



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

**Tropical Cyclone Forecast Programme
Report Dated 5th November, 2022**

Time of Issue: 1200 UTC

Synoptic features (based on 0600 UTC analysis):

- ❖ A cyclonic circulation lies over southeast Bay of Bengal & adjoining south Andaman Sea in middle tropospheric levels.
- ❖ A Low Pressure area is likely to form over southwest Bay of Bengal off Sri Lanka coast around 09th November, 2022. It is very likely to move northwestwards towards Tamilnadu-Puducherry coasts with possible slight intensification during subsequent 48 hours.
- ❖ A cyclonic circulation lies over Kerala coast & adjoining southeast Arabian Sea and an east-west trough runs from Comorin area to south Andaman sea this system to south Andaman Sea in lower tropospheric levels.

Dynamical and thermo-dynamical features

Parameter	Bay of Bengal (BoB)	Arabian Sea (AS)
Sea Surface Temperature (SST) °C	About 26-28°C over southern parts of southwest BoB, and about 29-31°C for the rest of the area over BoB	29-31°C over north AS, along and off south Gujarat, Maharashtra coasts, southeast AS. 26-28°C over central and southwest AS. Less than 24°C off Oman & Somalia coast and adjoining parts of southwest and westcentral AS. Less than 22°C along Somalia coast.
Tropical Cyclone Heat Potential (TCHP) kJ/cm²	>110 KJ/cm ² over eastcentral BoB & south Andaman Sea, 70-80 KJ/cm ² over north BoB & westcentral BoB, southwest BoB, north Andaman Sea, less than 40 KJ/cm ² off south Andhra Pradesh and Tamil Nadu coasts & less than 30 over a small pocket over southwest BoB.	(a) 60-70 over southeast AS & adjoining eastcentral AS. (b) Less than 30 KJ/cm ² over remaining AS and also off west coast of India.

Cyclonic Relative vorticity ($\times 10^{-6} \text{s}^{-1}$)	Positive vorticity of 20-40 over south parts of south BoB, off southwest Sri Lanka coast and also off south Tamil Nadu coast & south Andaman Sea and northeast BoB.	Positive vorticity of 30-40 over southern parts of AS off Maharashtra coast, northern parts of eastcentral AS.
Low Level convergence ($\times 10^{-5} \text{s}^{-1}$)	About 05 over southwest BoB and adjoining westcentral BoB,.	05 over off Kerala and Maharashtra, north Gujarat coasts.
Upper Level divergence ($\times 10^{-5} \text{s}^{-1}$)	About 05 over southwest BoB and 5-10 over parts of westcentral BoB.	Positive zone 05 over southeast and adjoining eastcentral AS, 10 over small pockets of southeast AS, negative values over parts of southwest and westcentral AS.
Vertical Wind Shear (VWS knots)	Moderate 10-20 knots over major parts of south & central BoB. High values up to 25-40 over remaining parts.	05-10 over major parts of south & adjoining central AS and high values up to 30-60 over remaining parts.
Wind Shear Tendency (knots)	Decreasing over southwest and adjoining westcentral BoB, increasing in the remaining parts.	Decreasing over southwest AS, increasing in the remaining parts.
Upper tropospheric Ridge	Along 13.0°N over the BoB.	Along 14.0°N over the AS.
Trough in westerlies	Along 88°E upto 28°N	

Satellite observations based on INSAT imagery (0600 UTC):

(a) Over the BoB & Andaman Sea:-

Scattered low/medium clouds with embedded intense to very intense convection lay over south BoB, south Andaman Sea and the Tenasserim coast. Scattered low/medium clouds with embedded moderate to intense convection over east-central BoB and weak to moderate convection central BoB and north Andaman Sea.

(b) Over the Arabian Sea:-

Scattered low/medium clouds with intense to very intense convection lay over southern parts of eastcentral AS, Lakshadweep area and Comorin area. Scattered low/medium clouds with moderate to intense convection lay over northwest AS.

M.J.O. Index:

MJO index is currently in Phase 7 with amplitude greater than 1. It will continue in same phase with gradually decreasing amplitude during next 7 days.

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	BoB	AS
IMD-GFS	A feeble low over southeast and adjoining southwest BoB on 7 th Nov, will move northwestward and will become a low pressure area on 11 th Nov over southwest BoB. It will continue to move northwestwards and reach Tamil Nadu coast on 11 th Nov as LPA.	A cycir over southeast AS as on 5 th Nov will move westwards with no significant intensification thereafter.
IMD-GEFS	An extended low over southeast and adjoining southwest BoB on 7 th Nov, will have northwestward movement and will become low over southwest BoB on 11 th Nov morning. It will move further in the same direction towards Tamil Nadu coast till 12 th Nov.	No significant system
GEFS Probablistic guidance	Not available	Not available
IMD WRF	A low pressure area (LPA) over southeast and adjoining southwest BoB as on 6 th Nov will have its northwest ward movement till 7 th Nov without further intensification. This will become less marked on 8 th Nov over southwest BoB.	No significant system
NCMRWF-NCUM	An extended low on 8 th Nov over southwest BoB, low pressure area on 8 th , will move northwestward owards Tamil Nadu coast till 10 th Nov.	No significant system
NCMRWF-NEPS	An extended low on 8 th Nov over southwest and adjoining southeast BoB. It will move northwestward and become an LPA on 10 th over southwest BoB. It will further move in the same direction and will remain as low till 11 th Nov morning and become less marked over southwest and adjoining westcentral BoB on 12 th Nov morning.	No significant system over AS
NCMRWF-UM (Regional)	A cycir over south Andaman Sea and adjoining southeast BoB as on 6 th Nov will move northwest ward and will be over southwest and adjoining southeast BoB with marginal intensification.	No significant system over AS.
ECMWF	The cycir over southeast BoB on 6 th Nov will remain over same region till 7 th Nov and then will move northwestward and will be over southwest and adjoining southeast BoB on 8 th Nov morning. It will continue to move in the same direction with marginal intensification and will be over southwest BoB by evening of 9 th Nov. It will further move in the same direction and will become low pressure on evening of 10 th Nov. It will then move towards Tamil Nadu coast and over southwest and adjoining westcentral BoB by morning of 11 th Nov. It will reach Tamil Nadu coast by 12 th Nov morning as less marked and cross the coast by evening of same day.	No significant system.

ECMWF ensemble	50-60% probability of cyclogenesis over South East Bay of Bengal during 7th / 8th Nov, will have westward movement towards Tamil Nadu coast with further intensification.	No significant probability.
NCEP-GFS	The cycir over southeast BoB as on 6 th Nov will become LPA on 8 th Nov over the southwest BoB and will have its northwestward movement with gradual intensification. It will become depression on 10 th over southwest BoB, reaching Tamil Nadu and adjoining Andhra Pradesh coast on 12 th /0000 UTC Nov as LPA.	The cyclonic circulation over southeast AS on 5 th Nov will have its westward movement till 11 th Nov without further intensification.
IMD MME	The cycir over southeast BoB as on 7 th Nov will become LPA on 8 th Nov over the southeast and adjoining southwest BoB and will have its northwestward movement with gradual intensification. It will become depression on 11 th over southwest BoB. This will then move in the same direction towards Tamil Nadu coast and over southwest and adjoining westcentral BoB on 12 th Nov morning.	No significant system.
IMD HWRF	Available during cyclonic disturbance period only	Available during cyclonic disturbance period only.
IMD-Genesis Potential Parameter	A potential zone over southeast BoB and adjoining south Andaman Sea on 6 th , moving northwestwards and will be over southwest and adjoining southeast BoB on 8 th Nov. It will be over southwest and adjoining westcentral BoB on 11 th Nov morning and will reach Tamil Nadu coast on the same day.	No significant zone.

Summary and conclusion:

Most of the models are indicating development of low pressure area over southwest BoB during 8th to 10th Nov. There is consensus among various models w.r.t northwestward movement of the system towards Tamil Nadu coast. However, there is variation w.r.t intensification of the system. IMD GFS, GEFS, WRF, NCUM, NEPS are not indicating any significant intensification. However, NCEP (GFS) and ECMWF-EPS are indicating slight intensification of the system upto depression around 10th Nov.

1. For the Bay of Bengal:

In view of all the above, it is inferred that a low pressure area is likely to form over southwest BoB around 9th November with low probability of it's intensification into a depression over southwest BoB around 11th. Hence low probability of cyclogenesis (formation of depression) is assigned to day 7.

2. For the Arabian Sea:

No cyclogenesis is predicted over Arabian Sea during next 7 days.

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	LOW	LOW

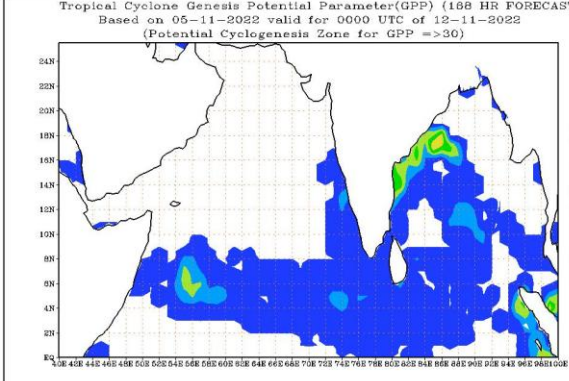
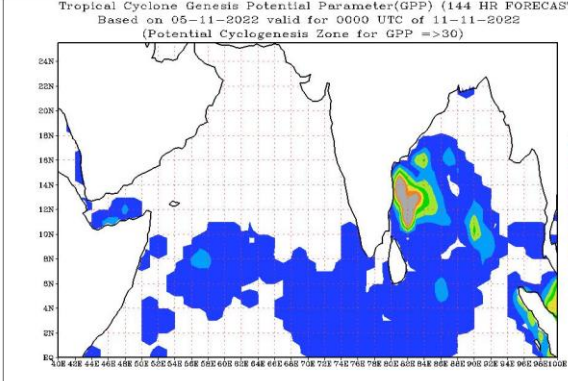
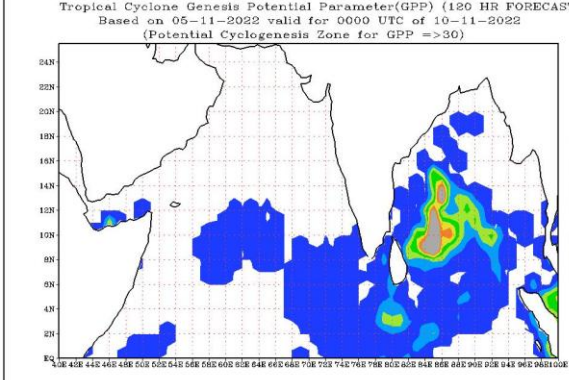
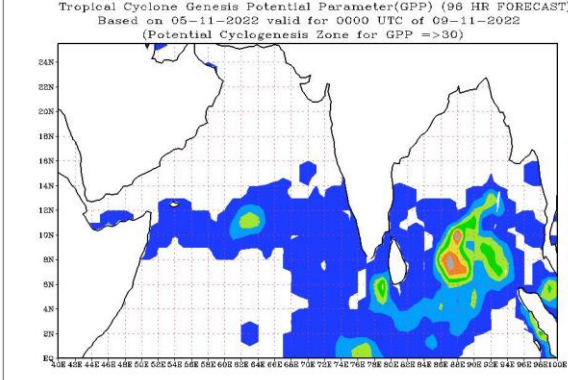
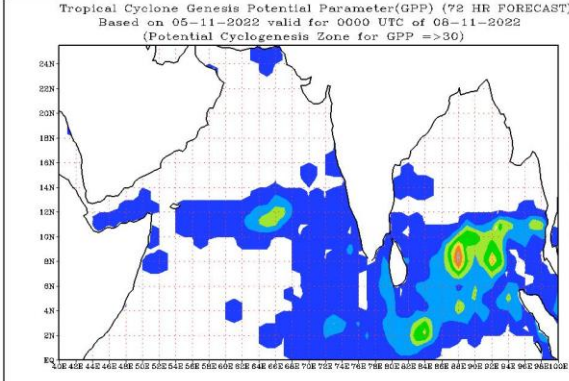
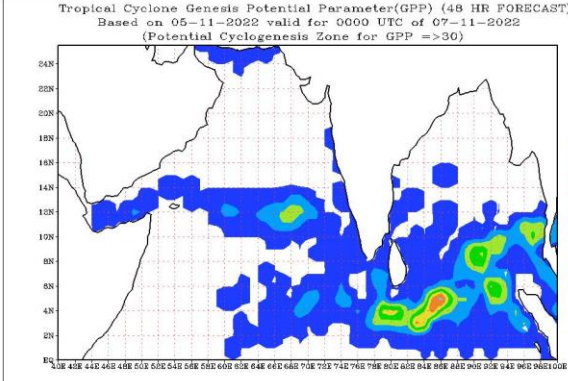
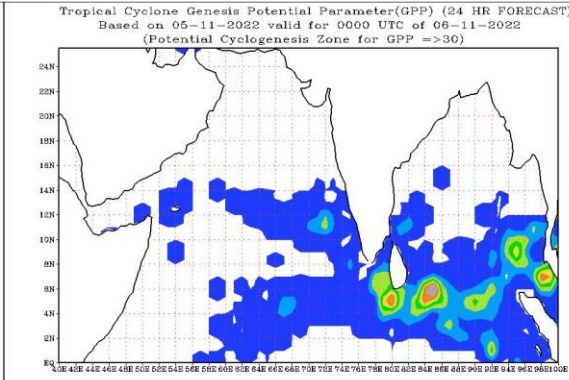
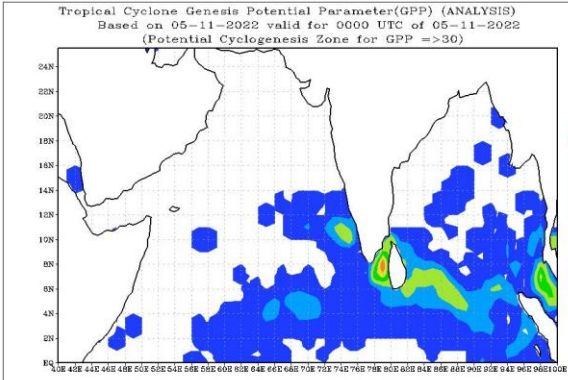
Probability of cyclogenesis (formation of depression and above intensity systems) over the Arabian Sea during next 168 hours:

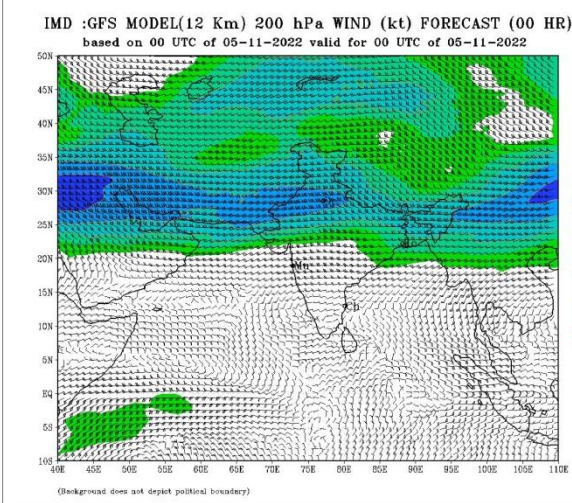
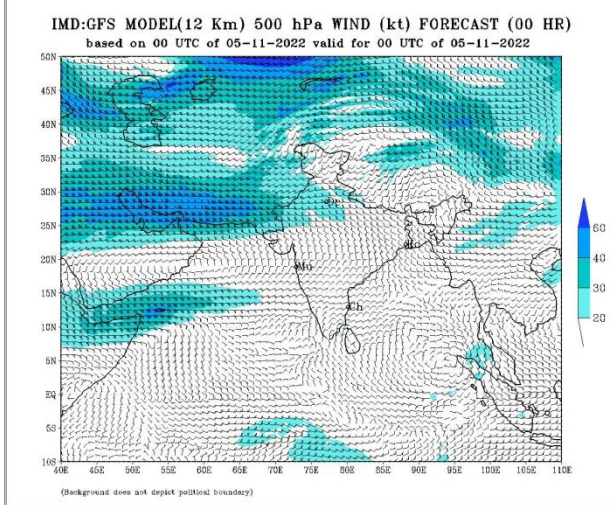
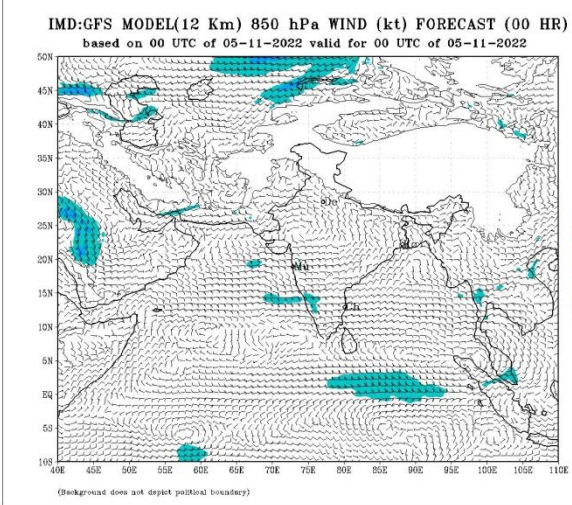
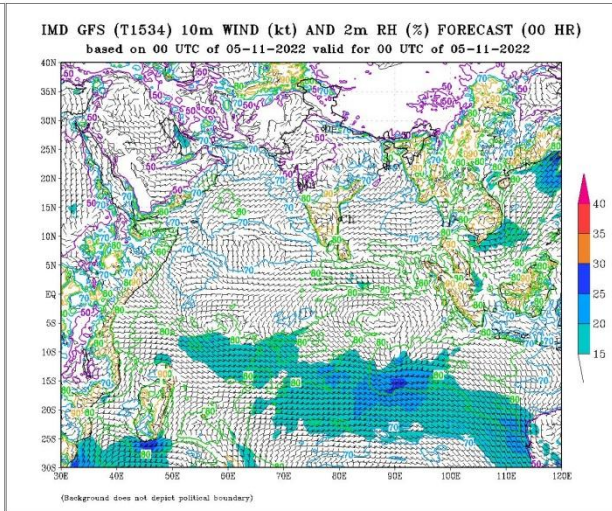
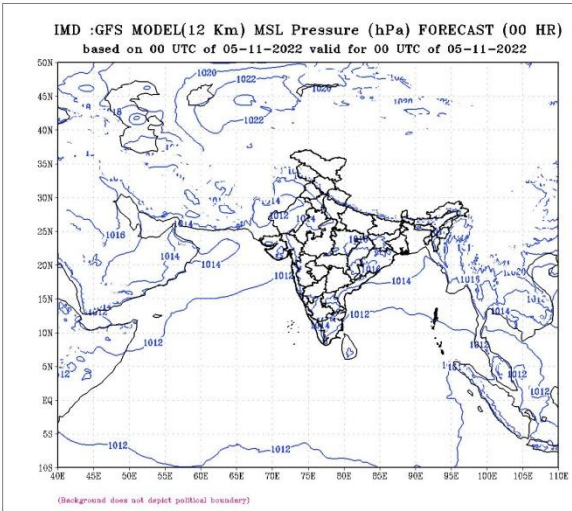
24 HOURS	24-48 HOURS	48-72 HOURS	72-96 HOURS	96-120 HOURS	120-144 HOURS	144-168 HOURS
NIL	NIL	NIL	NIL	NIL	NIL	NIL

Advisory:

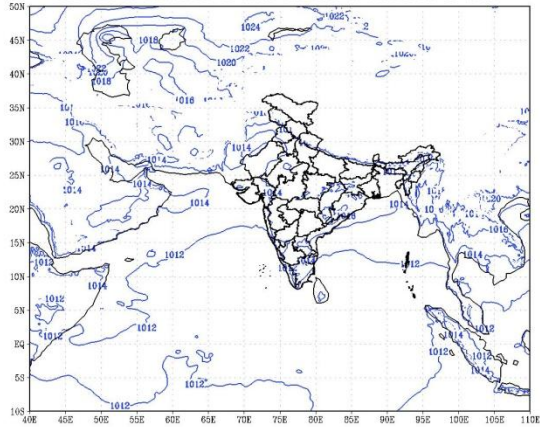
Nil

IOP: Kerala and Tamil Nadu, Puducherry during 24 hours

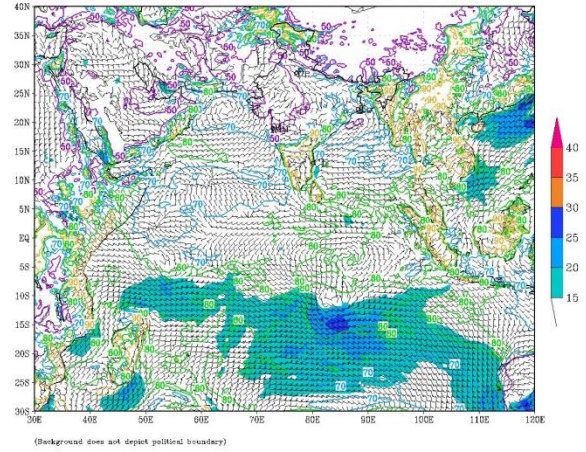




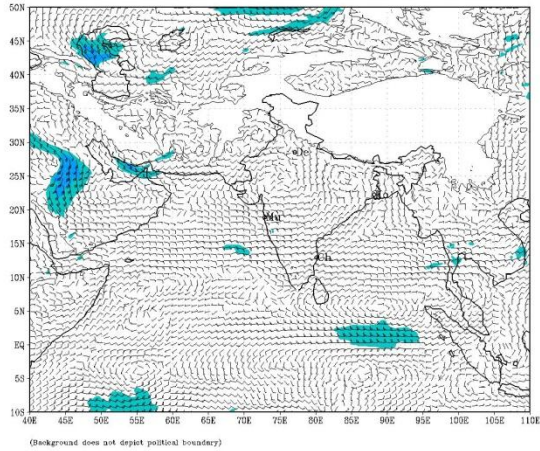
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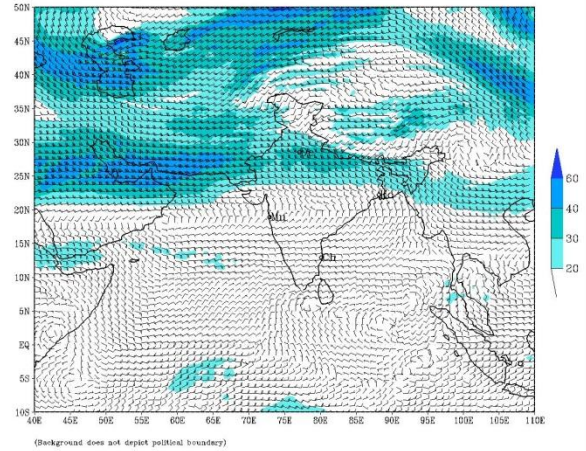
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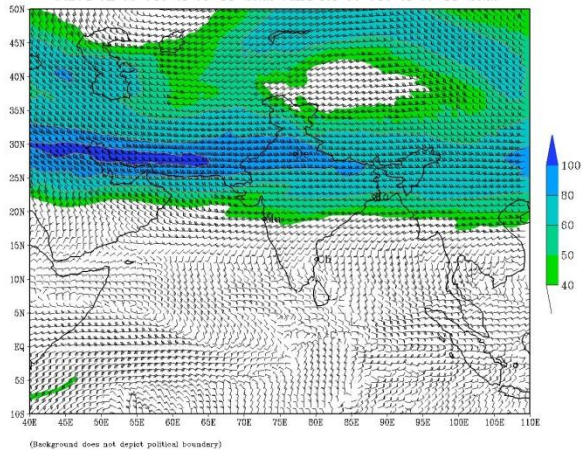
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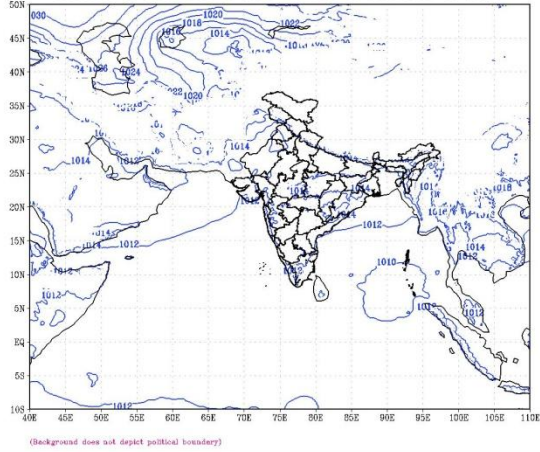
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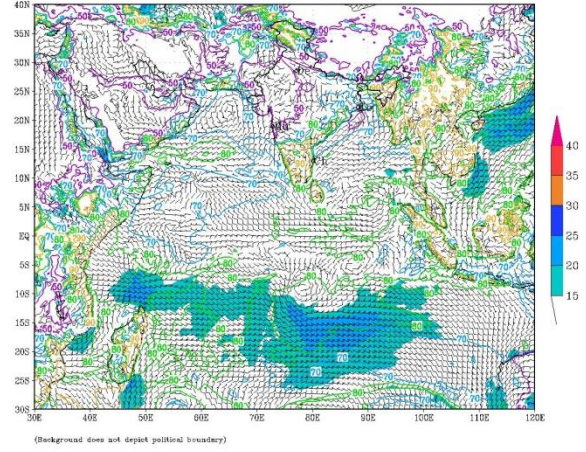
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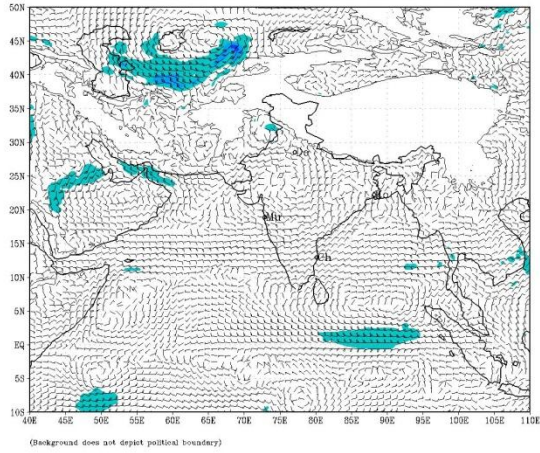
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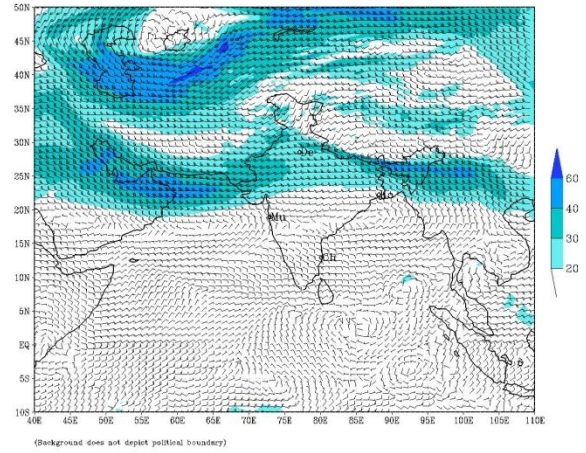
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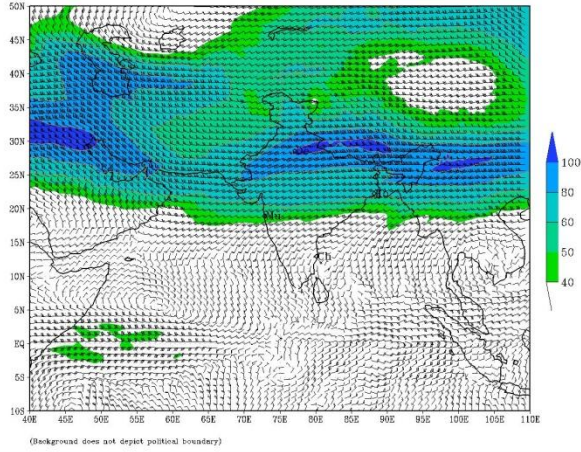
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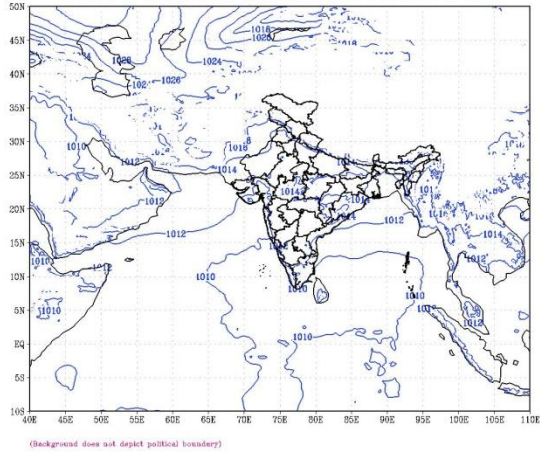
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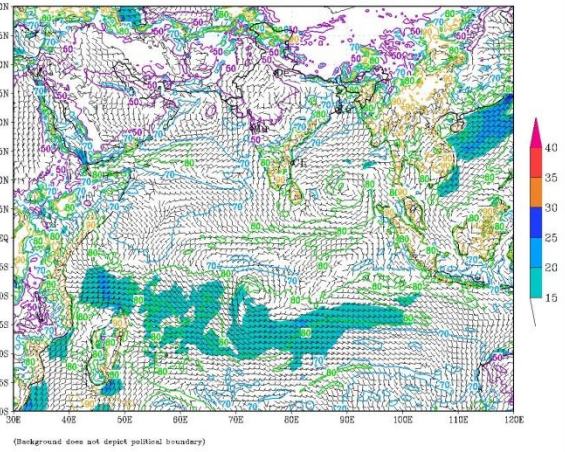
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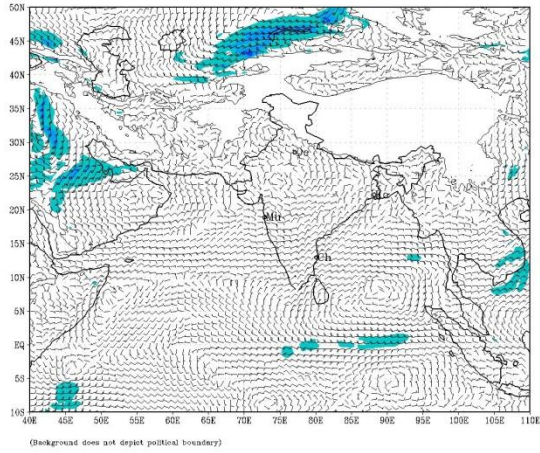
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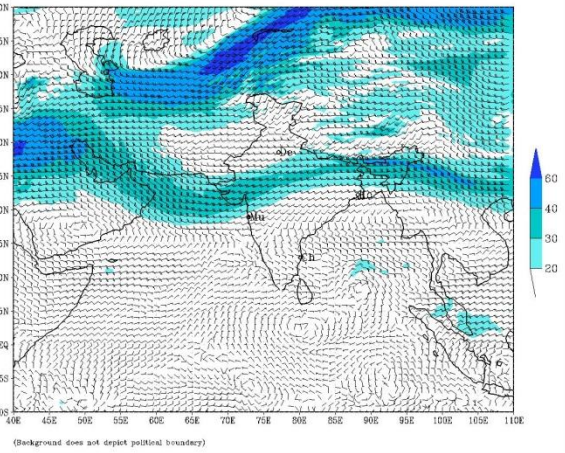
IMD GFS (T1534) 10m WIND (kt) AND 2m RH (%) FORECAST (72 HR)
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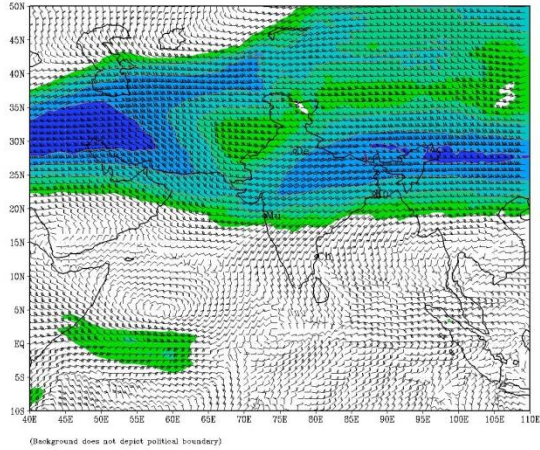
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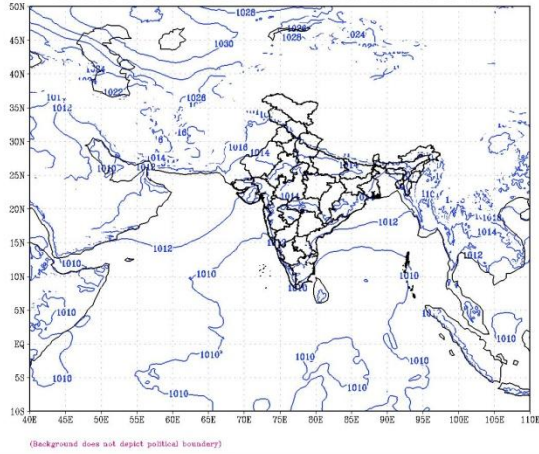
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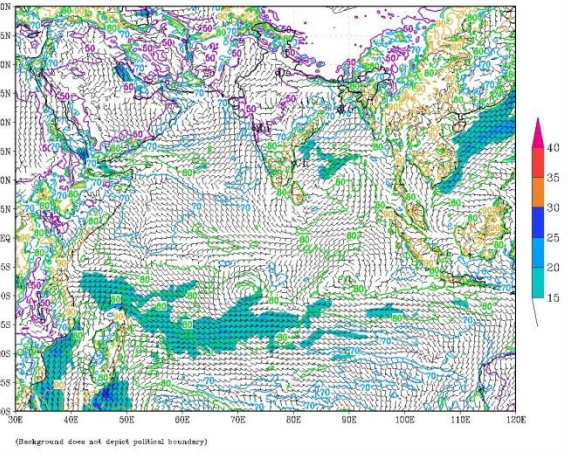
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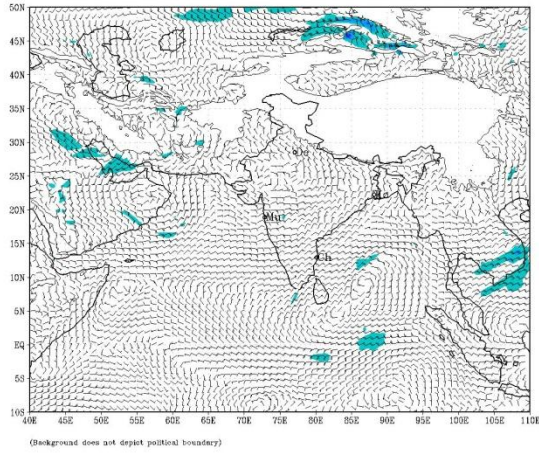
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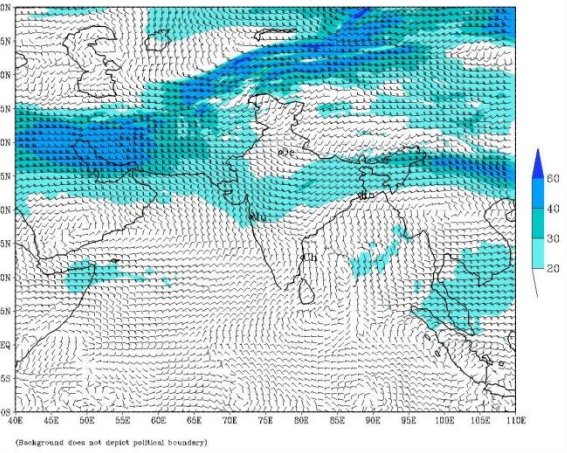
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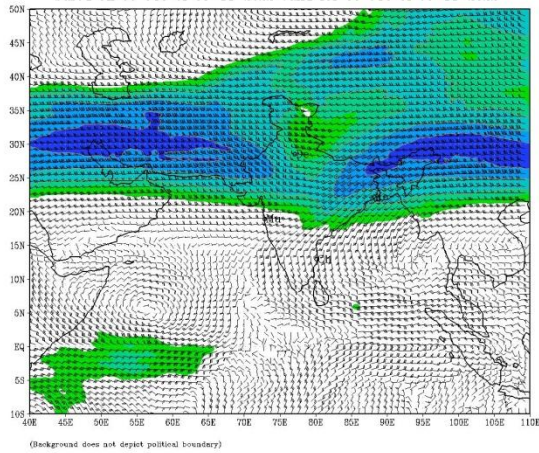
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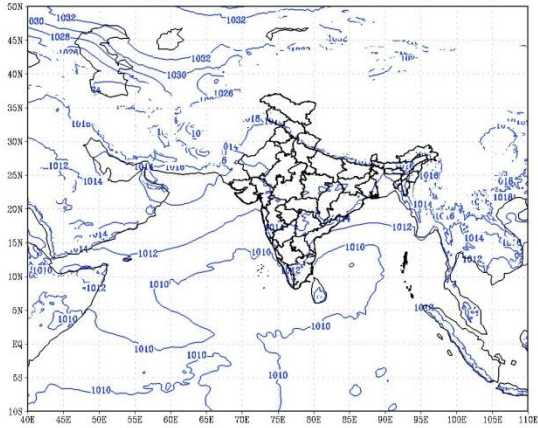
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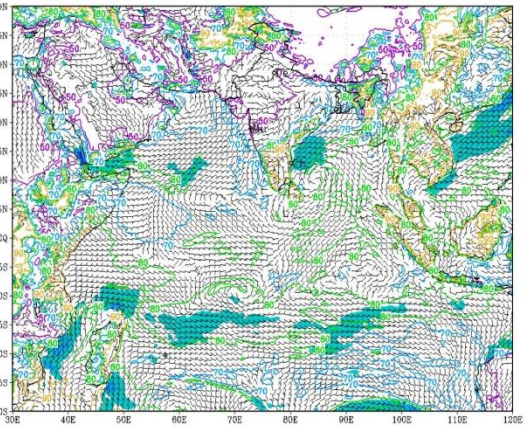


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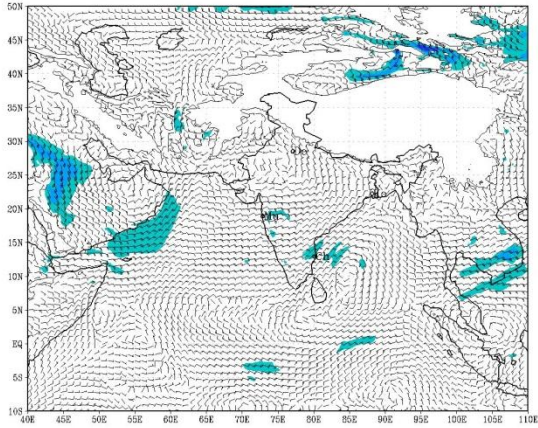
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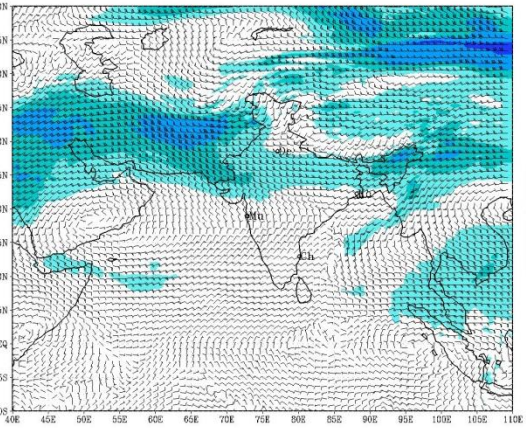
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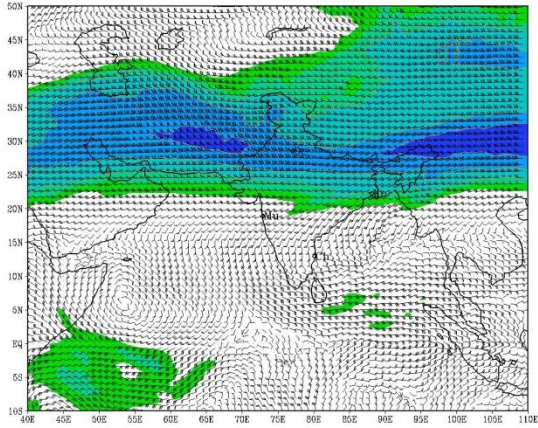
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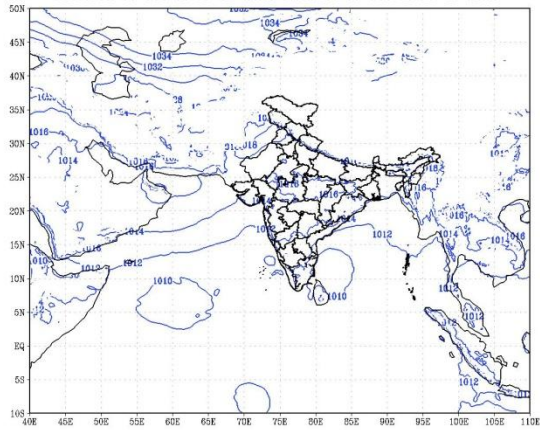
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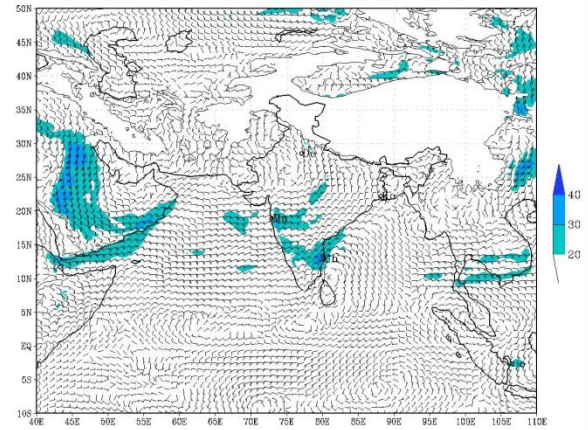
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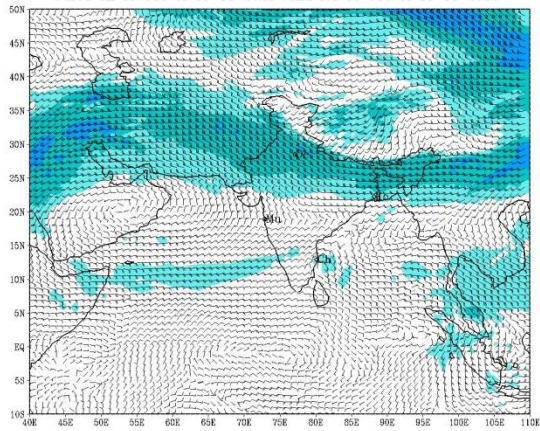
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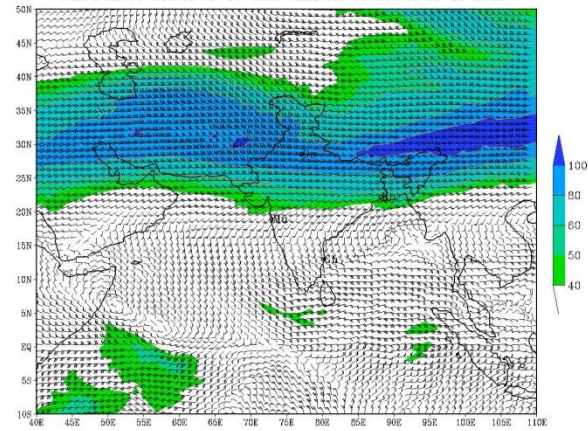
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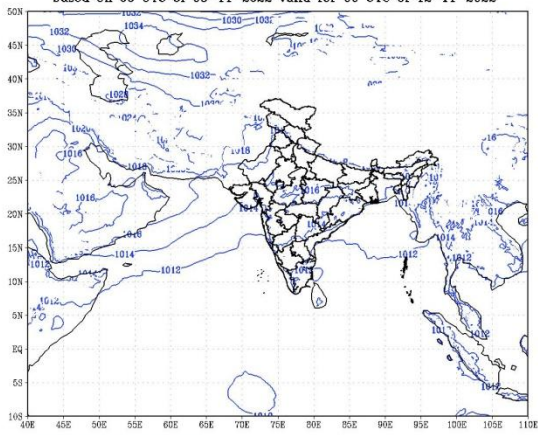
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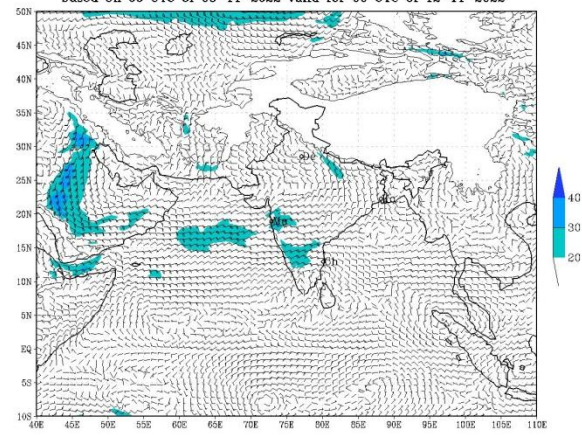


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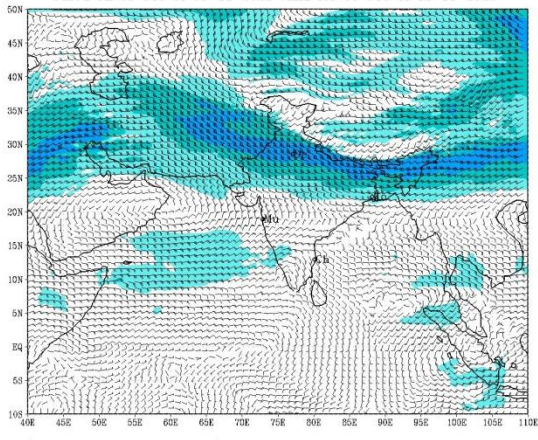
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based on 00 UTC of 05-11-2022 valid for 00 UTC of 12-11-2022



IMD:GFS MODEL(12 Km) 500 hPa WIND (kt) FORECAST (168 HR)
based on 00 UTC of 05-11-2022 valid for 00 UTC of 12-11-2022



IMD :GFS MODEL(12 Km) 200 hPa WIND (kt) FORECAST (168 HR)
based on 00 UTC of 05-11-2022 valid for 00 UTC of 12-11-2022

