



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

**Tropical Cyclone Forecast Programme  
Report Dated 27<sup>th</sup> November, 2022**

**Time of Issue: 0800 UTC**

**Synoptic features (based on 0600 UTC analysis):**

- Yesterday's cyclonic circulation over southeast Arabian sea and neighbourhood persists over same region at 0830 hours IST (0300 UTC) of today, the 27<sup>th</sup> November, 2022.
- Yesterday's cyclonic circulation over Eastcentral Bay of Bengal & adjoining North Andaman Sea persists over same region at 0830 hours IST (0300 UTC) of today, the 27<sup>th</sup> November, 2022.

**Dynamical and thermo-dynamical features**

Parameter	Bay of Bengal (BoB)	Arabian Sea (AS)
<b>Sea Surface Temperature (SST) °C</b>	About 28-29°C over the system and major parts of BoB, 29-30°C over southeast BoB and along south Sri Lanka coast, 25-26°C over northwest BoB along West Bengal and Odisha coast.	About 29-30°C over the southeast AS and adjoining southwest, eastcentral AS, off south Gujarat and Maharashtra coasts, 26-28°C over eastcentral and adjoining north AS, adjoining southwest AS, less than 24°C over southwest AS off Oman and Yemen coasts and adjoining sea areas.
<b>Tropical Cyclone Heat Potential (TCHP) kJ/cm<sup>2</sup></b>	>110 over south Andaman sea & eastcentral BoB, 70-80 over north Andaman Sea, north parts of southwest BoB and adjoining westcentral BoB, off Sri Lanka, north BoB, and less than 40 over westcentral BoB, along and off east coast of India, west coast of SriLanka, Gulf of Mannar, some parts of southwest BoB.	70-90 over southeast and adjoining eastcentral and adjoining southwest AS, Maldives & adjoining EIO, Comorin area and less than 40 over remaining AS and also off west coast of India, Comorin area.
<b>Cyclonic Relative vorticity (X10<sup>-6</sup>s<sup>-1</sup>)</b>	40-50 over southeast & adjoining eastcentral BoB.	40-50 over Lakshadweep and southeast AS.
<b>Low Level convergence (X10<sup>-5</sup> s<sup>-1</sup>)</b>	Small zone of 05 over Gulf of Thailand and another of 05 value over southwest BoB.	Small zone of 05 over central parts of south AS.
<b>Upper Level divergence (X10<sup>-5</sup> s<sup>-1</sup>)</b>	Small zone of 05-10 over North Andaman Sea and another of 05 value over eastcentral BoB.	Small zone of 05 over eastcentral AS and another over southwest AS.
<b>Vertical Wind Shear (VWS knots)</b>	05-15 over Andaman Sea and central & adjoining south BoB.	10-20 over Lakshadweep, Comorin area and adjoining areas of southeast AS.

<b>Wind Shear Tendency (knots)</b>	Decreasing over North Andaman Sea and over westcentral & adjoining southwest BoB.	Decreasing over southeast AS and Comorin area.
<b>Upper tropospheric Ridge</b>	Along 15.0°N over the BoB.	Along 10.0°N over the AS.
<b>Trough in westerlies</b>	No significant trough	

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

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

Scattered to broken low and medium clouds with embedded intense to very intense convection lay over eastcentral Bay of Bengal, north Andaman Sea, Gulf of Martaban & Tenasserim coast. Scattered low and medium clouds with embedded moderate to intense convection lay over south Bay of Bengal and South Andaman Sea.

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

Scattered low and medium clouds with embedded isolated moderate to intense convection lay over south & eastcentral Arabian sea off Goa & Karnataka coasts.

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

The Madden Julian Oscillation (MJO) Index is currently in Phase 7 with amplitude more than 1. It will continue in same phase for next 4 days with gradually decreasing amplitude. Thereafter, it would move across phases 2, 3 & 4 with gradually increasing amplitude but remaining less than 1.

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

NIL

**Model guidance based on 0000 UTC for the next 7 days**

<b>MODEL GUIDANCE</b>	<b>Bay of Bengal (BoB)</b>	<b>Arabian Sea (AS)</b>
<b>IMD-GFS</b>	The cyclonic circulation (cycir) over central parts of BoB on 27 <sup>th</sup> , to move slightly northwards, persist over central parts of BoB during next 2-3 days & less marked thereafter. A Cycir over Gulf of Thailand on 3 <sup>rd</sup> December, to emerge into south Andaman Sea as a well marked low pressure area (WML)/depression on 4 <sup>th</sup> to move west-northwestwards with significant intensification becoming cyclonic storm on 5 <sup>th</sup> . Moving west-northwestwards, lie as a severe cyclonic storm over southwest BoB on 7 <sup>th</sup> Dec. near 10N/83E.	The cycir over Southeast AS on 27 <sup>th</sup> to move west-southwestwards and during next 4-5 days.
<b>IMD-GEFS</b>	The cyclonic circulation (cycir) over central parts of BoB on 27 <sup>th</sup> , to move slightly northwards, persist over central parts of BoB during next 2-3 days & less marked thereafter. A Cycir over Gulf of Thailand on 2 <sup>nd</sup> December, to emerge into south Andaman	The cycir over Southeast AS on 27 <sup>th</sup> to move west-southwestwards and during next 4-5 days.

	Sea on 3 <sup>rd</sup> to move west-northwestwards and lie over southeast BoB as an LPA on 4 <sup>th</sup> .	
<b>GEFS Probabilistic guidance</b>	Not available	Not available
<b>IMD WRF</b>	A cycir over eastcentral BoB on 27 <sup>th</sup> , to persist over same region during next 2 days and then move west-northwestwards and lie over westcentral & adjoining southwest BoB on 30 <sup>th</sup> with no significant intensification.	Cycir over Southeast AS on 27 <sup>th</sup> , to move west-southwestwards and during next 2-3 days with no significant intensification.
<b>NCMRWF-NCUM</b>	Cycir over eastcentral BoB on 27 <sup>th</sup> , to move north-northwestwards till 28 <sup>th</sup> over the same region and become less marked thereafter.  A fresh cycir/low pressure area to emerge into South Andaman Sea on 5 <sup>th</sup> Dec., move nearly westwards and intensify into a depression over South Andaman Sea on 6 <sup>th</sup> Dec., deep depression eastcentral BoB on 7 <sup>th</sup> Dec.	Cycir over southeast Arabian Sea on 27 <sup>th</sup> to move nearly west-southwestwards during next 2-3 days and less marked thereafter.
<b>NCMRWF-NEPS</b>	Cycir over eastcentral BoB on 27 <sup>th</sup> , to move north-northwestwards till 28 <sup>th</sup> over the same region and become less marked thereafter.  A fresh cycir/low pressure area to emerge into South Andaman Sea on 5 <sup>th</sup> Dec., move nearly westwards and intensify into a depression over South Andaman Sea on 6 <sup>th</sup> Dec.	Cycir over southeast Arabian Sea on 27 <sup>th</sup> to move nearly west-southwestwards during next 2-3 days and less marked thereafter.
<b>NCMRWF-UM (Regional)</b>	Cycir over eastcentral BoB on 27 <sup>th</sup> , to move north-northwestwards till 28 <sup>th</sup> over the same region and become less marked thereafter.	Cycir over southeast Arabian Sea on 27 <sup>th</sup> to move nearly west-southwestwards during next 2-3 days and less marked thereafter.
<b>ECMWF</b>	Cycir over eastcentral BoB on 27 <sup>th</sup> , to move initially westwards and then northwards without any intensification, till 28 <sup>th</sup> and become less marked thereafter.  Fresh low pressure area/depression (remnant from South China Sea) is likely to emerge into South Andaman Sea on 5 <sup>th</sup> Dec., to move gradually westwards with significant intensification	Cycir over southeast AS on 27 <sup>th</sup> . To move nearly westwards till 28 <sup>th</sup> Nov. No significant intensification of system.
<b>ECMWF ensemble</b>	Likely cyclogenesis (30-40% probability) over South BoB during next 3-4 days with intensification upto depression only. Another cyclogenesis expected over South BoB during 4 <sup>th</sup> -8 <sup>th</sup> Dec. with intensification upto Cyclonic Storm (50-60% probability). 20-30% Enesmlle members indicate likely northwestwards movement towards Andhra Pradesh coast.	No significant system

<b>NCEP-GFS</b>	Cycir over eastcentral BoB on 27 <sup>th</sup> , to move west-northwestwards till 27 <sup>th</sup> & less marked thereafter. A depression to emerge into Andaman Sea around 6 <sup>th</sup> December from South China Sea. To move west-northwestwards towards westcentral BoB with significant intensification.	Cycir over southeast AS on 26 <sup>th</sup> , to move west-southwestwards and become less marked on 27 <sup>th</sup> Nov.
<b>IMD MME</b>		No significant system
<b>IMD HWRF</b>	Available during cyclonic disturbance period only	No significant system
<b>IMD-Genesis Potential Parameter</b>	No potential zone over Bay of Bengal till 3 <sup>rd</sup> December	No potential zone over Arabian Sea during next 7 days

### Summary and conclusion:

- Most of the models are indicating that the cyclonic circulation over southeast Arabian Sea would move west-southwestwards with no significant intensification during subsequent 2-3 days.
- Most of the models are indicating that the existing cyclonic circulation over eastcentral Bay of Bengal would persist over central parts of Bay of Bengal during next 2-3 days with no significant intensification.
- Most of the models (except GEFS) are also indicating likely emergence of another low pressure area/depression (remnant from South China Sea) into Andaman Sea around 5<sup>th</sup> December with nearly west-northwestwards movement and significant intensification.

In view of all the above, it is inferred that

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

The cyclonic circulation over Eastcentral Bay of Bengal and adjoining North Andaman Sea is likely to persist over central parts of Bay of Bengal during next 2-3 days with no significant intensification.

Another low pressure area/depression (remnant from South China Sea) is likely to emerge into Andaman Sea around 5<sup>th</sup> December. The movement and intensification of this system need to be monitored critically during 5<sup>th</sup>-10<sup>th</sup> December.

Thus, Nil probability is assigned to formation of depression over Bay of Bengal during next 7 days.

#### 2. For the Arabian Sea:

The cyclonic circulation over southeast Arabian Sea is likely to move gradually west-southwestwards with no significant intensification during next 2-3 days.

### 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:**

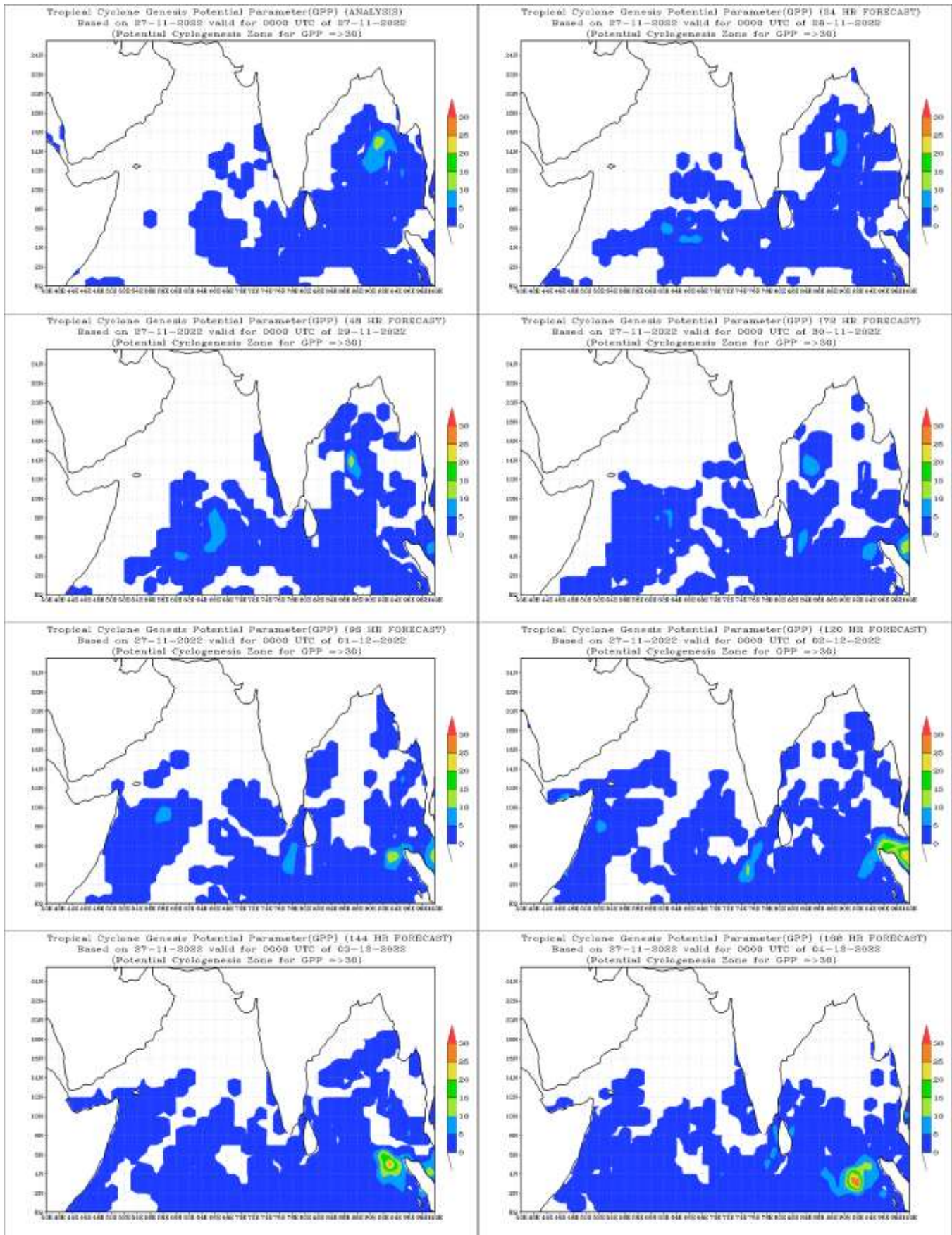
24 HOURS	24-48 HOURS	48-72 HOURS	72-96 HOURS	96-120 HOURS	120-144 HOURS	144-168 HOURS
NIL	NIL	NIL	NIL	NIL	NIL	NIL

**Advisory:**

The movement and intensification of low pressure area/depression (remnant from South China Sea) likely to emerge into Andaman Sea around 5<sup>th</sup> December need to be monitored very critically.

**IOP:** NIL



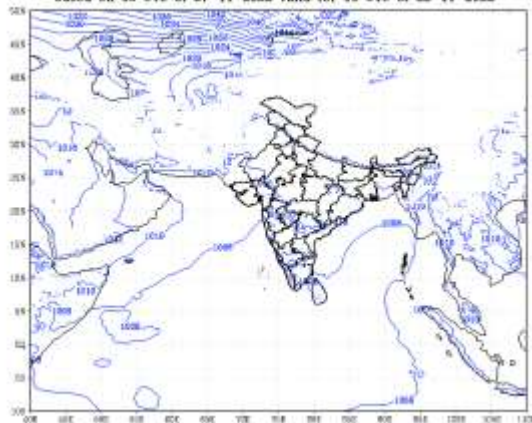






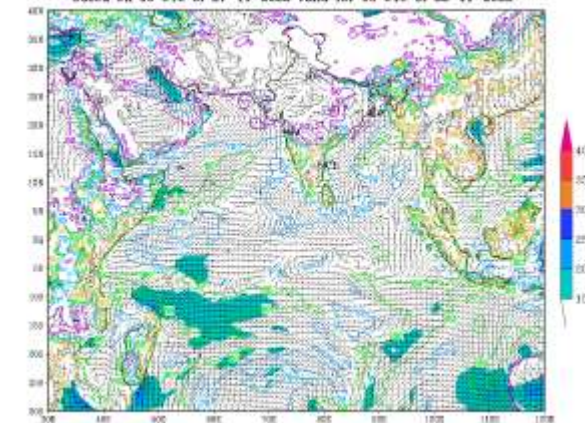


IMD :GFS MODEL(12 Km) MSL Pressure (hPa) FORECAST (24 HR)  
 based on 00 UTC of 27-11-2022 valid for 00 UTC of 28-11-2022



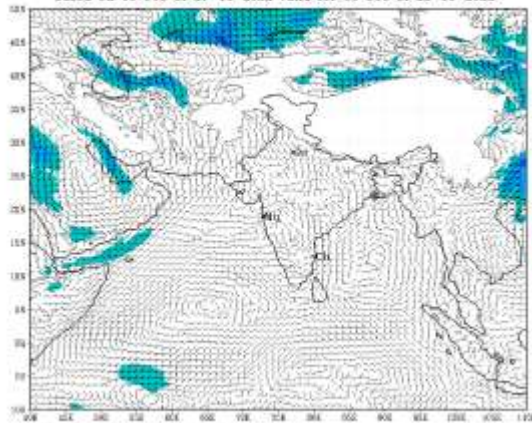
(Background line and depth political boundary)

IMD :GFS (T1634) 10m WIND (kt) AND 2m RH (%) FORECAST (24 HR)  
 based on 00 UTC of 27-11-2022 valid for 00 UTC of 28-11-2022



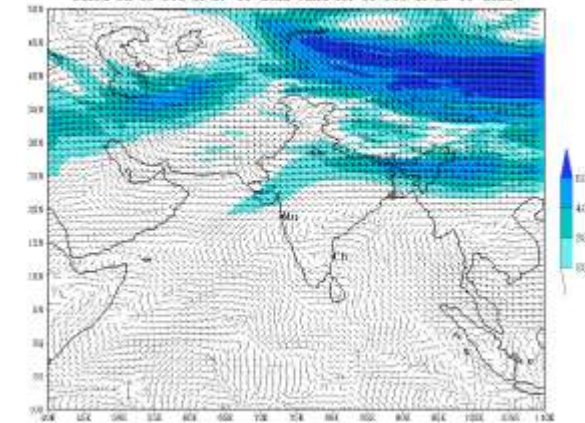
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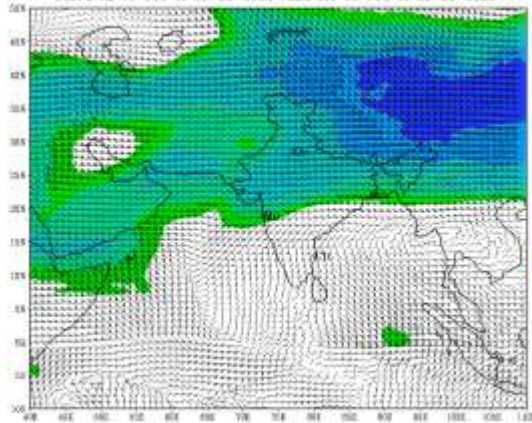
(Background line and depth political boundary)

IMD :GFS MODEL(12 Km) 500 hPa WIND (kt) FORECAST (24 HR)  
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(Background line and depth political boundary)

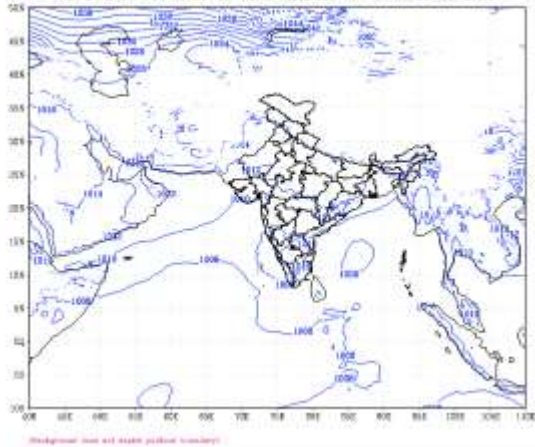
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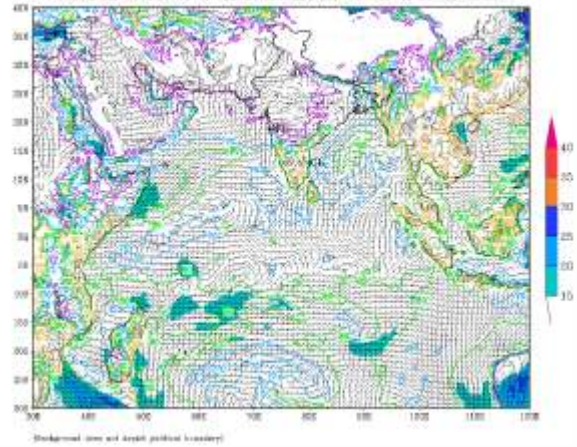
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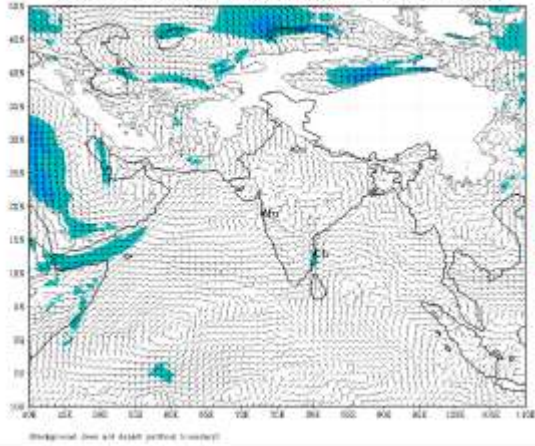
IMD :GFS MODEL(12 Km) MSL Pressure (hPa) FORECAST (48 HR)  
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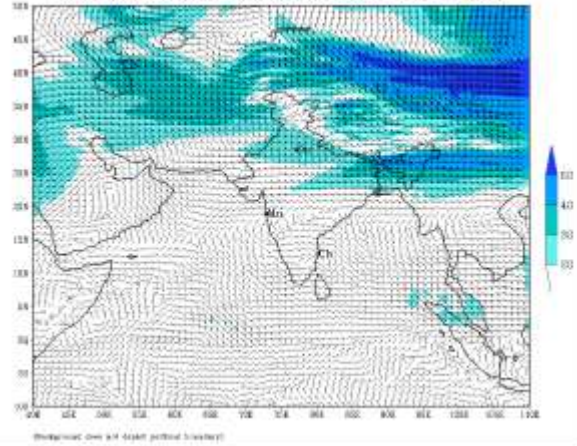
IMD GFS (T1534) 10m WIND (kt) AND 2m RH (%) FORECAST (48 HR)  
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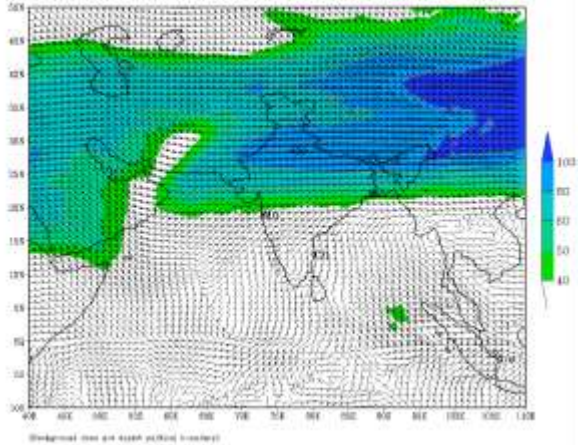
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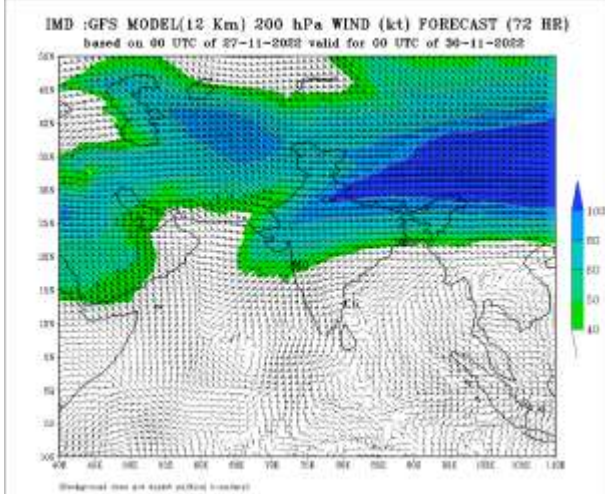
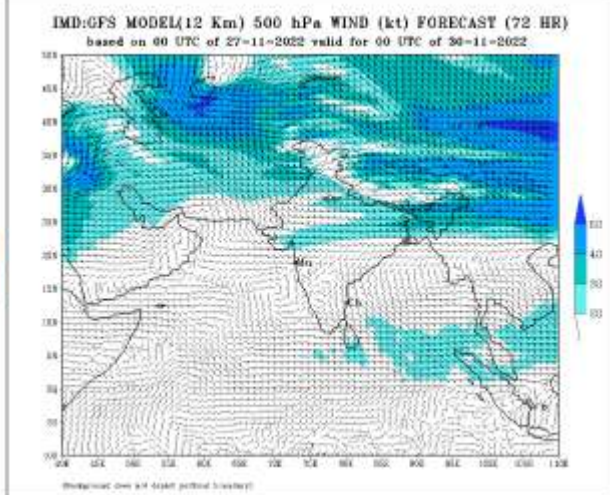
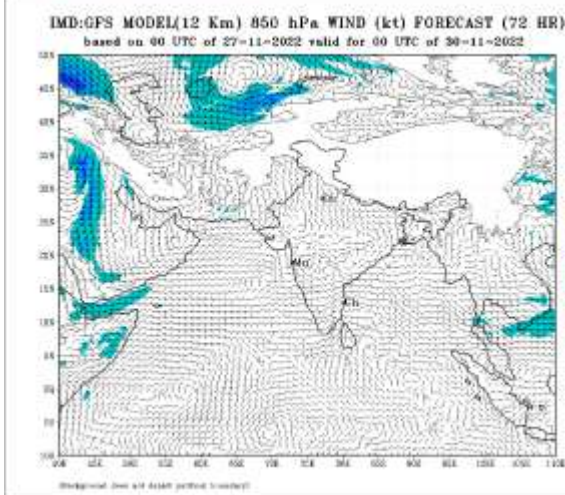
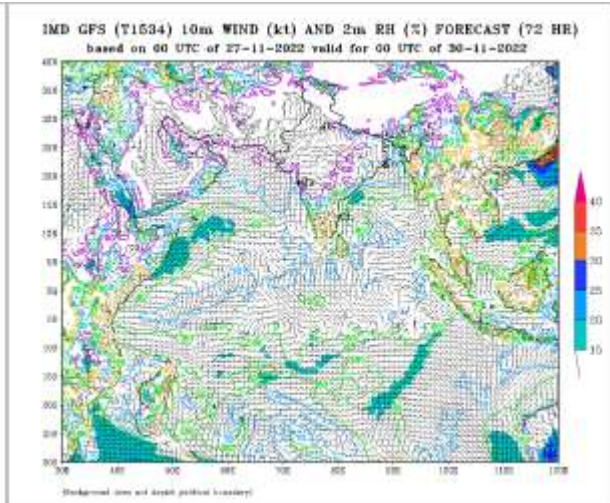
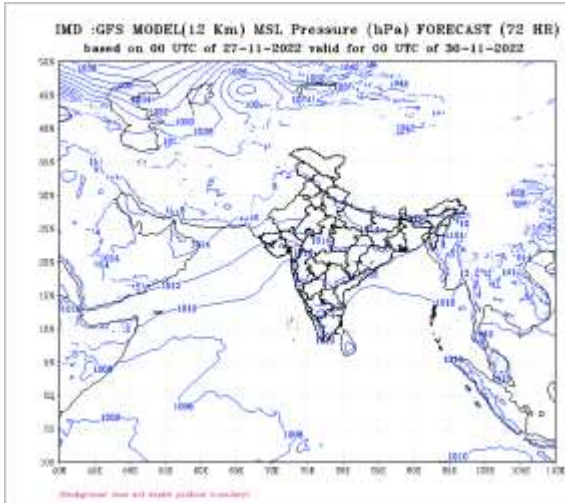
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based on 00 UTC of 27-11-2022 valid for 00 UTC of 29-11-2022



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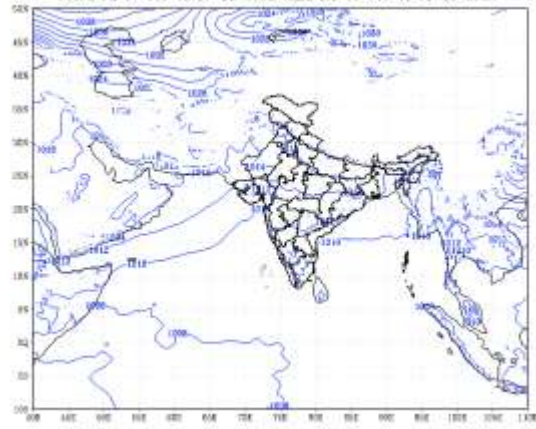




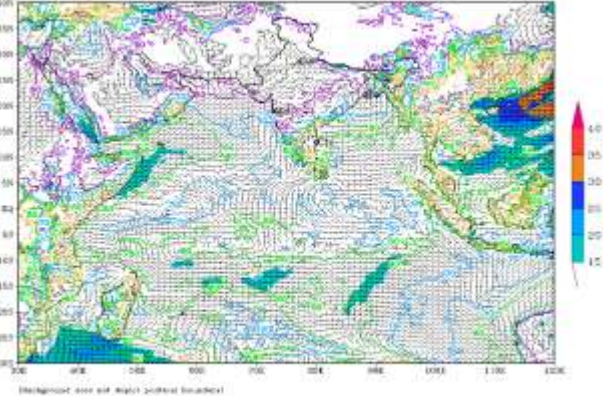




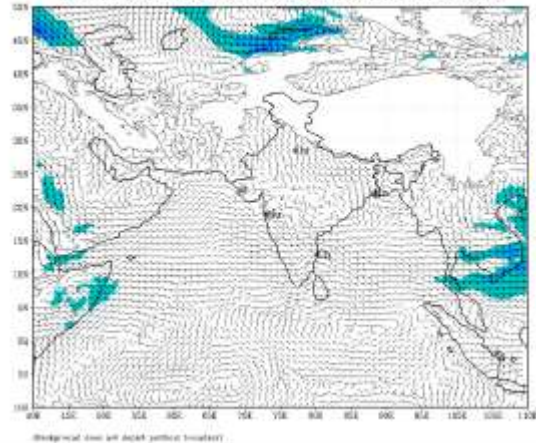
IMD :GFS MODEL(12 Km) MSL Pressure (hPa) FORECAST (96 HR)  
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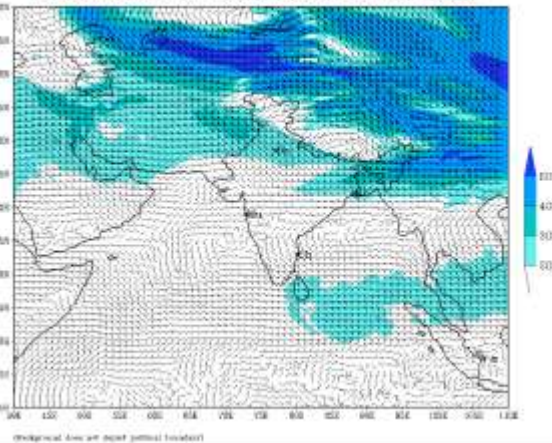
IMD GFS (T1534) 10m WIND (kt) AND 2m RH (%) FORECAST (96 HR)  
based on 00 UTC of 27-11-2022 valid for 00 UTC of 01-12-2022



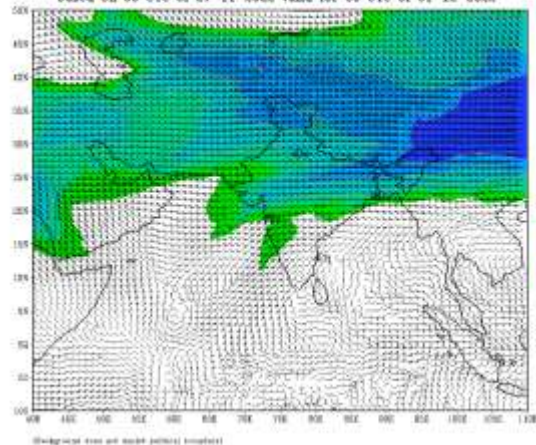
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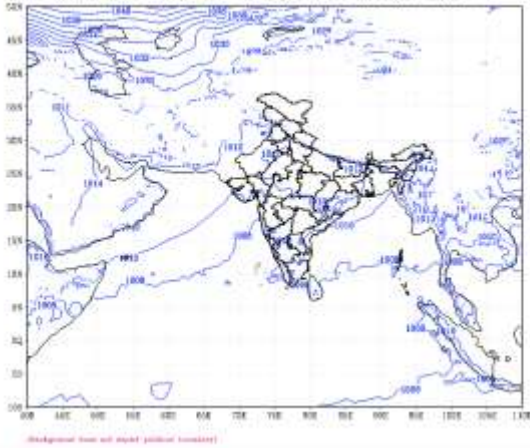


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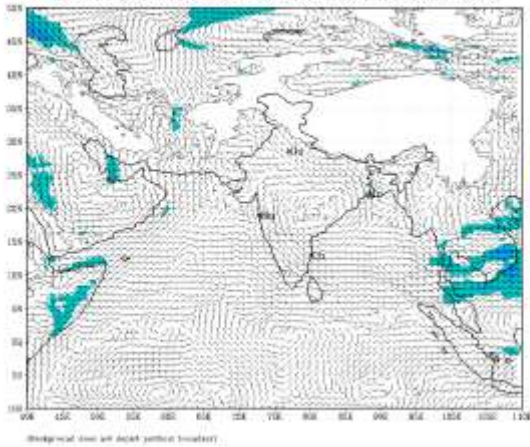
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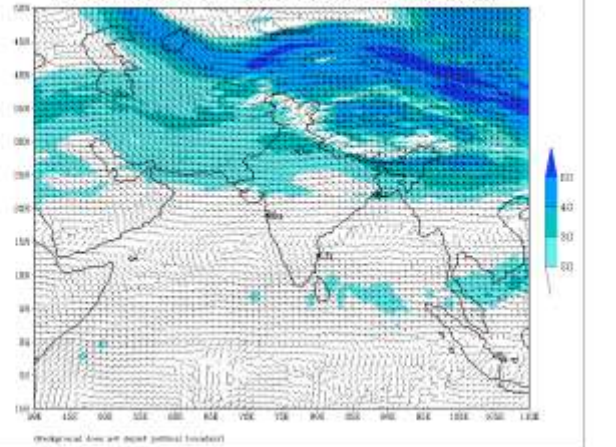
IMD GFS (T1534) 10m WIND (kt) AND 2m RH (%) FORECAST (120 HR)  
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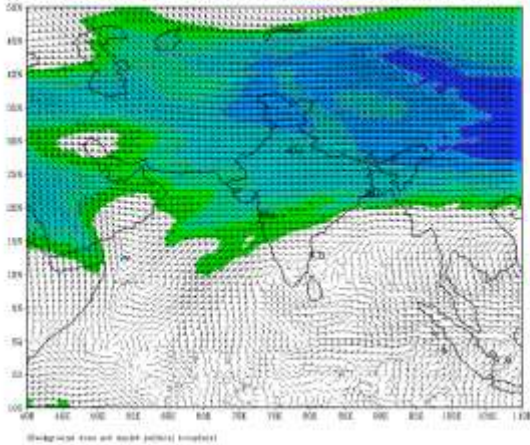
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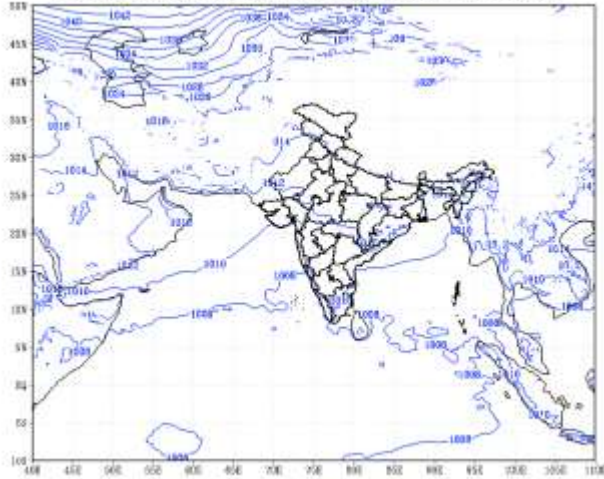
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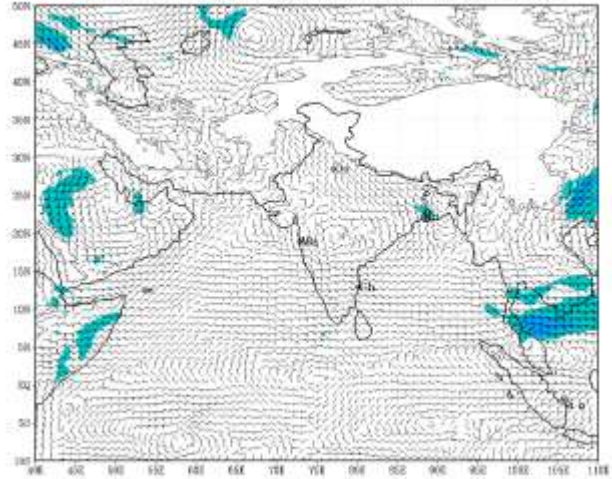


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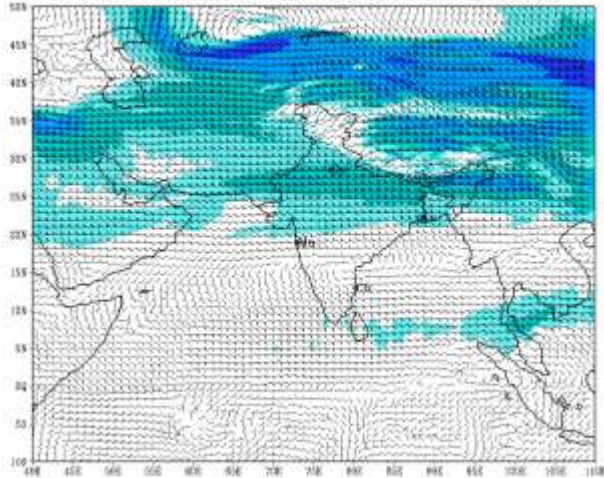
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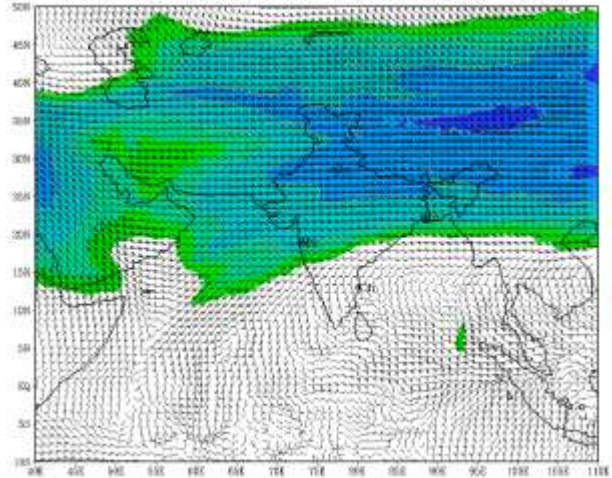
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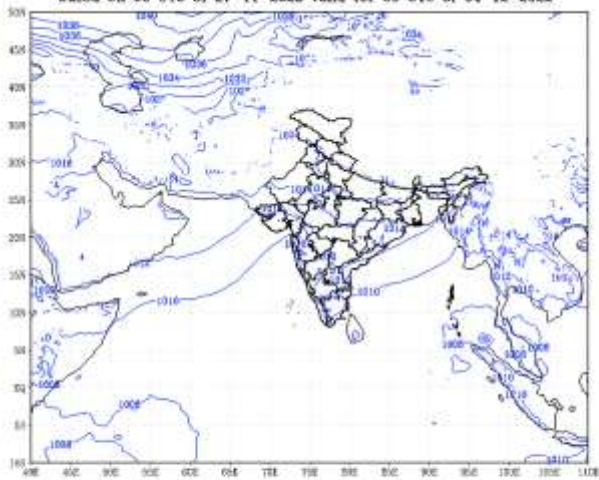
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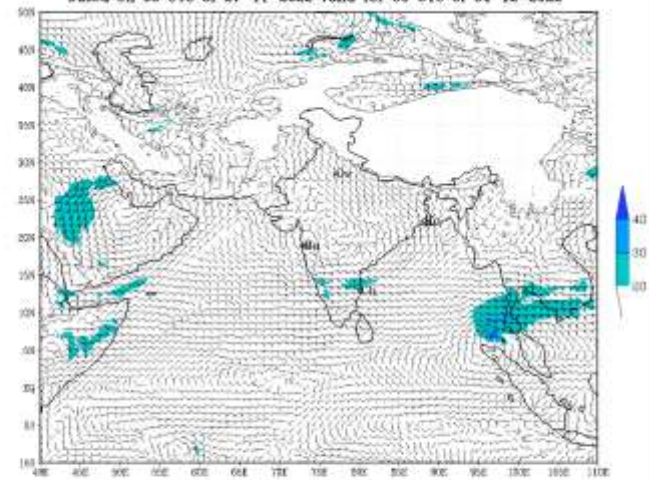


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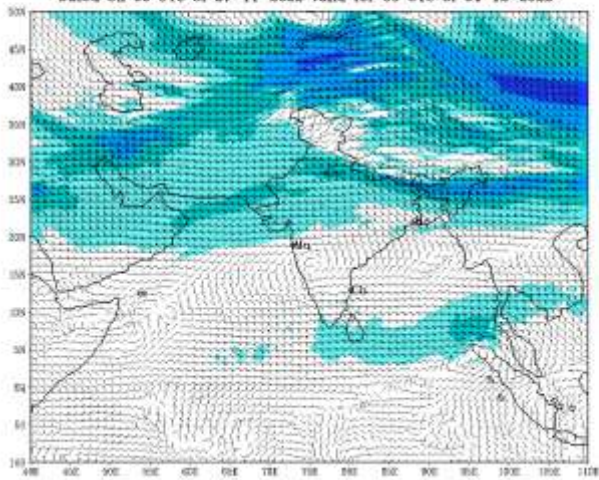
(Geographical line and coast political boundary)

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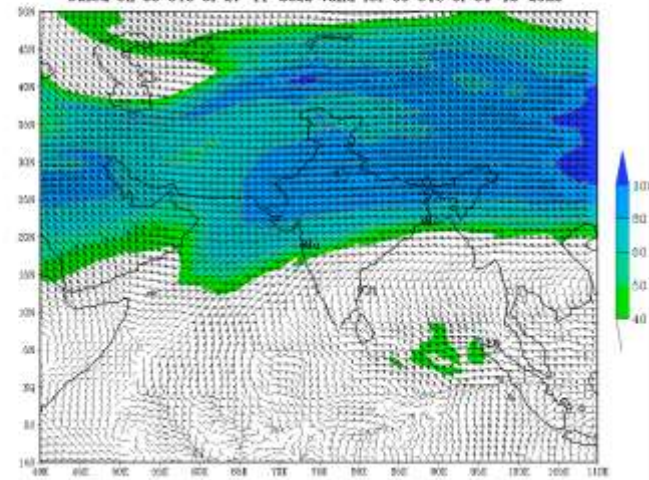
(Geographical line and coast political boundary)

IMD:GFS MODEL(12 Km) 500 hPa WIND (kt) FORECAST (168 HR)  
based on 00 UTC of 27-11-2022 valid for 00 UTC of 04-12-2022



(Geographical line and coast political boundary)

IMD :GFS MODEL(12 Km) 200 hPa WIND (kt) FORECAST (168 HR)  
based on 00 UTC of 27-11-2022 valid for 00 UTC of 04-12-2022



(Geographical line and coast political boundary)