



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

**Tropical Cyclone Forecast Programme
Report Dated 31st October, 2023**

Time of Issue: 1200 UTC

Synoptic features (based on 0300 UTC analysis):

- The upper air cyclonic circulation over southwest Arabian Sea persists and now extends upto 3.1 km above mean sea level.
- An upper air cyclonic circulation lies over northeast Arabian Sea and adjoining north Konkan-Gujarat coasts between 3.1 km & 4.5 km above mean sea level.
- The upper air cyclonic circulation over Sri Lanka & adjoining Comorin area at 0.9 km above mean sea level has become less marked.

Dynamical and thermo-dynamical features

Parameter	Bay of Bengal (BoB)	Arabian Sea (AS)
Sea Surface Temperature (SST) °C	29-30°C over major parts of BoB, Andaman Sea, 26-28 over few parts of southwest BoB, Gulf of Mannar.	29-30°C over southeast and adjoining eastcentral AS, north AS, along and off south Gujarat, Maharashtra coasts, 26-28°C over central and southwest AS, along and off Kerala, Karnataka and Goa coasts, less than 24°C along and off Yemen-Oman coast, Somalia coast.
Tropical Cyclone Heat Potential (TCHP) kJ/cm ²	100-120 over eastcentral BoB adjoining southeast BoB. 50-60 over most parts of BOB and north Andaman Sea, 80-90 over 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.	60-80 over southeast and adjoining eastcentral and adjoining southwest AS, Less than 20 over eastcentral and adjoining northeast and northwest AS, along and off Kerala, Karnataka and north Gujarat coasts, less than 10 over westcentral and southwest AS.
Cyclonic Relative vorticity (X10 ⁻⁶ s ⁻¹)	10-20 over south and adjoining westcentral BoB.	20-30 over central parts of central AS, 10-20 over some parts of westcentral, northwest AS, 30-40 over off southwest AS Somalia coast.
Low Level convergence (X10 ⁻⁵ s ⁻¹)	5 over the southwest BoB off Sri Lanka coast, 10 over south	5-10 over southeast AS, Lakshadweep area, Comorin area,

	Andaman Sea.	5 over southwest AS off Somalia coast, -5 to -10 over central parts of central AS.
Upper Level divergence ($\times 10^{-5} \text{ s}^{-1}$)	5-10 over westcentral BoB, 5 over south Andaman Sea, 5 over northeast BoB.	10-20 over southeast AS, Lakshadweep area, Comorin area, 5-10 over southwest AS close to Somalia coast.
Vertical Wind Shear (VWS knots)	5-10 over south BoB, 20 over north parts of south BoB, 25-40 over central BoB, 50-60 over north BoB.	5-10 over south AS, 20 over north parts of south AS, 25-50 over central AS, 55-60 over north AS.
Wind Shear Tendency (knots)	Decreasing tendency over south BoB, Gulf of Mannar. Increasing over central, north BoB.	Decreasing tendency over south AS. Increasing tendency over the central and north AS.
Upper tropospheric Ridge	Along 15°N over BoB	Along 10°N over AS.

Satellite observations based on INSAT imagery (0300 UTC):

(a) Over the BoB & Andaman Sea:-

Scattered low and medium clouds with embedded moderate to intense convection lay over Bay of Bengal, Andaman Sea and Tenasserim coast.

(b) Over the Arabian Sea:-

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

(c) Convection outside India:

Scattered low and medium clouds with embedded moderate to intense convection lay over Maldives Tibet china Myanmar Thailand gulf of Thailand Cambodia Laos Vietnam gulf of Tonkin Sumatra str of Malacca Malaysia Borneo south china sea java sea Philippines sulu sea Madagascar Mozambique channel and over Indian ocean between latitude 5.0N to 10.0S longitude 40.0E to 100.0E and between latitude 10.0S to 35.0S longitude 70.0E to 90.0E .

M.J.O. Index:

MJO index is currently in Phase 1 with amplitude greater than 1, it will remain in same phase till November 1. Later, it will remain in phase 1 for next five days but 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

MODEL GUIDANCE	Bay of Bengal (BoB)	Arabian Sea (AS)
IMD-GFS	No significant system.	No significant system.
IMD-GEFS	No significant system.	No significant system.
IMD-WRF	No significant system.	No significant system.
NCMRWF-NCUM	Extended circulation over southwest BoB on day 7.	No significant system.
NCMRWF-NEPS	No significant system.	No significant system.
NCMRWF-UM (Regional)	No significant system.	No significant system.

ECMWF	No significant system.	No significant system.
NCEP-GFS	No significant system.	No significant system.
IMD-Genesis Potential Parameter	Potential zone over westcentral BoB during day 5 to day 7 (i.e., 5-7 Nov 2023).	No potential zone over Arabian Sea for next 7 days.

Summary and conclusion:

1. For BAY OF BENGAL of Bengal:

Most of the models are indicating that there will be no significant system over Bay of Bengal for the next seven days. However NCUM model is showing an extended circulation over southwest BoB on day 7 without indicating any further intensification.

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

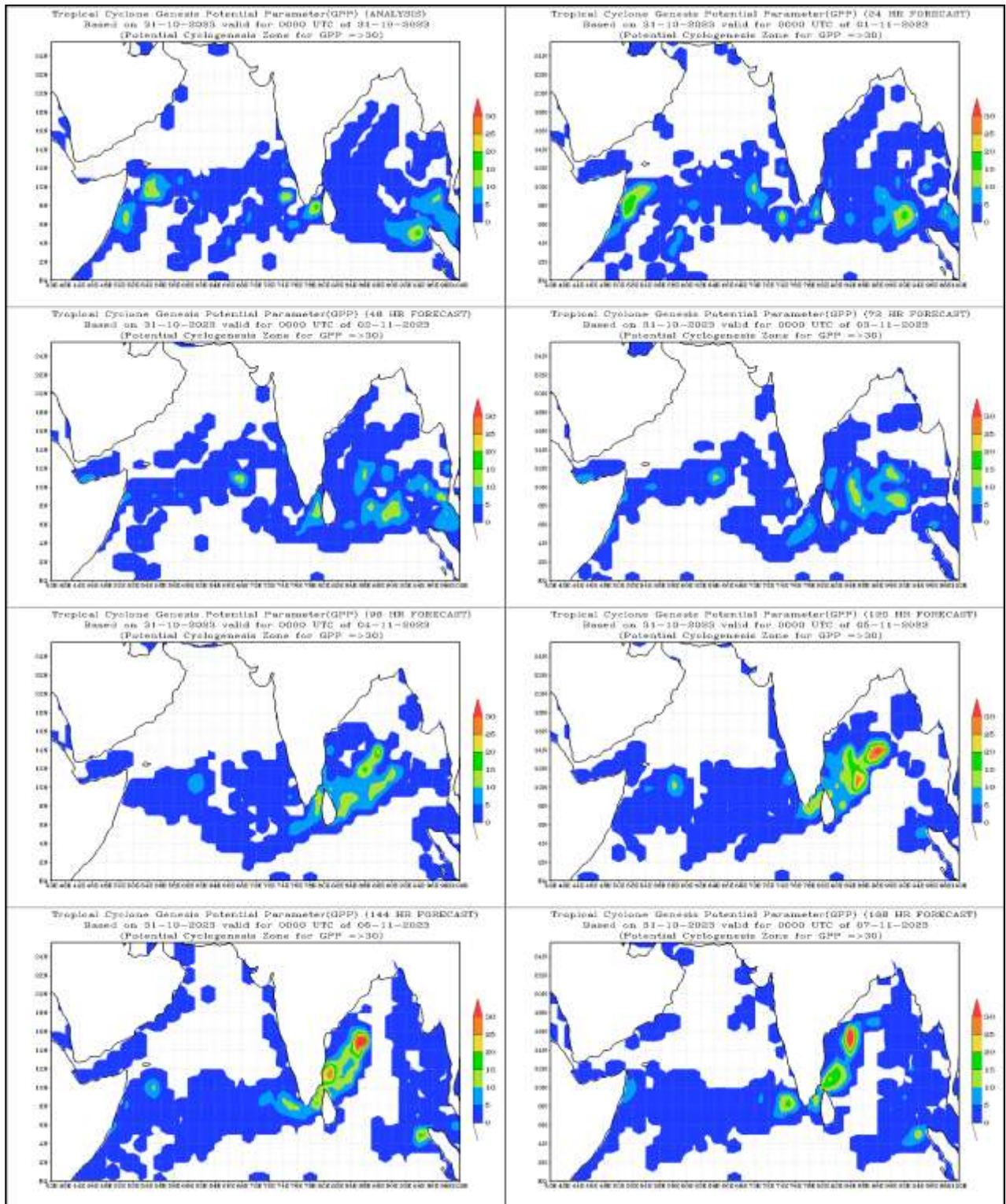
2. For the Arabian Sea:

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

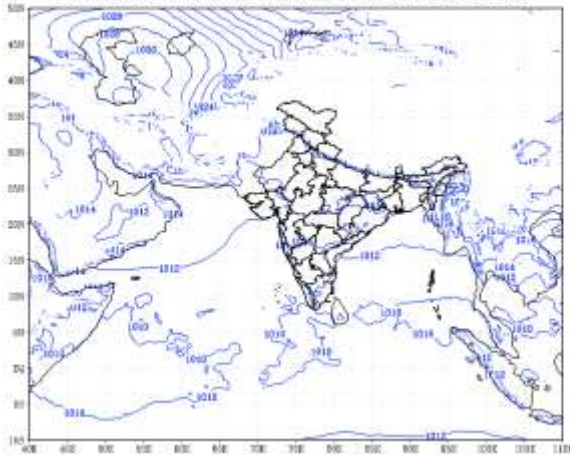
Probability of Cyclogenesis (formation of depression and above intensity systems) over the Arabian Sea during next 168 hours:

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

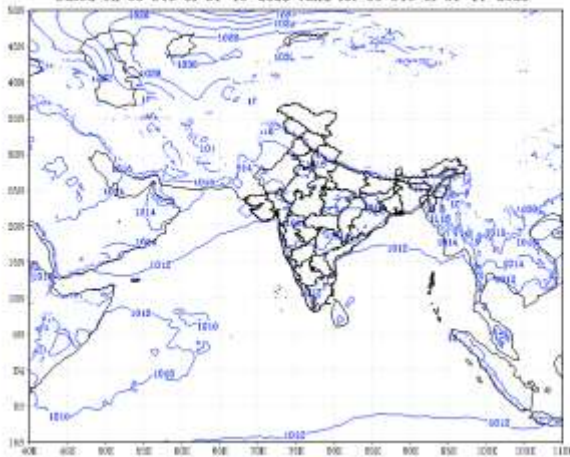
IOP: Nil.



IMD :GFS MODEL(12 Km) MSL Pressure (hPa) FORECAST (00 HR)
based on 00 UTC of 31-10-2023 valid for 00 UTC of 31-10-2023



IMD :GFS MODEL(12 Km) MSL Pressure (hPa) FORECAST (24 HR)
based on 00 UTC of 31-10-2023 valid for 00 UTC of 01-11-2023



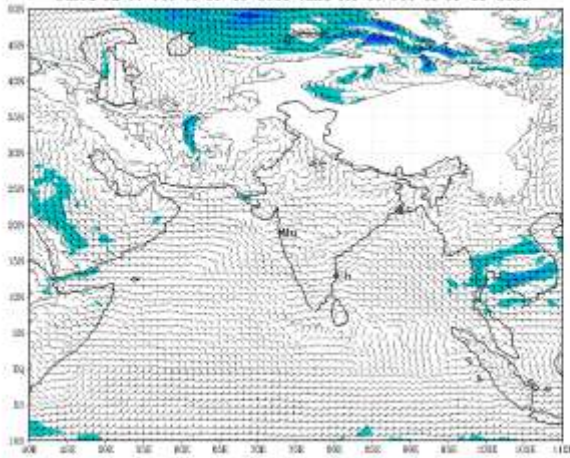
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IMD GFS (T1534) 10m WIND (kt) AND 2m RH (%) FORECAST (24 HR)
based on 00 UTC of 31-10-2023 valid for 00 UTC of 01-11-2023



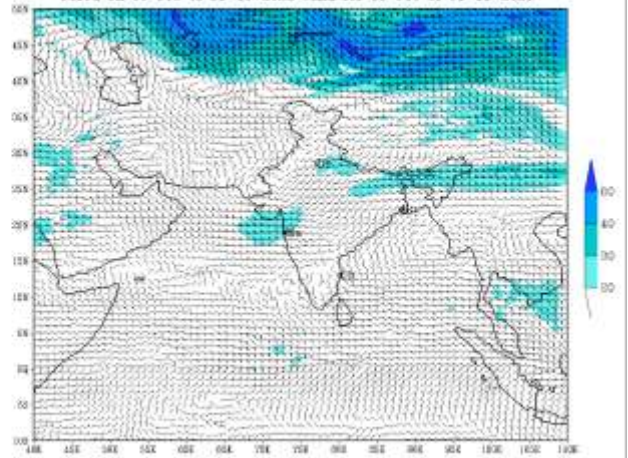
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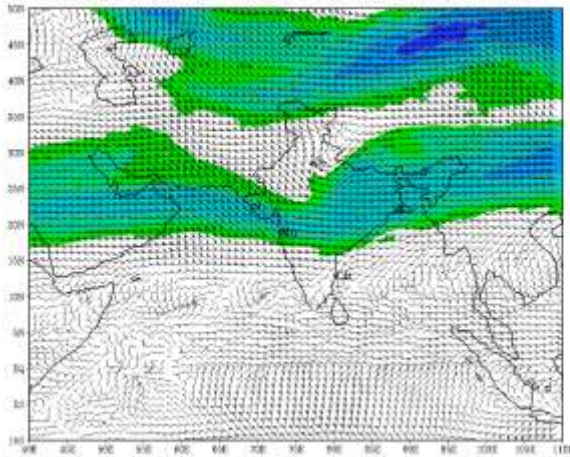
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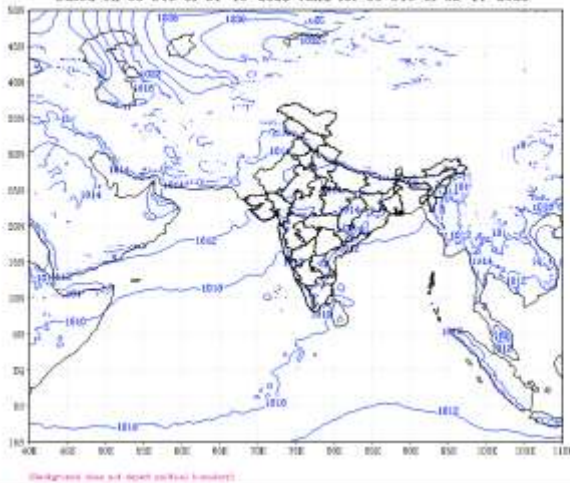
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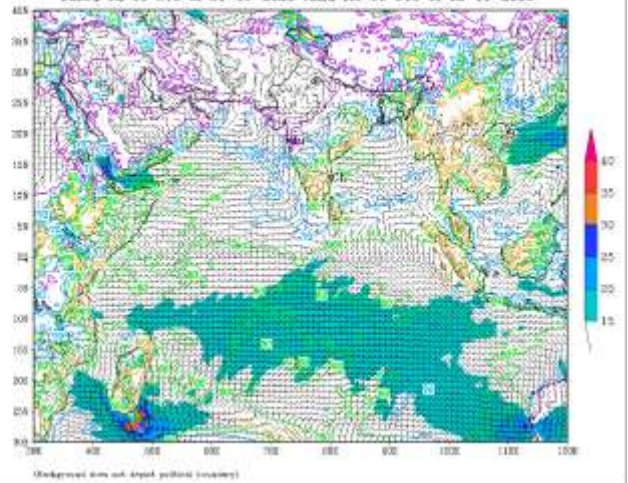


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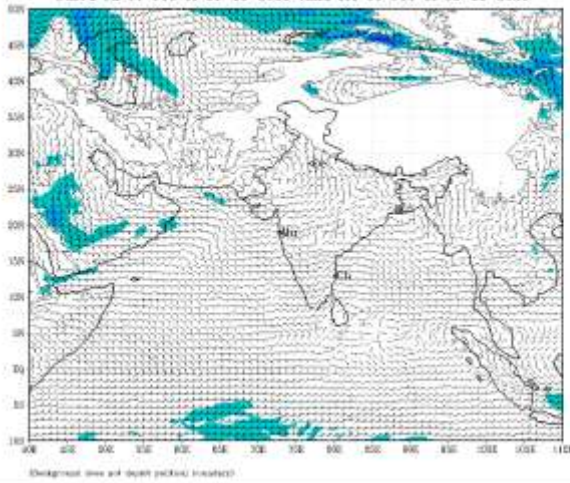
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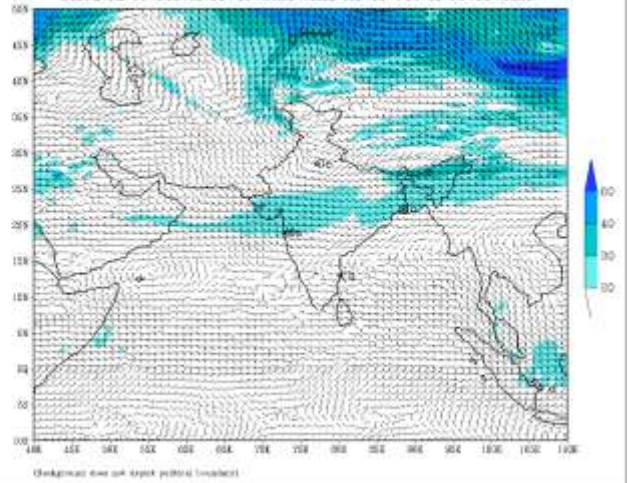
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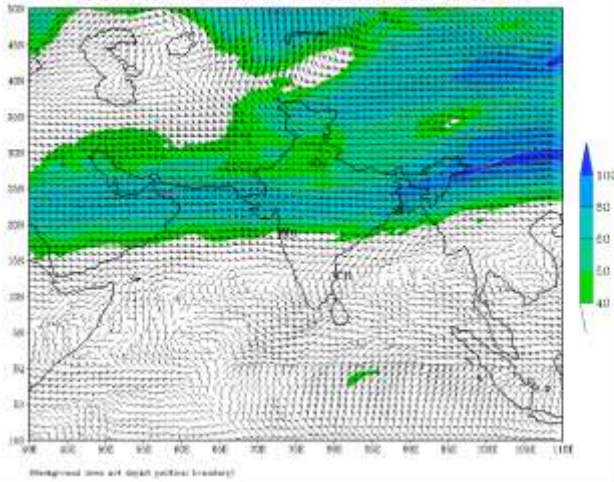
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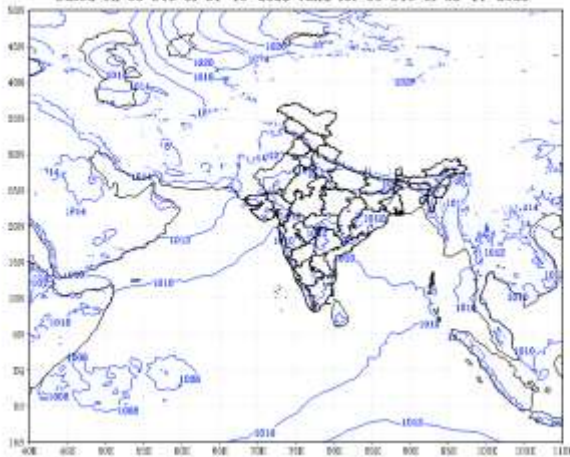
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based on 00 UTC of 31-10-2023 valid for 00 UTC of 02-11-2023



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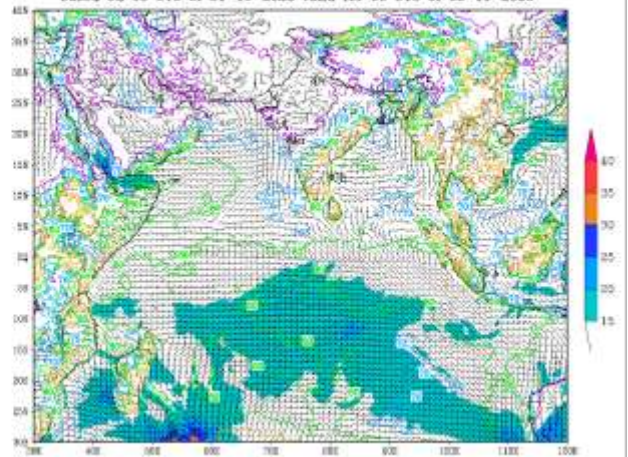


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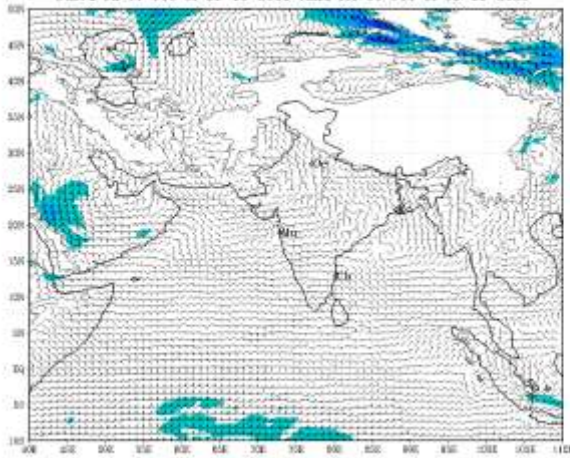
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based on 00 UTC of 31-10-2023 valid for 00 UTC of 03-11-2023



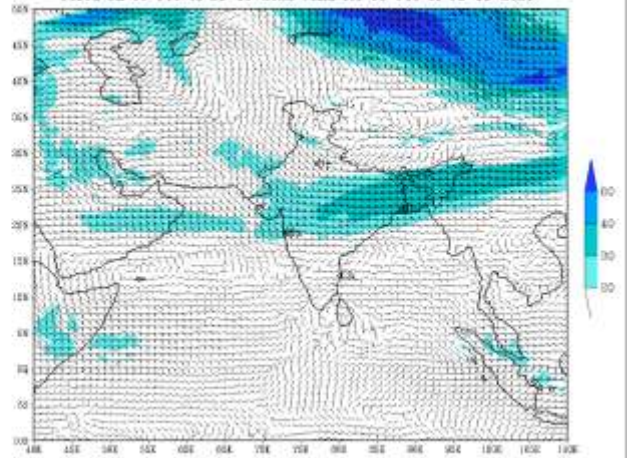
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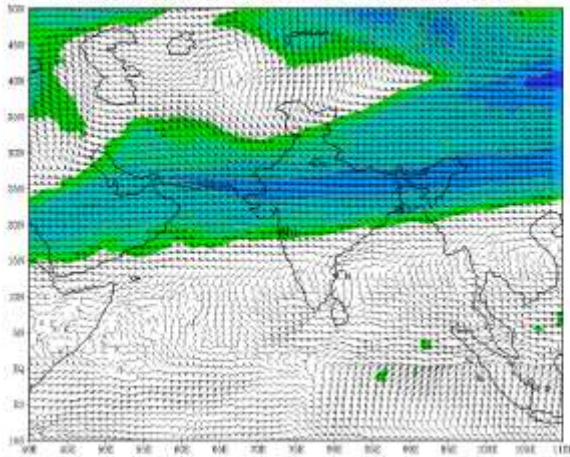
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(Background line not depth plotted boundary)

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based on 00 UTC of 31-10-2023 valid for 00 UTC of 03-11-2023



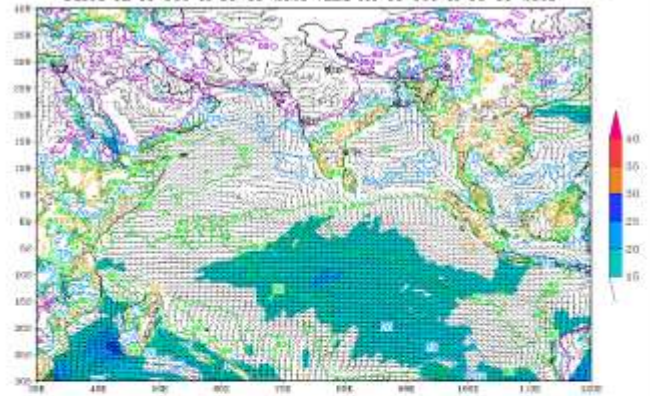
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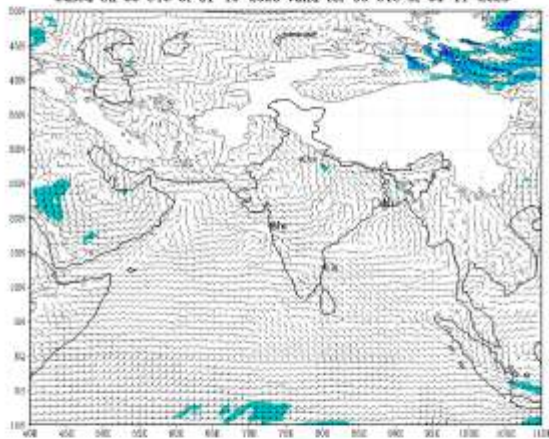
(Background over sea depicts political boundary)

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 based on 00 UTC of 31-10-2023 valid for 00 UTC of 04-11-2023



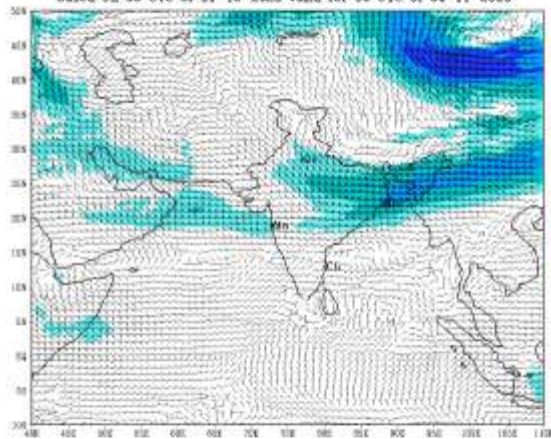
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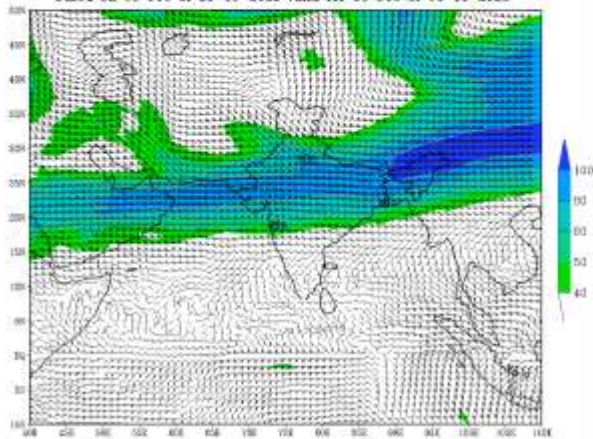
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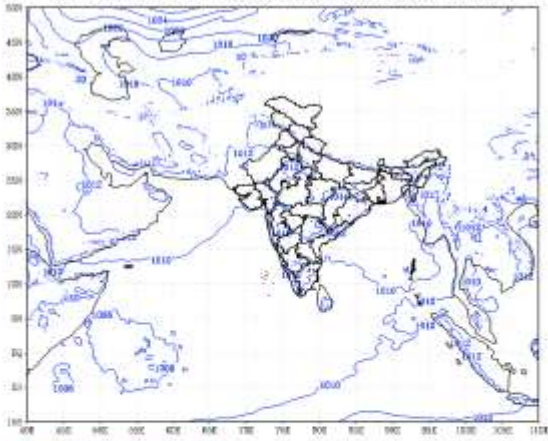
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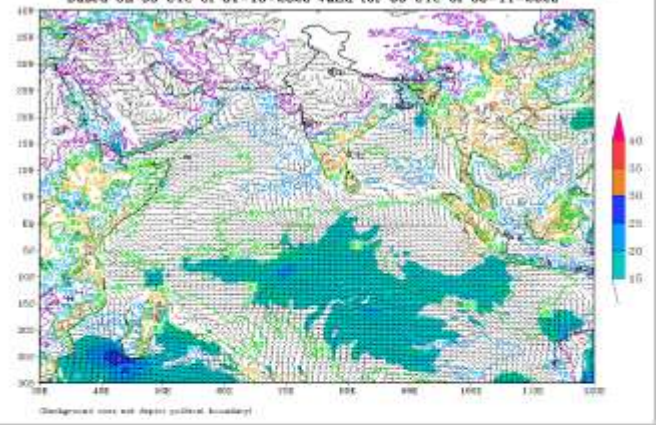


(Background over sea depicts political boundary)

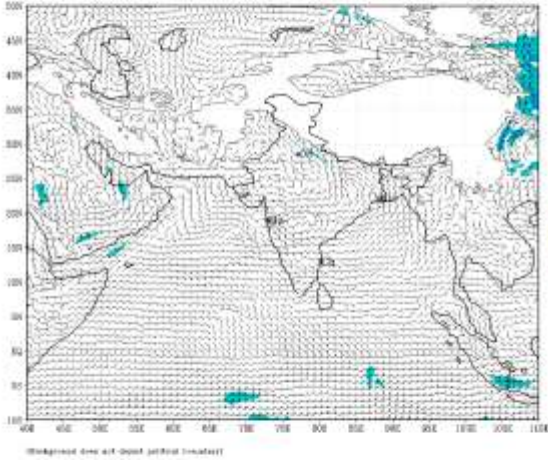
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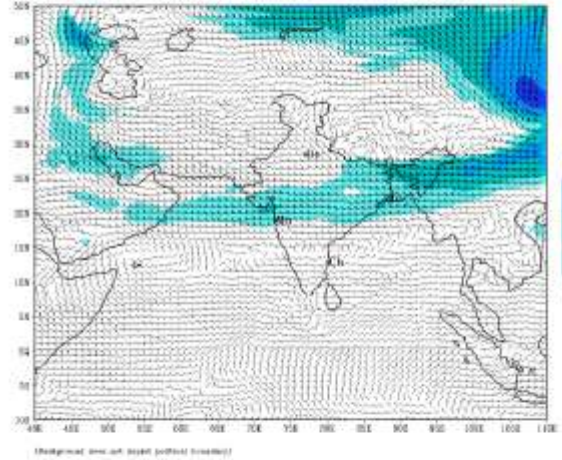
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based on 00 UTC of 31-10-2023 valid for 00 UTC of 05-11-2023



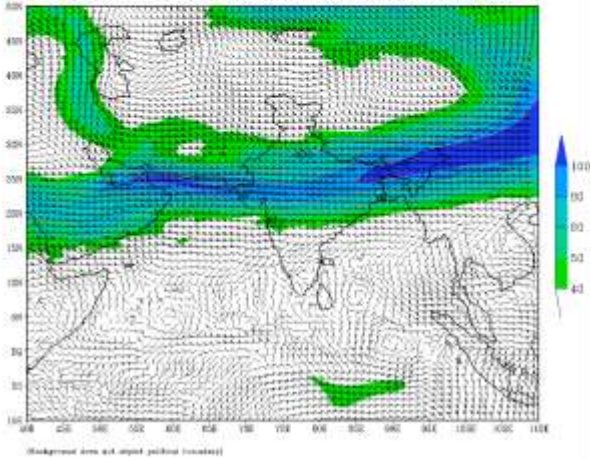
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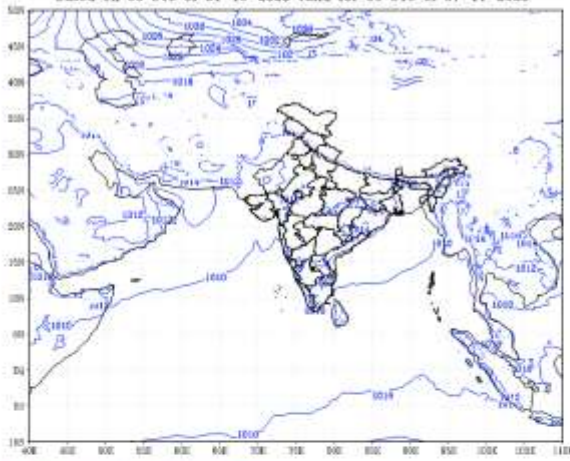
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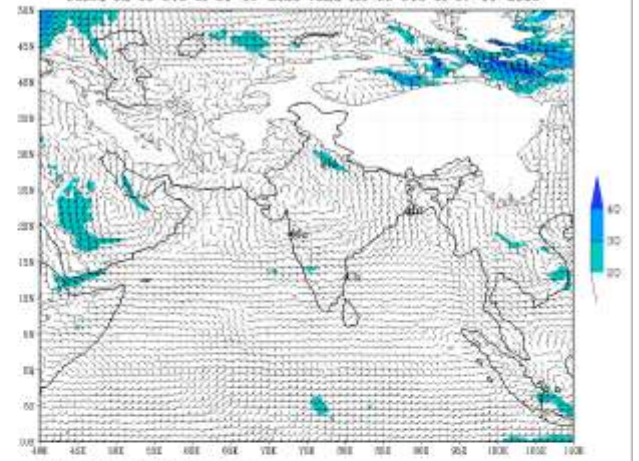


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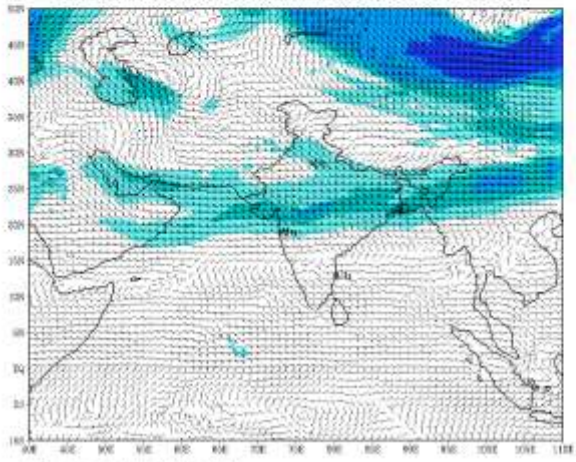
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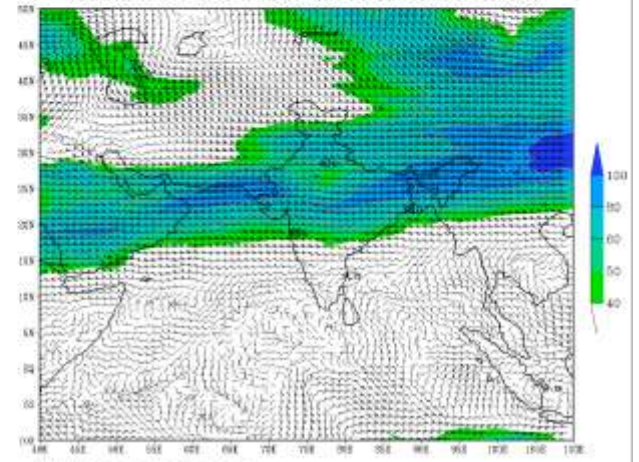
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