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

Tropical Cyclone Forecast Programme
Report Dated 31st October, 2022

Time of Issue: 1200 UTC

Synoptic features (based on 0600 UTC analysis):

- Yesterday's cyclonic circulation (cycir) over Southwest Bay of Bengal & adjoining Sri Lanka lay over Southwest Bay of Bengal off North Sri Lanka at 0300 UTC and persisted over the same region at 0900 UTC of today, the 31st October.

Dynamical and thermo-dynamical features

Parameter	Bay of Bengal (BoB)	Arabian Sea (AS)
Sea Surface Temperature (SST) ºC	About 29-31°C over entire BoB	29-30°C over north AS, alond and off south Gujarat, Maharashtra coasts, southeast AS. 27-29°C over eastcentral and adjoining westcentral and southwest AS. Less than 24°C off Oman & Somalia coast and adjoining parts of southwest and westcentral AS.
Tropical Cyclone Heat Potential (TCHP) kJ/cm^2	>100 KJ/cm^2 over eastcentral BoB & Andaman Sea, 70-80 KJ/cm^2 over north BoB & westcentral BoB, less than 40 KJ/cm^2 off east coast of India & a small pocket over southwest BoB.	(a) 60-80 over southeast AS & adjoining eastcentral AS. (b) Less than 30 KJ/cm^2 over remaining AS and also off west coast of India.
Cyclonic Relative vorticity (X10^{-6}s^{-1})	Positive vorticity of 40-50 over southwest BoB off southwest Sri Lanka coast.	Positive vorticity of 30-40 over southeast & southwest AS.
Low Level convergence (X10^{-5} s^{-1})	Has decreased significantly and is about 05-10 over Sri Lanka coast.	05 over south Kerala coast.

Upper Level divergence ($X10^{-5}$ s^{-1})	Has increased significantly and is about 30 over southwest BoB off Tamil Nadu coast.	No positive zone.
Vertical Wind Shear (VWS knots)	Moderate 10-20 knots over major parts of BoB except over extreme North BoB.	10-20 over major parts of south & adjoining central AS except over north AS.
Wind Shear Tendency (knots)	Decreasing tendency over westcentral & adjoining northwest BoB	No decreasing zone over AS.
Upper tropospheric Ridge	Along 18.0°N over the BoB.	Along 19.0°N over the AS.
Trough in westerlies	68E upto 40 N	

Satellite observations based on INSAT imagery (0900 UTC):

(a) Over the BoB & Andaman Sea:-

Scattered low/medium clouds with embedded intense to very intense convection over central & South BoB, Arakan coast and Andaman Sea.

b) Over the Arabian Sea:-

Scattered low/medium clouds with embedded isolated weak to moderate convection lay over southeast AS and Comorin area.

M.J.O. Index:

MJO index is currently in Phase 6 with amplitude greater than 1. It will continue in same phase for next 6 days with amplitude remaining greater than 1. Thereafter, it would enter into phase 7

Storms and Depression over South China Sea/ South Indian Ocean:

Vortex (NALGAE) over South China Sea centered near 16.0N/117.3E. Intensity of the system is T32.5/CI 3.5. Corresponding maximum sustained winds of 48-63 kts. Broken low/medium clouds with embedded intense to very intense convection over area between 12N-20N and 112E-120E.

Input for FDP Cyclone based on 0000 UTC for the next 7 days

MODEL GUIDANCE	BoB	AS
IMD-GFS	The cycir over southwest BoB is likely to persist over the same region till 3rd November. Thereafter it is likely to move across southern peninsular India and emerge into southeast AS on 6th November. Fresh cycir over southeast BoB around 4th November.	Cycir over southeast AS around 6th/7th to move westwards and become more marked on 9th.
IMD-GEFS	No significant system	No significant system
GEFS Probablistic guidance	Not available	Not available

IMD WRF	The cycir over southwest on 30th to persist over the same region till 3rd November.	No significant system
NCMRWF-NCUM	Cycir over southwest BOB to persist over the same region till 3rd Nov. LPA over southwest BoB off Sri lanka coast on 4th Nov & 5th Nov.	The LPA over southwest BoB to emerge into Comorin area as Depression on 6th Nov.. It is predicted to move nearly westwards and intensify into a depression over southeast AS on 7th Nov., DD over southeast AS on 8th Nov. , further intensification into CS on 9th over southeast AS and VSCS over southwest AS on 10th
NCMRWF-NEPS	Same as NCUM	Depression over Comorin on 6th Nov to move westwards and lie as depression over southeast AS on 7th, DD over southeast AS on 8th, CS on 9th, VSCS on 10th over southwest AS.
NCMRWF-UM (Regional)	Same as NCUM	No significant system
ECMWF	No significant system over BoB.	No significant system over AS.
ECMWF ensemble	40-50% probability of cyclogenesis over southwest BoB off Sri Lanka coast during next 2-3 days.	30-50% probability of cyclogenesis over south AS around 6th/7th November
NCEP-GFS	The cycir over southwest BoB is likely to persist over the same region till 3rd November. Thereafter it is likely to move across southern peninsular India and emerge into southeast AS on 6th November. Fresh cycir over southeast BoB around 4th November.	Cycir over southeast AS around 6th/7th to move westwards and become more marked on 9th.
IMD MME	Available during cyclonic disturbance period only	Available during cyclonic disturbance period only
IMD HWRF	Available during cyclonic disturbance period only	Available during cyclonic disturbance period only
IMD-Genesis Potential Parameter	A potential zone over southwest BoB off north Sri lanka on 4th & 5th November, off southwest Sri Lanka on 6th and over Comorin area & on 7th November.	No significant zone.

Summary and conclusion:

Most of the models are indicating that the existing cyclonic circulation over southwest BoB and off Sri lanka is likely to persist over the same region during next 2-3 days and emerge into Comorin area/southeast AS around 4th November. However, GFS group of models is indicating that the cycir would move nearly westwards without significant intensification. But NCUM group of models are indicating development of depression over Comorin area around 6th November. These models are indicating westwards movement of the system with further intensification into severe/very severe cyclonic storm. ECMWF ensemble is also indicating likely formation of depression over southeast AS around 6th/7th with westwards track. However, peak intensification is suggested upto CS stage only.

1. **For the Bay of Bengal**:

In view of all the above, it is inferred that no cyclogenesis is predicted over the Bay of Bengal during next 7 days. However, movement of the existing cycir over southern Peninsular region during next 2-3 days need to be monitored.

2. **For the Arabian Sea**:

No cyclogenesis is predicted during next 7 days. However, emergence of the cycir into Comorin area/ southeast AS around 6th and it's further intensification need to be monitored.

Probability of cyclogenesis (formation of depression and above intensity systems) over the BAY OF BENGAL 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

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

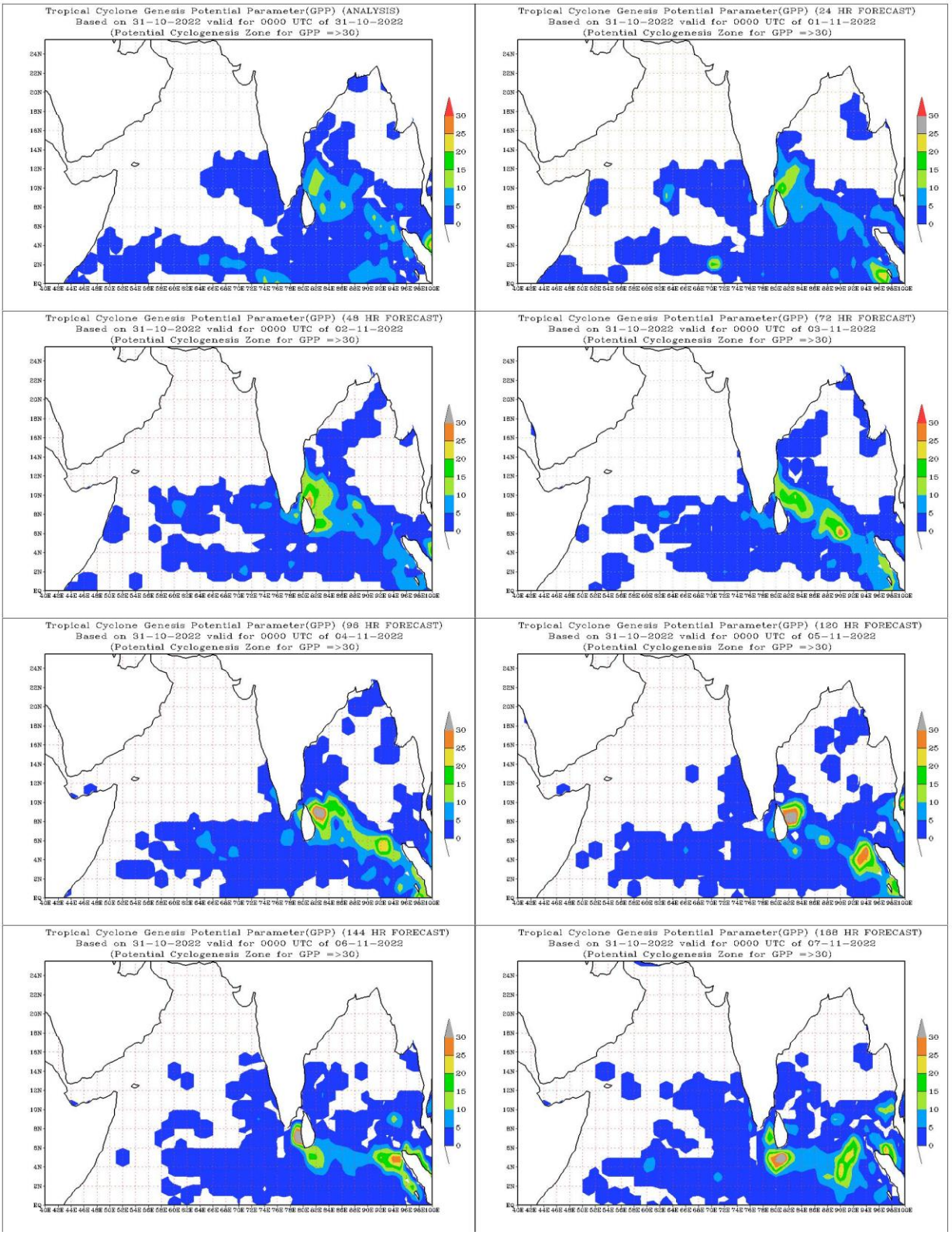
24 HOURS	24-48 HOURS	48-72 HOURS	72-96 HOURS	96-120 HOURS	120-144 HOURS	144-168 HOURS
NIL	NIL	NIL	NIL	NIL	NIL	NIL

Advisory:

Nil

IOP: Tamil Nadu, Kerala and Sri Lanka during next 4 days.

Annexure


Tropical Cyclone Genesis Potential Parameter(GPP) (ANALYSIS)
Based on 31-10-2022 valid for 0000 UTC of 31-10-2022
(Potential Cyclogenesis Zone for GPP =>30)
Tropical Cyclone Genesis Potential Parameter(GPP) (24 HR FORECAST)
Based on 31-10-2022 valid for 0000 UTC of 01-11-2022
(Potential Cyclogenesis Zone for GPP =>30)
Tropical Cyclone Genesis Potential Parameter(GPP) (48 HR FORECAST)
Based on 31-10-2022 valid for 0000 UTC of 02-11-2022
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Tropical Cyclone Genesis Potential Parameter(GPP) (72 HR FORECAST)
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Based on 31-10-2022 valid for 0000 UTC of 04-11-2022
(Potential Cyclogenesis Zone for GPP =>30)
Tropical Cyclone Genesis Potential Parameter(GPP) (120 HR FORECAST)
Based on 31-10-2022 valid for 0000 UTC of 05-11-2022
(Potential Cyclogenesis Zone for GPP =>30)
Tropical Cyclone Genesis Potential Parameter(GPP) (144 HR FORECAST)
Based on 31-10-2022 valid for 0000 UTC of 06-11-2022
(Potential Cyclogenesis Zone for GPP =>30)
Tropical Cyclone Genesis Potential Parameter(GPP) (168 HR FORECAST)
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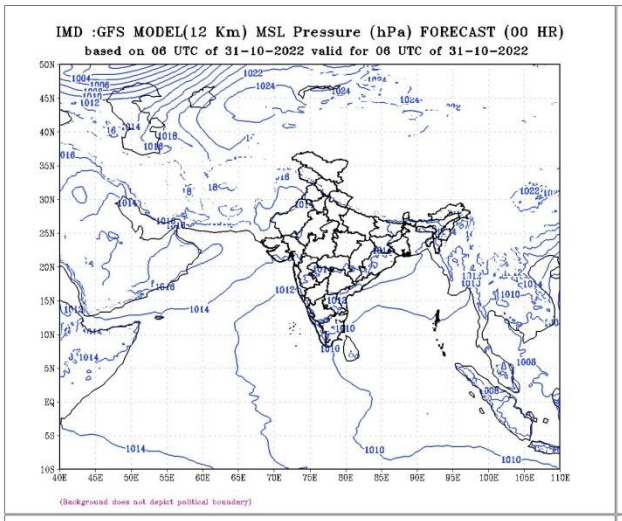
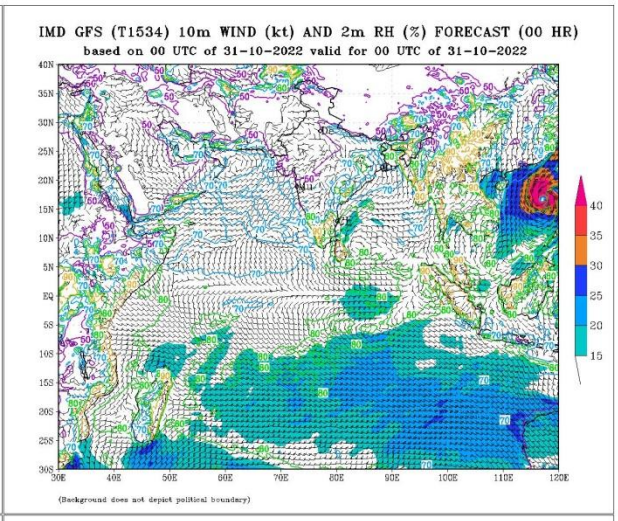
(Potential Cyclogenesis Zone for GPP =>30)


IMD :GFS MODEL(12 Km) MSL Pressure (hPa) FORECAST (00 HR)
based on 06 UTC of 31-10-2022 valid for 06 UTC of 31-10-2022
(Background does not depict political boundary)


IMD GFS (T1534) 10m WIND (kt) AND 2m RH (%) FORECAST (00 HR)
based on 00 UTC of 31-10-2022 valid for 00 UTC of 31-10-2022
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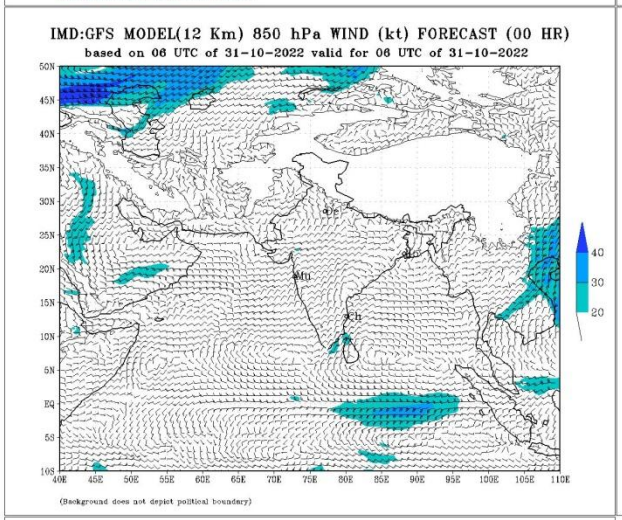
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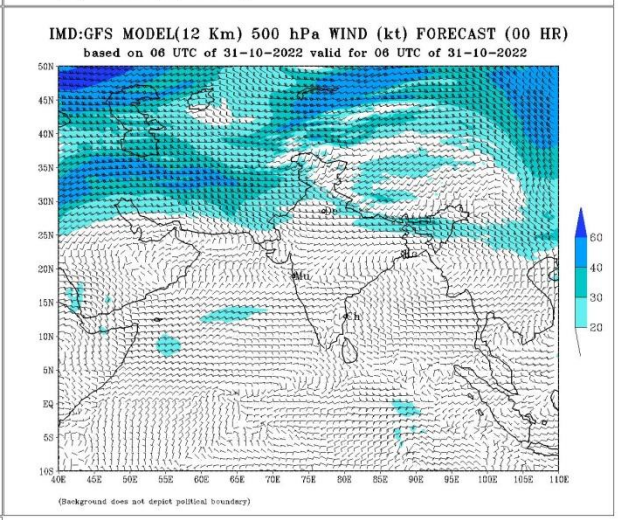
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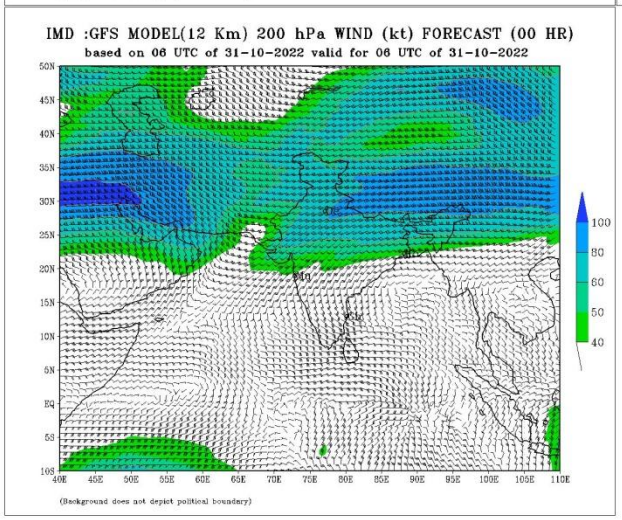
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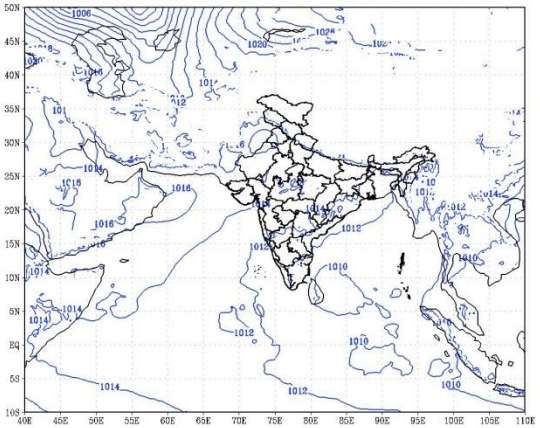

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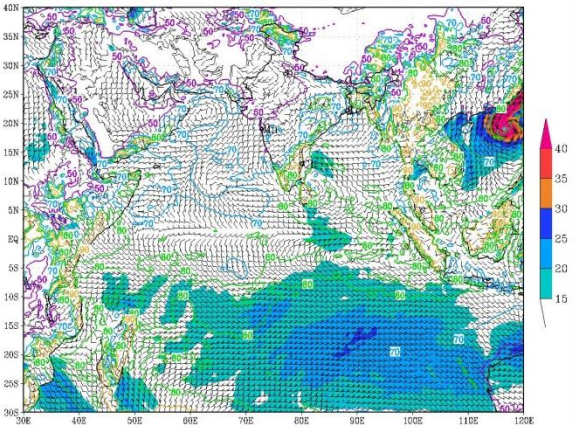

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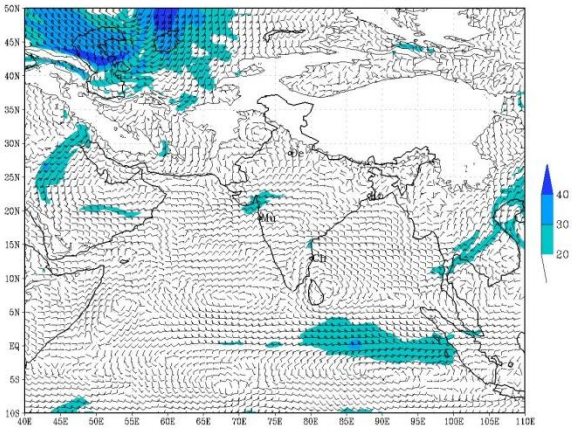

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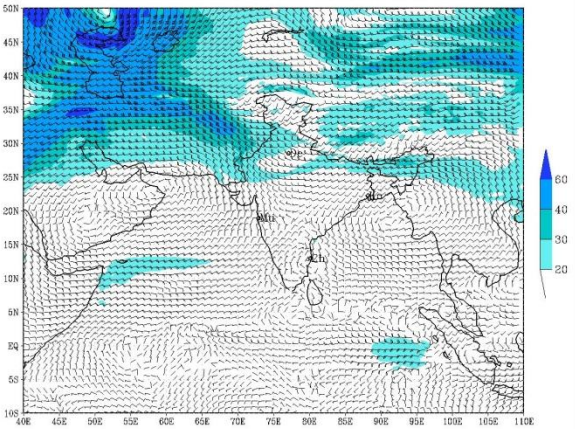

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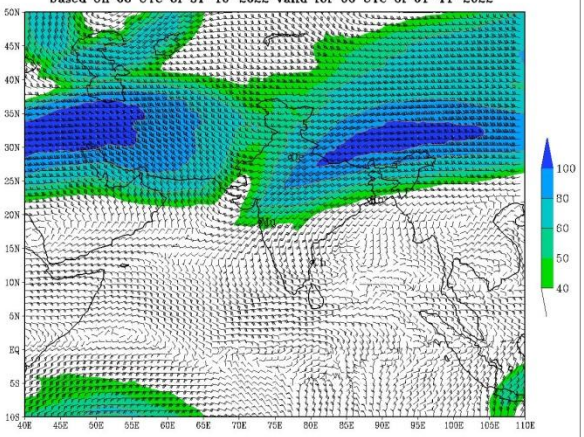

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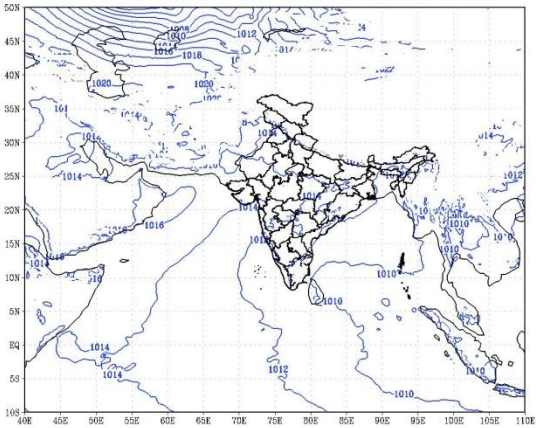

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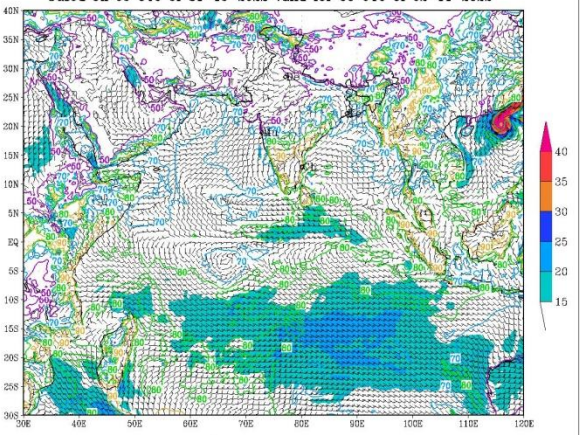
IMD GFS (T1534) 10m WIND (kt) AND 2m RH (%) FORECAST (48 HR)
based on 00 UTC of 31-10-2022 valid for 00 UTC of 02-11-2022



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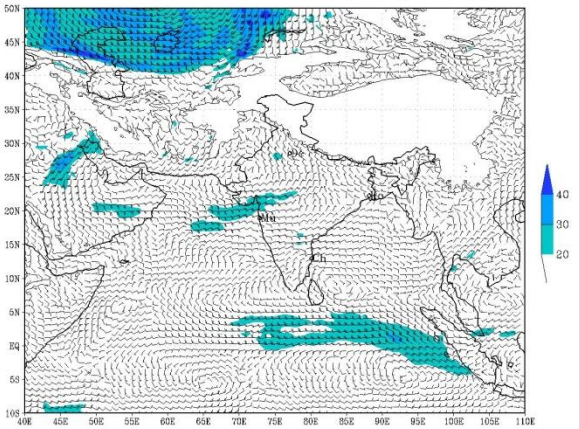

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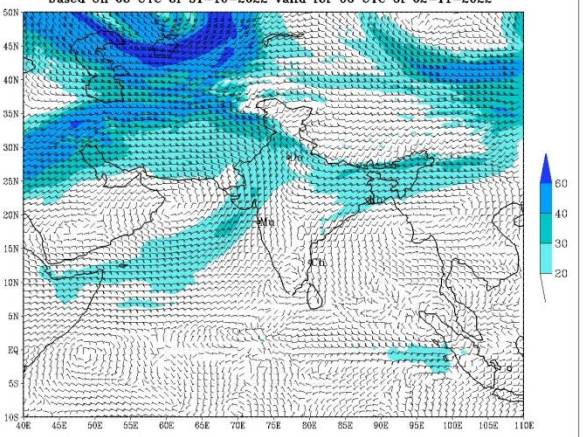

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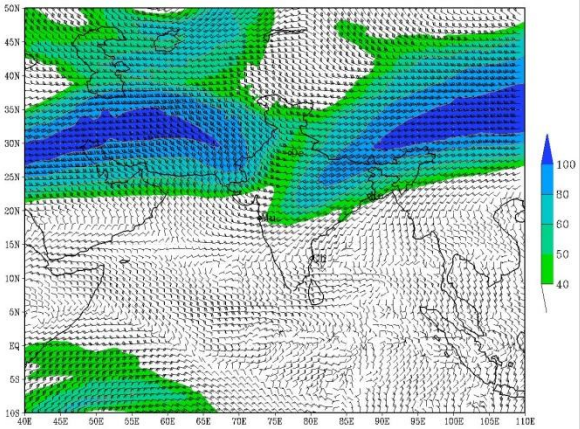

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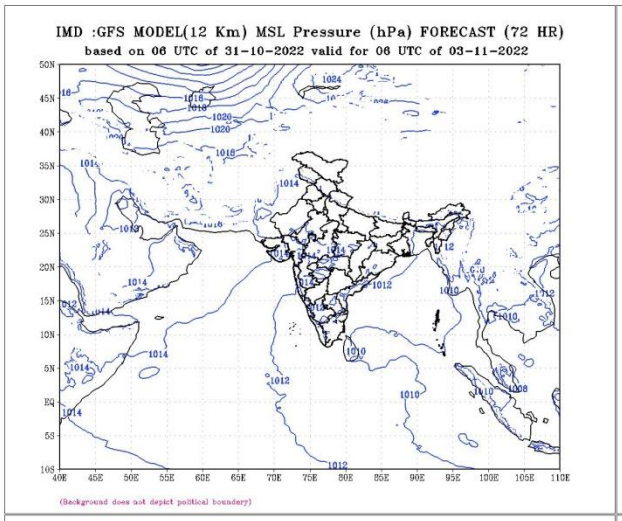
IMD :GFS MODEL(12 Km) MSL Pressure (hPa) FORECAST (72 HR)
based on 06 UTC of 31-10-2022 valid for 06 UTC of 03-11-2022
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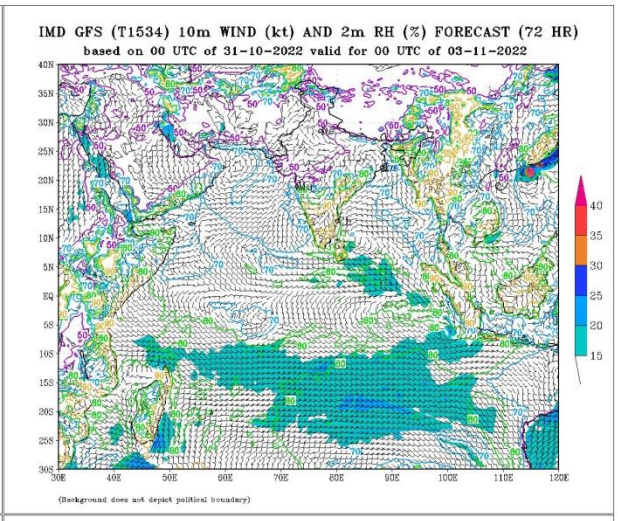
IMD GFS (T1534) 10m WIND (kt) AND 2m RH (%) FORECAST (72 HR)
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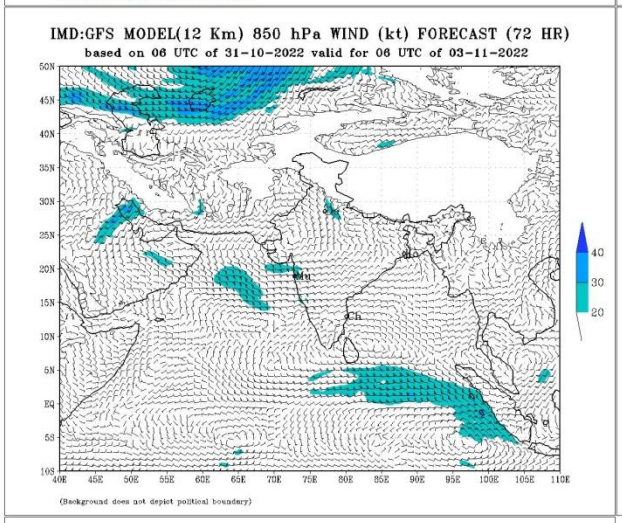
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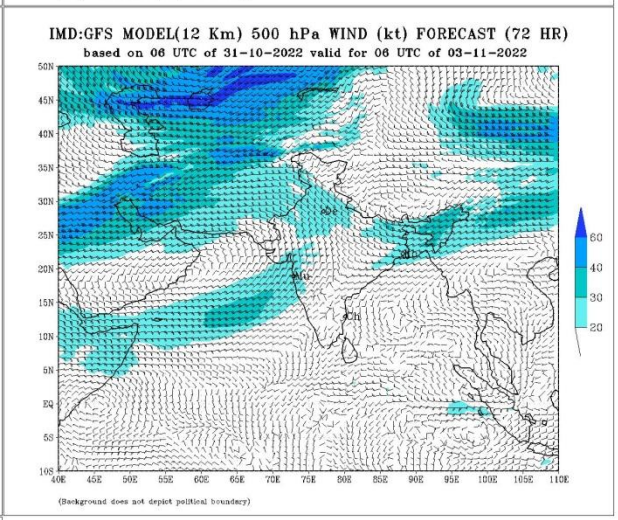
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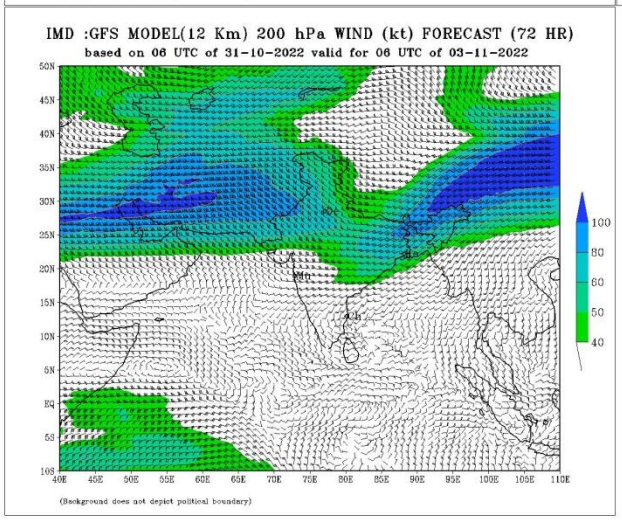
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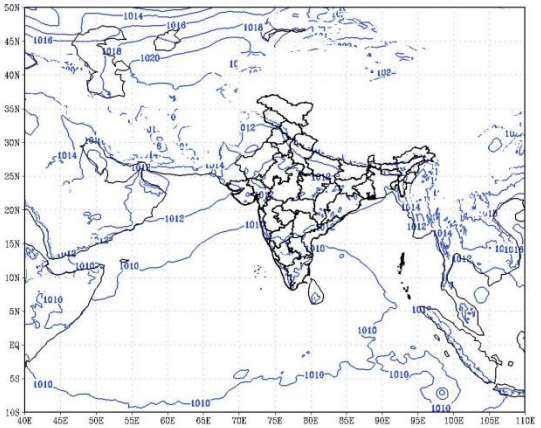
IMD :GFS MODEL(12 Km) MSL Pressure (hPa) FORECAST (96 HR)
based on 00 UTC of 31-10-2022 valid for 00 UTC of 04-11-2022



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IMD GFS (T1534) 10m WIND (kt) AND 2m RH (%) FORECAST (96 HR)
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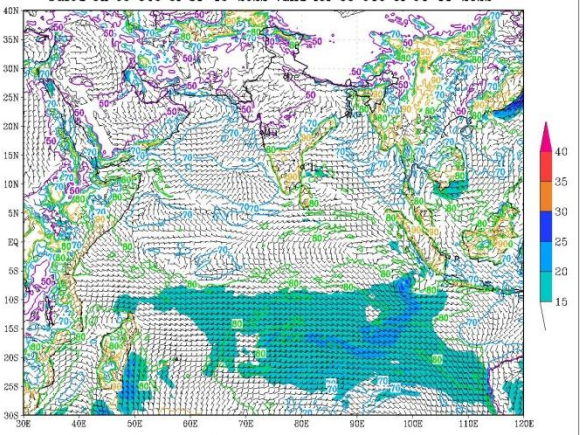

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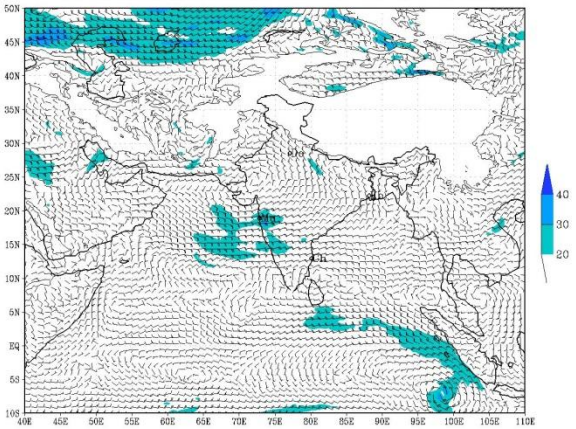

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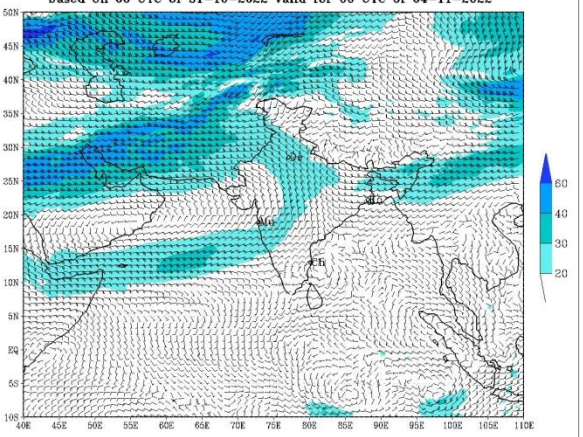

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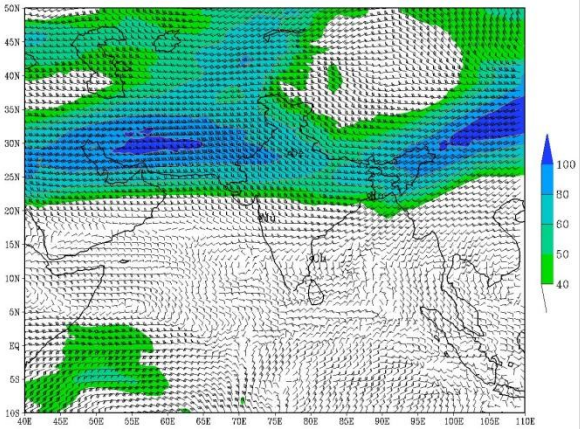

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IMD :GFS MODEL(12 Km) MSL Pressure (hPa) FORECAST (120 HR)
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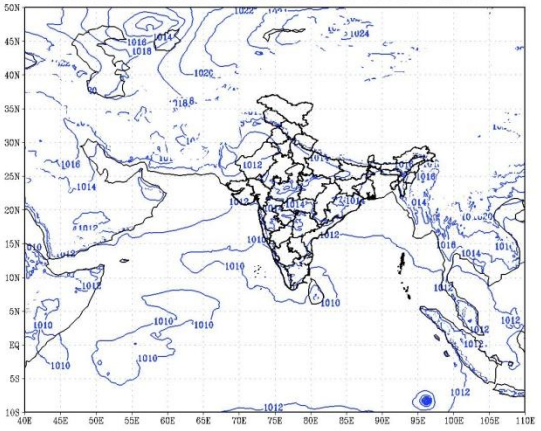
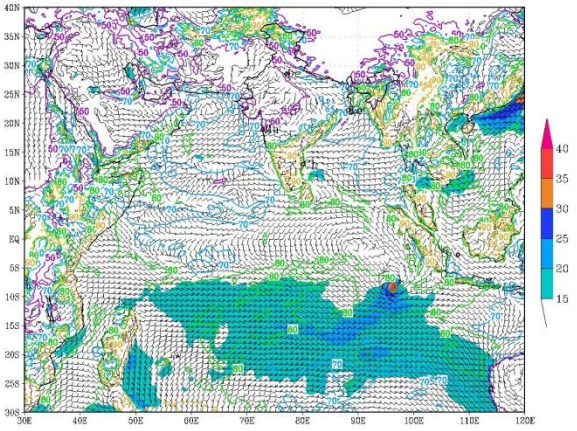


(Background does not depict political boundary)

IMD GFS (T1534) 10m WIND (kt) AND 2m RH (%) FORECAST (120 HR)
based on 00 UTC of 31-10-2022 valid for 00 UTC of 05-11-2022



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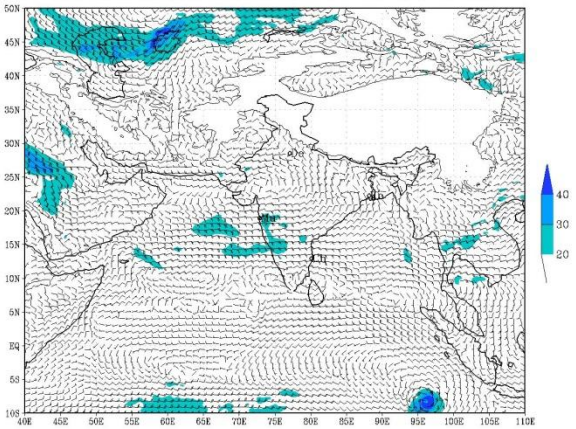

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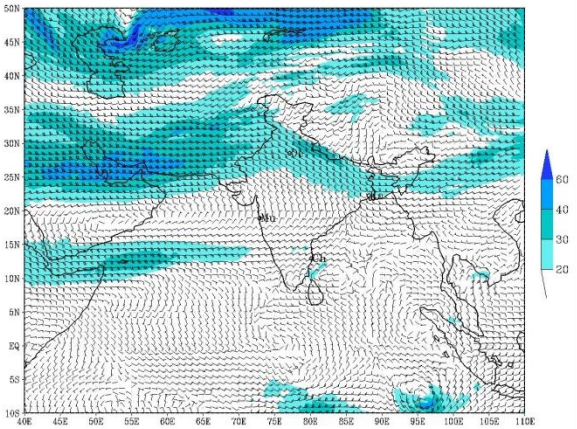

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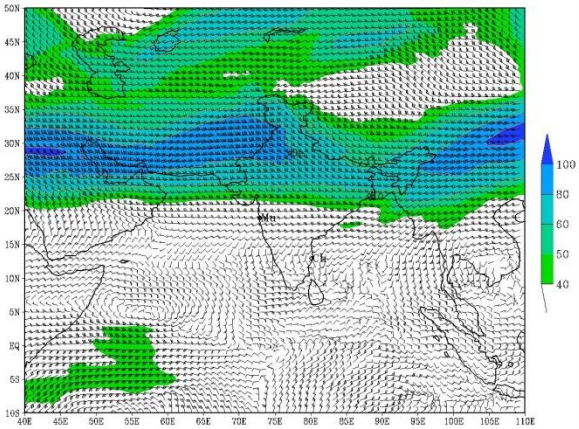
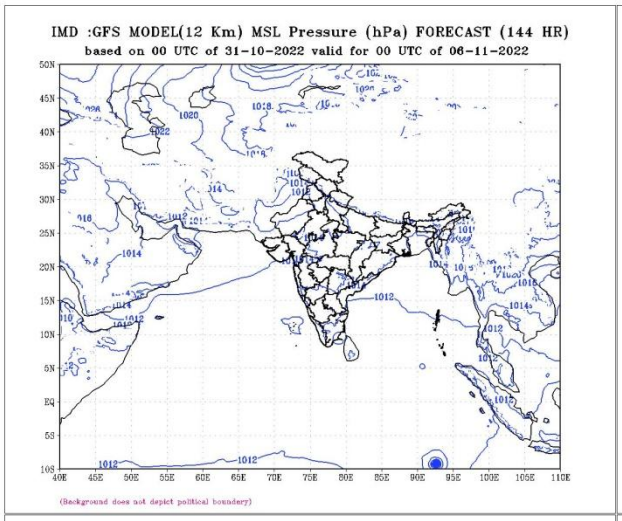
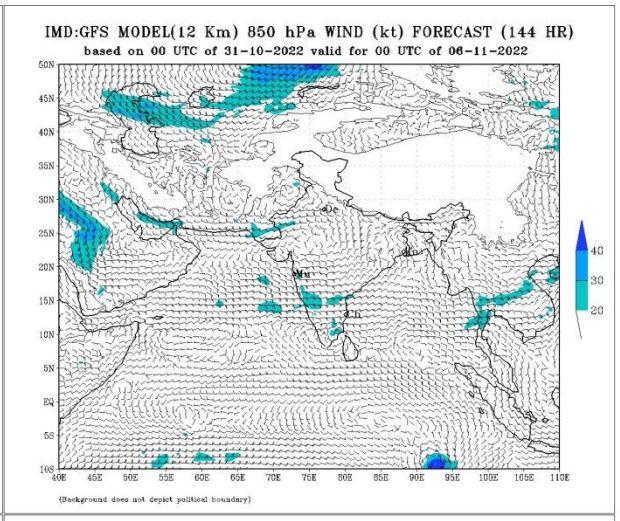
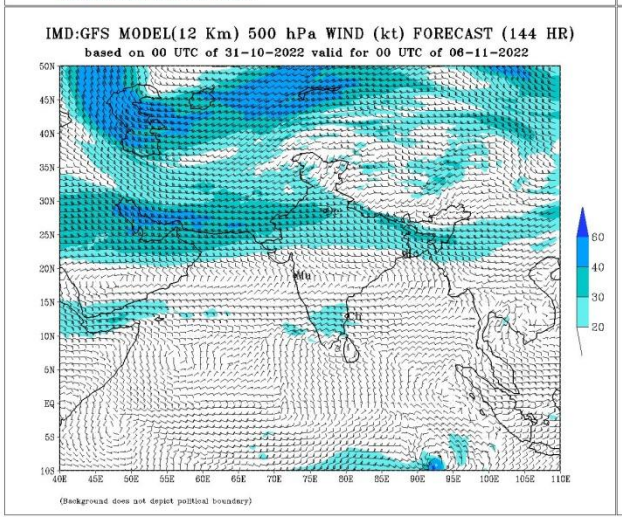
IMD :GFS MODEL(12 Km) 200 hPa WIND (kt) FORECAST (120 HR)
based on 00 UTC of 31-10-2022 valid for 00 UTC of 05-11-2022

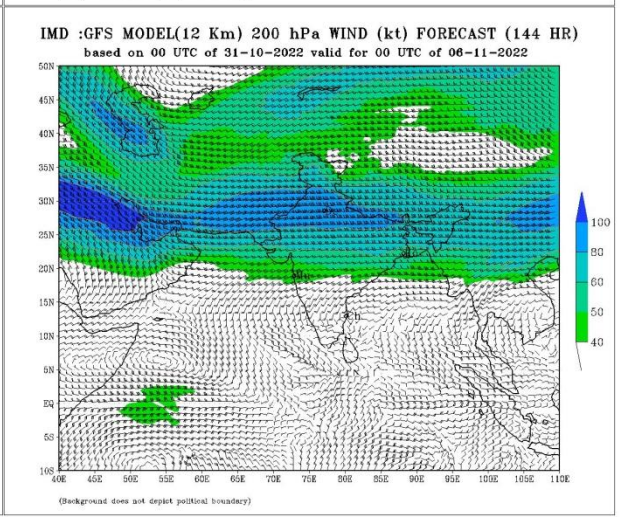


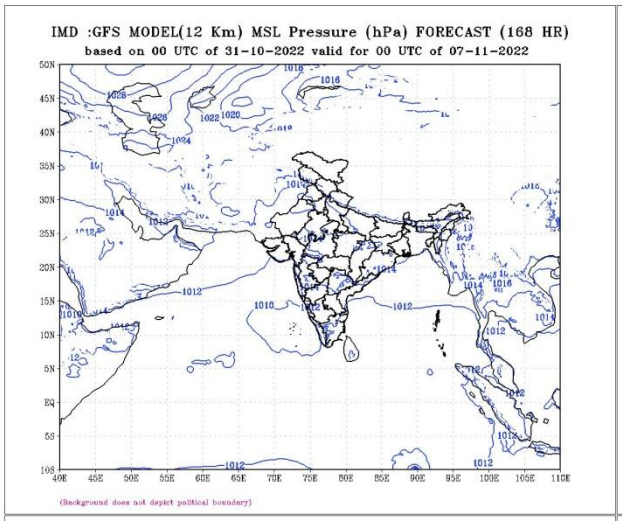
(Background does not depict political boundary)

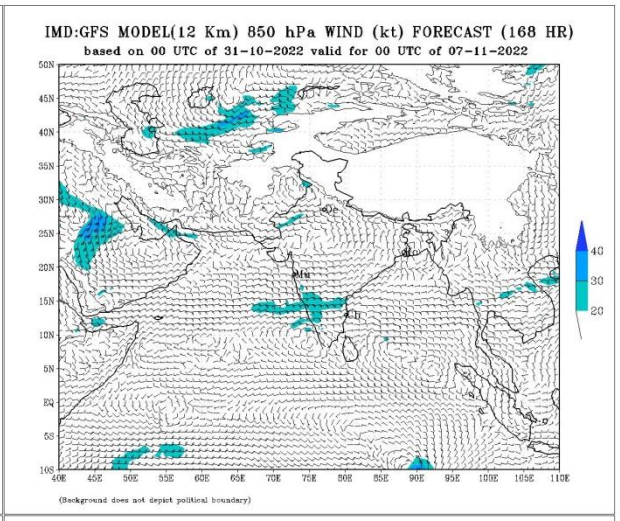

IMD :GFS MODEL(12 Km) MSL Pressure (hPa) FORECAST (144 HR)
based on 00 UTC of 31-10-2022 valid for 00 UTC of 06-11-2022
(Background does not depict political boundary)

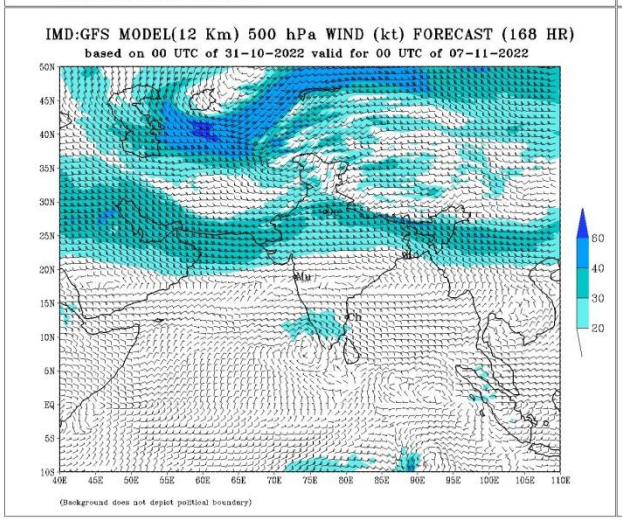

IMD:GFS MODEL(12 Km) 850 hPa WIND (kt) FORECAST (144 HR)
based on 00 UTC of 31-10-2022 valid for 00 UTC of 06-11-2022
40
30
20
(Background does not depict political boundary)

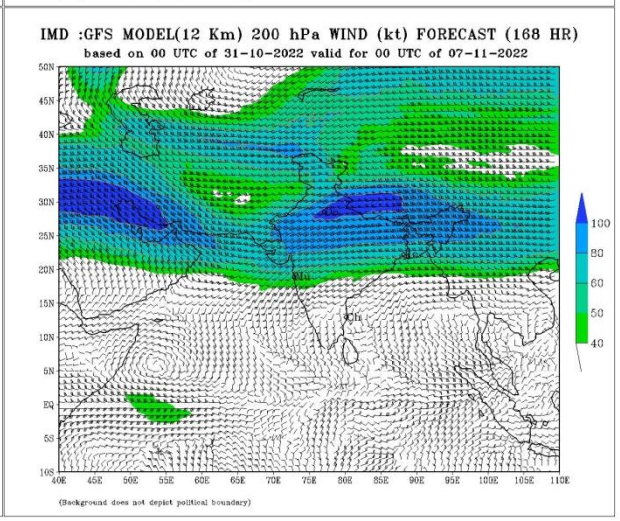

IMD:GFS MODEL(12 Km) 500 hPa WIND (kt) FORECAST (144 HR)
based on 00 UTC of 31-10-2022 valid for 00 UTC of 06-11-2022
60
40
30
20
(Background does not depict political boundary)


IMD :GFS MODEL(12 Km) 200 hPa WIND (kt) FORECAST (144 HR)
based on 00 UTC of 31-10-2022 valid for 00 UTC of 06-11-2022
100
80
60
50
40
(Background does not depict political boundary)


IMD :GFS MODEL(12 Km) MSL Pressure (hPa) FORECAST (168 HR)
based on 00 UTC of 31-10-2022 valid for 00 UTC of 07-11-2022
(Background does not depict political boundary)


IMD:GFS MODEL(12 Km) 850 hPa WIND (kt) FORECAST (168 HR)
based on 00 UTC of 31-10-2022 valid for 00 UTC of 07-11-2022
40
30
20
(Background does not depict political boundary)


IMD:GFS MODEL(12 Km) 500 hPa WIND (kt) FORECAST (168 HR)
based on 00 UTC of 31-10-2022 valid for 00 UTC of 07-11-2022
60
40
30
20
(Background does not depict political boundary)


IMD :GFS MODEL(12 Km) 200 hPa WIND (kt) FORECAST (168 HR)
based on 00 UTC of 31-10-2022 valid for 00 UTC of 07-11-2022
100
80
60
50
40
(Background does not depict political boundary)