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

# Tropical Cyclone Forecast Programme
# Report Dated 30th October, 2024

**Time of Issue: 0830 UTC**

**Synoptic features (based on 0300 UTC analysis):**

- Yesterday's upper air cyclonic circulation over southwest Arabian Sea extended upto 1.5 km above mean sea level persisted at 0300 UTC of today, the 30th of October.
- A fresh cyclonic circulation lay over Gulf of Mannar extending upto 2.1 km above mean sea level at 0300 UTC of today, the 30th of October.
- Another fresh upper air cyclonic circulation lay over southwest Bay of Bengal off south Andhra Pradesh coast between 1.5 & 3.1 km above mean sea level at 0300 UTC of today, the 30th of October.

**Environmental Features:**

| Parameter | Bay of Bengal (BoB) | Arabian Sea (AS) |
|---|---|---|
| **Sea Surface Temperature (SST) ºC** | 30°C over entire BoB | ➢ 28-30°C over eastern parts of AS.<br>➢ 27°C over the western parts of AS |
| **Tropical Cyclone Heat Potential (TCHP) kJ/cm²** | ➢ >100 KJcm$^{-2}$ over north BoB off Bangladesh-Myanmar coasts, south Andaman Sea.<br>➢ 80-100 KJcm$^{-2}$ over central BoB & north Andaman Sea.<br>➢ <50 over southwest BoB and adjoining areas of southeast BoB. | ➢ 90-100 KJcm$^{-2}$ over central parts of south AS and adjoining Equatorial Indian Ocean (EIO).<br>➢ 60-70 KJcm$^{-2}$ over eastern & northern parts of AS.<br>➢ <40 KJcm$^{-2}$ over westcentral & southwest AS off Oman & Somalia coasts. |
| **Cyclonic Relative vorticity (X10$^{-6}$s$^{-1}$)** | 30-40 over westcentral BoB off Andhra Pradesh Pradesh coast. | 30-40 over southwest, Eastcentral AS with vertical extension upto 200 hPa level & 20-30 over Comorin area. |
| **Low Level convergence (X10$^{-5}$ s$^{-1}$)** | 5-10 over northwest BoB off Odisha coast and 5 over southwest BoB off Sri Lanka coast & southeast BoB. | 5 over southwest & adjoining westcentral AS. |
| **Upper Level divergence (X10$^{-5}$ s$^{-1}$)** | 5-10 over central parts of south BoB & adjoining EIO. | - |
| **Vertical Wind Shear (VWS knots)**<br>**Low: 05-10 knots**<br>**Moderate: 10-20 knots**<br>**High: >20 knots** | Low to Moderate over entire BoB. | Low Moderate over entire AS except extreme north AS. |

| | | |
|---|---|---|
| **Wind Shear Tendency (knots)** | Increasing over north Andaman Sea.<br>Decreasing over north, southeast and southwest BoB. | Decreasing over eastcentral AS, Comorin area and southwest AS. |
| **Upper tropospheric Ridge** | Along 20.0°N. | Around 20.0°N. |

## Satellite observations based on INSAT imagery (0300 UTC):

**(a) Over the BoB & Andaman Sea: -**

Scattered low & medium clouds with embedded moderate to intense convection lay over south Bay of Bengal, Andaman Sea & Gulf of Martaban.

**(b) Over the Arabian Sea:**

No significant clouds over the region.

**(c) Outside India:**

Scattered low & medium clouds with embedded moderate to intense convection over Sri Lanka, north Tibet China, east China Sea, Thailand, Gulf of Thailand, Vietnam, Gulf of Tonkin, Hainan, Taiwan, Sumatra, Strait of Malacca, Malaysia, Borneo, south china sea, Java sea, Celebes islands & southeast Philippines, south Mozambique channel and over Indian Ocean between latitude $5.0^0$N to $12.0^0$S & longitude $45.0^0$E to $100.0^0$E.

**M.J.O. Index:**

Madden Julian Oscillation (MJO) index is currently in Phase 7 with amplitude greater than 1. It is likely to move across phases 7 & 8 during next seven days with amplitude remaining more than 1.

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

Super Cyclone “Kong-Rey” over Philippines Sea & neighborhood centered near 19.7N & 124.5E . Intensity t7.0/7.0. Associated broken low & medium clouds with embedded intense to very intense convection over area between latitude 12.0N to 25.0N & longitude 120.0E to 130.0E.

## NWP Guidance 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 a trough over central parts of south BoB on 4th November, cyclonic circulation over southwest BoB off Tamil Nadu coast on 5th November with slow westwards movement towards Tamil Nadu coast till 9th November. | Cyclonic circulation over southwest Arabian Sea on today with westwards movement till 02nd November. |
| **IMD-GEFS** | No significant system over BoB during next 7 days. | Cyclonic circulation over southwest Arabian Sea on today with westwards |

| | | |
|---|---|---|
| | | movement towards Somalia coast till 03rd November. |
| **IMD-WRF** | No significant system over BoB during next 3 days. | Cyclonic circulation over southwest Arabian Sea on today with westwards movement till 01st November. |
| **NCMRWF-NCUM(G)** | Trough over south BoB on 04th Nov, cyclonic circulation over southwest BoB during 5th to 8th November off Tamil Nadu coast. | Cyclonic circulation over southwest Arabian Sea on today with westwards movement till 03rd November. |
| **NCMRWF-NCUM(R)** | No significant system over BoB during next 3 days. | No significant system over AS during next 3 days. |
| **NCMRWF-NEPS** | Trough over south BoB on 04th Nov, cyclonic circulation over southwest BoB during 5th to 8th November off Tamil Nadu coast. | Cyclonic circulation over southwest Arabian Sea on today with westwards movement till 03rd November. |
| **ECMWF** | No significant system over BoB during next 7 days. | No significant system over AS during next 7 days. |
| **ECMM** | Moderate probability of formation of depression over south BoB around 7th November. | No significant system over AS during next 7 days. |
| **NCEP-GFS** | No significant system over BoB during next 7 days. | No significant system over AS during next 7 days. |

**Summary:**

**(a) Bay of Bengal**:

Models like IMD-GFS, NCUM(G), NEPS are indicating likely formation of cyclonic circulation over southwest Bay of Bengal around 5th November with gradual westwards movement towards Tamil Nadu coast till 9th however, ECMM is indicating moderate probability of formation of depression over south Bay of Bengal around 7th November.

**(b) Arabian Sea**

No significant cyclonic disturbance is indicated by any of the models.

**Inference:**

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

No fresh cyclogenesis is likely over Bay of Bengal & Arabian Sea for the next seven days. However, likely formation of a cyclonic circulation over southeast Bay of Bengal around 4th November leading to formation of Low-pressure Area over southwest Bay of Bengal off Tamil Nadu-Sri Lanka coasts around 7th November need to be monitored.

**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 |

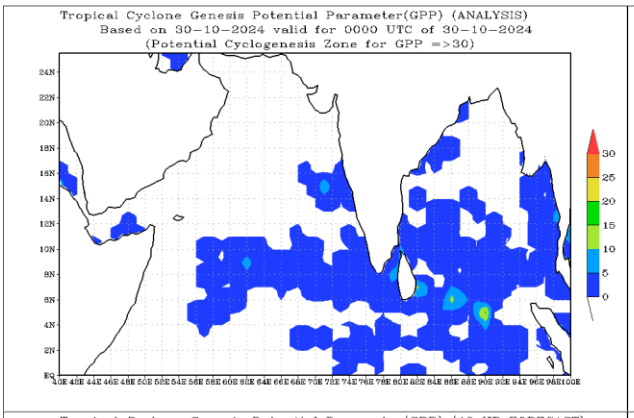
**Probability of cyclogenesis (formation of depression and above intensity systems) over the Arabian Sea during next 168 hours:**

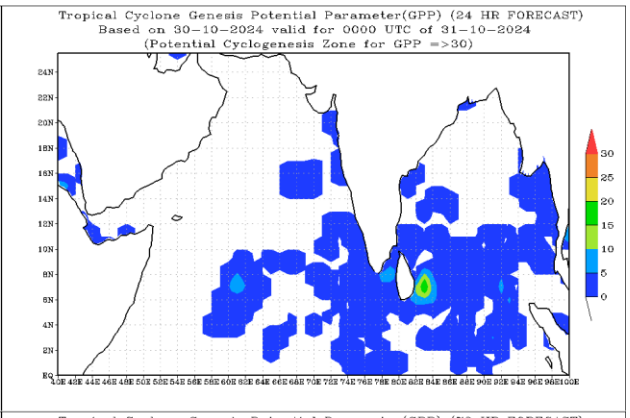
| 24 HOURS | 24-48 HOURS | 48-72 HOURS | 72-96 HOURS | 96-120 HOURS | 120-144 HOURS | 144-168 HOURS |
|---|---|---|---|---|---|---|
| NIL | NIL | NIL | NIL | NIL | NIL | NIL |

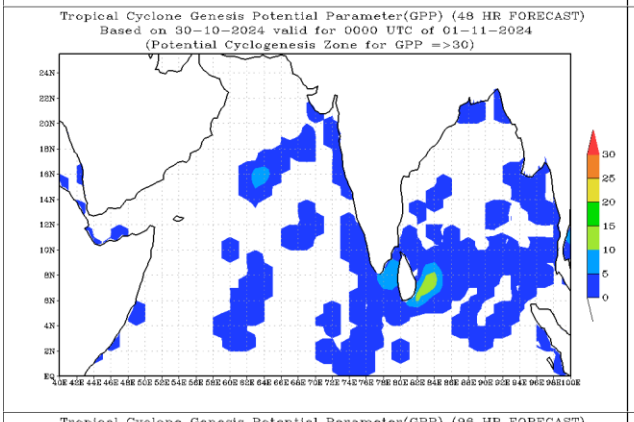
**"-" indicate genesis has already occurred.**
**Probability is indicated as NIL for 0%, LOW for 1-33%, MOD for 34-67% and High for 68-100%.**

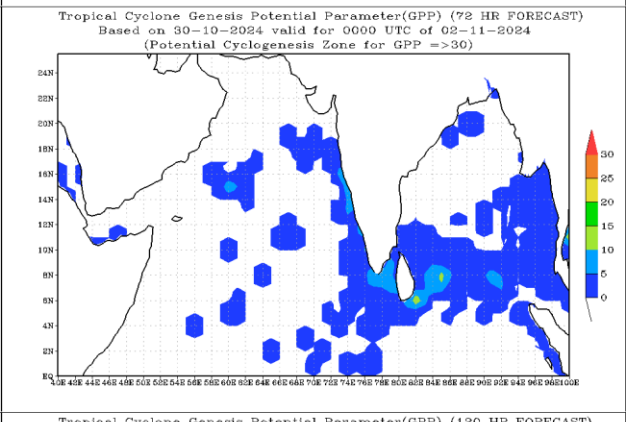
**Intense Observation Period (IOP): NIL**

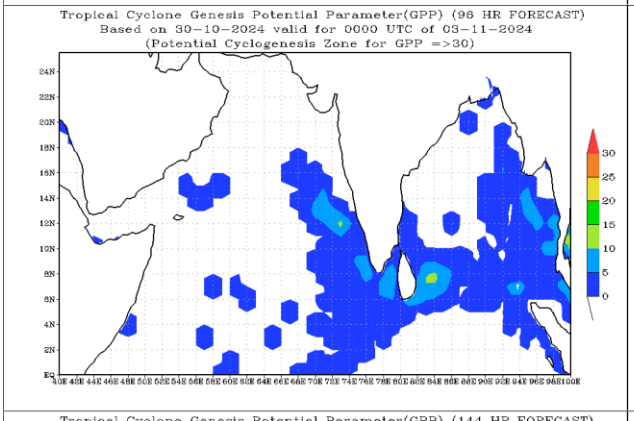
# Annexure

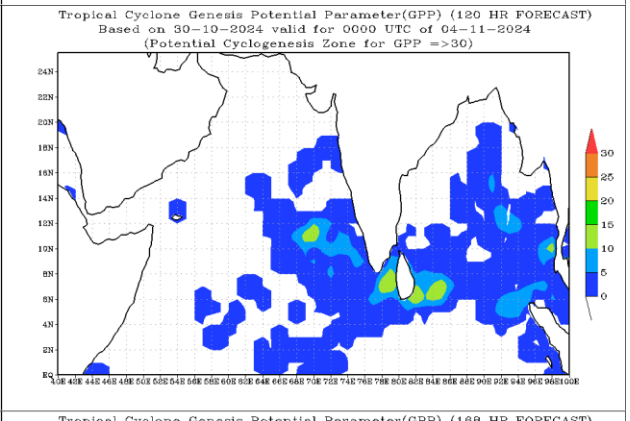

Tropical Cyclone Genesis Potential Parameter(GPP) (ANALYSIS)
Based on 30-10-2024 valid for 0000 UTC of 30-10-2024
(Potential Cyclogenesis Zone for GPP =>30)

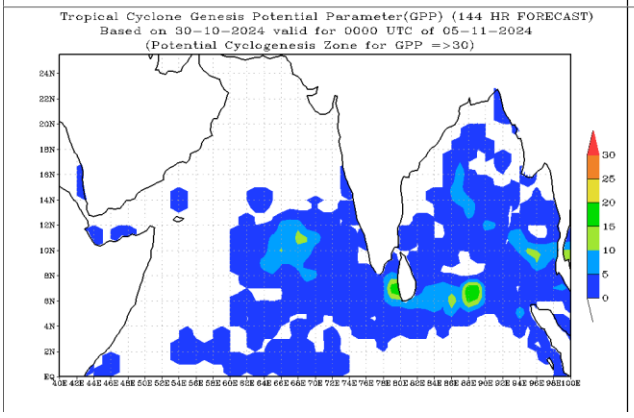

Tropical Cyclone Genesis Potential Parameter(GPP) (24 HR FORECAST)
Based on 30-10-2024 valid for 0000 UTC of 31-10-2024
(Potential Cyclogenesis Zone for GPP =>30)

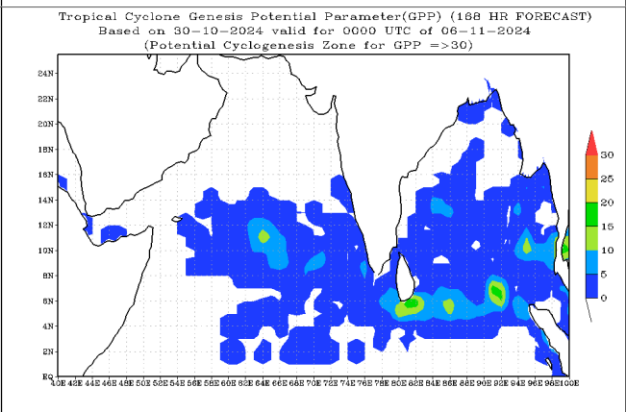

Tropical Cyclone Genesis Potential Parameter(GPP) (48 HR FORECAST)
Based on 30-10-2024 valid for 0000 UTC of 01-11-2024
(Potential Cyclogenesis Zone for GPP =>30)


Tropical Cyclone Genesis Potential Parameter(GPP) (72 HR FORECAST)
Based on 30-10-2024 valid for 0000 UTC of 02-11-2024
(Potential Cyclogenesis Zone for GPP =>30)

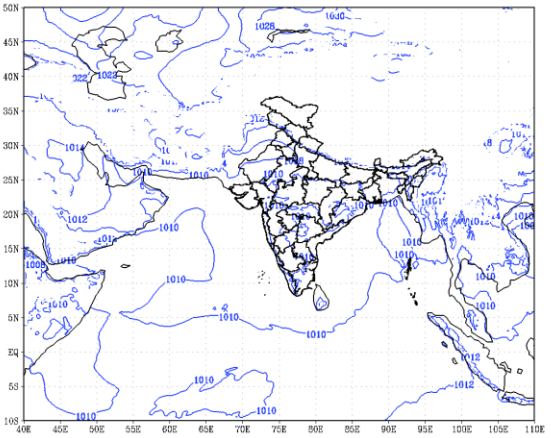

Tropical Cyclone Genesis Potential Parameter(GPP) (96 HR FORECAST)
Based on 30-10-2024 valid for 0000 UTC of 03-11-2024
(Potential Cyclogenesis Zone for GPP =>30)


Tropical Cyclone Genesis Potential Parameter(GPP) (120 HR FORECAST)
Based on 30-10-2024 valid for 0000 UTC of 04-11-2024
(Potential Cyclogenesis Zone for GPP =>30)


Tropical Cyclone Genesis Potential Parameter(GPP) (144 HR FORECAST)
Based on 30-10-2024 valid for 0000 UTC of 05-11-2024
(Potential Cyclogenesis Zone for GPP =>30)

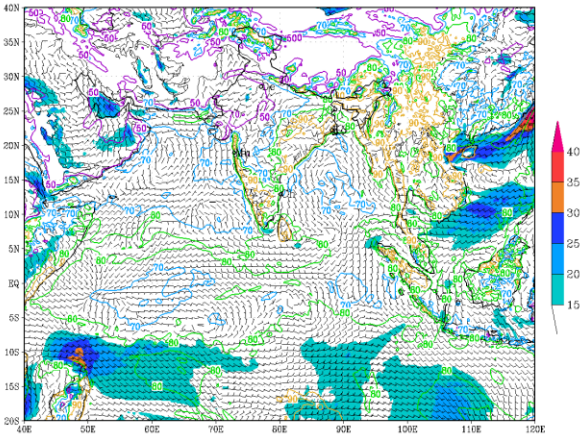

Tropical Cyclone Genesis Potential Parameter(GPP) (168 HR FORECAST)
Based on 30-10-2024 valid for 0000 UTC of 06-11-2024
(Potential Cyclogenesis Zone for GPP =>30)

IMD :GFS MODEL(12 Km) MSL Pressure (hPa) FORECAST (00 HR)
based on 00 UTC of 30-10-2024 valid for 00 UTC of 30-10-2024



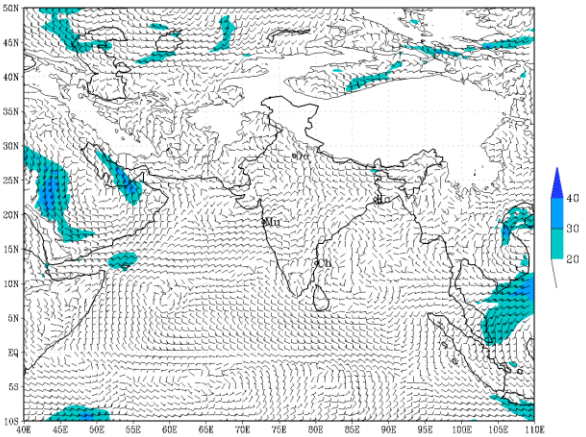
(Background does not depict political boundary)

IMD: GFS(12Km) 10m WIND (barb)& GUST (shaded:kt) FORECAST (00 HR)
based on 00 UTC of 30-10-2024 valid for 00 UTC of 30-10-2024



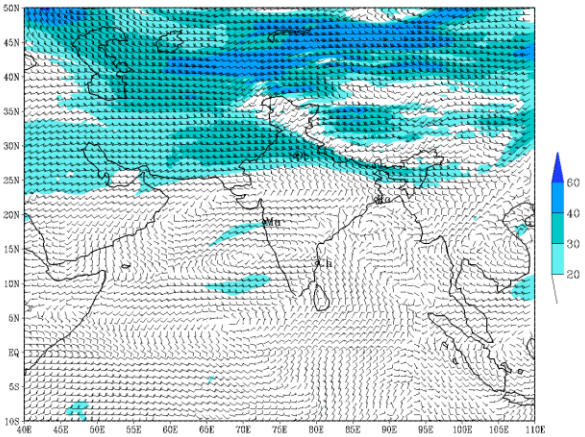

(Background does not depict political boundary)

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



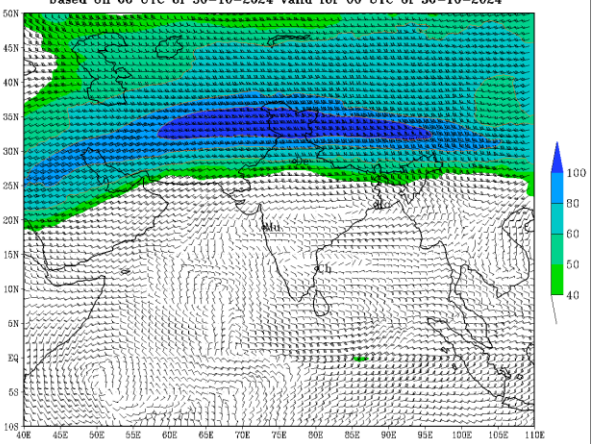

(Background does not depict political boundary)

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



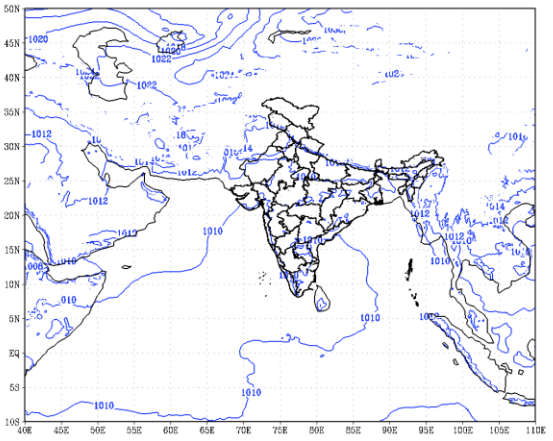

(Background does not depict political boundary)

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



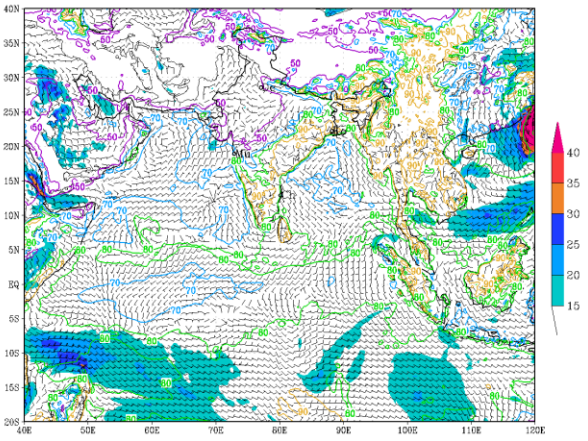

(Background does not depict political boundary)

IMD :GFS MODEL(12 Km) MSL Pressure (hPa) FORECAST (24 HR)
based on 00 UTC of 30-10-2024 valid for 00 UTC of 31-10-2024



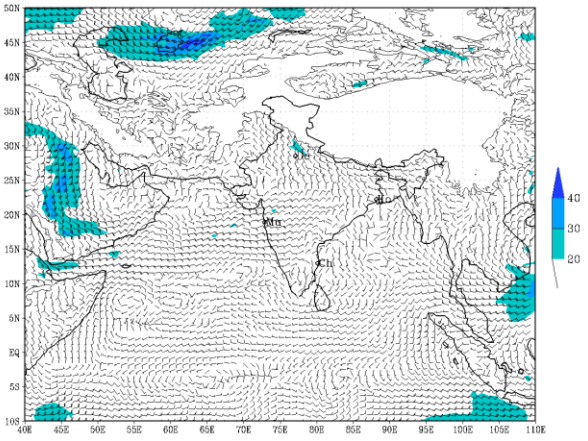
(Background does not depict political boundary)

IMD: GFS(12Km) 10m WIND (barb)& GUST (shaded:kt) FORECAST (24 HR)
based on 00 UTC of 30-10-2024 valid for 00 UTC of 31-10-2024



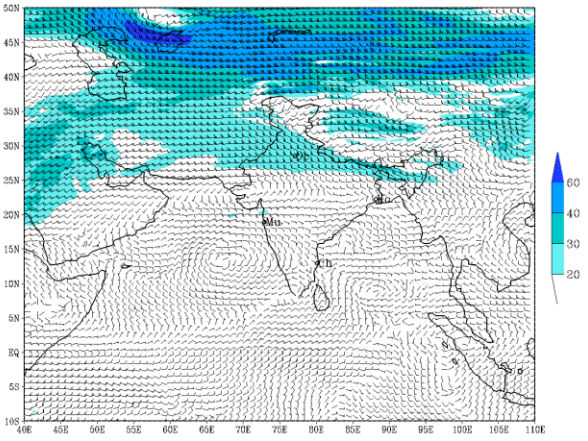
(Background does not depict political boundary)

IMD:GFS MODEL(12 Km) 850 hPa WIND (kt) FORECAST (24 HR)
based on 00 UTC of 30-10-2024 valid for 00 UTC of 31-10-2024



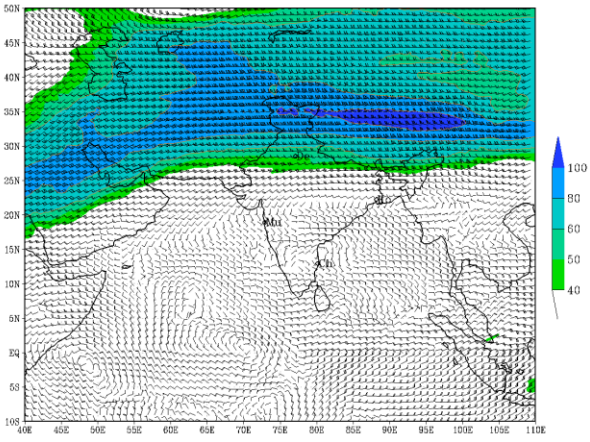
(Background does not depict political boundary)

IMD:GFS MODEL(12 Km) 500 hPa WIND (kt) FORECAST (24 HR)
based on 00 UTC of 30-10-2024 valid for 00 UTC of 31-10-2024



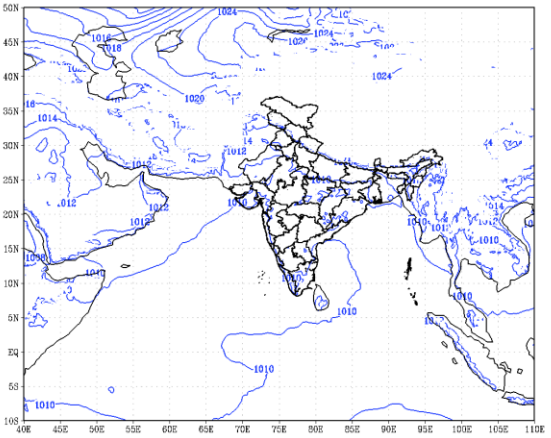
(Background does not depict political boundary)

IMD :GFS MODEL(12 Km) 200 hPa WIND (kt) FORECAST (24 HR)
based on 00 UTC of 30-10-2024 valid for 00 UTC of 31-10-2024



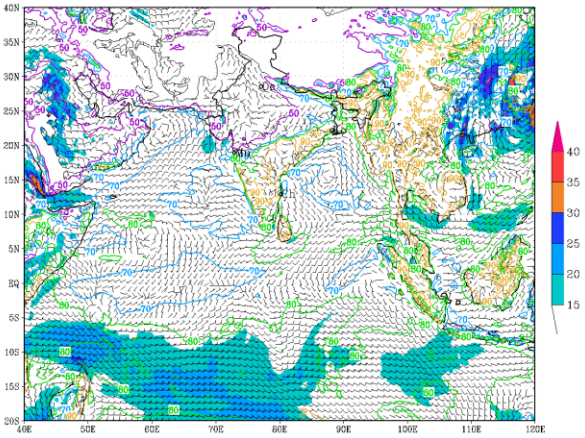
(Background does not depict political boundary)

IMD :GFS MODEL(12 Km) MSL Pressure (hPa) FORECAST (48 HR)
based on 00 UTC of 30-10-2024 valid for 00 UTC of 01-11-2024



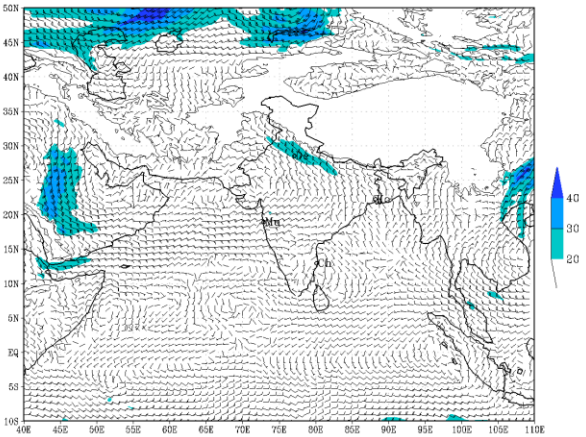
(Background does not depict political boundary)

IMD: GFS(12Km) 10m WIND (barb)& GUST (shaded:kt) FORECAST (48 HR)
based on 00 UTC of 30-10-2024 valid for 00 UTC of 01-11-2024



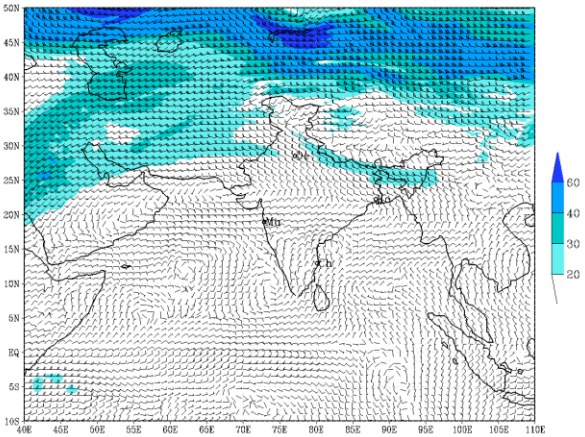

(Background does not depict political boundary)

IMD:GFS MODEL(12 Km) 850 hPa WIND (kt) FORECAST (48 HR)
based on 00 UTC of 30-10-2024 valid for 00 UTC of 01-11-2024



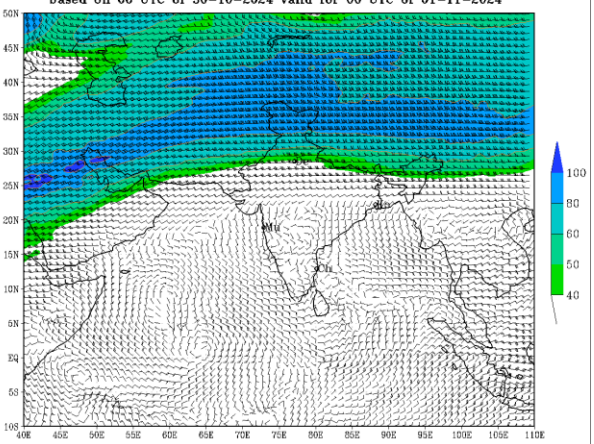

(Background does not depict political boundary)

IMD:GFS MODEL(12 Km) 500 hPa WIND (kt) FORECAST (48 HR)
based on 00 UTC of 30-10-2024 valid for 00 UTC of 01-11-2024

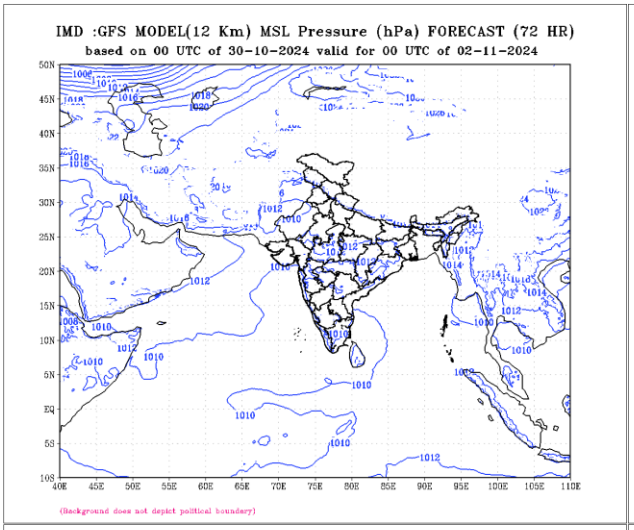


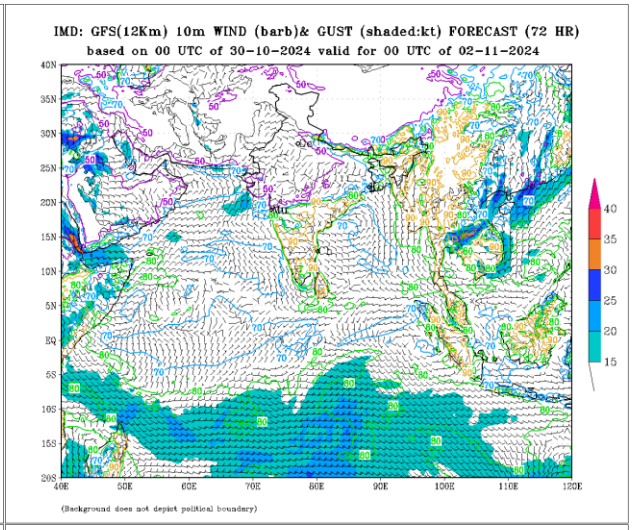

(Background does not depict political boundary)

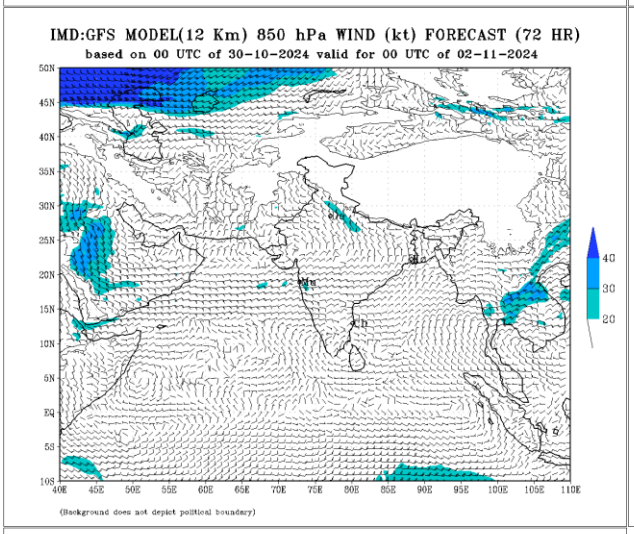
IMD :GFS MODEL(12 Km) 200 hPa WIND (kt) FORECAST (48 HR)
based on 00 UTC of 30-10-2024 valid for 00 UTC of 01-11-2024

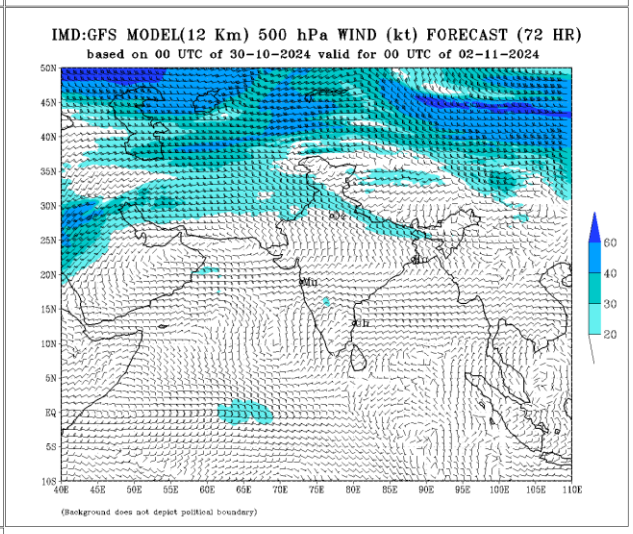


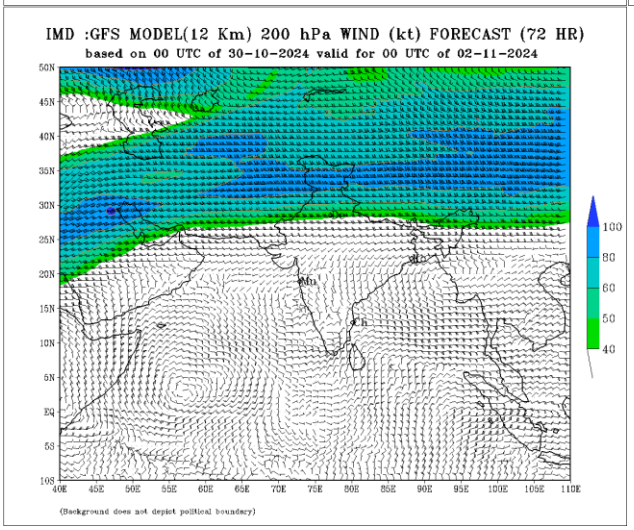

(Background does not depict political boundary)

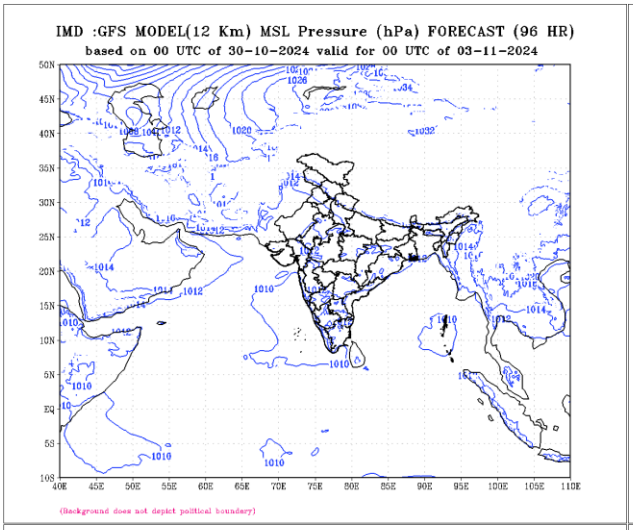

IMD :GFS MODEL(12 Km) MSL Pressure (hPa) FORECAST (72 HR)
based on 00 UTC of 30-10-2024 valid for 00 UTC of 02-11-2024
(Background does not depict political boundary)

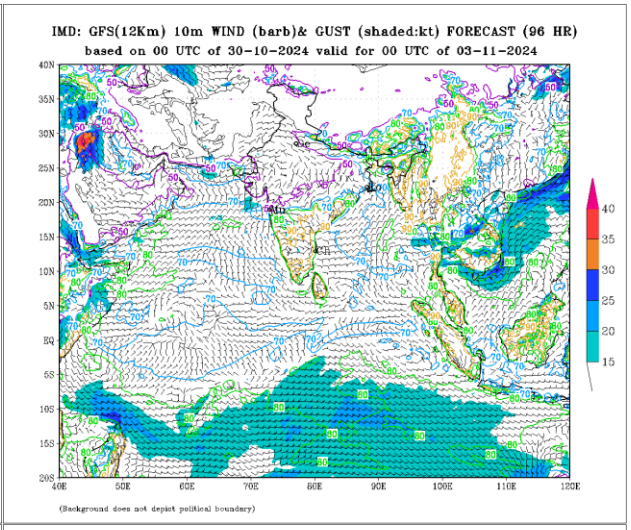

IMD: GFS(12Km) 10m WIND (barb)& GUST (shaded:kt) FORECAST (72 HR)
based on 00 UTC of 30-10-2024 valid for 00 UTC of 02-11-2024
(Background does not depict political boundary)

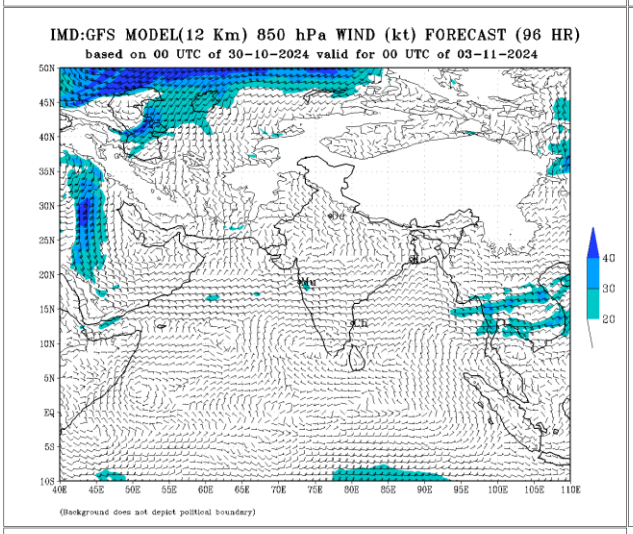

IMD:GFS MODEL(12 Km) 850 hPa WIND (kt) FORECAST (72 HR)
based on 00 UTC of 30-10-2024 valid for 00 UTC of 02-11-2024
(Background does not depict political boundary)

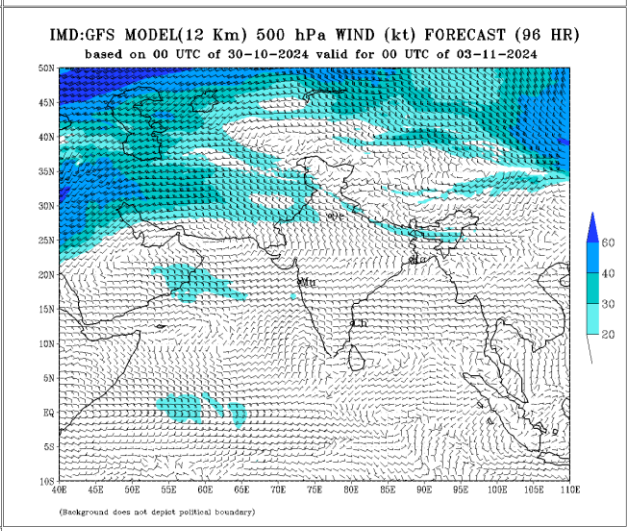

IMD:GFS MODEL(12 Km) 500 hPa WIND (kt) FORECAST (72 HR)
based on 00 UTC of 30-10-2024 valid for 00 UTC of 02-11-2024
(Background does not depict political boundary)

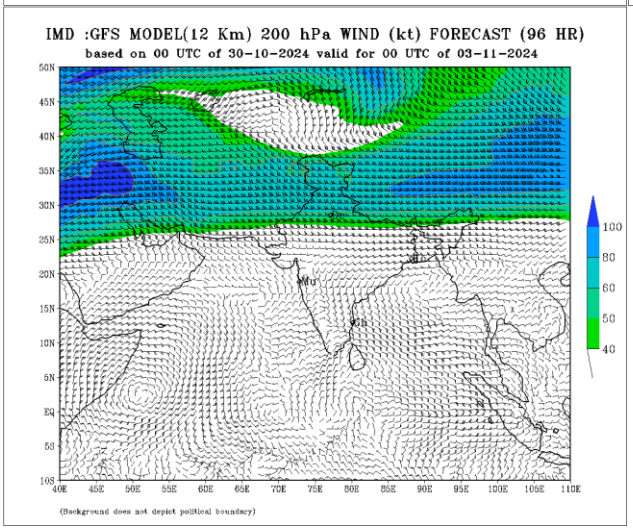

IMD :GFS MODEL(12 Km) 200 hPa WIND (kt) FORECAST (72 HR)
based on 00 UTC of 30-10-2024 valid for 00 UTC of 02-11-2024
(Background does not depict political boundary)

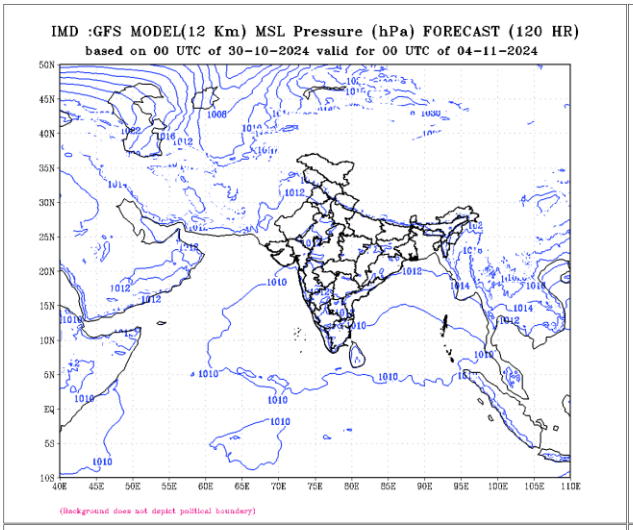

IMD :GFS MODEL(12 Km) MSL Pressure (hPa) FORECAST (96 HR)
based on 00 UTC of 30-10-2024 valid for 00 UTC of 03-11-2024
(Background does not depict political boundary)

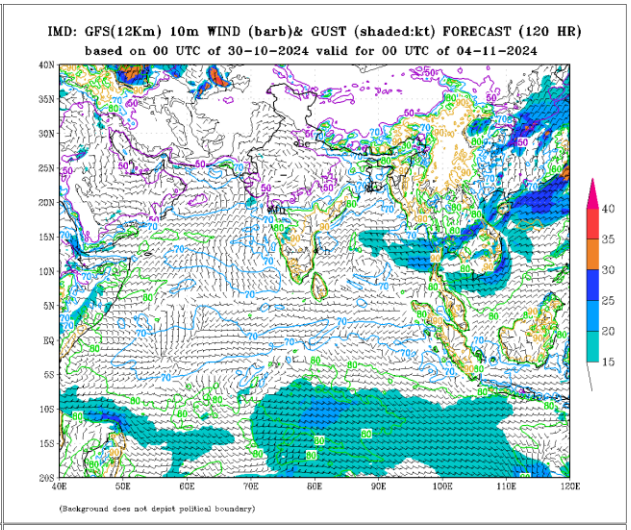

IMD: GFS(12Km) 10m WIND (barb)& GUST (shaded:kt) FORECAST (96 HR)
based on 00 UTC of 30-10-2024 valid for 00 UTC of 03-11-2024
(Background does not depict political boundary)

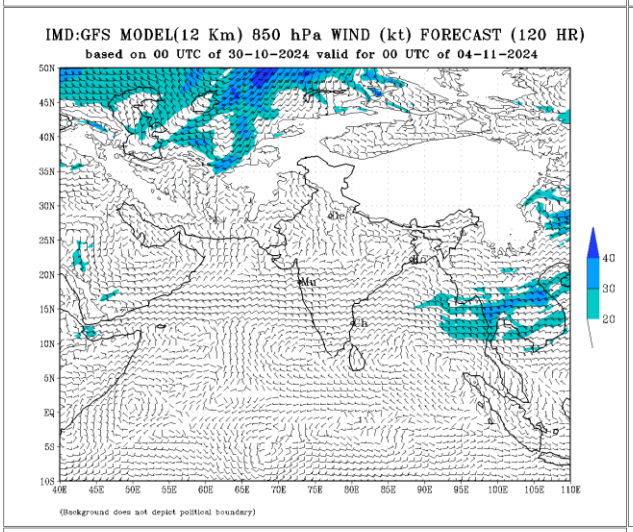

IMD:GFS MODEL(12 Km) 850 hPa WIND (kt) FORECAST (96 HR)
based on 00 UTC of 30-10-2024 valid for 00 UTC of 03-11-2024
(Background does not depict political boundary)

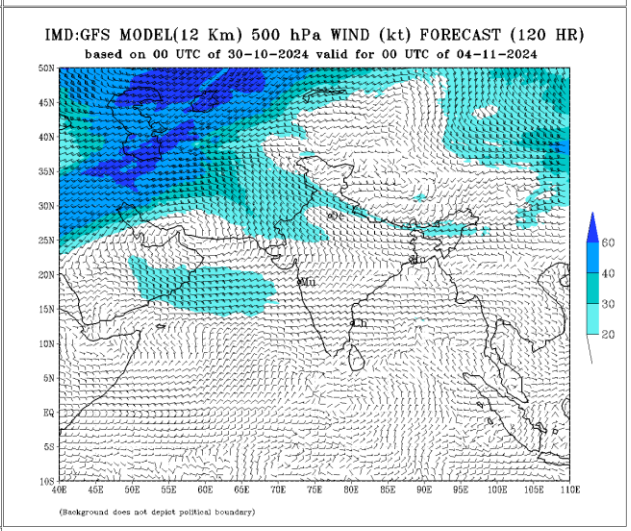

IMD:GFS MODEL(12 Km) 500 hPa WIND (kt) FORECAST (96 HR)
based on 00 UTC of 30-10-2024 valid for 00 UTC of 03-11-2024
(Background does not depict political boundary)

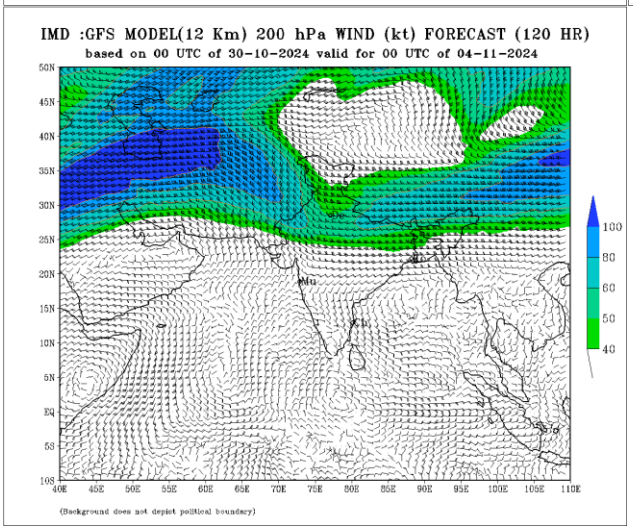

IMD :GFS MODEL(12 Km) 200 hPa WIND (kt) FORECAST (96 HR)
based on 00 UTC of 30-10-2024 valid for 00 UTC of 03-11-2024
(Background does not depict political boundary)

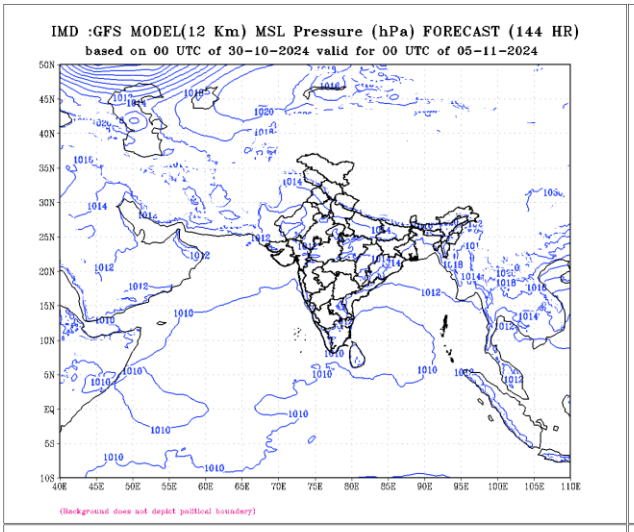

IMD :GFS MODEL(12 Km) MSL Pressure (hPa) FORECAST (120 HR)
based on 00 UTC of 30-10-2024 valid for 00 UTC of 04-11-2024
(Background does not depict political boundary)

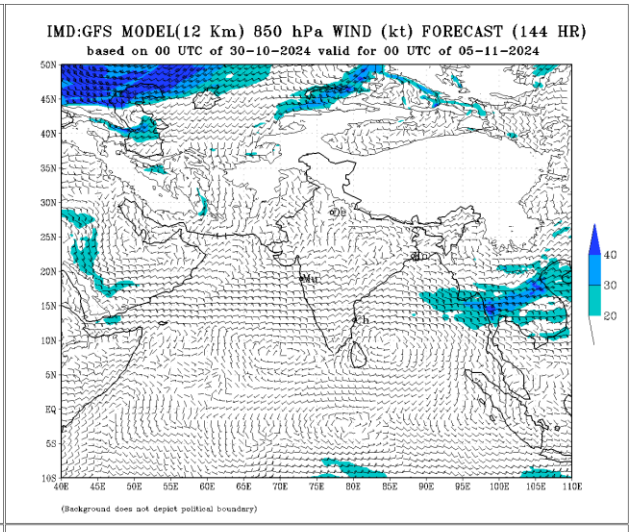

IMD: GFS(12Km) 10m WIND (barb)& GUST (shaded:kt) FORECAST (120 HR)
based on 00 UTC of 30-10-2024 valid for 00 UTC of 04-11-2024
(Background does not depict political boundary)

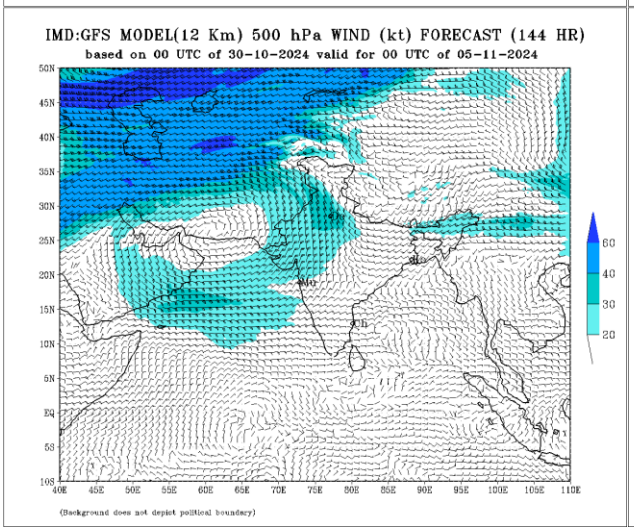

IMD:GFS MODEL(12 Km) 850 hPa WIND (kt) FORECAST (120 HR)
based on 00 UTC of 30-10-2024 valid for 00 UTC of 04-11-2024
(Background does not depict political boundary)

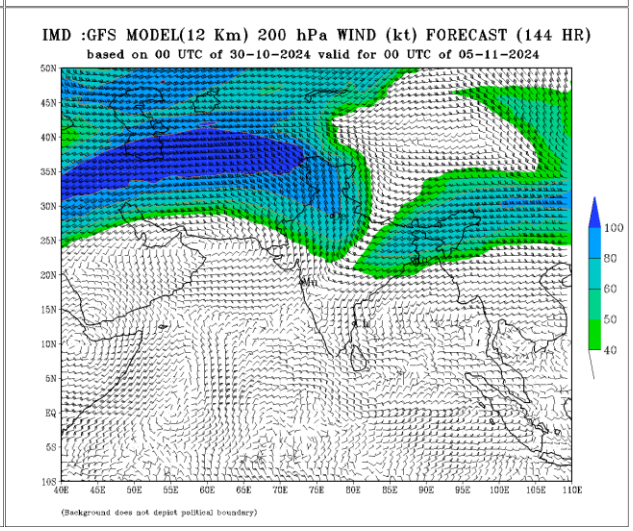

IMD:GFS MODEL(12 Km) 500 hPa WIND (kt) FORECAST (120 HR)
based on 00 UTC of 30-10-2024 valid for 00 UTC of 04-11-2024
(Background does not depict political boundary)

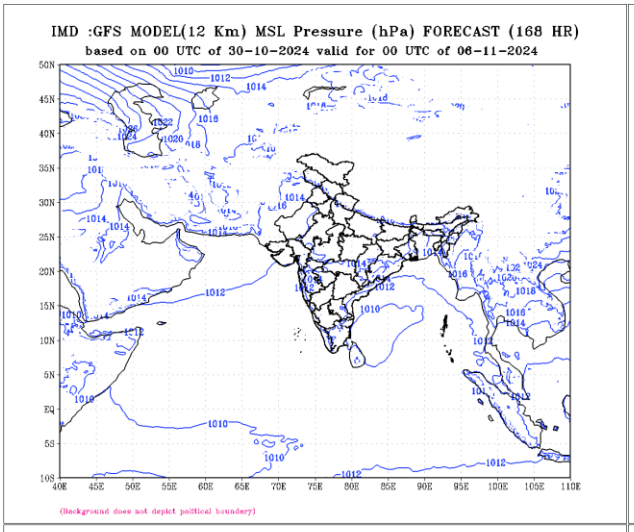

IMD :GFS MODEL(12 Km) 200 hPa WIND (kt) FORECAST (120 HR)
based on 00 UTC of 30-10-2024 valid for 00 UTC of 04-11-2024
(Background does not depict political boundary)

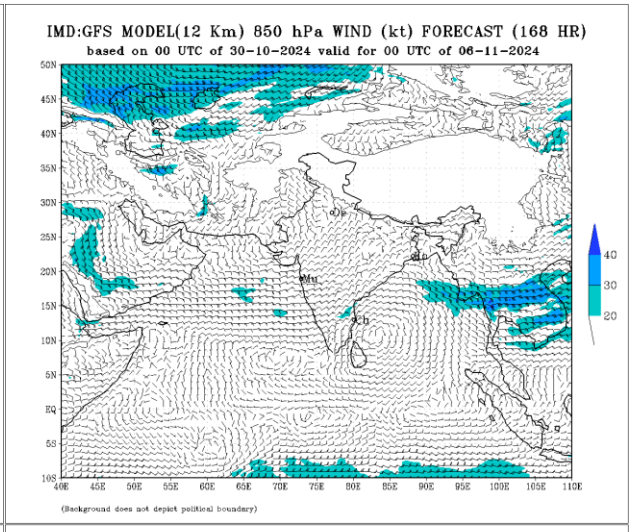

IMD :GFS MODEL(12 Km) MSL Pressure (hPa) FORECAST (144 HR)
based on 00 UTC of 30-10-2024 valid for 00 UTC of 05-11-2024
(Background does not depict political boundary)

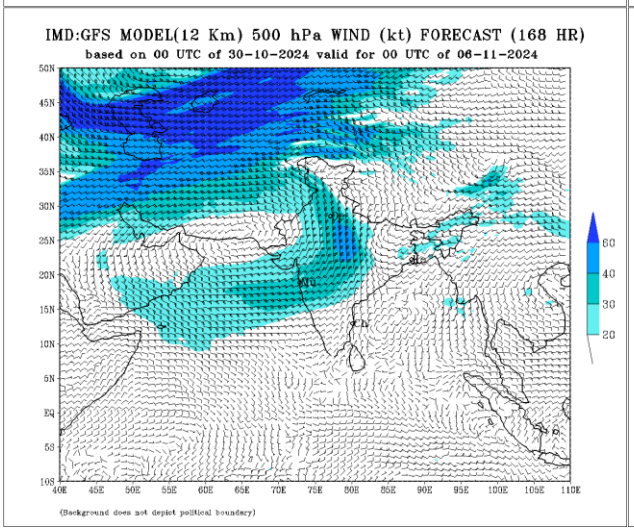

IMD:GFS MODEL(12 Km) 850 hPa WIND (kt) FORECAST (144 HR)
based on 00 UTC of 30-10-2024 valid for 00 UTC of 05-11-2024
40
30
20
(Background does not depict political boundary)

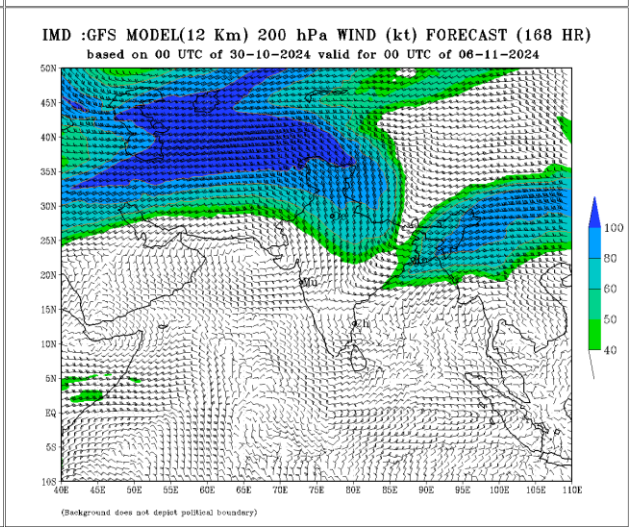

IMD:GFS MODEL(12 Km) 500 hPa WIND (kt) FORECAST (144 HR)
based on 00 UTC of 30-10-2024 valid for 00 UTC of 05-11-2024
60
40
30
20
(Background does not depict political boundary)


IMD :GFS MODEL(12 Km) 200 hPa WIND (kt) FORECAST (144 HR)
based on 00 UTC of 30-10-2024 valid for 00 UTC of 05-11-2024
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 30-10-2024 valid for 00 UTC of 06-11-2024
(Background does not depict political boundary)


IMD:GFS MODEL(12 Km) 850 hPa WIND (kt) FORECAST (168 HR)
based on 00 UTC of 30-10-2024 valid for 00 UTC of 06-11-2024
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 30-10-2024 valid for 00 UTC of 06-11-2024
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 30-10-2024 valid for 00 UTC of 06-11-2024
100
80
60
50
40
(Background does not depict political boundary)