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

Tropical Cyclone Forecast Programme
Report Dated 18th November, 2023

Time of Issue: 1000 UTC

Synoptic features (based on 0300 UTC analysis):

Yesterday's Cyclonic Storm "Midhili" (pronounced as "Midhili") over Northwest and adjoining northeast Bay of Bengal moved north-northeastwards and crossed Bangladesh coast near Khepupara during 1430-1530 hrs IST of 17th November and moved across the Islands of Bangladesh as a cyclonic storm with maximum sustained wind speed of 65-75 kmph gusting to 85 kmph and lay over coastal Bangladesh at 1730 hours IST of 17th November. Thereafter, it moved northeastwards and weakened gradually into a deep depression over Tripura and adjoining Bangladesh in the same midnight (2330 hours IST). Further moving northeastwards, it weakened into a depression over Tripura and adjoining Bangladesh & Mizoram in the early morning (0530 hours IST) and into a low pressure area over North Tripura and neighbourhood in the forenoon (0830 hours IST) of today, the 18th November.

It is likely to continue to move further northeastwards and become less marked during next 06 hours.

Dynamical and thermo-dynamical features

Parameter	Bay of Bengal (BoB)	Arabian Sea (AS)
Sea Surface Temperature (SST) ºC	Around 30 over south and central BoB, Andaman Sea, 27-28 over north and adjoining central BoB.	30-31 over along and off kerala , Karnataka coasts, adjoining sea area, Lakshadweep area, adjoining southeast AS, 29-30 over southeast and southwest AS, adjoining eastcentral AS, 28-29 over westcentral and adjoining southwest AS, north AS.
Tropical Cyclone Heat Potential (TCHP) kJ/cm^2	100-110 over parts of south and adjoining central BoB, 70-80 over north Andaman Sea.	100-110 over parts of south and adjoining eastcentral AS.
Cyclonic Relative vorticity (X10^{-6}s^{-1})	Around 30-40 over southwest BoB, along and off north Sri Lanka coast, Gulf of Mannar, northeast BoB. 10-20 over most parts of BoB.	30-40 over few parts of eastcentral AS, 10-20 over parts of south, eastcentral and north AS.
Low Level convergence (X10^{-5} s^{-1})	10-20 over eastcentral and adjoining northeast BoB, 5-10 over southwest BoB, along and off Sri Lanka coast, Gulf of Mannar.	5-10 over parts of south BoB, -5 over some parts of central AS.

Upper Level divergence ($X10^{-5}$ s^{-1})	5-10 over southeast and adjoining eastcentral BoB, adjoining Andaman Sea.	5-10 over along and off kerala coast, -5 over parts of eastcentral AS.
Vertical Wind Shear (VWS knots) **Low: 05-10 knots** **Moderate: 10-20 knots** **High: >20 knots**	5-15 over south and adjoining central BoB, 5 over Andaman Sea, 20 over parts of central BoB, High (> 20 knots) over remaining parts of BoB.	5-10 over the south AS, 20 over the central AS adjoining to south AS, High (>20 knots) over remaining parts of AS.
Wind Shear Tendency (knots)	Decreasing over southwest BoB.	Decreasing over parts of south AS, increasing over parts of north and adjoining central AS.
Upper Tropospheric Ridge	Along 15^{o}N over BoB.	Along 9^{o}N over AS.

Satellite observations based on INSAT imagery (0300 UTC):

(a) Over the Bay of Bengal & Andaman Sea:-
Scattered to broken low and medium clouds with embedded intense to very intense convection lay over eastcentral & southeast Bay of Bengal and Andaman Sea. Scattered low and medium clouds with embedded moderate to intense convection lay over northeast Bay of Bengal westcentral & southwest Bay of Bengal.

(b) Over the Arabian Sea:-
Scattered low and medium clouds with embedded moderate to intense convection lay over south Arabian Sea Lakshadweep islands area and comorin area. Scattered low and medium clouds with embedded isolated weak to moderate convection lay over extreme northwest Arabian Sea.

(c) Convection outside India:-
Scattered low and medium clouds with embedded moderate to intense convection lay over extreme north Sri Lanka, Palk Strait, Gulf of Mannar, Maldives, Tibet, china, Myanmar, south Thailand, Gulf of Thailand, Cambodia, South Vietnam, Sumatra, Strait of Malacca, Malaysia, Borneo, South china sea, Java islands & Sea, Celebes islands & Sea, Philippines, Sulu Sea Madagascar, Mozambique channel and over Indian ocean between latitude 5.0N to 10.0S longitude 40.0E to 102.0E and bet latitude 10.0S to 35.0S longitude 50.0E to 75.0E.

M.J.O. Index:
MJO index is currently in Phase 1 with amplitude greater than 1. It will remain in phase 1 with amplitude greater than 1 till 20th November. It will enter phase 2 with amplitude greater than 1 on 21st November. It will remain there in phase 2 with amplitude greater than 1 till 25th November, later it will continue in phase 2 for few days with amplitude less 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	Cyclonic circulation (cycir) over southeast and adjoining Andaman Sea on 23rd Nov having its westwestward movement.	No significant system during next 7 days.
IMD-GEFS	No significant system during next 7 days.	No significant system during next 7 days.
IMD-WRF	No significant system during next 7 days.	No significant system during next 3 days.
NCMRWF-NCUM	Cyclonic circulation (cycir) over southeast and adjoining Andaman Sea on 22nd Nov having its westwestward movement.	No significant system during next 7 days.
NCMRWF-NEPS	No significant system during next 7 days.	No significant system during next 7 days.
NCMRWF-UM (Regional)	No significant system during next 3 days.	No significant system during next 7 days.
ECMWF	No significant system during next 7 days.	No significant system during next 7 days.
NCEP-GFS	No significant system during next 7 days.	No significant system.
IMD-Genesis Potential Parameter	GPP is indicating a potential zone over Gulf of Mannar and adjoining Comorin area on 19th, over southwest BoB close to Tamil Nadu coast on 23rd, 24th Nov.	No potential zone over AS for next 7 days.

Summary and conclusion:

1. **For Bay of Bengal**:

Most of the models are indicating no significant system over the Bay of Bengal for the next seven days. However, IMD-GFS & NCUM-Global models are indicating a cyclonic circulation around 22nd/23rd November over southeast Bay of Bengal having its westward movement. The likely development of this system needs to be watched.

Probability of Cyclogenesis (formation of depression and above intensity systems) over Bay 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

2. **For the Arabian Sea**:

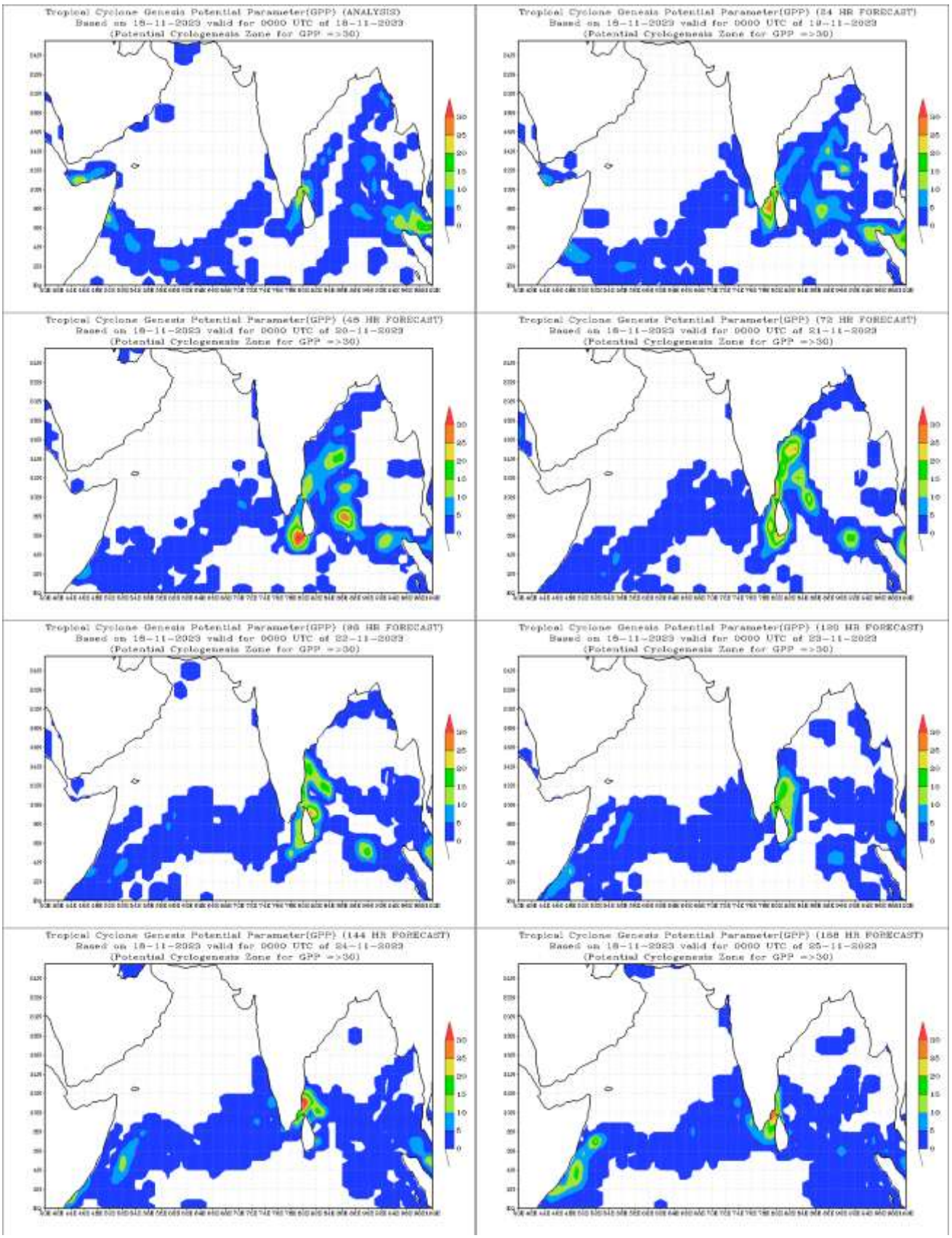
Most of the models are indicating that there will be no significant system for the next seven days.

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

IOP: NIL

Annexure


Tropical Cyclone Genesis Potential Parameter(GPP) (ANALYSIS)
Based on 18-11-2023 valid for 0000 UTC of 18-11-2023
(Potential Cyclogenesis Zone for GPP =>30)
Tropical Cyclone Genesis Potential Parameter(GPP) (24 HR FORECAST)
Based on 18-11-2023 valid for 0000 UTC of 19-11-2023
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Tropical Cyclone Genesis Potential Parameter(GPP) (48 HR FORECAST)
Based on 18-11-2023 valid for 0000 UTC of 20-11-2023
(Potential Cyclogenesis Zone for GPP =>30)
Tropical Cyclone Genesis Potential Parameter(GPP) (72 HR FORECAST)
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Based on 18-11-2023 valid for 0000 UTC of 22-11-2023
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Tropical Cyclone Genesis Potential Parameter(GPP) (120 HR FORECAST)
Based on 18-11-2023 valid for 0000 UTC of 23-11-2023
(Potential Cyclogenesis Zone for GPP =>30)
Tropical Cyclone Genesis Potential Parameter(GPP) (144 HR FORECAST)
Based on 18-11-2023 valid for 0000 UTC of 24-11-2023
(Potential Cyclogenesis Zone for GPP =>30)
Tropical Cyclone Genesis Potential Parameter(GPP) (168 HR FORECAST)
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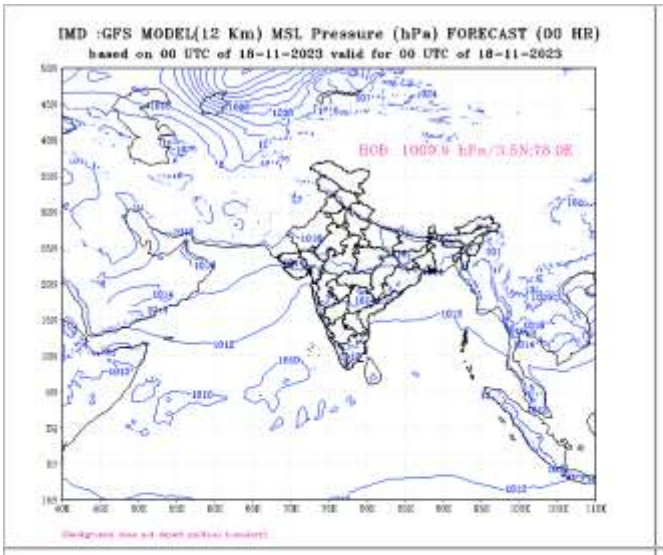
IMD :GFS MODEL(12 Km) MSL Pressure (hPa) FORECAST (00 HR)
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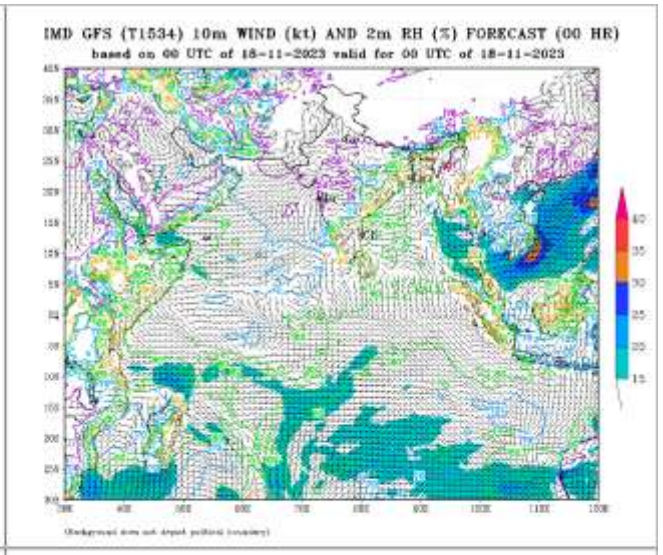
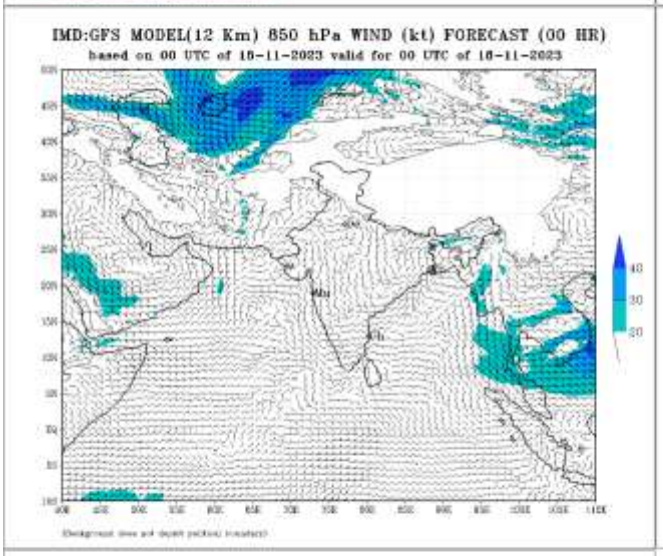
HOB 1009.9 hPa/3.5N:78.0E


IMD GFS (T1534) 10m WIND (kt) AND 2m RH (%) FORECAST (00 HR)
based on 00 UTC of 18-11-2023 valid for 00 UTC of 18-11-2023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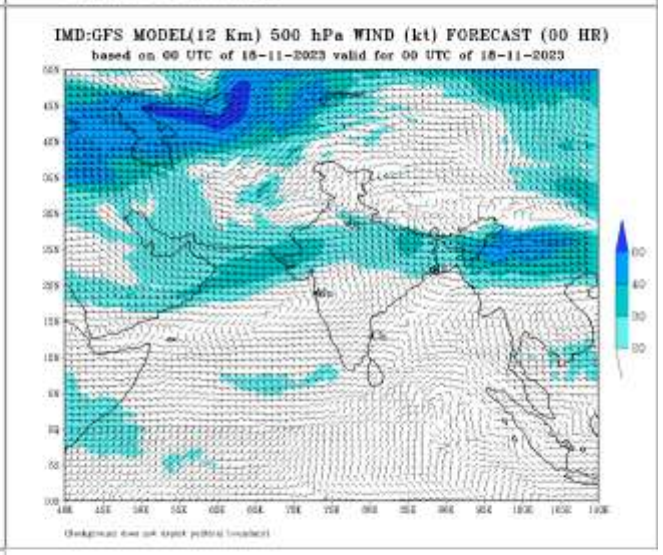
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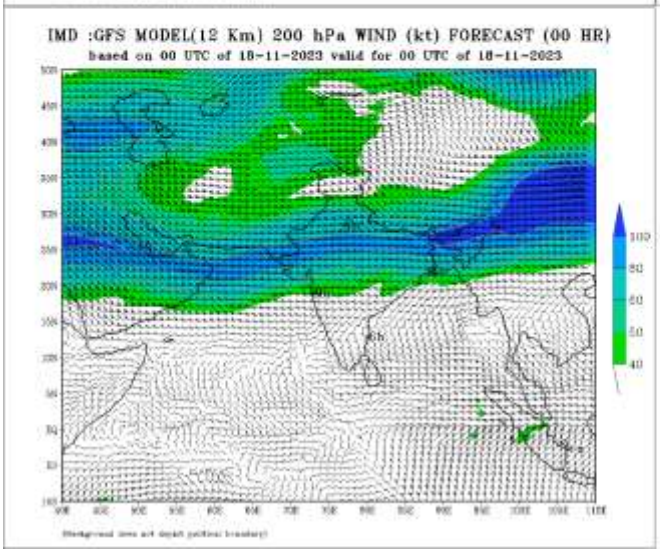
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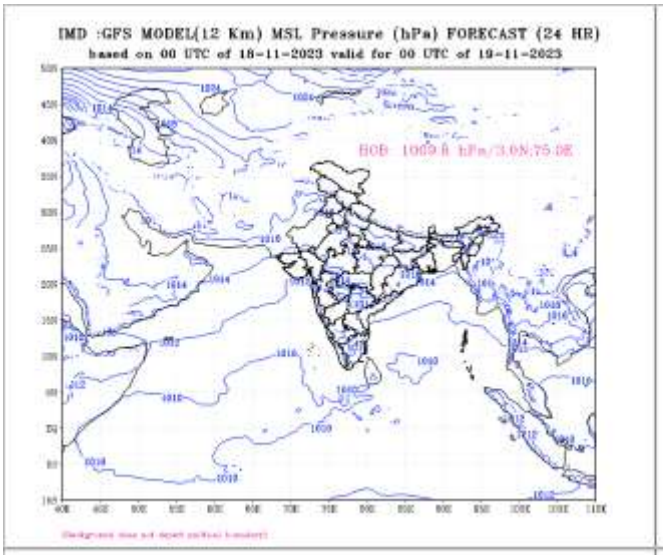
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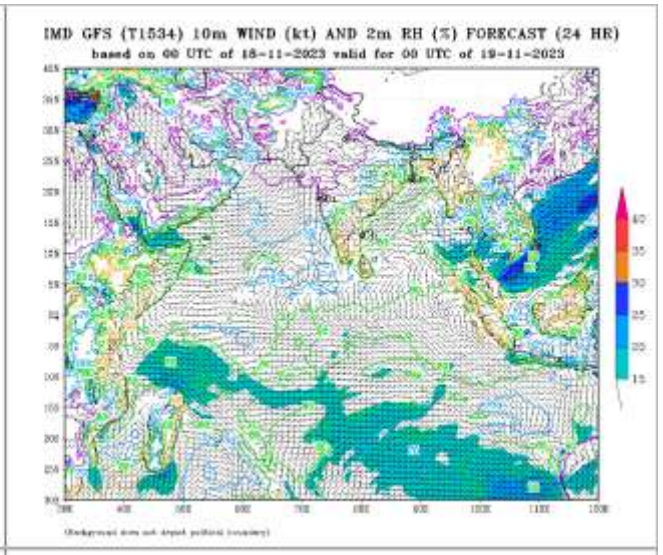
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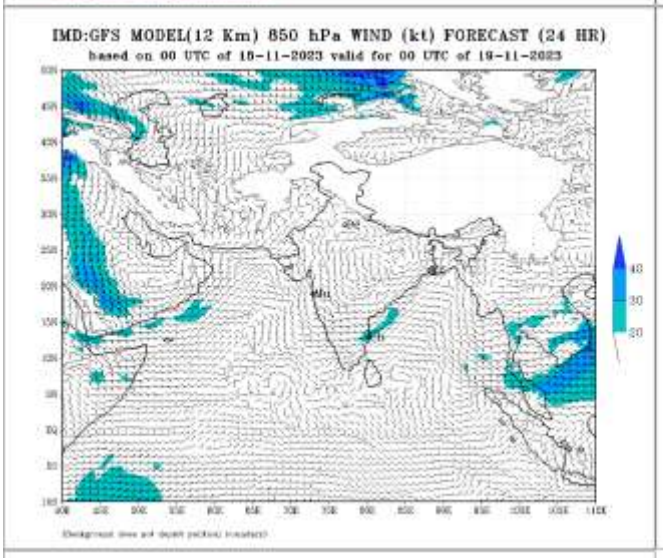
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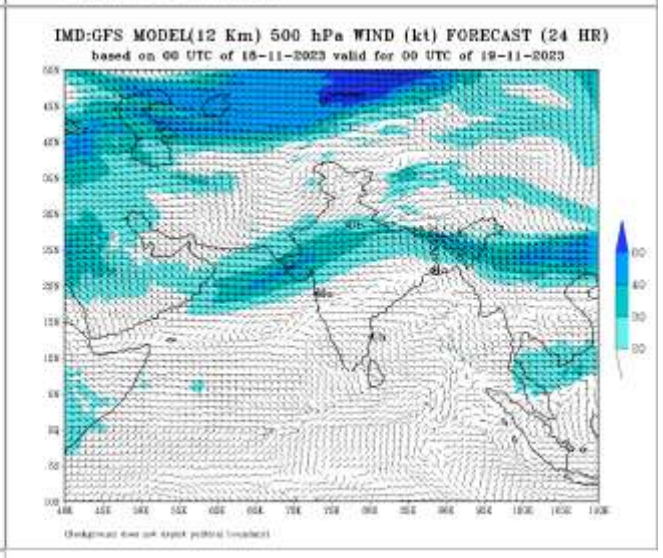
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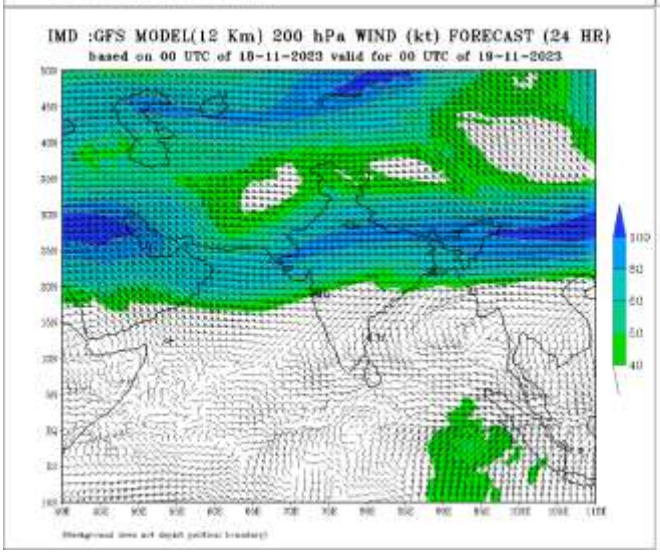
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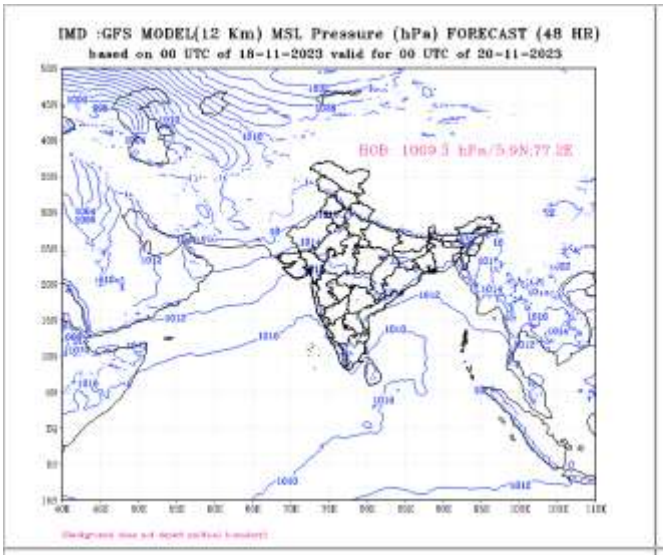
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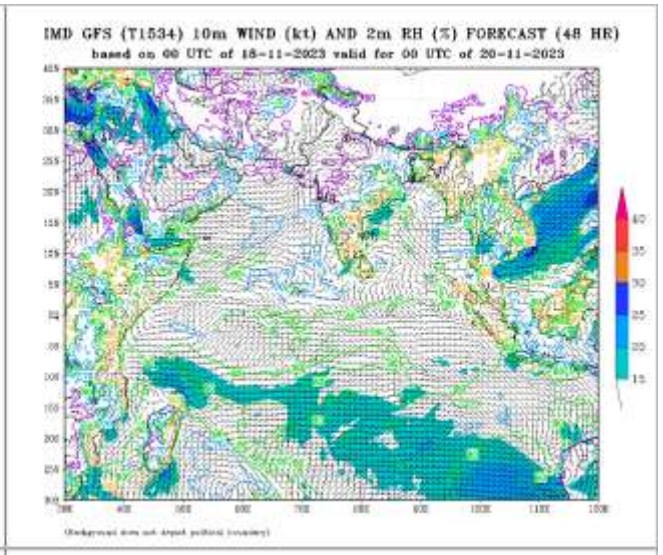
BOB 1009.3 hPa/5.9N:77.2E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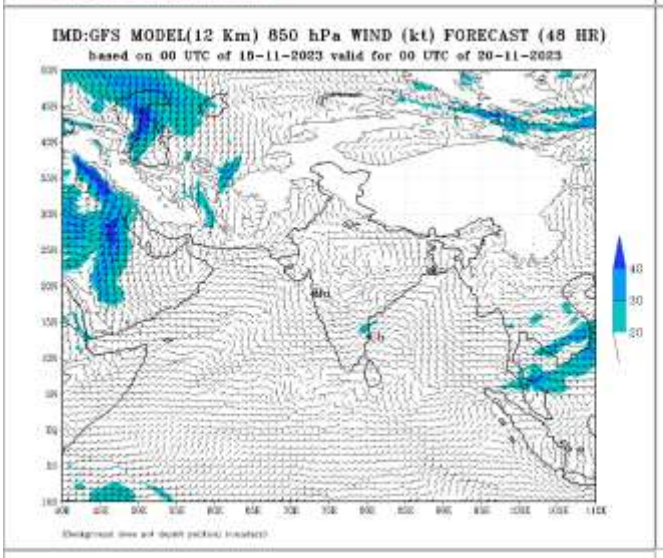
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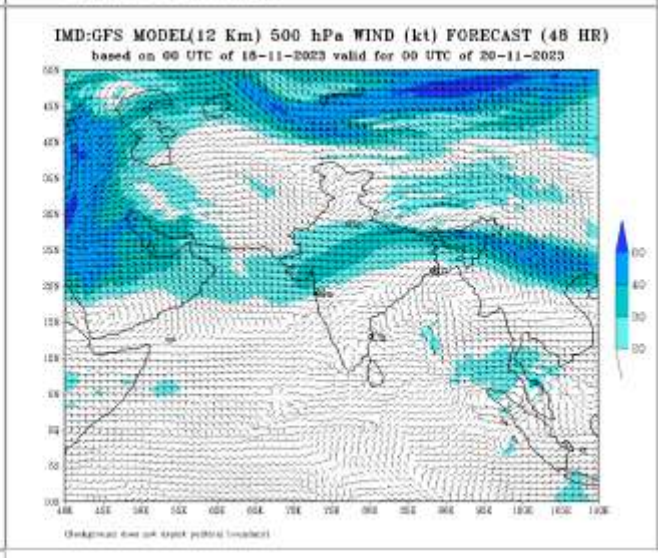
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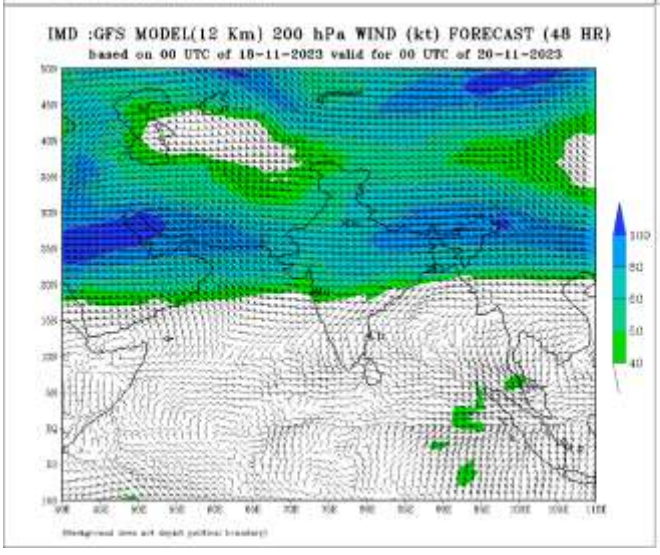
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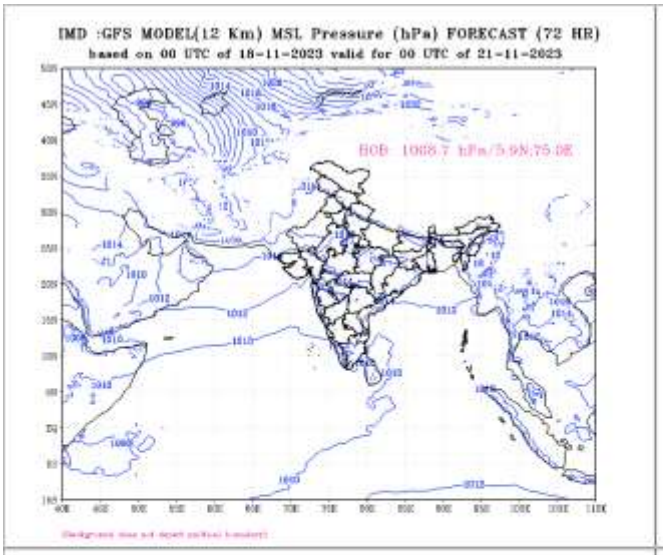
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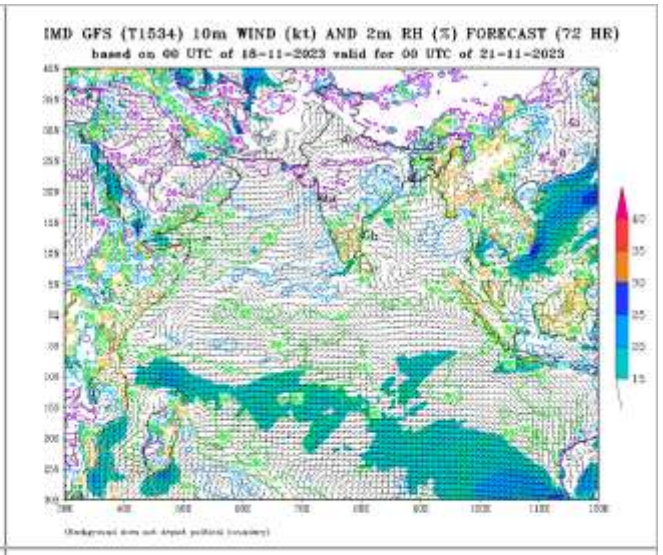
BOB 1008.7 hPa/5.9N/75.0E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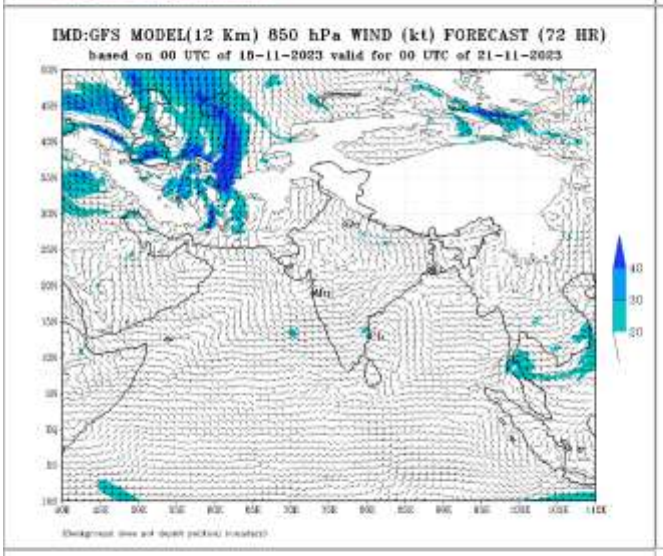
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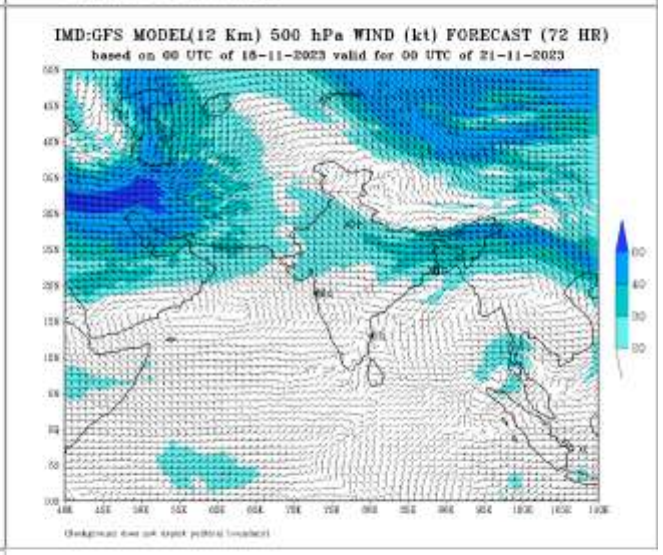
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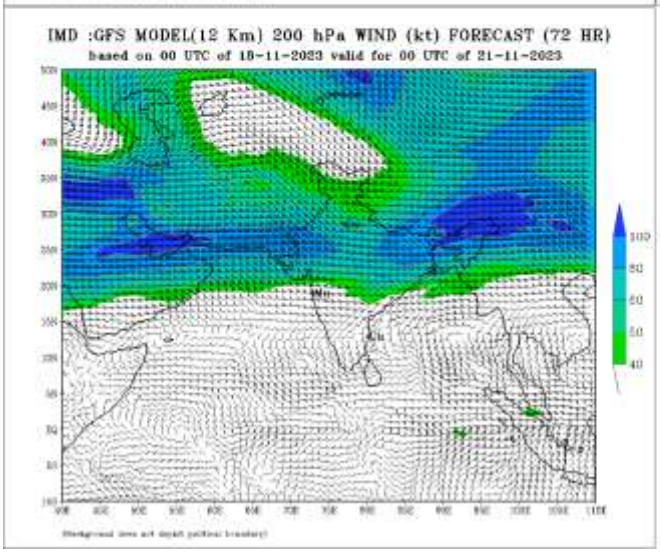
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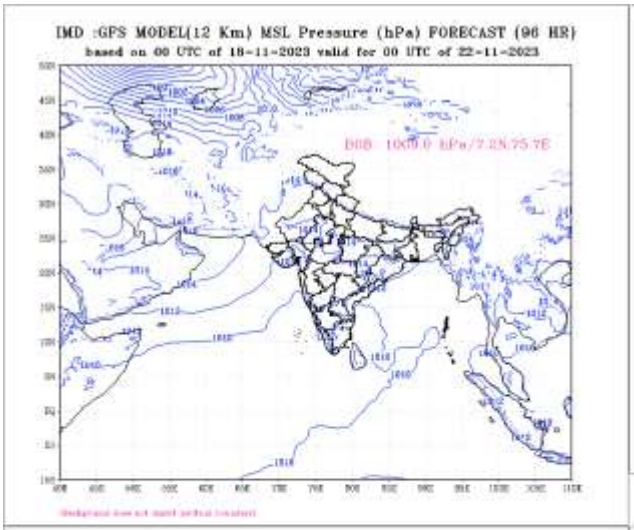
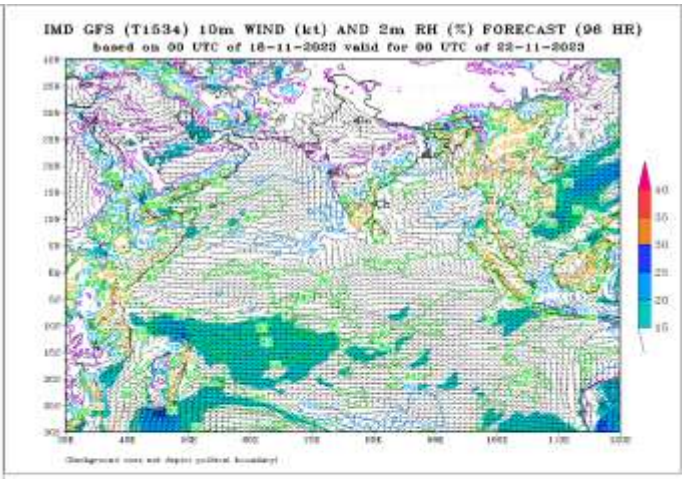

IMD :GPS MODEL(12 Km) MSL Pressure (hPa) FORECAST (96 HR)
based on 00 UTC of 18-11-2023 valid for 00 UTC of 22-11-2023


IMD GFS (T1534) 10m WIND (kt) AND 2m RH (%) FORECAST (96 HR)
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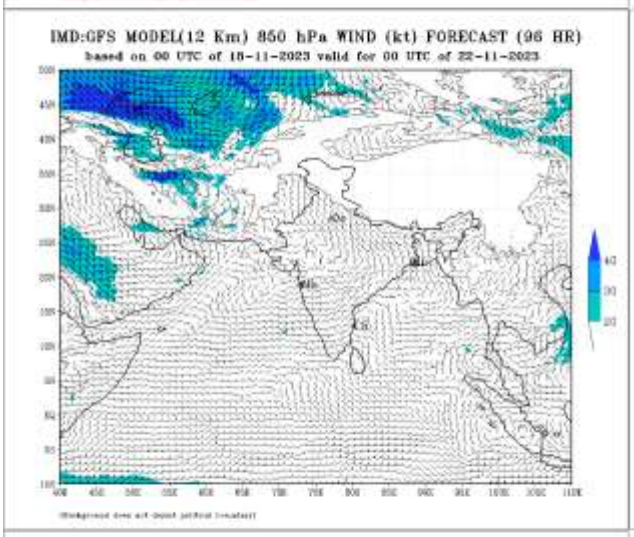
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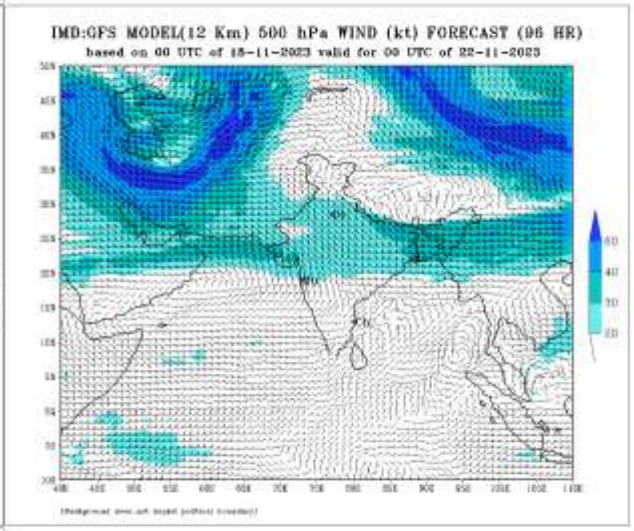
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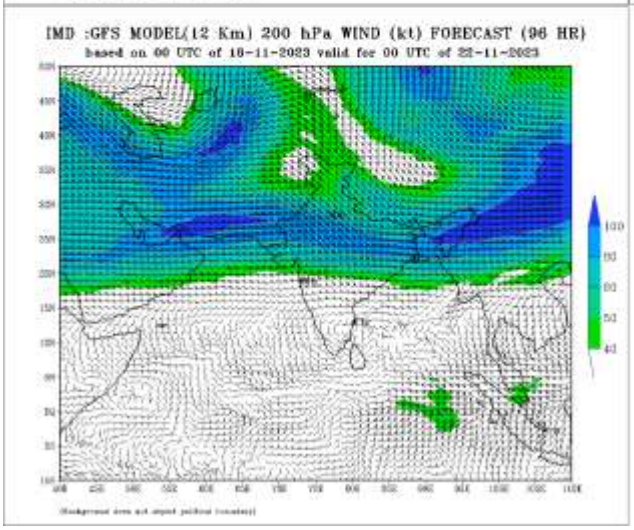
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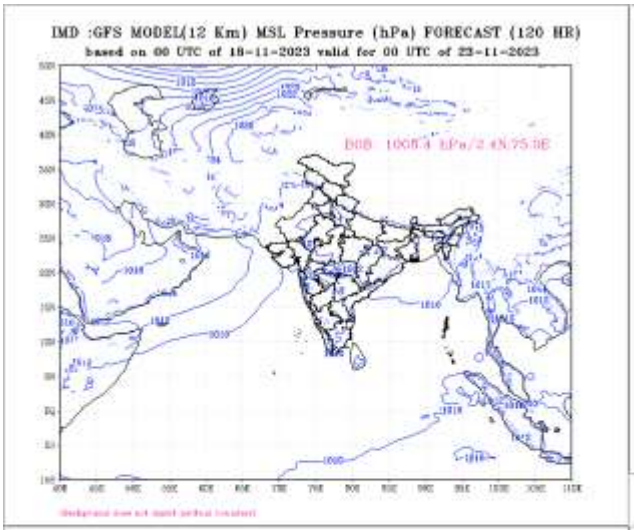
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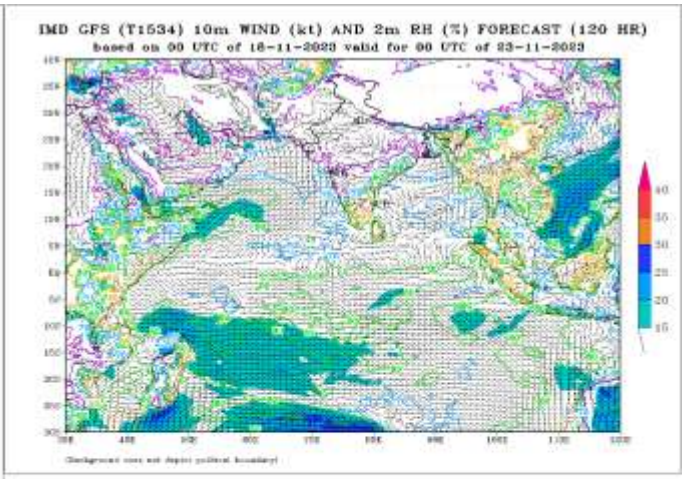
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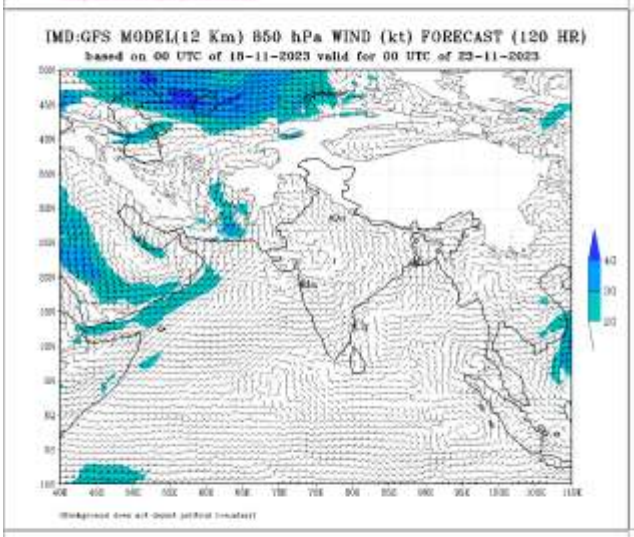
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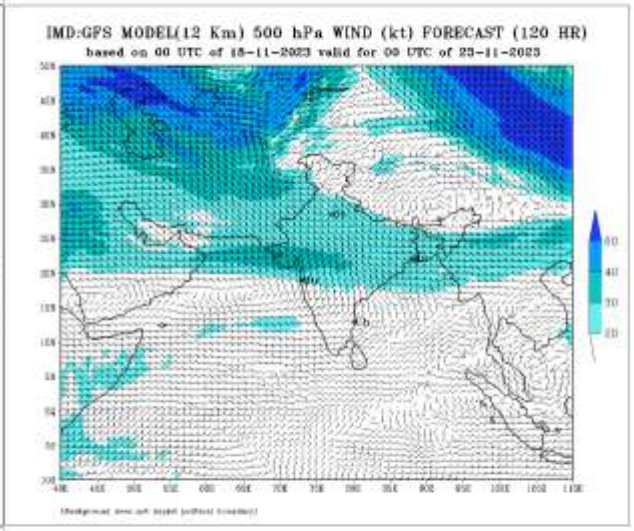
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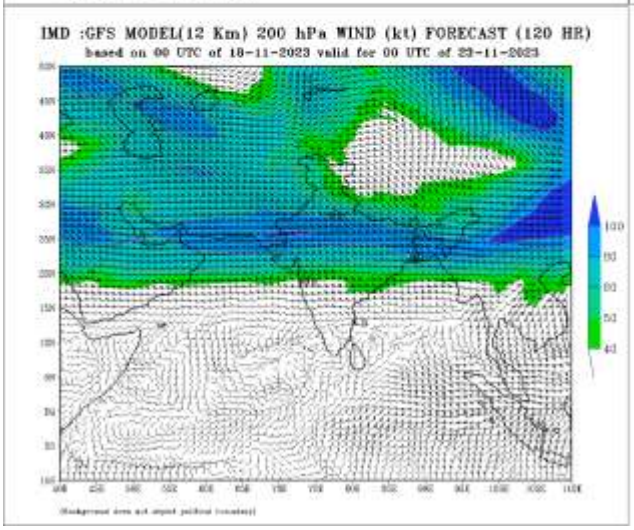
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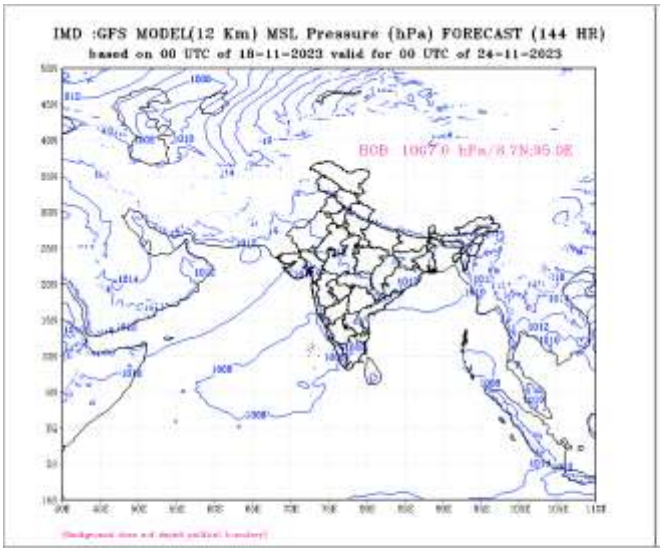
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based on 00 UTC of 18-11-2023 valid for 00 UTC of 24-11-2023
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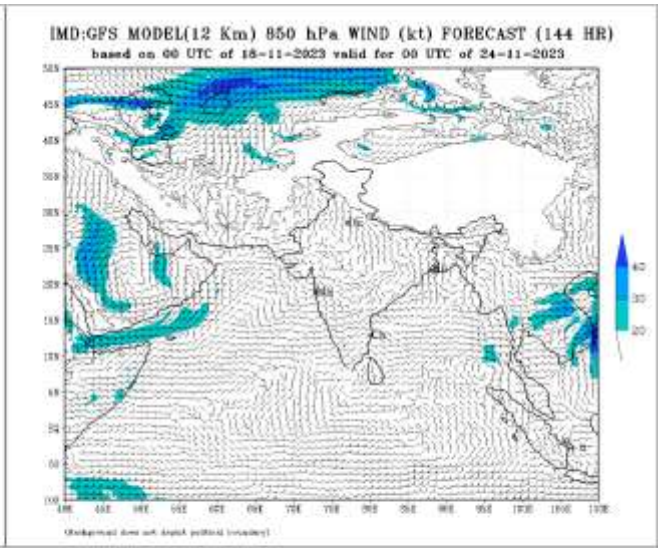
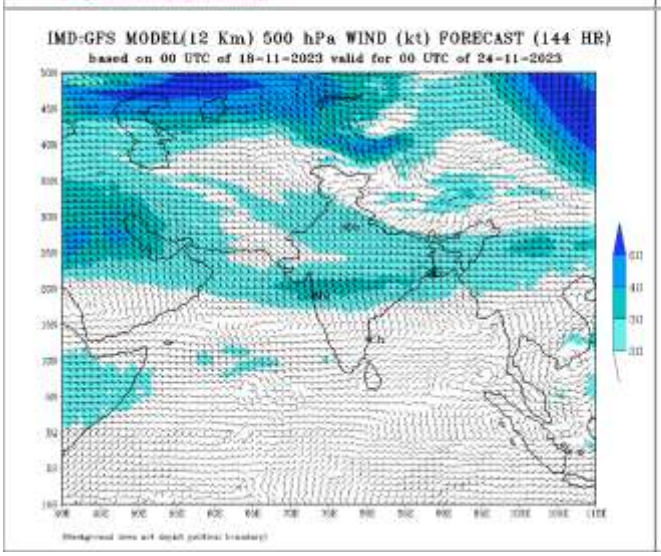

IMD:GFS MODEL(12 Km) 850 hPa WIND (kt) FORECAST (144 HR)
based on 00 UTC of 18-11-2023 valid for 00 UTC of 24-11-2023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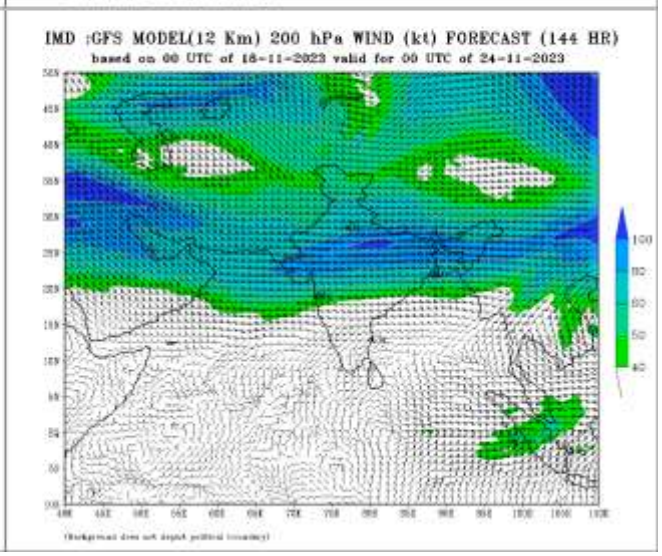
based on 00 UTC of 18-11-2023 valid for 00 UTC of 24-11-2023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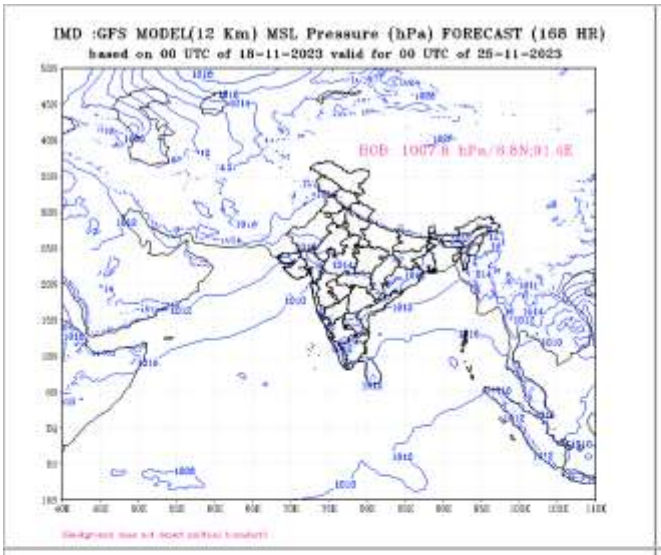
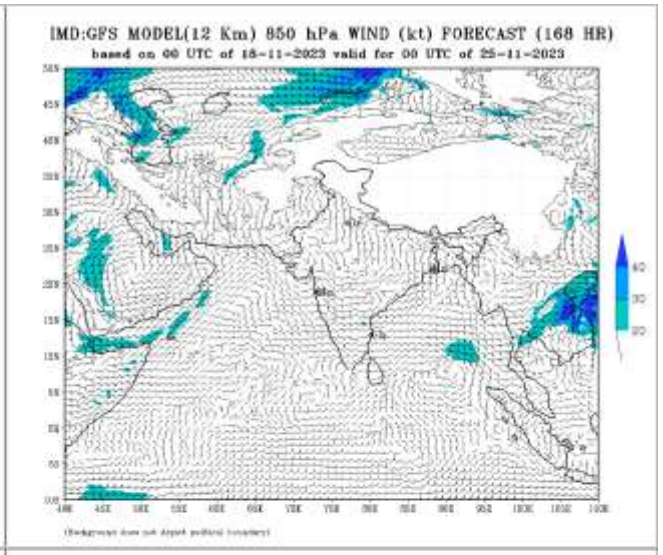
based on 00 UTC of 18-11-2023 valid for 00 UTC of 24-11-2023


IMD :GFS MODEL(12 Km) MSL Pressure (hPa) FORECAST (168 HR)
based on 00 UTC of 18-11-2023 valid for 00 UTC of 25-11-2023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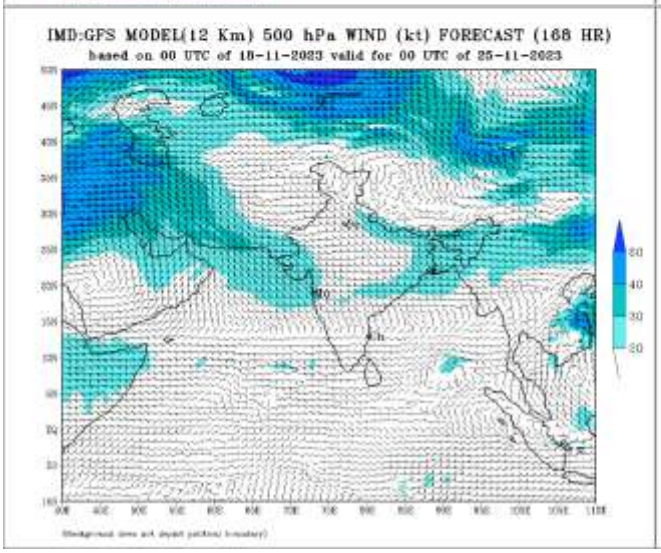
based on 00 UTC of 18-11-2023 valid for 00 UTC of 25-11-2023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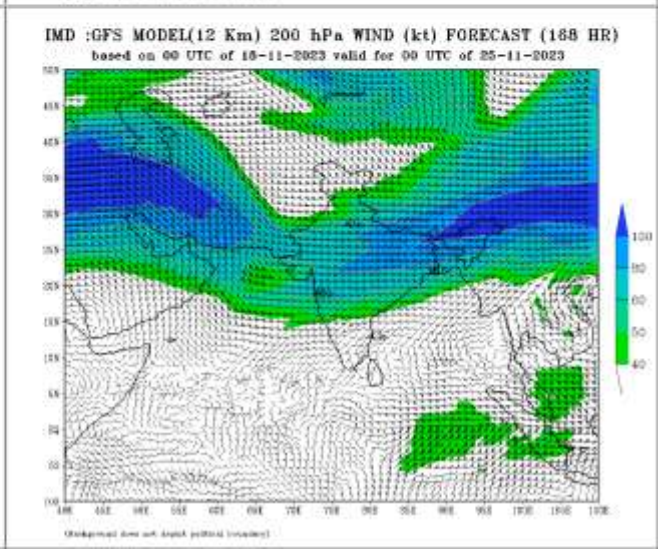
based on 00 UTC of 18-11-2023 valid for 00 UTC of 25-11-2023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based on 00 UTC of 18-11-2023 valid for 00 UTC of 25-11-2023