



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

**Tropical Cyclone Forecast Programme
Report Dated 24th October, 2023**

Time of Issue: 1230 UTC

Synoptic features (based on 0300 UTC analysis):

(A) Deep Depression [Remnant of the Cyclonic Storm “Tej” (pronounced as Tej)] over Yemen

The Cyclonic Storm “TEJ” (Pronounced as Tej) over Yemen moved west-northwestward with a speed of 09 kmph during past 6 hours, weakened into a Deep Depression and lay centered at 1430 hours IST of today, the 24th October over Yemen, near latitude 16.1°N and longitude 51.3°E, about 80 km west of Al Ghaidah (Yemen) and 310 km west-southwest of Salalah (Oman).

It is very likely to move further west-northwestwards and weaken into a Depression during next 03 hours.

(B) Very Severe Cyclonic Storm “Hamon” (pronounced as Hamoon) over Northeast & adjoining Northwest Bay of Bengal

The Very Severe Cyclonic Storm “Hamon” (pronounced as Hamoon) over Northwest and adjoining Northeast Bay of Bengal moved northeastwards with a speed of 17 kmph during past 6 hours and lay centered at 1430 hours IST of today, the 24th October over Northeast & adjoining Northwest Bay of Bengal, near latitude 20.6°N and longitude 90.2°E, about 300 km east-southeast of Digha (West Bengal), 150 km south of Khepupara (Bangladesh) and 250 km southwest of Chittagong (Bangladesh).

It is likely to weaken gradually into a Severe Cyclonic Storm during next 03 hours. It is likely to further weaken while moving northeastwards and cross Bangladesh coast close to south of Chittagong by early hours of 25th October as a Cyclonic Storm with wind speed of 80 to 90 kmph gusting to 100 kmph.

Dynamical and thermo-dynamical features

Parameter	Bay of Bengal (BoB)	Arabian Sea (AS)
Sea Surface Temperature (SST) °C	28-30°C almost over entire BoB, 26-28 over southwest BoB adjoining to Sri Lanka coast, Gulf of Mannar, Comorin area.	29-30°C over southeast and adjoining southwest Arabian Sea, north AS. 26-28 over the eastcentral and some parts of southwest AS, and less than 24 along and off Somalia, Yemen, Oman coasts.
Tropical Cyclone Heat Potential (TCHP) kJ/cm ²	100-110 over eastcentral BoB. 50-60 over most parts of BOB and Andaman Sea. Less than 40 along Andhra Pradesh and Tamil Nadu coasts, adjoining sea areas, less than 20 over	60-80 over southeast & adjoining eastcentral, adjoining southwest Arabian Sea. Less than 30 over eastcentral and adjoining northeast AS, along and off west coast of India,

	Gulf of Mannar and Comorin area, some parts of southwest BoB.	less than 10 over westcentral and southwest AS.
Cyclonic Relative vorticity ($X10^{-6}s^{-1}$)	140-160 over the system's centre, 100 over its surrounding area with vertical extension upto 500 hPa level.	80-90 over the system centre and vertical extension upto 500 hpa level, 60-70 surrounding the system and vertical extension upto 500 hpa level.
Low Level convergence ($X10^{-5} s^{-1}$)	10 over the system's centre.	20 over the system centre, 10-15 over its surrounding area.
Upper Level divergence ($X10^{-5} s^{-1}$)	20 to the northeast of the system.	20 over the system, 10 over its surrounding areas, off Yemen coast.
Vertical Wind Shear (VWS knots)	10-15 over the central BoB, 20-25 over the south and adjoining central BoB, 25-23 over the north BoB.	25-30 over north and adjoining central AS, 5-10 over the south AS.
Wind Shear Tendency (knots)	Decreasing tendency over the central and adjoining north BoB, increasing tendency over the south and adjoining central BoB, north BoB.	Decreasing tendency over the south and adjoining central AS, increasing tendency over north and adjoining central AS.
Upper tropospheric Ridge	Along 18°N over BoB	Along 19°N over AS

Satellite observations based on INSAT imagery (0300 UTC):

(a) Over the BoB & Andaman Sea:-

Scattered to broken low/mod clouds with embedded intense to very intense convection over north BoB, Arakan coast. Scattered low/mod clouds with embedded moderate to intense convection over eastcentral & southeast BoB, Andaman Sea and isolated weak to moderate convection over westcentral & southwest BoB.

(b) Over the Arabian Sea:-

Scattered low/med clouds with embedded mod to int convection over westcentral AS adjoining Yemen & Oman coasts, south AS and isolated weak to mod convection over northwest AS, Lakshadweep islands.

(c) Convection outside India:

Scattered low/med clouds with embedded mod to int convection over south Sri Lanka, Maldives, Tibet, adj China, Bhutan, Myanmar, Thailand, Gulf of Thailand, Laos, Cambodia, Vietnam, Hainan, Gulf of Tonkin, Sumatra, Strait of Malacca, Malaysia, Borneo, South China Sea, Celebes islands, Philippines, Sulu Sea, Madagascar and over Indian ocean between Lat 5.0N to 10.0S, Long 40.0E to 100.0E and between Lat 10.0S to 35.0S long 50.0E to 70.0E.

M.J.O. Index:

MJO index is in Phase 8 with amplitude less than 1. It remain in phase 8 for next seven 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	Yesterday's DD moved northeastward and lay over northwest and adjoining northeast BoB (20N/89.5E) as on today 24 th as VSCS, it will move further northeastward and cross the Bangladesh coast near 22.5N/91.5E on 25 th as DD.	Yesterday's VSCS moves northwestwards and crossed the coast near Yeman (16N/52E) during early hours of today 24 th as SCS, it will move further northwestwards and weakens thereafter.
IMD-GEFS	Yesterday's SCS over westcentral BoB moves northeastward and will lay over northeast BoB close to the Bangladesh coast (21.5N/91E) by today 24 th evening as LPA. It will cross the coast by 25 th morning/afternoon and becomes less marked thereafter.	Yesterday's VSCS moves northwestwards and crossed the coast near Yeman (16N/52E) during early hours of today 24 th as SCS/VSCS, it will move further northwestwards and weakens thereafter.
IMD-WRF	Yesterday's SCS over westcentral BoB moves northeastward becomes VSCS and lay over northwest and adjoining northeast BoB, it will move in the same direction and lay over northeast BoB close to the Bangladesh coast (22N/92E) by today 24 th evening as SCS. It will cross the coast by 25 th morning/afternoon as DD/CS.	Yesterday's VSCS moves northwestwards and crossed the coast near Yeman (16N/52E) during early hours of today 24 th as SCS/VSCS, it will move further northwestwards and weakens thereafter.
NCMRWF-NCUM	Yesterday's SCS over westcentral BoB moves northeastward becomes VSCS and lay over northwest and adjoining northeast BoB, it will move in the same direction and lay over northeast BoB close to the Bangladesh coast (22N/92E) by today 24 th evening as SCS. It will cross the coast by 25 th morning/afternoon as DD/CS.	Yesterday's VSCS moves northwestwards and crossed the coast near Yeman (16N/52E) during early hours of today 24 th as SCS/VSCS, it will move further northwestwards and weakens thereafter.
NCMRWF-NEPS	Yesterday's SCS over westcentral BoB moves northeastward becomes VSCS and lay over northwest and adjoining northeast BoB, it will move in the same direction and lay over northeast BoB close to the Bangladesh coast (21.5N/93E) by today 24 th evening as SCS. It will cross the coast by 25 th morning/afternoon as DD/CS.	Yesterday's VSCS moves northwestwards and crossed the coast near Yeman (16N/52E) during early hours of today 24 th as SCS, it will move further northwestwards and weakens thereafter.
NCMRWF-UM (Regional)	Yesterday's SCS over westcentral BoB moves northeastward becomes VSCS and lay over northwest and adjoining northeast BoB, it will move in the same direction and lay over northeast BoB close to the Bangladesh coast (20N/93E) by today 24 th evening/night as D. It will cross the coast by 25 th morning/afternoon as D/LPA.	
ECMWF	Yesterday's SCS over westcentral BoB moves northeastward becomes VSCS and lay over northwest and adjoining northeast BoB as on today 24 th morning, it will moves northeastward and lay over northeast BoB (21.1N/90.8E) as CS by night of today 24 th , it will move in same direction and cross	Yesterday's VSCS moves northwestward and crossed the Yemen coast (16.1N/52.2E) as CS/SCS as on early hours of today 24 th .

	the Bangladesh coast near 22.5N/91.5E on the morning of 25 th as D/DD.	
NCEP-GFS	Yesterday's CS moved northeastward and lay over northeast BoB close to Bangladesh coast (22.5N/91.5E) as LPA by evening of today 24 th , cross the coast on 25 th .	Yesterday's ESCS moves northwestward and crossed the Yemen coast (16.1N/52.2E) during early hours of today 24 th .
IMD-Genesis Potential Parameter	-	-

Summary and conclusion:

1. For the Bay of Bengal:

Models are in agreement that the very severe cyclonic storm "Hphoon" would cross Bangladesh coast. There is also consensus among various models with respect to weakening before landfall.

Considering all these, the very severe cyclonic storm "Hphoon" over northeast & adjoining northwest Bay of Bengal is very likely to weaken further while moving northeastwards and cross Bangladesh coast to the south of Chittagong around 2100 UTC of 25th October as a cyclonic storm with wind speed of 80 to 90 kmph gusting to 100 kmph.

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

“-“ INDICATE THAT CYCLOGENESIS HAS ALREADY OCCURRED. THE ABOVE TABLE INDICATES PROBABILITY OF CYCLOGENESIS ONLY (FORMATION OF DEPRESSION).

2. For the Arabian Sea:

Most of the models are indicating weakening of the system by 0000 UTC of 25th over central parts of Yemen.

Considering all these, the deep depression over Yemen is likely to move further west-northwestwards and weaken into a depression during subsequent 03 hours.

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

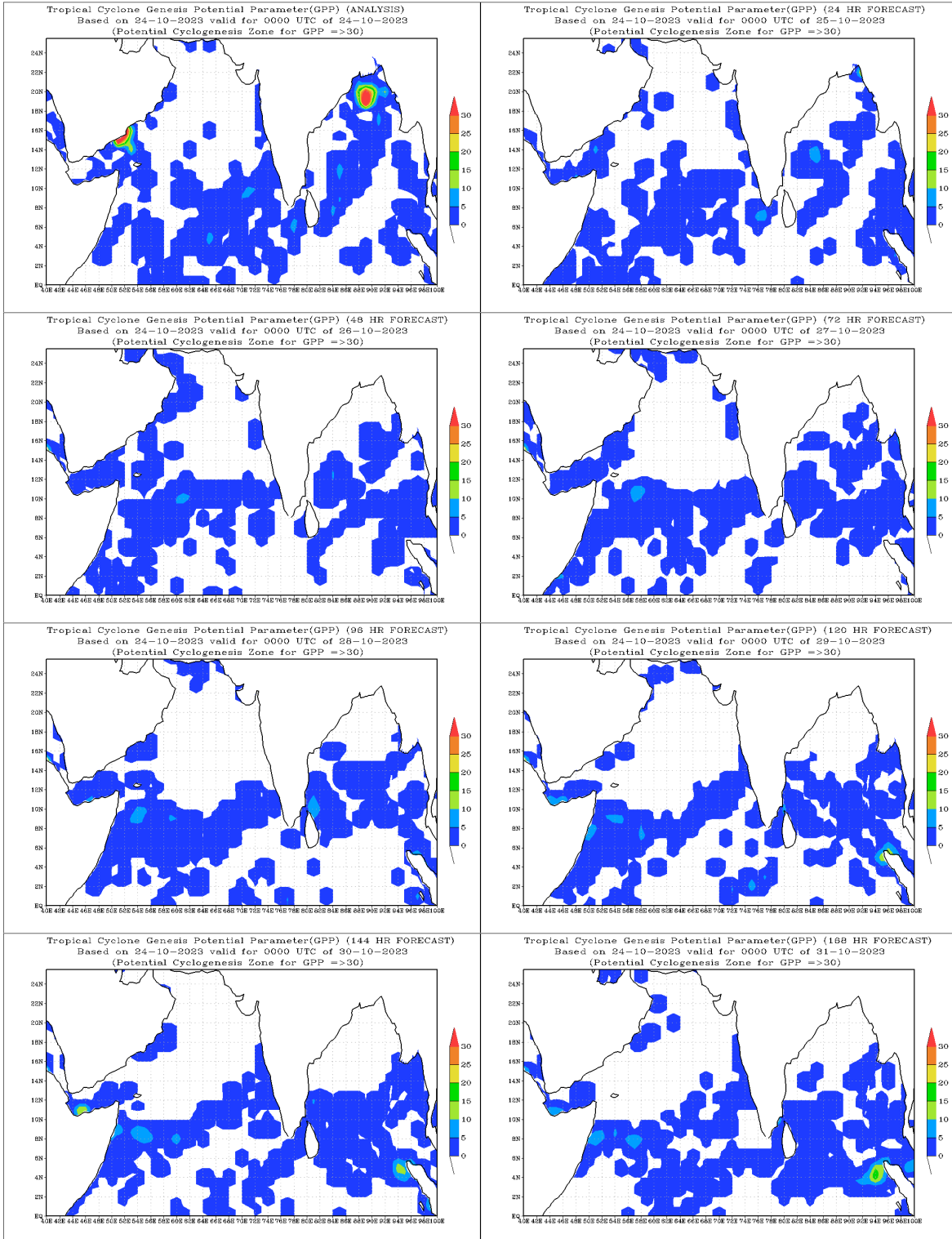
“-“indicate that Cyclogenesis has already occurred. The above table indicates probability of cyclogenesis (formation of depression).

Advisory for fishermen:

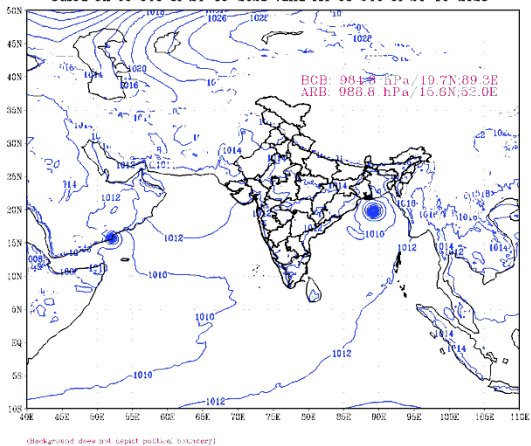
Fishermen are advised not to venture into following areas:

- ❖ Northwest and adjoining Westcentral, adjoining eastcentral Bay of Bengal and during 24th October.
- ❖ North Bay of Bengal and along & off Odisha coast for 24th, West Bengal and Bangladesh coasts from 24th to 26th October.

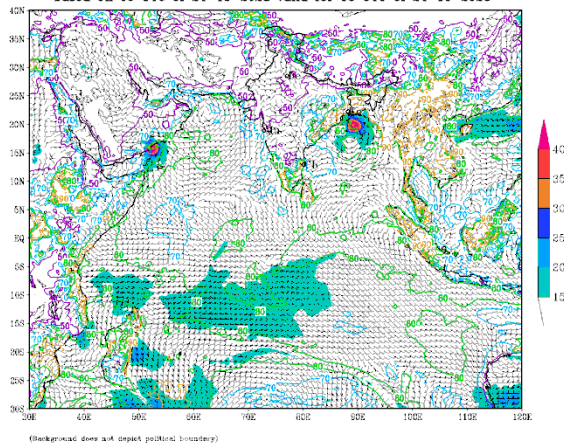
Intense Observation Period (IOP) is suggested for Oman and Yemen coasts on 24th October, Odisha coast on 24th and West Bengal and Bangladesh coasts on 24th - 25th October.



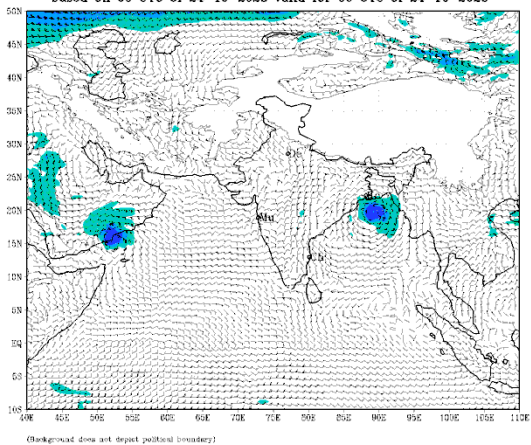
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 based on 00 UTC of 24-10-2023 valid for 00 UTC of 24-10-2023



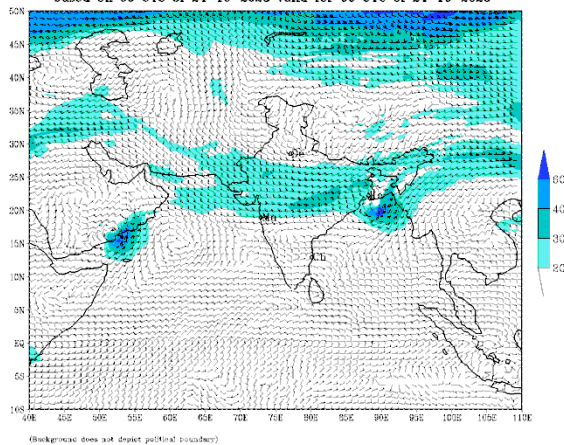
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 based on 00 UTC of 24-10-2023 valid for 00 UTC of 24-10-2023



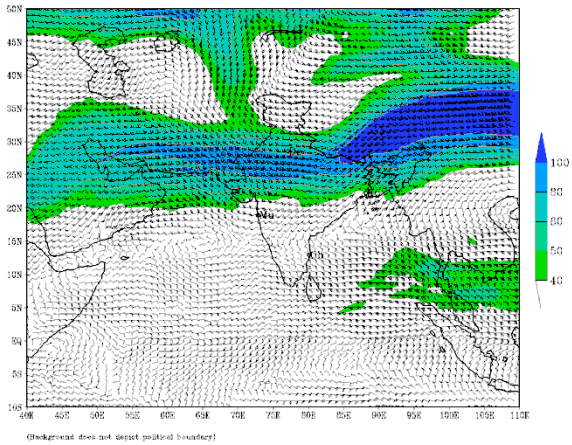
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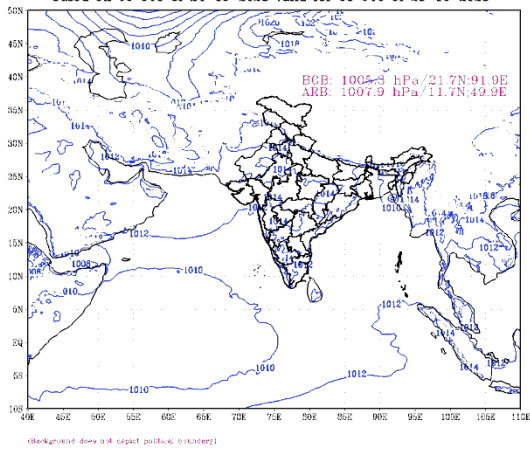
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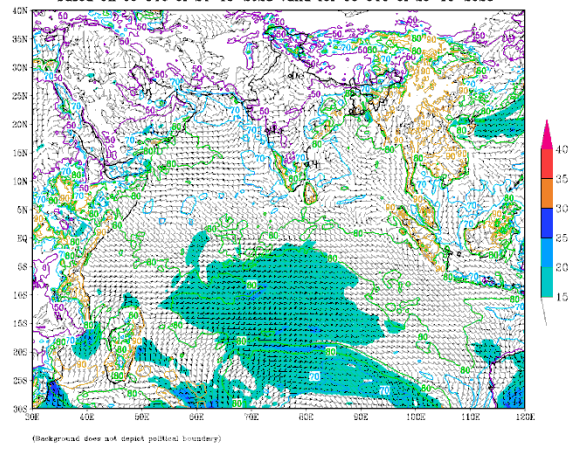
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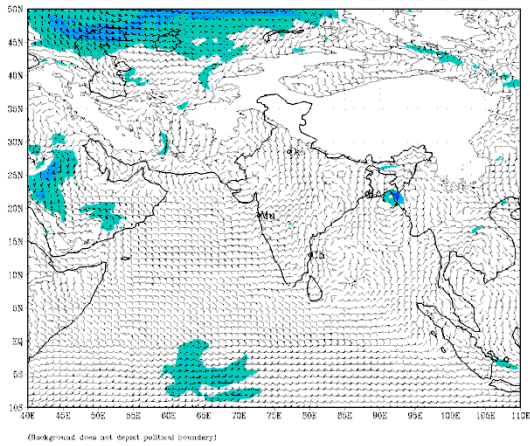
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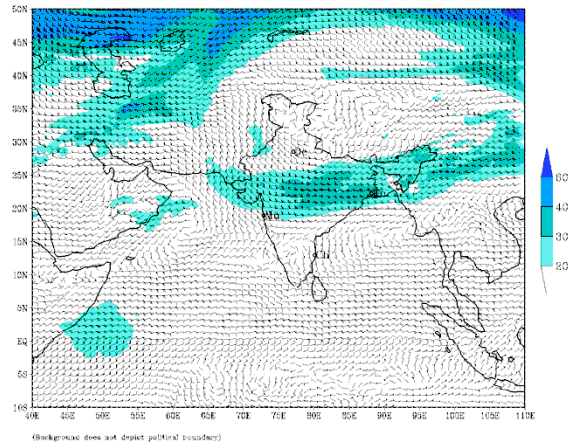
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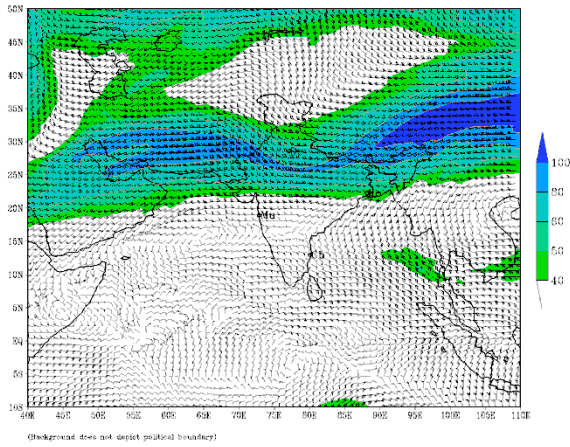
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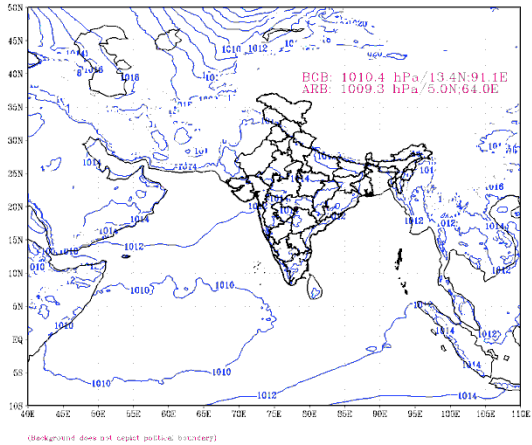
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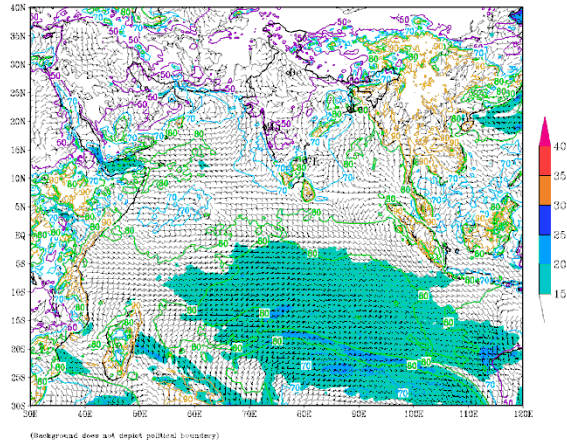
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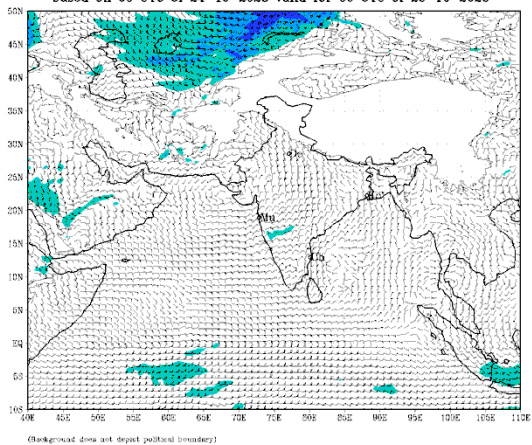
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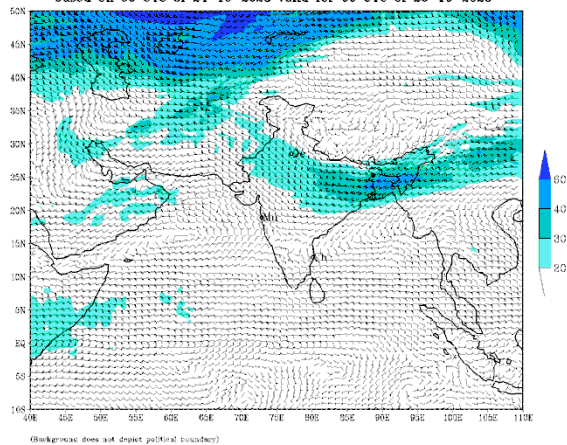
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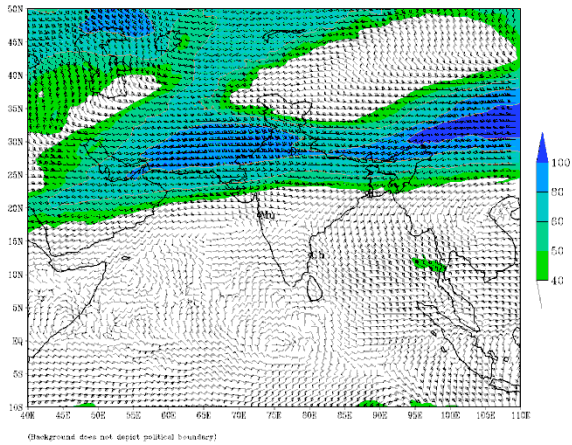
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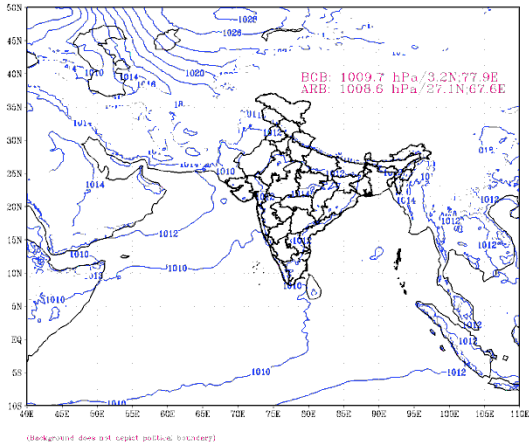
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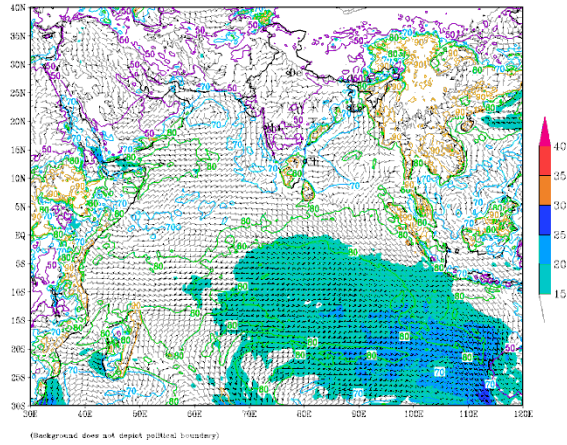
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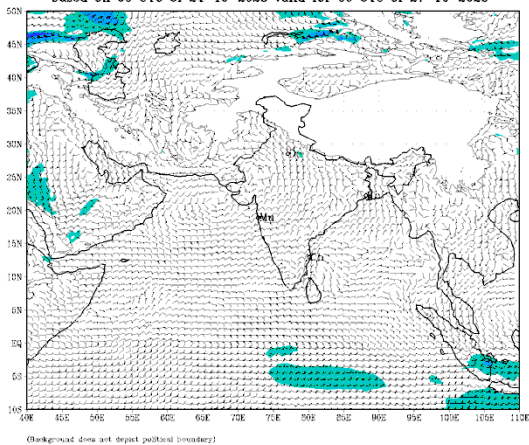
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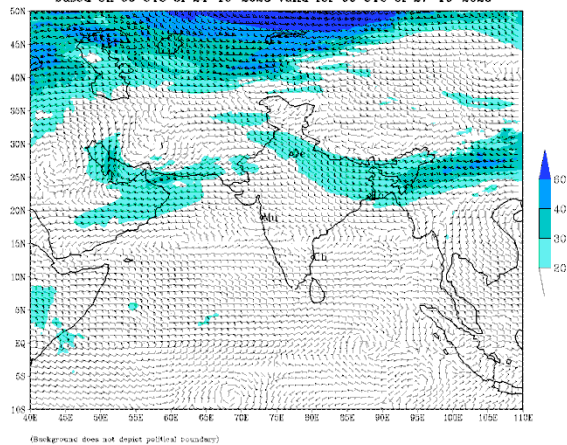
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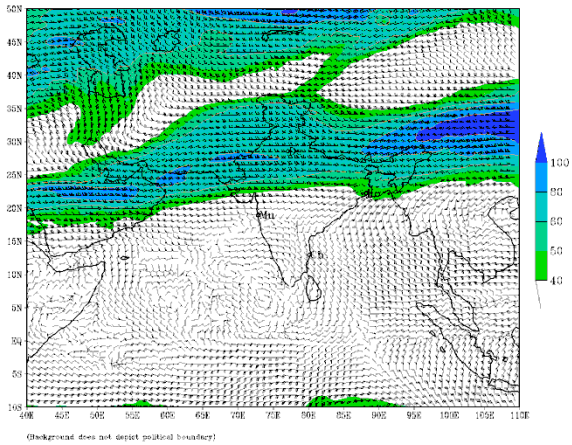
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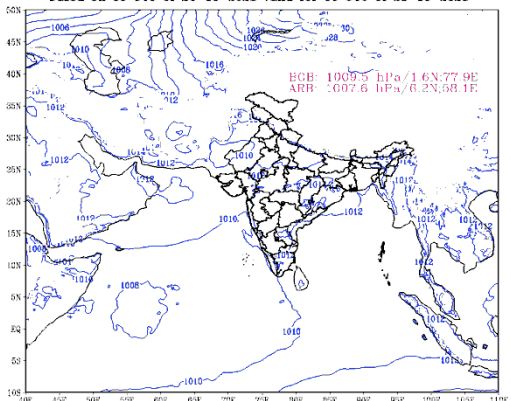
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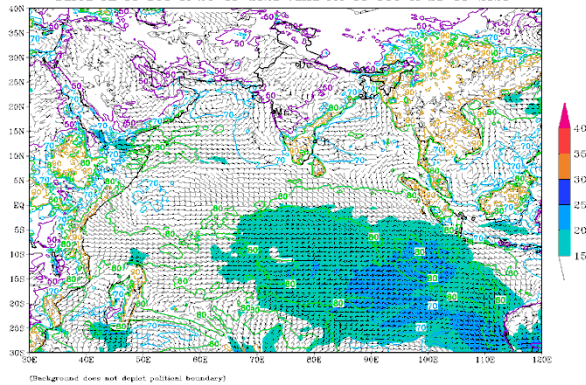
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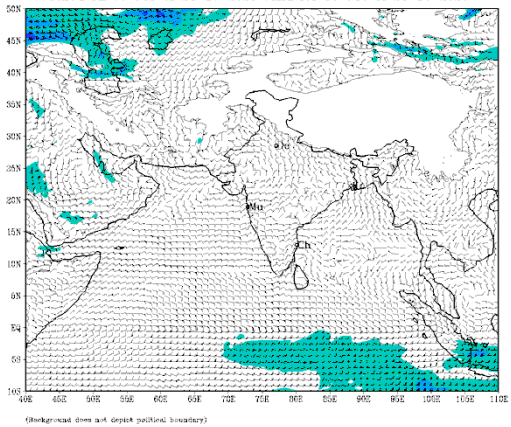
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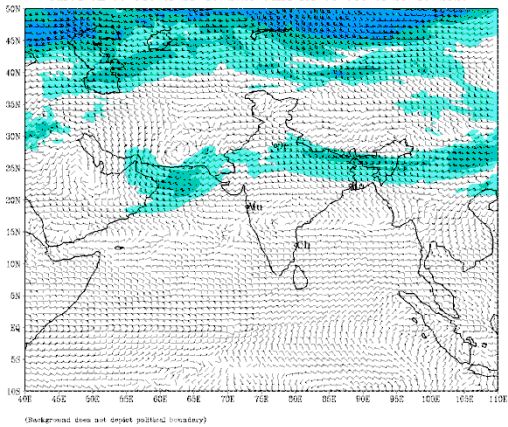
IMD GFS (T1534) 10m WIND (kt) AND 2m RH (%) FORECAST (96 HR)
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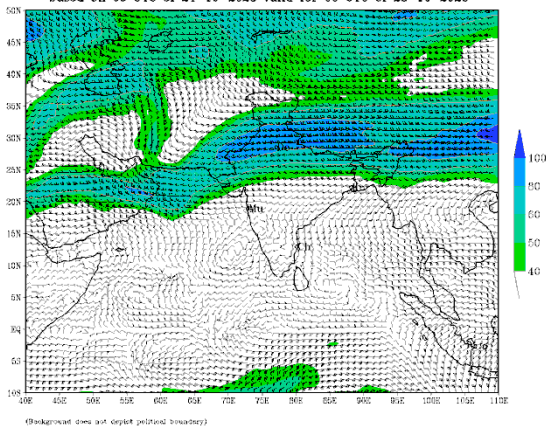
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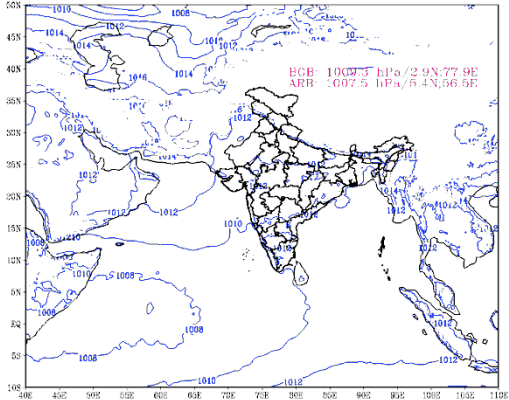
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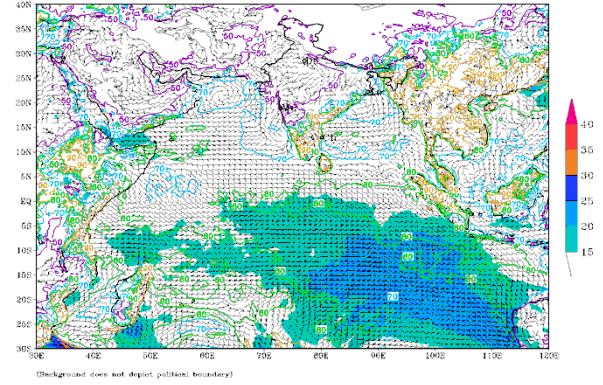


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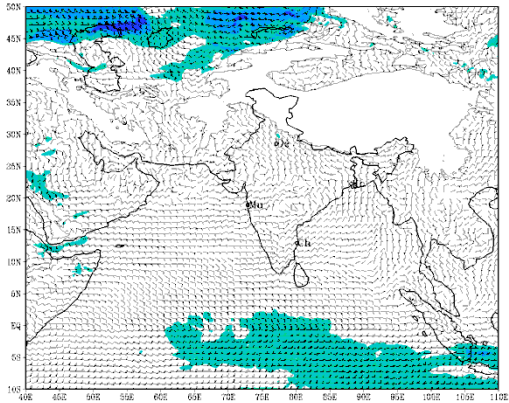
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IMD GFS (T1534) 10m WIND (kt) AND 2m RH (%) FORECAST (120 HR)
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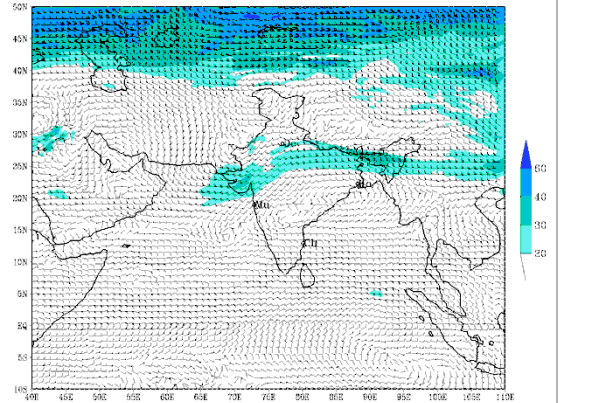
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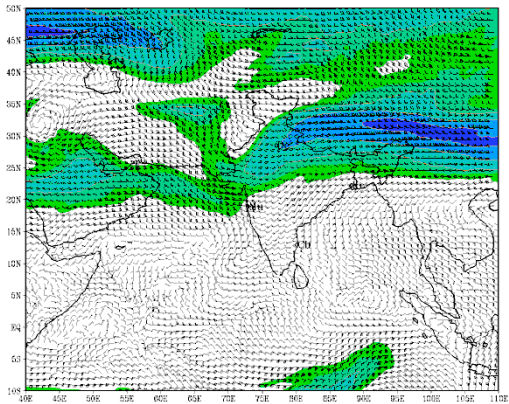
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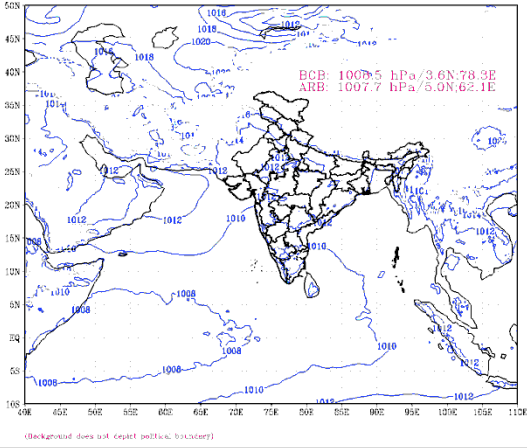
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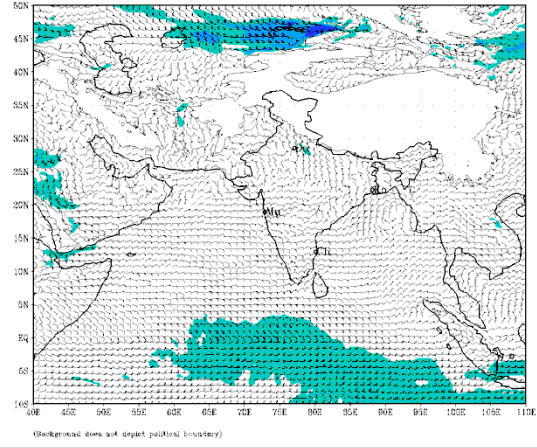


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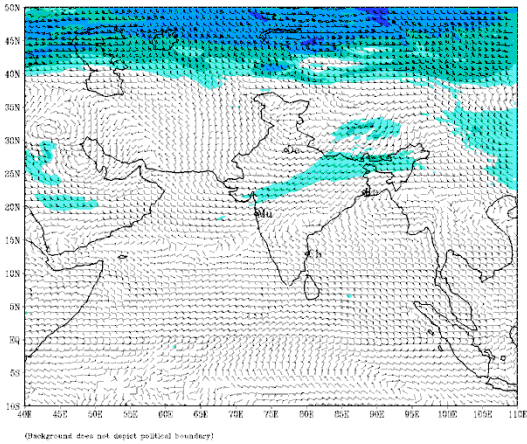
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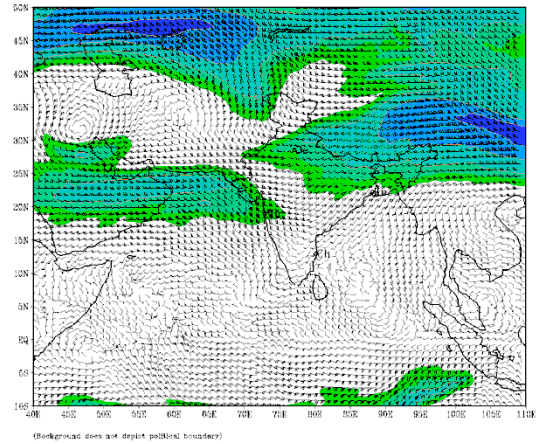
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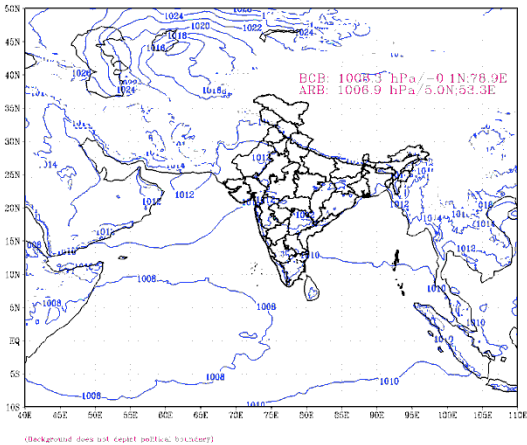
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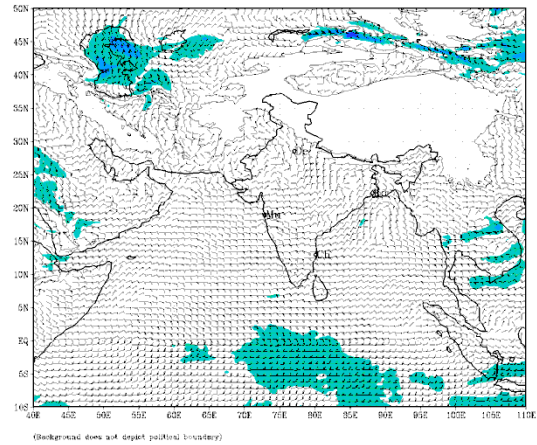
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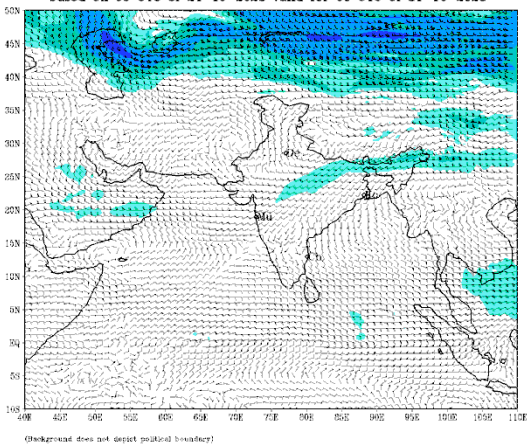
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IMD:GFS MODEL(12 Km) 500 hPa WIND (kt) FORECAST (168 HR)
based on 00 UTC of 24-10-2023 valid for 00 UTC of 31-10-2023



IMD :GFS MODEL(12 Km) 200 hPa WIND (kt) FORECAST (168 HR)
based on 00 UTC of 24-10-2023 valid for 00 UTC of 31-10-2023

