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

Tropical Cyclone Forecast Programme
Report Dated 06TH November, 2023

Time of Issue: 1230 UTC

Synoptic features (based on 0300 UTC analysis):

- Yesterday's cyclonic circulation over north Tamil Nadu & neighborhood now lies over southeast AS off Kerala coast at 0300 UTC of today, the 6th Nov 2023 between 3.1 & 5.8 km above mean sea level. It is likely to move west-northwestwards for the next 24 hours and under its influence, a Low Pressure Area (LPA) is likely to form over eastcentral AS around 08th Nov, 2023.
- A trough runs from Southeast Arabian Sea & adjoining Lakshadweep area to Southwest Bay of Bengal & adjoining south Andhra Pradesh coast across Kerala, South Interior Karnataka and Andhra Pradesh and extends upto 1.5 km above mean sea level.

Dynamical and thermo-dynamical features

Parameter	Bay of Bengal (BoB)	Arabian Sea (AS)
Sea Surface Temperature (SST) ºC	29-31ºC over major parts of BoB, Andaman Sea, Gulf of Mannar, 26-28ºC over parts of southwest BoB.	29-31ºC over southeast, adjoining southwest and adjoining eastcentral AS, north AS, along and off south Gujarat, Maharashtra coasts, 26-28ºC over central, adjoining north AS, southwest AS, along and off Kerala and Karnataka coasts. Less than 24 along and off Yemen-Oman & Somalia coasts and adjoining sea areas.
Tropical Cyclone Heat Potential (TCHP) kJ/cm^2	100-120 over eastcentral BoB adjoining southeast BoB. 80-100 over south Andaman Sea. 60-70 over most parts of BOB and north Andaman Sea adjoining south Andaman Sea. Less than 40 along Andhra Pradesh and Tamil Nadu coasts, adjoining sea areas, less than 20-30 over Gulf of Mannar and adjoining Comorin area, parts of southwest BoB.	60-90 over southeast, adjoining eastcentral and adjoining southwest AS, 50-60 over Gulf of Khambat, Less than 20 over eastcentral and adjoining southeast & north AS, along and off Kerala, Karnataka and south Maharashtra coasts, less than 10 over westcentral and southwest AS.

Cyclonic Relative vorticity ($X10^{-6}s^{-1}$)	10-20 over along and off south Andhra Pradesh & north Tamil Nadu coast, parts of south & eastcentral BoB.	30-40 over parts of eastcentral & adjoining southeast AS, 40-50 over few parts of southwest AS, 20-30 over central parts of central AS.
Low Level convergence ($X10^{-5}$ s^{-1})	5 over few parts of southwest and westcentral BoB.	5-10 over parts of southeast and southwest AS, Lakshadweep area.
Upper Level divergence ($X10^{-5}$ s^{-1})	5-10 over few parts of southwest and westcentral BoB, along and off south Andhra Pradesh and north Tamil Nadu coasts, -5 over Gulf of Mannar.	110-30 over southeast AS, Lakshadweep area, 10 over southwest and adjoining southeast AS.
Vertical Wind Shear (VWS knots) **Low: 05-10 knots** **Moderate: 10-20 knots** **High: >20 knots**	5-10 over south BoB, Andaman Sea, 20 over adjoining areas of central BoB. High (>20 knots) over remaining parts of BoB.	5-15 over south AS. 20 over adjoining areas of central AS, High over (>20 knots) over remaining parts of AS.
Wind Shear Tendency (knots)	Decreasing over south Andaman Sea and adjoining southeast BoB.	Decreasing over northern parts of south AS and adjoining central AS, increasing over parts of southeast AS, Lakshadweep area.
Upper tropospheric Ridge	Along 13^{o}N over BoB	Along 10^{o}N over AS.

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 westcentral Bay of Bengal off south Andhra Pradesh coast. Scattered low and medium clouds with embedded moderate to intense convection lay over south Bay of Bengal, Andaman Sea and isolated weak to moderate convection lay over north Bay of Bengal.

(b) Over the Arabian Sea:-

Scattered to broken low and medium clouds with embedded intense to very intense convection lay over eastcentral & south Arabian Sea and Lakshadweep islands area. Scattered low and medium clouds with embedded moderate to intense convection lay over south parts of westcentral Arabian Sea, comorin area and isolated weak to moderate convection over northeast Arabian Sea, Gulf of Kutch.

(c) Convection outside India:-

Scattered low and medium clouds with embedded moderate to intense convection lay over southwest Sri Lanka, Maldives, Pakistan, East China Yellow Sea adjoining east china sea Myanmar Thailand gulf of Thailand Cambodia Vietnam Hainan Sumatra Strait of Malacca Malaysia Borneo South China Sea Java Islands & Sea Celebes Islands Philippines Sulu Sea Madagascar Mozambique channel and over Indian ocean between latitude 5.0N to 10.0S longitude 40.0E to 100.0E and between latitude 10.0S to 35.0S longitude 50.0E to 80.0E.

M.J.O. Index:

MJO index is currently in Phase 1 with amplitude less than 1. It will move to phase 6 with amplitude less than 1 on 7th November. It will remain in phase 6 till 10th November & will move to phase 7 on 11th November and remain there for next two 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	Bay of Bengal (BoB)	Arabian Sea (AS)
IMD-GFS	No significant system.	No significant system.
IMD-GEFS	No significant system.	No significant system.
IMD-WRF	No significant system.	No significant system.
NCMRWF-NCUM	No significant system.	Cycir over southeast AS on 6th Nov, it moves northwestwards and lay over eastcentral AS and become LPA on 8th Nov over eastcentral AS, it continues to move northwestwards without further intensification and lay over eastcentral and adjoining westcentral AS on 9th Nov.
NCMRWF-NEPS	No significant system.	Cycir over southeast AS on 6th Nov, it moves northwestwards and lay over eastcentral AS and become LPA on 8th Nov over eastcentral AS, it continues to move northwestwards without further intensification and lay over eastcentral and adjoining westcentral AS on 9th Nov.
NCMRWF-UM (Regional)	No significant system.	Cycir over southeast AS on 6th Nov, it moves northwestwards and lay over eastcentral AS and become LPA on 8th Nov over eastcentral AS.
ECMWF	No significant system.	Cycir over southeast AS on 7th Nov, will have its west-northwestward movement and will lay as LPA on 8th Nov over eastcentral AS, it will move in the same direction till 9th Nov without further intensification and lay over eastcentral AS, it will then slightly west-southwestward without further intensification and lay over eastcentral and adjoining southeast AS on 10th Nov, it will continue in the same direction without further intensification.
NCEP-GFS	No significant system.	Cycir over southeast AS on 7th Nov, will have its west-northwestward movement and will lay as cycir on 8th Nov over eastcentral AS, it will move in the same direction till 9th Nov without further intensification and lay over eastcentral AS, it will then slightly west-southwestward without further intensification and lay over eastcentral and adjoining southeast AS on 10th Nov, it will continue in the same direction without further intensification.
IMD-Genesis Potential Parameter	No potential zone over BoB for next 7 days.	A feeble potential zone for Cyclogenesis over southeast and adjoining eastcentral AS on 6th Nov, over eastcentral AS on 8th Nov.

Summary and conclusion:

1. **For Bay of Bengal**:

As per model guidance, no significant cyclonic disturbance is likely over the Bay of Bengal during next seven days.

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 a cyclonic circulation over southeast Arabian Sea (NCUM-Global, NCUM-NEPS, NCUM-Regional, ECMWF, NCEP-GFS) with nearly northwestward movement on 6th Nov. Models are also indicating it to become a low pressure area over eastcentral Arabian Sea around 8th Nov. Models are also indicating that it will move in the same direction till 10th Nov without further intensification and then it would move west-southwestwards. IMD GPP is indicating a feeble potential zone over southeast and adjoining eastcentral AS during 6th Nov, over eastcentral Arabian Sea on 8th Nov.

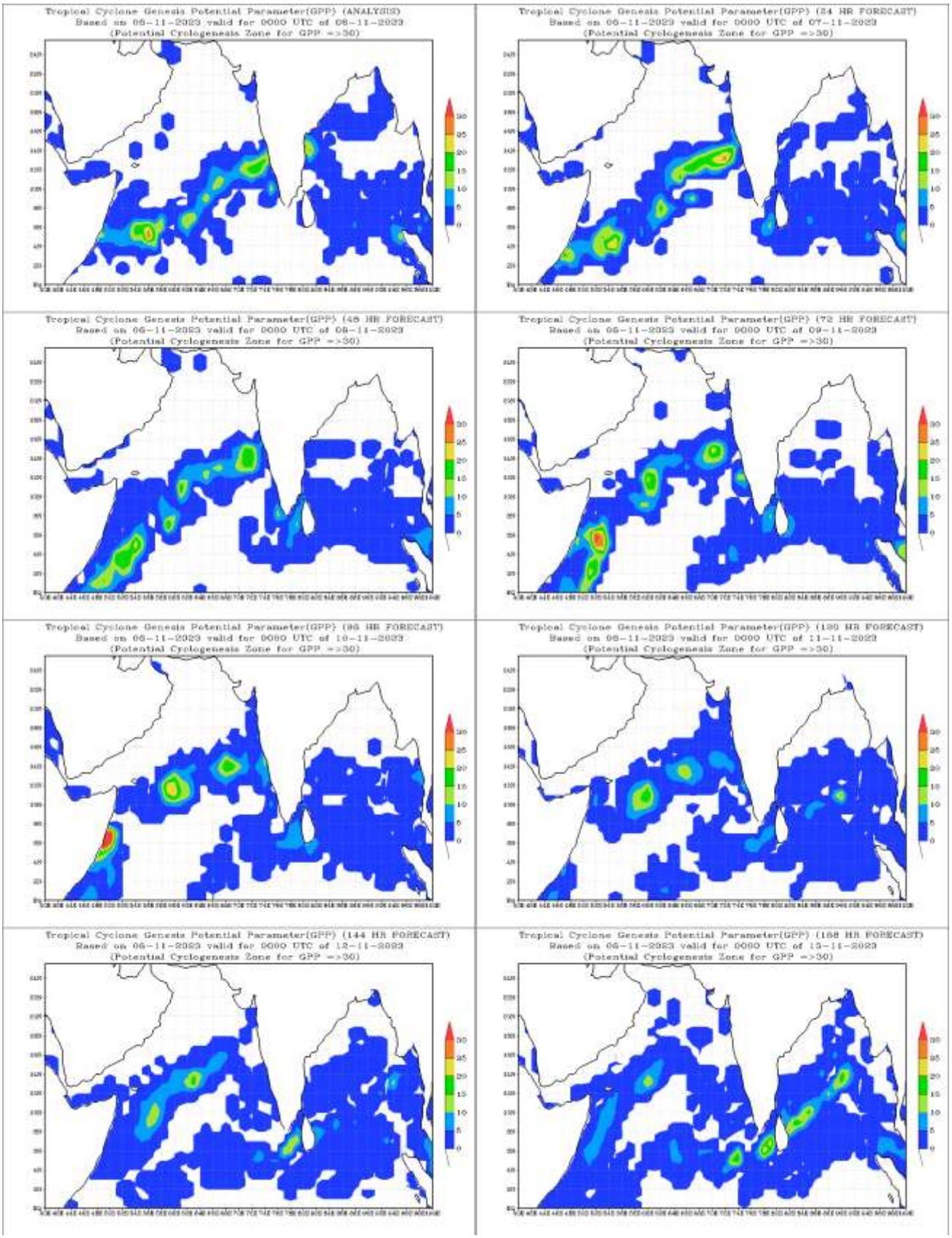
From the consensus, it is inferred that yesterday's cyclonic circulation over north Tamil Nadu & neighborhood now lies over southeast Arabian Sea off Kerala coast at 0300 UTC of today, the 6th Nov 2023 between 3.1 & 5.8 km above mean sea level. It is likely to move west-northwestwards for the next 24 hours and under its influence, a low pressure area is likely to form over eastcentral Arabian Sea around 08th Nov, 2023. Models are also indicating no further intensification and hence, the probability for cyclogenesis over the AS for the next seven days is assigned as 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

IOP: Nil**.**

Annexure


Tropical Cyclone Genesis Potential Parameter(GPP) (ANALYSIS)
Based on 06-11-2023 valid for 0000 UTC of 06-11-2023
(Potential Cyclogenesis Zone for GPP =>30)
Tropical Cyclone Genesis Potential Parameter(GPP) (24 HR FORECAST)
Based on 06-11-2023 valid for 0000 UTC of 07-11-2023
(Potential Cyclogenesis Zone for GPP =>30)
Tropical Cyclone Genesis Potential Parameter(GPP) (48 HR FORECAST)
Based on 06-11-2023 valid for 0000 UTC of 08-11-2023
(Potential Cyclogenesis Zone for GPP =>30)
Tropical Cyclone Genesis Potential Parameter(GPP) (72 HR FORECAST)
Based on 06-11-2023 valid for 0000 UTC of 09-11-2023
(Potential Cyclogenesis Zone for GPP =>30)
Tropical Cyclone Genesis Potential Parameter(GPP) (96 HR FORECAST)
Based on 06-11-2023 valid for 0000 UTC of 10-11-2023
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Tropical Cyclone Genesis Potential Parameter(GPP) (120 HR FORECAST)
Based on 06-11-2023 valid for 0000 UTC of 11-11-2023
(Potential Cyclogenesis Zone for GPP =>30)
Tropical Cyclone Genesis Potential Parameter(GPP) (144 HR FORECAST)
Based on 06-11-2023 valid for 0000 UTC of 12-11-2023
(Potential Cyclogenesis Zone for GPP =>30)
Tropical Cyclone Genesis Potential Parameter(GPP) (168 HR FORECAST)
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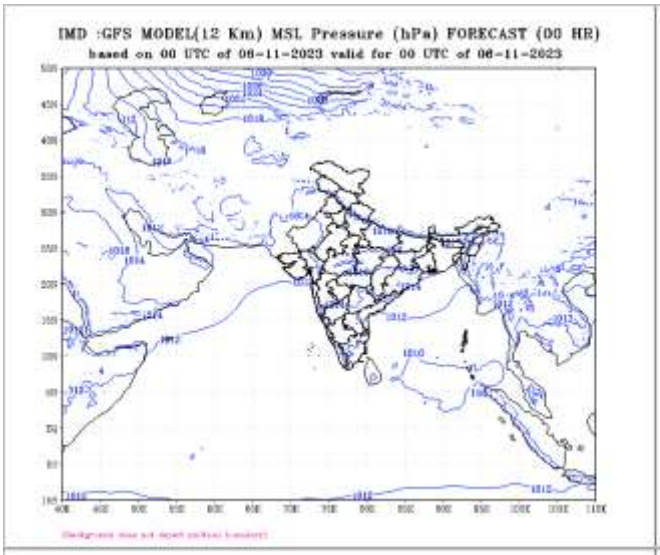
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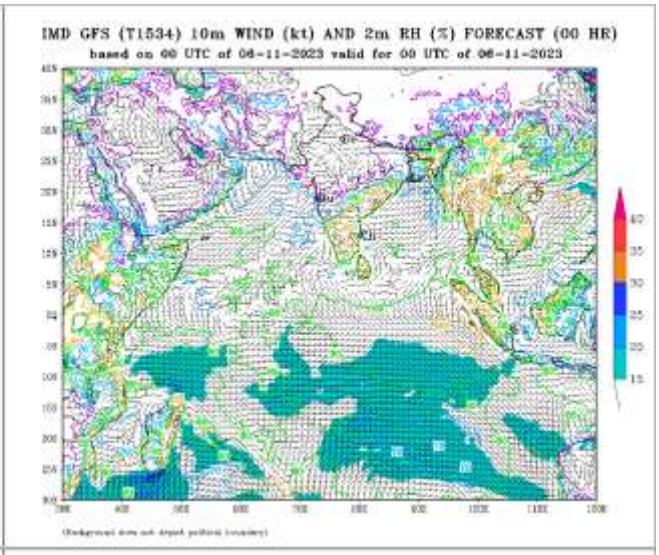
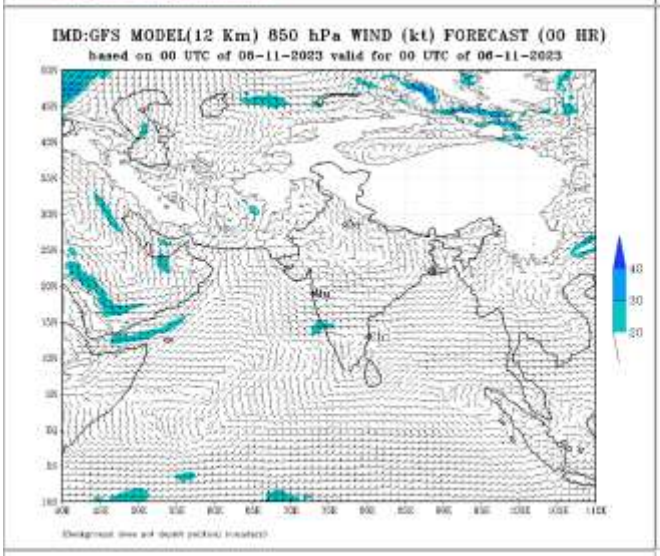
based on 00 UTC of 06-11-2023 valid for 00 UTC of 06-11-2023


IMD GFS (T1534) 10m WIND (kt) AND 2m RH (%) FORECAST (00 HR)
based on 00 UTC of 06-11-2023 valid for 00 UTC of 06-11-2023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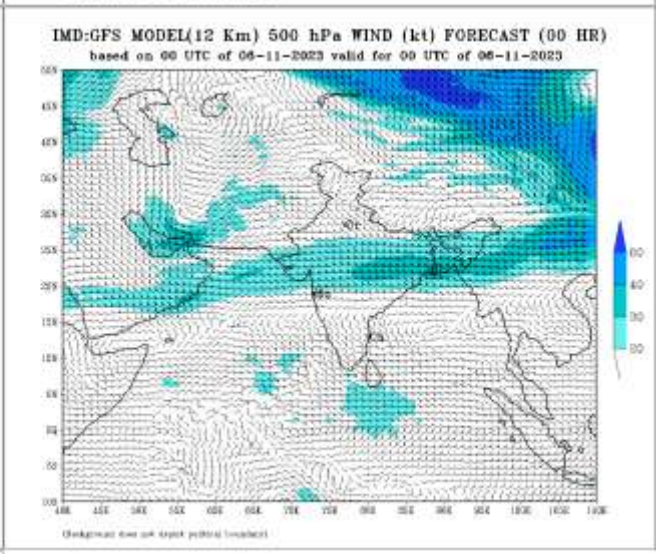
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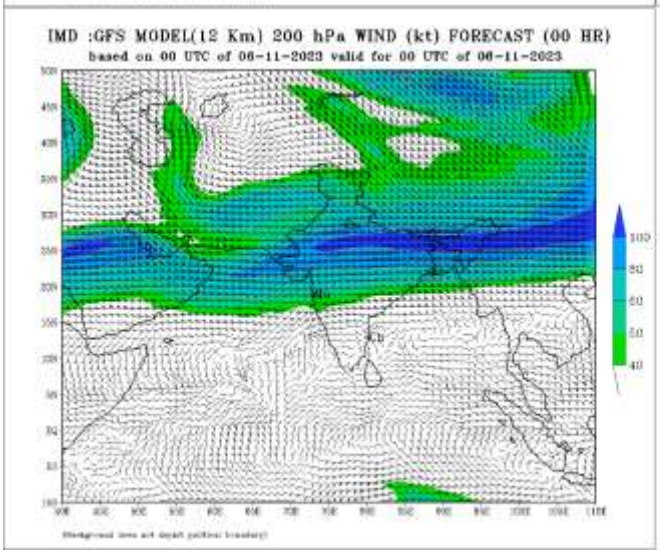
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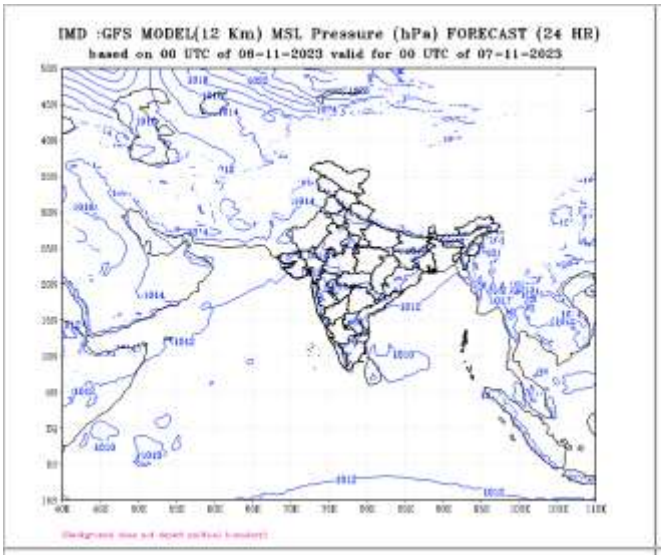
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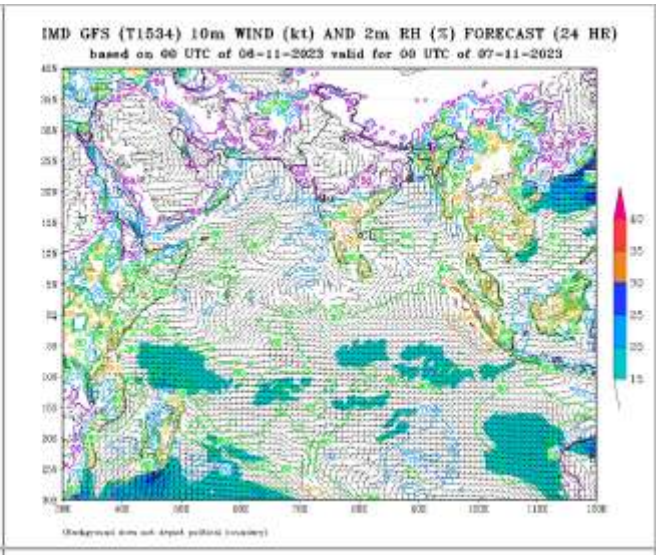
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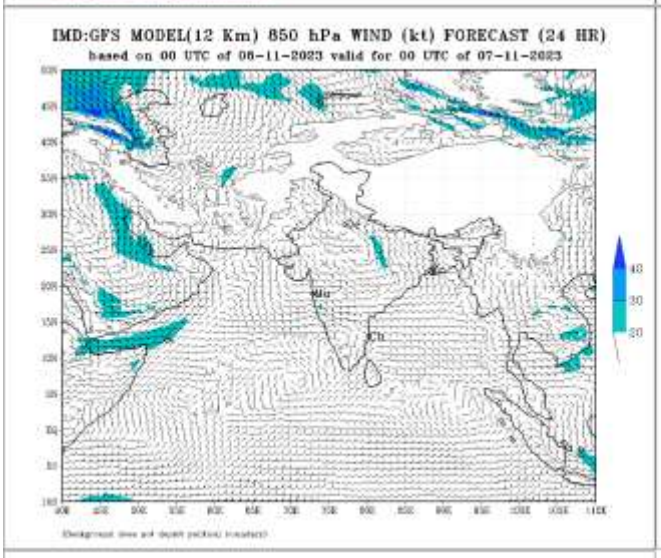
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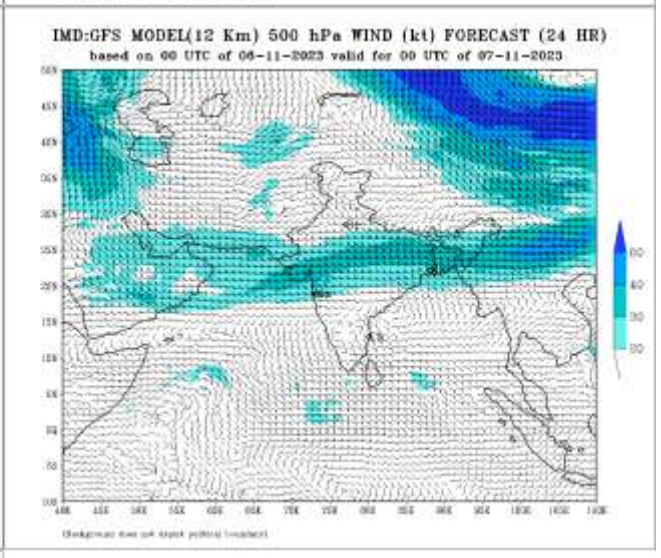
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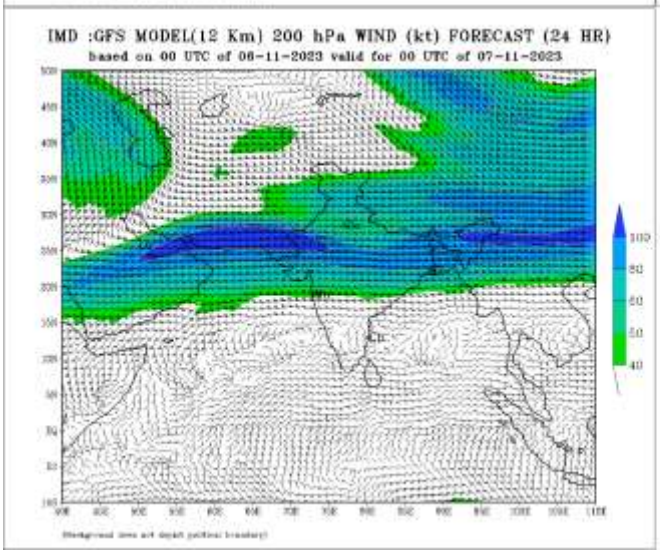
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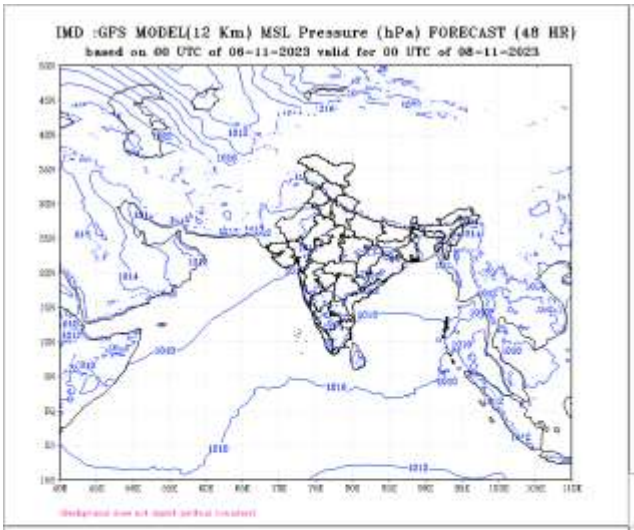
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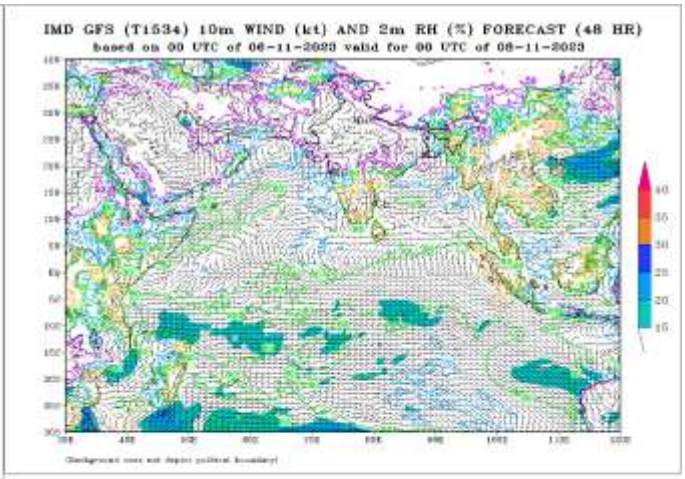
based on 00 UTC of 06-11-2023 valid for 00 UTC of 08-11-2023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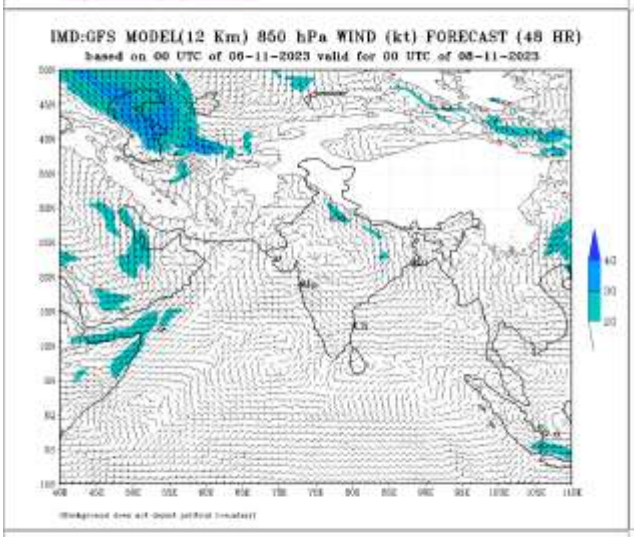
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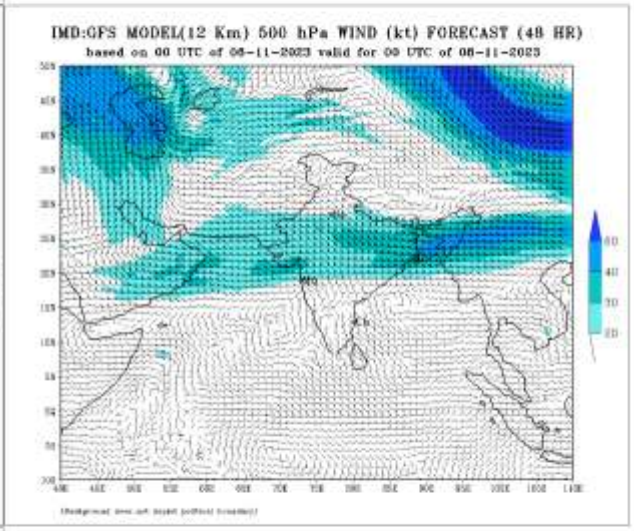
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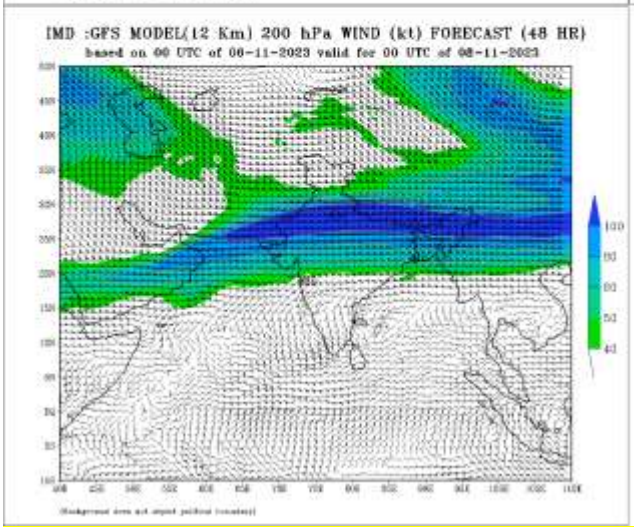
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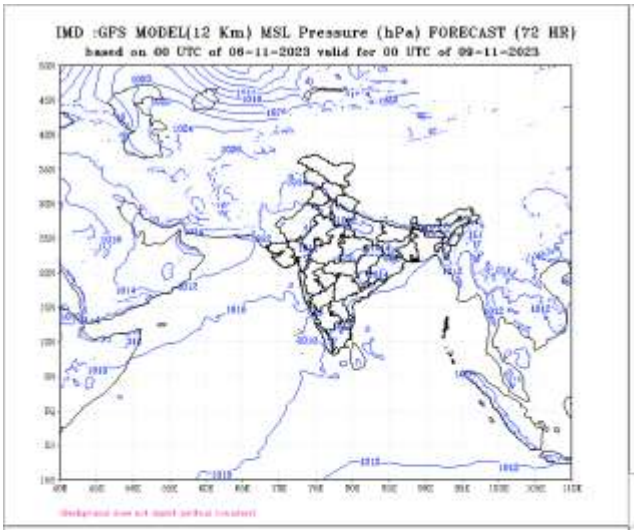
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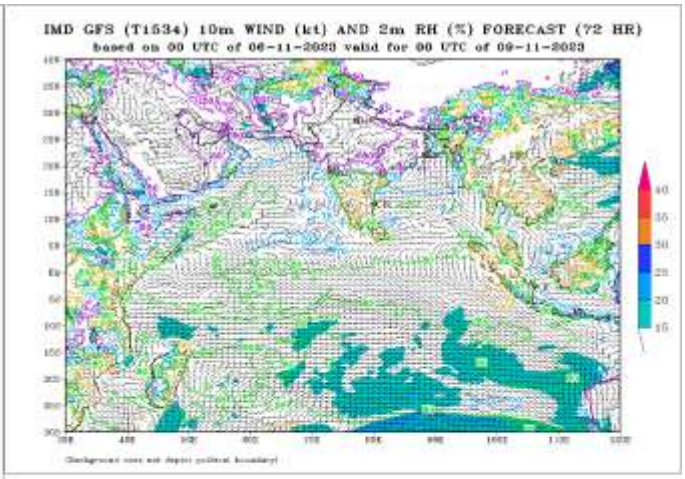
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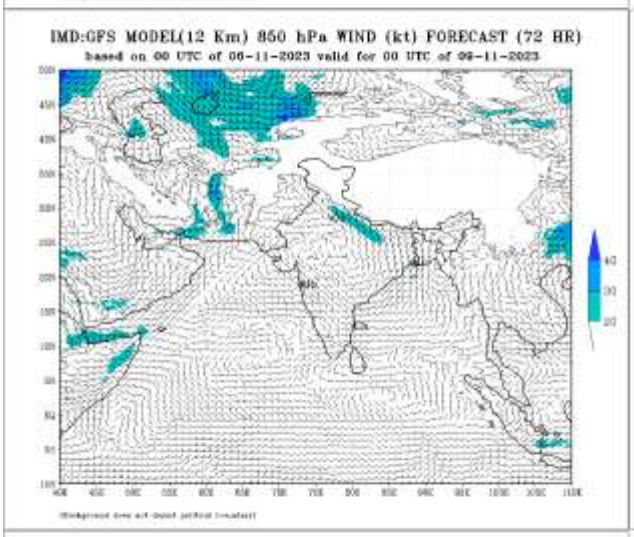
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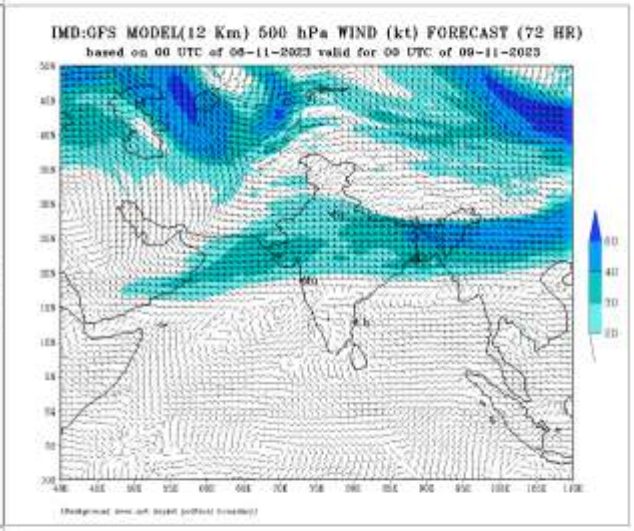
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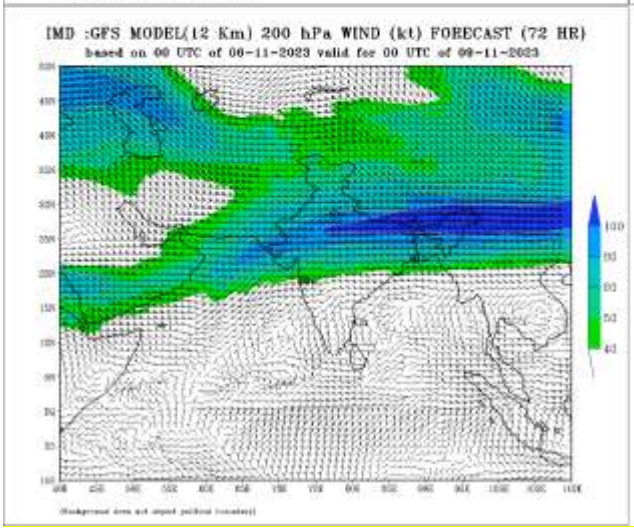
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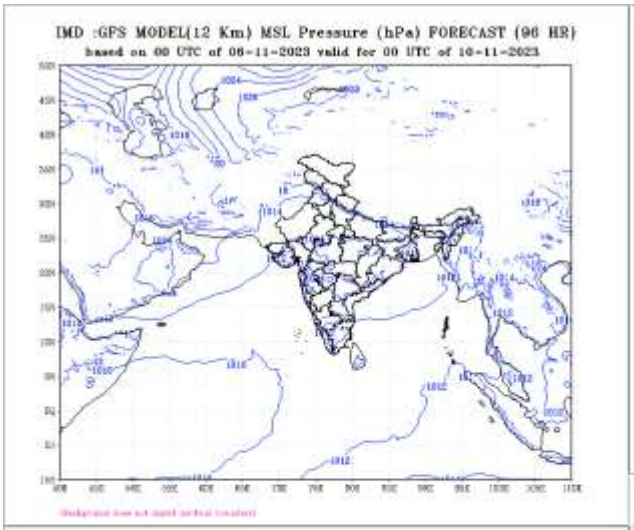
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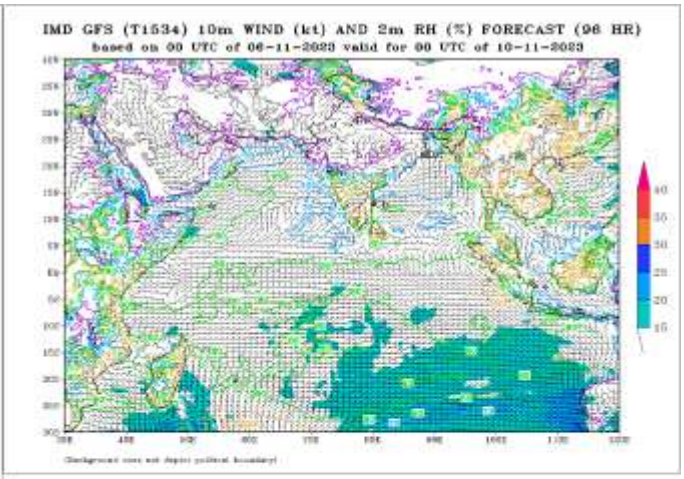
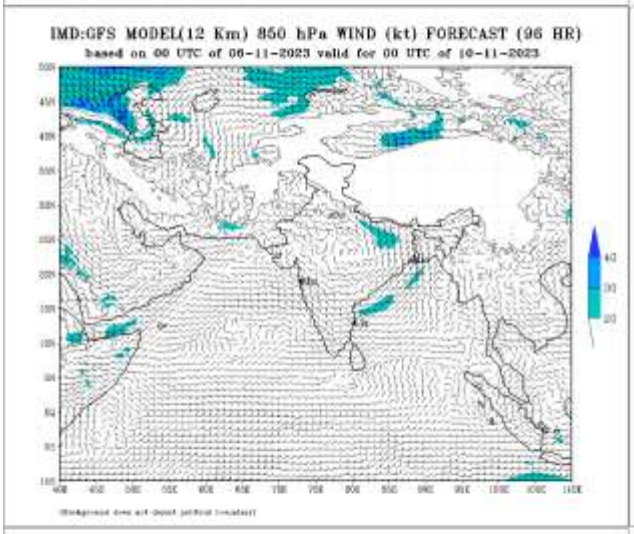

IMD GFS (T1534) 10m WIND (kt) AND 2m RH (%) FORECAST (96 HR)
based on 00 UTC of 06-11-2023 valid for 00 UTC of 10-11-2023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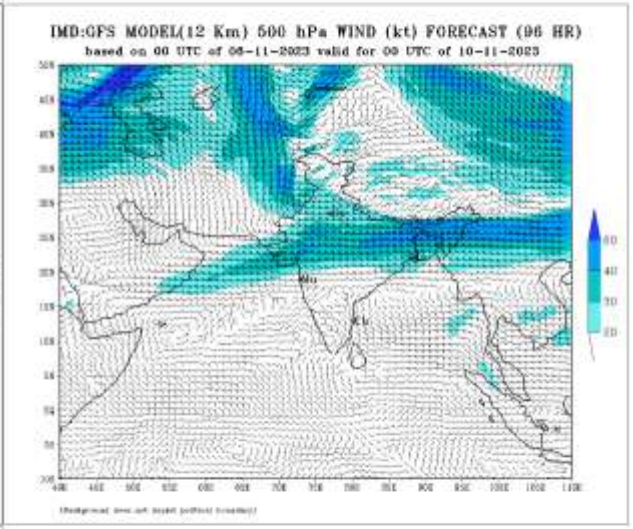
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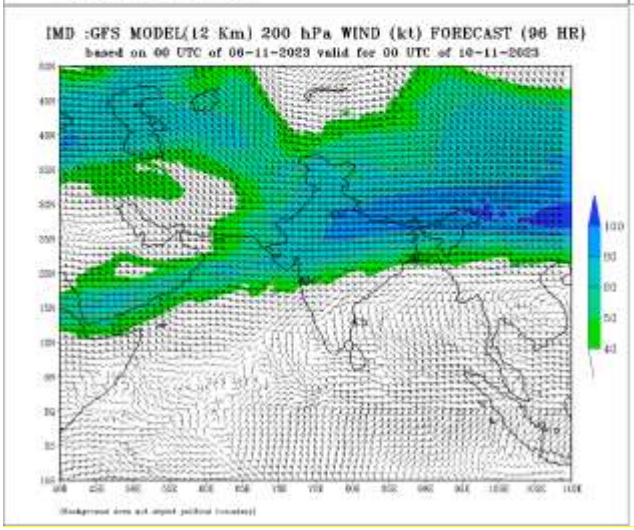
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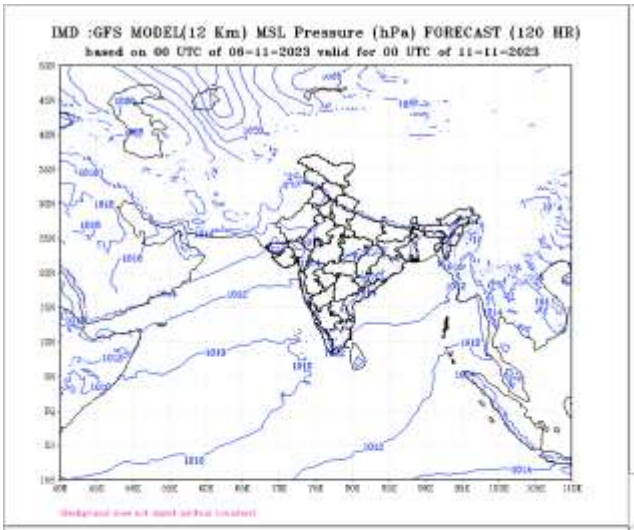
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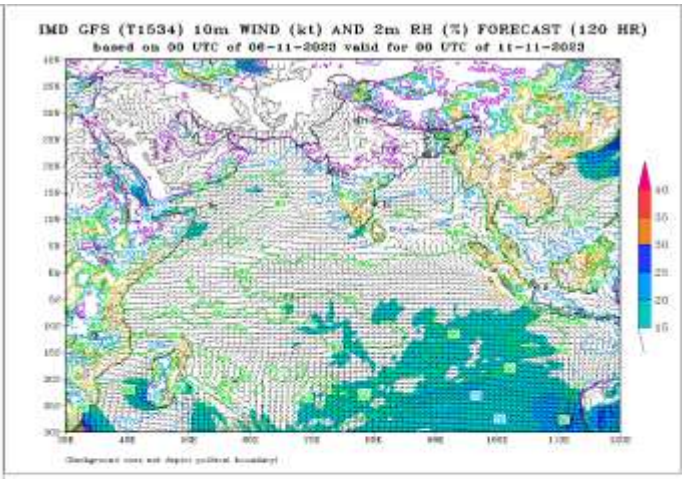
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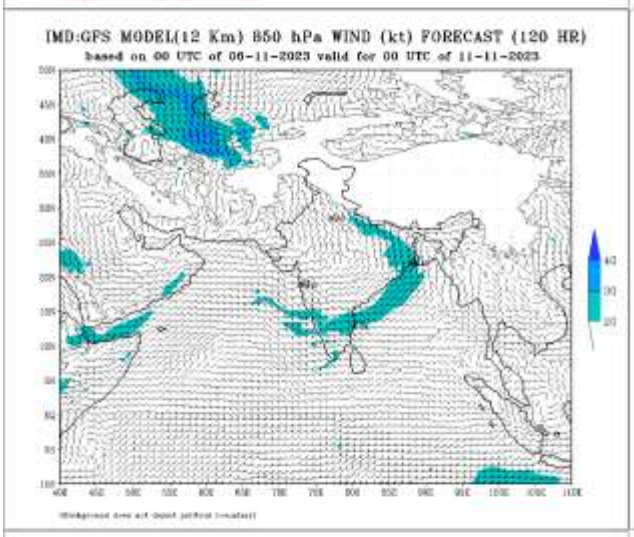
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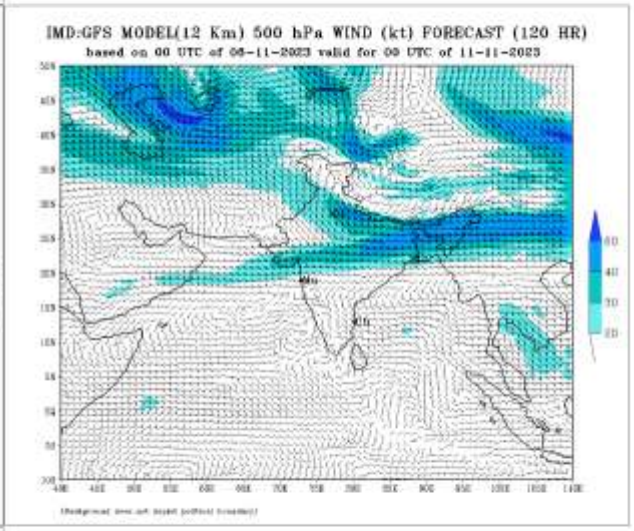
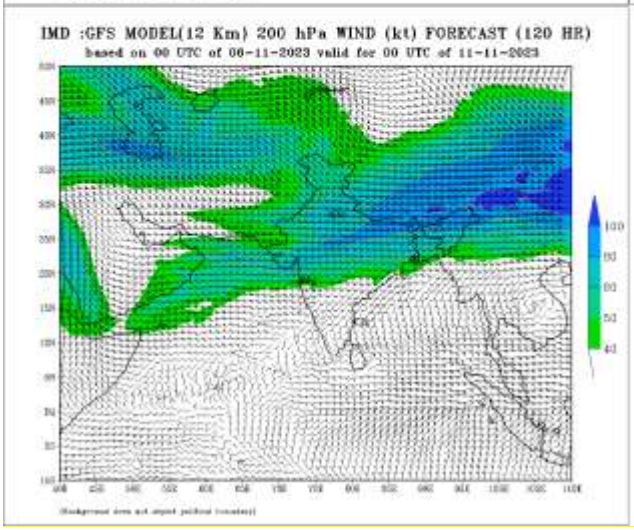
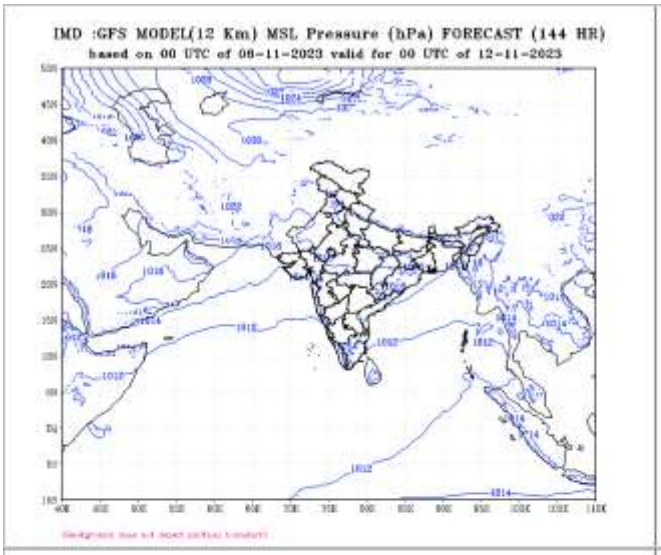
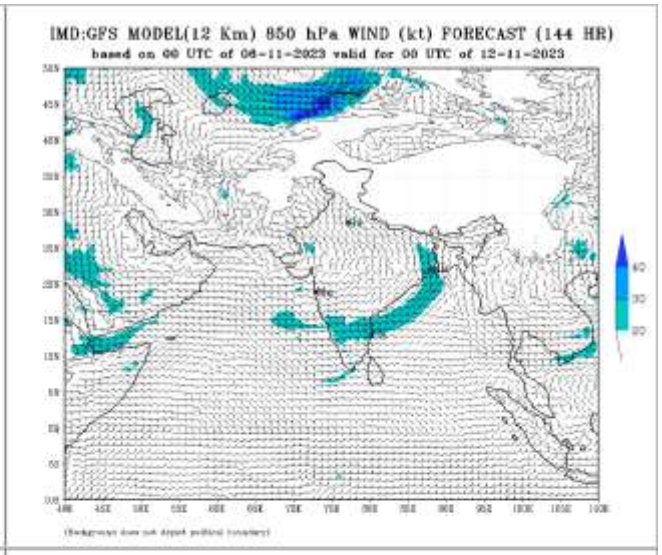
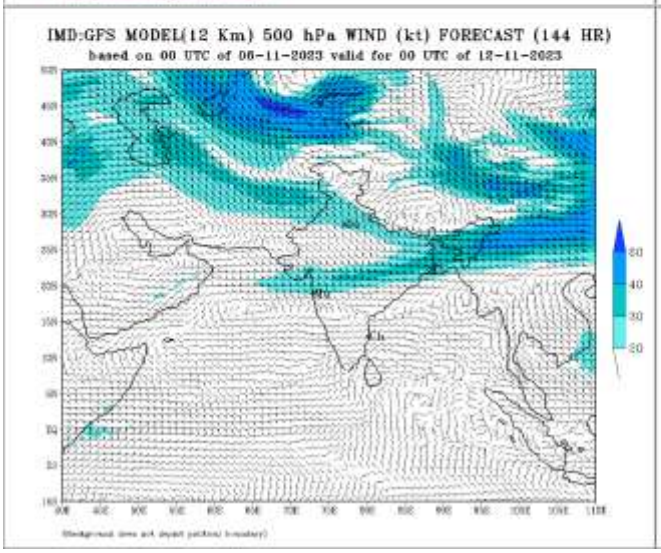
based on 00 UTC of 06-11-2023 valid for 00 UTC of 11-11-2023


IMD:GFS MODEL(12 Km) 500 hPa WIND (kt) FORECAST (120 HR)
based on 00 UTC of 06-11-2023 valid for 00 UTC of 11-11-2023


IMD :GFS MODEL(12 Km) 200 hPa WIND (kt) FORECAST (120 HR)
based on 00 UTC of 06-11-2023 valid for 00 UTC of 11-11-2023


IMD :GFS MODEL(12 Km) MSL Pressure (hPa) FORECAST (144 HR)
based on 00 UTC of 06-11-2023 valid for 00 UTC of 12-11-2023


IMD:GFS MODEL(12 Km) 850 hPa WIND (kt) FORECAST (144 HR)
based on 00 UTC of 06-11-2023 valid for 00 UTC of 12-11-2023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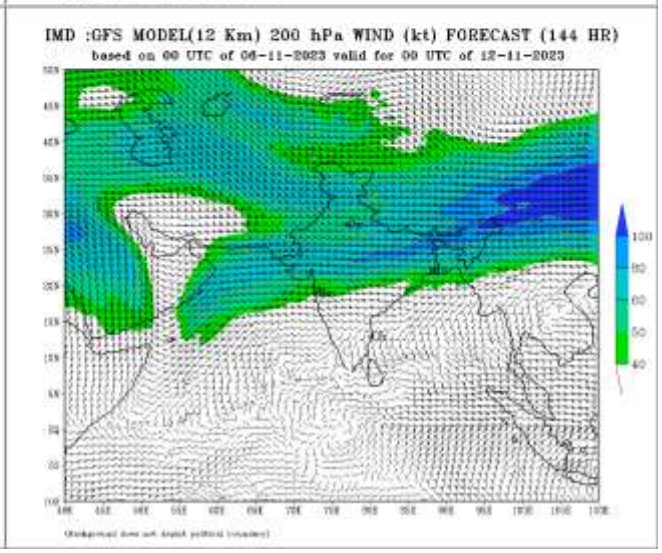
based on 00 UTC of 06-11-2023 valid for 00 UTC of 12-11-2023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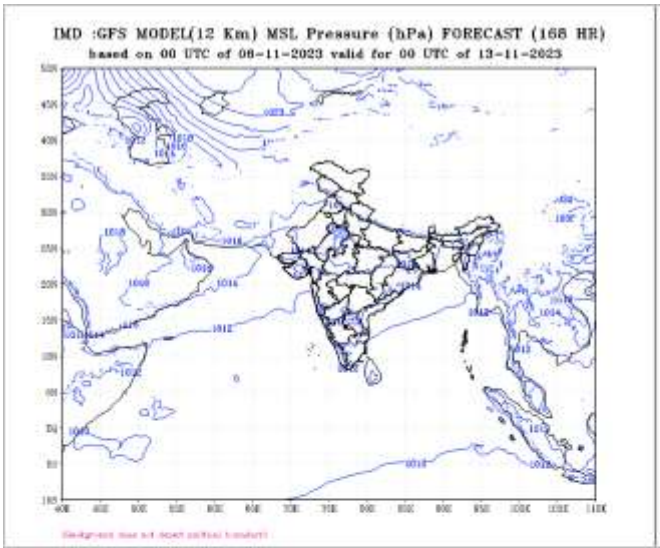
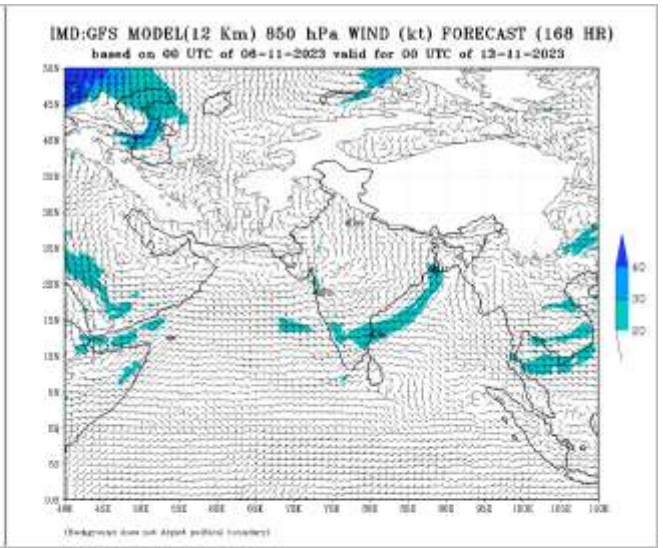
based on 00 UTC of 06-11-2023 valid for 00 UTC of 12-11-2023


IMD :GFS MODEL(12 Km) MSL Pressure (hPa) FORECAST (168 HR)
based on 00 UTC of 06-11-2023 valid for 00 UTC of 13-11-2023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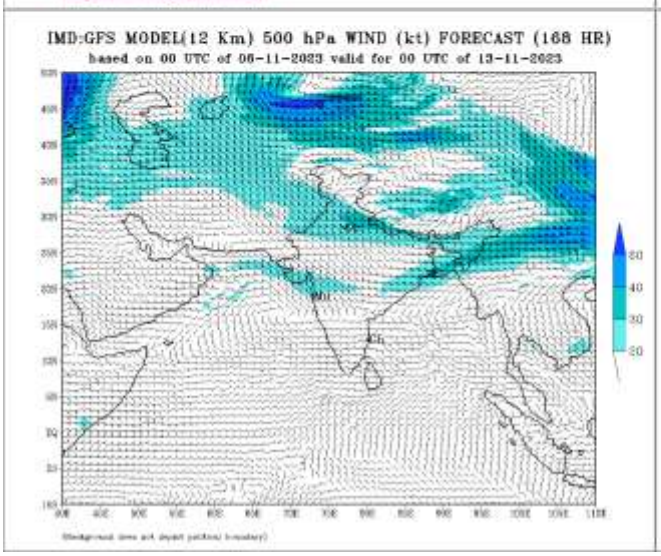
based on 00 UTC of 06-11-2023 valid for 00 UTC of 13-11-2023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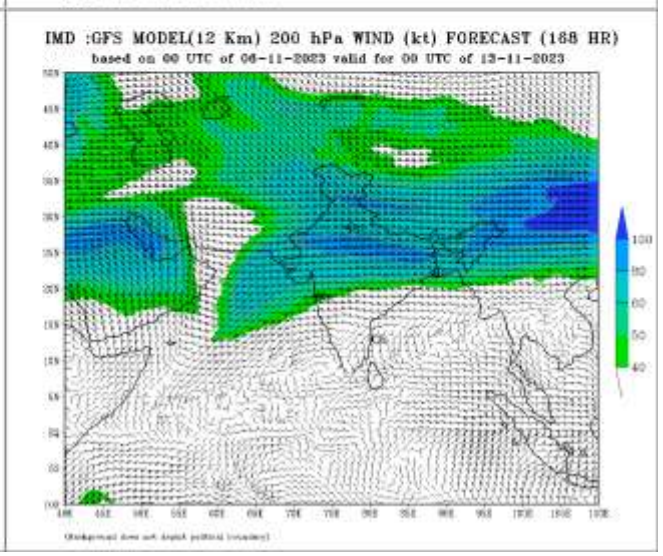
based on 00 UTC of 06-11-2023 valid for 00 UTC of 13-11-2023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based on 00 UTC of 06-11-2023 valid for 00 UTC of 13-11-2023