



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

**Tropical Cyclone Forecast Programme  
Report Dated 09<sup>th</sup> December 2024**

**Time of Issue: 1200 UTC**

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

- Yesterday's Low pressure area over the southeast Bay of Bengal & adjoining Equatorial Indian Ocean extending upto 5.8 Km above mean sea level persisted over the same region at 0300 UTC of today, 9th December 2024. 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:**

Parameter	Bay of Bengal (BoB)	Arabian Sea (AS)
<b>Sea Surface Temperature (SST) °C</b>	<ul style="list-style-type: none"> <li>➤ 26-28°C along &amp; off Bangladesh, Odisha and north Andhra Pradesh coasts.</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 &amp; adjoining eastcentral AS.</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>➤ 140-200 over north BoB &amp; adjoining eastcentral BoB.</li> <li>➤ 100-130 over Andaman Sea and extreme southern parts of south BoB.</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>➤ 30-40 over southwest and adjoining southeast BoB.</li> </ul>	<ul style="list-style-type: none"> <li>➤ 20-30 over extreme southcentral parts of south AS and adjoining EIO.</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 North Andaman Sea and central parts of central</li> </ul>	<ul style="list-style-type: none"> <li>➤ 5 over southeast AS.</li> </ul>

	BoB.	
<b>Upper-Level divergence</b> ( $\times 10^{-5} \text{ s}^{-1}$ )	➤ 10-30 over central and southwest BoB.	➤ 05-10 over northcentral parts of central AS and some parts of southwest AS.
<b>Vertical Wind Shear</b> (VWS knots) <b>Low: 05-10 knots</b> <b>Moderate: 10-20 knots</b> <b>High: &gt;20 knots</b>	➤ Low-moderate over southeast BoB. ➤ High over rest of BoB.	➤ Low to moderate over southeast and adjoining eastcentral & southwest AS. ➤ High over rest of AS.
<b>Wind Shear Tendency</b> (knots)	➤ Decreasing over central parts of south BoB. ➤ Increasing over rest of BoB.	➤ Increasing over north and adjoining parts of central AS.
<b>Upper tropospheric Ridge</b>	➤ At 12° N.	➤ At 12° 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. Scattered low and medium clouds with embedded moderate to intense convection lay over central 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 and isolated weak to moderate convection lay over central Arabian Sea.

**c) Outside India:**

Scattered low & medium clouds with embedded moderate to intense convection over Maldives, Tibet, China, South Thailand, Gulf of Thailand, Cambodia, Laos, 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 5.0N 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 16<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 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 <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 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 <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 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 <sup>th</sup> December without intensification. Less marked thereafter.	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-north-westward 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 southwest Bay of Bengal as on today, it will have west-north-westward 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-north-westward 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	Model indicates no significant system over AS during next 7 days.

	marked thereafter.	
<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-north-westward movement toward Sri Lanka 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>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-north-westward 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 southwest Bay of Bengal and adjoining east equatorial Indian Ocean as of today having diurnal variation. it will have west-north-westward 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 southeast Bay of Bengal & adjoining Equatorial Indian Ocean extending upto 5.8 Km above mean sea level persisted over the same region at 0300 UTC of today, 9th December 2024. 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:**

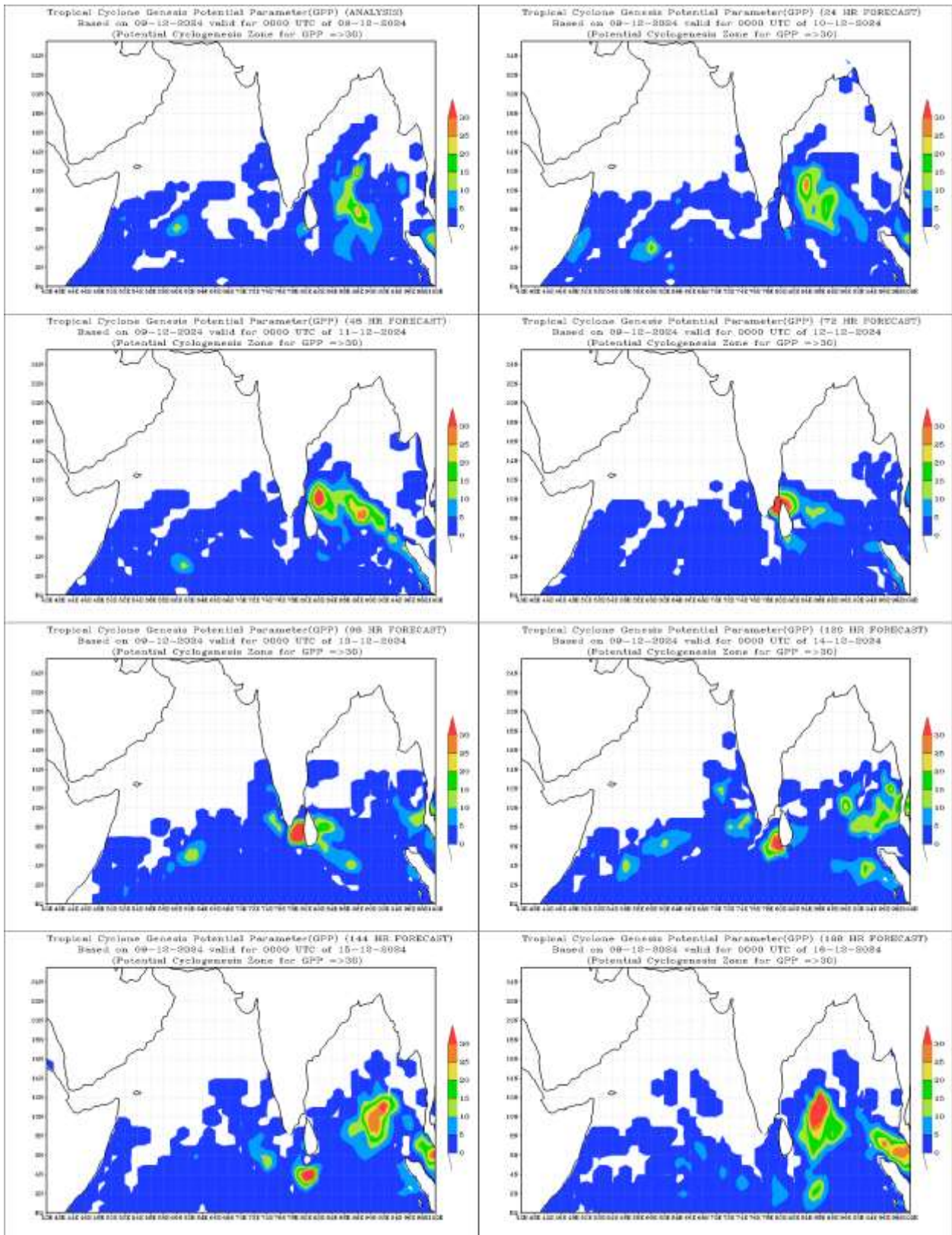
24 HOURS	24-48 HOURS	48-72 HOURS	72-96 HOURS	96-120 HOURS	120-144 HOURS	144-168 HOURS
NIL	NIL	NIL	NIL	NIL	NIL	NIL

“- “indicates genesis has already occurred.

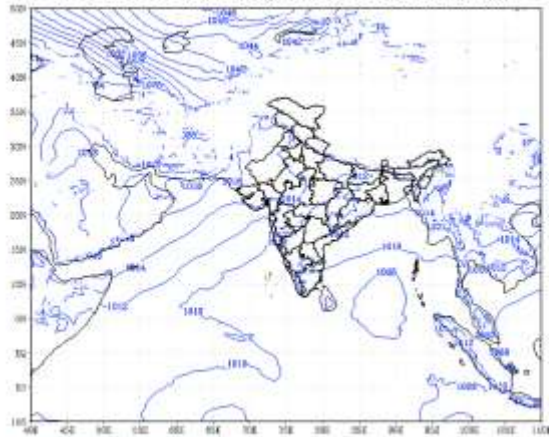
Probability is indicated as NIL for 0%, LOW for 1-33%, MOD for 34-67% and High for 68-100%.

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

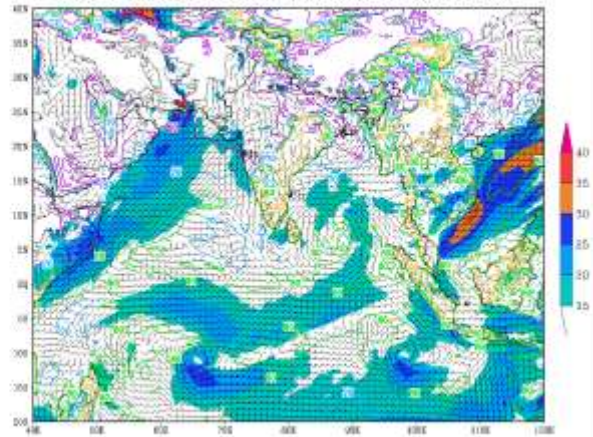
# ANNEXURE



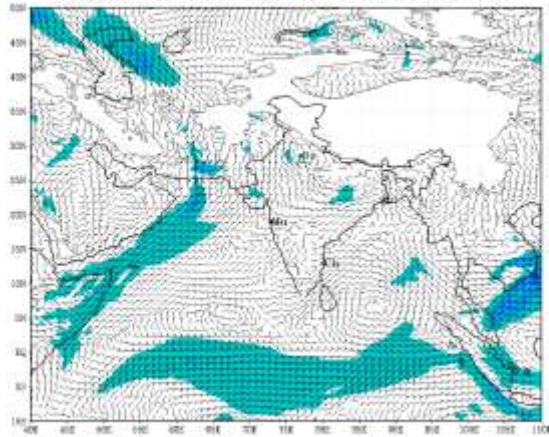
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based on 00 UTC of 09-12-2024 valid for 00 UTC of 09-12-2024



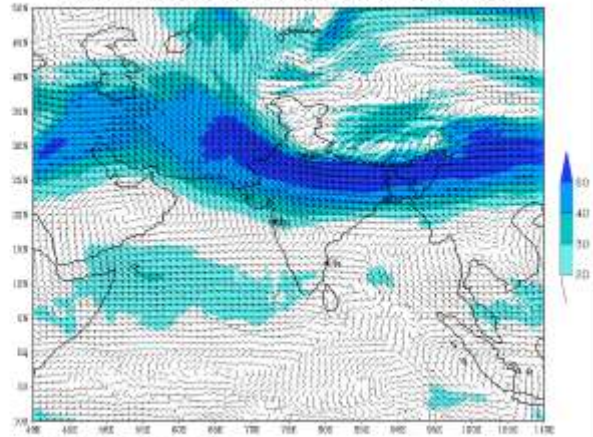
IMD :GFS(12Km) 10m WIND (barb)& GUST (shaded:kt) FORECAST (00 HR)  
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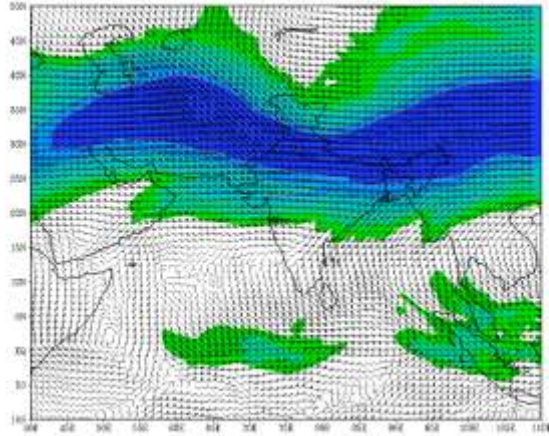
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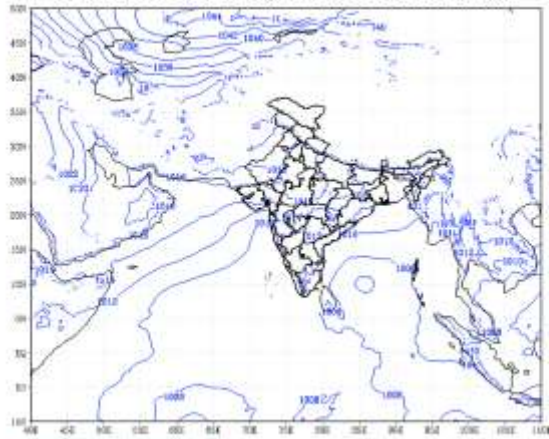
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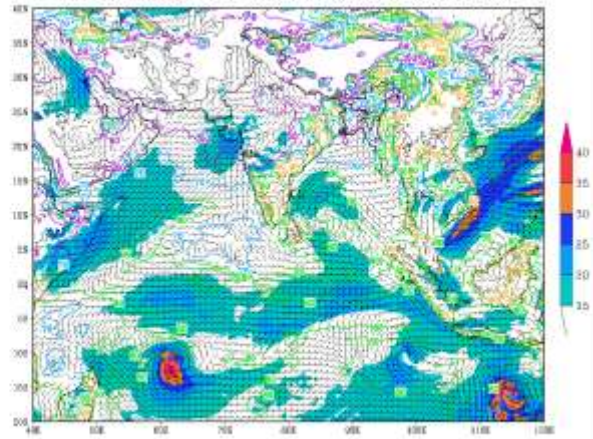
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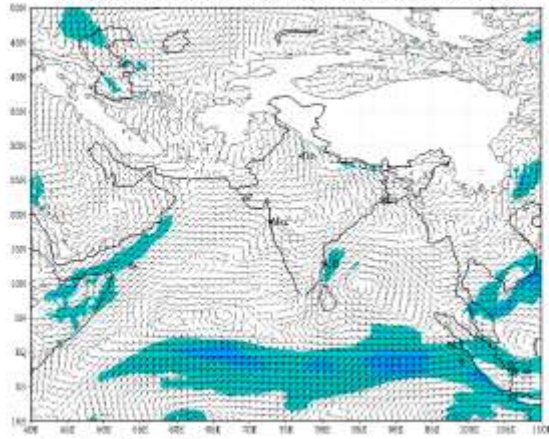
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based on 00 UTC of 09-12-2024 valid for 00 UTC of 10-12-2024



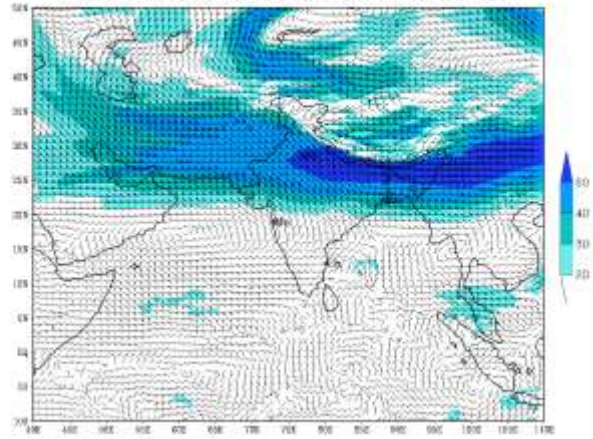
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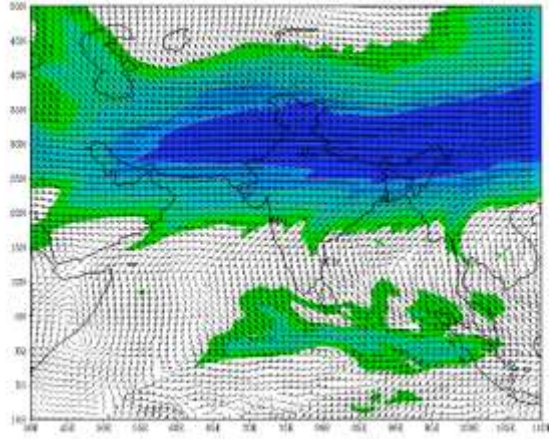
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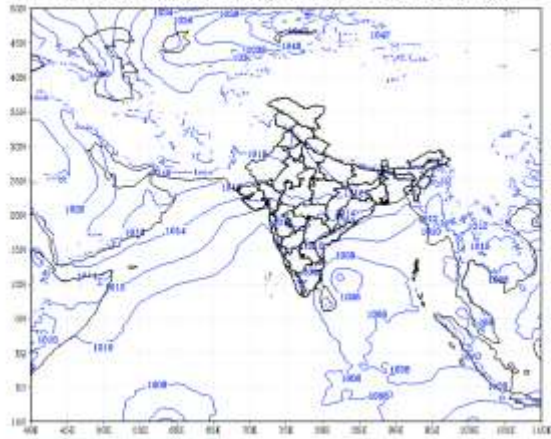


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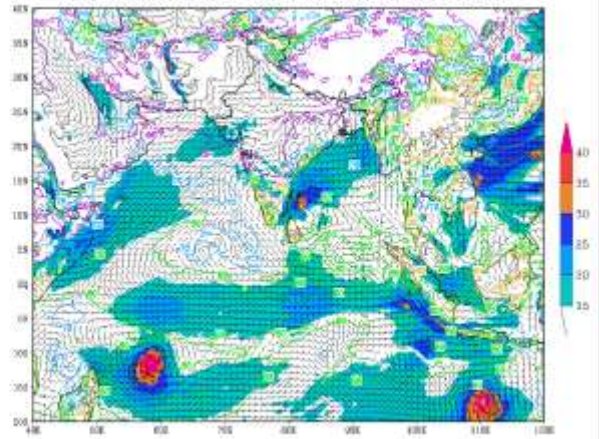


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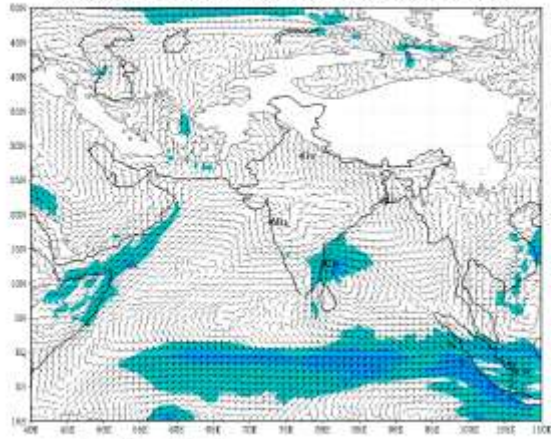
(Background Area not depict political boundary)

IMD: GFS(12Km) 10m WIND (barb)& GUST (shaded:kt) FORECAST (48 HR)  
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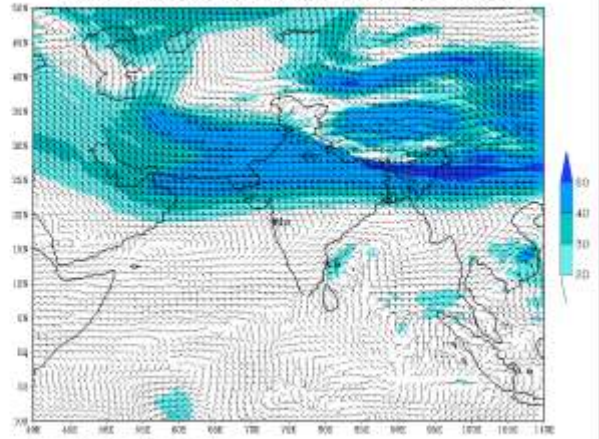
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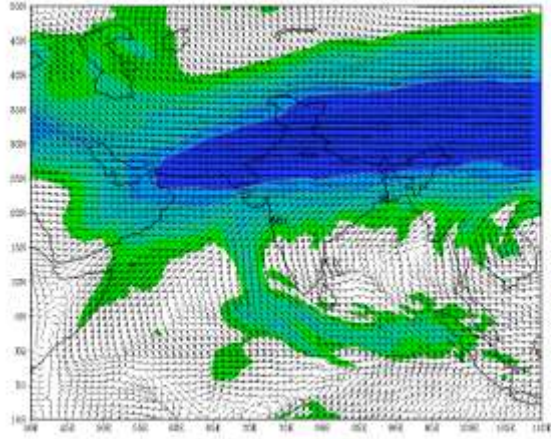
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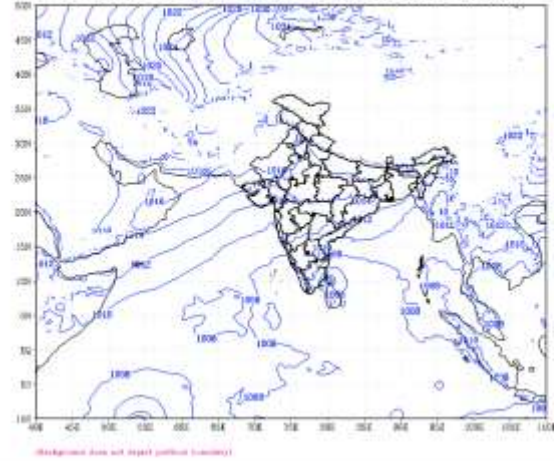
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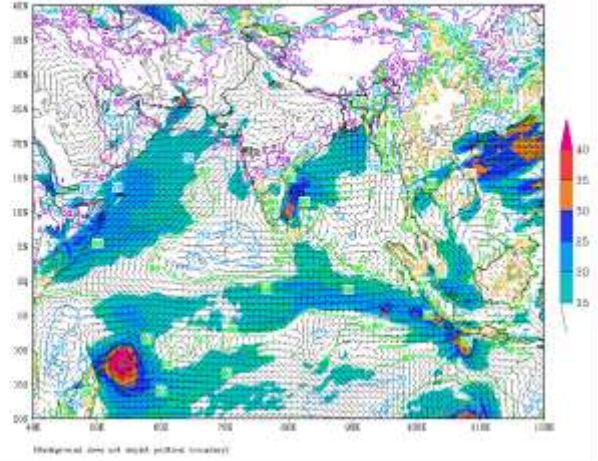


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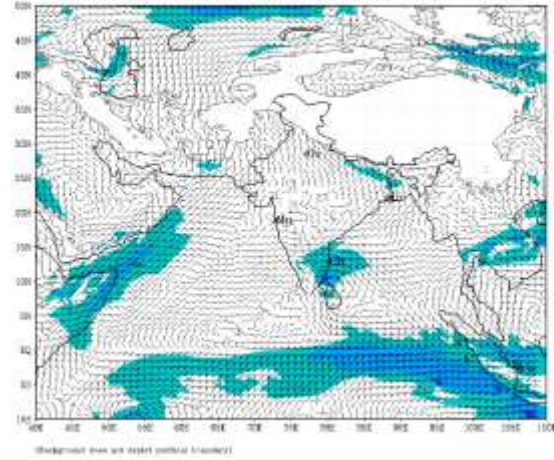
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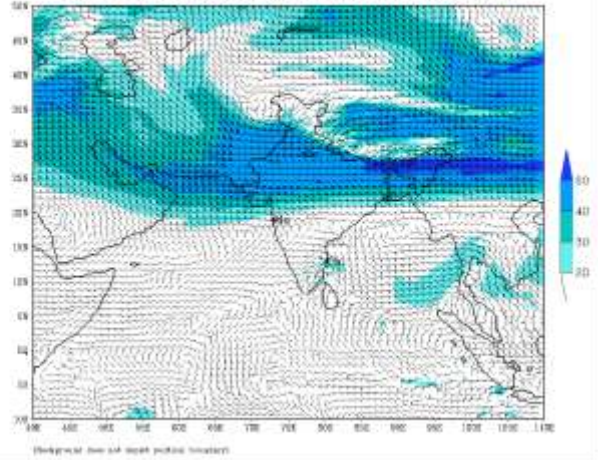
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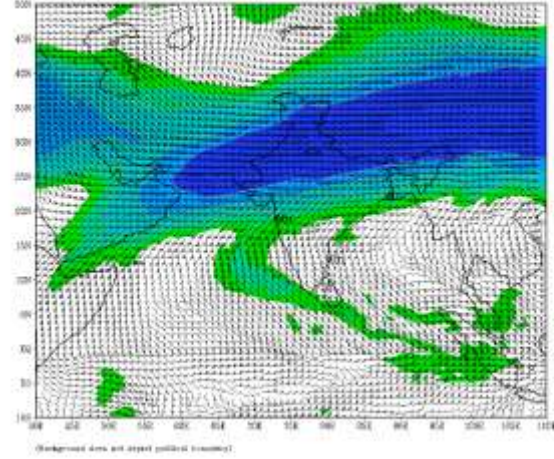
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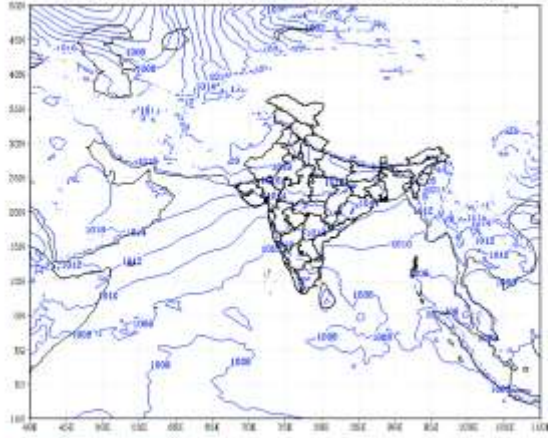
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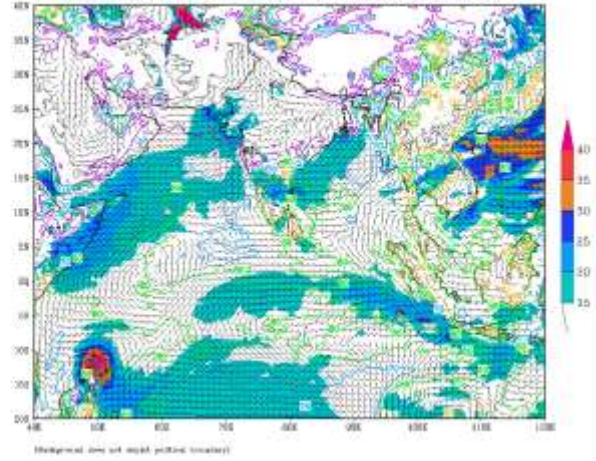
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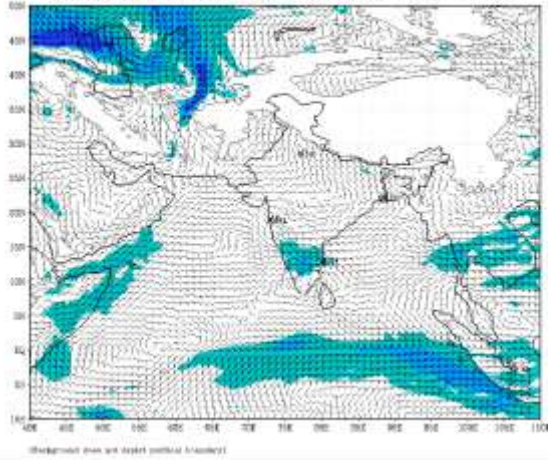
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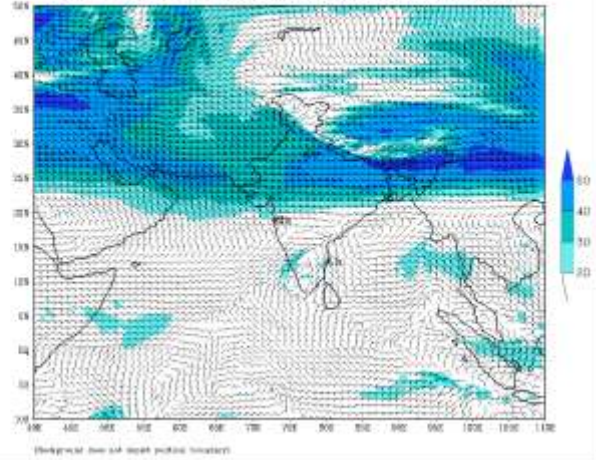
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