



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

**Tropical Cyclone Forecast Programme
Report Dated 22nd November, 2022**

Time of Issue: 1200 UTC

Synoptic features (based on 0600 UTC analysis):

Yesterday's depression over Westcentral and adjoining Southwest Bay of Bengal moved west-northwestwards and weakened into a well marked low pressure area over Westcentral and adjoining Southwest Bay of Bengal off South Andhra Pradesh-North Tamil Nadu coasts at 0830 hours IST of today, the 22nd November, 2022. It is likely to move slowly west-northwestwards and weaken further during next 12 hours. Thereafter, it is likely to continue its weakening trend and move southwestwards.

Dynamical and thermo-dynamical features

Parameter	Bay of Bengal (BoB)	Arabian Sea (AS)
Sea Surface Temperature (SST) °C	About 28-29°C over the system and major parts of BoB, 29-30°C along south Sri Lanka coast.	About 29-30°C over the southeast AS and adjoining southwest, eastcentral AS, off south Gujarat and Maharashtra coasts, 26-28°C over eastcentral and adjoining north AS, adjoining southwest AS, less than 24°C over southwest AS off Oman and Yemen coasts and adjoining sea areas.
Tropical Cyclone Heat Potential (TCHP) kJ/cm²	>110 over south Andaman sea & eastcentral BoB, 70-80 over north Andaman Sea, north parts of southwest BoB and adjoining westcentral BoB, off Sri Lanka, north BoB, and less than 40 over westcentral BoB, along and off Tamil Nadu and Andhra Pradesh coasts, west coast of SriLanka, Gulf of Mannar, some parts of southwest BoB.	70-90 over southeast and adjoining eastcentral and adjoining southwest AS, Maldives & adjoining EIO, and less than 40 over remaining AS and also off west coast of India, Comorin area.
Cyclonic Relative vorticity (X10⁻⁶s⁻¹)	50-100 x10 ⁻⁶ s ⁻¹ around system center, 50-60 x10 ⁻⁶ s ⁻¹ over eastern parts of westcentral BoB and adjoining southwest BoB	40-50x10 ⁻⁶ s ⁻¹ over south parts of southwest AS and adjoining EIO & some parts of eastcentral and southeast AS.
Low Level convergence (X10⁻⁵ s⁻¹)	05 x10 ⁻⁵ s ⁻¹ around system center.	05x10 ⁻⁵ s ⁻¹ over the some parts of southwest AS.

Upper Level divergence (10^{-5} s^{-1})	$10 \times 10^{-5} \text{ s}^{-1}$ to the north of the system.	$05-10 \times 10^{-5} \text{ s}^{-1}$ over the southeast AS
Vertical Wind Shear (VWS knots)	15-20 over the around system center. 40-50 over the south BoB and adjoining EIO, 30-40 over the north BoB.	5-10 over southwest and adjoining west central AS, 25-30 over southeast, 20-30 over north parts of central AS and 40-50 over north AS.
Wind Shear Tendency (knots)	Decreasing over northwest BoB. Increasing over south BoB.	Decreasing over the south AS and adjoining EIO. Increasing over most parts of remaining AS.
Upper tropospheric Ridge	Along 18.0°N over the BoB.	Along 13.0°N over the AS.
Trough in westerlies	No significant trough	

Satellite observations based on INSAT imagery (0900 UTC):

a) Over the BoB & Andaman Sea:-

Scattered low and medium clouds with embedded intense to very intense convection lay over westcentral Bay of Bengal and Andaman sea. Scattered low and medium clouds with embedded isolated moderate to intense convection lay over southeast Bay of Bengal.

b) Over the Arabian Sea:-

Scattered low and medium clouds with embedded moderate to intense convection lay over central parts of south Arabian sea .

M.J.O. Index:

MJO index is currently in phase 6 with amplitude greater than 1, it will be in same phase for next three days and will move to phase 7.

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

At 0600 UTC of 22nd November, there is a cyclonic disturbance over $12.8\text{S}/114.9\text{E}$. The associated maximum wind speed is 25 kt gusting to 35 kt.

Model guidance based on 0000 UTC for the next 7 days

MODEL GUIDANCE	BoB	AS
IMD-GFS	Well marked low pressure area (WML) over southwest and adjoining westcentral BoB on 22 nd , LPA over southwest and adjoining westcentral BoB on 23 rd & 24 th , to emerge as LPA over southeast Arabian Sea on 25 th ., becoming less marked on 27 th . A cycir to emerge into North Andaman Sea on 25 th and extended low over North Andaman Sea & adjoining eastcentral BoB on 26 th , over eastcentral BoB on 27 th & less marked thereafter.	No significant system
IMD-GEFS	LPA over southwest & adjoining westcentral BoB on 23 ^r & 24 th , to emerge into southeast Arabian Sea on 25 th .	LPA over southeast AS on 25 th , to move westwards and become

	A fresh low pressure area is expected over north Andaman Sea on 25 th . To move initially northwestwards & then northwards towards north BoB till 27 th .	less marked on 27 th .
GEFS Probablistic guidance	No significant system	Not available
IMD WRF	Well marked low pressure area (WML) over southwest and adjoining westcentral BoB on 22 nd , LPA over southwest and adjoining westcentral BoB on 23 rd & 24 th , to emerge as LPA over southeast Arabian Sea on 25 th . A cycir to emerge into North Andaman Sea on 25 th .	No significant system
NCMRWF-NCUM	LPA over westcentral BoB on 22 nd , crossing near Chennai on 23 rd , moving southwestwards as a cycir over south Tamil Nadu on 24 th , less marked thereafter. Fresh cycir to emerge into Andaman Sea on 24 th , to move north-northwestwards till 26 th towards eastcentral BoB, becoming less marked thereafter.	No significant system
NCMRWF-NEPS	LPA over westcentral BoB on 22 nd , crossing near Chennai on 23 rd , moving southwestwards as a cycir over south Tamil Nadu on 24 th , less marked thereafter. Fresh cycir to emerge into Andaman Sea on 24 th , to move north-northwestwards till 26 th towards eastcentral BoB, becoming less marked thereafter.	No significant system
NCMRWF-UM (Regional)	LPA over westcentral BoB on 22 nd , crossing near Chennai on 23 rd , moving southwestwards as a cycir over south Tamil Nadu on 24 th , less marked thereafter. Fresh cycir to emerge into Andaman Sea on 24 th , to move north-northwestwards till 24 th towards eastcentral BoB	No significant system
ECMWF	LPA over southwest BoB on 22 nd , to weaken and move southwestwards as a cycir on 23 rd , over south Tamil Nadu on 24 th , and emerge into Arabian Sea on 25 th . Fresh low pressure area over North Andaman Sea on 24 th , to move initially westwards and then northwards without any intensification, till 29 th .	No significant system
ECMWF ensemble	No significant system	No significant system
NCEP-GFS	LPA over southwest & adjoining westcentral BoB on 22 nd , to move west-northwestwards toward north TN coast without significant intensification till 23 rd , becoming less marked thereafter. Fresh cycir to emerge into south Andaman Sea on 24 th .	No significant system
IMD MME		No significant system
IMD HWRF	Available during cyclonic disturbance period only	No significant system

IMD-Genesis Potential Parameter	A potential zone over westcentral and adjoining southwest BoB on 20 th , westcentral BoB on 21 st , westcentral BoB off AP coast on 22 st -24 th .	No potential zone over Arabian Sea
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Summary and conclusion:

- Most of the models are indicating that the existing well marked low pressure area over southwest and adjoining westcentral Bay of Bengal would initially ove west-northwestwards & weaken further during next 24 hours. Thereafter, it would move southwestwards and weaken further.
- Most of the models are indicating emergence of fresh cyclonic circulation/ low pressure into North Andaman Sea on 24th with initial northwestwards movement followed by northwards movement towards North Bay of Bengal and no significant intensification.

In view of all the above, it is inferred that

1. For the Bay of Bengal:

- (a) The well marked low pressure area over southwest & adjoining westcentral Bay of Bengal is very likely to move slowly west-northwestwards and weaken further during next 12 hours. Thereafter, it is likely to continue it's weakening trend and move southwestwards.
- (b) A Fresh cycir/low pressure is also likely to emerge into Andaman Sea on 24th without any significant intensification. The movement and intensification of this system need to be monitored.

2. For the Arabian Sea:

No significant system.

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

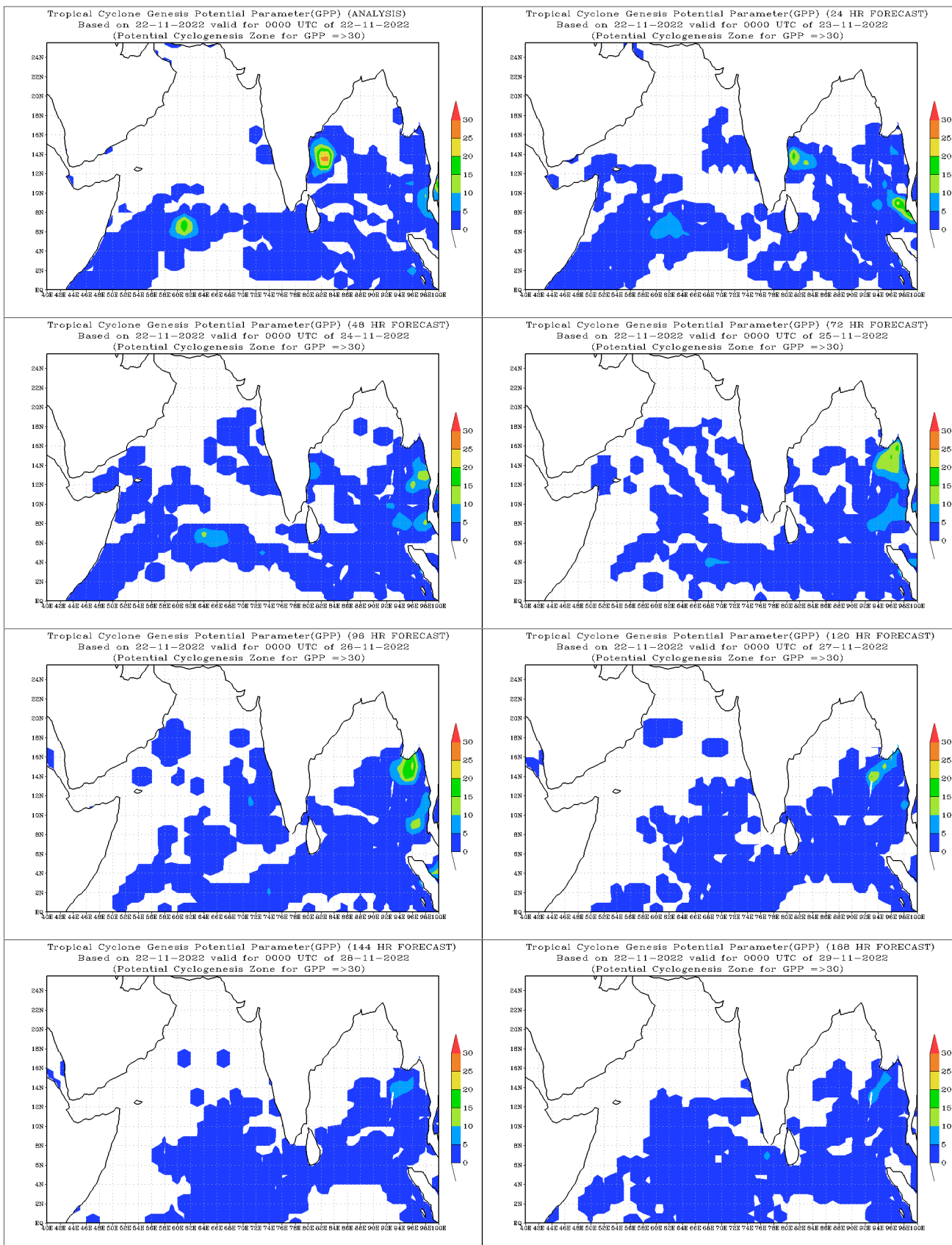
Probability of cyclogenesis (formation of depression and above intensity systems) over the Arabian Sea during next 168 hours:

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

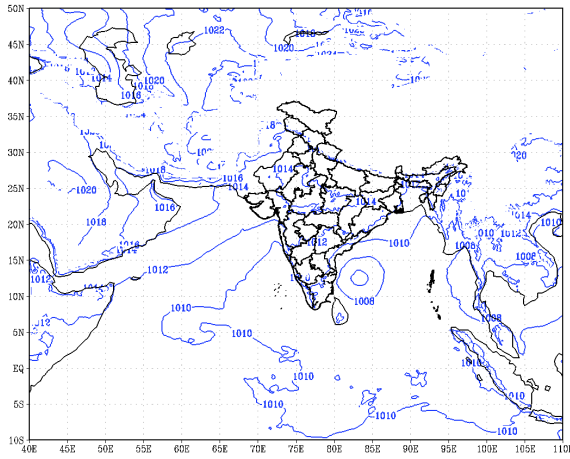
Advisory:

The movement and intensification of the cyclonic circulation/low pressure area likely to emerge into Andaman Sea around 24th need to be monitored.

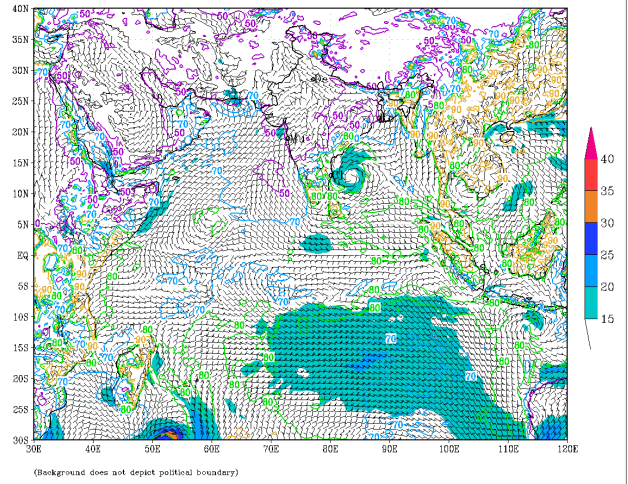
IOP: Sri Lanka, Tamil Nadu-Puducherry and Andhra Pradesh coasts 22nd.



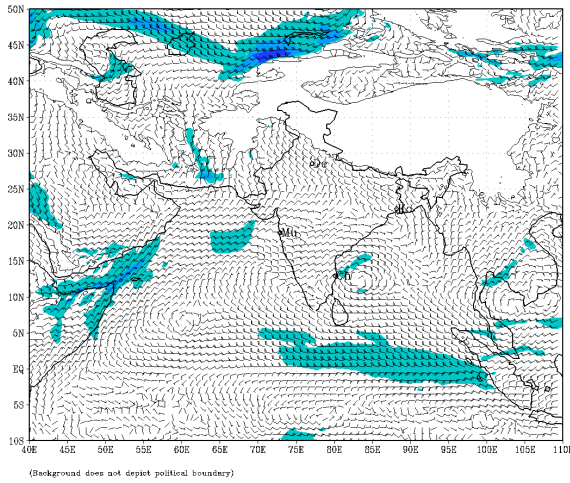
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based on 00 UTC of 22-11-2022 valid for 00 UTC of 22-11-2022



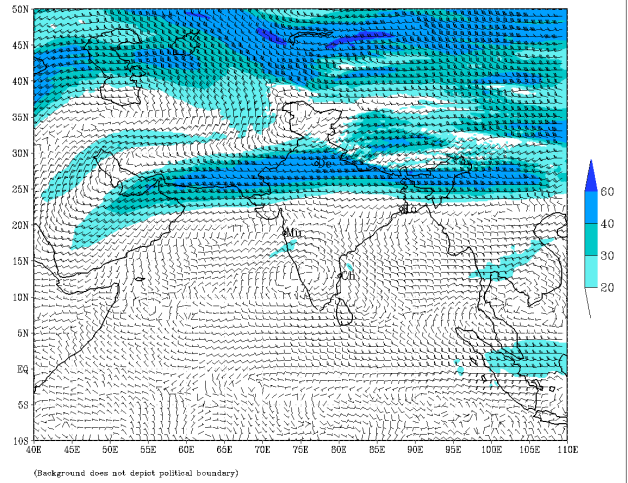
IMD GFS (T1534) 10m WIND (kt) AND 2m RH (%) FORECAST (00 HR)
based on 00 UTC of 22-11-2022 valid for 00 UTC of 22-11-2022



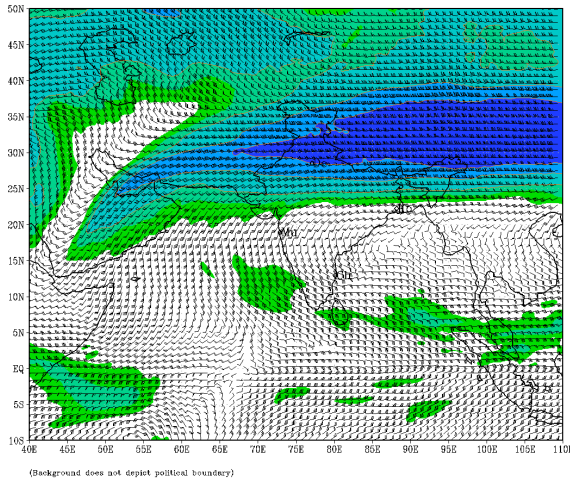
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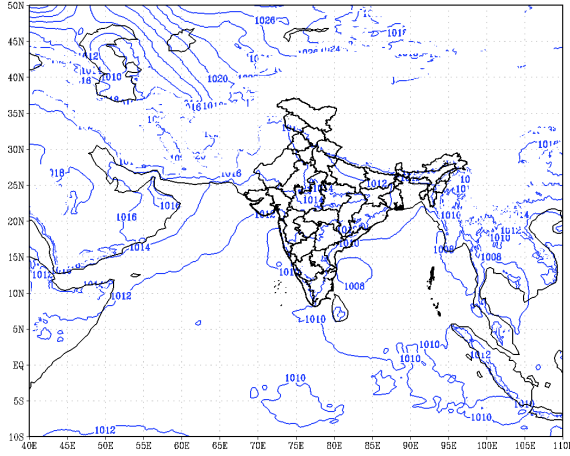
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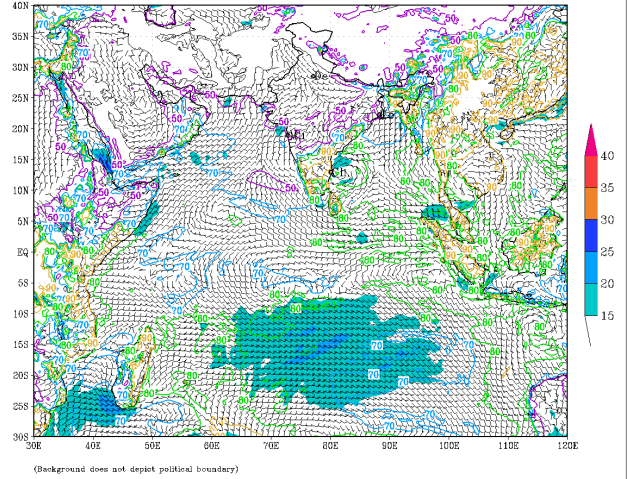
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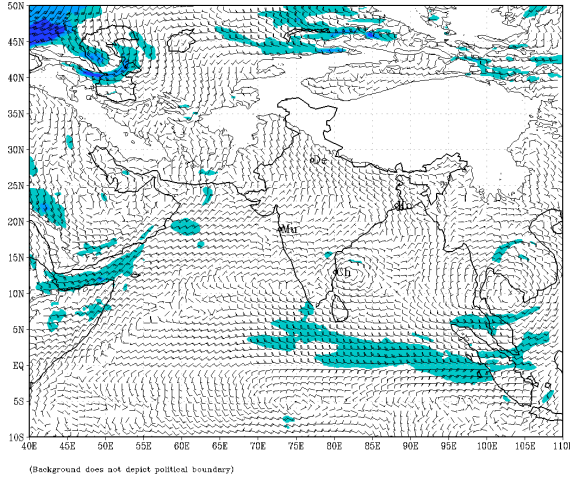
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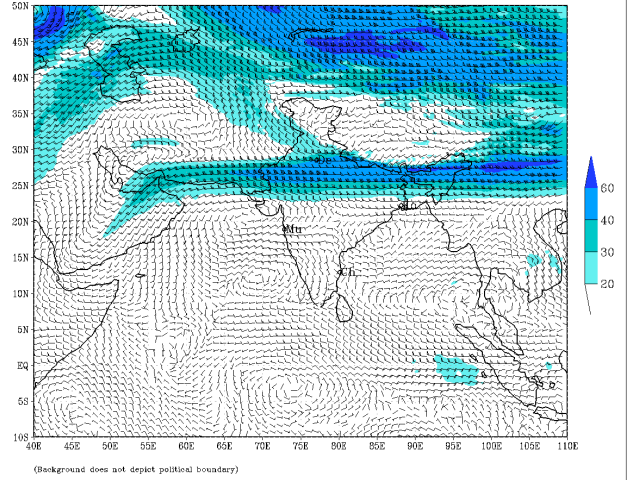
IMD GFS (T1534) 10m WIND (kt) AND 2m RH (%) FORECAST (24 HR)
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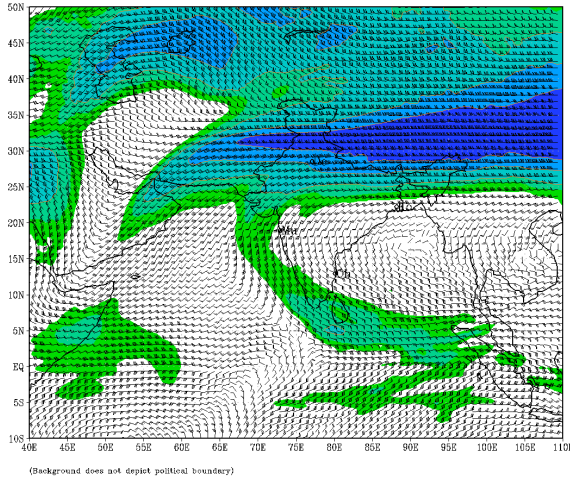
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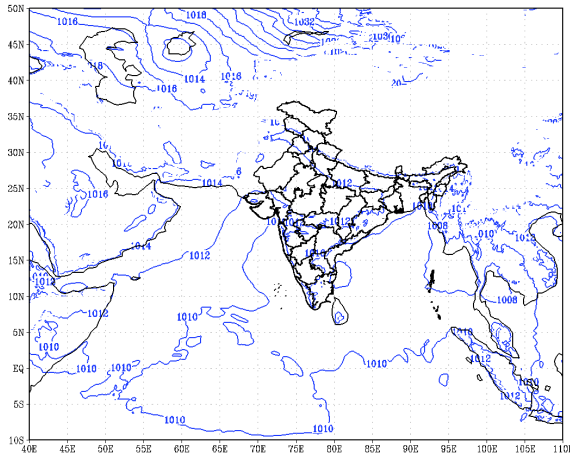
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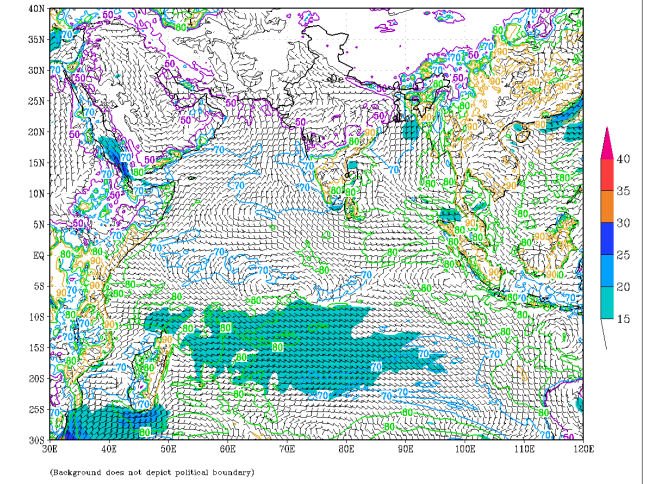
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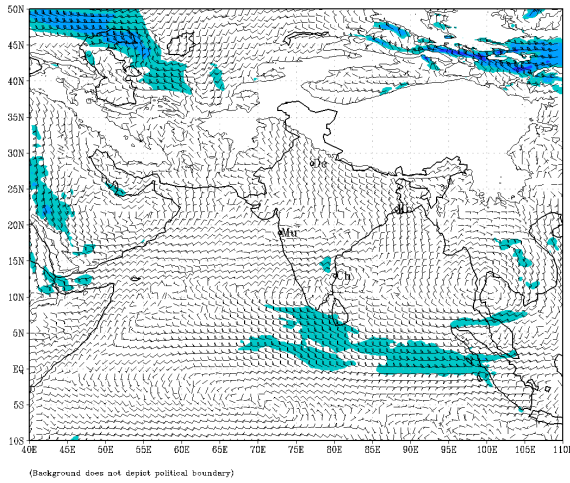
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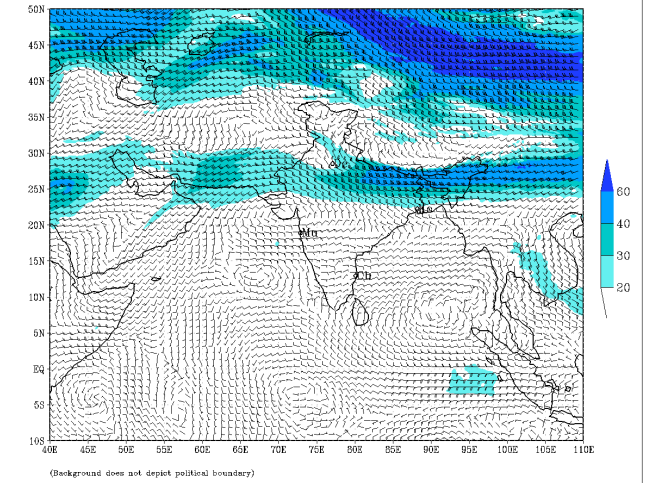
IMD GFS (T1534) 10m WIND (kt) AND 2m RH (%) FORECAST (48 HR)
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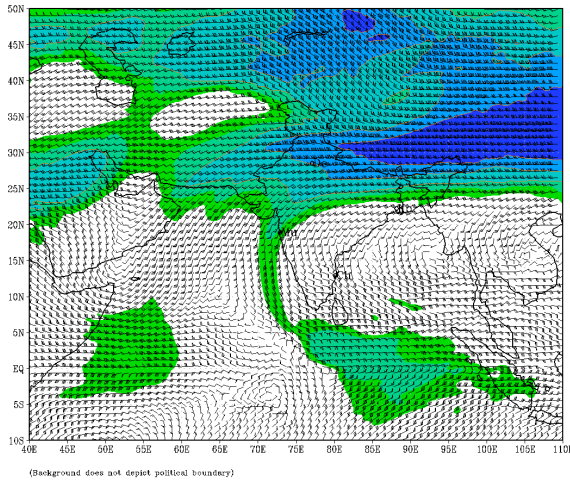
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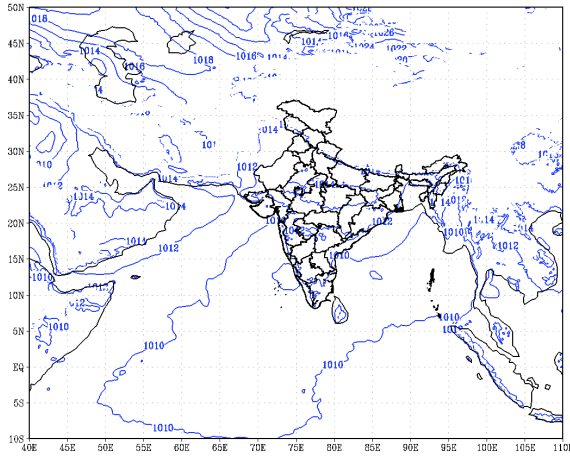
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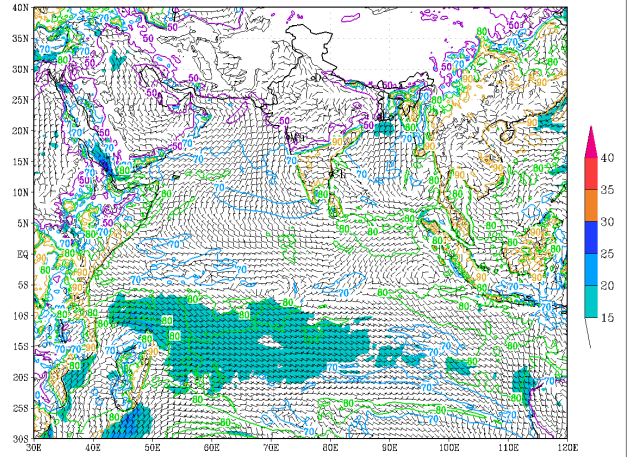


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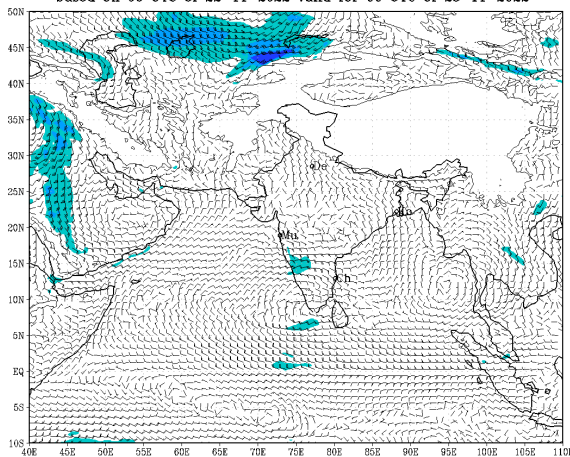
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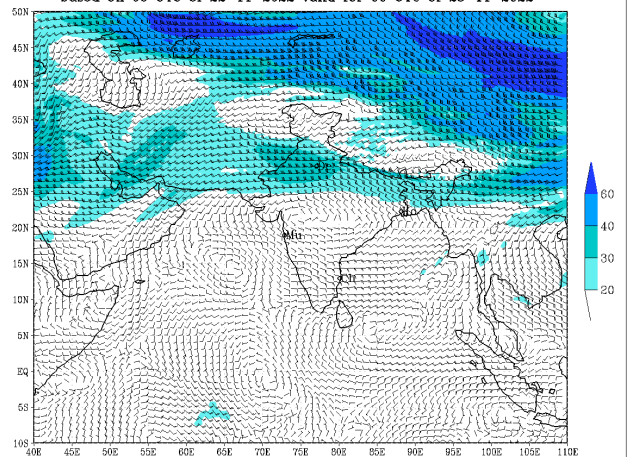
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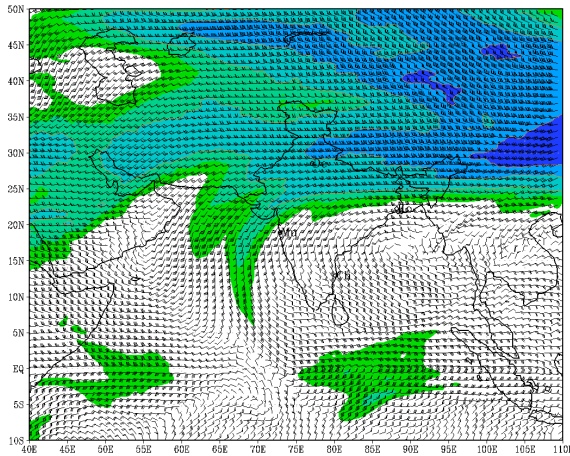
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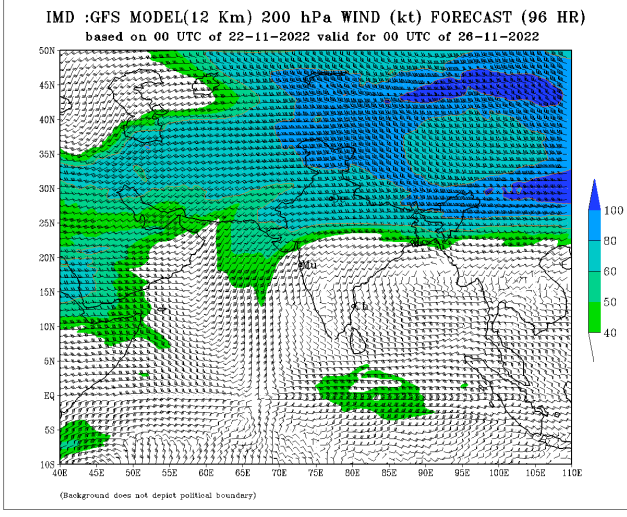
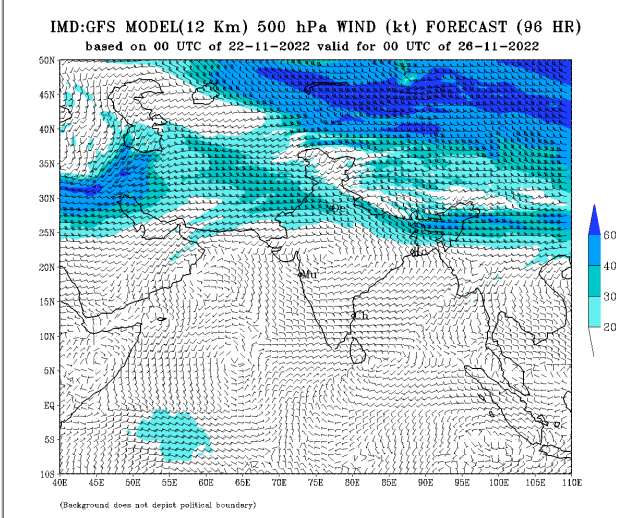
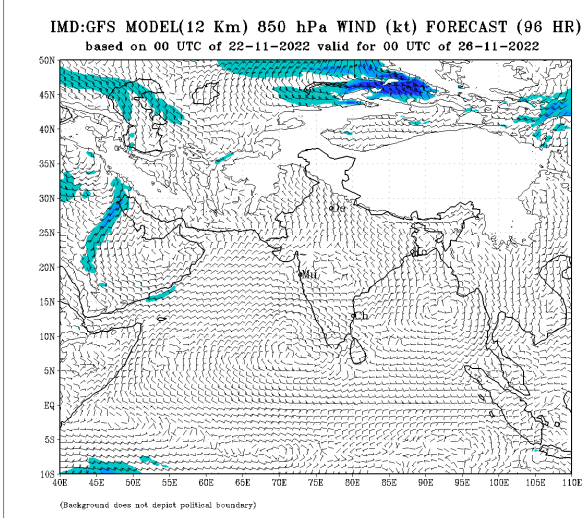
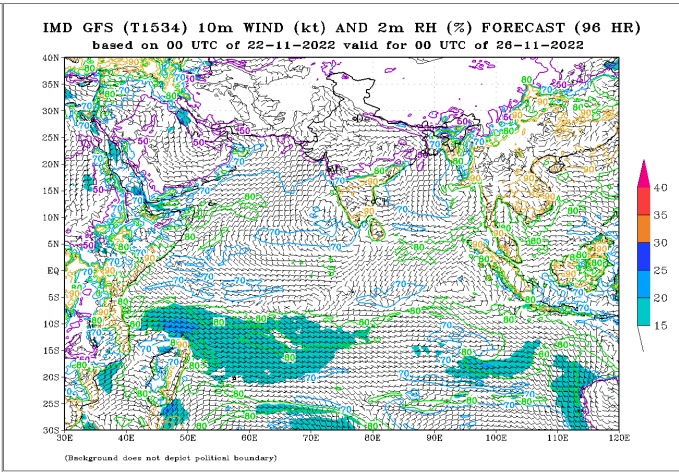
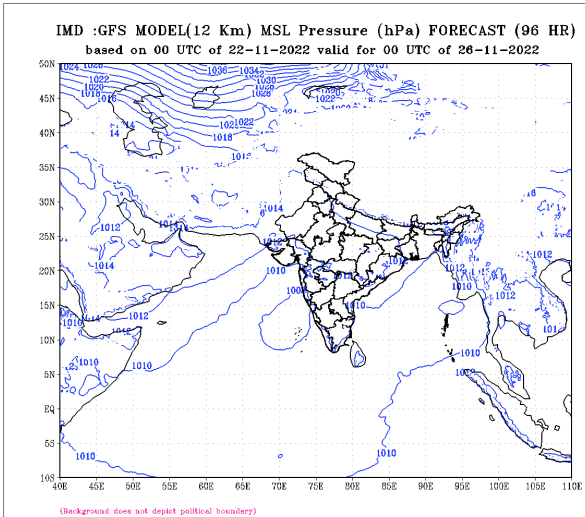


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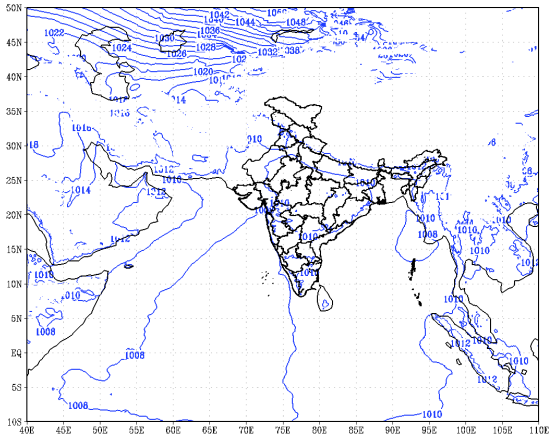
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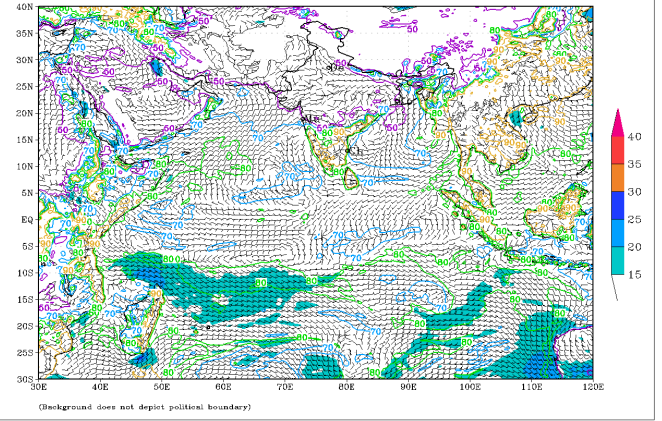
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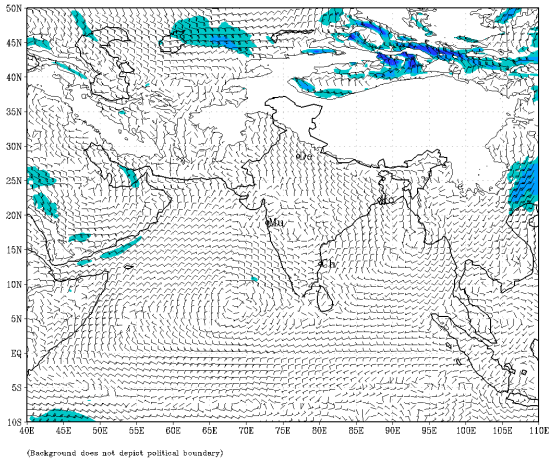
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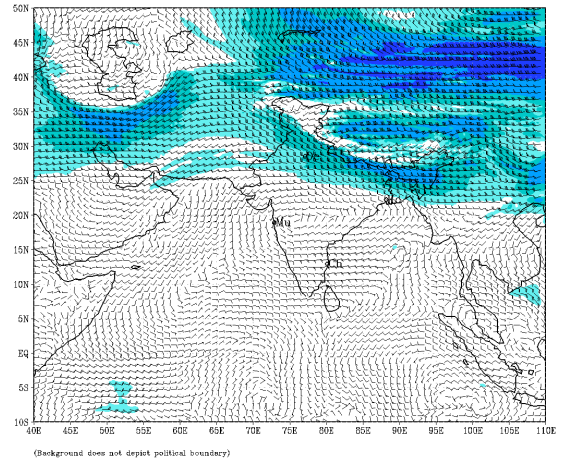
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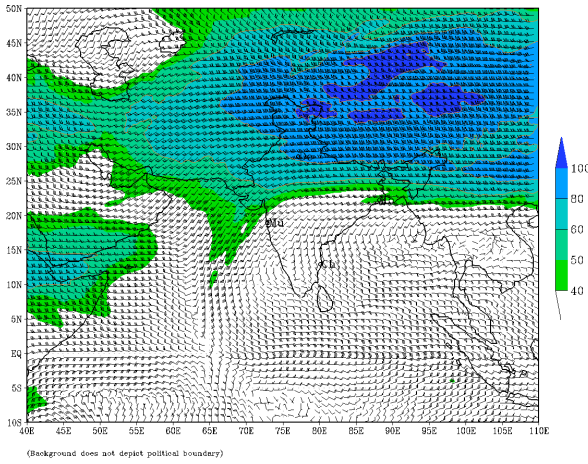
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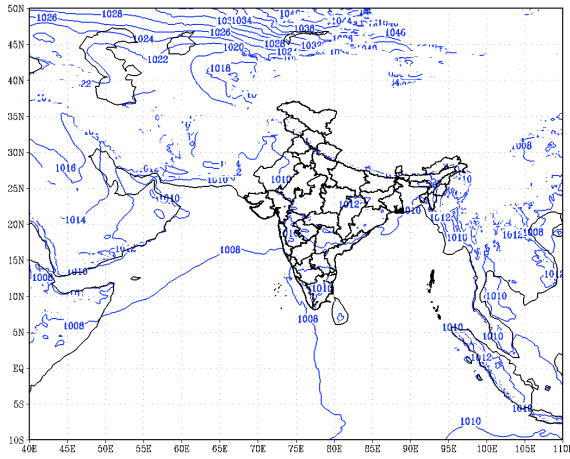
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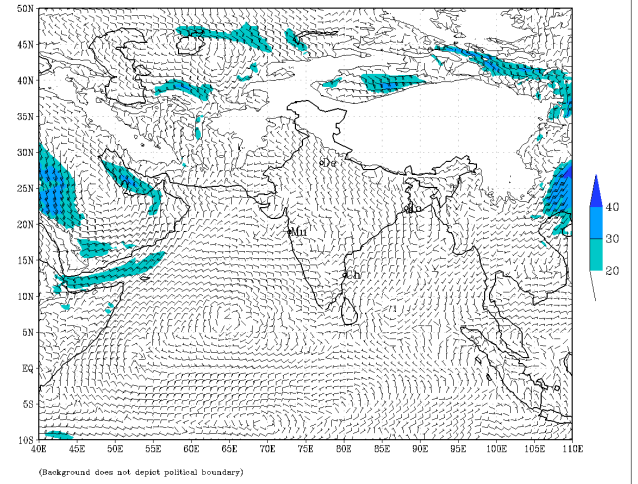
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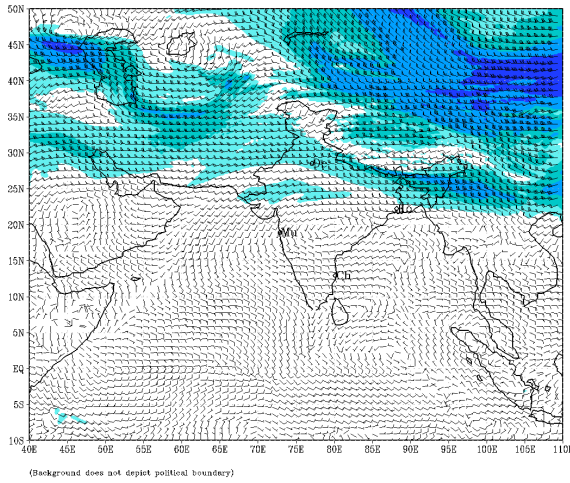
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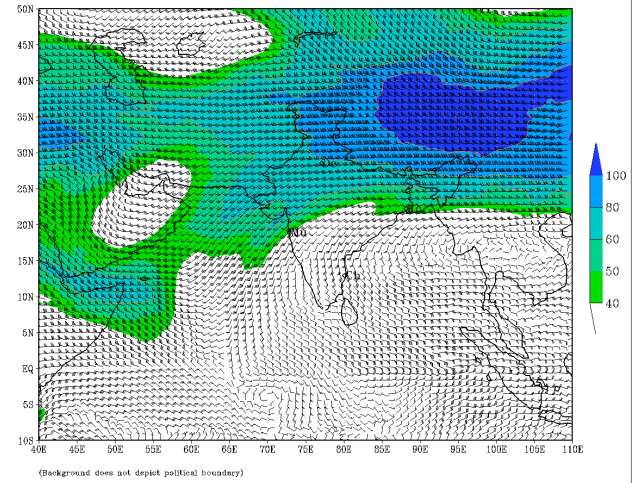
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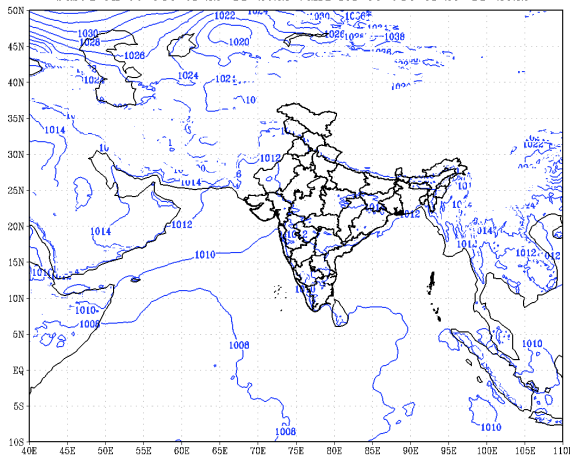
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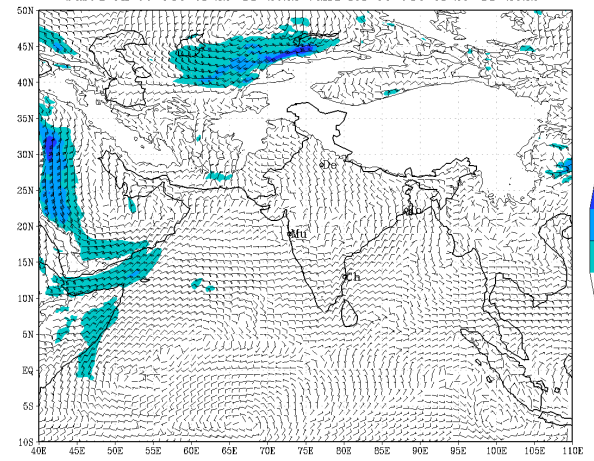


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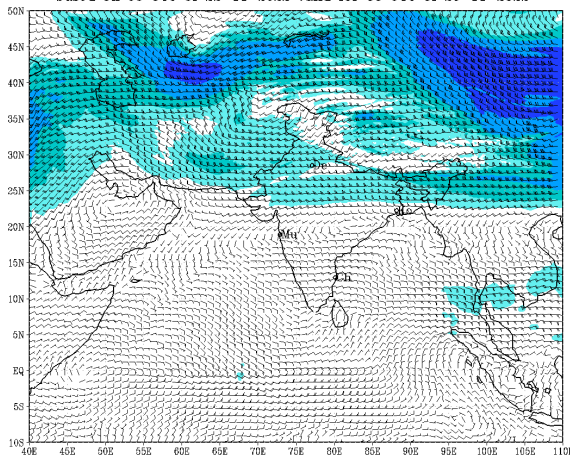
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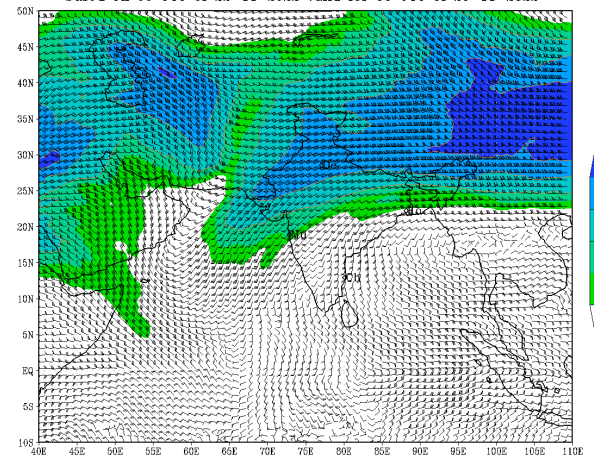
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IMD :GFS MODEL(12 Km) 200 hPa WIND (kt) FORECAST (168 HR)
based on 00 UTC of 22-11-2022 valid for 00 UTC of 29-11-2022



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