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

FDP (Cyclone) NOC Report Dated 11th November, 2019

Time of Issue: 1200 UTC

Synoptic features:

The deep depression of 10th November over coastal Bangladesh & neighbourhood moved east-northeastwards, and weakened into a depression over southeast Bangladesh & adjoining south Tripura at 0000 UTC of 11th and into a Low Pressure Area over southern parts of Tripura & neighbourhood at 0300 UTC of 11th November, 2019.

Dynamical and thermodynamical features

Sea Surface Temperature (SST):

Sea Surface Temperature is around 25-28°C over most parts of central Arabian Sea. It increases to 28-30°C over north Arabian Sea and also over south Arabian Sea.

SST is around 27-28 ºC over north BoB. It is around 28 - 30ºC over rest BoB.

Tropical Cyclone Heat Potential (TCHP):

Tropical Cyclone Heat Potential (TCHP) is 20-40 kJ/cm^2 over most parts of central Arabian Sea and north Arabian Sea. There is a narrow strip of value 50-70 kJ/cm^2 off west coast of India. It is around 80-100 kJ/cm^2 over south Arabian Sea.

TCHP is around 30-50 kJ/cm^2 over north BoB and is around 80-90 kJ/cm^2 also over rest of the BOB.

Relative Vorticity:

Cyclonic relative vorticity at 850 hPa of value 10-20 X10^{-6}s-1 is seen over northeast BoB and neighborhood.

Cyclonic relative vorticity at 850 hPa of value 10-20X10^{-6}s-1 is seen over the eastcentral Arabian Sea off Maharashtra coast.

Low level Convergence:

No significant positive lower level convergence area is seen over BoB region.

An area of positive lower level convergence area of value 5-10x10^{-5} s-1 is seen over Arabian Sea.

Upper level Divergence:

There is no significant area of positive upper level divergence over BoB.

Upper level divergence of value 20-30x10^{-5} s-1 is seen over Arabian Sea.

Wind Shear:

Wind shear is high over north and central and adjoining south Arabian Sea. It is low to moderate over southern parts of south AS and Comorin area.

Wind shear is low to moderate to over Andaman Sea and south BoB. It is high elsewhere.

Wind Shear Tendency:

The wind shear tendency is positive over north and adjoining westcentral BoB. It is negative or neutral elsewhere.

It is negative over some parts of Gulf of Oman and adjoining westcentral Arabian Sea. It is positive or neutral over rest Arabian Sea.

Upper tropospheric ridge:

The upper tropospheric ridge at 200 hPa runs roughly along 12°N over BoB.

Satellite observations based on INSAT imagery:

Arabian Sea:-

As per the satellite imagery at 0900 UTC of 11th November, 2019, scattered low to medium clouds with embedded isolated moderate to intense convection lies over southeast Arabian Sea off north Kerala and adjoining south Karnataka coasts and Comorin area.

Bay of Bengal & Andaman Sea:

According to 0900 UTC satellite imagery, scattered low/medium clouds with weak to moderate convection lies over SE BoB and South Andaman Sea.

Large scale features

M.J.O. Index:
MJO index is in Phase 7 with amplitude more than 1. It is likely to move to phase 8 from tomorrow.

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

NWP Input for FDP Cyclone based on 0000 UTC of today

IMD-GFS T-1534: Indicates development of no low pressure systems for the next 10 days.

IMD-GEFS: Indicates development of no low pressure systems for the next 8 days.

IMD-WRF: Indicates development of no low pressure systems for the next 3 days.

NCMRWF-NCUM: Indicates development of no low pressure systems for the next 10 days.

NCMRWF-UM-Regional Model: Indicates development of no low pressure systems for the next 3 days.

NEPS Model: Indicates development of no low pressure systems for the next 10 days.

ECMWF: Indicates development of no low pressure systems for the next 10 days.
NCEP-GFS: Indicates development of no low pressure systems for the next 10 days.

ARP-Meteo France : Indicates development of no low pressure systems for the next 3 days

Dynamical statistical models
IMD Genesis Potential Parameter (GPP):
No area of significant zone of GPP is seen to develop over NIO region during next 5 days.
IMD NWP products are available at:
http://nwp.imd.gov.in/bias/gfsproducts.php
http://nwp.imd.gov.in/bias/wrf27pro.php
http://www.rsmcnewdelhi.imd.gov.in/NWP_CYC/Analysis.htm or
http://www.rsmcnewdelhi.imd.gov.in/NWP_CYC/<HH> hrs.htm
<HH> are forecast hours i.e. 24, 48, 72 and etc.

Summary and Conclusion:

As per the NWP models considered, no low pressure area is seen to form for the next 8-10 days.

Probability of cyclogenesis over Bay of Bengal and Andaman Sea during next 120 hours:

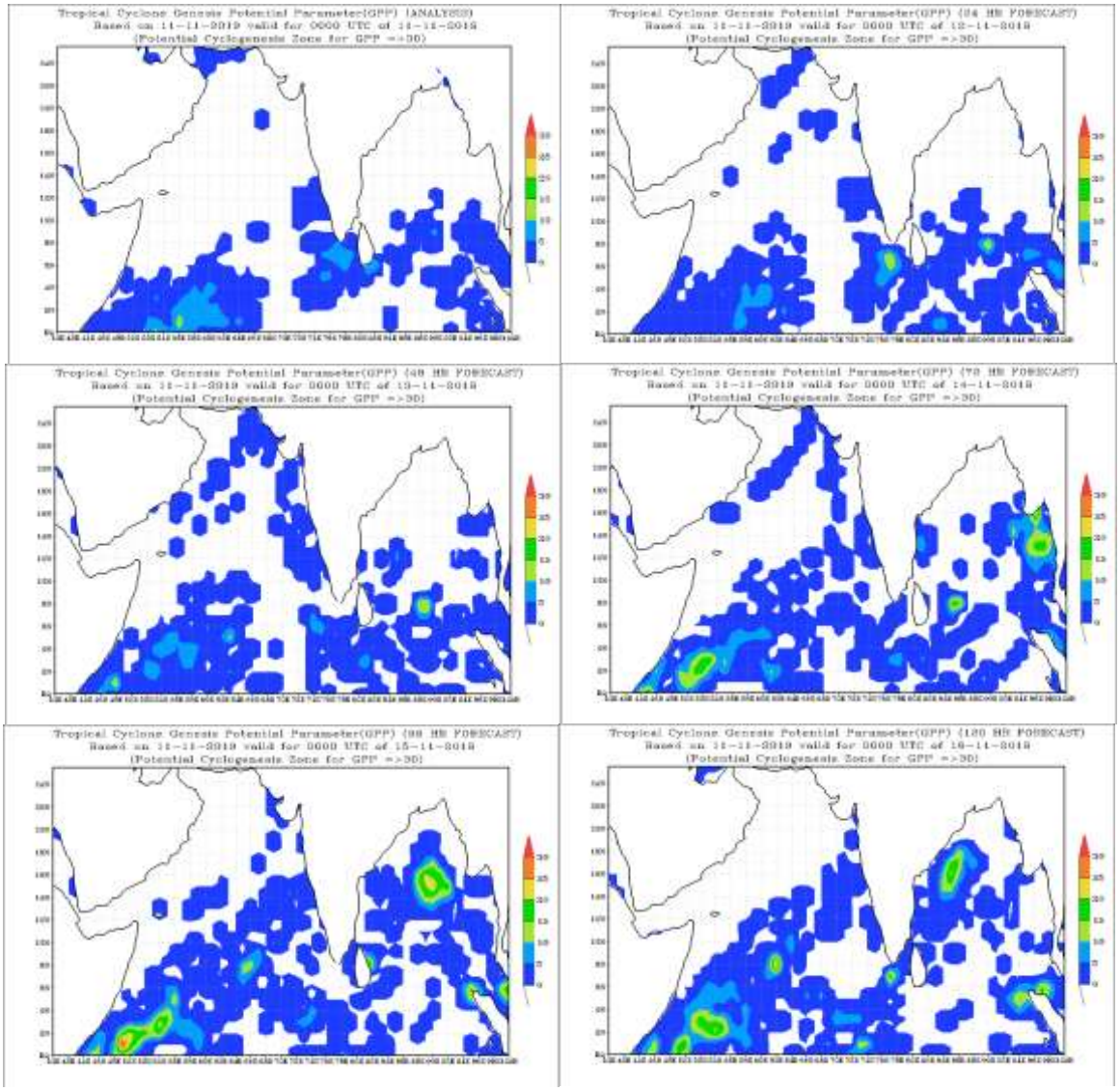
24 HOURS	24-48 HOURS	48-72 HOURS	72-96 HOURS	96-120 HOURS
Nil	Nil	Nil	Nil	Nil

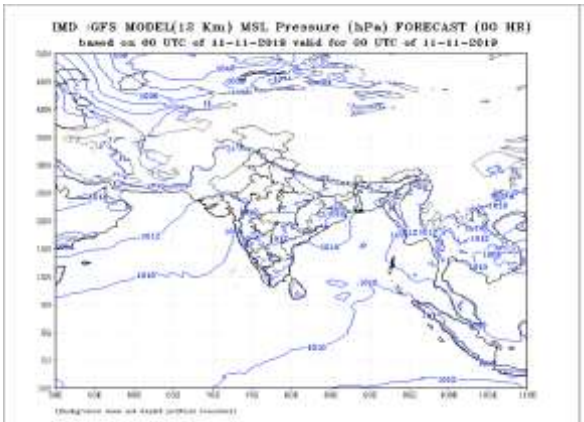
Probability of cyclogenesis over Arabian Sea during next 120 hours:

24 HOURS	24-48 HOURS	48-72 HOURS	72-96 HOURS	96-120 HOURS
Nil	Nil	Nil	Nil	Nil

Advisory: No IOP area for the next 5 days

Annexure-1


Tropical Cyclone Genesis Potential Parameter(GPP) (ANALYSIS)
Based on 11-11-2018 valid for 0000 UTC of 11-11-2018
(Potential Cyclogenesis Zone for GPP =>30)
Tropical Cyclone Genesis Potential Parameter(GPP) (24 HR FORECAST)
Based on 11-11-2018 valid for 0000 UTC of 12-11-2018
(Potential Cyclogenesis Zone for GPP =>30)
Tropical Cyclone Genesis Potential Parameter(GPP) (48 HR FORECAST)
Based on 11-11-2018 valid for 0000 UTC of 13-11-2018
(Potential Cyclogenesis Zone for GPP =>30)
Tropical Cyclone Genesis Potential Parameter(GPP) (72 HR FORECAST)
Based on 11-11-2018 valid for 0000 UTC of 14-11-2018
(Potential Cyclogenesis Zone for GPP =>30)
Tropical Cyclone Genesis Potential Parameter(GPP) (96 HR FORECAST)
Based on 11-11-2018 valid for 0000 UTC of 15-11-2018
(Potential Cyclogenesis Zone for GPP =>30)
Tropical Cyclone Genesis Potential Parameter(GPP) (120 HR FORECAST)
Based on 11-11-2018 valid for 0000 UTC of 16-11-2018
(Potential Cyclogenesis Zone for GPP =>30)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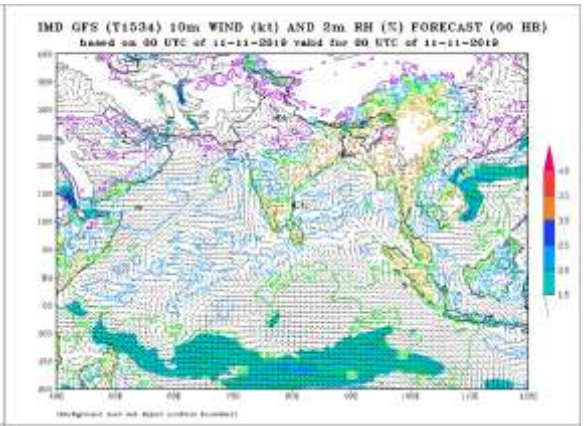
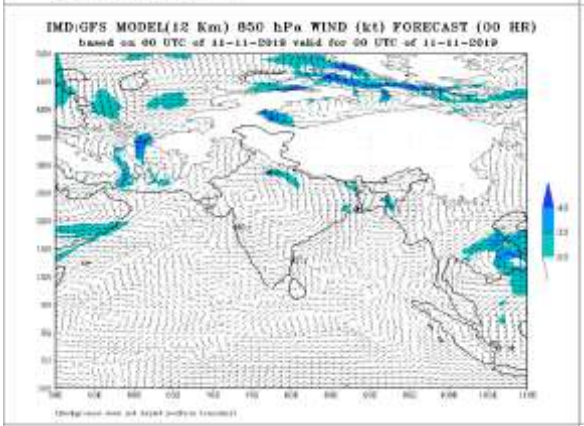
based on 00 UTC of 11-11-2019 valid for 00 UTC of 11-11-2019


IMD GFS (T1534) 10m WIND (kt) AND 2m RH (%) FORECAST (00 HR)
based on 00 UTC of 11-11-2019 valid for 00 UTC of 11-11-2019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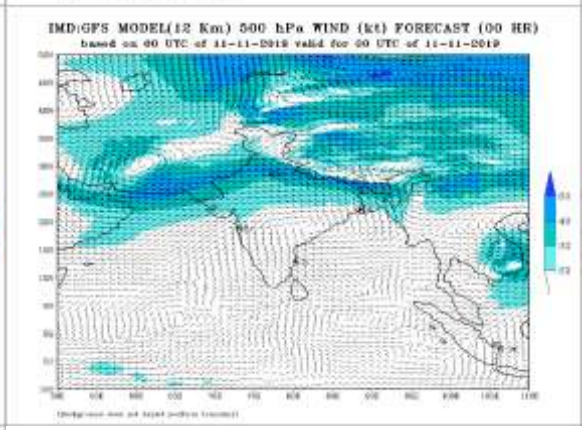
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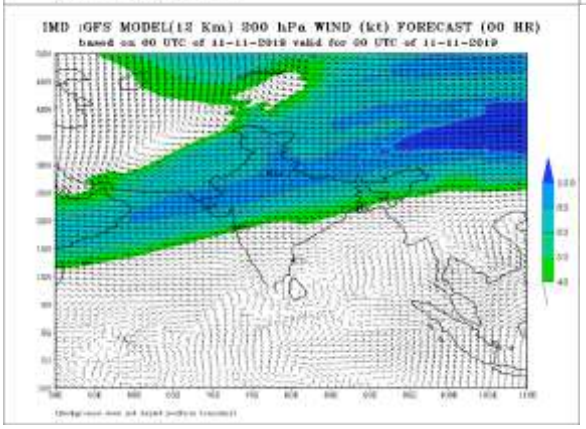
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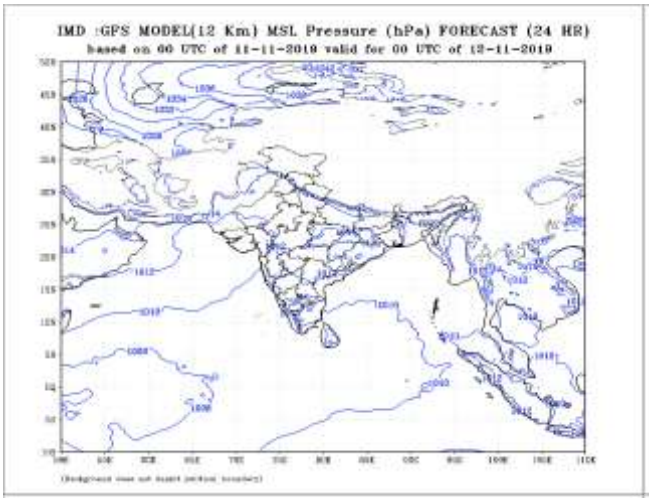
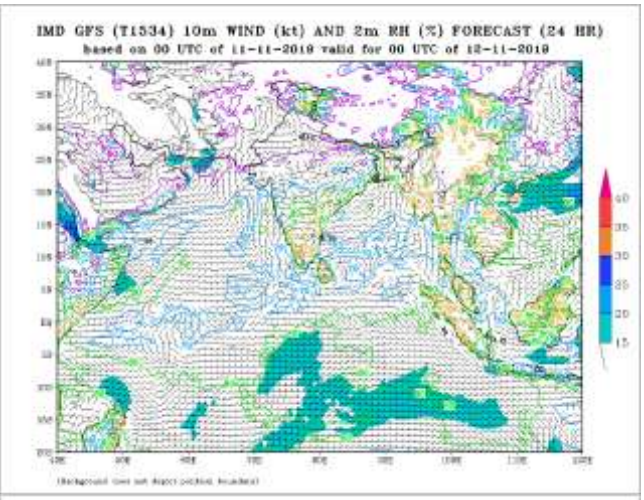
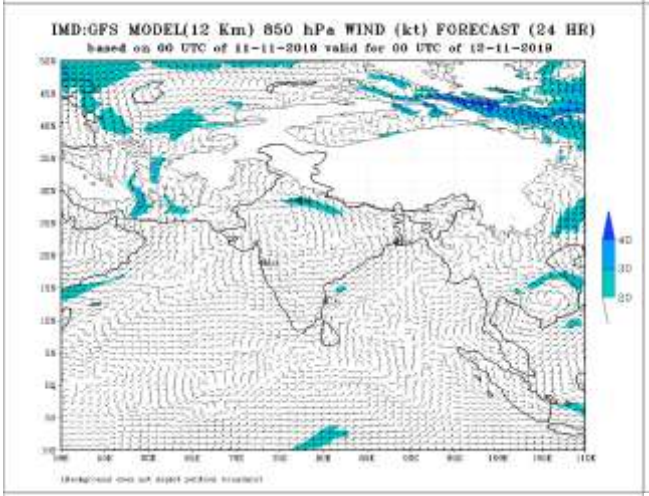

IMD :GFS MODEL(12 Km) MSL Pressure (hPa) FORECAST (24 HR)
based on 00 UTC of 11-11-2019 valid for 00 UTC of 12-11-2019


IMD GFS (T1534) 10m WIND (kt) AND 2m RH (%) FORECAST (24 HR)
based on 00 UTC of 11-11-2019 valid for 00 UTC of 12-11-2019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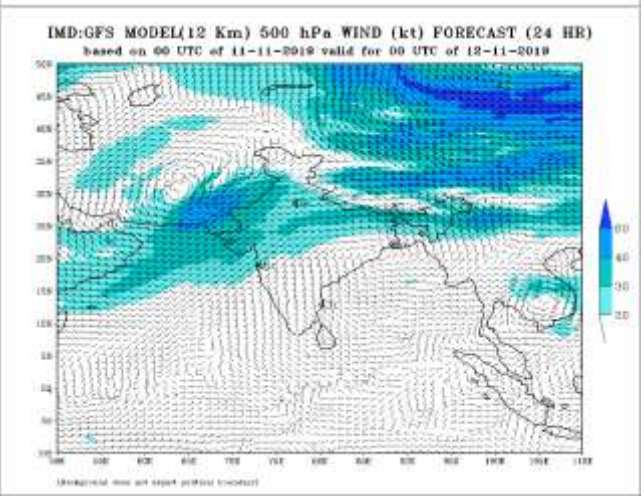
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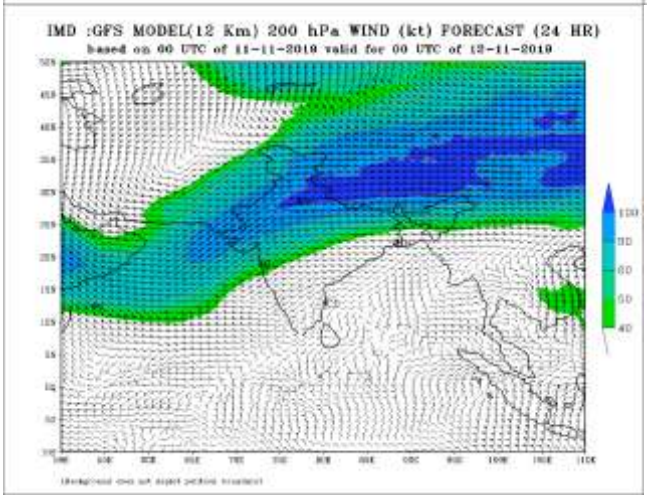
based on 00 UTC of 11-11-2019 valid for 00 UTC of 12-11-2019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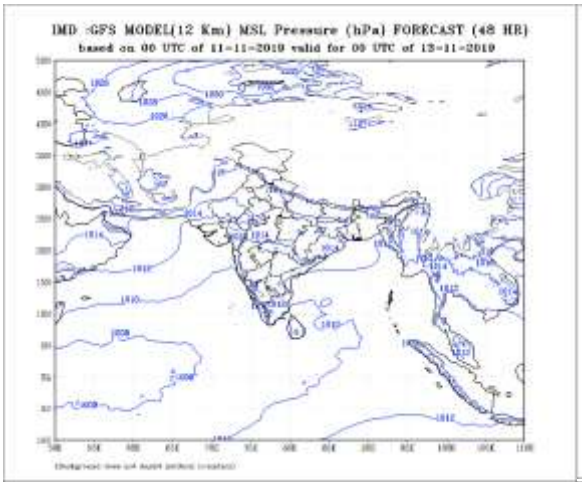
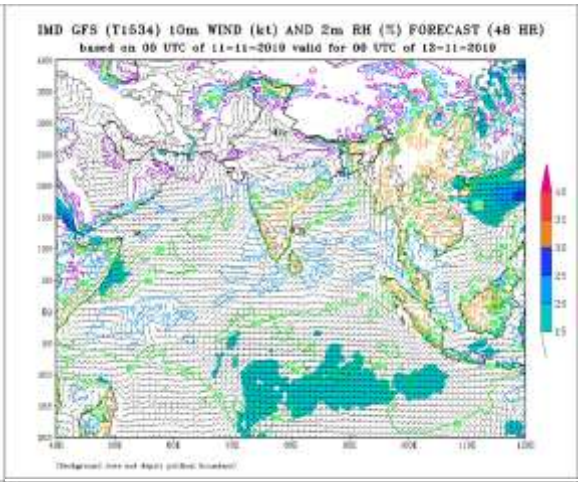
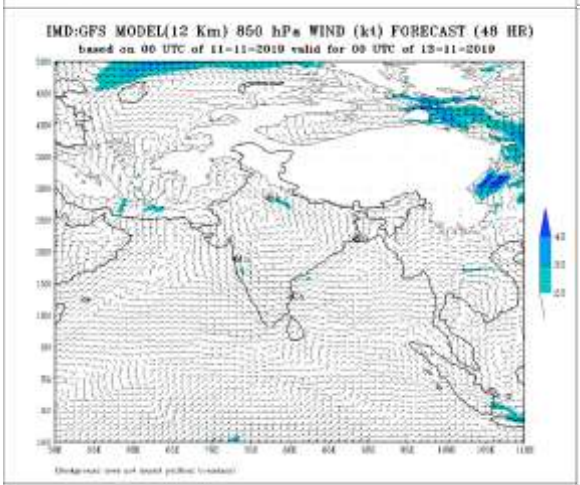
based on 00 UTC of 11-11-2019 valid for 00 UTC of 12-11-2019


IMD :GFS MODEL(12 Km) MSL Pressure (hPa) FORECAST (48 HR)
based on 00 UTC of 11-11-2019 valid for 00 UTC of 13-11-2019


IMD GFS (T1534) 10m WIND (kt) AND 2m RH (%) FORECAST (48 HR)
based on 00 UTC of 11-11-2019 valid for 00 UTC of 13-11-2019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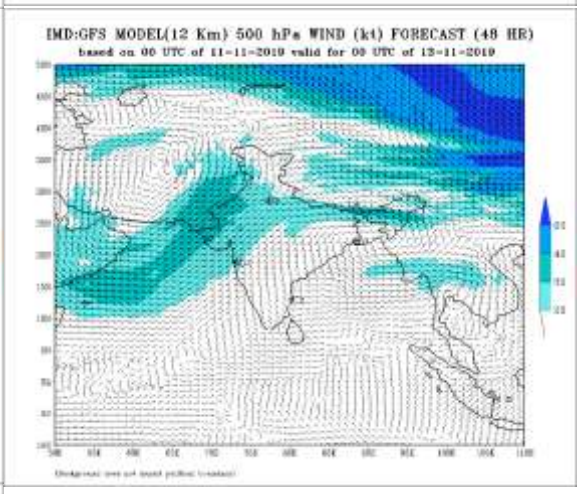
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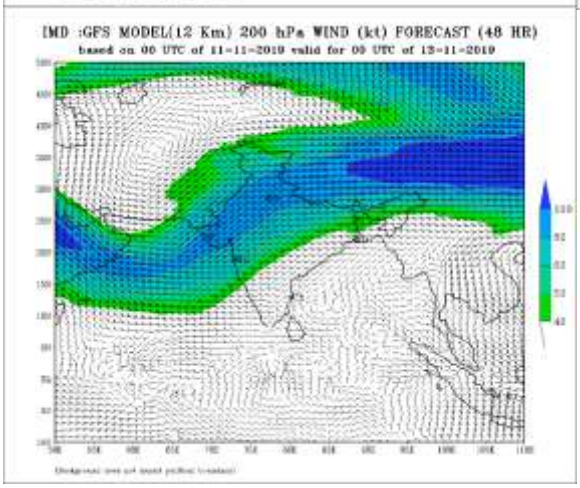
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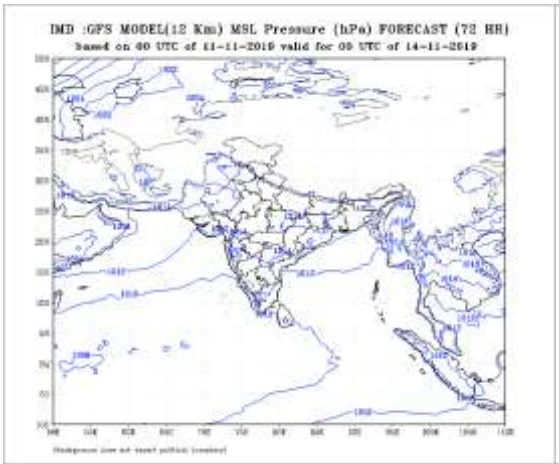
IMD :GFS MODEL(12 Km) MSL Pressure (hPa) FORECAST (72 HR)
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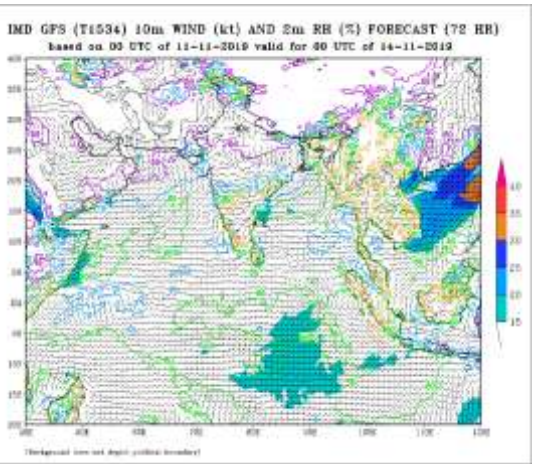
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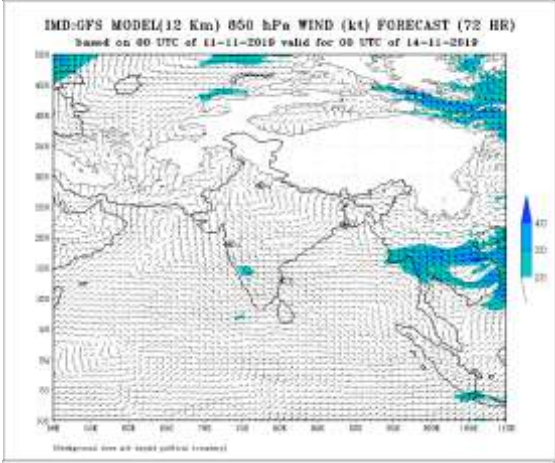
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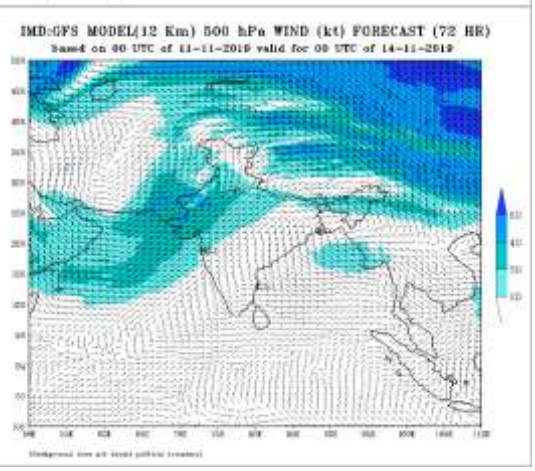
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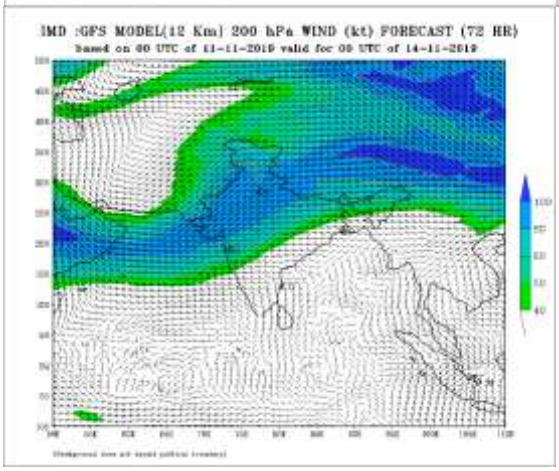
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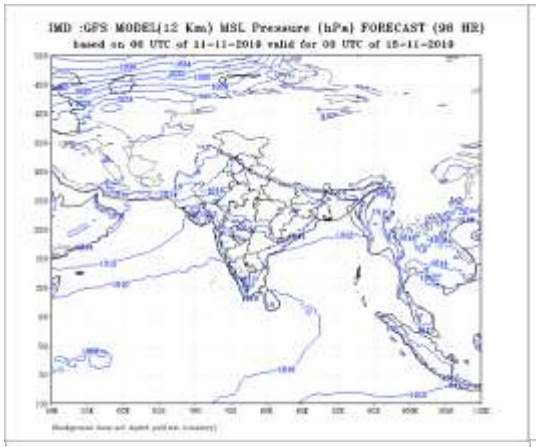
based on 00 UTC of 11-11-2019 valid for 00 UTC of 14-11-2019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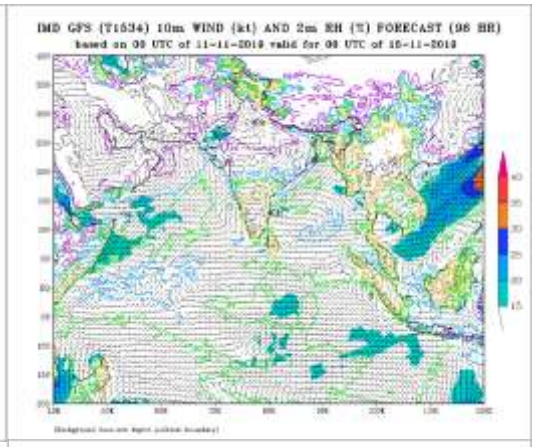
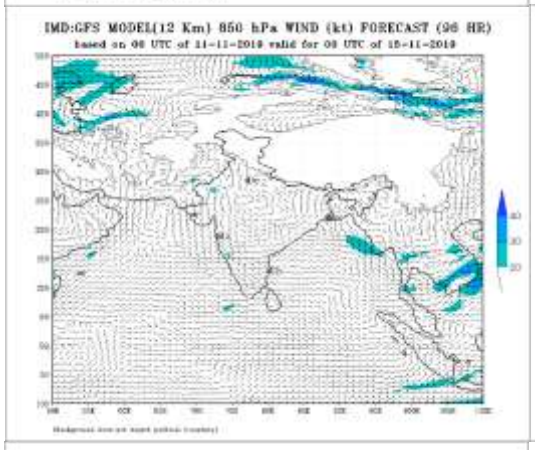
based on 00 UTC of 11-11-2019 valid for 00 UTC of 15-11-2019


IMD GFS (T1534) 10m WIND (kt) AND 2m RH (%) FORECAST (96 HR)
based on 00 UTC of 11-11-2019 valid for 00 UTC of 15-11-2019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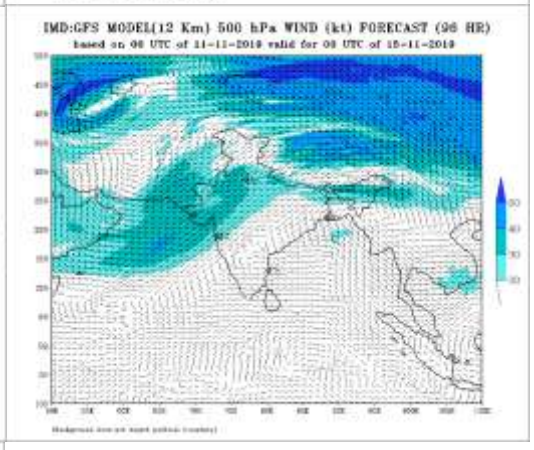
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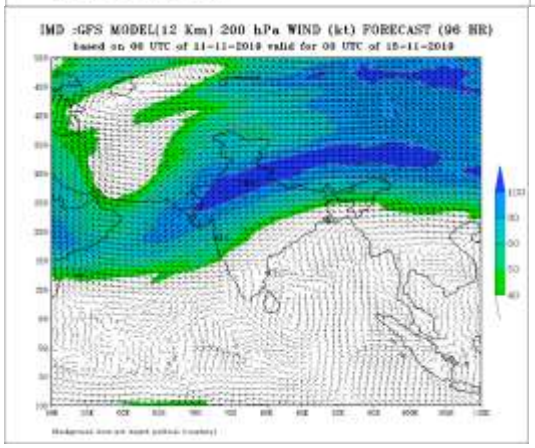
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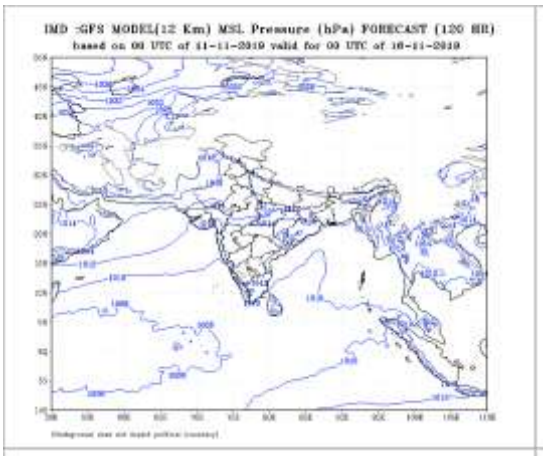
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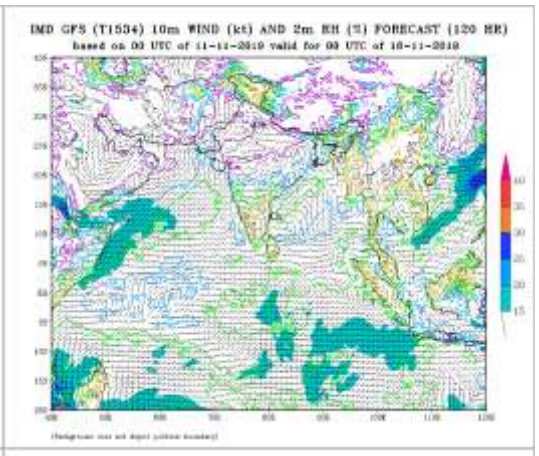
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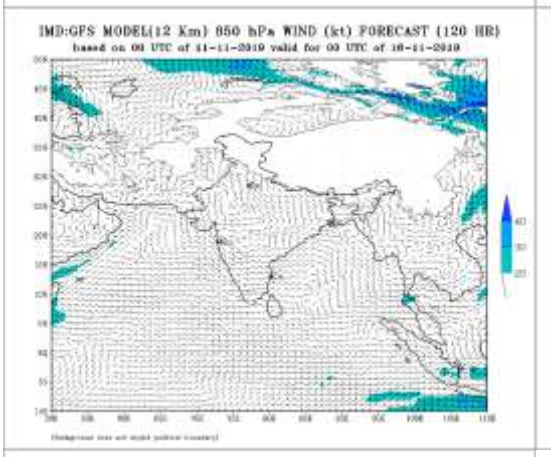
based on 00 UTC of 11-11-2010 valid for 00 UTC of 16-11-2010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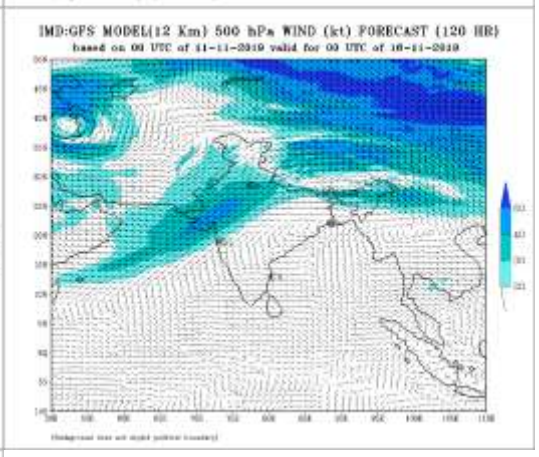
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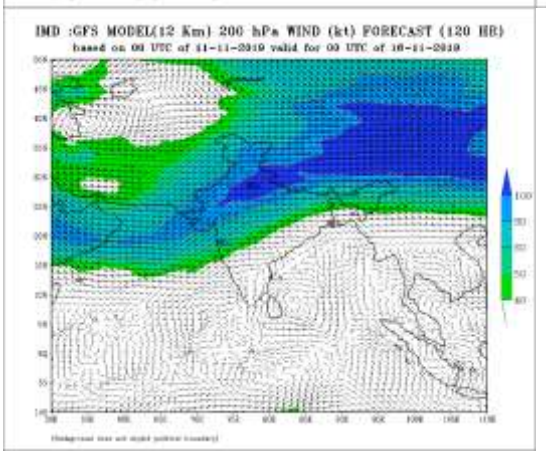
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based on 00 UTC of 11-11-2010 valid for 00 UTC of 16-11-2010