



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

**Tropical Cyclone Forecast Programme
Report Dated 10th December 2024**

Time of Issue: 1100 UTC

Synoptic features (based on 0300 UTC analysis):

Yesterday's Low-pressure area over the southeast Bay of Bengal & adjoining Equatorial Indian Ocean has become well-marked low-pressure area over the same region at 0300 UTC of today, 10th December 2024. The associated upper air cyclonic circulation extends up to mid-tropospheric levels. The system is very likely to continue to move west-northwestwards towards Sri-Lanka-Tamil Nadu coasts during the next 24 hours.

Environmental Features based on 03 UTC:

Parameter	Bay of Bengal (BoB)	Arabian Sea (AS)
Sea Surface Temperature (SST) °C	<ul style="list-style-type: none"> ➤ 26-28°C along & off Bangladesh, Odisha and north Andhra Pradesh coasts. ➤ 28-30°C over rest of BoB. 	<ul style="list-style-type: none"> ➤ 26-28°C over westcentral & southwest AS along and off Oman, Yemen & Somalia coast and Northeast AS over Gujarat coast & adjoining east central AS. ➤ 28-30°C over rest of AS. ➤
Tropical Cyclone Heat Potential (TCHP) kJ/cm²	<ul style="list-style-type: none"> ➤ 100-130 over east BoB, Andaman Sea and extreme southern parts of south BoB. ➤ 20-40 over southwest BoB and adjoining parts of westcentral BoB off Sri Lanka, Tamil Nadu and Andhra Pradesh coasts. ➤ 60-80 over rest of BoB. ➤ 	<ul style="list-style-type: none"> ➤ 100-120 over southeast AS, Maldives Islands, Lakshadweep Islands and adjoining EIO. ➤ 20-60 over west central and southwest AS off Oman, Yemen & Somalia coasts, Comorin area and northeast AS off Gujarat coast.
Cyclonic Relative vorticity (X10⁻⁶s⁻¹)	<ul style="list-style-type: none"> ➤ 30-40 over southwest and adjoining southeast BoB. 	<ul style="list-style-type: none"> ➤ 20-30 over extreme southcentral parts of south AS and adjoining EIO.
Low-Level convergence (X10⁻⁵ s⁻¹)	<ul style="list-style-type: none"> ➤ 05-15 over south Andaman Sea and central parts & southwest of central BoB. 	<ul style="list-style-type: none"> ➤ 05-10 over extreme southcentral parts of south AS and adjoining EIO.

Upper-Level divergence ($\times 10^{-5} \text{ s}^{-1}$)	➤ 10-30 over west-central and southwest BoB.	➤ 05 over northcentral parts of central AS and some parts of southwest AS.
Vertical Wind Shear (VWS knots) Low: 05-10 knots Moderate: 10-20 knots High: >20 knots	➤ Low-moderate over southeast BoB. ➤ High over rest of BoB.	➤ Low to moderate over southeast and adjoining east central & southwest AS. ➤ High over rest of AS.
Wind Shear Tendency (knots)	➤ Decreasing over north and southeast parts of south BoB. ➤ Increasing over east central and parts of southwest of BoB. ➤	➤ Increasing over north and adjoining parts of central AS.
Upper tropospheric Ridge	➤ At 12° N.	➤ At 13° N.

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 Andaman Sea. Scattered low and medium clouds with embedded moderate to intense convection lay over central Bay of Bengal, north Andaman Sea and isolated weak to moderate convection lay over North Bay of Bengal.

b) Over the Arabian Sea:

Scattered low and medium clouds with embedded moderate to intense convection lay over south Arabian Sea adjoining Lakshadweep island area, Maldives & Comorin area. Scattered low and medium clouds with embedded isolated weak to moderate convection lay over Northwest & West central Arabian Sea.

c) Outside India:

Scattered low & medium clouds with embedded moderate to intense convection lay over Shri Lanka, gulf of Mannar, Maldives, Tibet, China, Yellow Sea, Myanmar, Thailand, Gulf of Thailand, Cambodia, Laos, Vietnam, gulf of Tonkin, Hainan, Sumatra, Strait of Malacca, Malaysia, Borneo, South China sea, Java Islands & Sea, Celebes Islands & Sea, Philippines, Sulu Sea, north Madagascar, North Mozambique Channel and over Indian Ocean between latitude 5.0N to 20.0S longitude 40.0E to 120.0E.

M.J.O. Index:

MJO is currently in phase 5 with amplitude greater than 1. It will be in same phase till 14th December with amplitude greater than 1.

NWP Guidance for FDP Cyclone based on 0000 UTC for the next 7 days:

MODEL GUIDANCE	Bay of Bengal (BoB)	Arabian Sea (AS)
IMD-GFS	Model is indicating an extended low over southwest and adjoining southeast Bay of Bengal as on today, it will have west-north-westward and reach north Sri Lanka coast – off Tamil Nadu coast by 11 th December, and reach Tamil Nadu coast by 12 th December without intensification. Less marked thereafter.	Model indicates no significant system over AS during next 7 days.
IMD-GEFS	Model is indicating an extended low over southwest and adjoining southeast Bay of Bengal as on today, it will have west-north-westward and reach north Sri Lanka coast – off Tamil Nadu coast by 11 th December, and reach Tamil Nadu coast by 12 th December without intensification. Less marked thereafter.	Model indicates no significant system over AS during next 7 days.
IMD-WRF	Model is indicating an extended low over southwest and adjoining southeast Bay of Bengal as on today, it will have west-north-westward and reach north Sri Lanka coast – off Tamil Nadu coast by 12 th December without intensification. Less marked thereafter.	Model indicates no significant system over AS during next 3 days.
NCMRWF-NCUM(G)	Model is indicating an extended low over southeast Bay of Bengal as on today, it will have west-north-westward and reach north Sri Lanka coast – off Tamil Nadu coast by 11 th December, and reach Tamil Nadu coast by 12 th December without intensification. Less marked thereafter.	Model indicates no significant system over AS during next 7 days.
NCMRWF-NCUM(R)	Model is indicating an extended cyclonic circulation over southeast Bay of Bengal and adjoining southwest Bay of Bengal as on today, it will have west-north-westward movement toward Tamil Nadu coast till 11 th December without intensification.	Model indicates no significant system over AS during next 3 days.
NCMRWF-NEPS	Model is indicating an extended low over southeast and adjoining southwest Bay of Bengal as on today, it will have west-north-westward and reach north Sri Lanka coast – off Tamil Nadu coast by 11 th December, and reach Tamil Nadu coast by 12 th December without	Model indicates no significant system over AS during next 7 days.

	intensification. Less marked thereafter.	
ECMWF	Model is indicating an extended low over southeast and adjoining southwest Bay of Bengal as on today, it will have west-north-westward movement toward Sri Lanka coast by 11 th December, without intensification. Less marked thereafter.	Model indicates no significant system over AS during next 7 days.
NCEP-GFS	Model is indicating an extended low over southwest and adjoining southeast Bay of Bengal as on today, it will have west-north-westward and reach north Sri Lanka coast – off Tamil Nadu coast by 11 th December, and reach Tamil Nadu coast by 12 th December without intensification. Less marked thereafter.	Model indicates no significant system over AS during next 7 days.

Summary:

(a) Bay of Bengal:

Most of the models indicating an extended low over southwest as of today having diurnal variation. it will have west-north-westward and reach north Sri Lanka coast – off Tamil Nadu coast by 11th December, and reach Tamil Nadu coast by 12th December without intensification, less marked thereafter.

(b) Arabian Sea

No significant cyclonic disturbance is indicated by any of the models.

Inference: Considering various environmental conditions and model guidance, it is inferred that:

Yesterday’s Low-pressure area over the southeast Bay of Bengal & adjoining Equatorial Indian Ocean has become well-marked low-pressure area over the same region at 0300 UTC of today, 10th December 2024. The associated upper air cyclonic circulation extends up to mid-tropospheric levels. The system is very likely to continue to move west-northwestwards towards Sri-Lanka-Tamil Nadu coasts during the next 24 hours.

Probability of cyclogenesis (formation of depression and above intensity systems) over the Bay of Bengal 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:

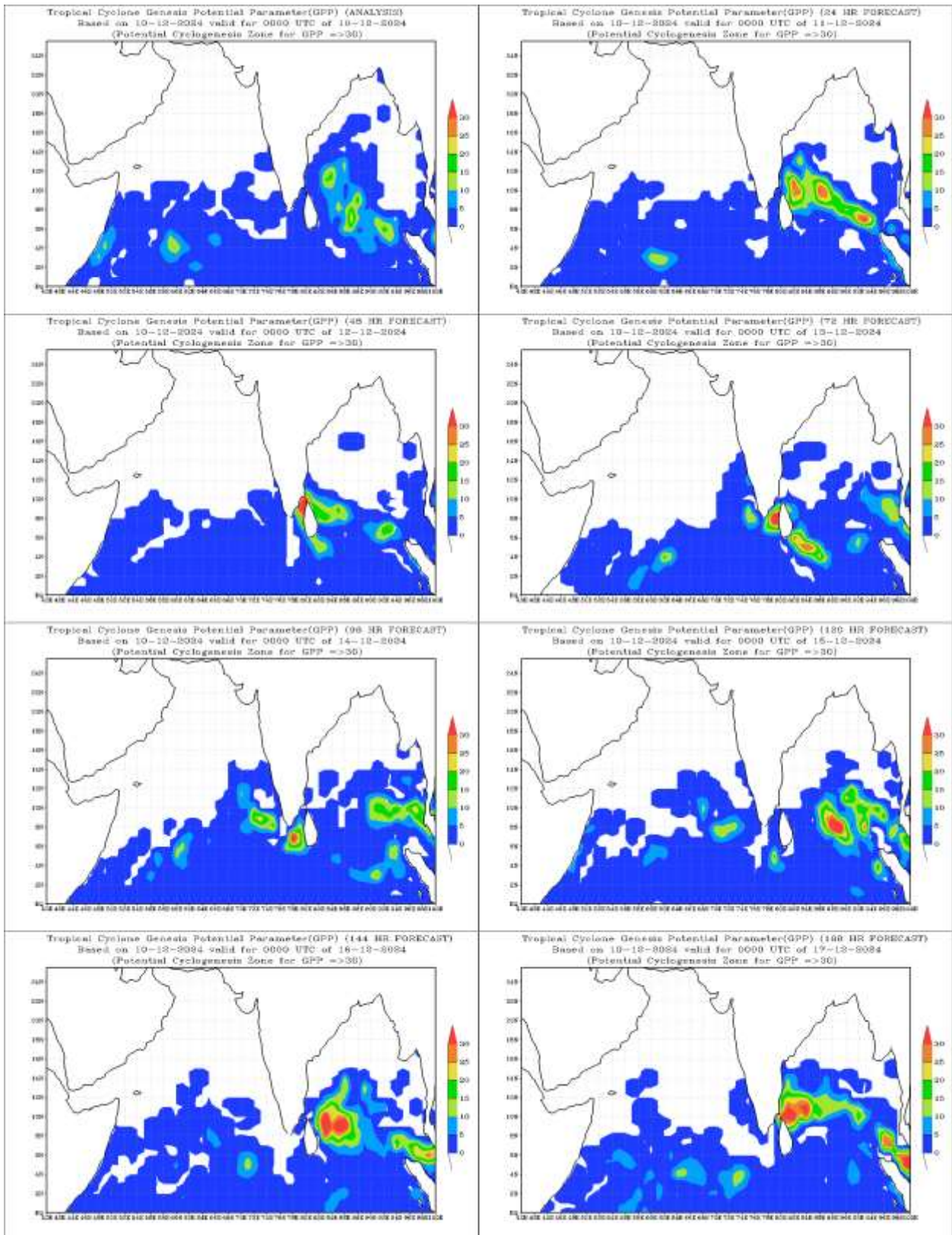
24 HOURS	24-48 HOURS	48-72 HOURS	72-96 HOURS	96-120 HOURS	120-144 HOURS	144-168 HOURS
NIL	NIL	NIL	NIL	NIL	NIL	NIL

“- “indicates genesis has already occurred.

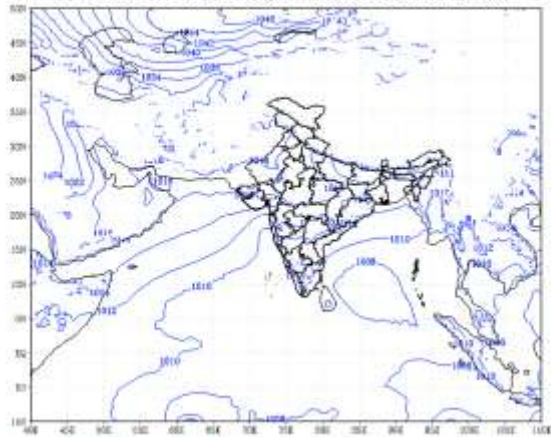
Probability is indicated as NIL for 0%, LOW for 1-33%, MOD for 34-67% and High for 68-100%.

Intense Observation Period (IOP): NIL

ANNEXURE

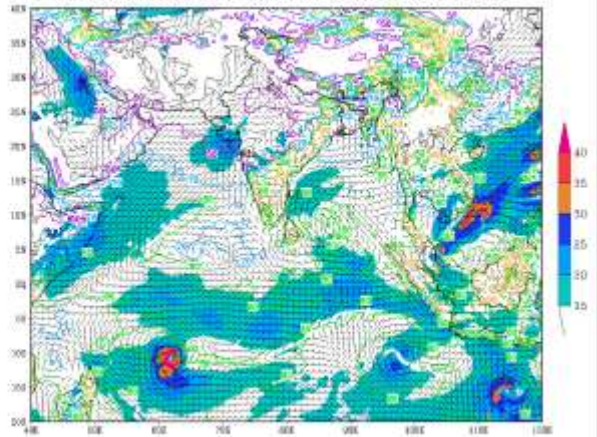


IMD :GFS MODEL(12 Km) MSL Pressure (hPa) FORECAST (00 HR)
 based on 00 UTC of 10-12-2024 valid for 00 UTC of 10-12-2024



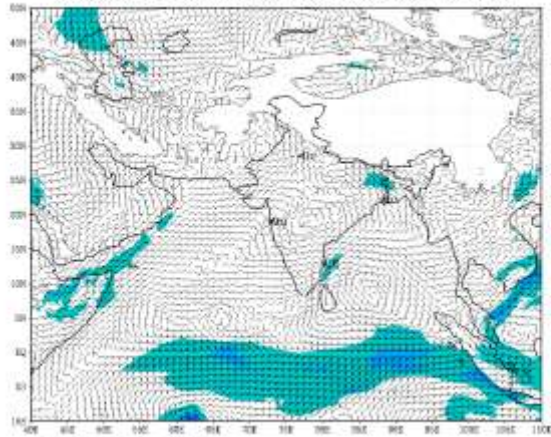
(Background Area not depict political boundary)

IMD: GFS(12Km) 10m WIND (barb)& GUST (shaded:kt) FORECAST (00 HR)
 based on 00 UTC of 10-12-2024 valid for 00 UTC of 10-12-2024



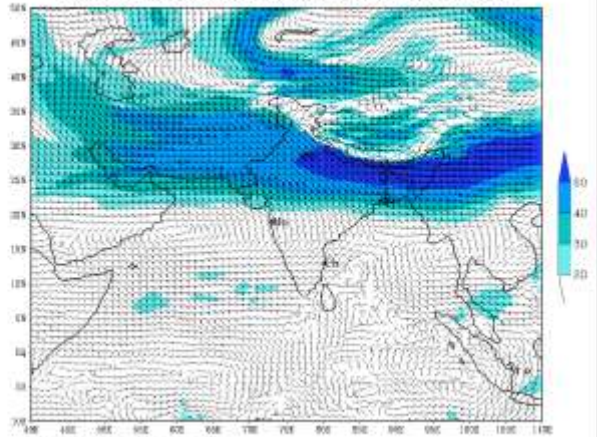
(Background Area not depict political boundary)

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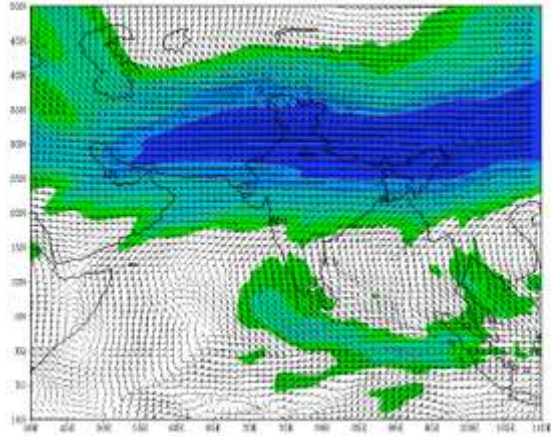
(Background Area not depict political boundary)

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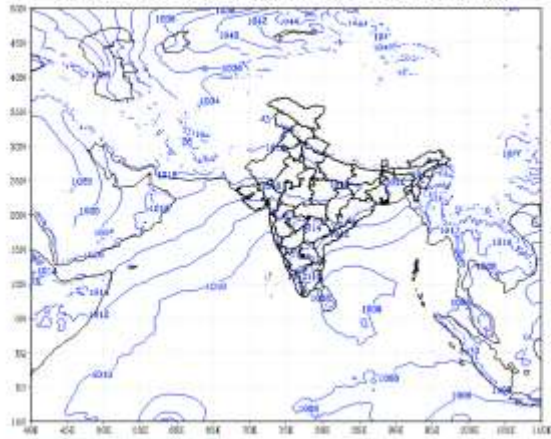
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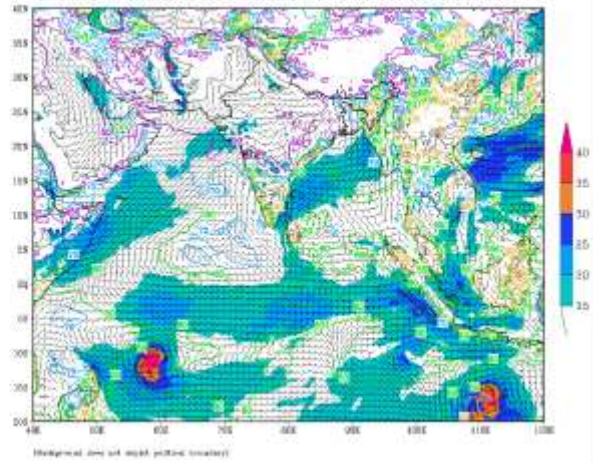


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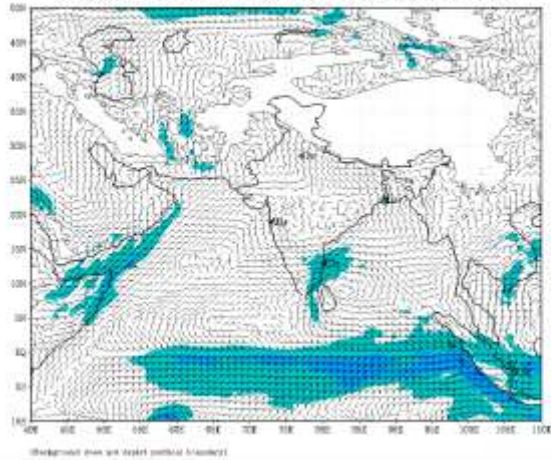
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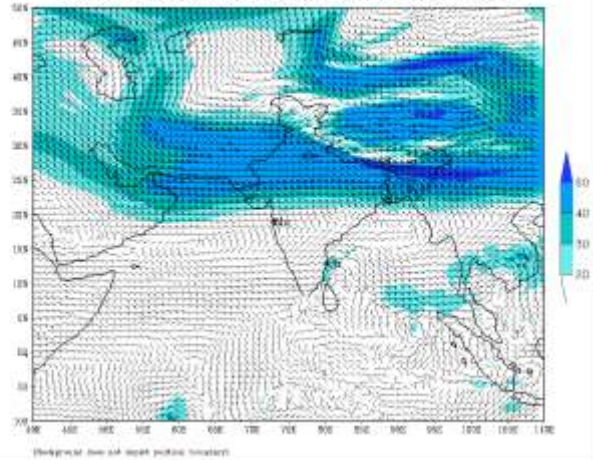
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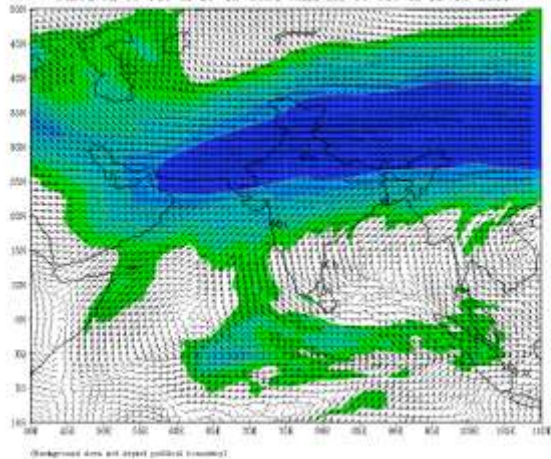
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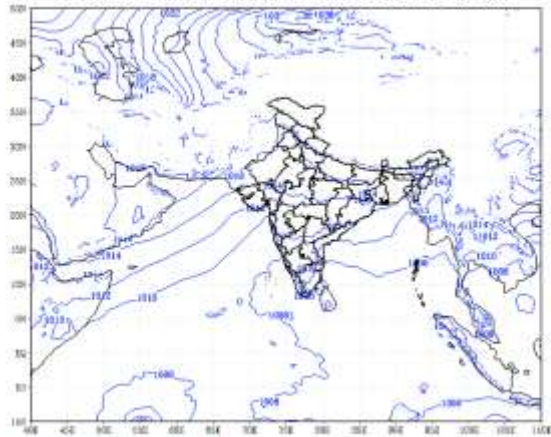
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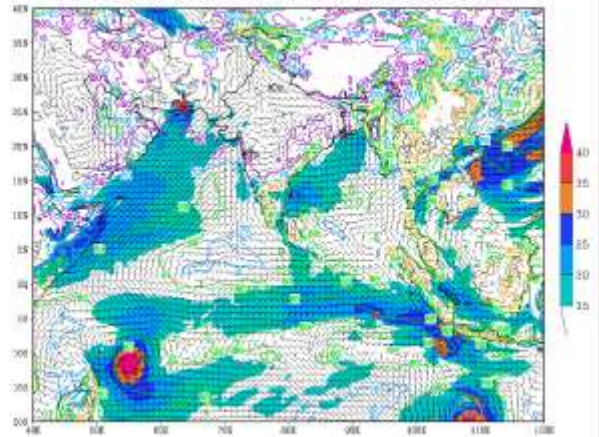


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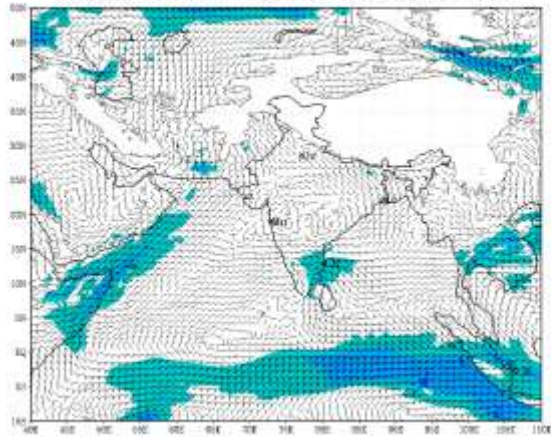
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based on 00 UTC of 10-12-2024 valid for 00 UTC of 12-12-2024



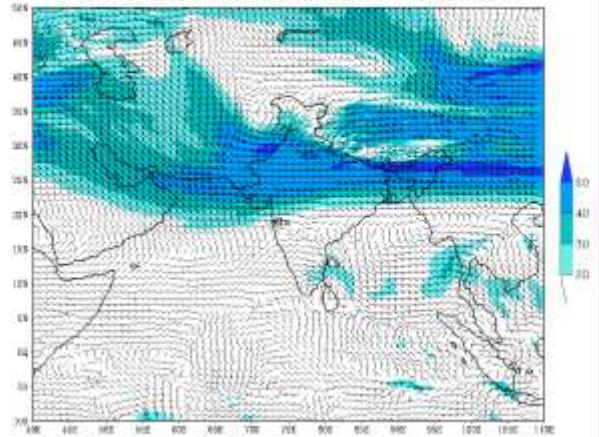
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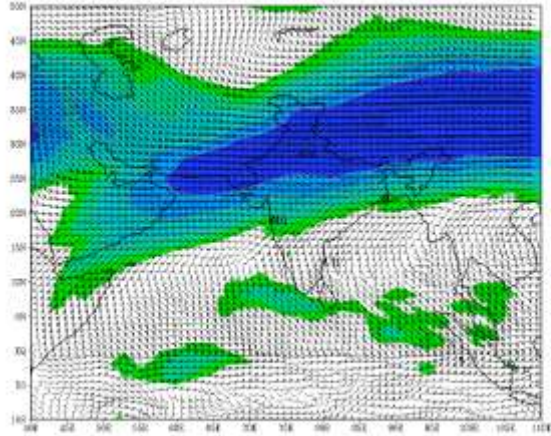
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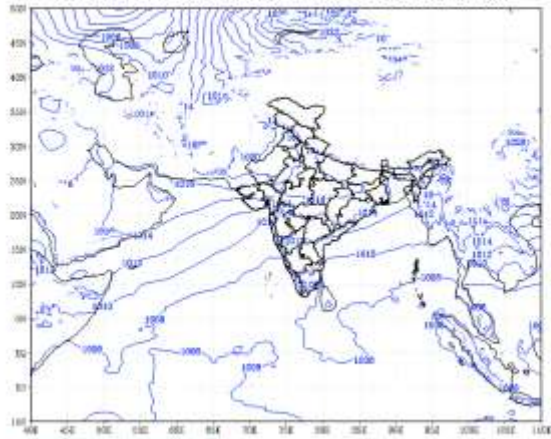
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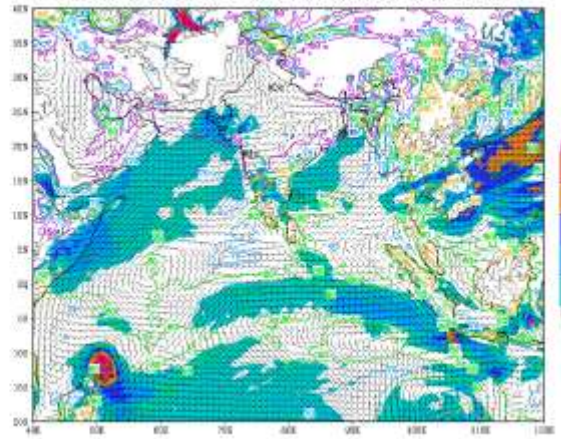


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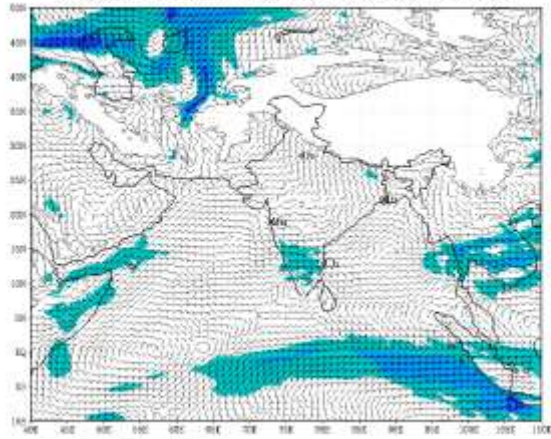
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based on 00 UTC of 10-12-2024 valid for 00 UTC of 13-12-2024



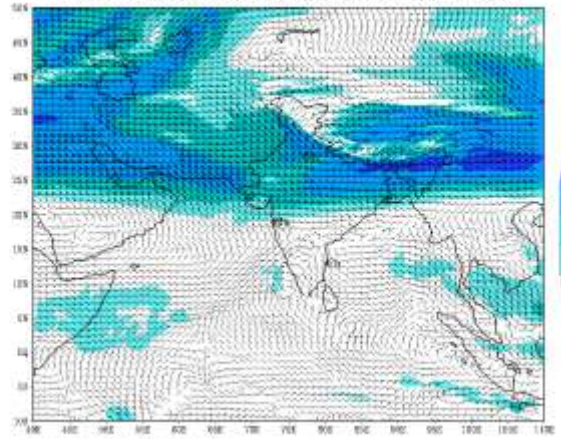
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based on 00 UTC of 10-12-2024 valid for 00 UTC of 13-12-2024



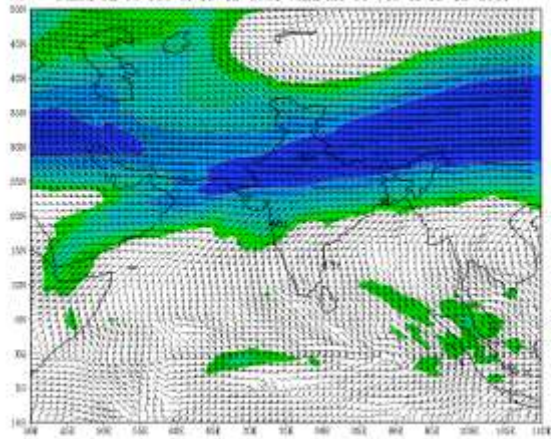
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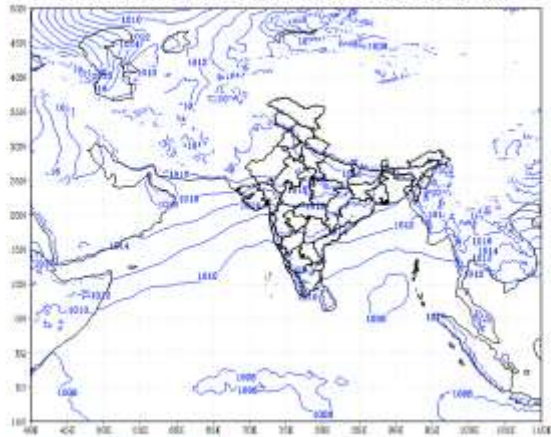
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based on 00 UTC of 10-12-2024 valid for 00 UTC of 13-12-2024



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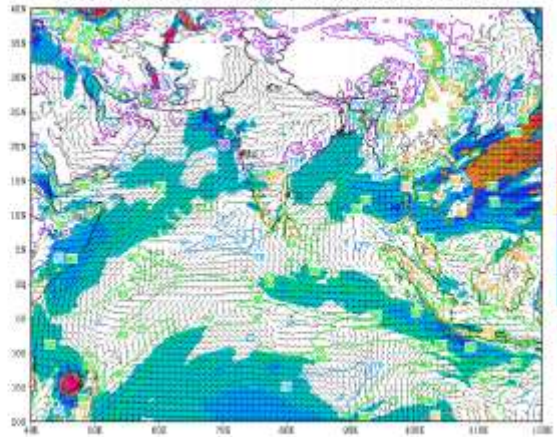


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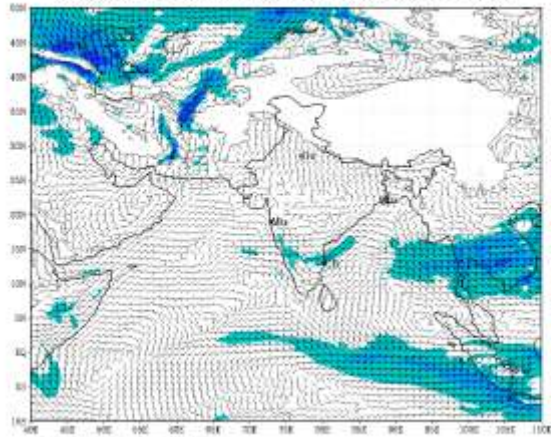
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based on 00 UTC of 10-12-2024 valid for 00 UTC of 14-12-2024



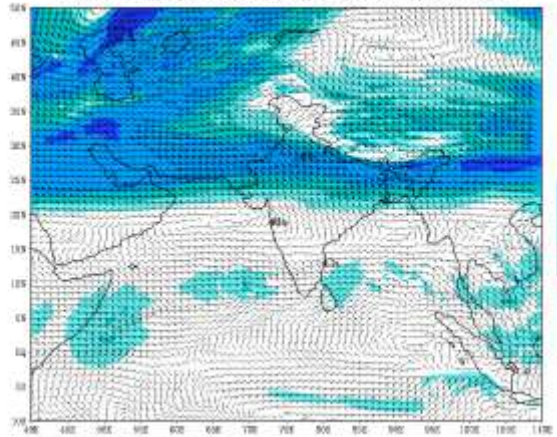
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based on 00 UTC of 10-12-2024 valid for 00 UTC of 14-12-2024



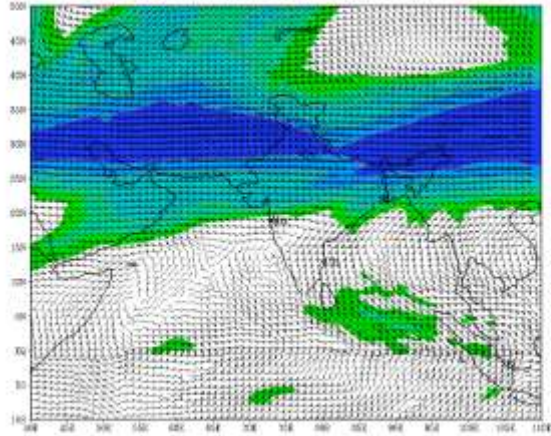
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