



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

**Tropical Cyclone Forecast Programme
Report Dated 02nd December 2024**

Time of Issue: 1100 UTC

Synoptic features (based on 0600 UTC analysis):

The Well-Marked Low-Pressure Area (Remnant of Cyclonic Storm “FENGAL”) over North Interior Tamil Nadu persisted over the same area at 0300 UTC of today, the 02nd December, 2024. The remnant low pressure area is likely to emerge into southeast & adjoining east-central Arabian Sea off north Kerala-Karnataka coasts around 3rd December 2024.

Environmental Features based on 03 UTC:

Parameter	Bay of Bengal (BoB)	Arabian Sea (AS)
Sea Surface Temperature (SST) °C	<ul style="list-style-type: none"> ➤ 28-30°C over BoB. ➤ 26-28°C along & off Sri Lanka/Tamil Nadu/ Andhra Pradesh coasts. 	<ul style="list-style-type: none"> ➤ 28-30°C over most parts of AS. ➤ 26-28°C over some parts of west-central AS along and off Somalia coast AS.
Tropical Cyclone Heat Potential (TCHP) kJ/cm²	<ul style="list-style-type: none"> ➤ 140-150 over southern part of south BoB and some part of northeast, south BoB & adjoining EIO. ➤ 40-50 over southwest & adjoining westcentral BoB and along & off Sri Lanka/Tamil Nadu/ Andhra Pradesh coasts. 	<ul style="list-style-type: none"> ➤ 100-140 over some parts of south east AS, Lakshadweep Island. ➤ 20-40 over rest of the area.
Cyclonic Relative vorticity (X10⁻⁶s⁻¹)	<ul style="list-style-type: none"> ➤ 80-110 over Tamil Nadu and Kerala 30-50 southwest BoB. 	-
Low-Level convergence(X10⁻⁵ s⁻¹)	<ul style="list-style-type: none"> ➤ 05-10 over southwest BoB along & Tamil Nadu/ Shri Lanka coasts. 	-
Upper-Level divergence (X10⁻⁵ s⁻¹)	<ul style="list-style-type: none"> ➤ 10-20 over west central BoB. 	<ul style="list-style-type: none"> ➤ 5-10 over parts of southeast AS and Kerala Coast
Vertical Wind Shear (VWS knots)	<ul style="list-style-type: none"> ➤ High over north and South BoB. 	<ul style="list-style-type: none"> ➤ High over north AS and Parts of South AS.

Low: 05-10 knots Moderate: 10-20 knots High: >20 knots	➤ Low-moderate over central BoB and Andaman Sea.	➤ Low-Moderate over west central and adjoining East central AS.
Wind Shear Tendency (knots)	➤ Increasing over south BoB ➤ Decreasing over north & central BoB and along and off Tamil Nadu coasts.	➤ Increasing over North and East central AS. ➤ Decreasing over west and South AS.
Upper tropospheric Ridge	➤ At 13° N.	➤ At 13° N.

Satellite observations based on INSAT imagery (0300 UTC):

a) Over the BoB & Andaman Sea: -

Scattered low and medium clouds with embedded intense to very intense convection lay over central & southeast Bay of Bengal and south Andaman Sea (minimum CTT minus 70-85 Deg Cel). Scattered low and medium clouds with embedded moderate to intense convection lay over the north & southwest Bay of Bengal.

b) Over the Arabian Sea:

Scattered low and medium clouds with embedded intense to very intense convection lay over the southeast Arabian Sea off Karnataka Coast Lakshadweep Islands area (minimum CTT minus 70-80 Deg Cel). Scattered low and medium clouds with embedded isolated weak to moderate convection lay over the northwest & east-central Arabian Sea rest south Arabian Sea, Maldives & Comorin Area.

c) Outside India:

Scattered low/med clouds with embedded moderate to intense convection lay over Shri Lanka, Maldives, Pakistan, China, East China Sea, Gulf of Thailand, south Vietnam, Sumatra, Strait of Malacca, Malaysia, Borneo, south China Sea, Java Islands & Sea, Celebes Islands & Sea, Philippines, Sulu sea, Madagascar, north Mozambique Channel and over Indian Ocean between Lat 5.0N to 15.0S Long 40.0E to 120.0E.

M.J.O. Index:

Madden Julian Oscillation (MJO) is in phase 5 with amplitude more than 1 and would remain in same phase during next 7 days with amplitude more than 1.

NWP Guidance 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 cyclonic circulation over	The remnant of Bay of Bengal system will emerge into the southeast & adjoining eastcentral Arabian Sea on 4 th December as LPA. It will move in west-southwestward direction without further intensification till 6 th .
IMD-GEFS	No Significant cyclonic circulation over.	The remnant of Bay of Bengal system will emerge into the southeast & adjoining eastcentral Arabian Sea on 4 th December as WML. It will move in west-southwestward direction without further intensification till 7 th .
IMD-WRF	No Significant cyclonic circulation Over Bay of Bengal.	The remnant of Bay of Bengal system over southeast & adjoining eastcentral Arabian Sea as on today on 4 th December as WML is having west-southwestwards movement with further intensification as D/DD on 5 th over southeast and adjoining southwest Arabian Sea.
NCMRWF-NCUM(G)	No Significant cyclonic circulation Over Bay of Bengal.	The remnant of Bay of Bengal system will emerge into the southeast & adjoining eastcentral Arabian Sea around 3 rd December/12 UTC as WML. It will move in west-southwestward direction without further intensification till 6 th .
NCMRWF-NCUM(R)	No Significant cyclonic circulation Over Bay of Bengal.	The remnant of Bay of Bengal system will emerge into the southeast & adjoining eastcentral Arabian Sea around 3 rd December/12 UTC as LPA. It will move in west-southwestward direction without further intensification.
NCMRWF-NEPS	No Significant cyclonic circulation Over Bay of Bengal.	The remnant of Bay of Bengal system will emerge into the southeast & adjoining eastcentral Arabian Sea around 3 rd

		December/12 UTC as WML. It will move in west-southwestward direction without further intensification till 8 th .
ECMWF	No Significant cyclonic circulation Over Bay of Bengal.	The remnant of Bay of Bengal system will emerge into the southeast & adjoining eastcentral Arabian Sea on 3 rd December 15 UTC as LPA. Model is indicating its west-southwestwards movement without further intensification till 5 th and less marked thereafter.
NCEP-GFS	No Significant cyclonic circulation Over Bay of Bengal.	The remnant of Bay of Bengal system will emerge into the southeast & adjoining eastcentral Arabian Sea on 3 rd December 12 UTC as LPA. Model is indicating its west-southwestwards movement without further intensification till 5 th and less marked thereafter.

Summary:

(a) Bay of Bengal:

Most of the models indicate no significant cyclonic circulation over Bay of Bengal for the next seven days.

(b) Arabian Sea

All the models are indicating likely remnant of Bay of Bengal into southeast and adjoining eastcentral Arabian Sea around 04th December. Thereafter models are indicating that system will move west-southwestwards and without having significant intensification.

Inference:

Considering various environmental conditions and model guidance, it is inferred that:

The Well-Marked Low-Pressure Area (Remnant of Cyclonic Storm “FENGAL”) over North Interior Tamil Nadu persisted over the same area at 0300 UTC of today, the 02nd December, 2024. The remnant low pressure area is likely to emerge into southeast & adjoining east-central Arabian Sea off north Kerala-Karnataka coasts around 3rd December 2024.

The remnant Low-Pressure area is likely to move westwards and emerge into southeast and adjoining east-central Arabian Sea off north Kerala-Karnataka coasts around 4th December 2024.

Probability of cyclogenesis (formation of depression and above intensity systems) over the Bay of Bengal 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:

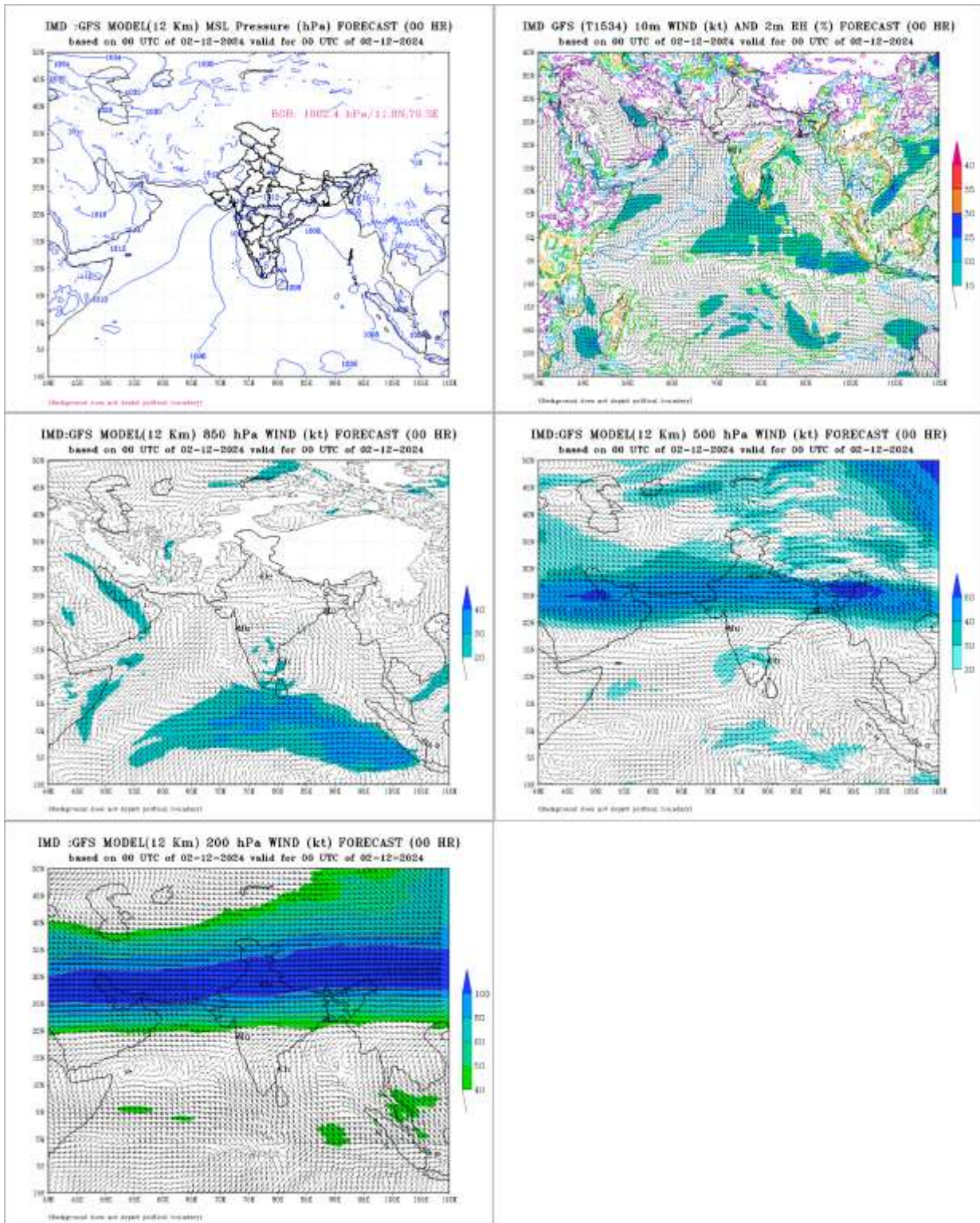
24 HOURS	24-48 HOURS	48-72 HOURS	72-96 HOURS	96-120 HOURS	120-144 HOURS	144-168 HOURS
NIL	LOW	LOW	NIL	NIL	NIL	NIL

“- “indicates genesis has already occurred.

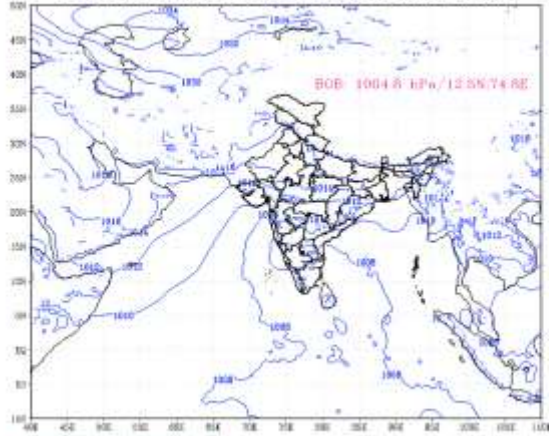
Probability is indicated as NIL for 0%, LOW for 1-33%, MOD for 34-67% and High for 68-100%.

Intense Observation Period (IOP): NIL

ANNEXURE

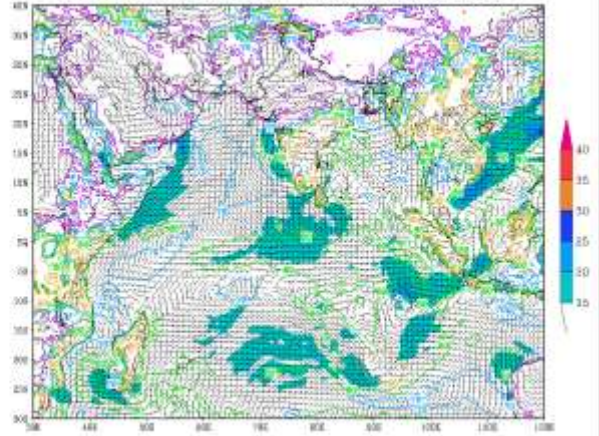


IMD :GFS MODEL(12 Km) MSL Pressure (hPa) FORECAST (24 HR)
based on 00 UTC of 02-12-2024 valid for 00 UTC of 03-12-2024



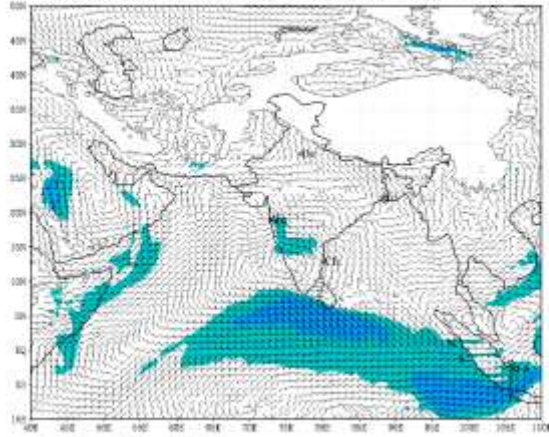
(Background area not depict political boundary)

IMD :GFS (T1534) 10m WIND (kt) AND 2m RH (%) FORECAST (24 HR)
based on 00 UTC of 02-12-2024 valid for 00 UTC of 03-12-2024



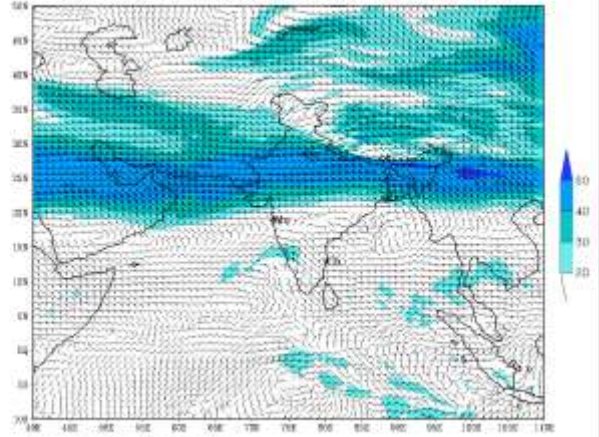
(Background area not depict political boundary)

IMD:GFS MODEL(12 Km) 850 hPa WIND (kt) FORECAST (24 HR)
based on 00 UTC of 02-12-2024 valid for 00 UTC of 03-12-2024



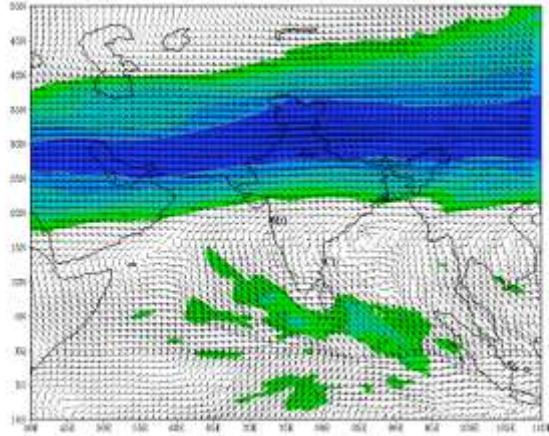
(Background area not depict political boundary)

IMD:GFS MODEL(12 Km) 500 hPa WIND (kt) FORECAST (24 HR)
based on 00 UTC of 02-12-2024 valid for 00 UTC of 03-12-2024



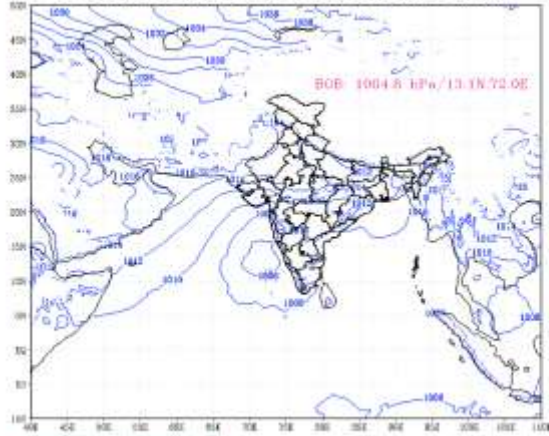
(Background area not depict political boundary)

IMD :GFS MODEL(12 Km) 200 hPa WIND (kt) FORECAST (24 HR)
based on 00 UTC of 02-12-2024 valid for 00 UTC of 03-12-2024

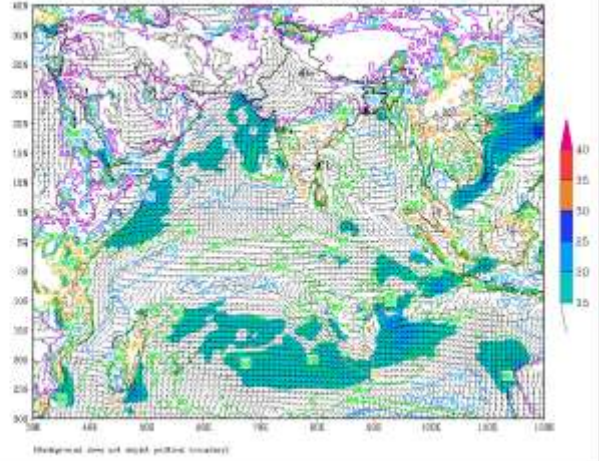


(Background area not depict political boundary)

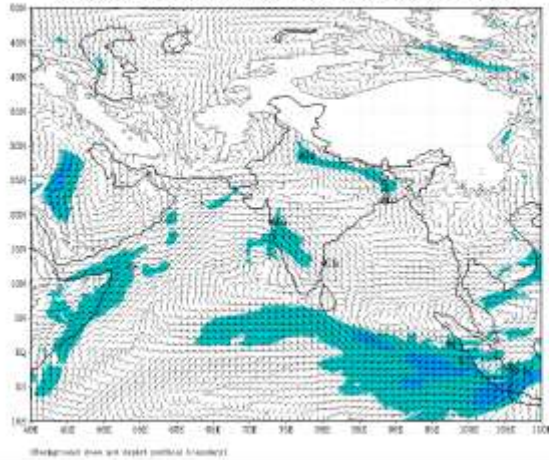
IMD :GFS MODEL(12 Km) MSL Pressure (hPa) FORECAST (48 HR)
based on 00 UTC of 02-12-2024 valid for 00 UTC of 04-12-2024



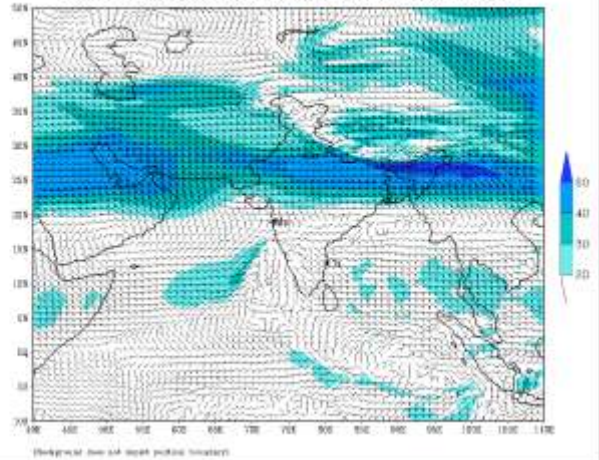
IMD :GFS (T1534) 10m WIND (kt) AND 2m RH (%) FORECAST (48 HR)
based on 00 UTC of 02-12-2024 valid for 00 UTC of 04-12-2024



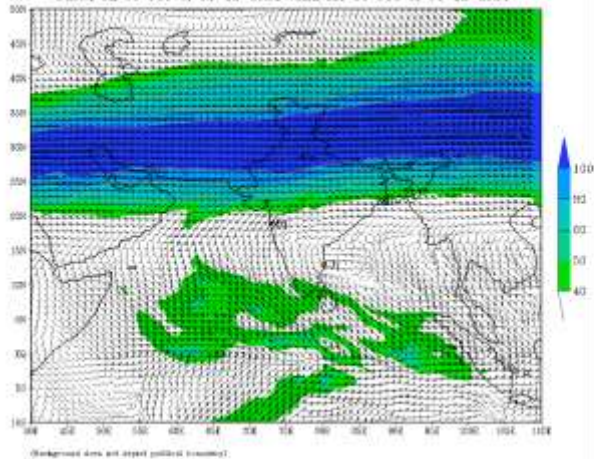
IMD:GFS MODEL(12 Km) 850 hPa WIND (kt) FORECAST (48 HR)
based on 00 UTC of 02-12-2024 valid for 00 UTC of 04-12-2024



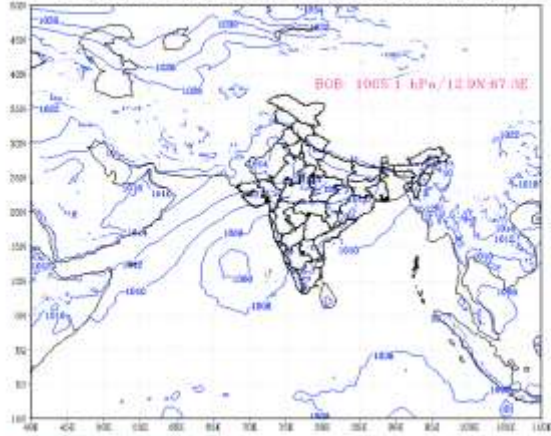
IMD:GFS MODEL(12 Km) 500 hPa WIND (kt) FORECAST (48 HR)
based on 00 UTC of 02-12-2024 valid for 00 UTC of 04-12-2024



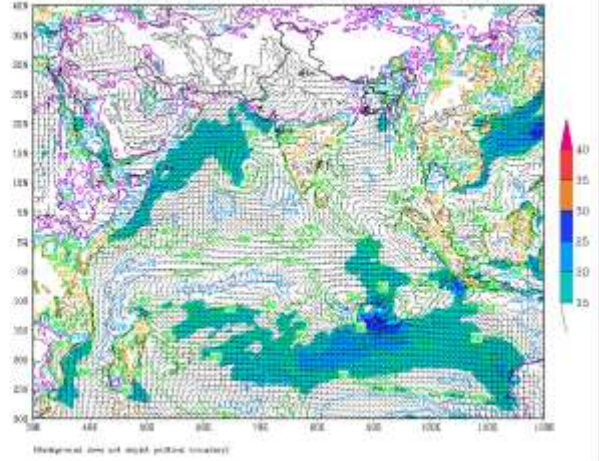
IMD :GFS MODEL(12 Km) 200 hPa WIND (kt) FORECAST (48 HR)
based on 00 UTC of 02-12-2024 valid for 00 UTC of 04-12-2024



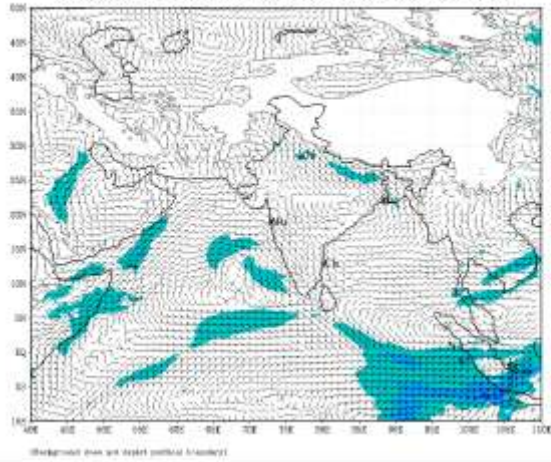
IMD :GFS MODEL(12 Km) MSL Pressure (hPa) FORECAST (72 HR)
based on 00 UTC of 02-12-2024 valid for 00 UTC of 05-12-2024



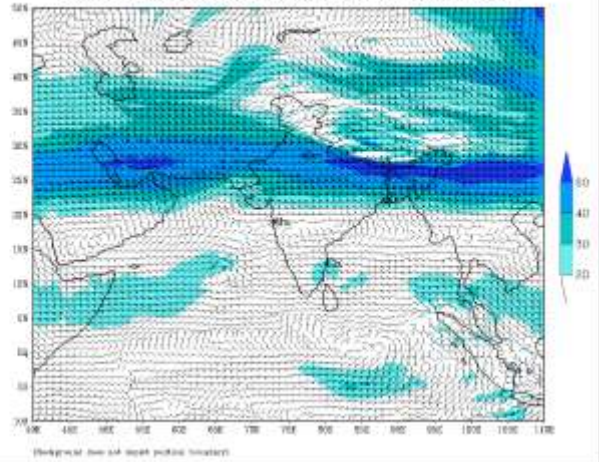
IMD GFS (T1534) 10m WIND (kt) AND 2m RH (%) FORECAST (72 HR)
based on 00 UTC of 02-12-2024 valid for 00 UTC of 05-12-2024



IMD:GFS MODEL(12 Km) 850 hPa WIND (kt) FORECAST (72 HR)
based on 00 UTC of 02-12-2024 valid for 00 UTC of 05-12-2024



IMD:GFS MODEL(12 Km) 500 hPa WIND (kt) FORECAST (72 HR)
based on 00 UTC of 02-12-2024 valid for 00 UTC of 05-12-2024



IMD :GFS MODEL(12 Km) 200 hPa WIND (kt) FORECAST (72 HR)
based on 00 UTC of 02-12-2024 valid for 00 UTC of 05-12-2024

