



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

**Tropical Cyclone Forecast Programme  
Report Dated 08<sup>th</sup> December 2024**

**Time of Issue: 1030 UTC**

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

- Yesterday's Low pressure area over the Equatorial Indian Ocean & adjoining southeast Bay of Bengal persisted over the same region at 0300 UTC of today, 8th December 2024. The associated cyclonic circulation extended up to middle tropospheric levels. It is likely to move west-northwestwards & become more marked during next 24 hours. It is very likely to continue to move west-northwestwards thereafter and reach over southwest Bay of Bengal off Sri Lanka – Tamil Nadu coasts around 11th December.

**Environmental Features based on 03 UTC:**

| <b>Parameter</b>  | <b>Bay of Bengal (BoB)</b>  | <b>Arabian Sea (AS)</b>   |
|---|---|---|
| <b>Sea Surface Temperature (SST) °C</b>                             | <ul style="list-style-type: none"> <li>➤ 26-28°C along &amp; off west coast, northern and central parts of BoB.</li> <li>➤ 28-30°C over rest of BoB.</li> </ul>   | <ul style="list-style-type: none"> <li>➤ 26-28°C over westcentral &amp; southwest AS along and off Oman, Yemen &amp; Somalia coast and Northeast AS over Gujarat coast.</li> <li>➤ 28-30°C over rest of AS.</li> </ul>  |
| <b>Tropical Cyclone Heat Potential (TCHP) kJ/cm<sup>2</sup></b>     | <ul style="list-style-type: none"> <li>➤ 120-180 over north BoB &amp; adjoining eastcentral BoB.</li> <li>➤ 100-130 over Andaman Sea and southcentral parts of south BoB &amp; adjoining EIO.</li> <li>➤ 20-40 over southwest BoB and adjoining parts of westcentral BoB off Sri Lanka, Tamil Nadu and Andhra Pradesh coasts.</li> <li>➤ 60-80 over rest of BoB.</li> </ul> | <ul style="list-style-type: none"> <li>➤ 100-120 over southeast AS, Maldives Islands, Lakshadweep Islands and adjoining EIO.</li> <li>➤ 20-40 over westcentral and southwest AS off Oman, Yemen &amp; Somalia coasts, Comorin area and northeast AS off Gujarat coast.</li> <li>➤ 60-80 over rest of AS.</li> </ul> |
| <b>Cyclonic Relative vorticity (X10<sup>-6</sup>s<sup>-1</sup>)</b> | <ul style="list-style-type: none"> <li>➤ 40-50 over parts of southeast BoB &amp; south Andaman Sea.</li> <li>➤ 20-30 over eastcentral adjoining northeast BoB off Myanmar Coast.</li> </ul>   | <ul style="list-style-type: none"> <li>➤ 20-40 over some parts of southeast, southwest AS and Maldives Islands area.</li> <li>➤ 20-30 over northeast AS off Pakistan Coast.</li> </ul>  |
| <b>Low-Level convergence (X10<sup>-5</sup> s<sup>-1</sup>)</b>      | <ul style="list-style-type: none"> <li>➤ 05-10 over south Andaman Sea, southern parts of southeast BoB &amp; adjoining EIO.</li> </ul>  | <ul style="list-style-type: none"> <li>➤ 5 over southeast AS.</li> </ul>  |

|  |  |  |
|--|--|--|
| <b>Upper-Level divergence</b><br>( $\times 10^{-5} \text{ s}^{-1}$ )   | ➤ 10-30 over southeast BoB & adjoining southwest, central BoB and adjoining Andaman Sea.                   | ➤ 05-10 over eastcentral AS.<br>➤ 05 over westcentral AS off Oman coast.                         |
| <b>Vertical Wind Shear (VWS knots)</b><br><b>Low: 05-10 knots</b><br><b>Moderate: 10-20 knots</b><br><b>High: &gt;20 knots</b> | ➤ Low-moderate over westcentral BoB and Andaman Sea & adjoining southeast BoB.<br>➤ High over rest of BoB. | ➤ Low to moderate over eastcentral AS & adjoining southeast AS.<br>➤ High over rest of AS.       |
| <b>Wind Shear Tendency (knots)</b>   | ➤ Decreasing over southeast BoB and adjoining EIO.<br>➤ Increasing over rest of BoB.                       | ➤ Increasing over north and westcentral AS.<br>➤ Decreasing over rest of AS except southwest AS. |
| <b>Upper tropospheric Ridge</b>  | ➤ At $14^{\circ}$ N.   | ➤ At $12^{\circ}$ 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 East central Bay of Bengal and Andaman Sea and isolated weak to moderate convection over rest 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.

**c) Outside India:**

Scattered low & medium clouds with embedded moderate to intense convection lay over Sri Lanka, north Pakistan, Tibet, China, south Thailand, Gulf of Thailand, Cambodia, south Vietnam, Sumatra, Strait of Malacca, Malaysia, Borneo, south China sea, Java islands & sea, Celebes islands & sea, Philippines, Sulu sea and over Indian ocean between latitude  $5^{\circ}$ N to  $16^{\circ}$ S longitude  $45^{\circ}$ E to  $120^{\circ}$ E.

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

MJO is currently in phase 5 with amplitude greater than 1. It will be in same phase till 15<sup>th</sup> December with amplitude greater than 1.

**NWP Guidance 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>        | Model is indicating an extended low over southeast Bay of Bengal and adjoining east Equatorial Indian Ocean as on today, it will have west-northwestward and reach north Sri Lanka coast – off Tamil Nadu coast by 11 <sup>th</sup> December, and reach Tamil Nadu coast by 12 <sup>th</sup> December without intensification. Less marked thereafter. | Model indicates no significant system over AS during next 7 days. |
| <b>IMD-GEFS</b>       | Model is indicating an extended low over southeast Bay of Bengal and adjoining east Equatorial Indian Ocean as on today, it will have west-northwestward and reach north Sri Lanka coast – off Tamil Nadu coast by 11 <sup>th</sup> December, and reach Tamil Nadu coast by 12 <sup>th</sup> December without intensification. Less marked thereafter. | Model indicates no significant system over AS during next 7 days. |
| <b>IMD-WRF</b>        | Model is indicating an extended low over southeast Bay of Bengal and adjoining east Equatorial Indian Ocean as on today, it will have west-northwestward movement and will become LPA over southwest Bay of Bengal on 10 <sup>th</sup> December, moving then northwestward till 11 <sup>th</sup> December without significant intensification.         | Model indicates no significant system over AS during next 3 days. |
| <b>NCMRWF-NCUM(G)</b> | Model is indicating an extended low over southeast Bay of Bengal and adjoining east Equatorial Indian Ocean as on today, it will have west-northwestward and reach north Sri Lanka coast – off Tamil Nadu coast by 11 <sup>th</sup> December, and reach Tamil Nadu coast by 12 <sup>th</sup> December without intensification. Less marked thereafter. | Model indicates no significant system over AS during next 7 days. |
| <b>NCMRWF-NCUM(R)</b> | Model is indicating an extended cyclonic circulation over southeast Bay of Bengal and adjoining east Equatorial Indian Ocean as on today, it will have west-northwestward movement toward Tamil Nadu coast till 11 <sup>th</sup> December without intensification.   | Model indicates no significant system over AS during next 3 days. |
| <b>NCMRWF-NEPS</b>    | Model is indicating an extended low over southeast Bay of Bengal and adjoining east Equatorial Indian Ocean as on today, it will have west-northwestward and reach north Sri Lanka coast – off Tamil Nadu coast by 11 <sup>th</sup> December, and reach Tamil Nadu coast by 12 <sup>th</sup> December without intensification. Less marked thereafter. | Model indicates no significant system over AS during next 7 days. |

|                 |  |   |
|-----------------|--|---|
| <b>ECMWF</b>    | Model is indicating an extended low over southeast Bay of Bengal and adjoining east Equatorial Indian Ocean as on today, it will have west-northwestward movement toward Sri Lanka coast till 12 <sup>th</sup> December without intensification. Less marked thereafter.   | Model indicates no significant system over AS during next 7 days. |
| <b>NCEP-GFS</b> | Model is indicating an extended low over southeast Bay of Bengal and adjoining east Equatorial Indian Ocean as on today, it will have west-northwestward and reach north Sri Lanka coast – off Tamil Nadu coast by 11 <sup>th</sup> December, and reach Tamil Nadu coast by 12 <sup>th</sup> 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 southeast Bay of Bengal and adjoining east equatorial Indian Ocean as of today having diurnal variation. it will have west-northwestward and reach north Sri Lanka coast – off Tamil Nadu coast by 11<sup>th</sup> December, and reach Tamil Nadu coast by 12<sup>th</sup> 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 Equatorial Indian Ocean & adjoining southeast Bay of Bengal persisted over the same region at 0300 UTC of today, 8<sup>th</sup> December 2024. The associated cyclonic circulation extended up to middle tropospheric levels. It is likely to move west-northwestwards & become more marked during next 24 hours. It is very likely to continue to move west-northwestwards thereafter and reach over southwest Bay of Bengal off Sri-Lanka – Tamil Nadu coasts around 11th December.

**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:**

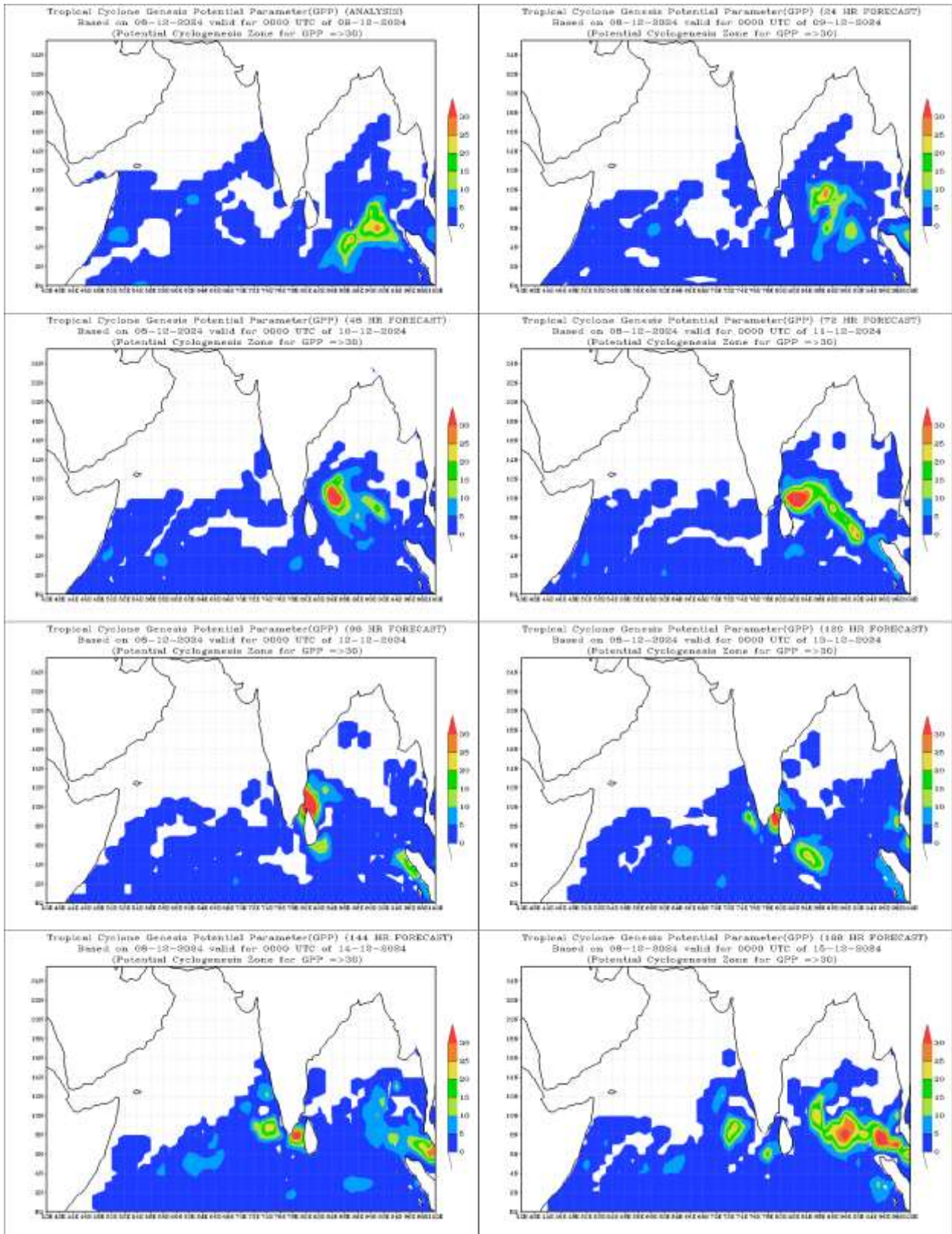
| 24 HOURS | 24-48 HOURS | 48-72 HOURS | 72-96 HOURS | 96-120 HOURS | 120-144 HOURS | 144-168 HOURS |
|----------|-------------|-------------|-------------|--------------|---------------|---------------|
| NIL      | NIL         | NIL         | NIL         | NIL          | NIL           | NIL       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

“- “indicates genesis has already occurred.

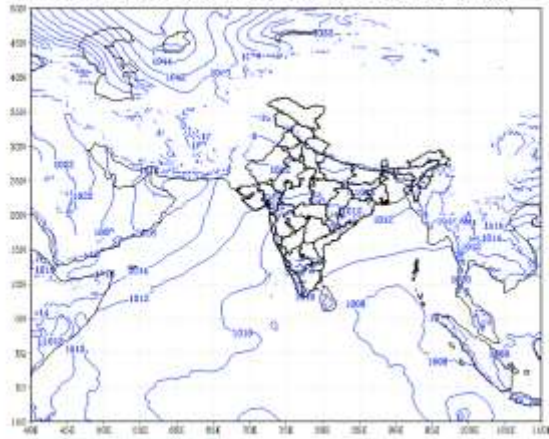
**Probability is indicated as NIL for 0%, LOW for 1-33%, MOD for 34-67% and High for 68-100%.**

**Intense Observation Period (IOP): NIL**

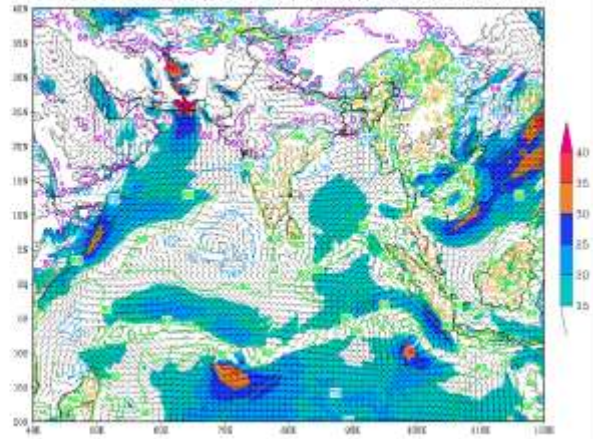
# ANNEXURE



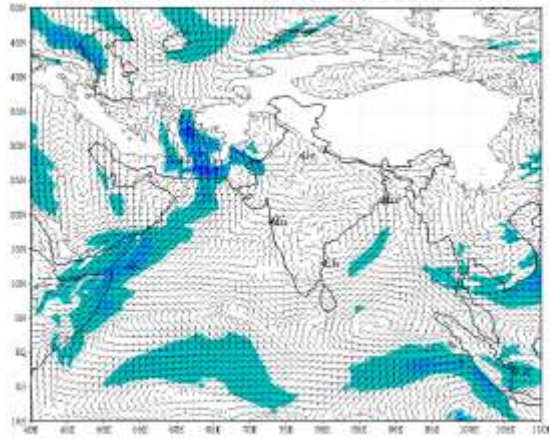
IMD :GFS MODEL(12 Km) MSL Pressure (hPa) FORECAST (00 HR)  
based on 00 UTC of 08-12-2024 valid for 00 UTC of 08-12-2024



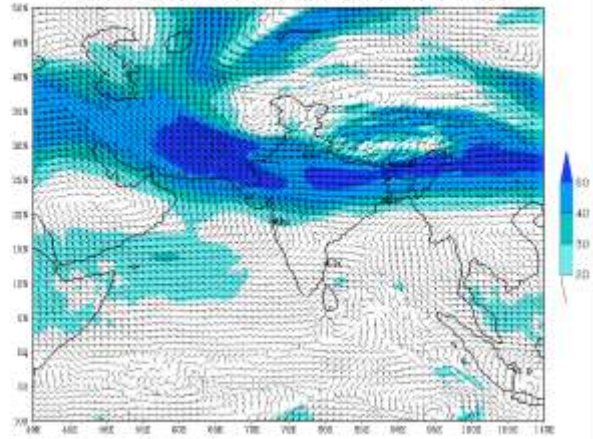
IMD: GFS(12Km) 10m WIND (barb)& GUST (shaded:kt) FORECAST (00 HR)  
based on 00 UTC of 08-12-2024 valid for 00 UTC of 08-12-2024



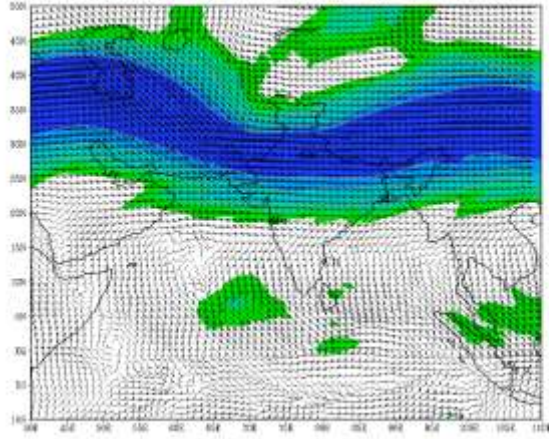
IMD:GFS MODEL(12 Km) 850 hPa WIND (kt) FORECAST (00 HR)  
based on 00 UTC of 08-12-2024 valid for 00 UTC of 08-12-2024



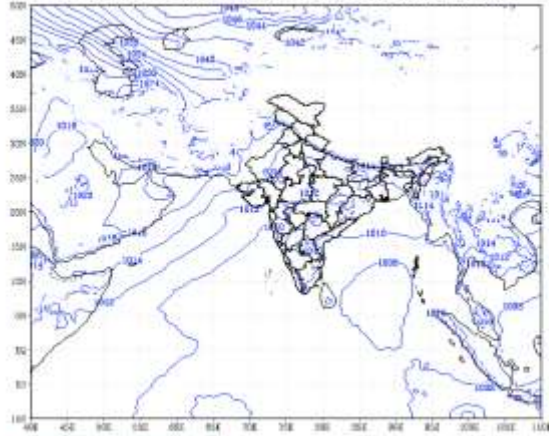
IMD:GFS MODEL(12 Km) 500 hPa WIND (kt) FORECAST (00 HR)  
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IMD :GFS MODEL(12 Km) 200 hPa WIND (kt) FORECAST (00 HR)  
based on 00 UTC of 08-12-2024 valid for 00 UTC of 08-12-2024

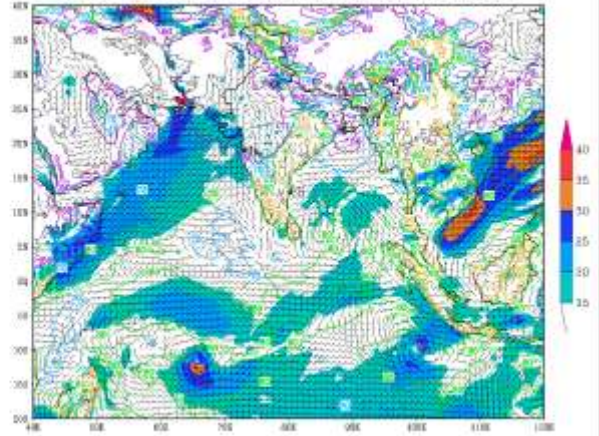


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based on 00 UTC of 08-12-2024 valid for 00 UTC of 09-12-2024



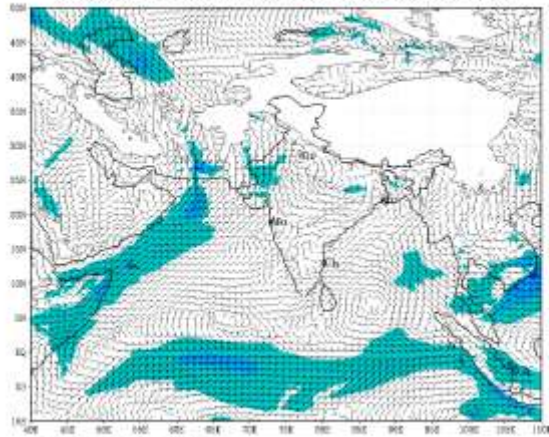
(Background Area not depict political boundary)

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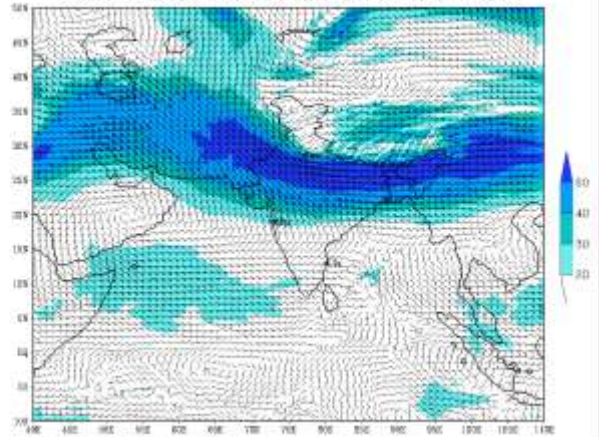
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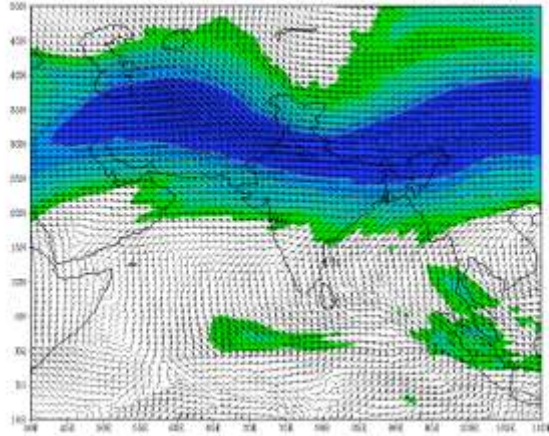
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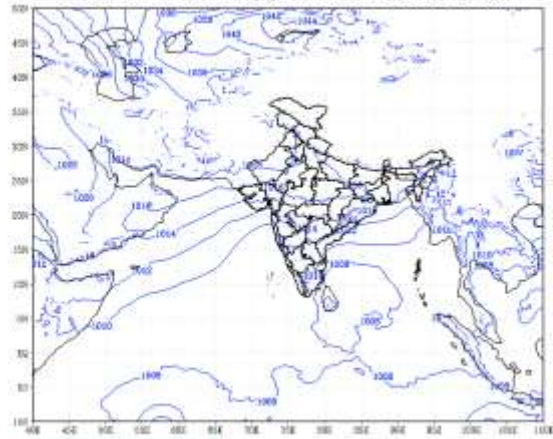


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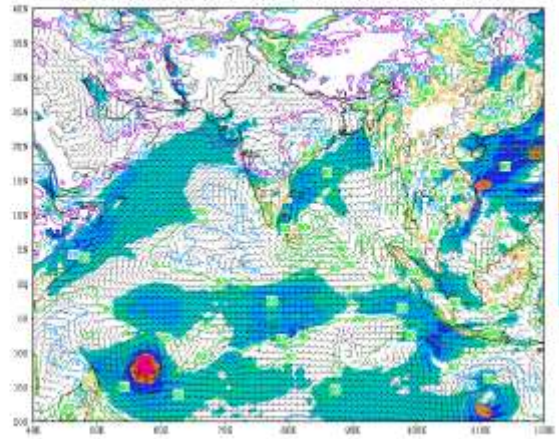


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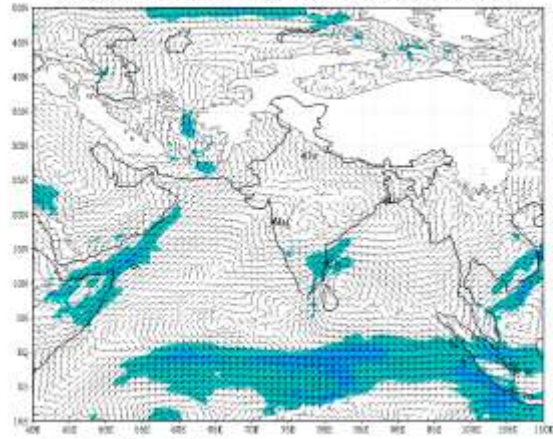
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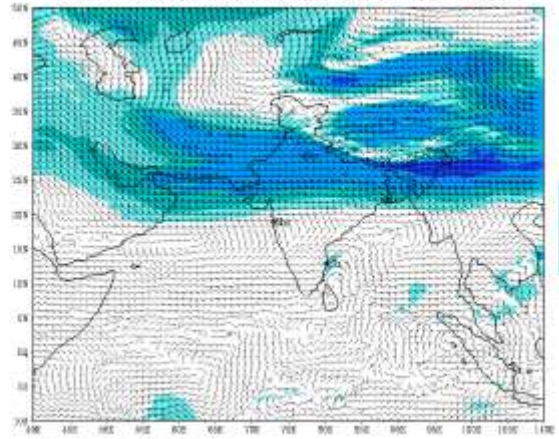
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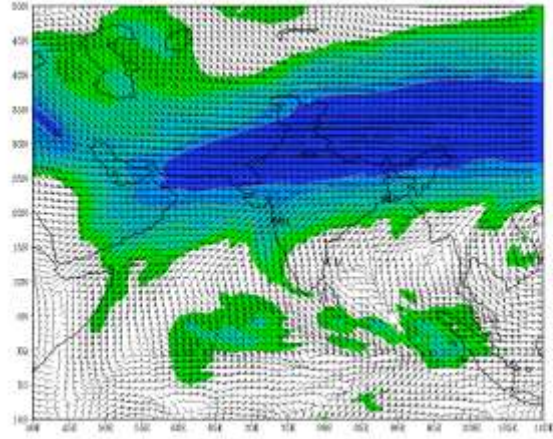
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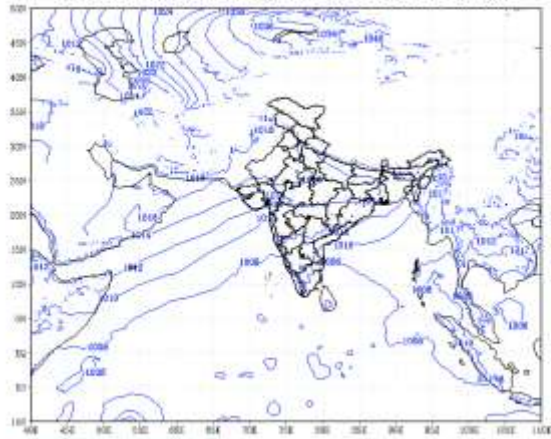
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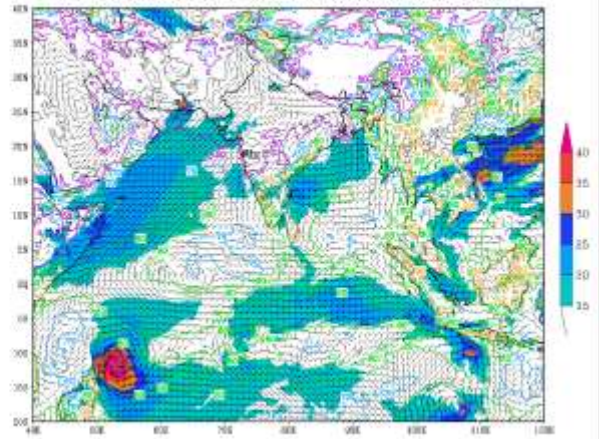


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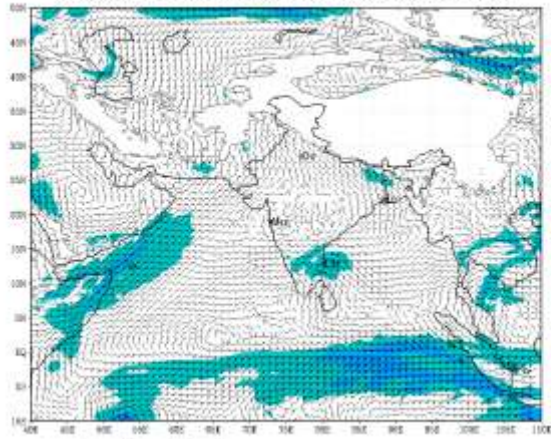
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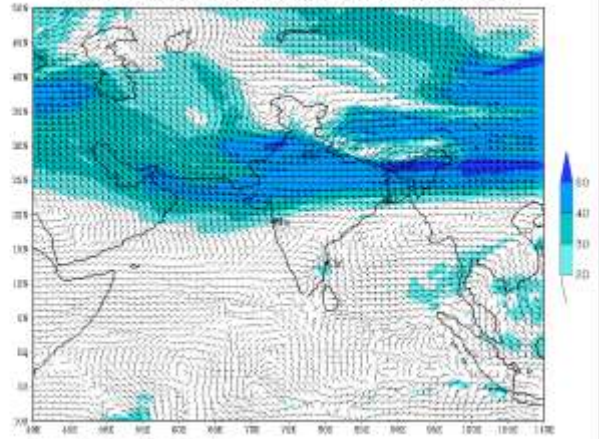
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