyclonic Storm with maximum sustained surface wind speed of 65-75 kmph gusting to 85 kmph and lay centered at 1730 hours IST of today, the 17th November over Coastal Bangladesh near latitude 22.8°N and longitude 90.8°E about 20 km east-northeast of Bhola, 30 km west-southwest of Majidicourt, 110 km northeast of Khepupara and 120 km southwest of Chittagong (Bangladesh).

It is likely to move north-northeastwards and weaken into a Deep Depression over Tripura and adjoining Bangladesh during next 06 hours and into a Depression over south Assam & adjoining Mizoram-Tripura during subsequent 06 hours.

Dynamical and thermo-dynamical features

Parameter	Bay of Bengal (BoB)	Arabian Sea (AS)
Sea Surface Temperature (SST) °C	Around 30 over the north Andaman Sea, around 28 over the system and 27 along the system's forecasted path. Around 28 westcentral BoB, along and off Andhra Pradesh, south Odisha coasts. 29 over the most parts of eastcentral and south BoB, along and off Andhra Pradesh and Odisha coasts, around 27 over northern part of north BoB, along and off north Odisha, West Bengal and Bangladesh coasts.	Around 30 over south east and adjoining, southwest, eastcentral AS. 26-27 over most parts of AS.

Tropical Cyclone Heat Potential (TCHP) kJ/cm ²	100-110 over parts of south and adjoining central BoB, 70-80 over north Andaman Sea.	100-110 over parts of south and adjoining eastcentral AS.
Cyclonic Relative vorticity (X10⁻⁶s⁻¹)	Around 110 over the system, 40-50 over southwest BoB, 10-20 over parts of southeast BoB and South Andaman Sea.	10-20 over parts of south, eastcentral AS and adjoining north AS.
Low Level convergence (X10⁻⁵ s⁻¹)	20-40 around the system, 5-10 over eastcentral and adjoining southeast BoB, adjoining Andaman Sea.	-5 over parts of AS.
Upper Level divergence (X10⁻⁵ s⁻¹)	20-30 to the northeast of the system, 5-10 over northeast and adjoining eastcentral BoB, parts of southwest BoB.	-5 to -10 over southeast and adjoining southwest AS, 5 to 10 over north AS.
Vertical Wind Shear (VWS knots) Low: 05-10 knots Moderate: 10-20 knots High: >20 knots	5-10 over south and adjoining central BoB, 20 over parts of central and south BoB, High (> 20 knots) over remaining parts of BoB.	5-10 over the south AS, 20 over the central AS adjoining to south AS, High (>20 knots) over remaining parts of AS.
Wind Shear Tendency (knots)	Decreasing over central and adjoining north BoB, parts of southwest BoB.	Decreasing over parts of southeast and southwest AS, parts of northwest AS, increasing over central parts of south AS, northern parts of central AS, adjoining north AS.
Upper Tropospheric Ridge	Along 14°N over BoB.	Along 11°N over AS.

Satellite observations based on INSAT imagery (1200 UTC):

(a) Convection associated with cyclonic storm 'Midhili':

Associated broken low/med clouds with embedded intense to very intense convection over east Bangladesh, Tripura, east Meghalaya, south Assam, Manipur, Mizoram, (minimum CTT minus 93 deg Celsius) and mod to intense convection over rest of the northeast states and north Myanmar.

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

Scattered to broken low/med clouds with embedded intense to very intense convection over northeast, central, south BoB, north Andaman Sea & Tenasserim coast. Scattered low/med clouds with embedded mod to intense convection over south Andaman Sea and isolated weak to mod convection over northwest BoB.

(c) Over the Arabian Sea:-

Scattered low/med clouds with embedded mod to intense convection over north Arabian Sea, westcentral and southwest Arabian Sea and Comorin area. Scattered low/med clouds with embedded isolated weak to mod convection over southeast Arabian Sea and Lakshadweep islands area.

(d) Convection outside India:-

Scattered low/med clouds with embedded mod to intense convection over Sri Lanka, Palk Strait, Gulf of Mannar, South Maldives, Bhutan, Tibet, China, Yellow Sea, Myanmar, Thailand, Gulf of Thailand, Cambodia, Laos, Vietnam, Sumatra, Strait of Malacca, Malaysia, Borneo, South China Sea, Java islands & Sea, Celebes islands & Sea, Philippines, Sulu Sea, North Madagascar and over Indian ocean between lat 5.0N to 10.0S long 40.0E to 110.0E and bet lat 10.0S to 35.0S long 40.0E to 70.0E.

M.J.O. Index:

MJO index is currently in Phase 1 with amplitude greater than 1. It will remain in phase 1 with amplitude greater than 1 till 20th November. It will enter into phase 2 with amplitude greater than 1 on 21st November. It will remain there in phase 2 with amplitude greater than 1 till 25th November, later will continue in phase 2 for few days with amplitude less than 1.

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	The cyclonic storm (CS) to cross the Bangladesh coast around 1200 UTC of today. A fresh Cyclonic circulation (cycir) over southeast and adjoining southwest BoB on 23 rd Nov having its west-northwestward movement.	No significant system during next 7 days.
IMD-GEFS	The system to cross the Bangladesh coast around 1200 UTC of today as a cyclonic storm.	No significant system during next 7 days.
IMD-WRF	The system to cross the Bangladesh coast around 1200 UTC of today.	No significant system during next 3 days.
NCMRWF-NCUM	The system to cross the Bangladesh coast around 1200 UTC of today as low pressure area.	No significant system during next 7 days.
NCMRWF-NEPS	The system to cross the Bangladesh coast by evening of today as LPA.	No significant system during next 7 days.
NCMRWF-UM (Regional)	System to cross the Bangladesh coast by evening of today as LPA.	No significant system during next 7 days.
ECMWF	System to cross Bangladesh coast with slightly reduced intensity but as a cyclonic storm only around 0900 UTC of today.	No significant system during next 7 days.
NCEP-GFS	To cross Bangladesh coast with slightly reduced intensity but as a cyclonic storm during evening of today. Another LPA is likely over westcentral Bay on 20 th , WML over westcentral Bay on 21 st , not indicating further intensification within the forecast period.	No significant system.
IMD-Genesis Potential Parameter	GPP is indicating a potential zone over southwest and adjoining westcentral BoB on 19 th Nov, over westcentral BoB on 20 th Nov, moves southwestward and lay over southwest BoB on 22 nd & 23 rd Nov.	No potential zone over AS for next 7 days.

Summary and conclusion:

1. For Bay of Bengal:

- a) The guidance from various numerical models (IMD-GFS, NCEP-GFS, ECMWF AND IMD-MME) indicated the cyclonic storm “Midhili” to cross Bangladesh coast around 1200 UTC of today i.e., 17th November, 2023.

Actually, the Cyclonic Storm “**Midhili**” (pronounced as “**Midhili**”) over Northeast and adjoining Northwest Bay of Bengal crossed Bangladesh coast near Khepupara during 1430-1530 IST. It then continued to move north-northeastwards across the Islands of Bangladesh as a Cyclonic Storm with maximum sustained surface wind speed of 65-75 kmph gusting to 85 kmph and lay centered at 1730 hours IST of today, the 17th November over Coastal Bangladesh near latitude 22.8°N and longitude 90.8°E about 20 km east-northeast of Bhola, 30 km west-southwest of Majdicourt, 110 km northeast of Khepupara and 120 km southwest of Chittagong (Bangladesh).

It is likely to move north-northeastwards and weaken into a Deep Depression over Tripura and adjoining Bangladesh during next 06 hours and into a Depression over south Assam & adjoining Mizoram-Tripura during subsequent 06 hours.

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

- b) NCEP-GFS is also indicating a fresh LPA is likely over westcentral Bay on 20th November, WML over the same region on 21st November. It is not indicating further intensification within the forecast period. IMD GFS is indicating a fresh Cyclonic circulation (cycir) over southeast and adjoining southwest BoB on 23rd Nov having its west-northwestward movement.

The likely development of a fresh cyclonic circulation over south Bay of Bengal around 20th November needs to be monitored.

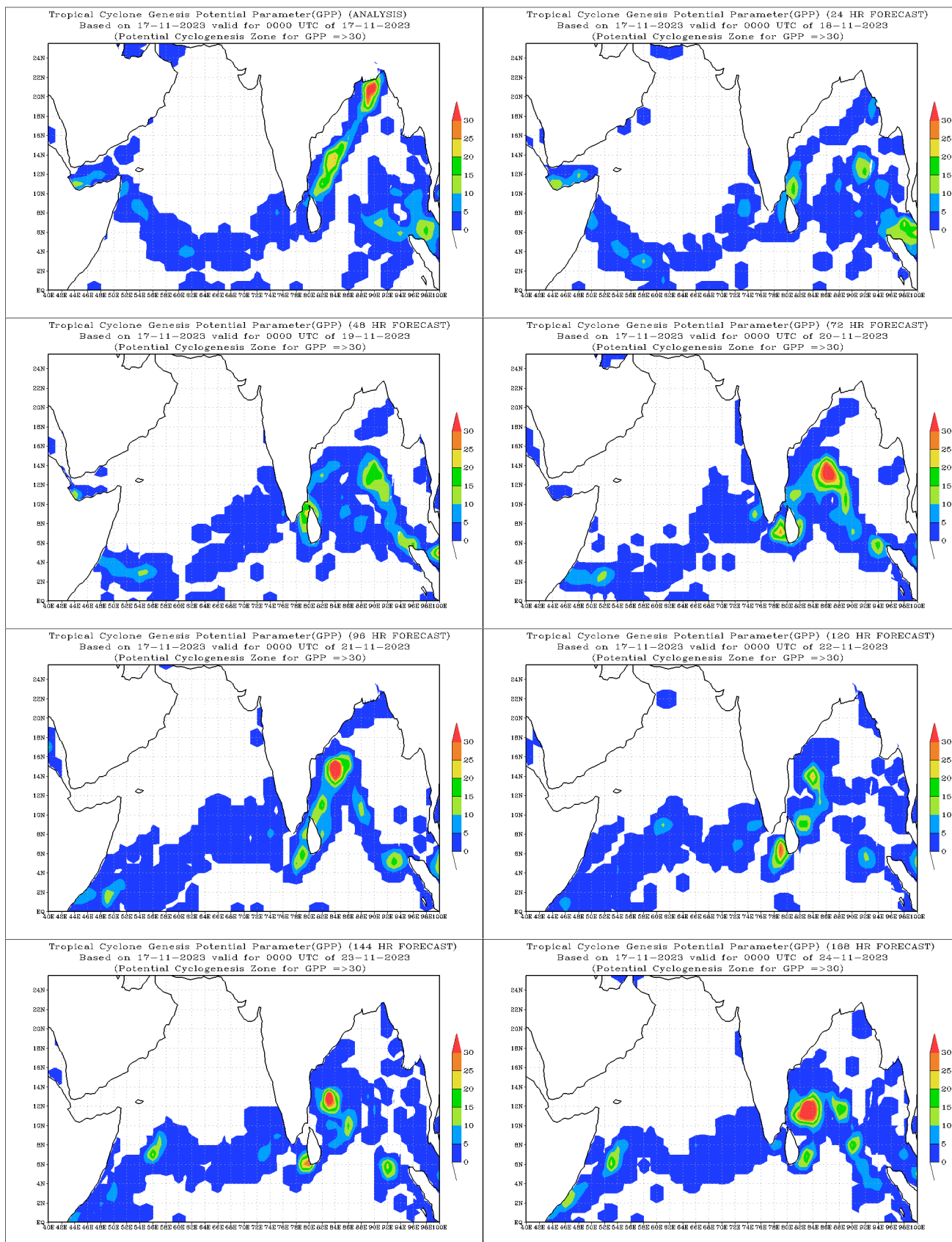
2. For the Arabian Sea:

Most of the models are indicating that there will be no significant system for the next seven days.

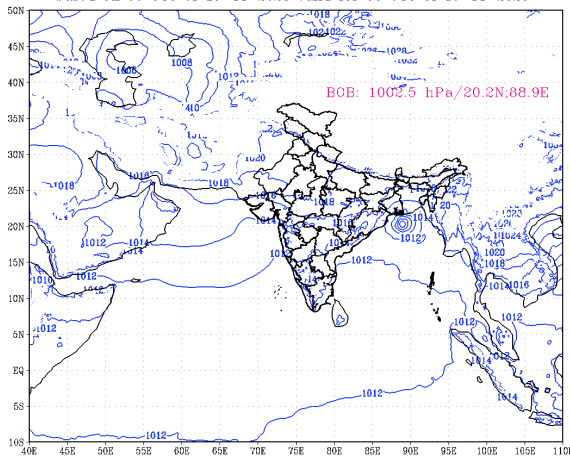
Probability of Cyclogenesis (formation of depression and above intensity systems) over the Arabian Sea during next 168 hours:

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

IOP: NIL.

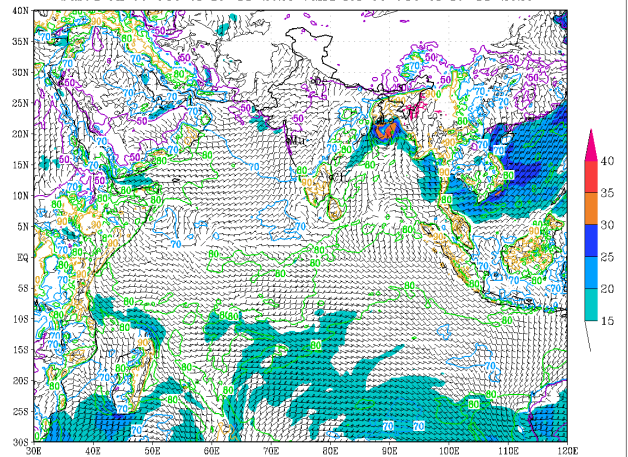


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 based on 00 UTC of 17-11-2023 valid for 00 UTC of 17-11-2023



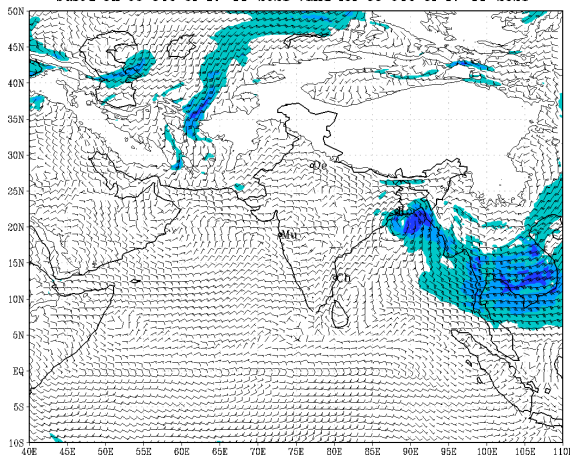
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IMD GFS (T1534) 10m WIND (kt) AND 2m RH (%) FORECAST (00 HR)
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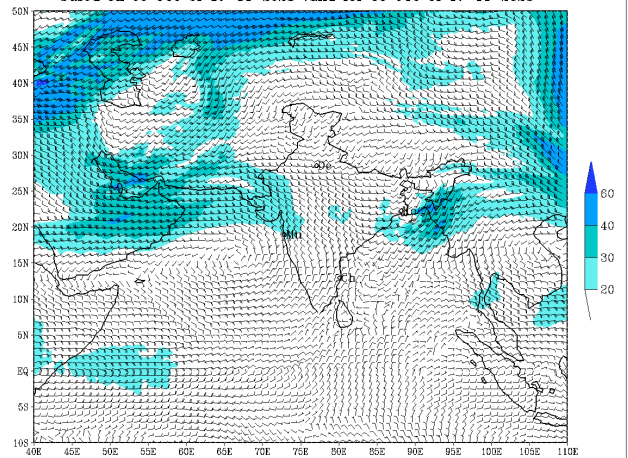
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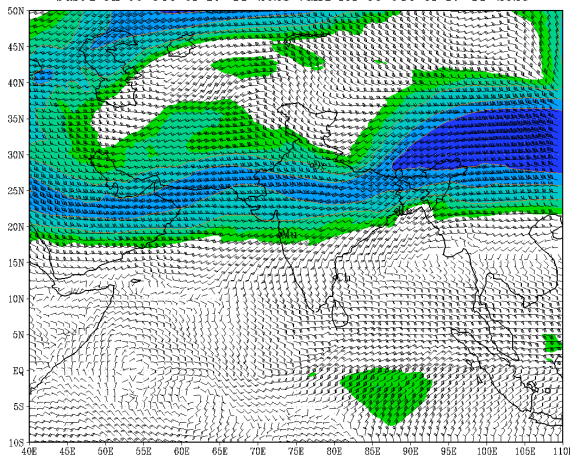
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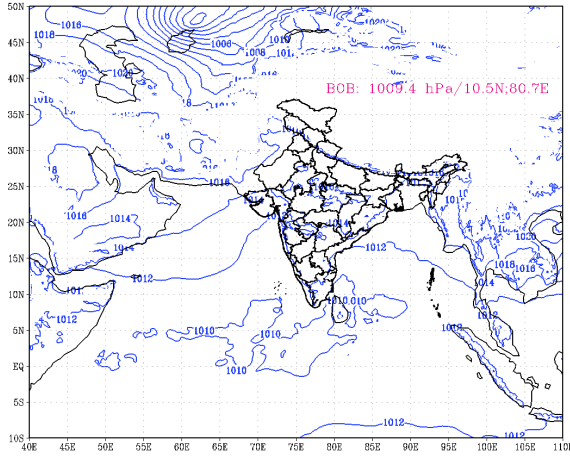
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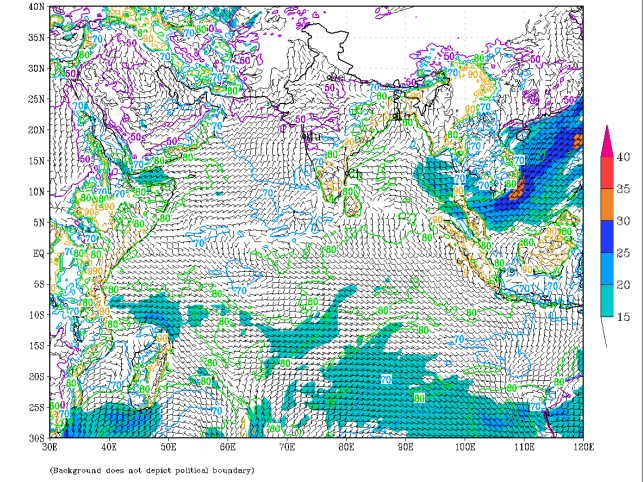


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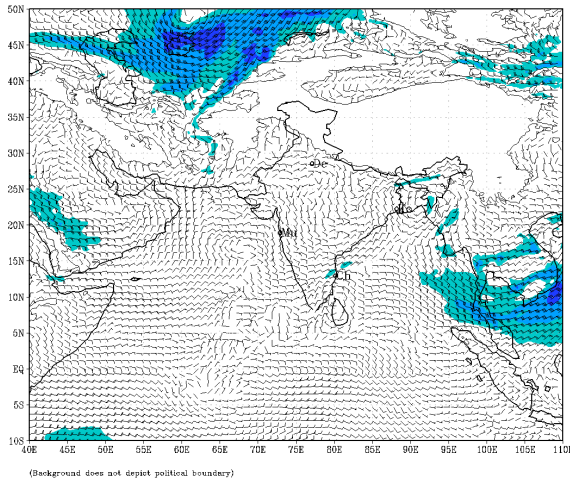
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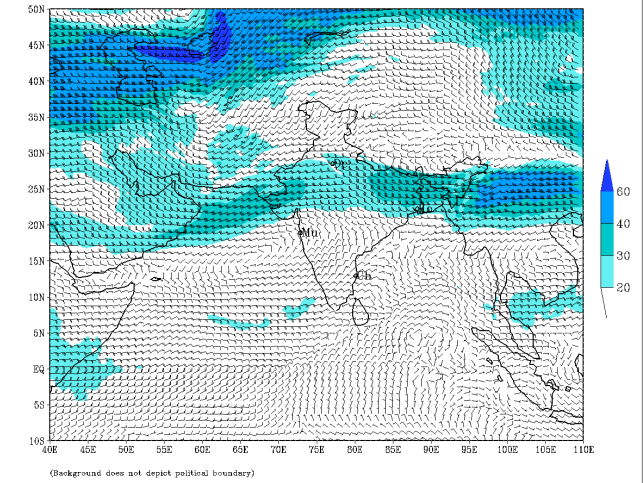
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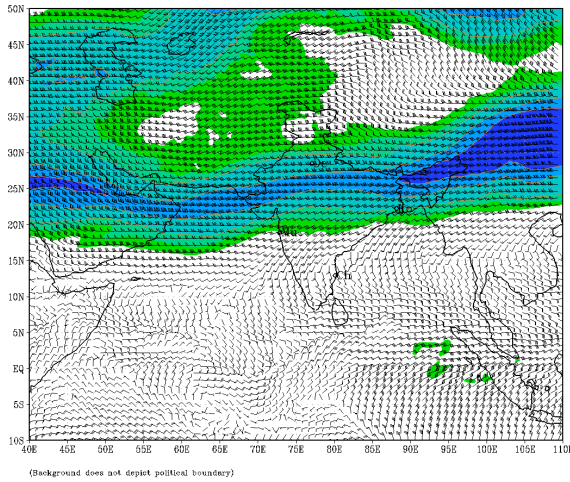
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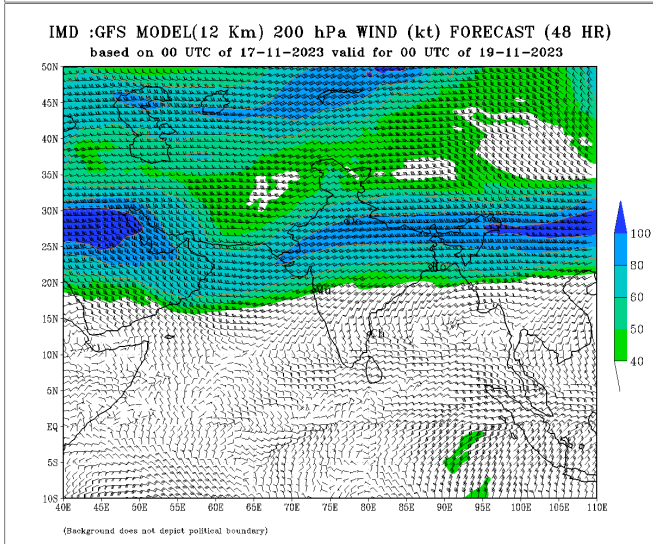
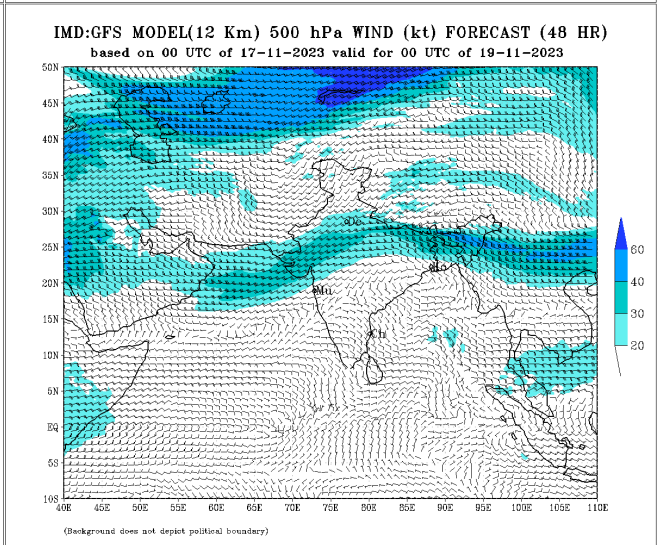
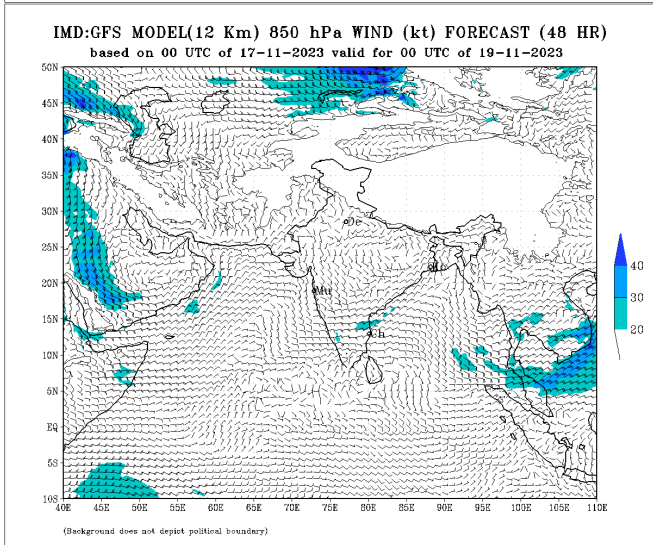
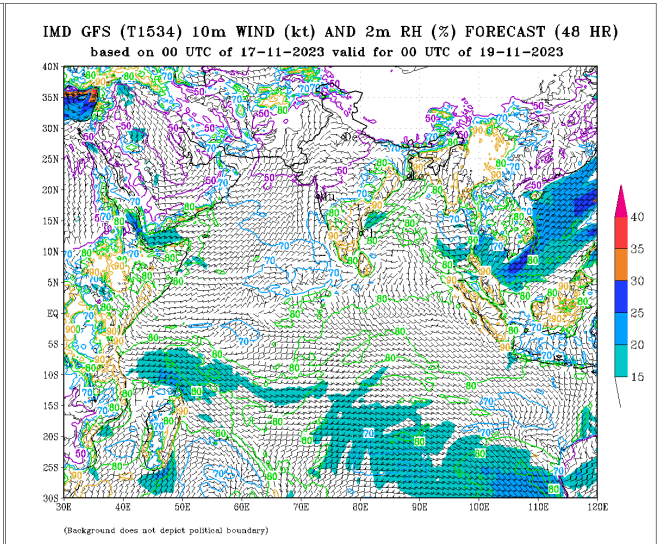
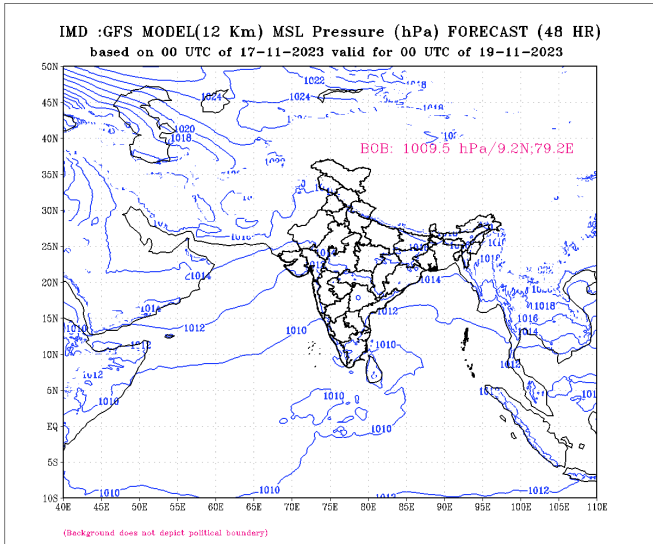


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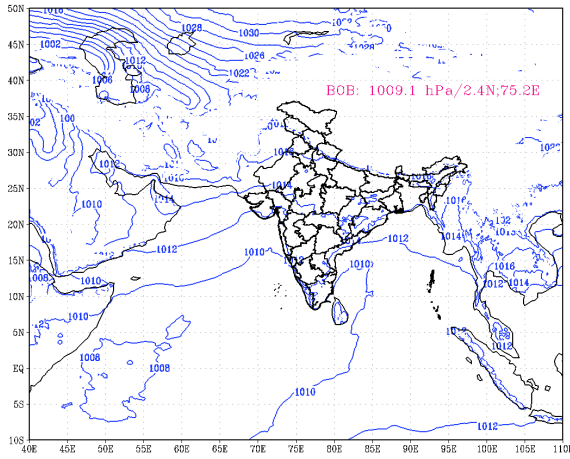


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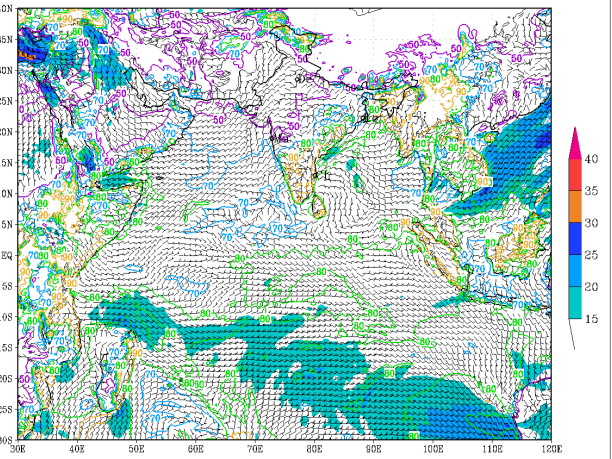


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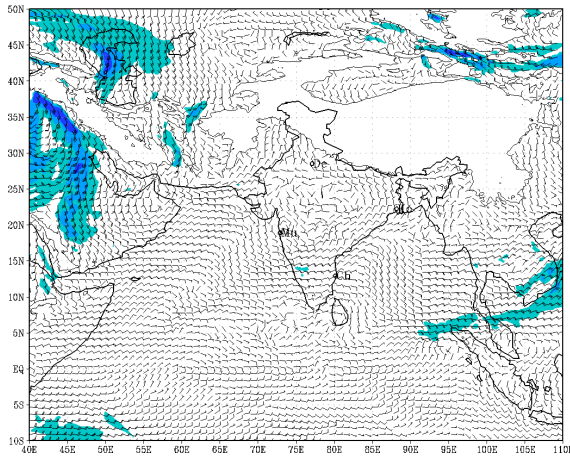
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IMD GFS (T1534) 10m WIND (kt) AND 2m RH (%) FORECAST (72 HR)
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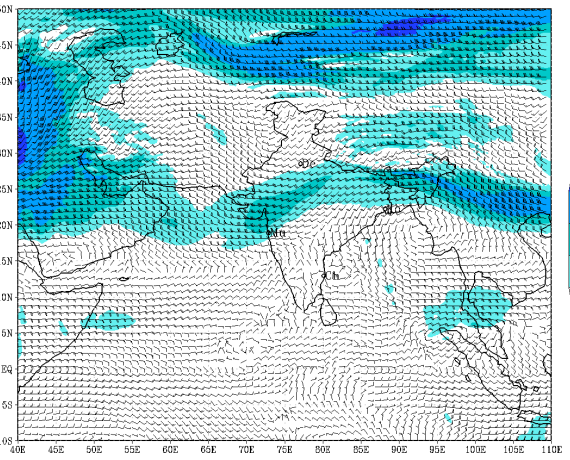
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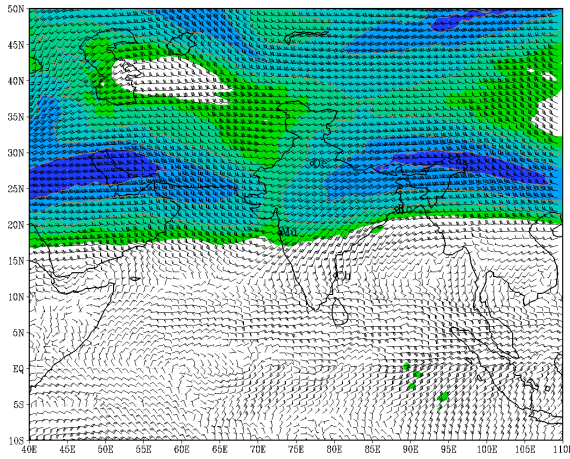
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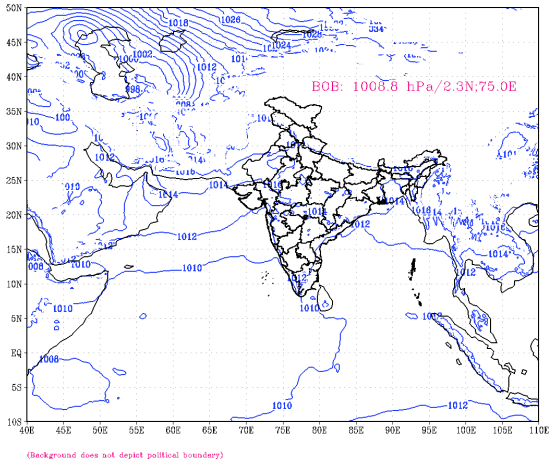
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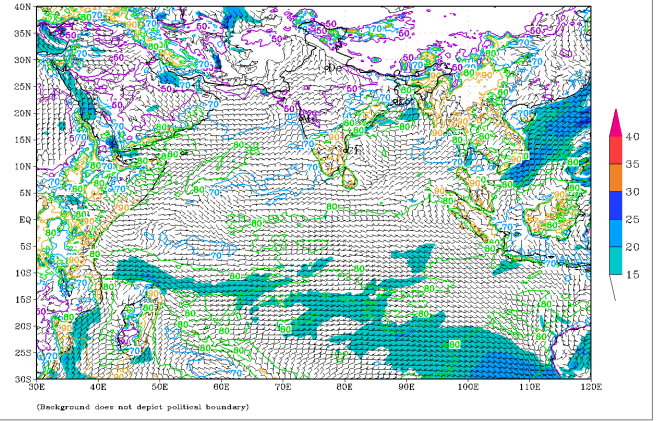


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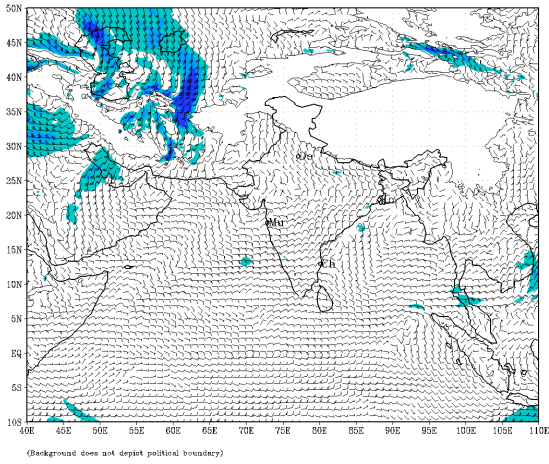
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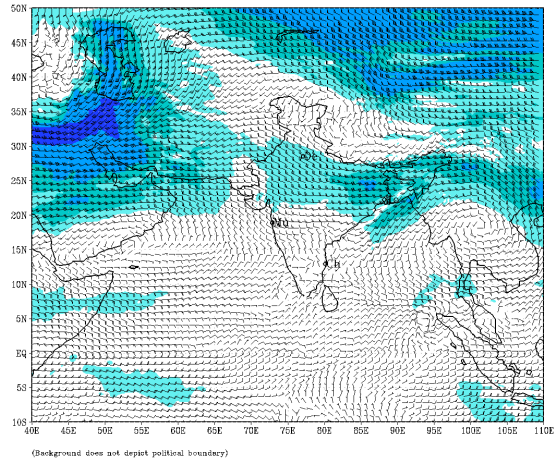
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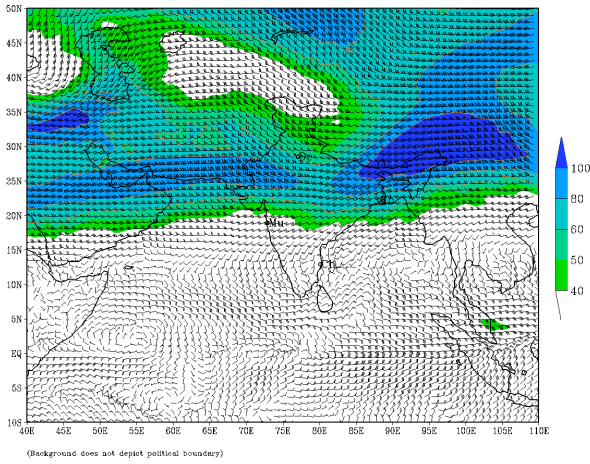
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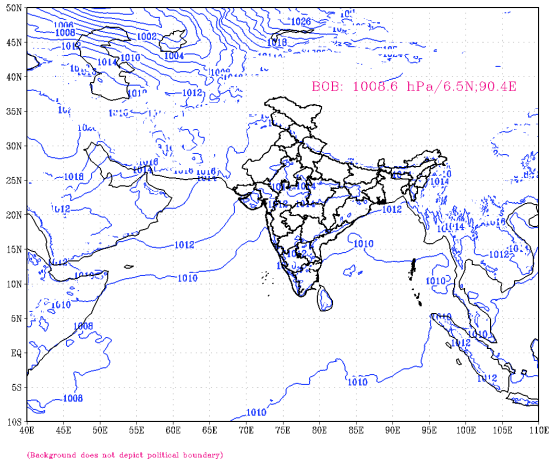
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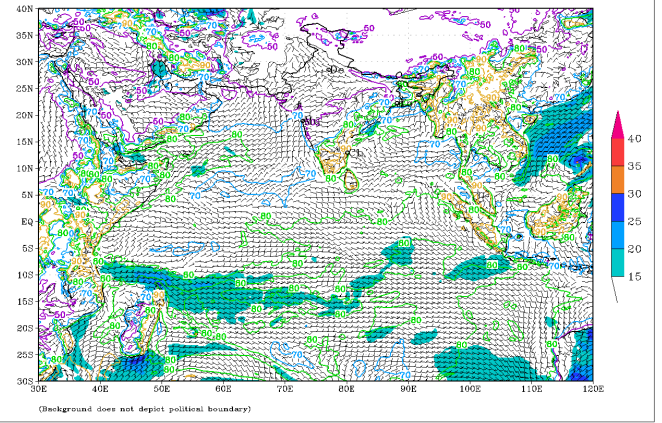
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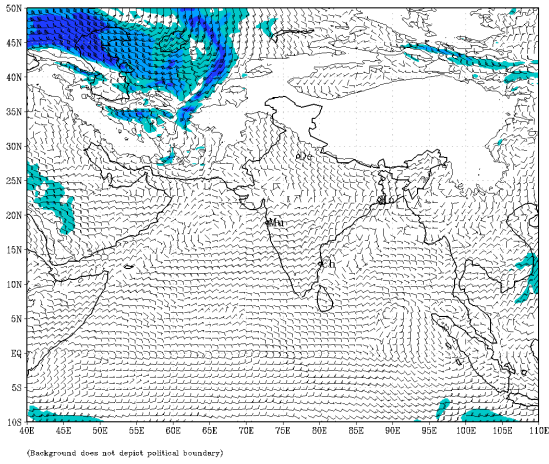
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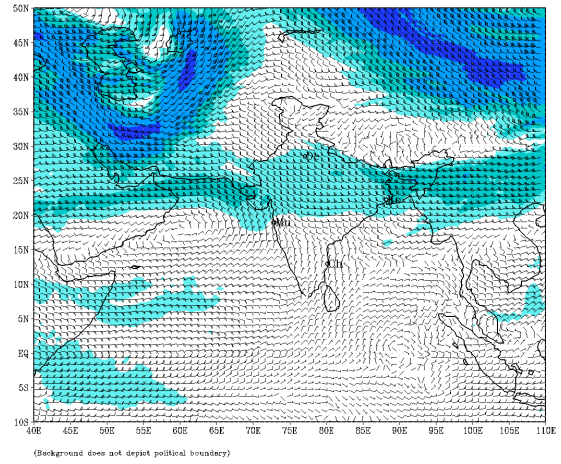
IMD GFS (T1534) 10m WIND (kt) AND 2m RH (%) FORECAST (120 HR)
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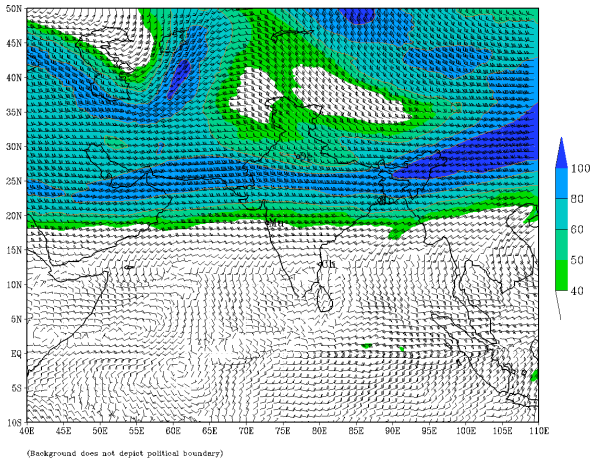
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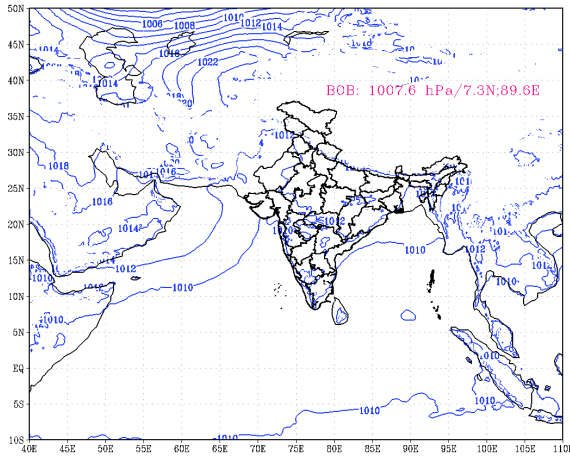
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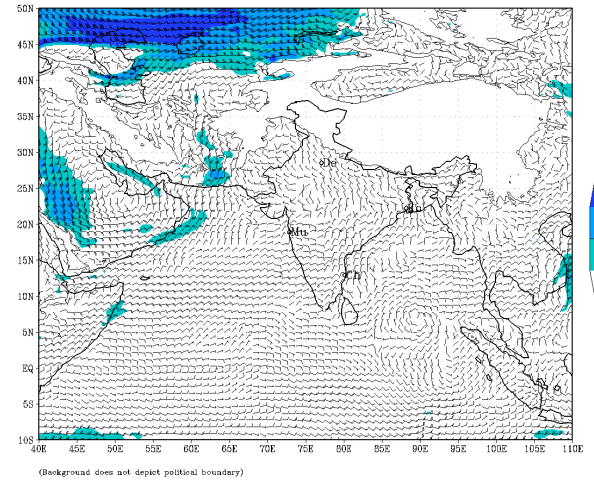
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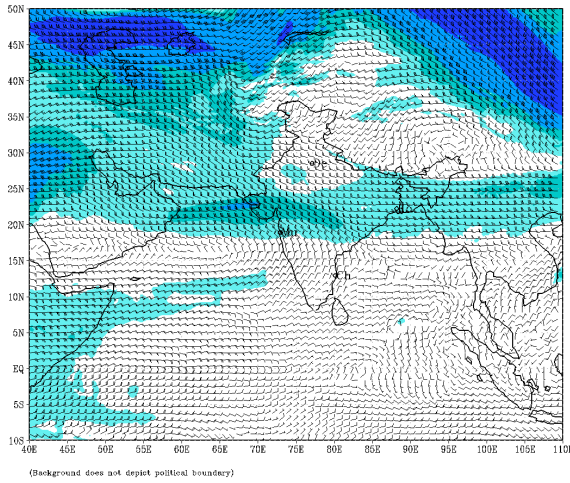
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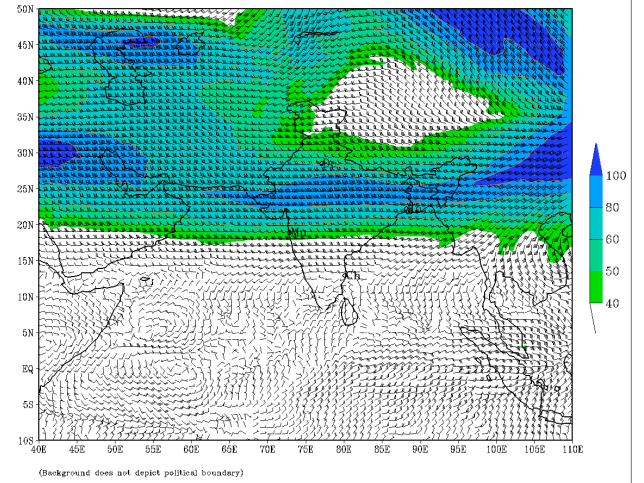
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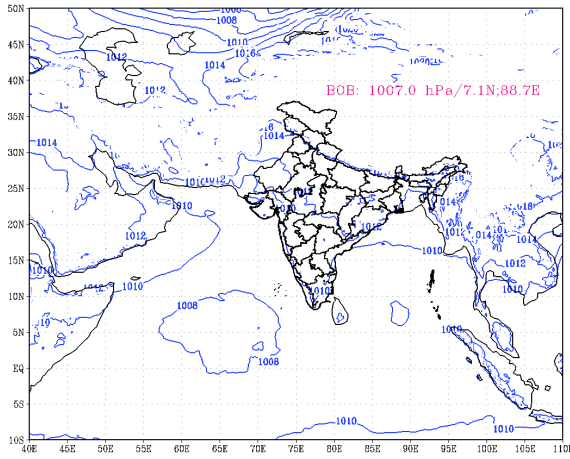
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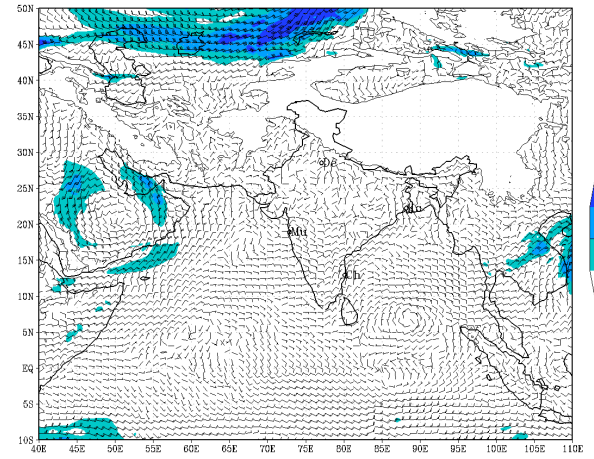


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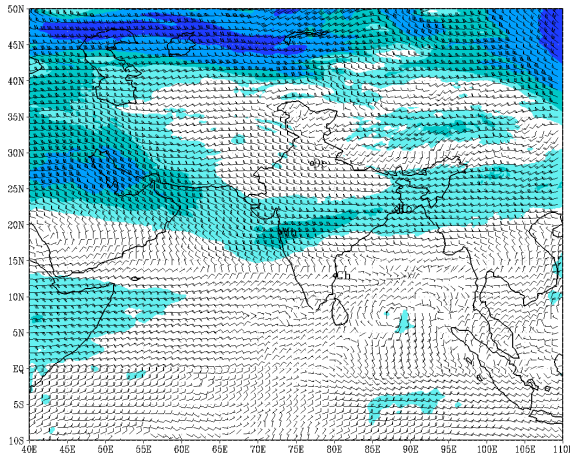
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IMD:GFS MODEL(12 Km) 850 hPa WIND (kt) FORECAST (168 HR)
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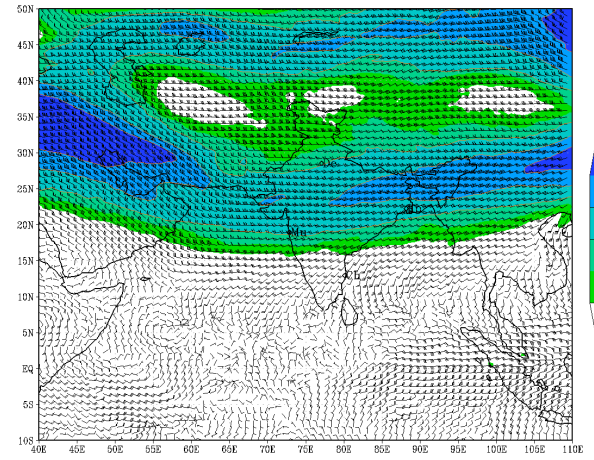
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