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

Tropical Cyclone Forecast Programme
Report Dated 03rd November, 2023

Time of Issue: 1100 UTC

Synoptic features (based on 0300 UTC analysis):

- The Trough of low in easterlies over Southwest & adjoining Westcentral Bay of Bengal off Tamil Nadu coast extending upto 4.5 km above mean sea level persists.
- The upper air cyclonic circulation over Westcentral Arabian Sea between 1.5 km & 3.1 km above mean sea level persists.

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 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 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. 50-60 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 southwest BoB, along and off Sri Lanka coast, Gulf of Mannar, along off Tamil Nadu and South Andhra Pradesh coasts.	10-20 over few parts of southwest AS, along and off Maharashtra coast, Comorin area, along and off Yemen-Oman coast.
Low Level convergence (X10^{-5} s^{-1})	5-10 over southwest BoB, Gulf of Mannar.	5 over southwest and adjoining southeast AS, -5 over eastcentral AS.
Upper Level divergence (X10^{-5} s^{-1})	-5 over most parts of south and central BoB, 5-10 over southern	5-10 over southeast AS, along and off south Kerala coast, 5 over central

	parts of southwest BoB, 10-20 over Comorin area, Gulf of Mannar.	parts of south BoB, 5 over southwest AS off Somalia coast.
Vertical Wind Shear (VWS knots)	5-15 over south BoB, Andaman Sea, 20 over southern part of central BoB, 25-30 over central BoB, 40-50 over north BoB.	5-15 over south AS, 20 over southern part of central AS, 25-60 over central AS, 60-80 over north AS.
Wind Shear Tendency (knots)	Decreasing tendency over major parts of south BoB. Increasing tendency over north BoB.	Decreasing tendency over western parts of AS, increasing tendency over eastern parts of AS.
Upper tropospheric Ridge	Along 13.5^{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 Moderate to Intense Convection Lay over Central and South Bay Of Bengal, South Andaman Sea.

(b) Over the Arabian Sea:-
Scattered Low and Medium Clouds with Embedded Moderate to Intense Convection Lay over South Arabian Sea, Comorin Area.

(c) Convection outside India:-
Scattered Low And Medium Clouds With Embedded Moderate To Intense Convection Lay Over Southwest Sri Lanka Palk Str Gulf Of Mannar Maldives Tibet China Gulf Of Thailand Cambodia South Vietnam Sumatra Str Of Malacca Malaysia Borneo South China Sea Java Sea Celebes Islands Philippines North Madagascar North Mozambique Channel And Over Indian Ocean Between Latitude equator to 5.0N, Longitude 50.0E To 100.0E And Between Equator To Latitude 10.0S and Longitude 40.0E to 60.0E.

M.J.O. Index:
MJO index is currently in Phase 2 with amplitude less than 1. It will remain in phase 2 for next two days with amplitude less than 1. It will subsequently move to Phase 1 on 6th November with amplitude less than 1. It then move to phase 7 on 7th Nov with amplitude less than 1 and in phase 6 on 8th, in phase 7 on 9th Nov 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	No significant system.	No significant system.
IMD-GEFS	No significant system.	No significant system.
IMD-WRF	Extended cyclonic circulation over southwest BoB close to Tamil Nadu coast on day 2 and 3.	No significant system.
NCMRWF-NCUM	No significant system.	No significant system.
NCMRWF-NEPS	No significant system.	No significant system.
NCMRWF-UM (Regional)	No significant system.	No significant system.
ECMWF	No significant system.	Cyclonic circulation over southeast AS on day 5, it will have westnorthwest direction without significant intensification.
NCEP-GFS	No significant system.	Cyclonic circulation over southeast AS on

		day 5, it will have westnorthwest direction without significant intensification.
IMD-Genesis Potential Parameter	No potential zone over BoB for next 7 days.	Potential zone of Cyclogenesis over southeast Arabian Sea on day 4, having westnorthwest movement till day 6. It will lay over eastcentral AS on day 6.

Summary and conclusion:

1. **For Bay of Bengal**:

Most of the models are indicating that there will be no significant system over Bay of Bengal for the next seven days. However, IMD-WRF model is indicating extended cyclonic circulation over southwest BoB close to Tamil Nadu coast on day 2 and 3.

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**:

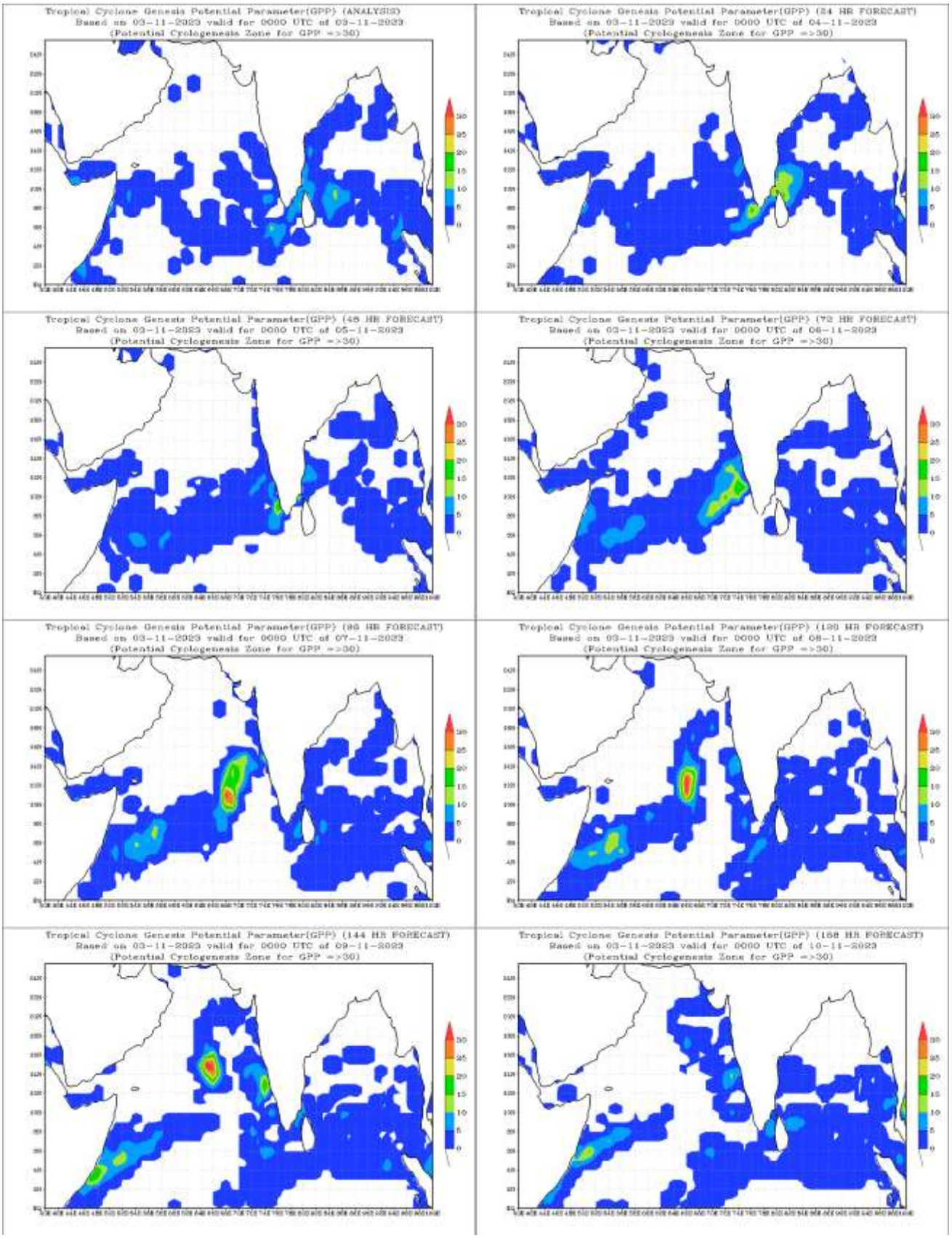
Most of the models are indicating that there will be no significant system over Arabian Sea for the next seven days. However, ECMWF & NCEP-GFS models are showing cyclonic circulation over southeast Arabian Sea on day 5, having its westnorthwest ward movement without any significant intensification.

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 03-11-2023 valid for 0000 UTC of 03-11-2023
(Potential Cyclogenesis Zone for GPP =>30)
Tropical Cyclone Genesis Potential Parameter(GPP) (24 HR FORECAST)
Based on 03-11-2023 valid for 0000 UTC of 04-11-2023
(Potential Cyclogenesis Zone for GPP =>30)
Tropical Cyclone Genesis Potential Parameter(GPP) (48 HR FORECAST)
Based on 03-11-2023 valid for 0000 UTC of 05-11-2023
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Tropical Cyclone Genesis Potential Parameter(GPP) (168 HR FORECAST)
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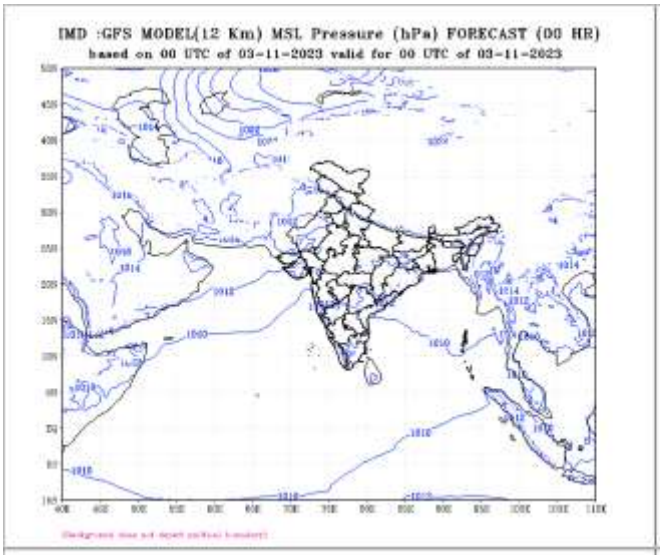
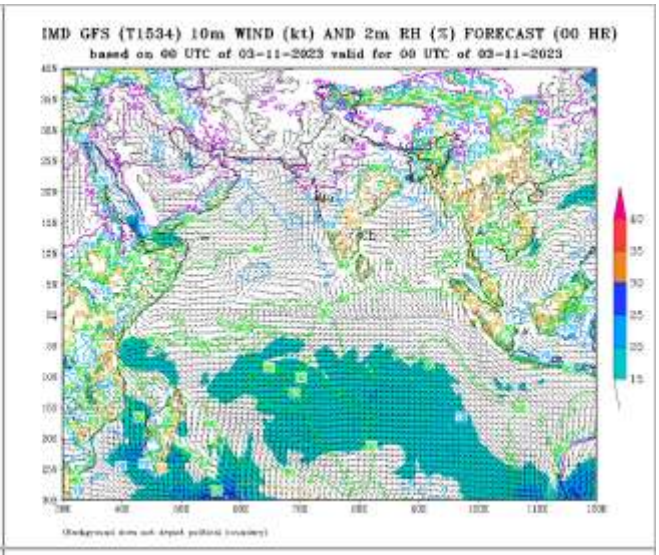
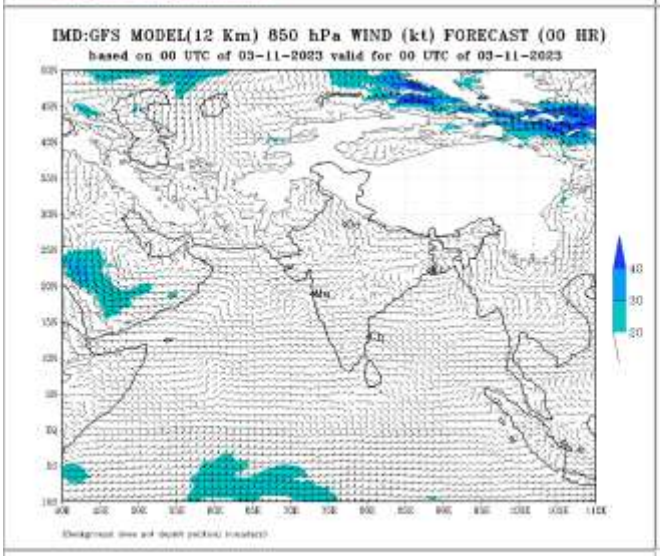

IMD :GFS MODEL(12 Km) MSL Pressure (hPa) FORECAST (00 HR)
based on 00 UTC of 03-11-2023 valid for 00 UTC of 03-11-2023


IMD GFS (T1534) 10m WIND (kt) AND 2m RH (%) FORECAST (00 HR)
based on 00 UTC of 03-11-2023 valid for 00 UTC of 03-11-2023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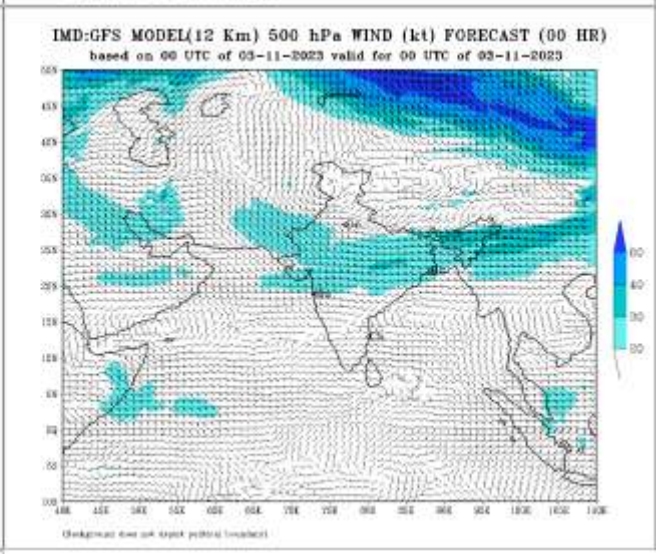
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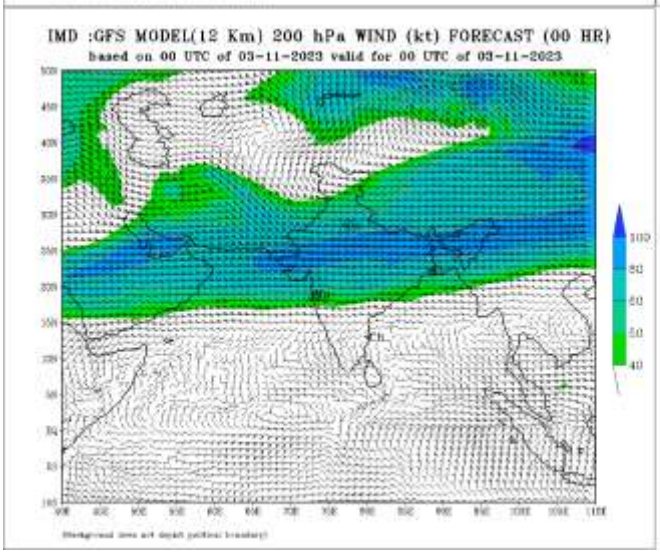
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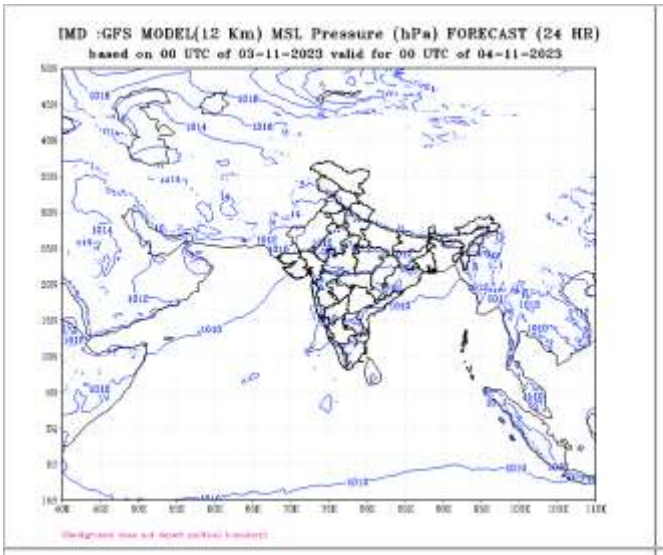
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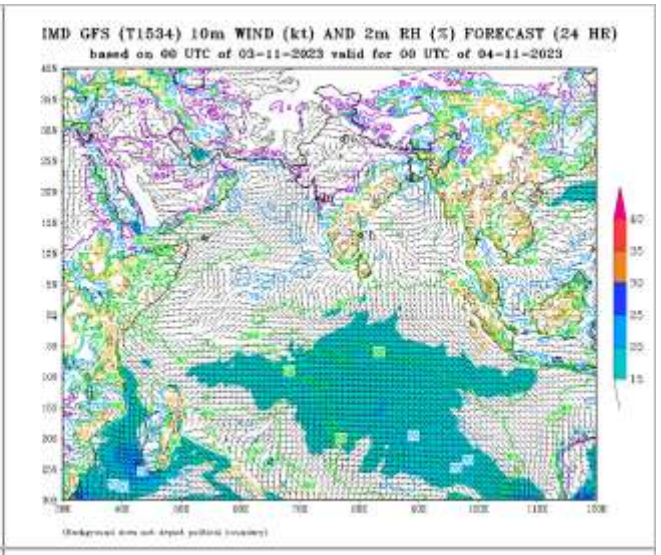
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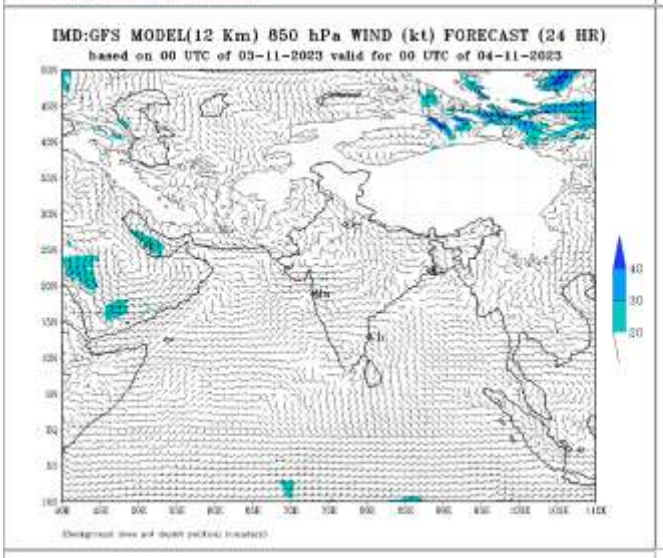
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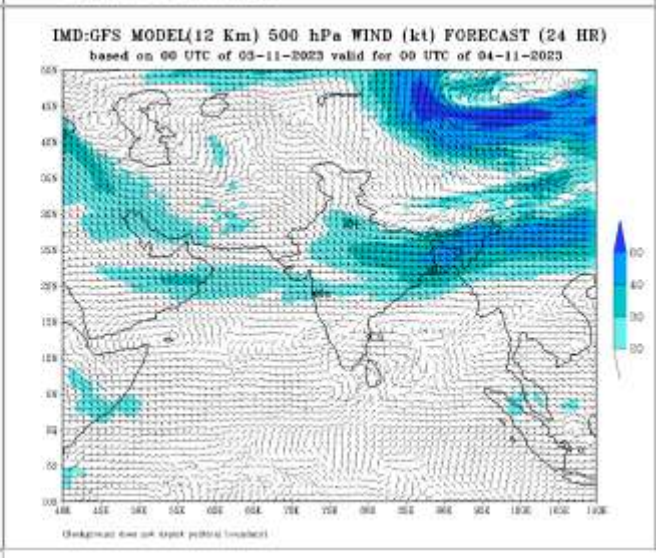
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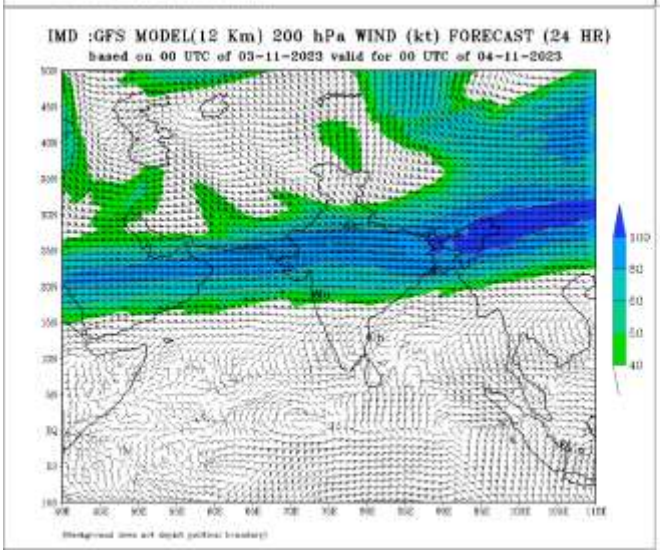
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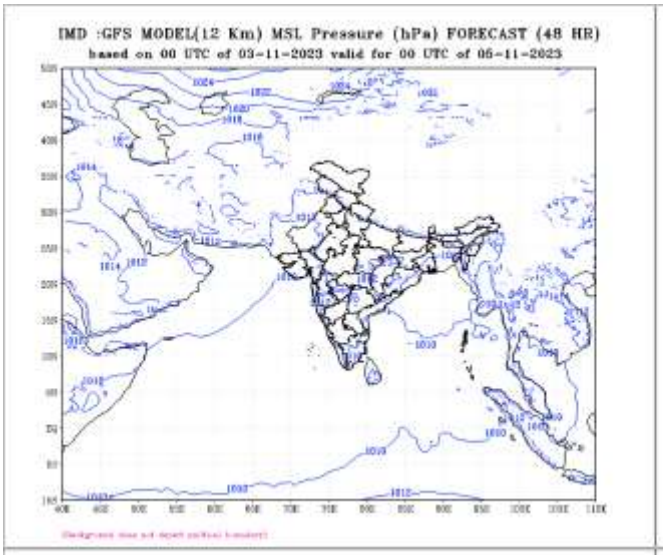
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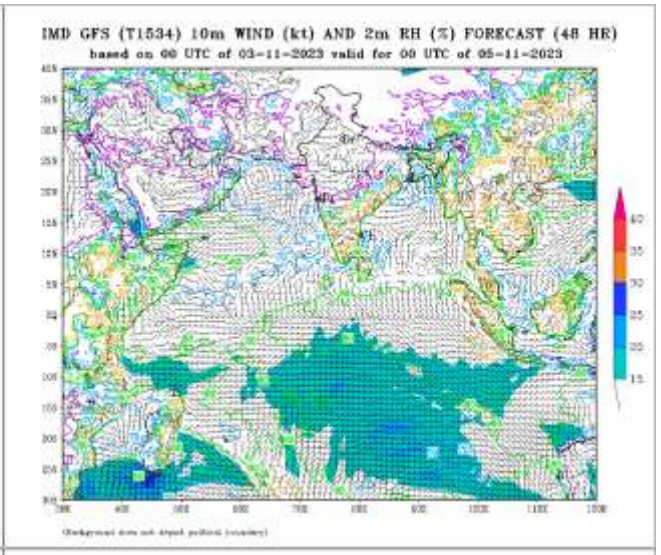
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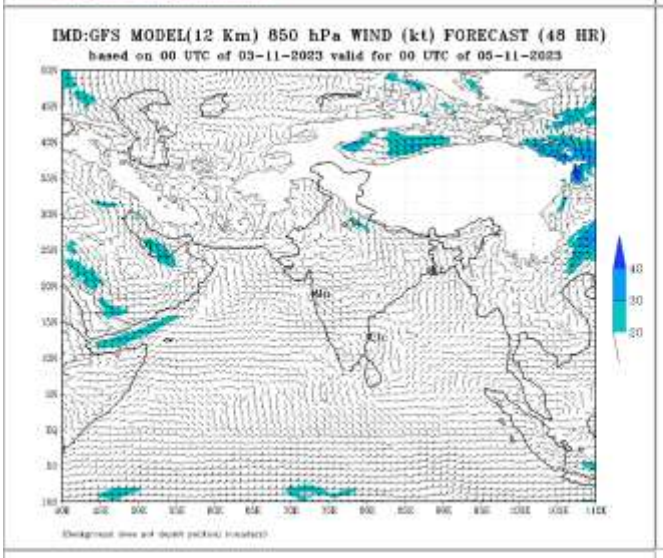
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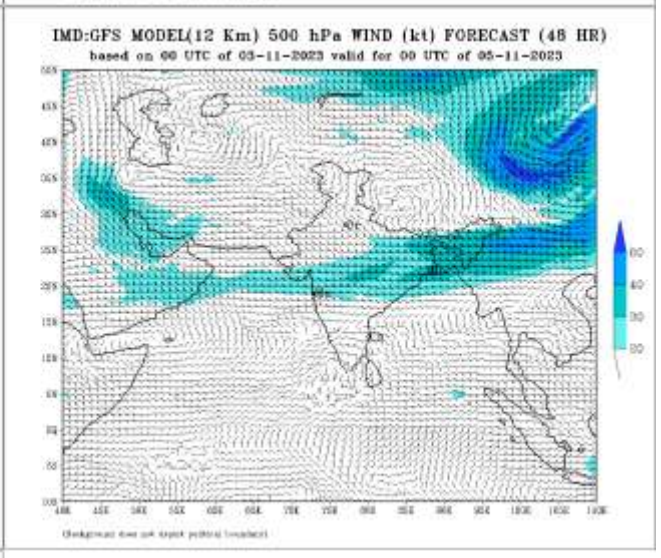
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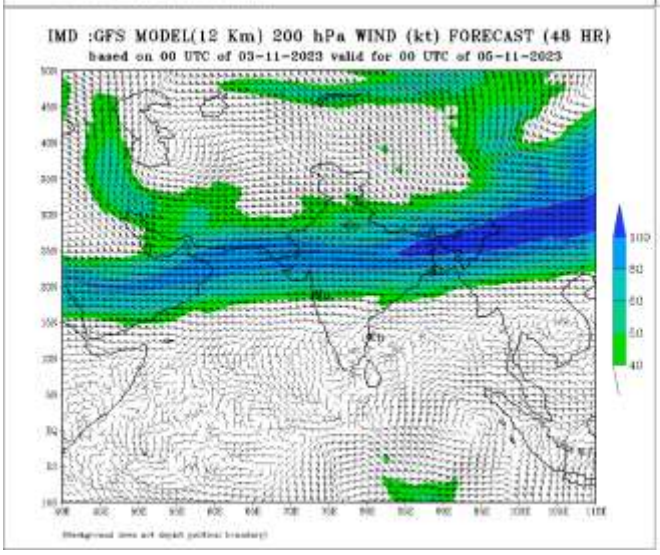
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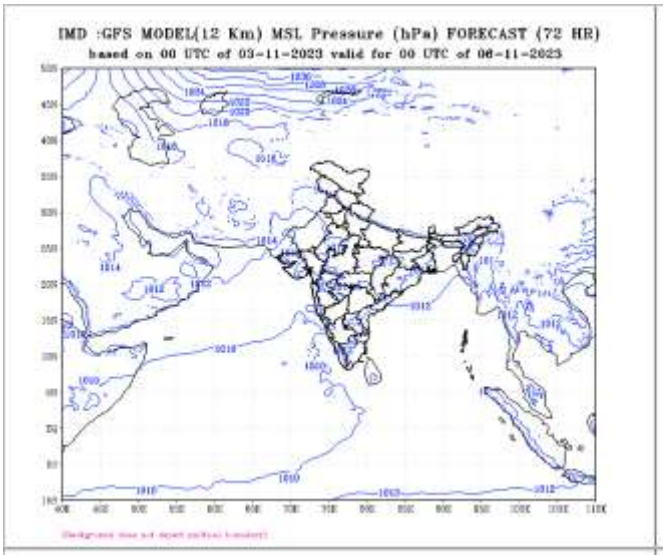
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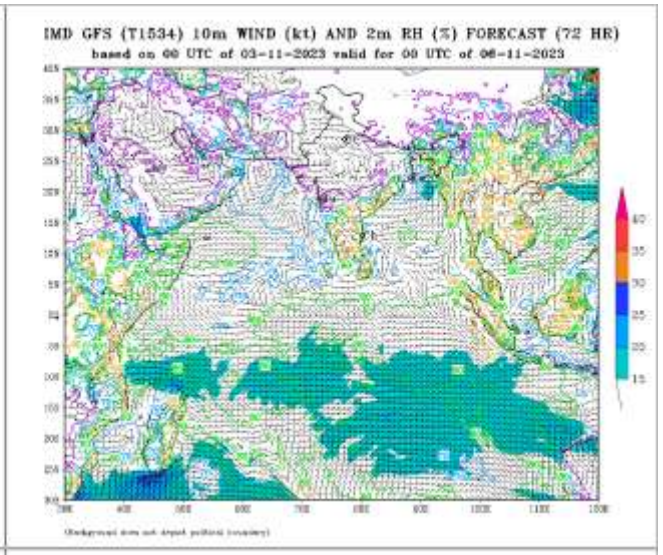
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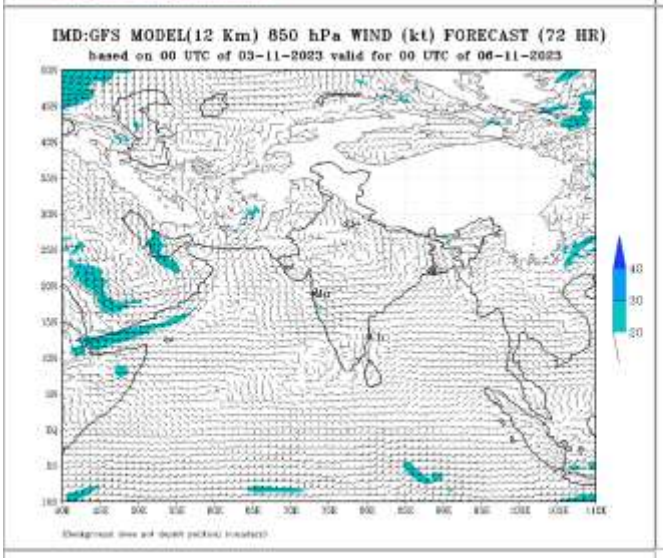
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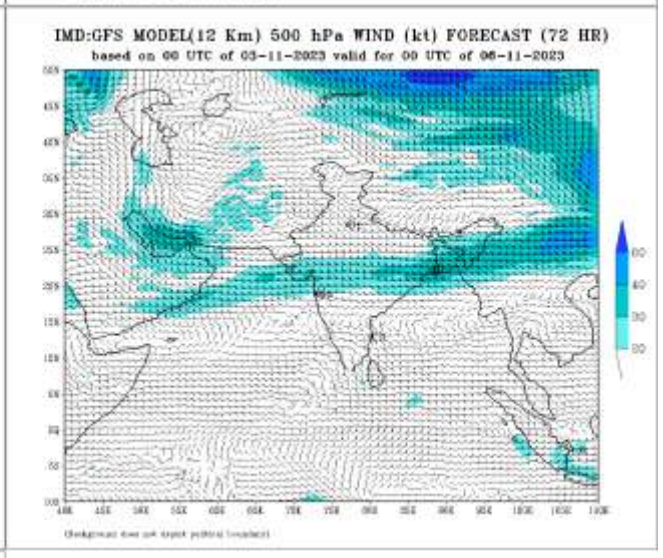
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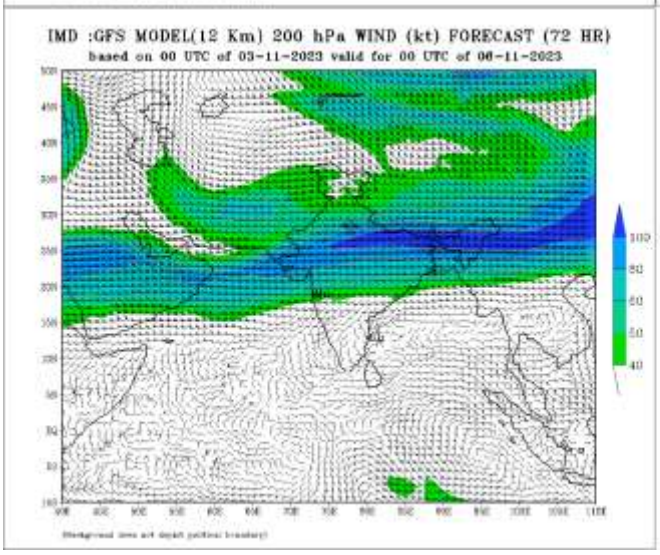
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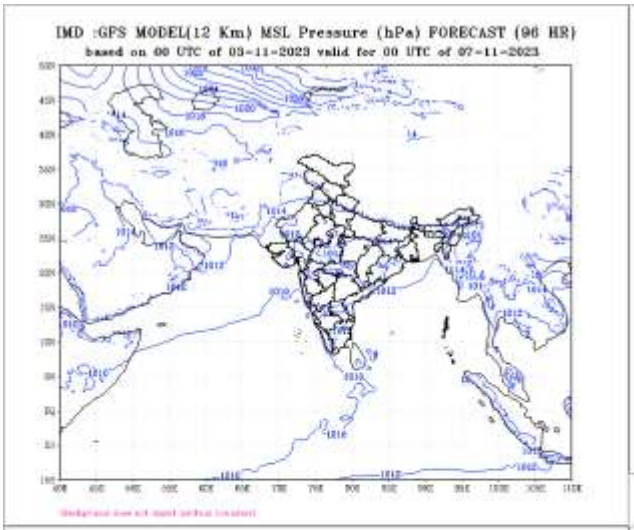
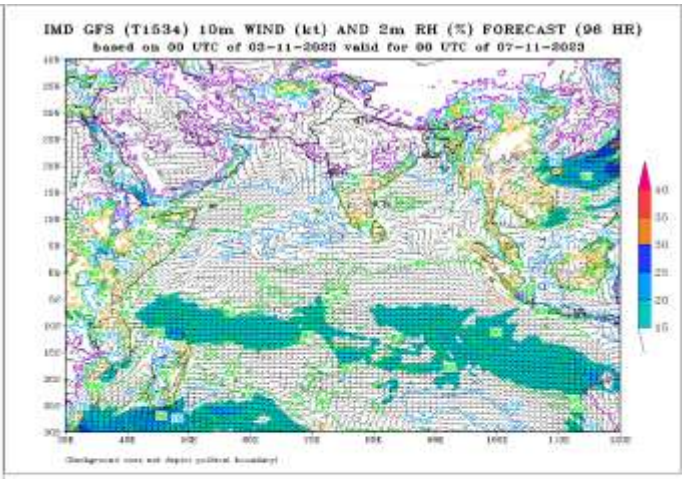

IMD :GPS MODEL(12 Km) MSL Pressure (hPa) FORECAST (96 HR)
based on 00 UTC of 03-11-2023 valid for 00 UTC of 07-11-2023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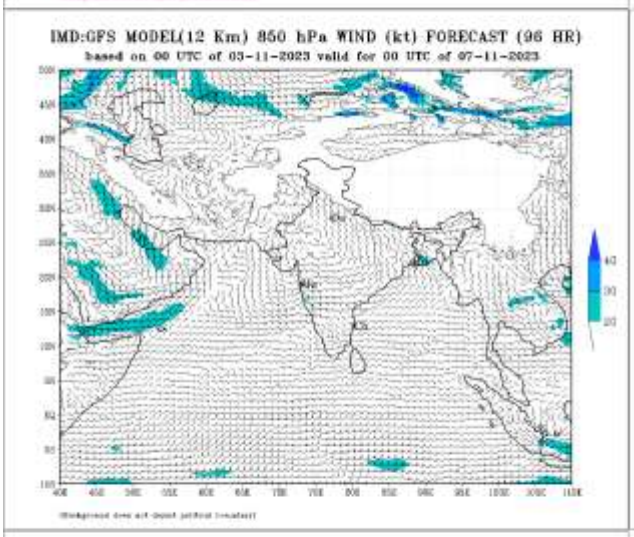
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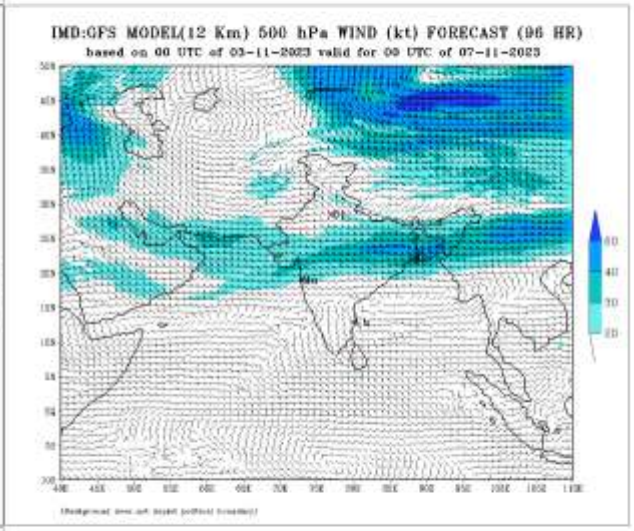
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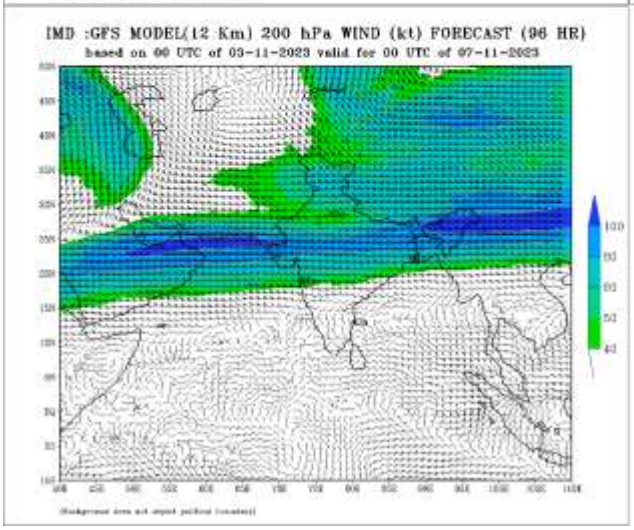
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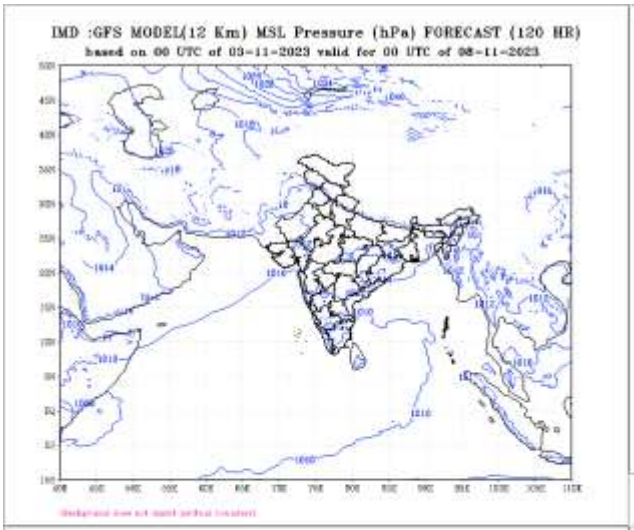
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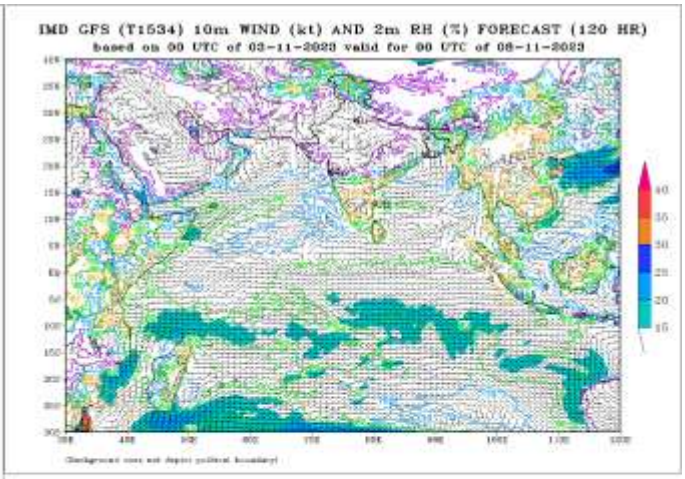
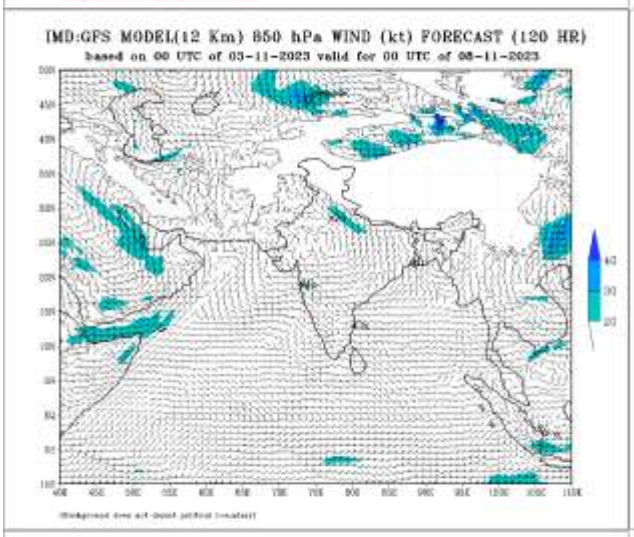

IMD GFS (T1534) 10m WIND (kt) AND 2m RH (%) FORECAST (120 HR)
based on 00 UTC of 03-11-2023 valid for 00 UTC of 08-11-2023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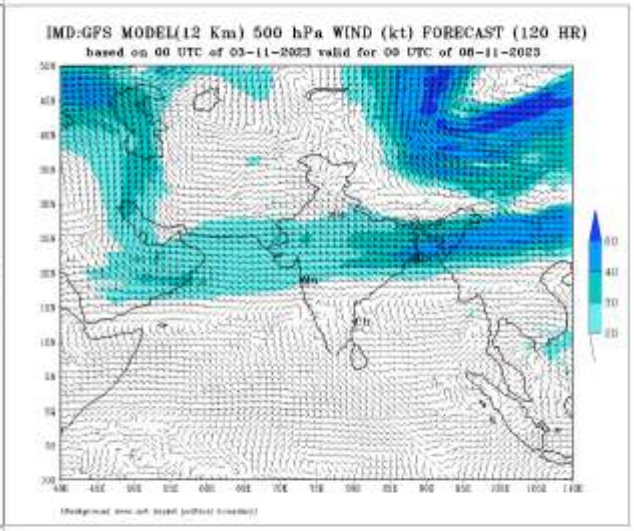
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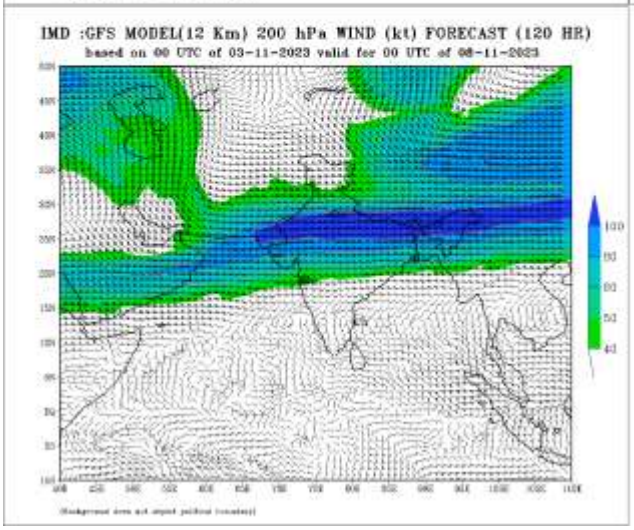
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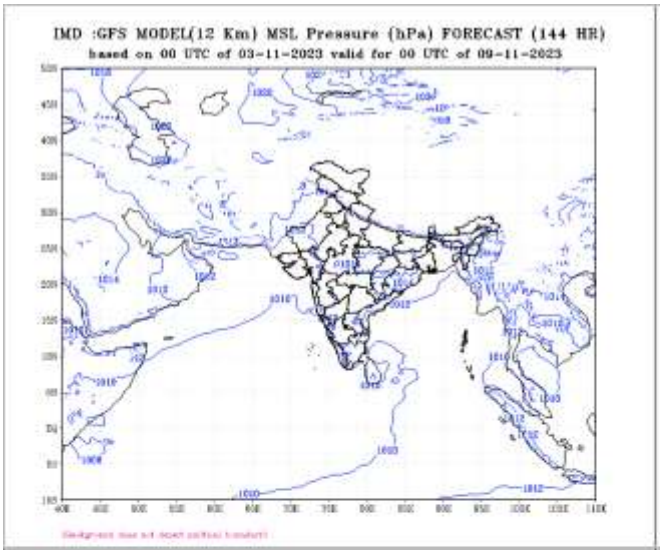
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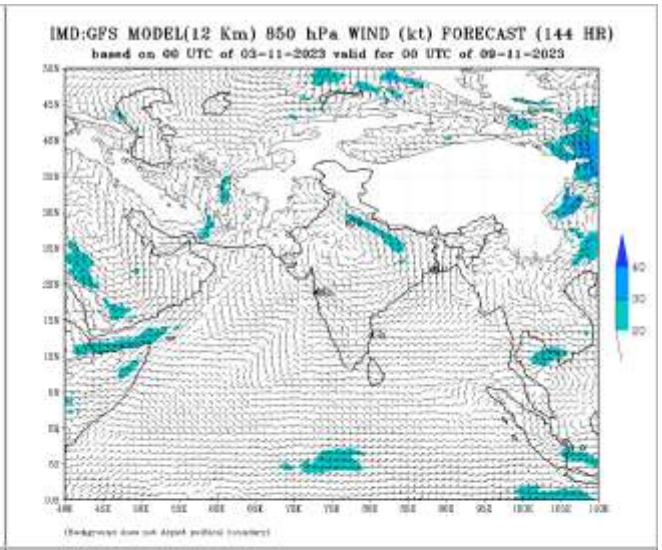
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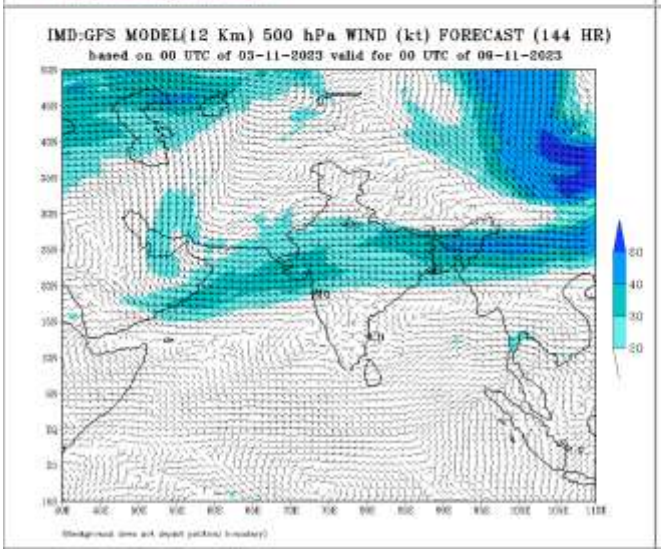
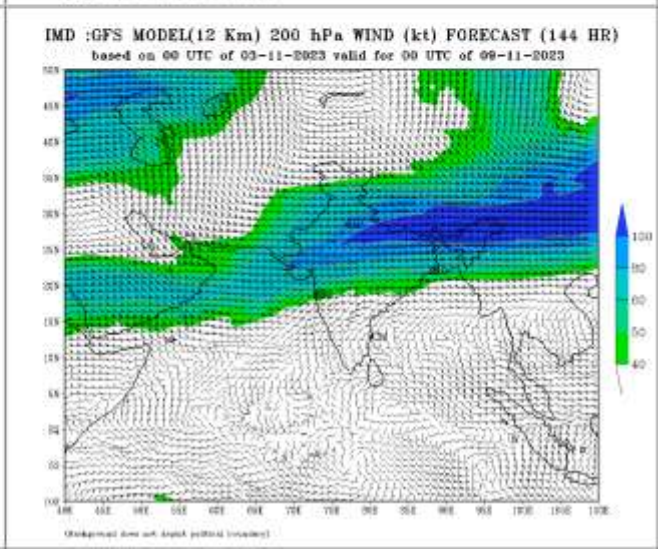
based on 00 UTC of 03-11-2023 valid for 00 UTC of 09-11-2023


IMD:GFS MODEL(12 Km) 500 hPa WIND (kt) FORECAST (144 HR)
based on 00 UTC of 03-11-2023 valid for 00 UTC of 09-11-2023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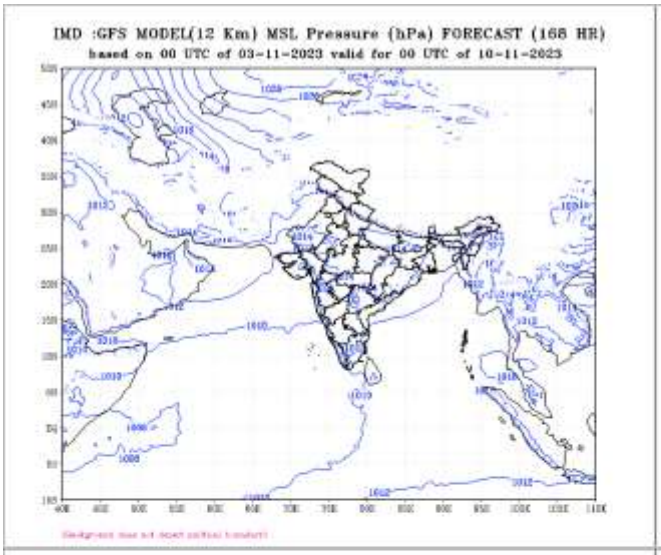
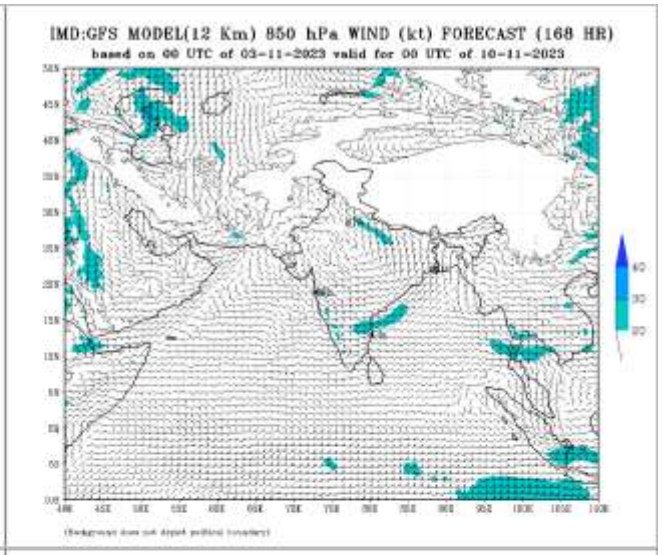
based on 00 UTC of 03-11-2023 valid for 00 UTC of 09-11-2023


IMD :GFS MODEL(12 Km) MSL Pressure (hPa) FORECAST (168 HR)
based on 00 UTC of 03-11-2023 valid for 00 UTC of 10-11-2023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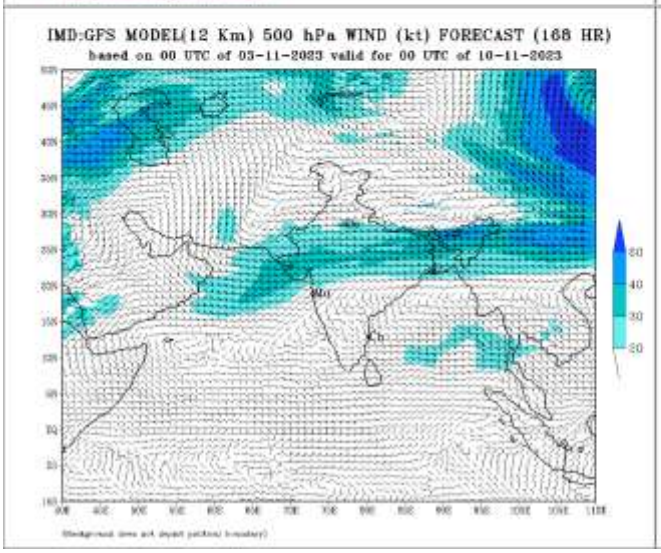
based on 00 UTC of 03-11-2023 valid for 00 UTC of 10-11-2023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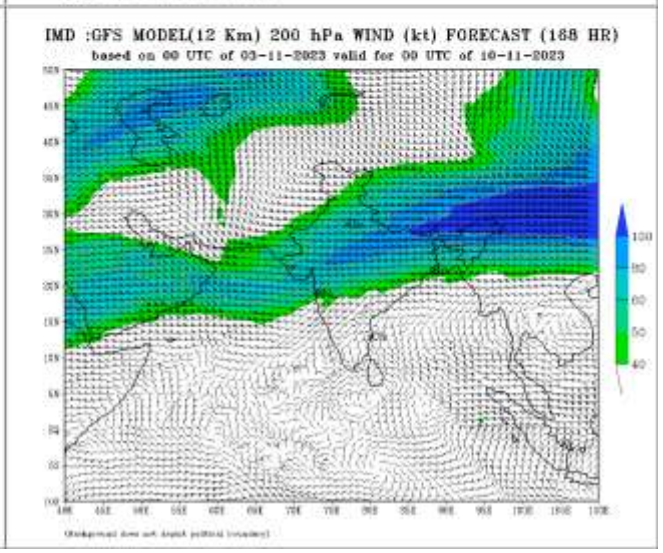
based on 00 UTC of 03-11-2023 valid for 00 UTC of 10-11-2023


IMD :GFS MODEL(12 Km) 200 hPa WIND (kt) FORECAST (168 HR)
based on 00 UTC of 03-11-2023 valid for 00 UTC of 10-11-2023