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

Tropical Cyclone Forecast Programme
Report Dated 25th October, 2024

Time of Issue: 1200 UTC

Synoptic features (based on 0600 UTC analysis):

Sub: Cyclonic storm "DANA" over north coastal Odisha

- Yesterday's severe cyclonic storm "DANA" (pronounced as Dana) over northwest Bay of Bengal moved north-northwestwards and crossed north Odisha coast close to Habalikhati Nature Camp (Bhitarkanika) and Dhamara during 0130 hrs IST to 0330 hrs IST of today, the 25th October as a severe cyclonic storm with a wind speed of 100-110 kmph gusting to 120 kmph. The landfall process continued during midnight (2330 hours IST) of yesterday (24th October) till morning (0830 hours IST) of today, the 25th October.

  Thereafter, it moved northwestwards, weakened into a deep depression and lay centred near latitude 21.4°N and longitude 86.4°E at 1430 hrs IST of today, the 25th October, about 40 km north-northwest of Bhadrak. The maximum sustained wind speed around the centre of the cyclone is about 55-65 kmph gusting to 75 kmph.

  It is likely to move nearly westwards across north Odisha and weaken gradually into a depression during next 12 hours.

- The upper air cyclonic circulation over Southeast Arabian Sea & adjoining Lakshadweep area now lies over Southeast & adjoining Southwest Arabian Sea and extends upto 3.1 km above mean sea level persists.

- A cyclonic circulation lies over Southeast Arabian Sea off south Kerala coast and extends upto 1.5 km above mean sea level.

Parameter	Bay of Bengal (BoB)	Arabian Sea (AS)
Sea Surface Temperature (SST) ºC	30°C over central & north BoB	➢ 28-30°C over eastern parts of AS. ➢ 27°C over the westcentral and southwest parts of AS
Tropical Cyclone Heat Potential (TCHP) kJ/cm^2	➢ 100 over westcentral BoB, ➢ Around 130-140 over north BoB	➢ 80-90 over central parts of south AS and adjoining EIO. ➢ 60-70 over eastcentral AS ➢ < 40 over westcentral AS & off Oman and Somalia coasts.
Cyclonic Relative vorticity (X10^{-6}s^{-1})	180 over the coastal Odisha and adjoining sea area and extending up to 700 hPa level.	➢ 30-40 over parts of south AS and Lakshadweep area. ➢ 20-30 over westcentral AS off Somalia coast.

Low Level convergence ($X10^{-5}$ s^{-1})	10-15 over northwest BoB and along and off Odisha coast.	➢ 5-10 over parts of south AS. ➢ 10-15 along and off kerala coast, over Lakshadweep area and adjoining southeast AS.
Upper Level divergence ($X10^{-5}$ s^{-1})	10-20 over the north BoB and along and off coastal Odisha. 5-10 over the westcentral BoB and parts of south BoB.	10-10 over along and off south Kerala coast, Comorin area, Laksshadweep area.
Vertical Wind Shear (VWS knots) **Low: 05-10 knots** **Moderate: 10-20 knots** **High: >20 knots**	5-10 over north BoB, 20 over central BoB and 30-40 over south and adjoining central BoB.	10-20 over central AS and 25-30 over north, south AS and adjoining EIO.
Wind Shear Tendency (knots)	Decreasing over the north BoB.	Increasing tendency over eastcentral AS, southeast AS, Lakshadweep area, Comorin area along and off Kerala, Karnataka coasts. Decreasing tendency over Rest of AS.
Upper tropospheric Ridge	along 20 .0°N over BoB	Along 19.0°N over AS.

Satellite observations based on INSAT imagery (0300 UTC):

(a) Over the BoB & Andaman Sea: -

Scattered low/med clouds with embedded moderate to intense convection over Bay of Bengal and Andaman Sea.

(b) Over the Arabian Sea: -

Scattered low/med clouds with embedded moderate to intense convection over south Arabian Sea, lakshadweep islands area, Maldives & Comorin area. Scattered low/med clouds with embedded weak to moderate convection over central Arabian Sea

(c) Convection outside India:

Scattered low/med clouds with embedded moderate to intense convection over north Sri Lanka Palk strait, Gulf of Mannar, Maldives, Tibet, China, Yellow Sea, east China Sea Taiwan, Myanmar, Thailand, Gulf of Thailand, Cambodia, Vietnam, Gulf of Tonkin, Hainan, Sumatra, Strait of Malacca, Malaysia, Borneo, South China Sea, Java islands & Sea, Celebes Islands & Sea, Philippines Sulu sea, S Madagascar, south Mozambique channel and over Indian Ocean between lat 5.0N to 18.0S, long 50.0E to 100.0E.

M.J.O. Index:

Madden Julian Oscillation (MJO) index is currently in Phase 5 with amplitude greater than 1. It is likely to continue in same phase during next 5 days with amplitude remaining more 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	IMD GFS is indicating that SCS crossed Odisha coast (20.8/86.0) around midnight of 24th and early hours of 25th. Model is indicating southwestwards of its remnant towards eastcentral Arabian Sea.	Cyclonic circulation over southeast Arabian Sea as on today having westward movement till 28th.
IMD-GEFS	IMD GEFS is indicating that the system crossed Odisha coast (20/85.0) as CS around midnight of 24th and early hours of 25th. Model is indicating southwestwards of its remnant towards eastcentral Arabian Sea.	Cyclonic circulation over southeast Arabian Sea as on today having westward movement till 26th.
IMD-WRF	IMD GEFS is indicating that the system crossed Odisha coast (20/85.0) as CS around midnight of 24th and early hours of 25th. Model is indicating southwestwards of its remnant towards eastcentral Arabian Sea.	Cyclonic circulation over southeast Arabian Sea as on today having westward movement till 28th.
NCMRWF-NCUM(G)	IMD GEFS is indicating that the system crossed Odisha coast (21/86.0) as SCS around midnight of 24th and early hours of 25th. Model is indicating southwestwards of its remnant towards eastcentral Arabian Sea.	Extended cyclonic circulation over southeast Arabian Sea as on today having westward movement till 26th.
NCMRWF-NCUM(R)	Model is indicating that the system crosed Odisha coast (20/85.0) as SCS around midnight of 24th and early hours of 25th. Model is indicating southwestwards of its remnant.	Extended cyclonic circulation over southeast Arabian Sea as on today having westward movement till 26th.
NCMRWF-NEPS	Model is indicating that the system crossed Odisha coast (21.5/87.0) as SCS around midnight of 24th and early hours of 25th. Model is indicating southwestwards of its remnant towards eastcentral Arabian Sea.	Cyclonic circulation over southeast Arabian Sea as on today having westward movement till 27th.
ECMWF	ECMWF is indicating that the system crossed Odisha coast (20.8/86.5) as SCS around midnight of 24th and early hours of 25th. Model is indicating southwestwards of its remnant towards eastcentral Arabian Sea.	Cyclonic circulation over southeast Arabian Sea as on today having westward movement till 26th without further intensification.

NCEP-GFS	NCEP-GFS is indicating that the system crossed Odisha coast (21.0/86.7) as SCS around midnight of 24th and early hours of 25th. Model is indicating southwestwards of its remnant.	Cyclonic circulation over southeast Arabian Sea as on today having westward movement till 26th without further intensification.

Summary:

(a) Bay of Bengal:

All the models are indicating that the system crossed the Odisha coast as a severe cyclonic storm (SCS) around midnight of 24th and early hours of 25th October. Models are also indicating that the remnant of the system will have southwestward movement towards eastcentral Arabian Sea.

(b) Arabian Sea

All the models are indicating an extended cyclonic circulation over southeast Arabian Sea and adjoining Lakshadweep area as on today, having its westward movement without further intensification.

Inference:

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

- The deep depression over north coastal Odisha is likely to move nearly westwards across north Odisha and weaken gradually into a depression during next 12 hours.
- No fresh cyclogenesis is likely over 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

"-" indicate genesis has already occurred.
Probability is indicated as NIL for 0%, LOW for 1-33%, MOD for 34-67% and High for 68-100%.

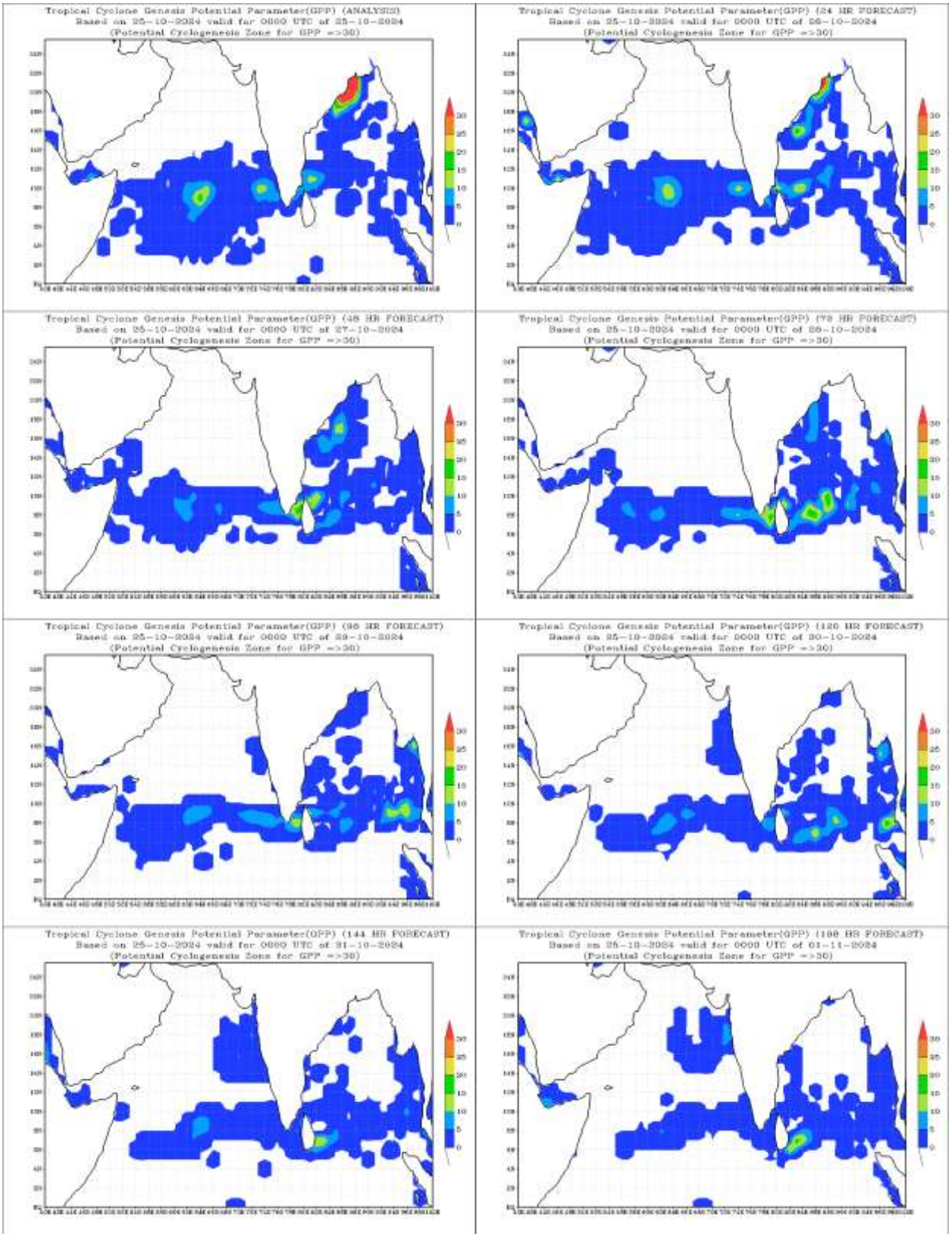
Probability of cyclogenesis (formation of depression and above intensity systems) over the Arabian Sea during next 168 hours:

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 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 25-10-2024 valid for 0000 UTC of 25-10-2024
(Potential Cyclogenesis Zone for GPP =>30)
Tropical Cyclone Genesis Potential Parameter(GPP) (24 HR FORECAST)
Based on 25-10-2024 valid for 0000 UTC of 26-10-2024
(Potential Cyclogenesis Zone for GPP =>30)
Tropical Cyclone Genesis Potential Parameter(GPP) (48 HR FORECAST)
Based on 25-10-2024 valid for 0000 UTC of 27-10-2024
(Potential Cyclogenesis Zone for GPP =>30)
Tropical Cyclone Genesis Potential Parameter(GPP) (72 HR FORECAST)
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Tropical Cyclone Genesis Potential Parameter(GPP) (96 HR FORECAST)
Based on 25-10-2024 valid for 0000 UTC of 29-10-2024
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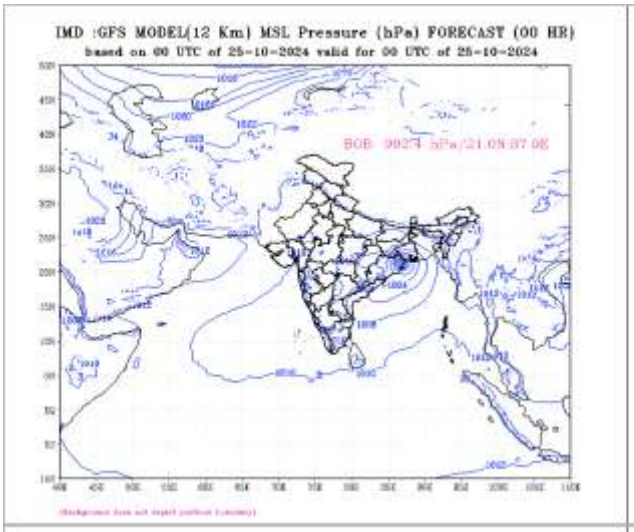
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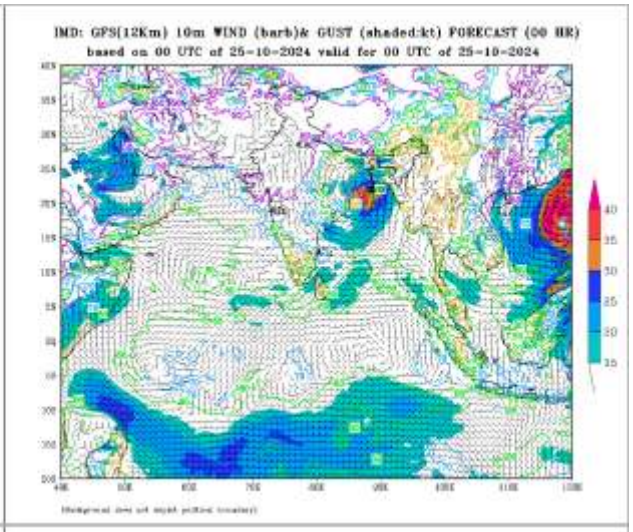
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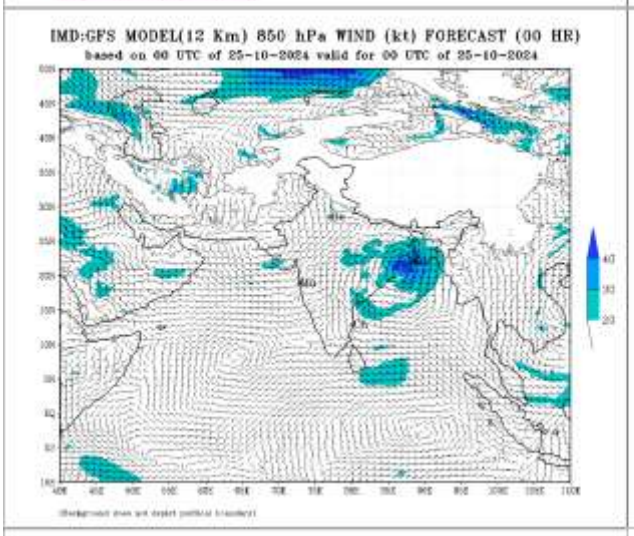
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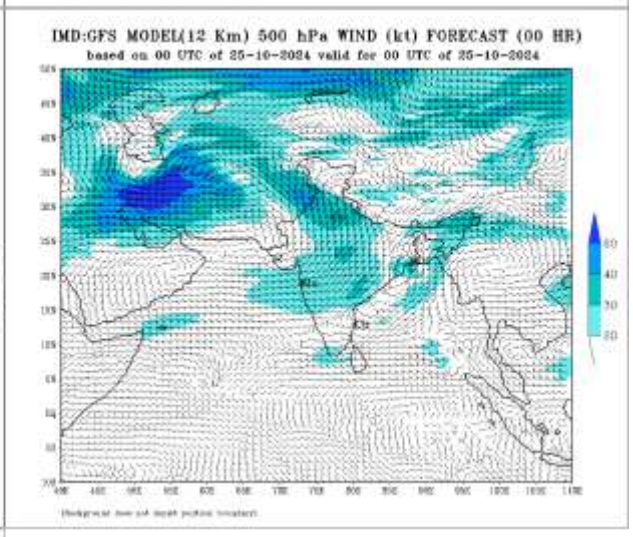
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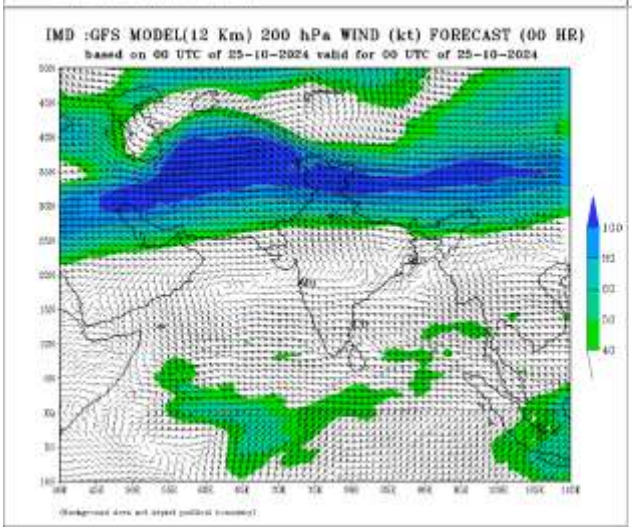
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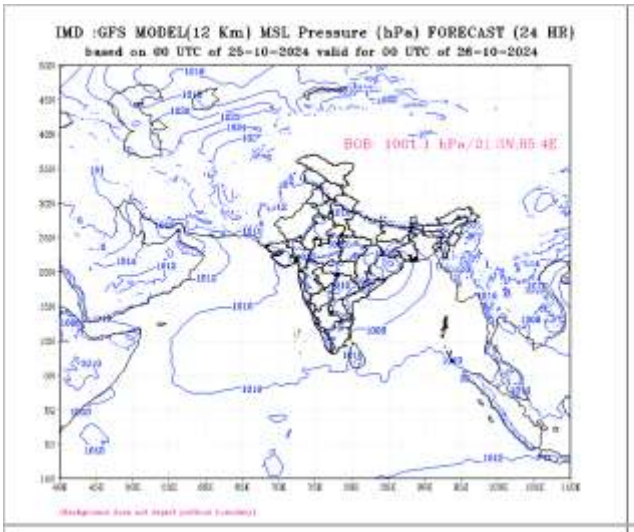
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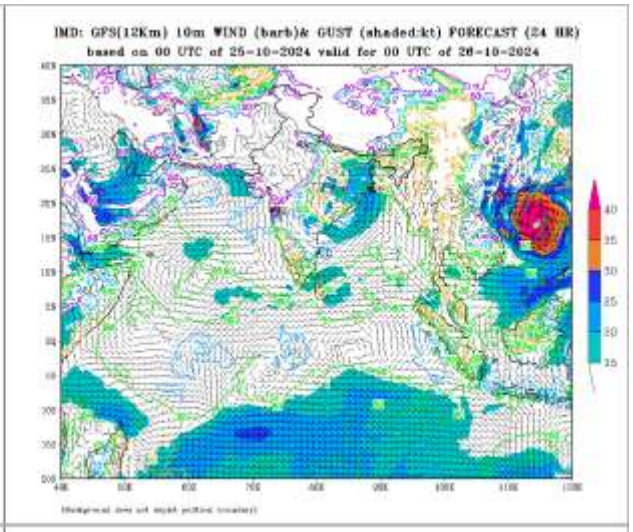
BOB 1001.1 hPa/21.5N,85.4E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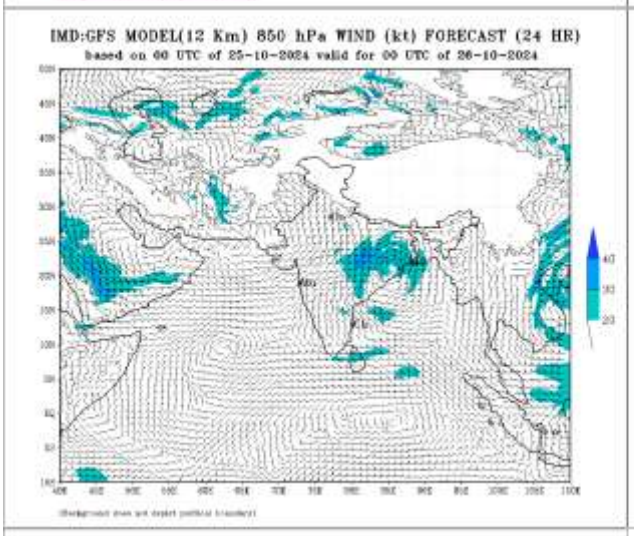
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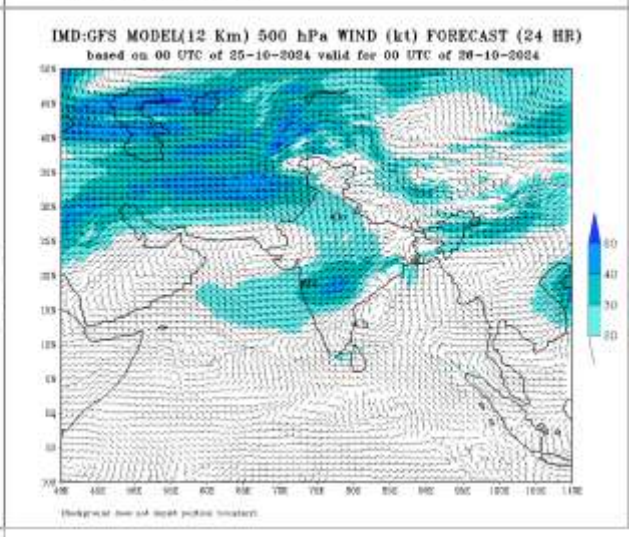
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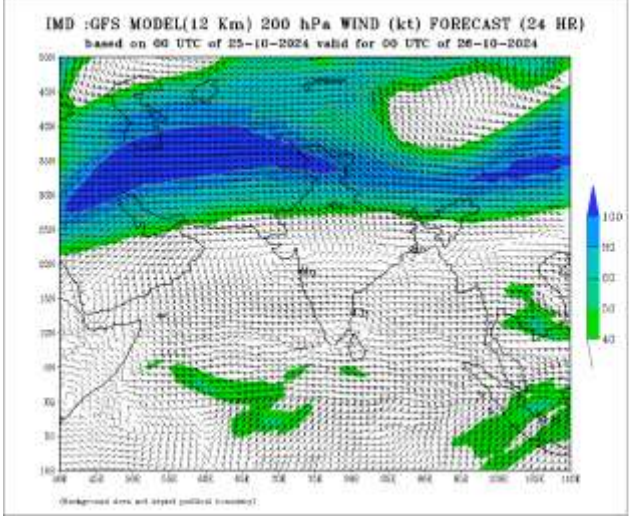
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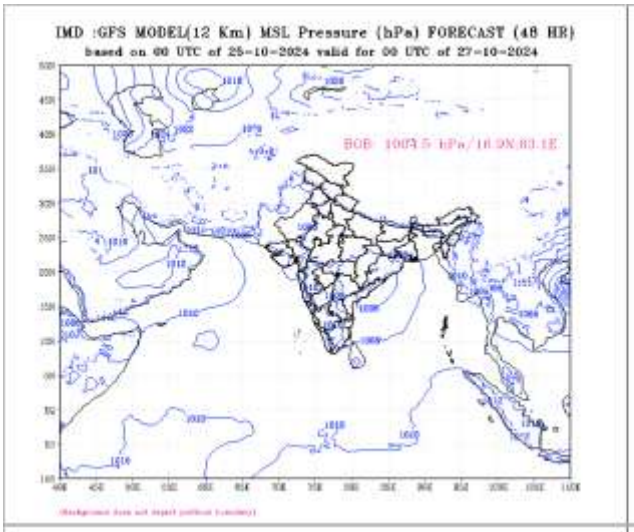
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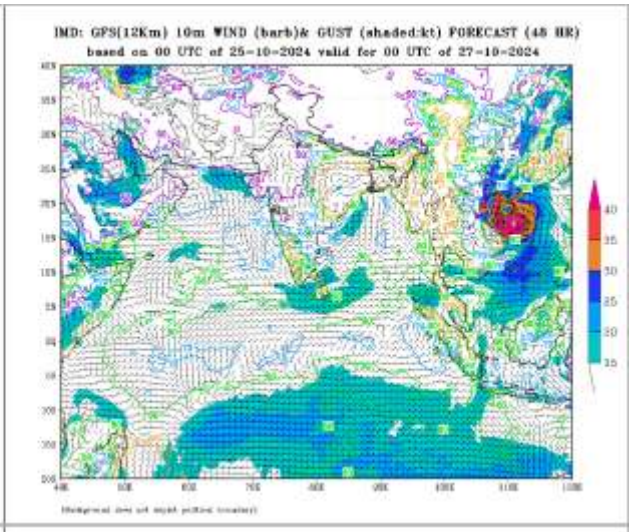
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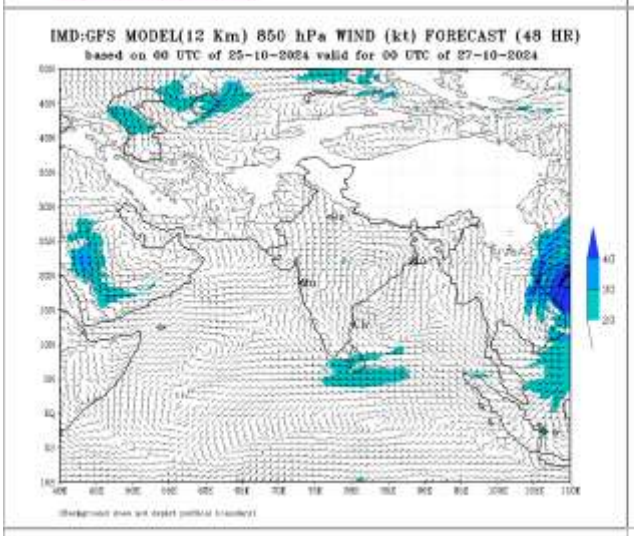
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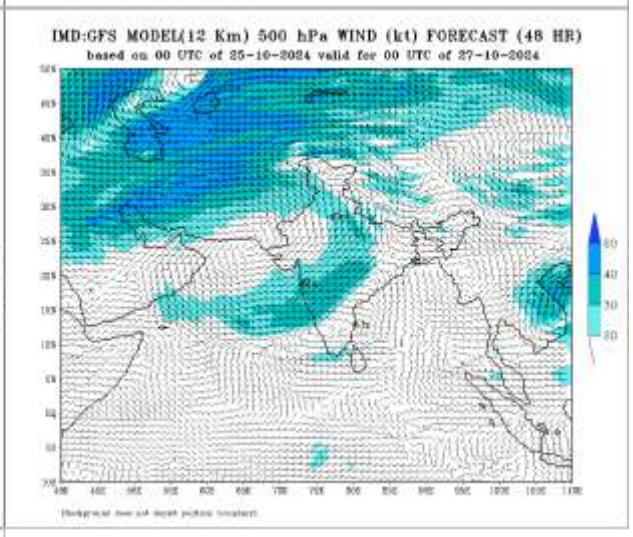
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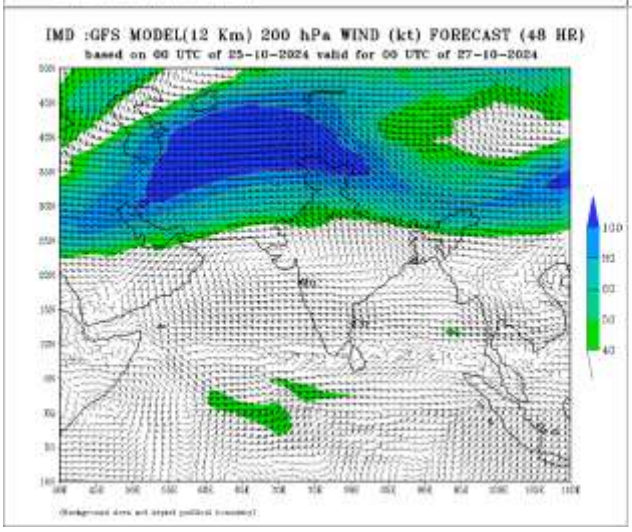
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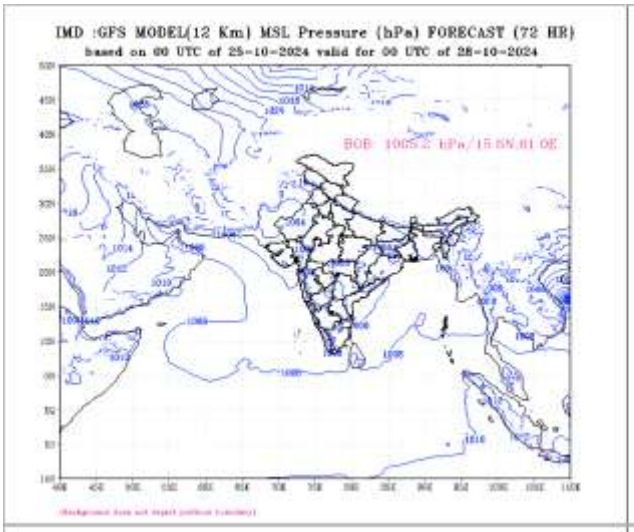
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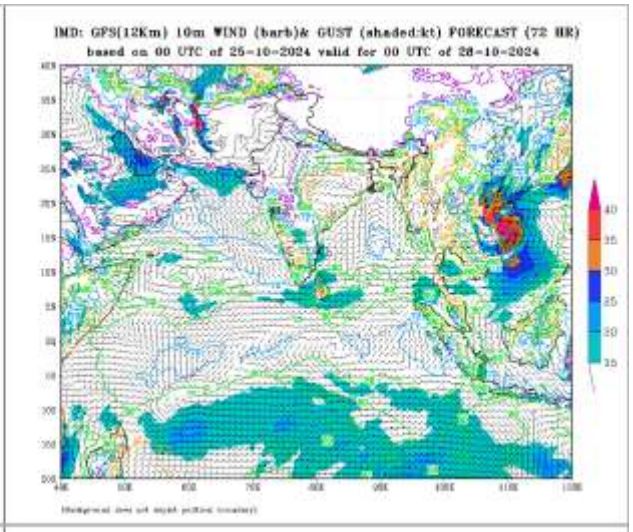
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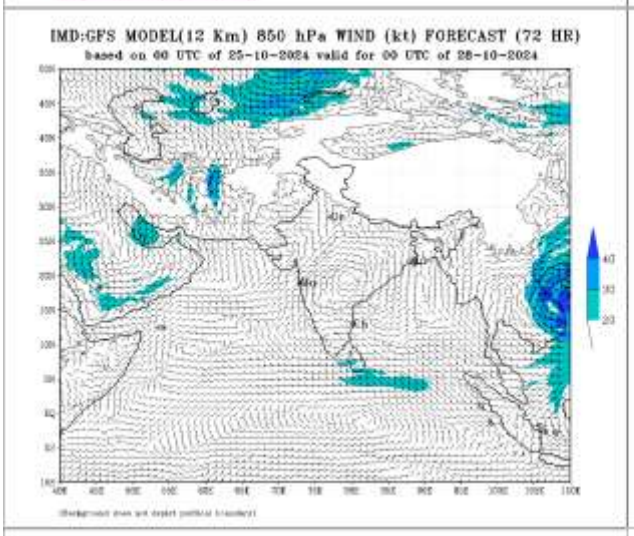
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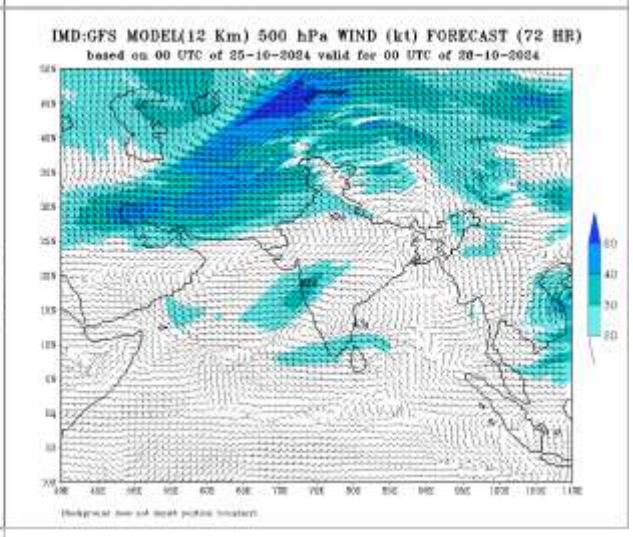
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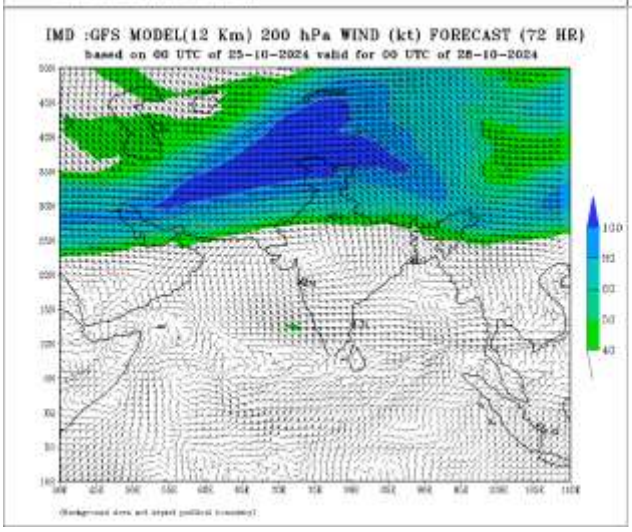
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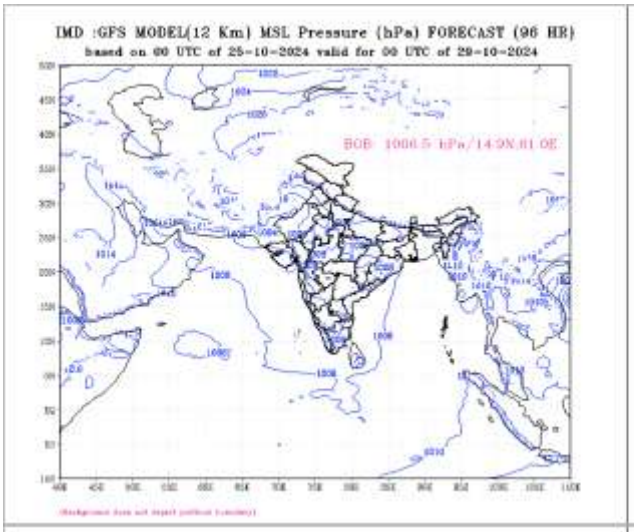
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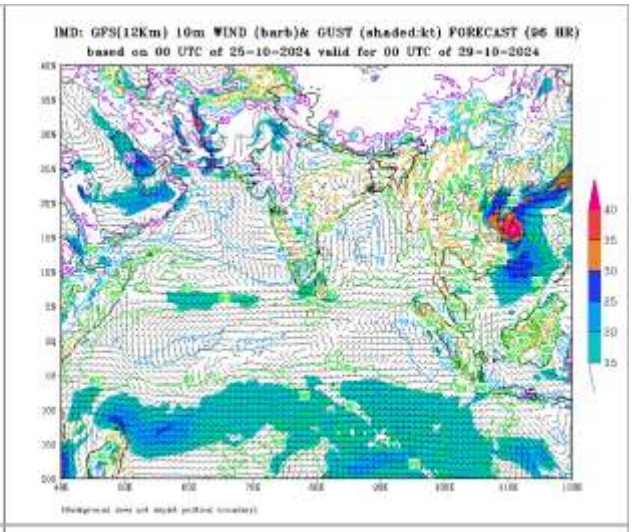
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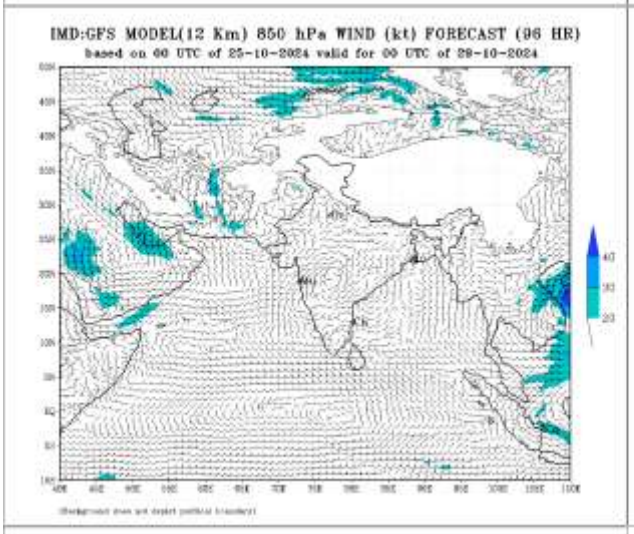
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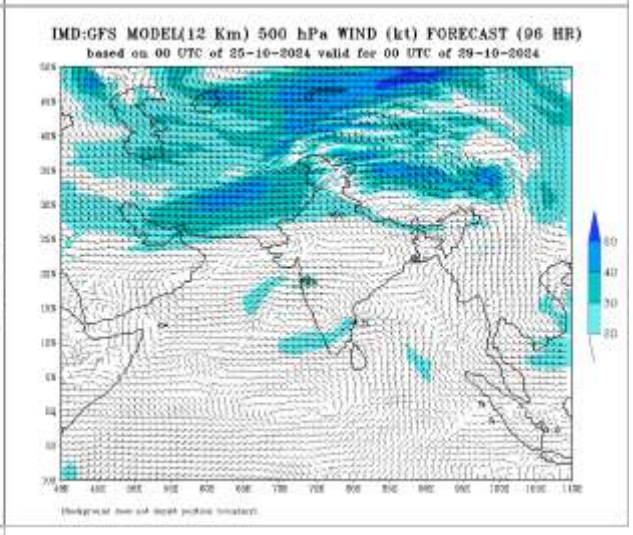
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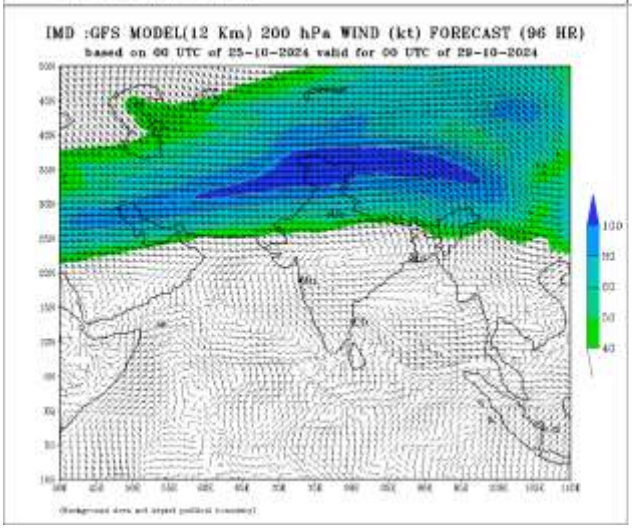
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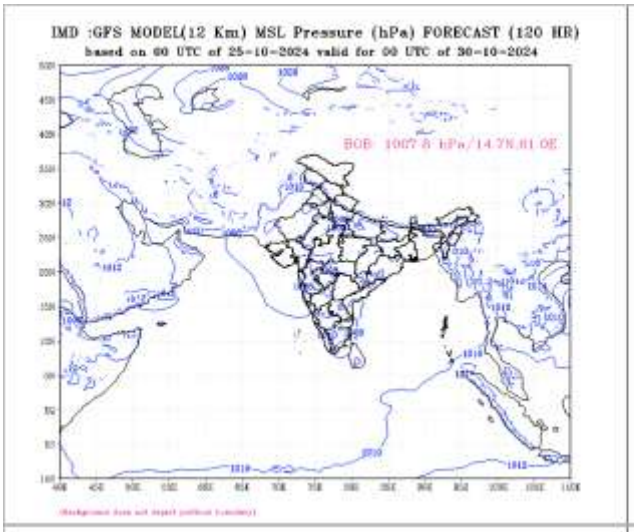
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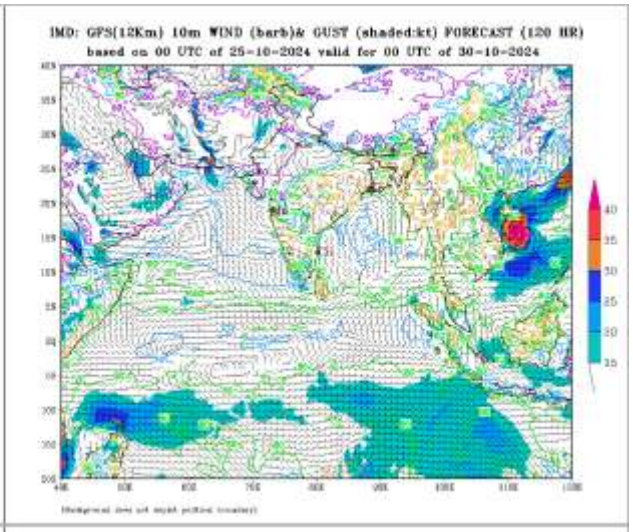
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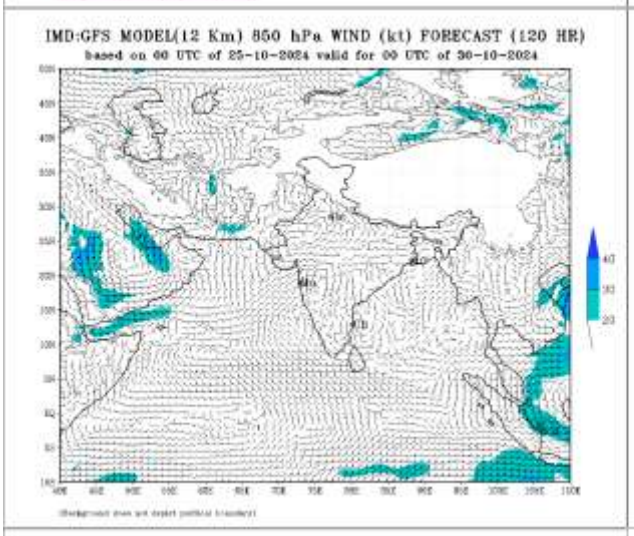
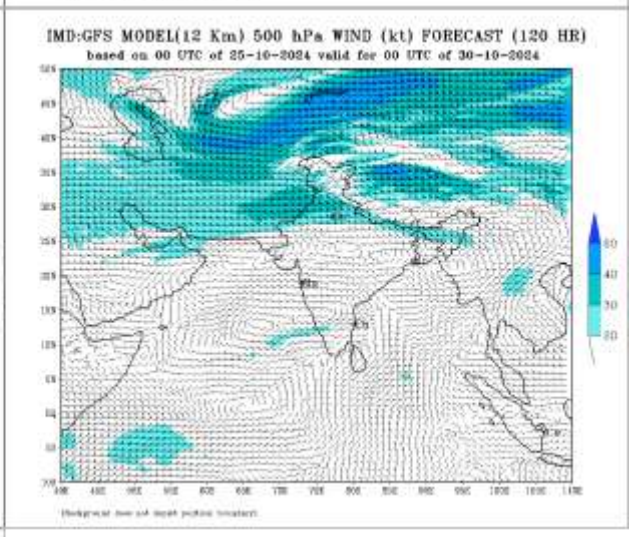
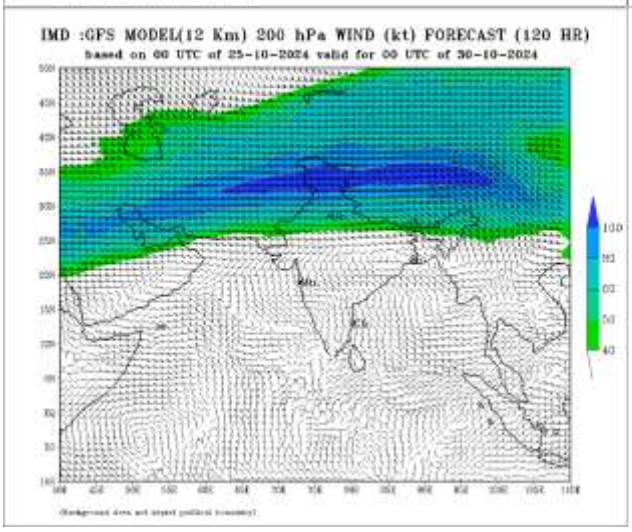
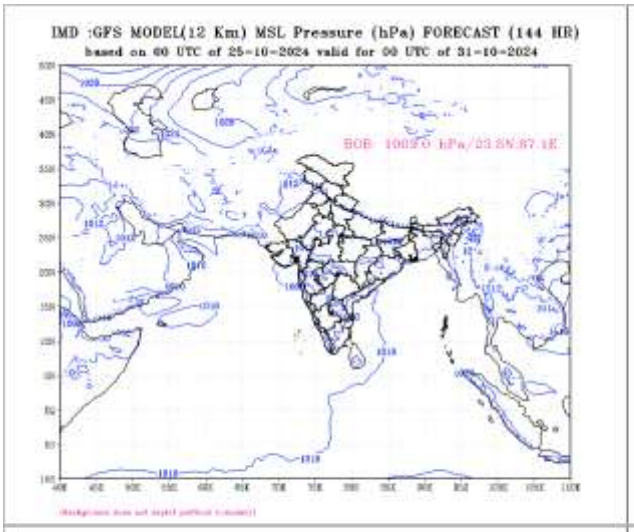
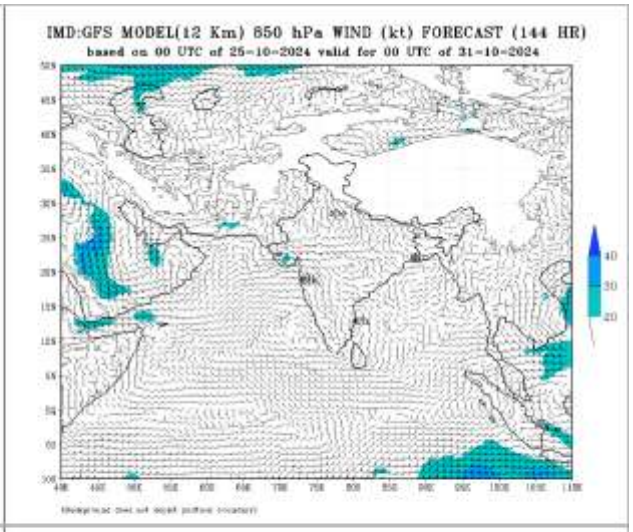
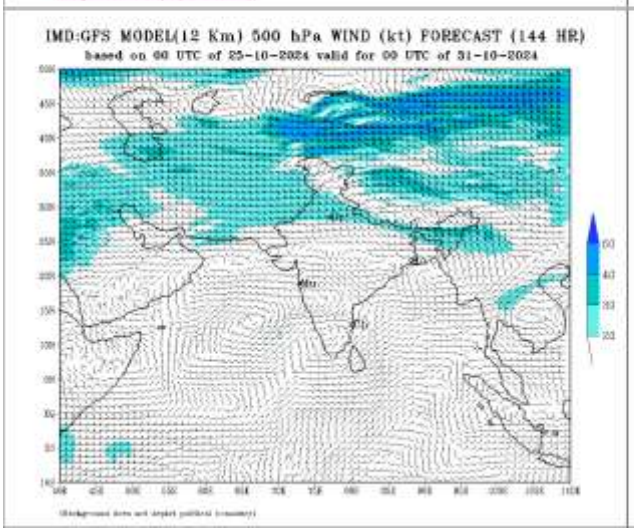

IMD:GFS MODEL(12 Km) 850 hPa WIND (kt) FORECAST (120 HR)
based on 00 UTC of 25-10-2024 valid for 00 UTC of 30-10-2024

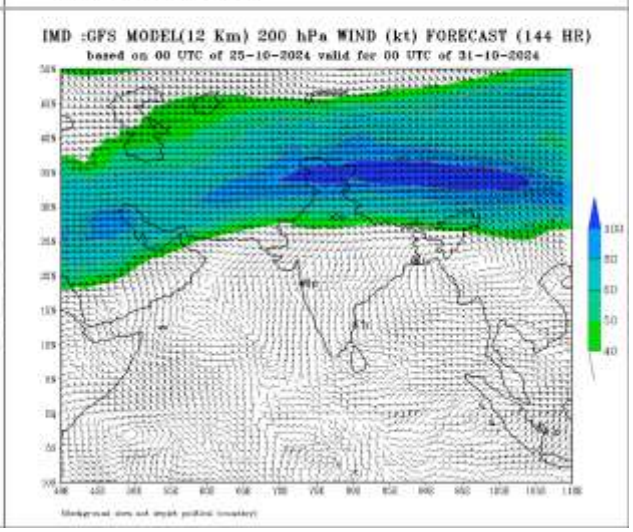

IMD:GFS MODEL(12 Km) 500 hPa WIND (kt) FORECAST (120 HR)
based on 00 UTC of 25-10-2024 valid for 00 UTC of 30-10-2024

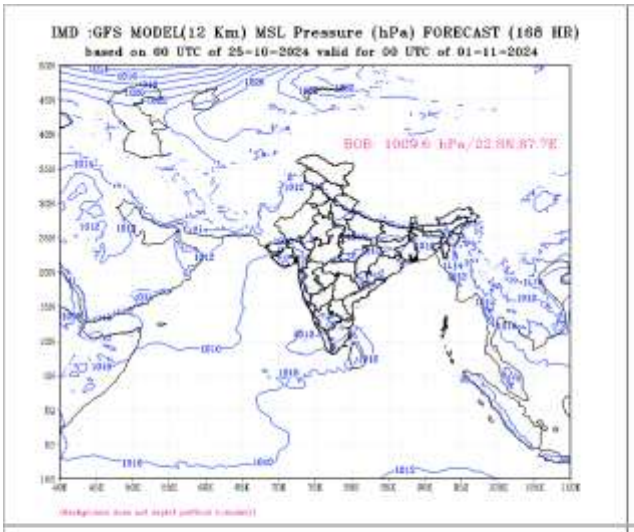

IMD :GFS MODEL(12 Km) 200 hPa WIND (kt) FORECAST (120 HR)
based on 00 UTC of 25-10-2024 valid for 00 UTC of 30-10-2024

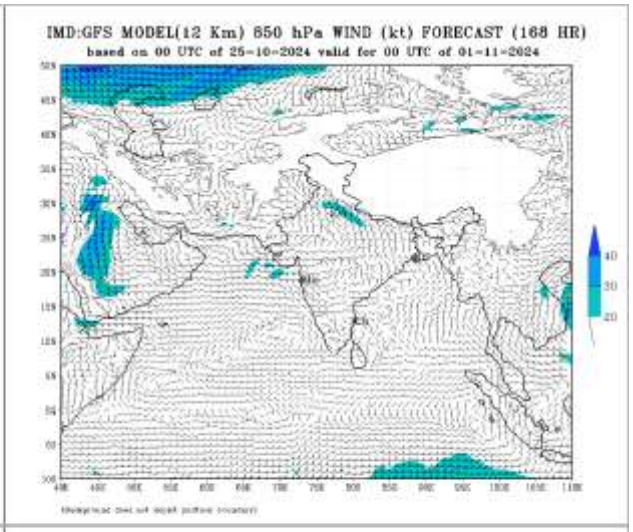

IMD :GFS MODEL(12 Km) MSL Pressure (hPa) FORECAST (144 HR)
based on 00 UTC of 25-10-2024 valid for 00 UTC of 31-10-2024

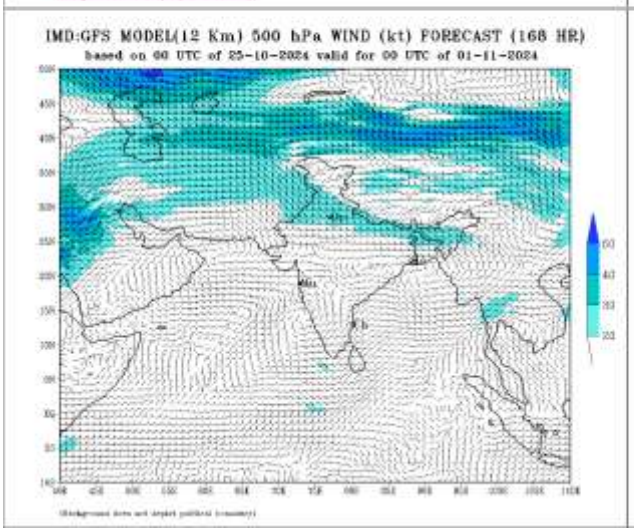

IMD:GFS MODEL(12 Km) 850 hPa WIND (kt) FORECAST (144 HR)
based on 00 UTC of 25-10-2024 valid for 00 UTC of 31-10-2024

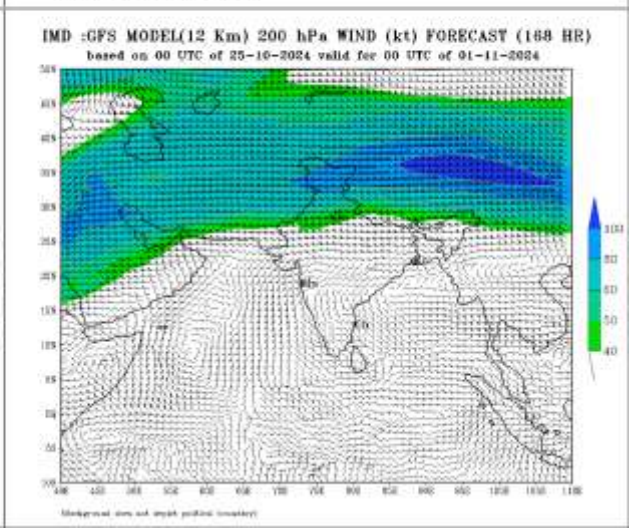

IMD:GFS MODEL(12 Km) 500 hPa WIND (kt) FORECAST (144 HR)
based on 00 UTC of 25-10-2024 valid for 00 UTC of 31-10-2024


IMD :GFS MODEL(12 Km) 200 hPa WIND (kt) FORECAST (144 HR)
based on 00 UTC of 25-10-2024 valid for 00 UTC of 31-10-2024


IMD :GFS MODEL(12 Km) MSL Pressure (hPa) FORECAST (168 HR)
based on 00 UTC of 25-10-2024 valid for 00 UTC of 01-11-2024


IMD:GFS MODEL(12 Km) 850 hPa WIND (kt) FORECAST (168 HR)
based on 00 UTC of 25-10-2024 valid for 00 UTC of 01-11-2024


IMD:GFS MODEL(12 Km) 500 hPa WIND (kt) FORECAST (168 HR)
based on 00 UTC of 25-10-2024 valid for 00 UTC of 01-11-2024


IMD :GFS MODEL(12 Km) 200 hPa WIND (kt) FORECAST (168 HR)
based on 00 UTC of 25-10-2024 valid for 00 UTC of 01-11-2024