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

FDP (Cyclone) NOC Report Dated 13th November, 2019

Time of Issue: 1100 UTC

Synoptic features:

A cyclonic circulation between 1.5 km & 3.1 km above mean sea level lies over Andaman Sea neighbourhood.

Dynamical and thermodynamical features

Sea Surface Temperature (SST):

Sea Surface Temperature is around 26-29°C over most parts of central Arabian Sea and adjoining north 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 and adjoining WC 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 over rest of the BOB.

Relative Vorticity:

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

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 eastcentral Arabian Sea.

Upper level Divergence:

There is no significant area of positive upper level divergence over BoB.
Upper level divergence of value 05-10x10^{-5} s-1 is seen over central Arabian Sea.

Wind Shear:

Wind shear is high over entire Arabian Sea. It is low to moderate over Comorin area.

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

Wind Shear Tendency:

The wind shear tendency is positive over western parts of southwest BoB. It is negative or neutral elsewhere.
It is negative over north, westcentral and southwest 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 the BoB.

Satellite observations based on INSAT imagery:

Arabian Sea:-

As per the satellite imagery at 0600 UTC of 13th November, 2019, scattered low to medium clouds with embedded moderate to intense convection lies over southeast Arabian Sea off Kerala coast and northeast Arabian Sea

Bay of Bengal & Andaman Sea:

According to 0600 UTC satellite imagery, scattered low/medium clouds with moderate to intense convection lies over north Andaman Sea.

Large scale features

M.J.O. Index:
MJO index is in Phase 8 with amplitude more than 1. A fast propagating mode is predicted in which MJO convective phase is likely to propagate eastwards from phase 8 to phase 1 after 2 days with amplitude >1.

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: Analysis shows a Low Pressure area over Andaman islands & neighborhood on 12th November (today) which gets less marked tomorrow and no subsequent development.

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:

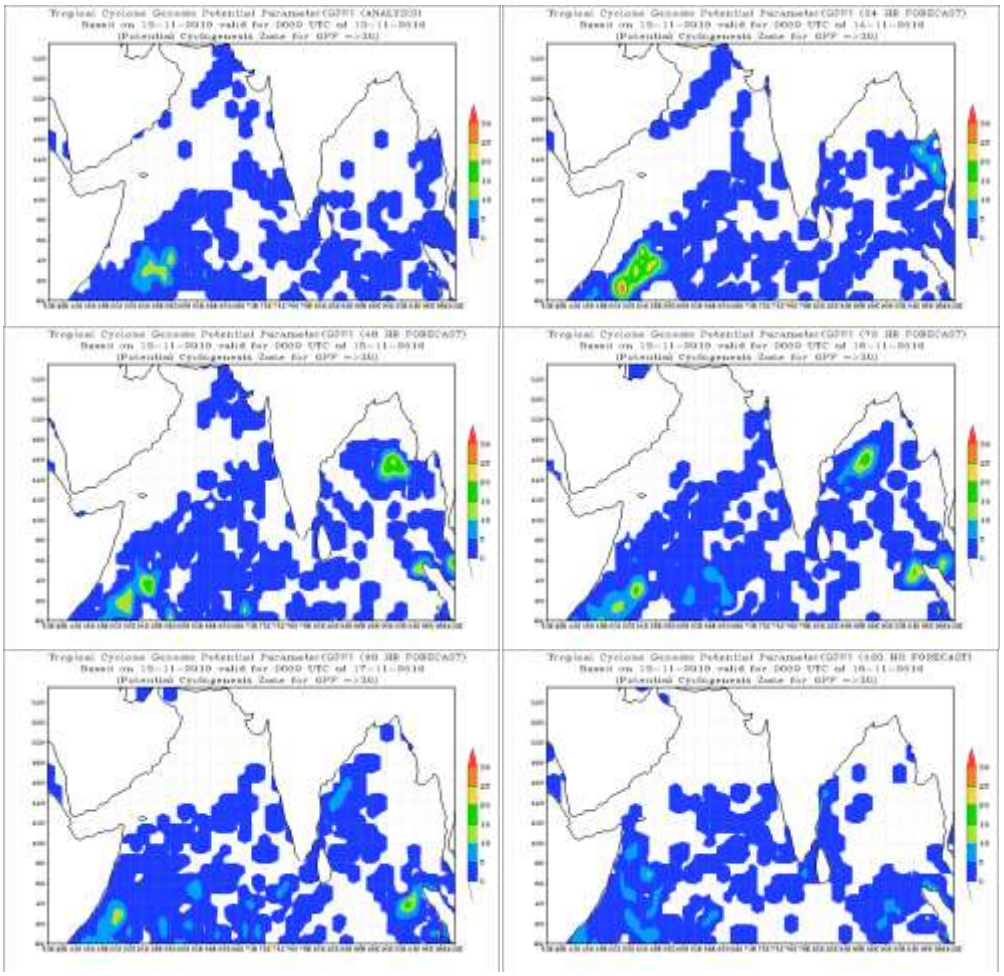
24 HOURS	24-48 HOURS	48-72 HOURS	72-96 HOURS	96-120 HOURS
Nil	Nil	Nil	Nil	Nil

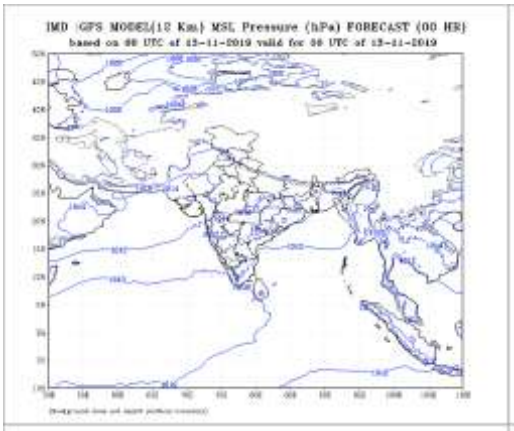
Probability of cyclogenesis over Arabian Sea during next 120 hours:

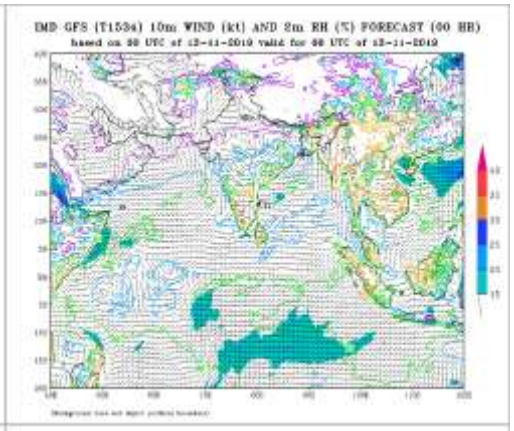
24 HOURS	24-48 HOURS	48-72 HOURS	72-96 HOURS	96-120 HOURS
Nil	Nil	Nil	Nil	Nil

Advisory: No IOP area for the next 5 days

Annexure-1




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


IMD GFS (T153a) 10m WIND (kt) AND 2m RH (%) FORECAST (00 HR)
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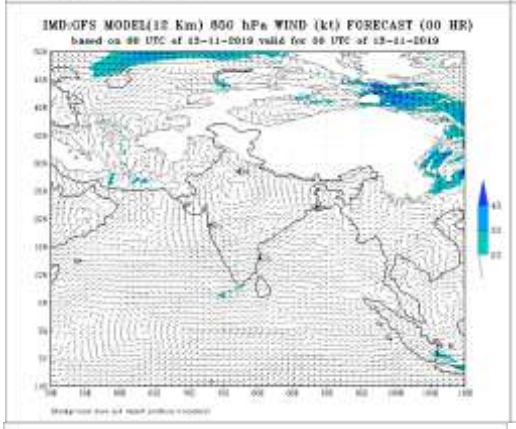
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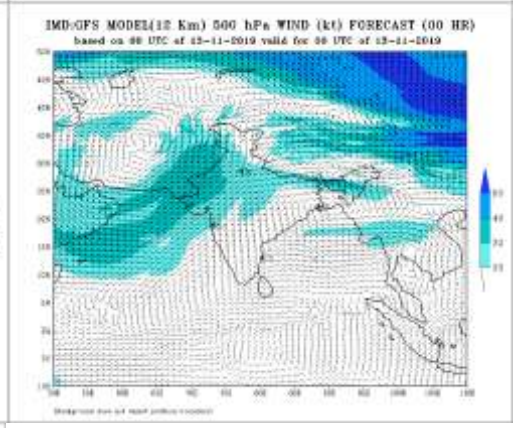
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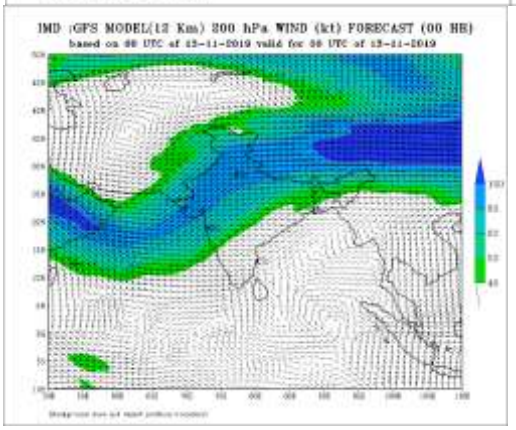
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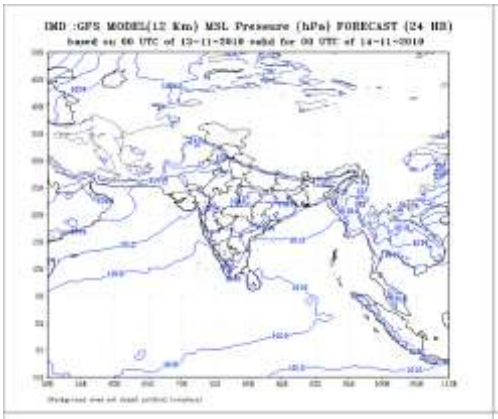
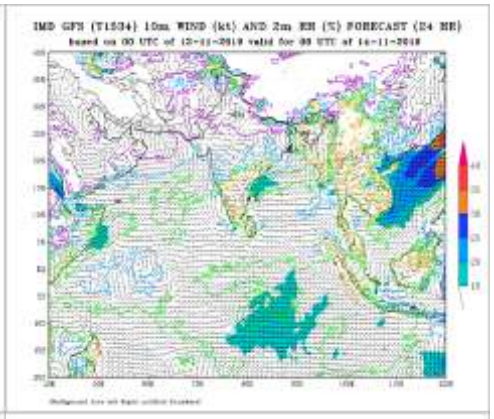

IMD :GFS MODEL(12 Km) MSL Pressure (hPa) FORECAST (24 HR)
based on 00 UTC of 13-11-2019 valid for 00 UTC of 14-11-2019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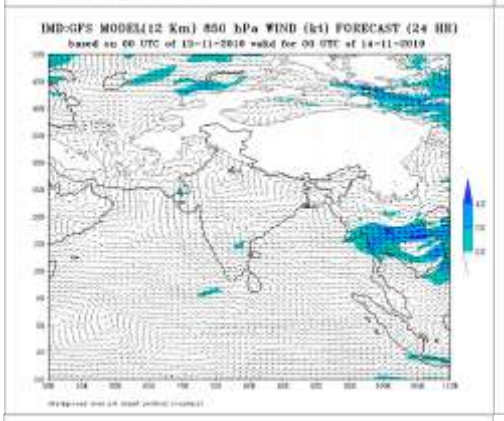
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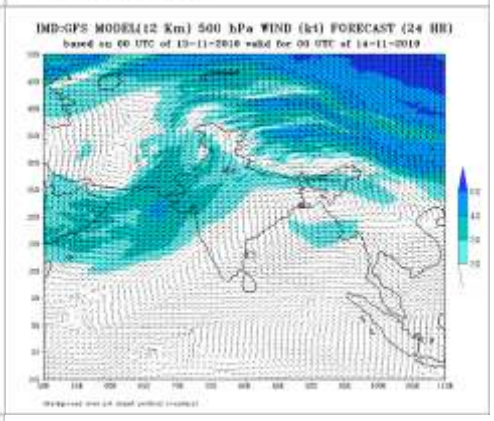
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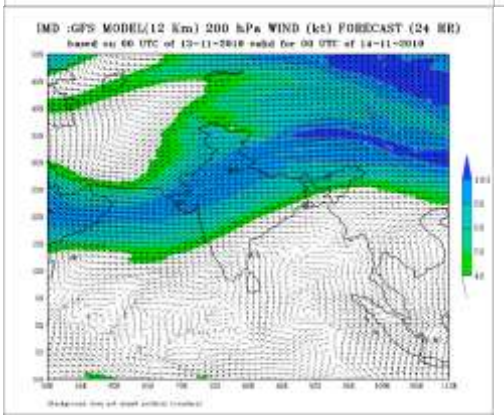
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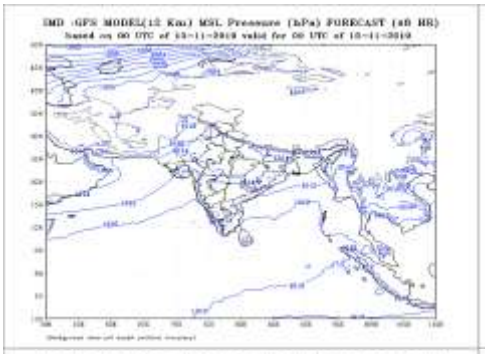
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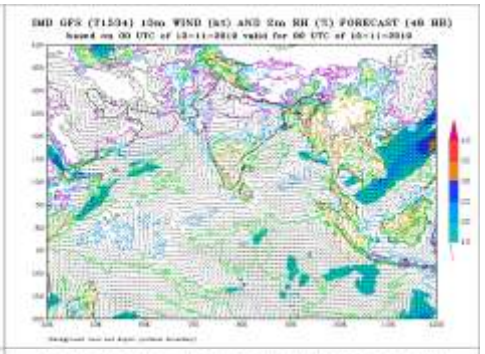
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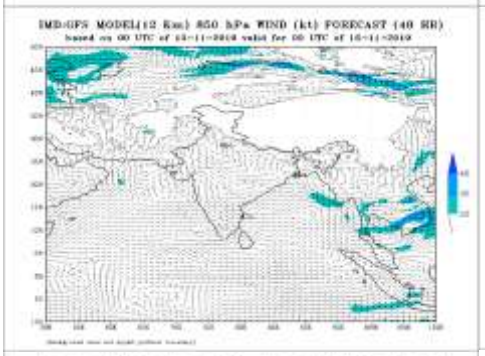
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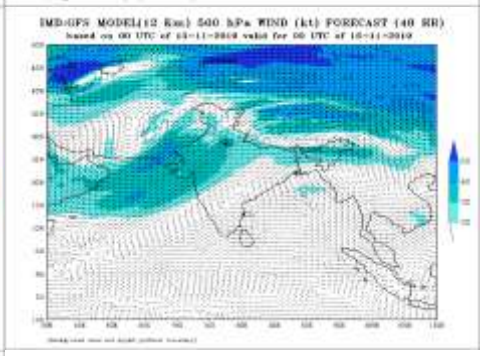
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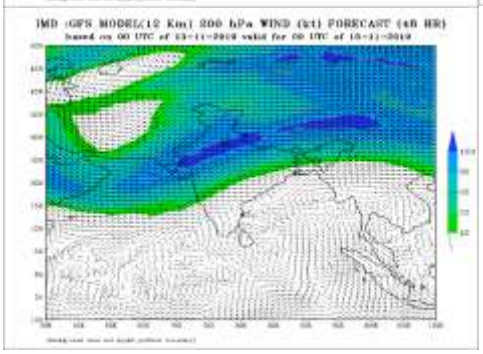
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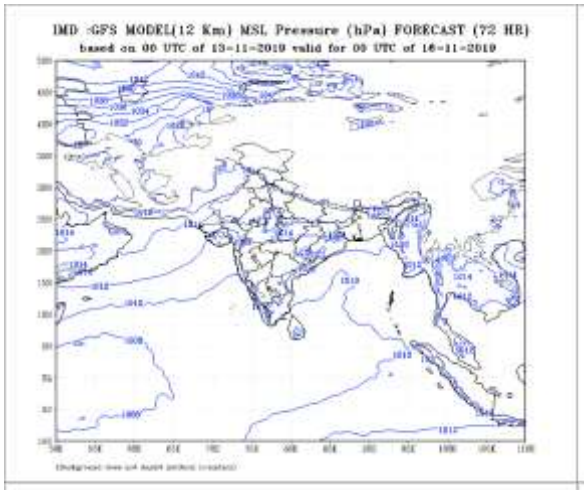
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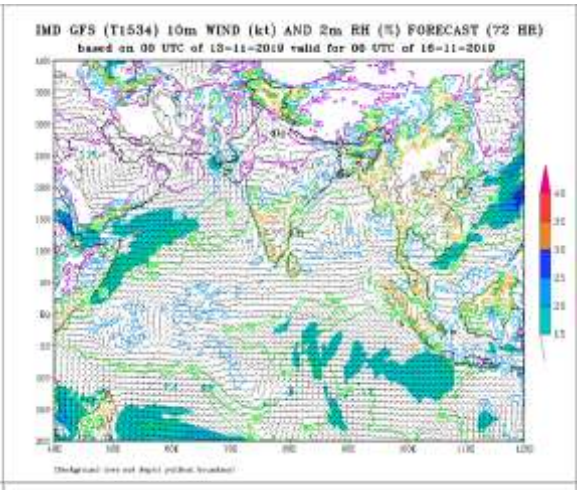
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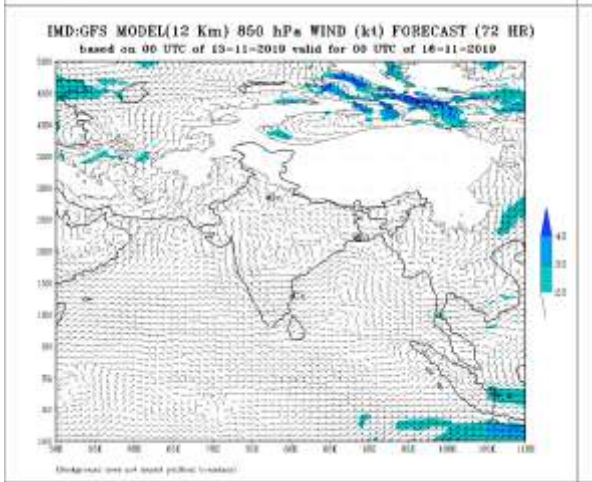
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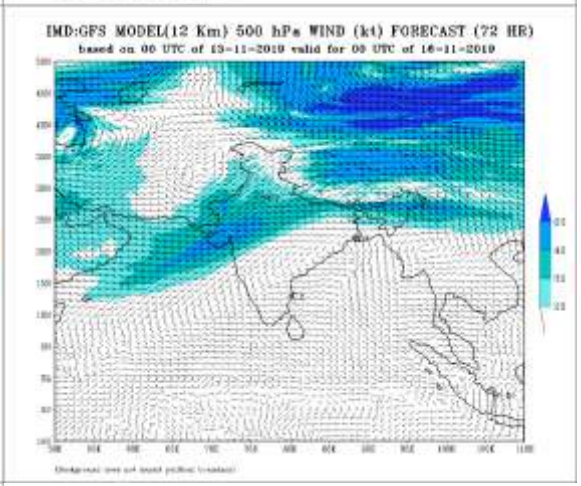
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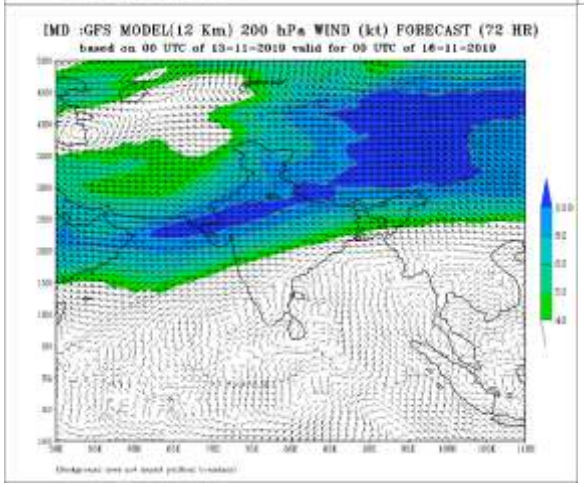
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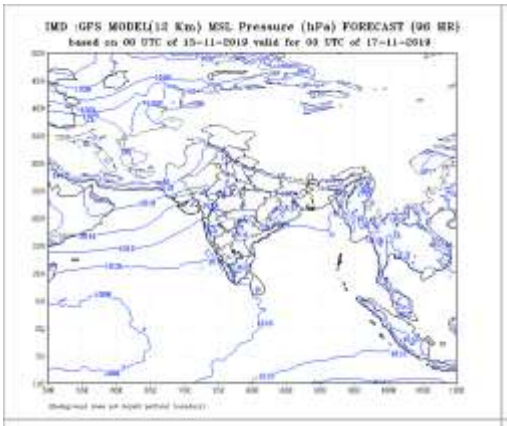
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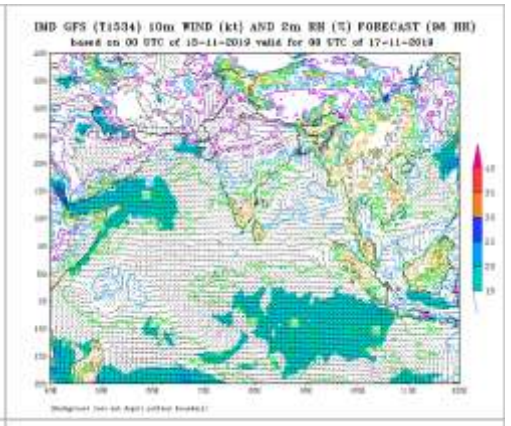
based on 00 UTC of 15-11-2019 valid for 00 UTC of 17-11-2019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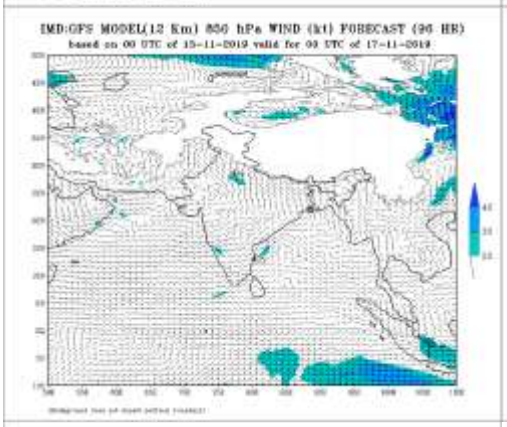
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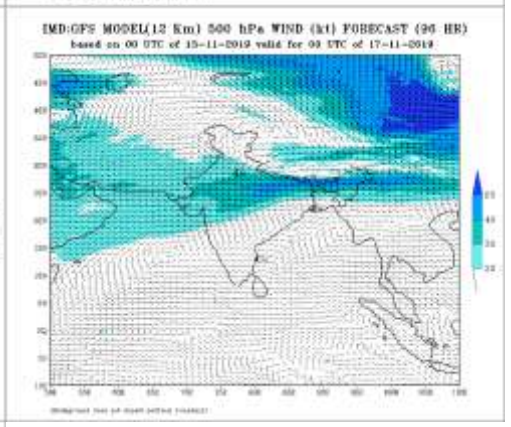
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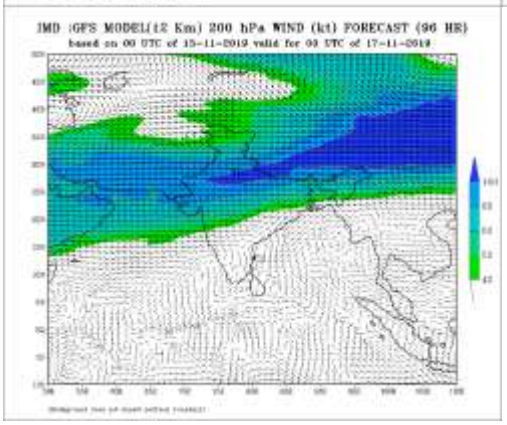
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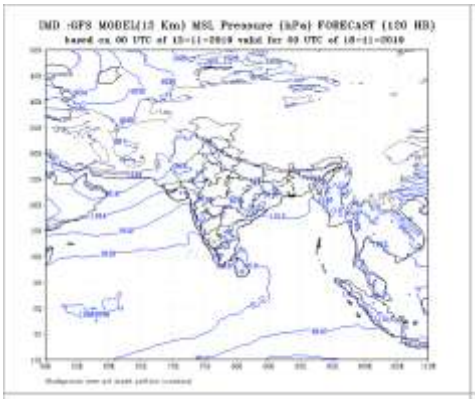
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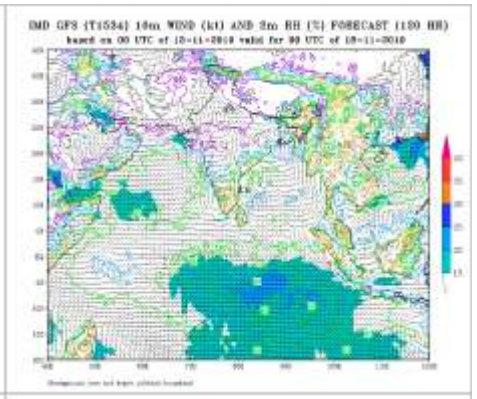
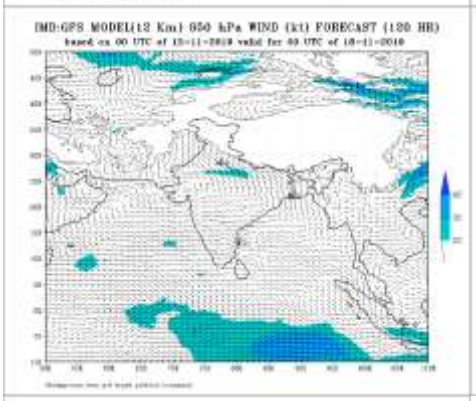

IMD GFS (T1534) 10m WIND (kt) AND 2m RH (%) FORECAST (120 HR)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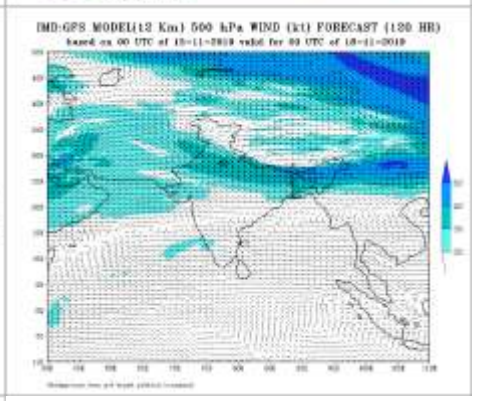
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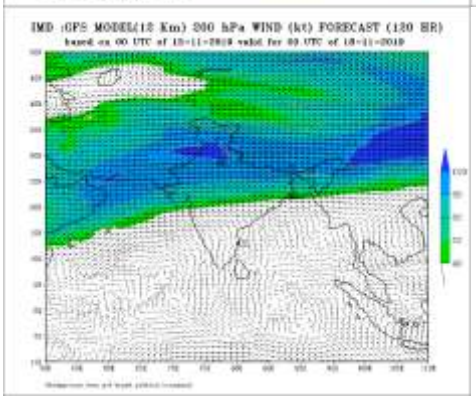
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