



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

**Tropical Cyclone Forecast Programme  
Report Dated 02<sup>nd</sup> November, 2023**

**Time of Issue: 1130 UTC**

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

- The Trough of low in easterlies over southwest & adjoining westcentral Bay of Bengal with the embedded cyclonic circulation over Sri Lanka & neighbourhood extending upto 1.5 km above mean sea level persists.
- The upper air cyclonic circulation over southwest Arabian Sea now lies over Westcentral Arabian Sea between 1.5 km & 3.1 km above mean sea level.

**Dynamical and thermo-dynamical features**

<b>Parameter</b>	<b>Bay of Bengal (BoB)</b>	<b>Arabian Sea (AS)</b>
<b>Sea Surface Temperature (SST) °C</b>	29-31°C over major parts of BoB, Andaman Sea, Gulf of Mannar, 26-28°C over parts of southwest BoB.	29-31°C over southeast and adjoining eastcentral AS, north AS, along and off south Gujarat, Maharashtra coasts, 26-28°C over central, adjoining north AS, along and off Kerala and Karnataka coasts. Less than 24 along and off Yemen-Oman coasts and adjoining sea areas.
<b>Tropical Cyclone Heat Potential (TCHP) kJ/cm<sup>2</sup></b>	100-120 over eastcentral BoB adjoining southeast BoB. 80-100 over south Andaman Sea. 50-60 over most parts of BOB and north Andaman Sea adjoining south Andaman Sea. Less than 40 along Andhra Pradesh and Tamil Nadu coasts, adjoining sea areas, less than 20-30 over Gulf of Mannar and adjoining Comorin area, parts of southwest BoB.	60-90 over southeast, adjoining eastcentral and adjoining southwest AS, 50-60 over Gulf of Khambat, Less than 20 over eastcentral and adjoining southeast & north AS, along and off Kerala, Karnataka and south Maharashtra coasts, less than 10 over westcentral and southwest AS.
<b>Cyclonic Relative vorticity (X10<sup>-6</sup>s<sup>-1</sup>)</b>	10-20 over south and westcentral BoB, Gulf of Mannar.	10-20 over few parts of southwest AS, along and off Maharashtra coast, 20-40 over westcentral AS.
<b>Low Level convergence (X10<sup>-5</sup> s<sup>-1</sup>)</b>	5-10 over southwest BoB, 5 over few parts of central BoB.	5-10 over southeast AS and Comorin area, westcentral AS, -5 to -10 over eastcentral AS,
<b>Upper Level divergence (X10<sup>-5</sup> s<sup>-1</sup>)</b>	5-10 over south and adjoining central BoB, Gulf of Mannar.	5-10 over southeast AS, westcentral AS, -10 over eastcentral AS, 10-20

		over southwest AS close to Somalia coast.
<b>Vertical Wind Shear (VWS knots)</b>	10-15 over south BoB, Andaman Sea, 20 over southern part of central BoB, 25-30 over central BoB, 40-50 over north BoB.	5-10 over south AS, 20 over southern part of central AS, 25-40 over central AS, 50-70 over north AS.
<b>Wind Shear Tendency (knots)</b>	Increasing tendency over Southeast BoB. Decreasing over central and adjoining north BoB.	Decreasing tendency over southeast and adjoining southwest AS. Increasing over southwest, central & north AS.
<b>Upper tropospheric Ridge</b>	Along 11°N over BoB	Along 12°N over AS.

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

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

Scattered low and medium clouds with embedded intense to very intense convection lay over south Bay of Bengal and north Andaman Sea. Scattered low and medium clouds with embedded moderate to intense convection lay over north & central Bay of Bengal, south Andaman Sea.

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

Scattered low and medium clouds with embedded intense to very intense convection lay over south Arabian Sea. Scattered low and medium clouds with embedded moderate to intense convection lay over central Arabian Sea, Lakshadweep islands area and comorin area.

**(c) Convection outside India:-**

Scattered Low And Medium Clouds With Embedded Moderate To Intense Convection Over Sri Lanka Palk Str Gulf Of Mannar Maldives Tibet China East China Sea Myanmar Thailand Gulf Of Thailand Cambodia Laos Vietnam Sumatra Str Of Malacca Malaysia Borneo South China Sea Celebes Islands & Sea Philippines Sulu Sea Madagascar Mozambique Channel And Over Indian Ocean Latitude 5.0N To 10.0S Longitude 40.0E To 100.0E And Between Latitude 10.0S To 35.0S Longitude 44.E To 68.0E.

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

MJO index is currently in Phase 1 with amplitude less than 1. It will be in phase 2 for next two days with amplitude less than 1. Later, it will move to Phase 1 and remains there during (day-3 - day-5) i.e., 4<sup>th</sup> to 6<sup>th</sup> Nov, with amplitude less than 1. It will be in phase 8 on day 6<sup>th</sup> i.e., 7<sup>th</sup> Nov with amplitude less than 1, and in phase 7 on day 7 i.e., 8<sup>th</sup> Nov with amplitude less than 1.

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

**Input for FDP Cyclone 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>	No significant system.	No significant system.
<b>IMD-GEFS</b>	No significant system.	No significant system.
<b>IMD-WRF</b>	No significant system.	No significant system.
<b>NCMRWF-NCUM</b>	No significant system.	No significant system.
<b>NCMRWF-NEPS</b>	No significant system.	No significant system.
<b>NCMRWF-UM (Regional)</b>	No significant system.	No significant system.
<b>ECMWF</b>	No significant system.	Extended cyclonic circulation over southeast

		Arabian Sea on day 7 having its westward movement.
<b>NCEP-GFS</b>	No significant system.	No significant system.
<b>IMD-Genesis Potential Parameter</b>	No potential zone over BoB for next 7 days.	Potential zone of Cyclogenesis over southeast Arabian Sea on day 5 & 6 (i.e. 6 <sup>th</sup> & 7 <sup>th</sup> November).

**Summary and conclusion:**

**1. For Bay of Bengal:**

Most of the models are indicating that there will be no significant system over Bay of Bengal for the next seven days.

**Probability of Cyclogenesis (formation of depression and above intensity systems) over Bay 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

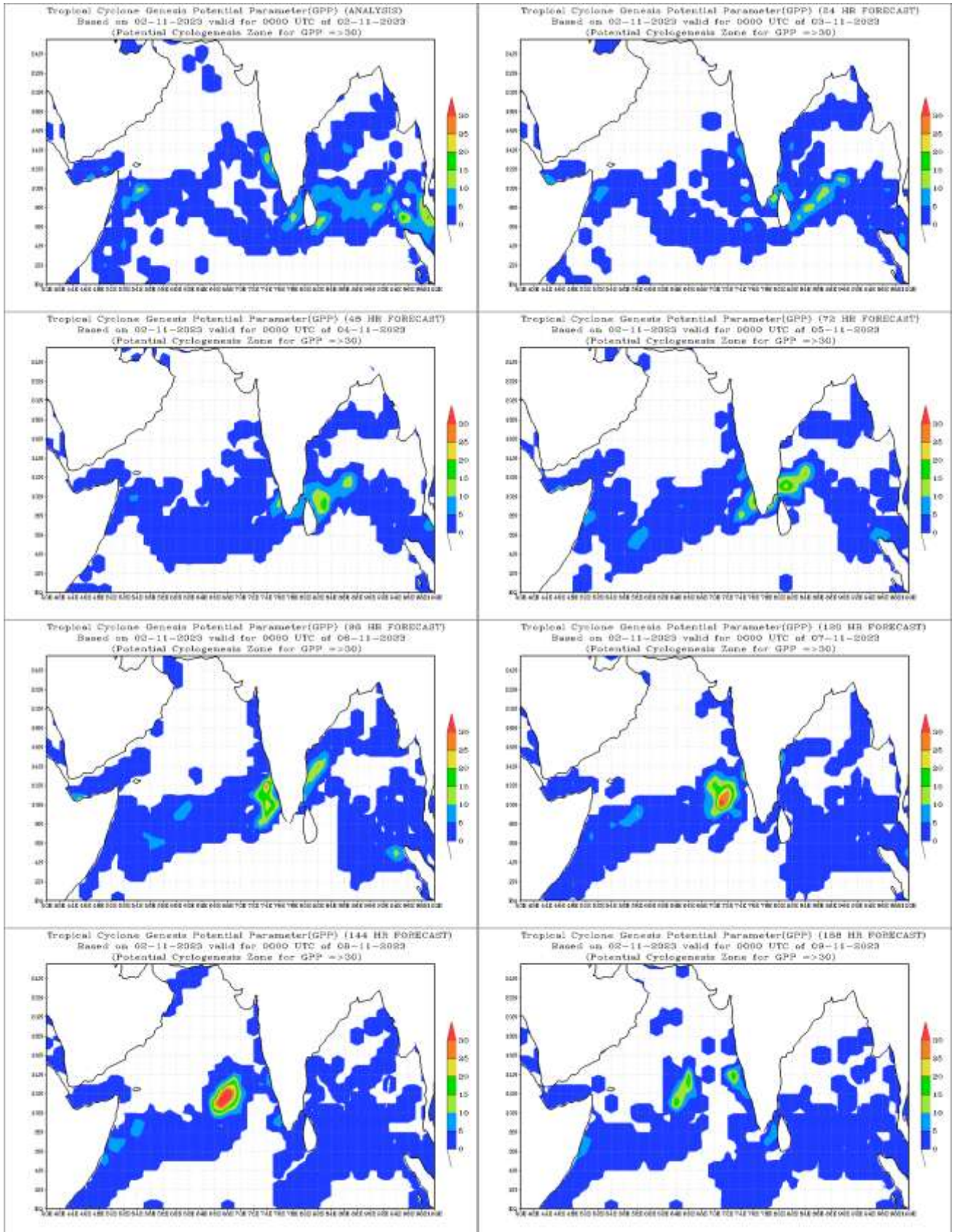
**2. For the Arabian Sea:**

Most of the models are indicating that there will be no significant system over Arabian Sea for the next seven days. However, ECMWF model is showing extended cyclonic circulation over southeast Arabian Sea on day 6, having its westward movement without any significant intensification.

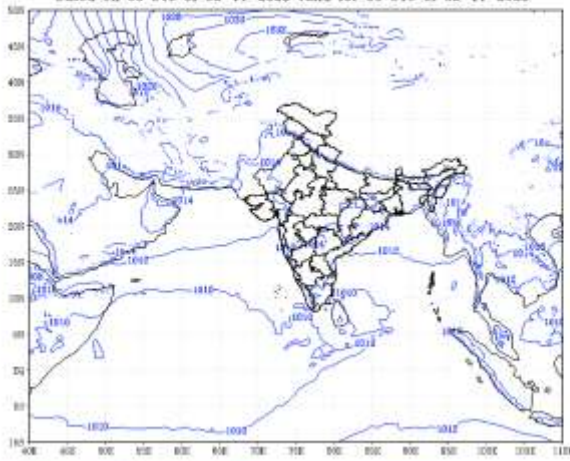
**Probability of Cyclogenesis (formation of depression and above intensity systems) over the Arabian Sea during next 168 hours:**

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

**IOP: Nil.**

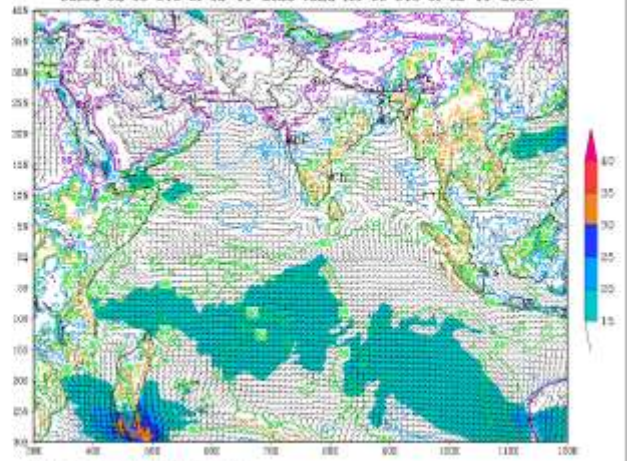


IMD :GFS MODEL(12 Km) MSL Pressure (hPa) FORECAST (00 HR)  
based on 00 UTC of 02-11-2023 valid for 00 UTC of 02-11-2023



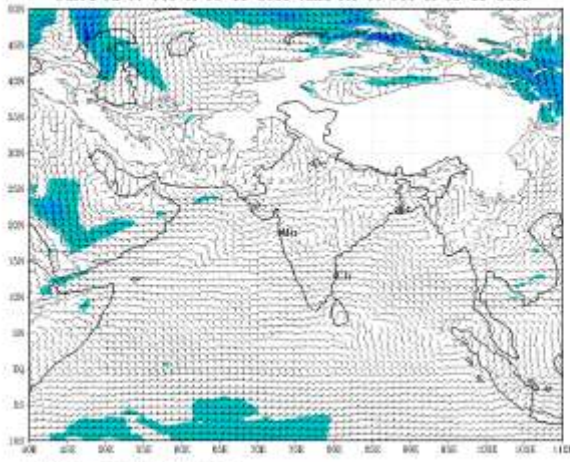
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IMD GFS (T1534) 10m WIND (kt) AND 2m RH (%) FORECAST (00 HR)  
based on 00 UTC of 02-11-2023 valid for 00 UTC of 02-11-2023



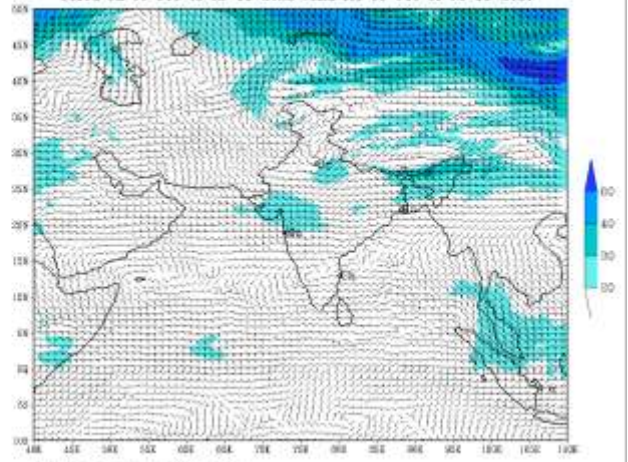
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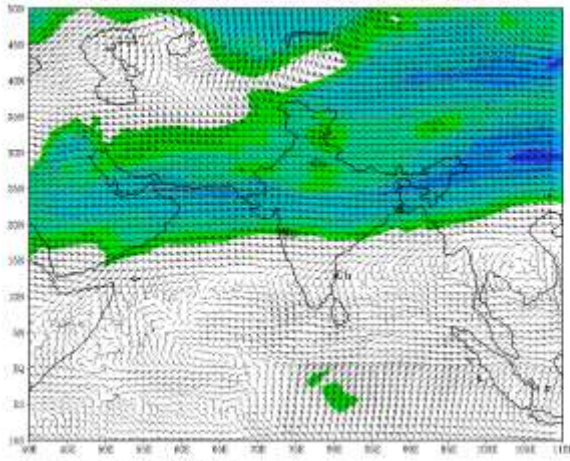
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IMD:GFS MODEL(12 Km) 500 hPa WIND (kt) FORECAST (00 HR)  
based on 00 UTC of 02-11-2023 valid for 00 UTC of 02-11-2023



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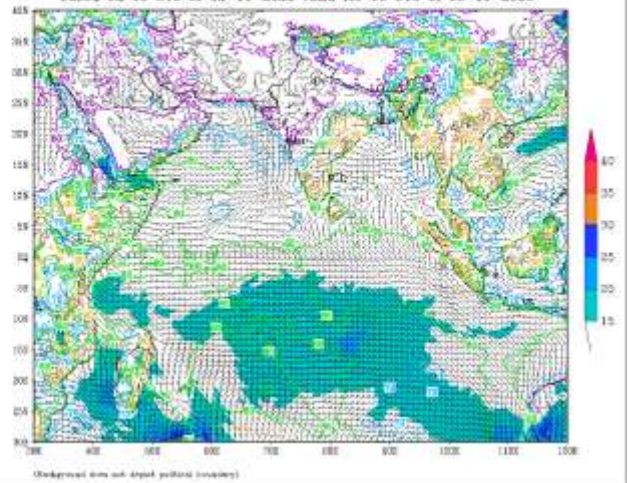


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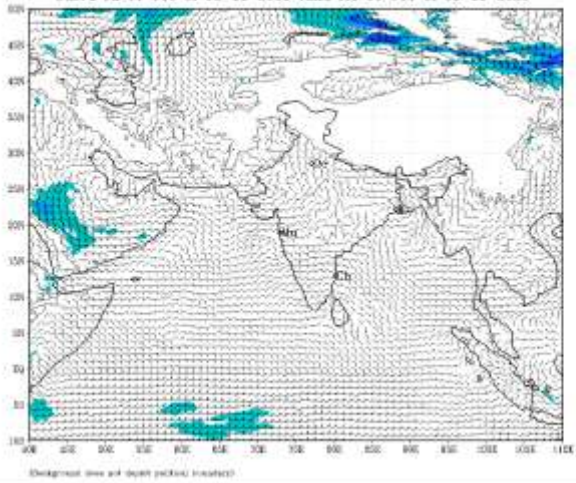
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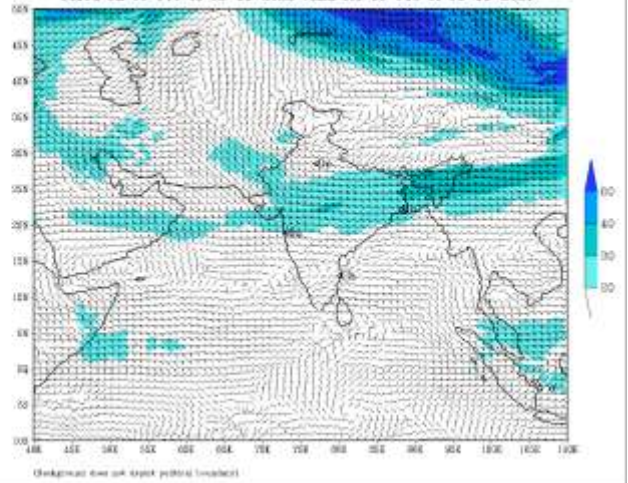
IMD GFS (T1534) 10m WIND (kt) AND 2m RH (%) FORECAST (24 HR)  
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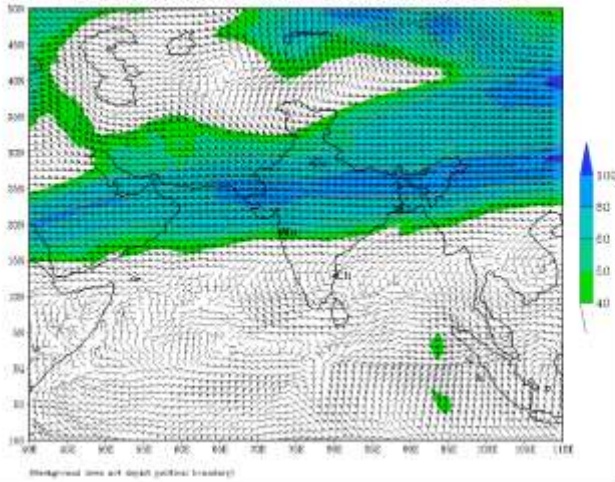
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based on 00 UTC of 02-11-2023 valid for 00 UTC of 03-11-2023



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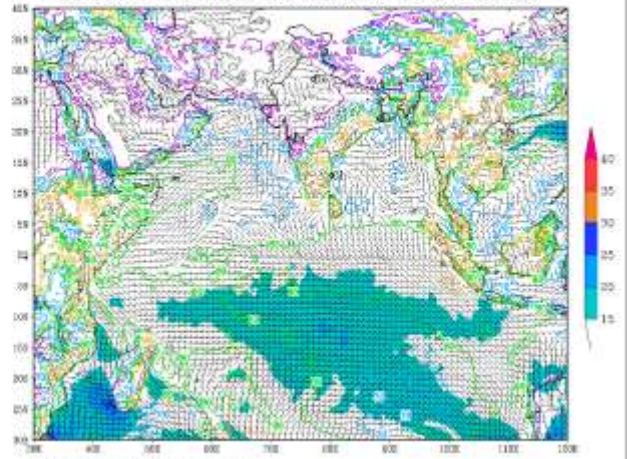


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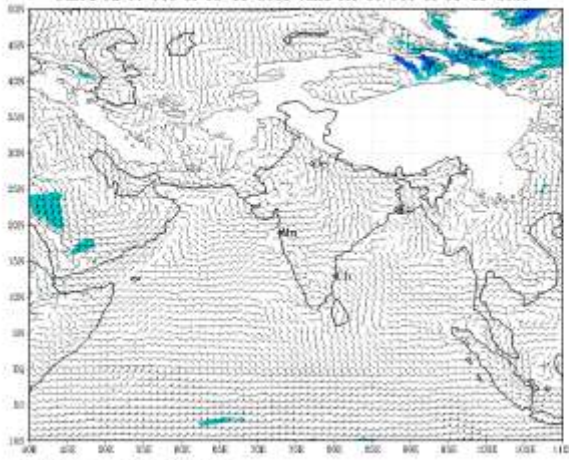
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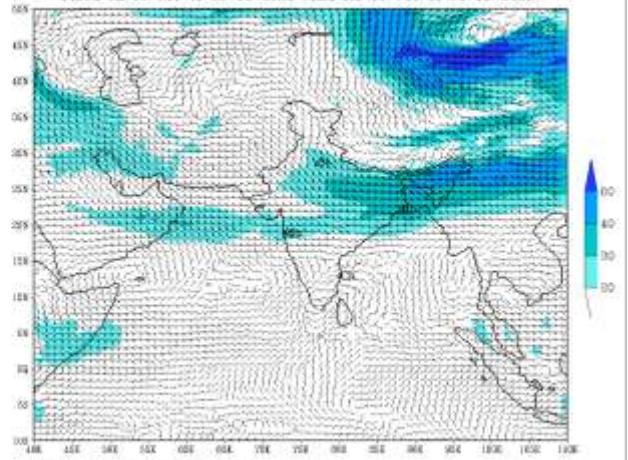
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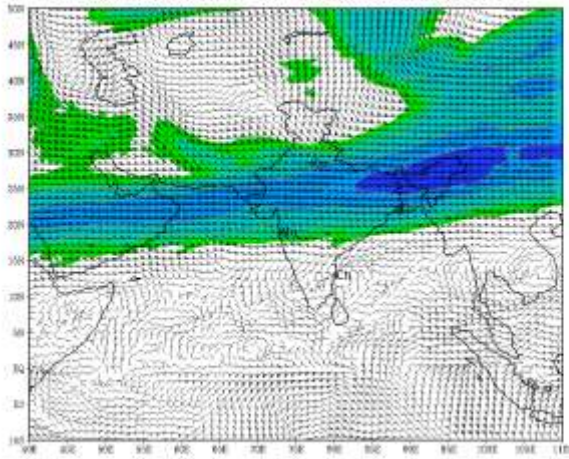
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based on 00 UTC of 02-11-2023 valid for 00 UTC of 04-11-2023



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IMD :GFS MODEL(12 Km) 200 hPa WIND (kt) FORECAST (48 HR)  
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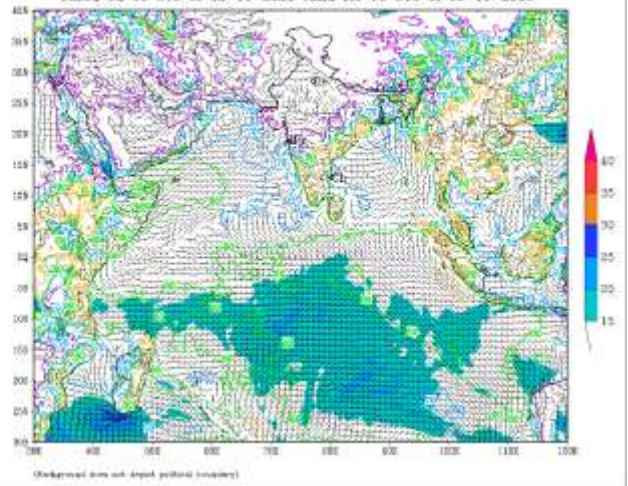


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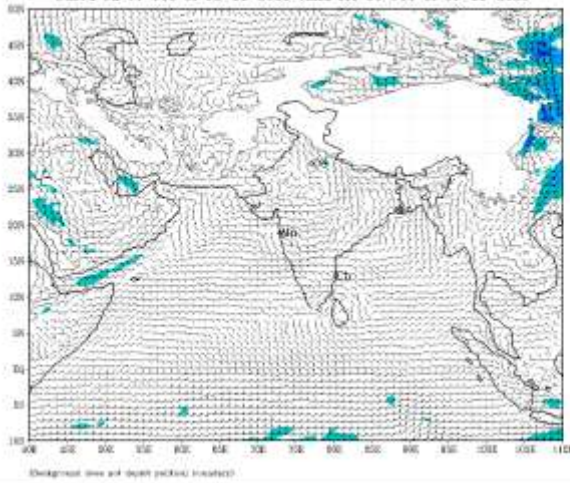
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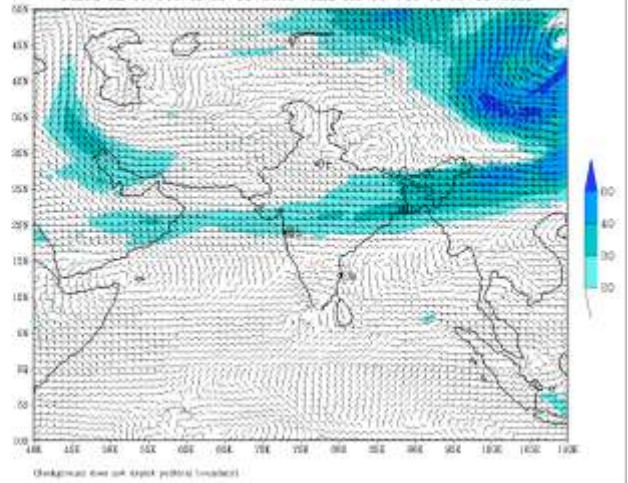
IMD GFS (T1534) 10m WIND (kt) AND 2m RH (%) FORECAST (72 HR)  
based on 00 UTC of 02-11-2023 valid for 00 UTC of 05-11-2023



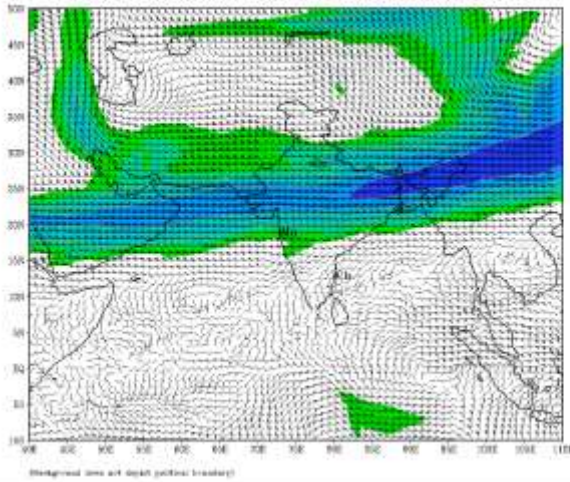
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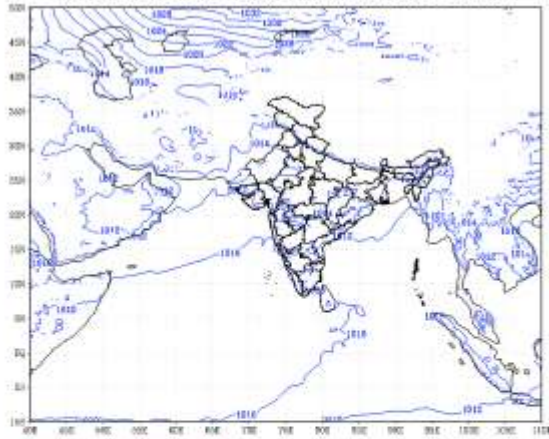


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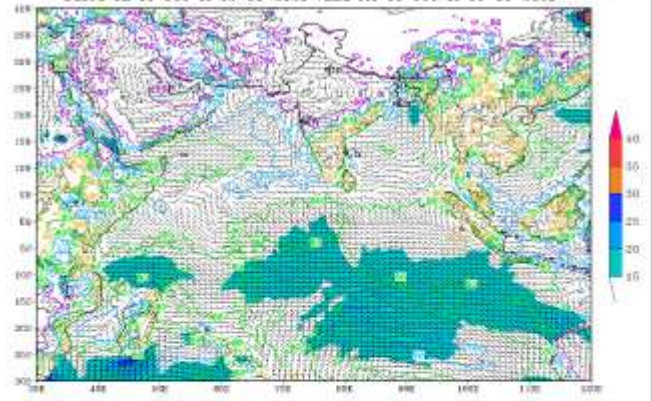


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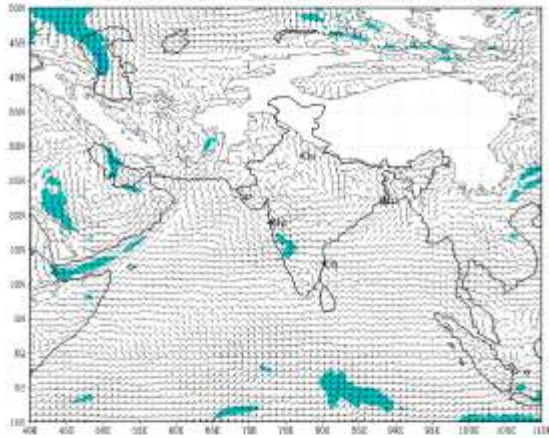
(Background over sea is not plotted routinely)

IMD GFS (T1534) 10m WIND (kt) AND 2m RH (%) FORECAST (96 HR)  
based on 00 UTC of 02-11-2023 valid for 00 UTC of 06-11-2023



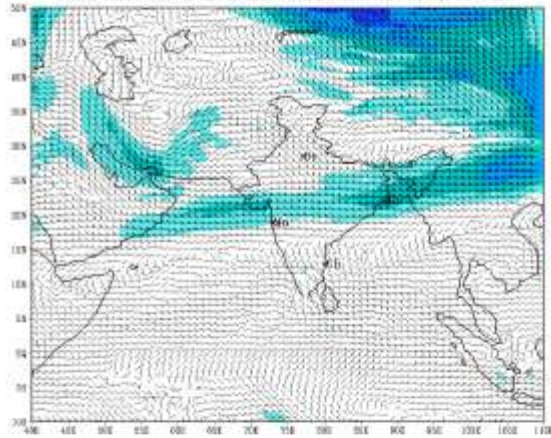
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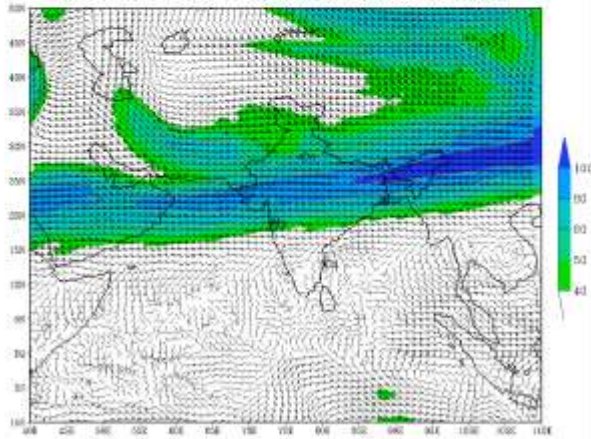
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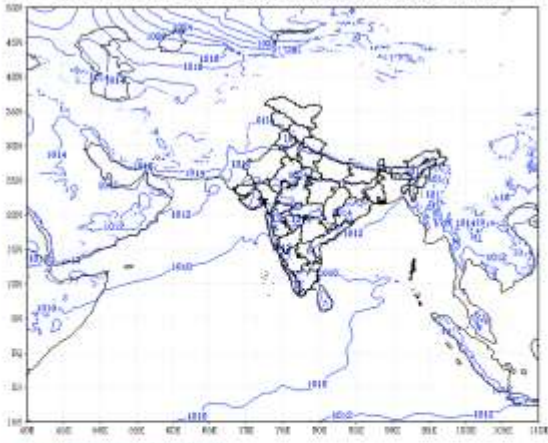
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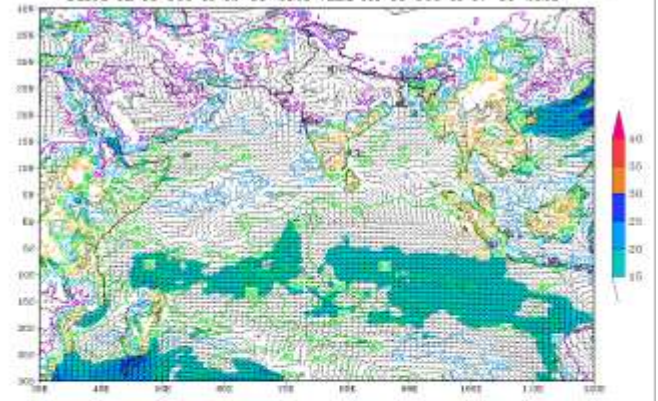
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based on 00 UTC of 02-11-2023 valid for 00 UTC of 07-11-2023



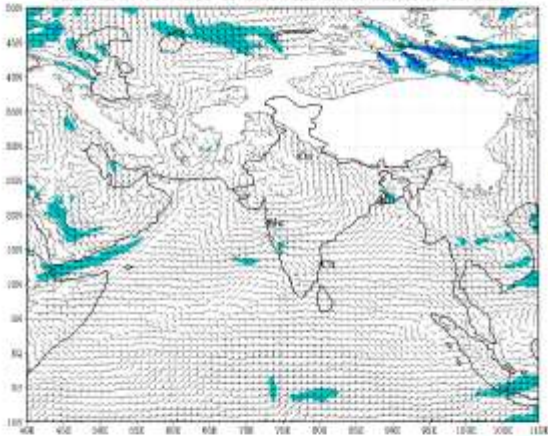
(Background over sea level political boundary)

IMD GFS (T1534) 10m WIND (kt) AND 2m RH (%) FORECAST (120 HR)  
based on 00 UTC of 02-11-2023 valid for 00 UTC of 07-11-2023



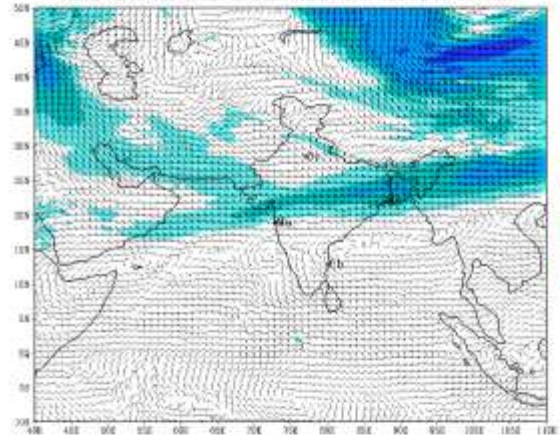
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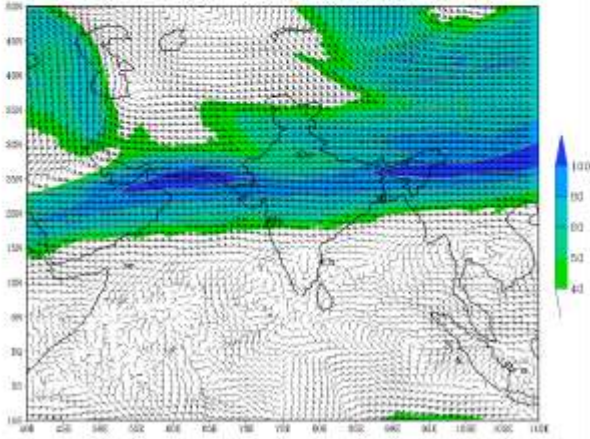
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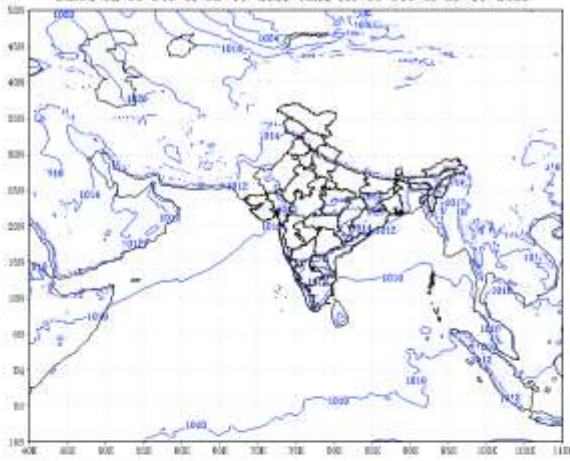
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based on 00 UTC of 02-11-2023 valid for 00 UTC of 07-11-2023



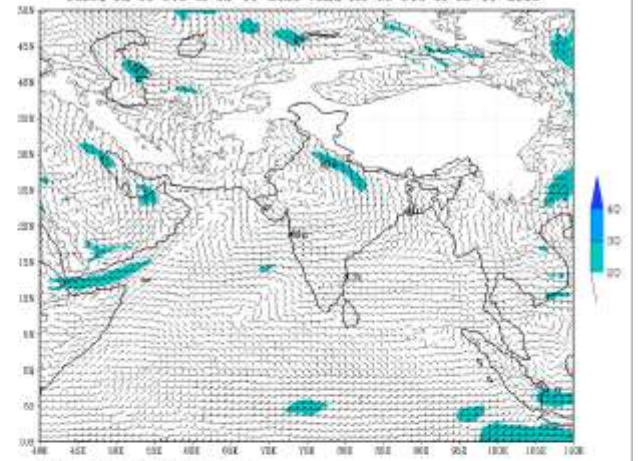
(Background over sea level political boundary)

IMD :GFS MODEL(12 Km) MSL Pressure (hPa) FORECAST (144 HR)  
based on 00 UTC of 02-11-2023 valid for 00 UTC of 08-11-2023



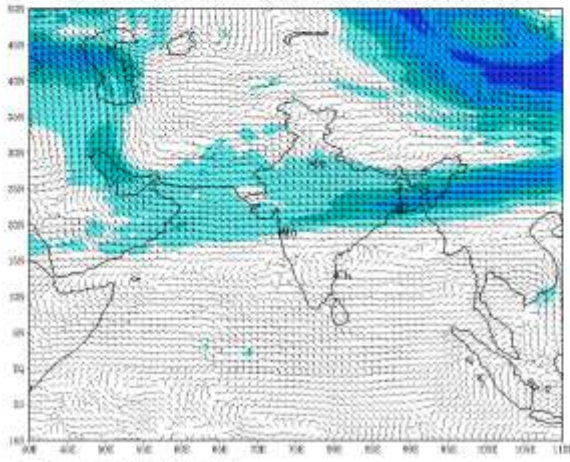
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based on 00 UTC of 02-11-2023 valid for 00 UTC of 08-11-2023



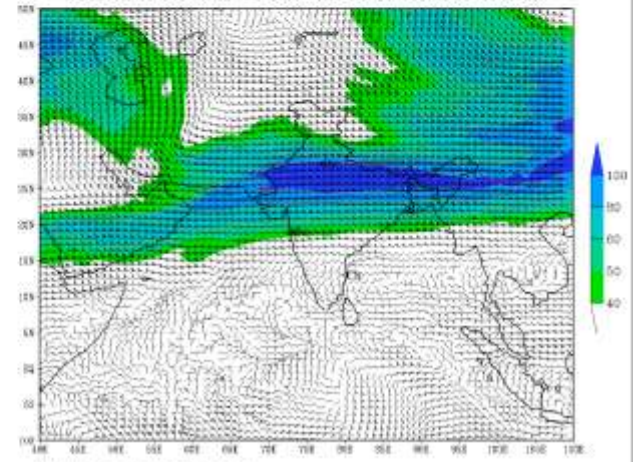
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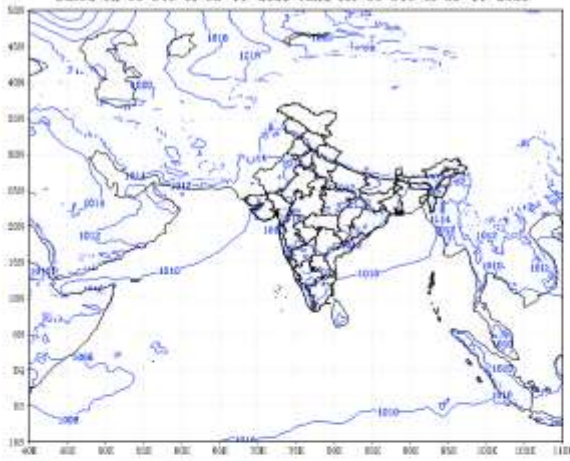
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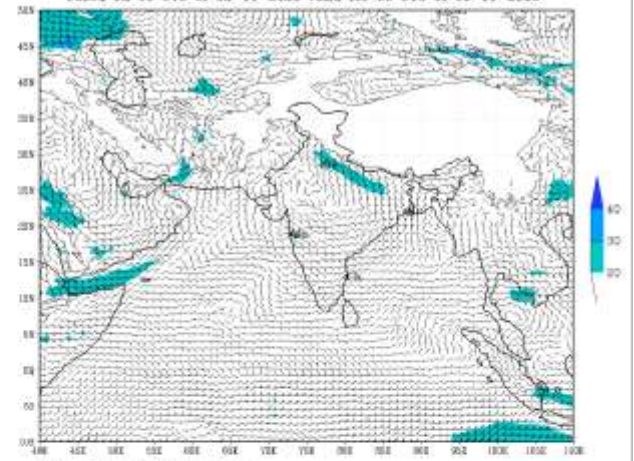
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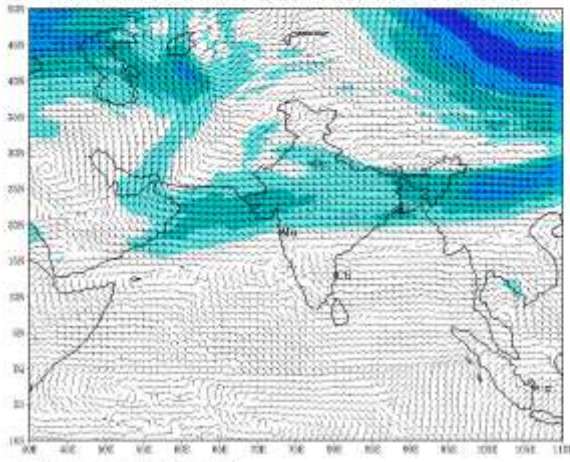
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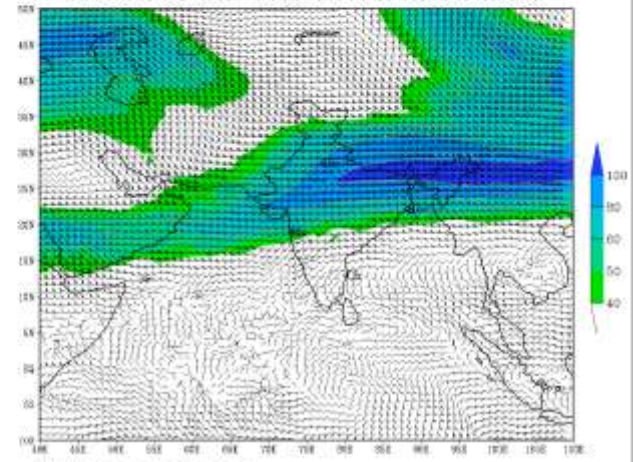
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IMD:GFS MODEL(12 Km) 500 hPa WIND (kt) FORECAST (168 HR)  
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(Background line with light colored boundary)

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(Background line with light colored boundary)