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

Tropical Cyclone Forecast Programme
Report Dated 16th November 2024

Time of Issue: 0800 UTC

Synoptic features (based on 0300 UTC analysis):

Yesterday's cyclonic circulation over Gulf of Mannar & adjoining Sri Lanka coast now lay as a trough from Comorin area to southwest Bay of Bengal and extends upto 1.5 km above mean sea level at 0300 UTC of today, the 16th November, 2024.

Environmental Features:

Parameter	Bay of Bengal (BoB)	Arabian Sea (AS)
Sea Surface Temperature (SST) ºC	➢ 26-28°C over Northern BoB and 29-31°C over rest BoB.	➢ 27-29°C over northern, west central and southwest parts of AS off Somalia, Yemen coasts. ➢ 29-31°C over rest of AS.
Tropical Cyclone Heat Potential (TCHP) kJ/cm^2	➢ 160-180 over northeastern & east central BoB & 100-140 over south Andaman Sea and north, southeast BoB & adjoining EIO. ➢ 70-80 over remaining parts of BoB	➢ 100-110 over southeast AS & adjoining EIO. ➢ 30-60 over west central & southwest AS off Oman, Yemen & Somalia coasts. ➢ 60-80 over rest of the Arabian Sea.
Cyclonic Relative - vorticity (X10^{-6}s^{-1})	➢ 15-20 over northern BoB.	➢ 10-20 over entire southern AS ➢ 20-30 over northeast adjoining eastcentral AS southwest. ➢
Low Level convergence (X10^{-5} s^{-1})	➢ 5 over southwest BoB off Tamil Nadu/Karnataka coasts.	➢ No significant convergence
Upper-Level divergence (X10^{-5} s^{-1})	➢ No significant Divergence	➢ 5-10 over Kerala coast and Comorin area.
Vertical Wind Shear (VWS knots) **Low: 05-10 knots** **Moderate: 10-20 knots** **High: >20 knots**	➢ High over northern BoB. ➢ Low-Moderate over rest of BoB.	➢ High over northern adjoining central AS. ➢ Low-Moderate over rest of AS.
Wind Shear Tendency (knots)	Increasing over northern parts of BoB adjoining Andaman Islands area.	Increasing over northern AS and Decreasing over central adjoining southwest parts of AS.
Upper tropospheric Ridge	At 15^0 N.	At 16^0 N.

Satellite observations based on INSAT imagery (0300 UTC):

a) Over the BoB & Andaman Sea: -

Scattered low and medium clouds with embedded moderate to intense convection lay over westcentral Bay of Bengal, south Bay of Bengal and Andaman Sea.

b) Over the Arabian Sea:

Scattered low and medium clouds with embedded intense to very intense convection lay over south parts of central Arabian Sea, south Arabian sea, Lakshadweep islands area, Maldives & Comorin area.

c) Outside India:

Scattered low and medium clouds with embedded moderate to intense convection lay over Palk strait, Maldives, China yellow sea, east China sea, Taiwan, Sumatra Strait of Malacca, Malaysia, Borneo, south China sea, Java islands & sea, Celebes islands & sea, Philippines, Sulu sea, Mozambique Channel, north Madagascar and over Indian ocean between latitude 5.0^0 N to 25.0^0 S longitude 40.0^0 E to 110.0^0 E.

M.J.O. Index:

Madden Julian Oscillation (MJO) index is currently in Phase 2 with an amplitude less than 1. It will be in the same phase with amplitude less than 1 till 18th, it will remain in the same phase till 24th with amplitude greater than 1.

Storms and Depression over east China sea adjoining Taiwan/ South Indian Ocean:

Vortex (Usagi) over east China sea adjoining Taiwan centered near 22.1^0 N / 120.3^0 E. Intensity T2.0/2.5. Maximum sustained winds 34-47 kts. Associated scattered to broken low and medium clouds with embedded moderate to intense convection lay over area between latitude 20.0^0 N to 28.0^0 N longitude 120.0^0 E to 128.0^0 E & Taiwan.

Vortex (Bheki) over South Indian Ocean (area E80) centered near 13.7S / 73.2E. Intensity T4.5/4.5. Maximum sustained winds 64-89 kts. Associated broken low and medium clouds with embedded intense to very intense convection lay over area between latitude 11.0^0 S to 18.0^0 S longitude 70.0^0 E to 77.0^0 E.

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 circulation over BoB.	No Significant circulation over AS.
IMD-GEFS	No Significant circulation over BoB.	No Significant circulation over AS.
IMD-WRF	No Significant circulation over AS.	A Cyclonic circulation is observed over Southwest Arabian sea on 19th November.
NCMRWF-NCUM(G)	No Significant circulation over BoB.	No Significant circulation over AS.
NCMRWF-NCUM(R)	No Significant circulation over BoB.	No Significant circulation over AS.
NCMRWF-NEPS	No Significant circulation over BoB.	No Significant circulation over AS.
ECMWF	No Significant circulation over BoB.	An extended cyclonic circulation over southeast Arabian Sea on 17th November, having its westwards movement till 19th November towards Somalia coasts without intensification.
NCEP-GFS	No Significant circulation over BoB.	No Significant circulation over AS.

Summary:

(a) Bay of Bengal:

Most of the models are indicating no significant cyclonic circulation over Bay of Bengal for the next seven days. However, IMD WRF Models is indicating an extended cyclonic circulation over southwest Arabian Sea on 19th November having westward movement without intensification. ECMWF model is indicating an extended cyclonic circulation over southeast Arabian Sea on 17th November having westward movement till 19th November towards Somalia coast without intensification.

(b) Arabian Sea

Most of the models are indicating no significant cyclonic circulation over Arabian Sea for the next seven days.

Inference:

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

No fresh cyclogenesis is likely over the Bay of Bengal & Arabian Sea for the next seven days.

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

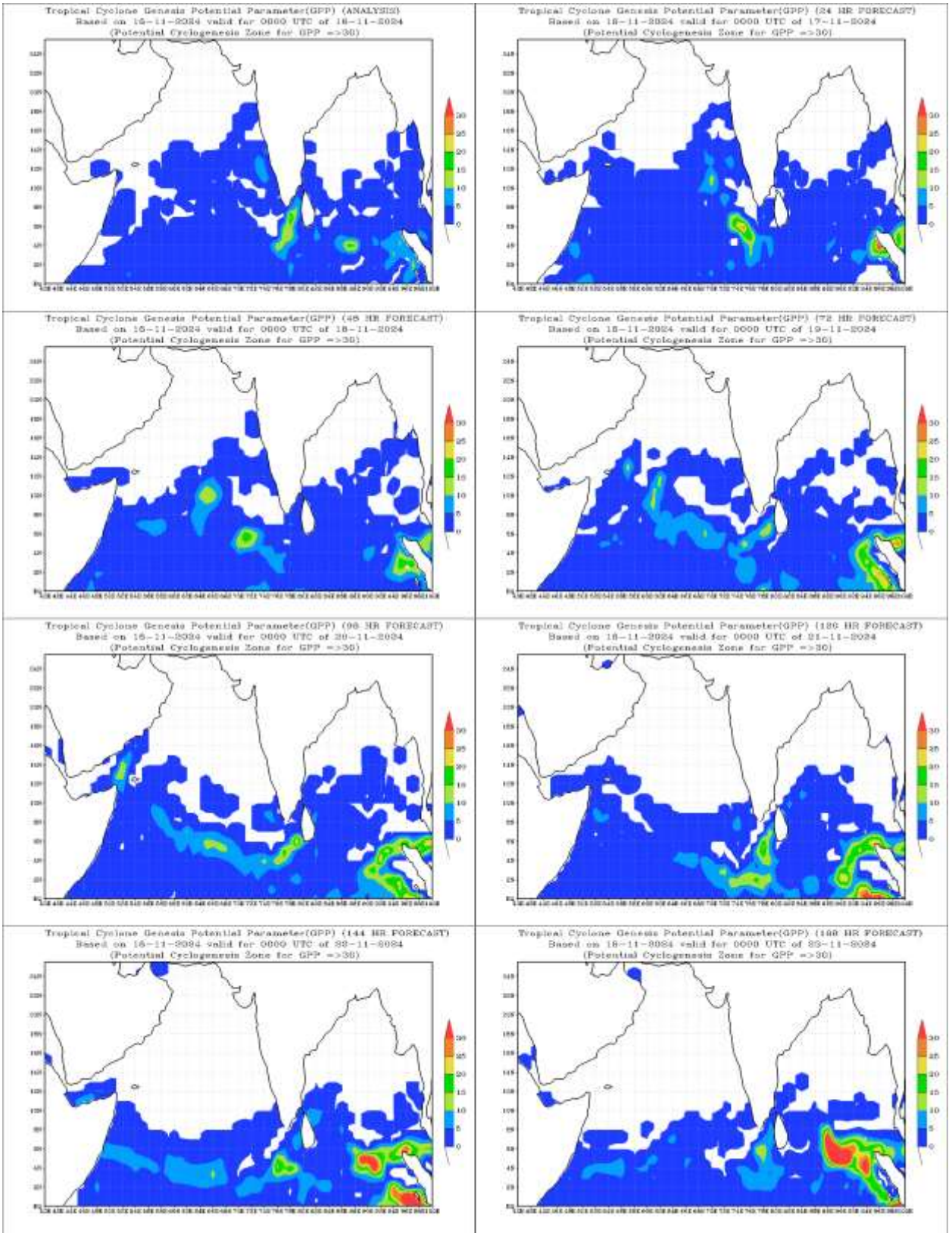
Probability of cyclogenesis (formation of depression and above intensity systems) over the Arabian Sea during next 168 hours:

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


Tropical Cyclone Genesis Potential Parameter(GPP) (ANALYSIS)
Based on 16-11-2024 valid for 0000 UTC of 16-11-2024
(Potential Cyclogenesis Zone for GPP =>30)
Tropical Cyclone Genesis Potential Parameter(GPP) (24 HR FORECAST)
Based on 16-11-2024 valid for 0000 UTC of 17-11-2024
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Tropical Cyclone Genesis Potential Parameter(GPP) (48 HR FORECAST)
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Based on 16-11-2024 valid for 0000 UTC of 23-11-2024
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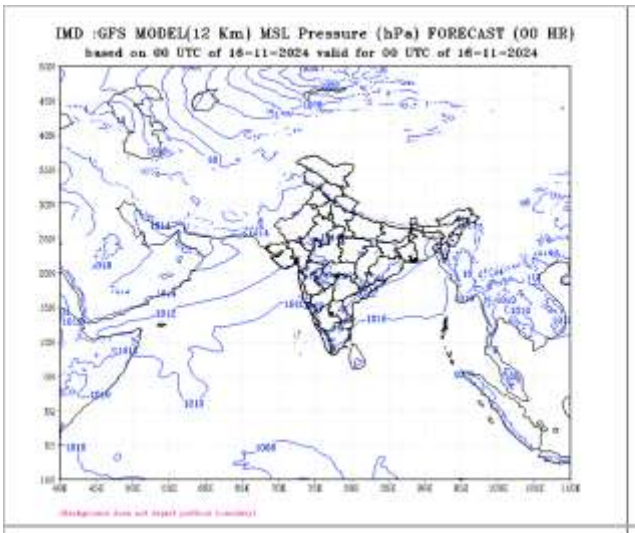
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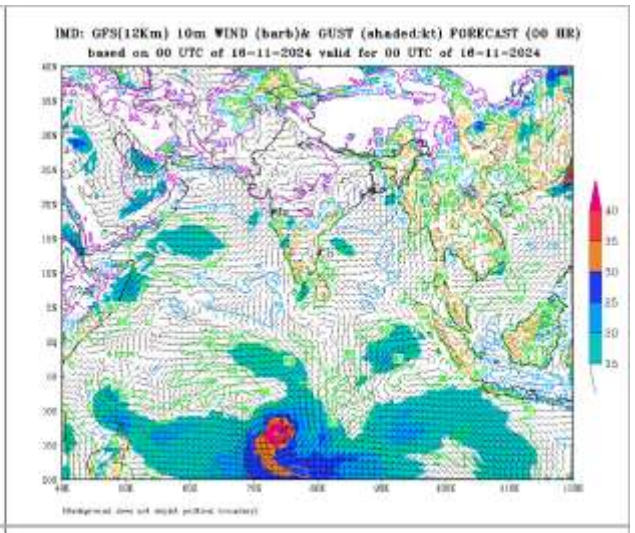
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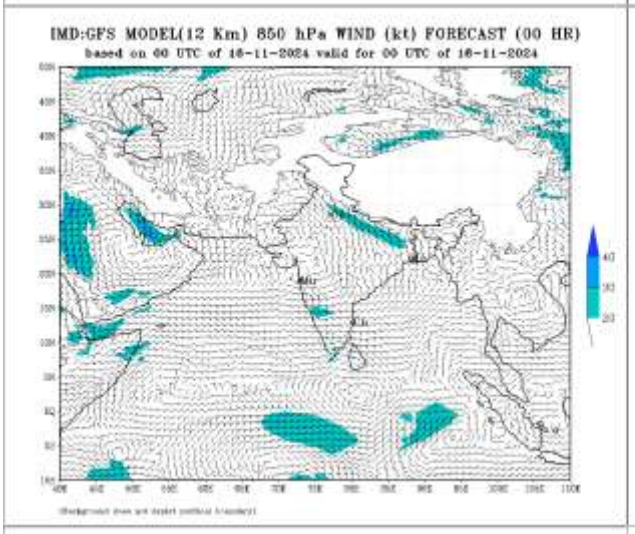
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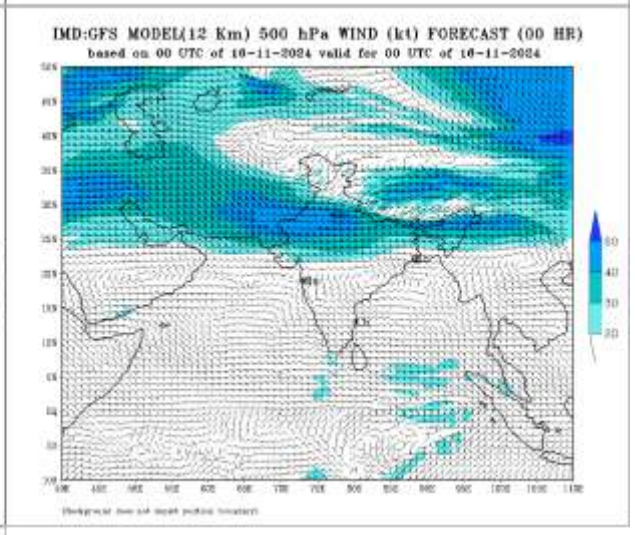
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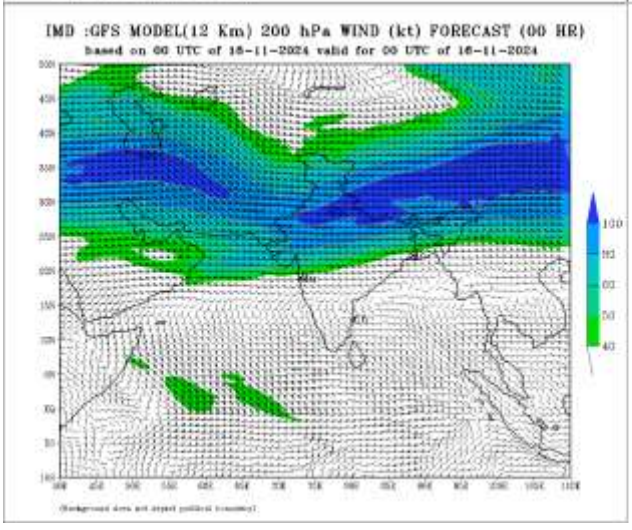
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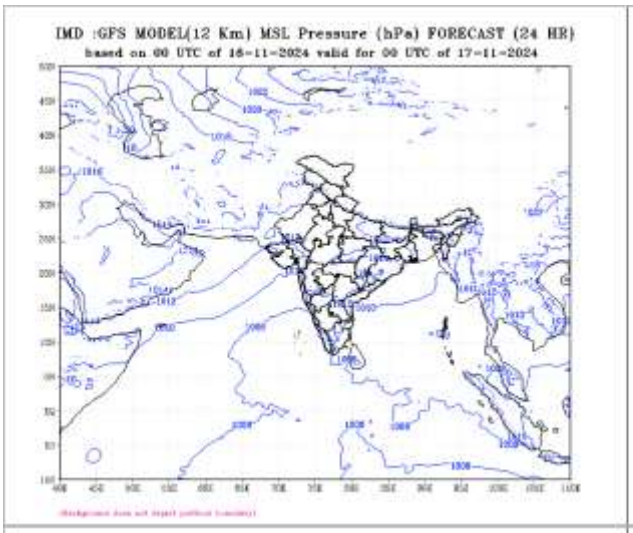
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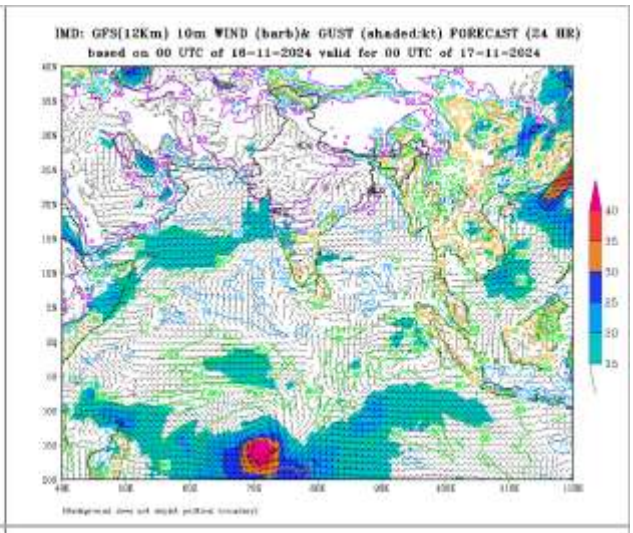
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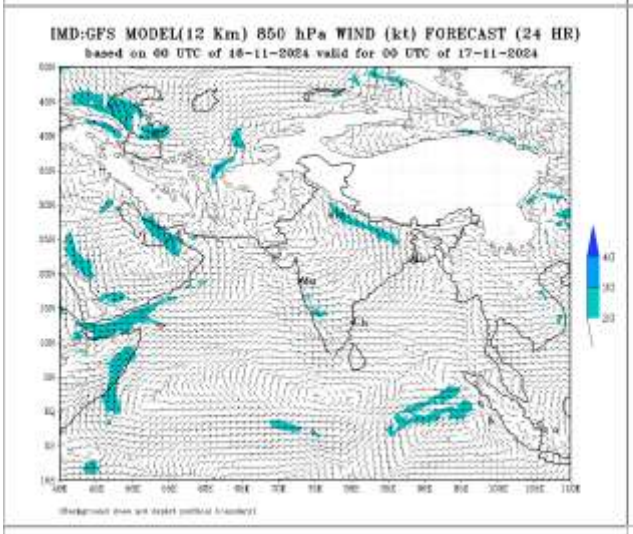
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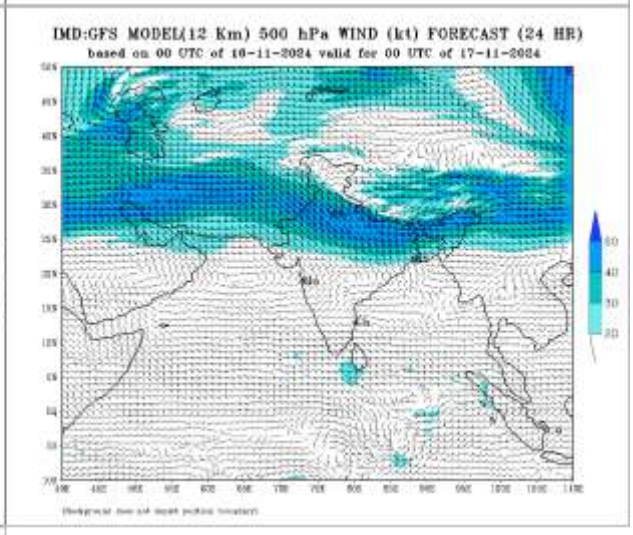
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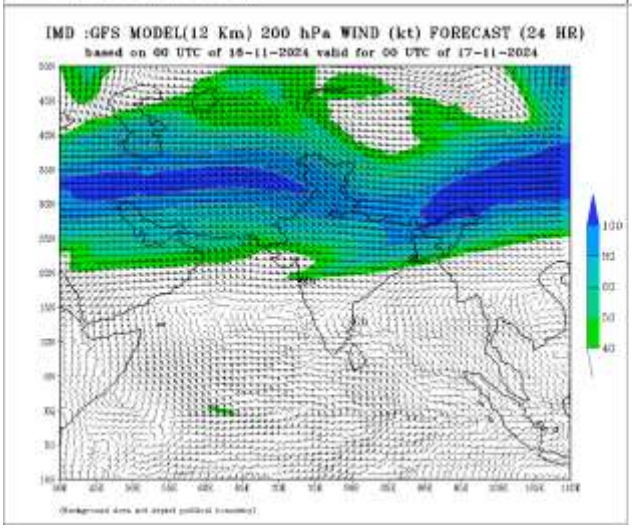
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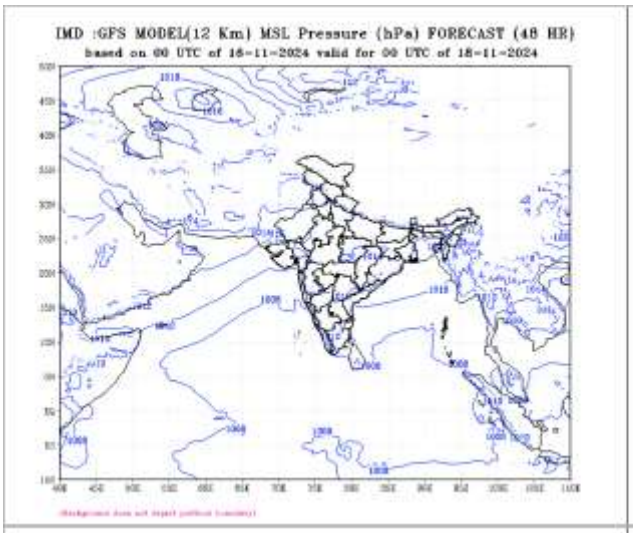
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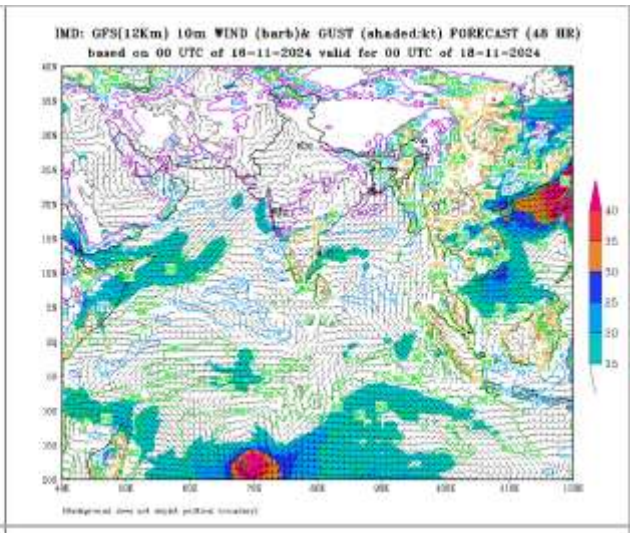
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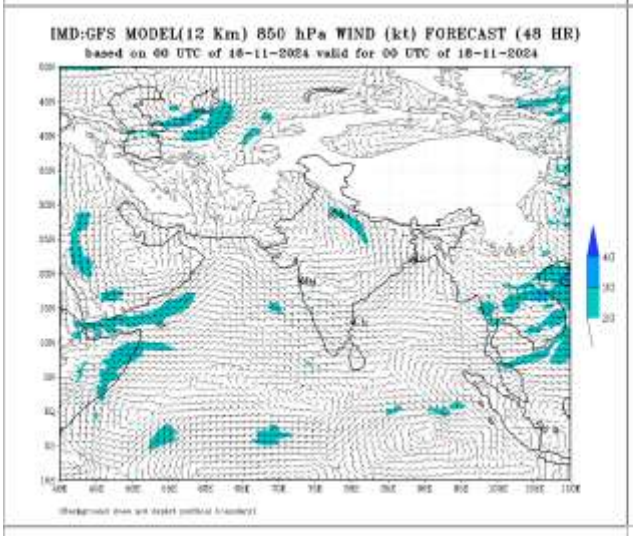
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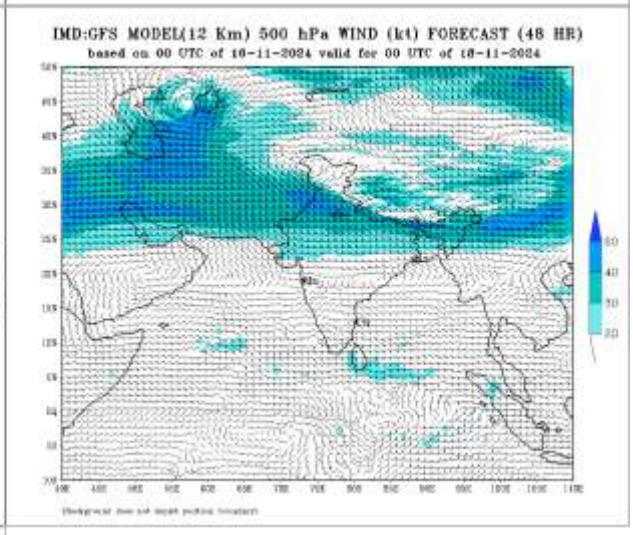
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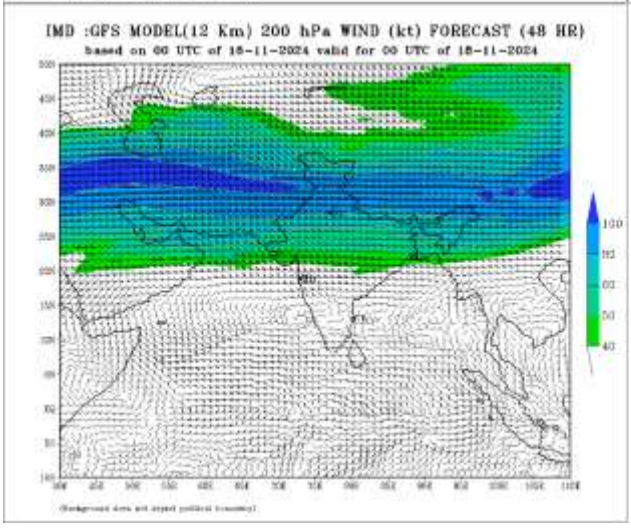
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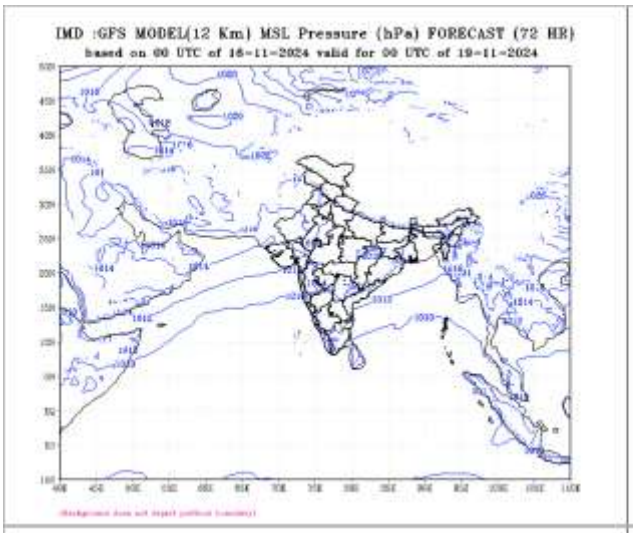
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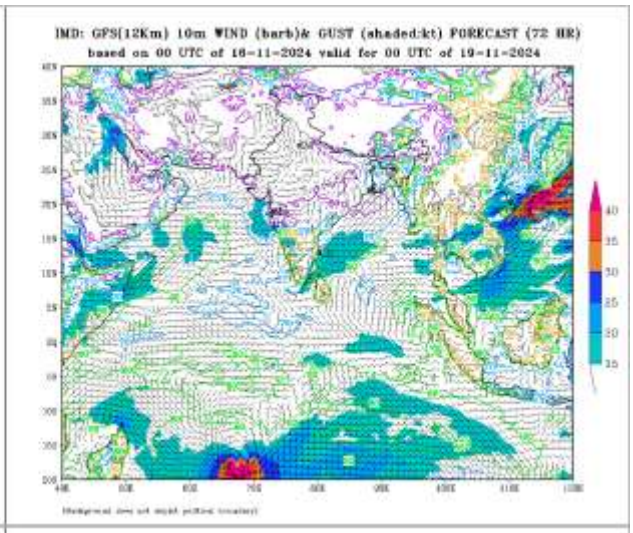
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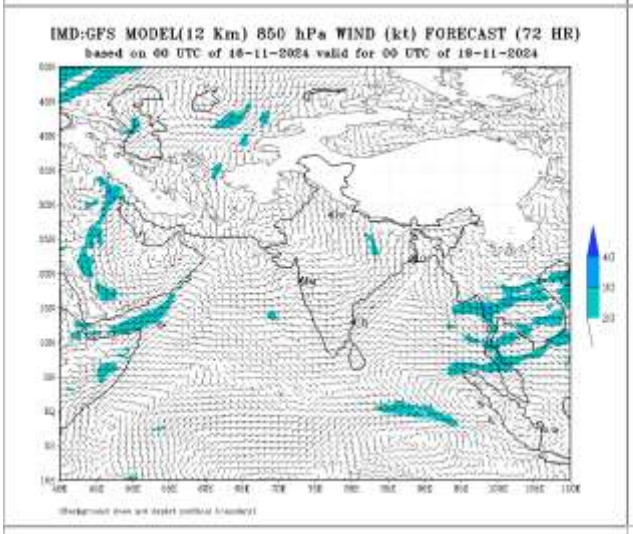
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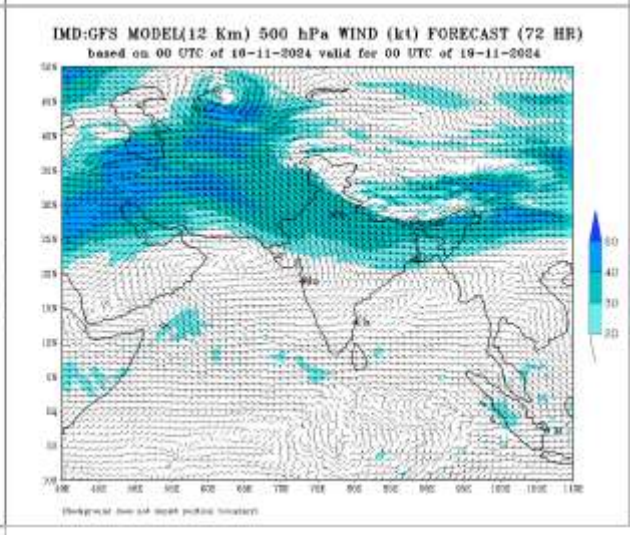
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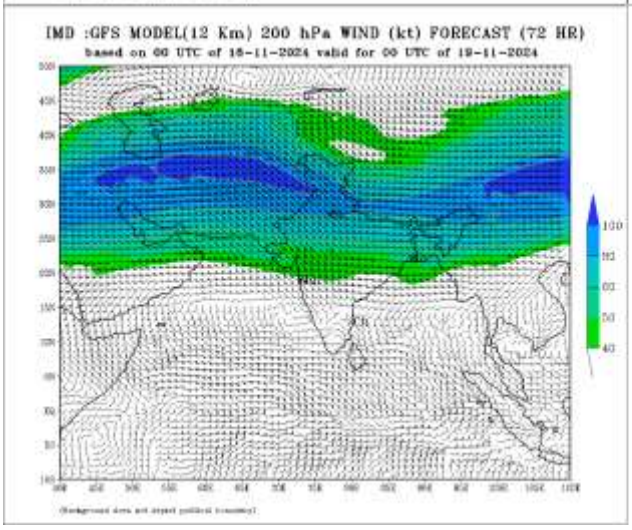
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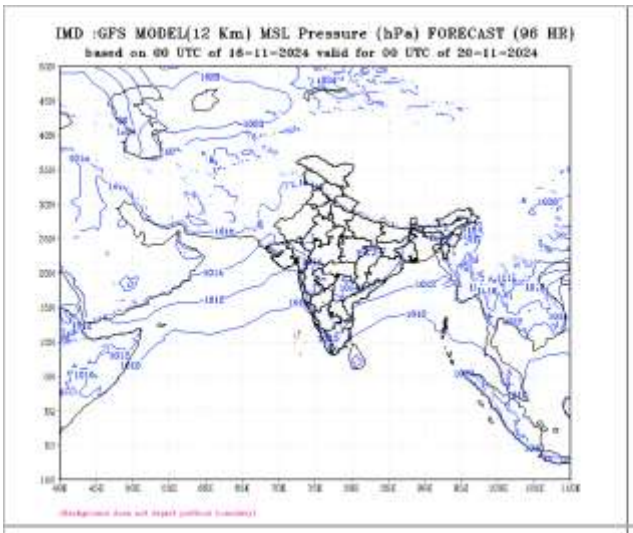
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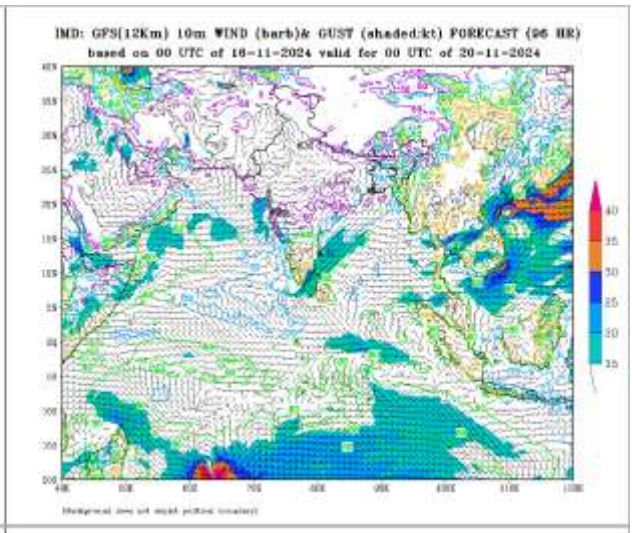
based on 00 UTC of 16-11-2024 valid for 00 UTC of 20-11-2024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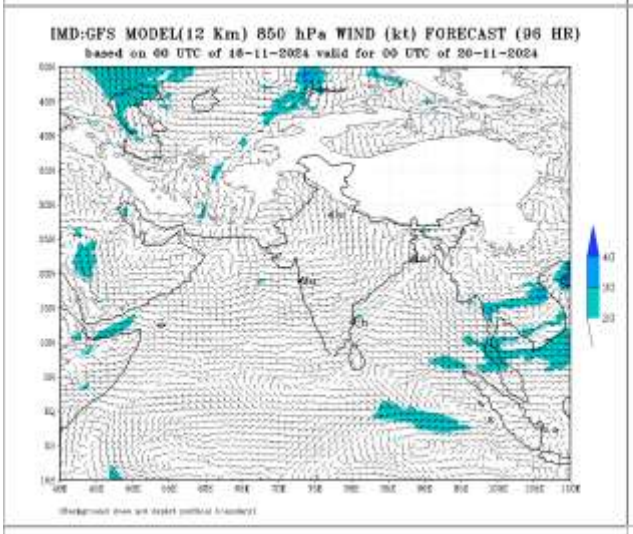
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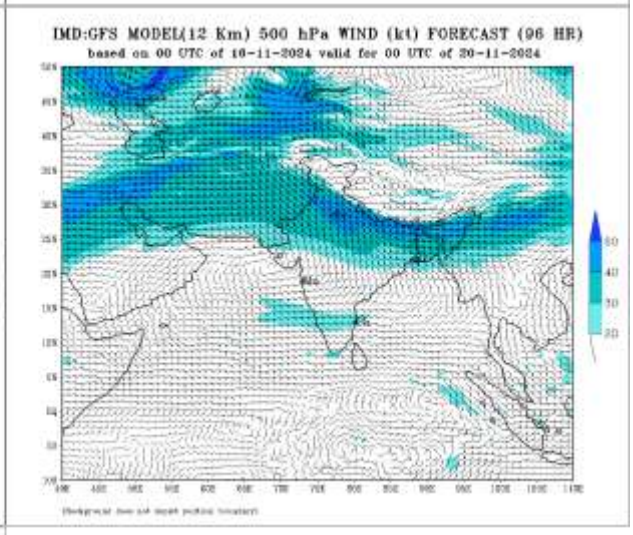
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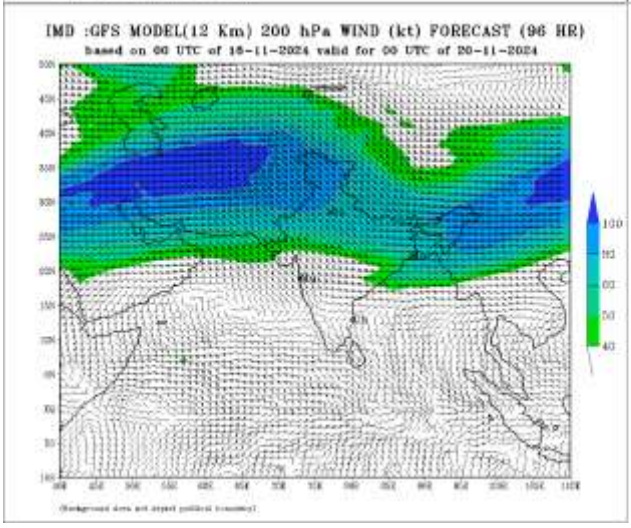
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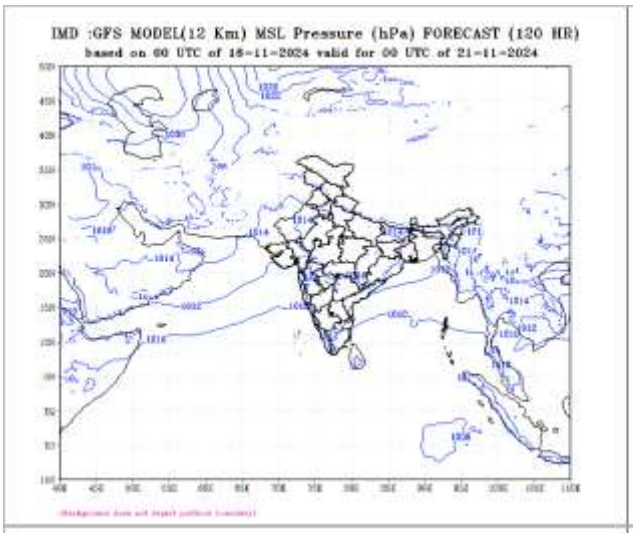
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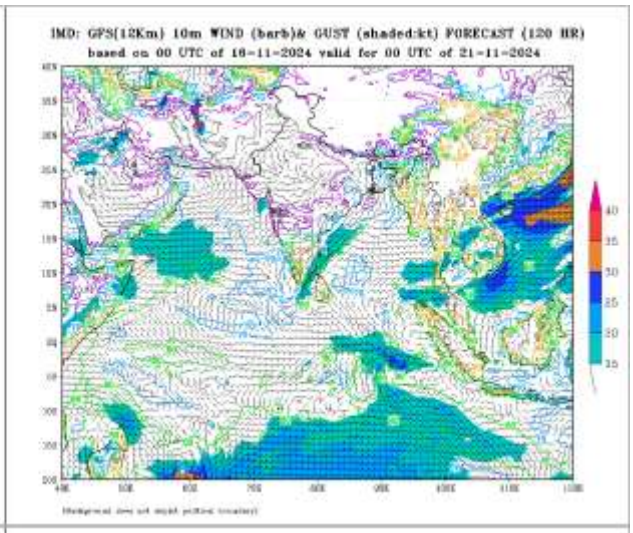
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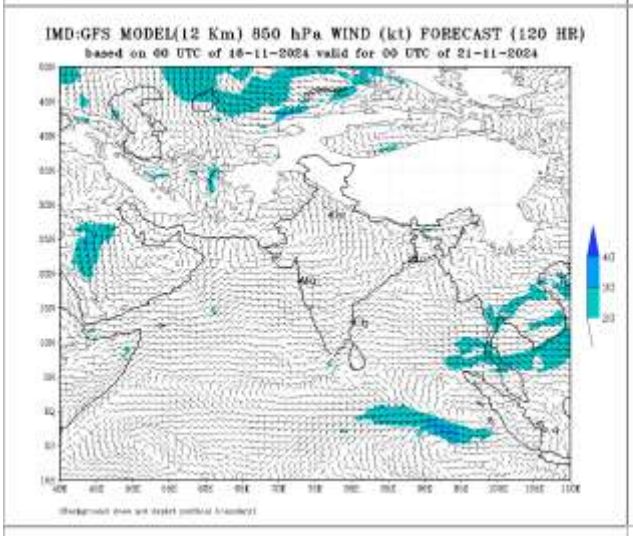
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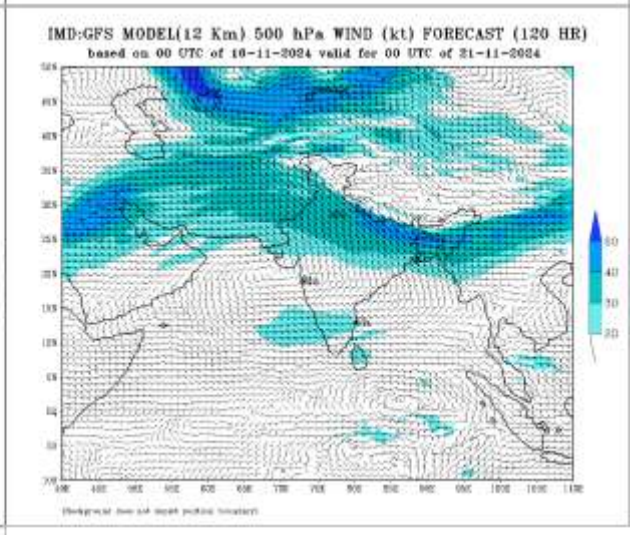
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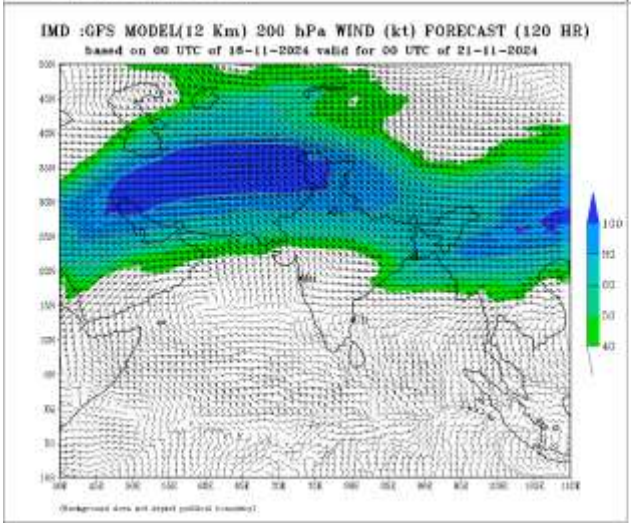
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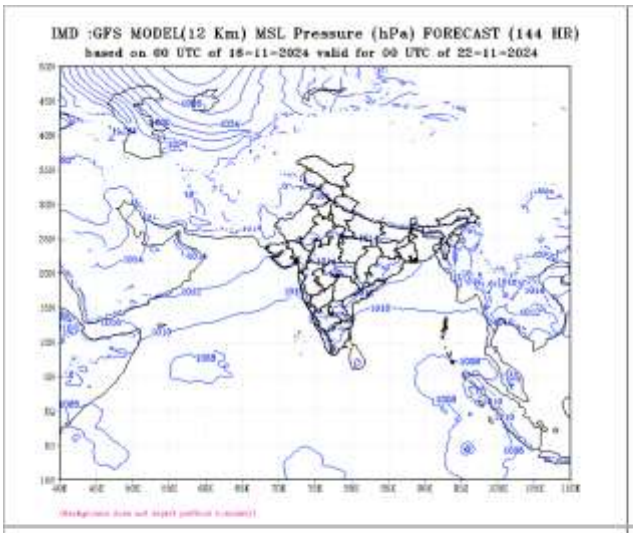
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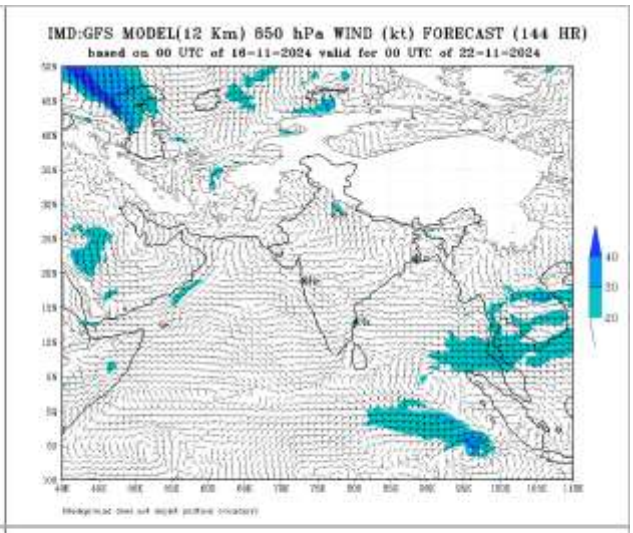
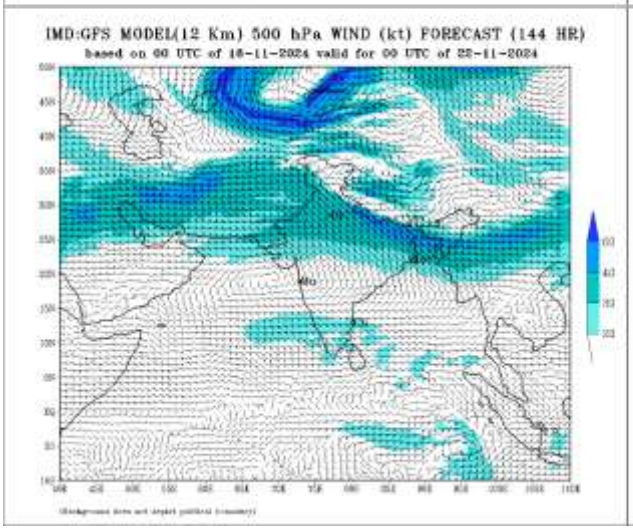
based on 00 UTC of 16-11-2024 valid for 00 UTC of 22-11-2024


IMD:GFS MODEL(12 Km) 850 hPa WIND (kt) FORECAST (144 HR)
based on 00 UTC of 16-11-2024 valid for 00 UTC of 22-11-2024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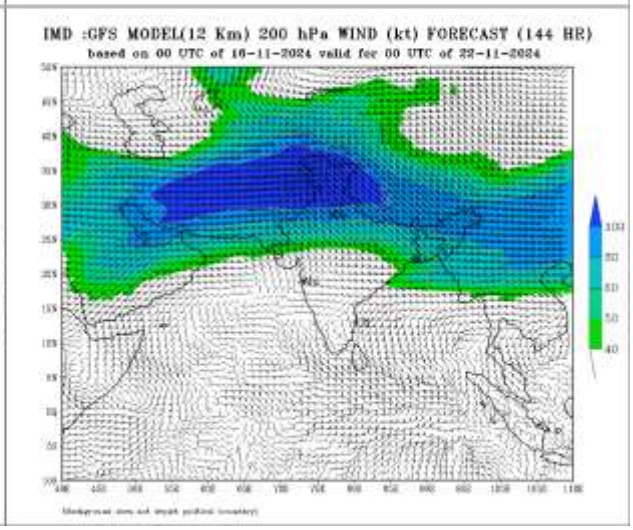
based on 00 UTC of 16-11-2024 valid for 00 UTC of 22-11-2024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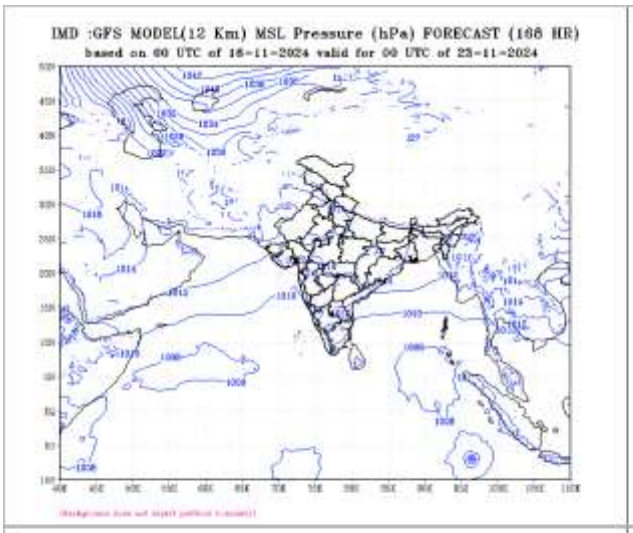
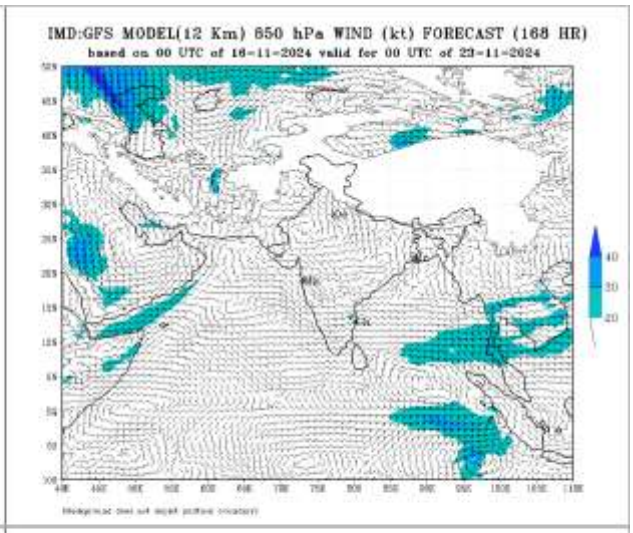
based on 00 UTC of 16-11-2024 valid for 00 UTC of 22-11-2024


IMD :GFS MODEL(12 Km) MSL Pressure (hPa) FORECAST (168 HR)
based on 00 UTC of 16-11-2024 valid for 00 UTC of 23-11-2024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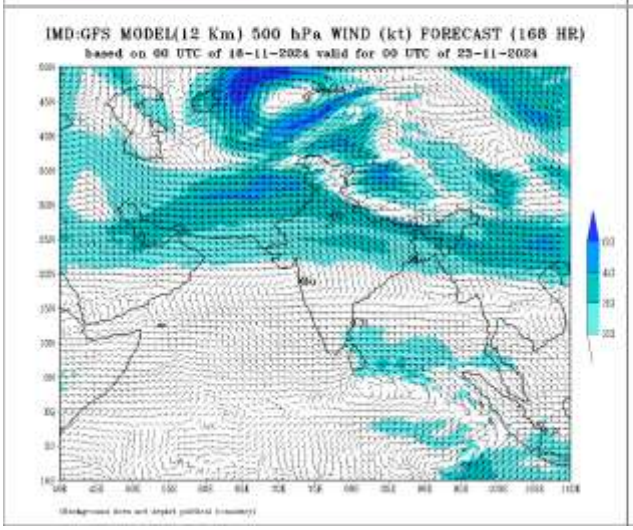
based on 00 UTC of 16-11-2024 valid for 00 UTC of 23-11-2024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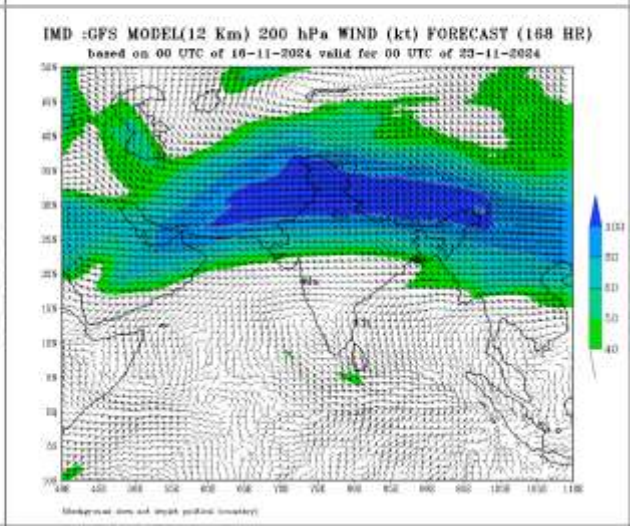
based on 00 UTC of 16-11-2024 valid for 00 UTC of 23-11-2024


IMD :GFS MODEL(12 Km) 200 hPa WIND (kt) FORECAST (168 HR)
based on 00 UTC of 16-11-2024 valid for 00 UTC of 23-11-2024