Spatio-temporal Variability of the Low Level Jetstream of Asian Summer Monsoon

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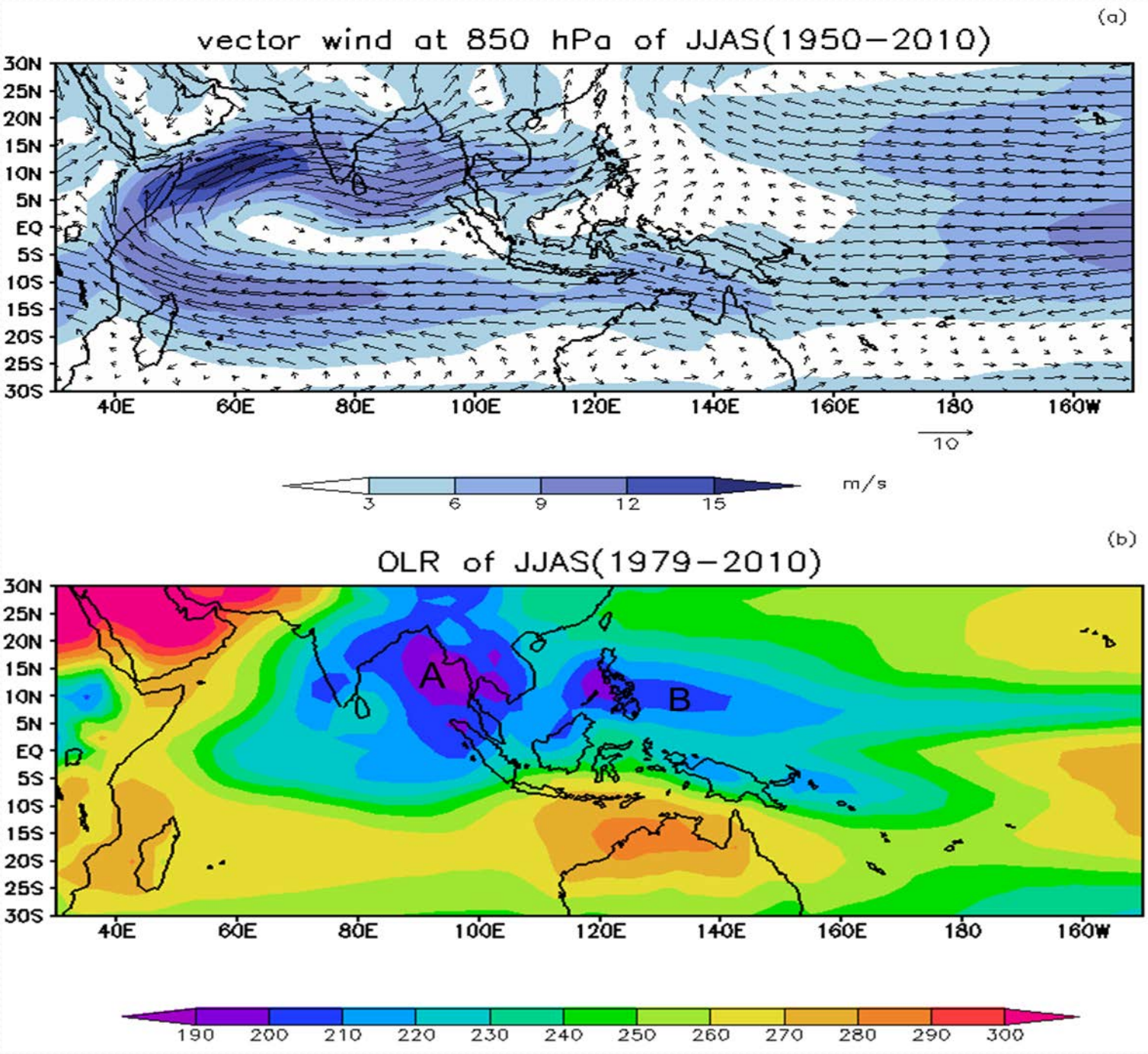
Outline

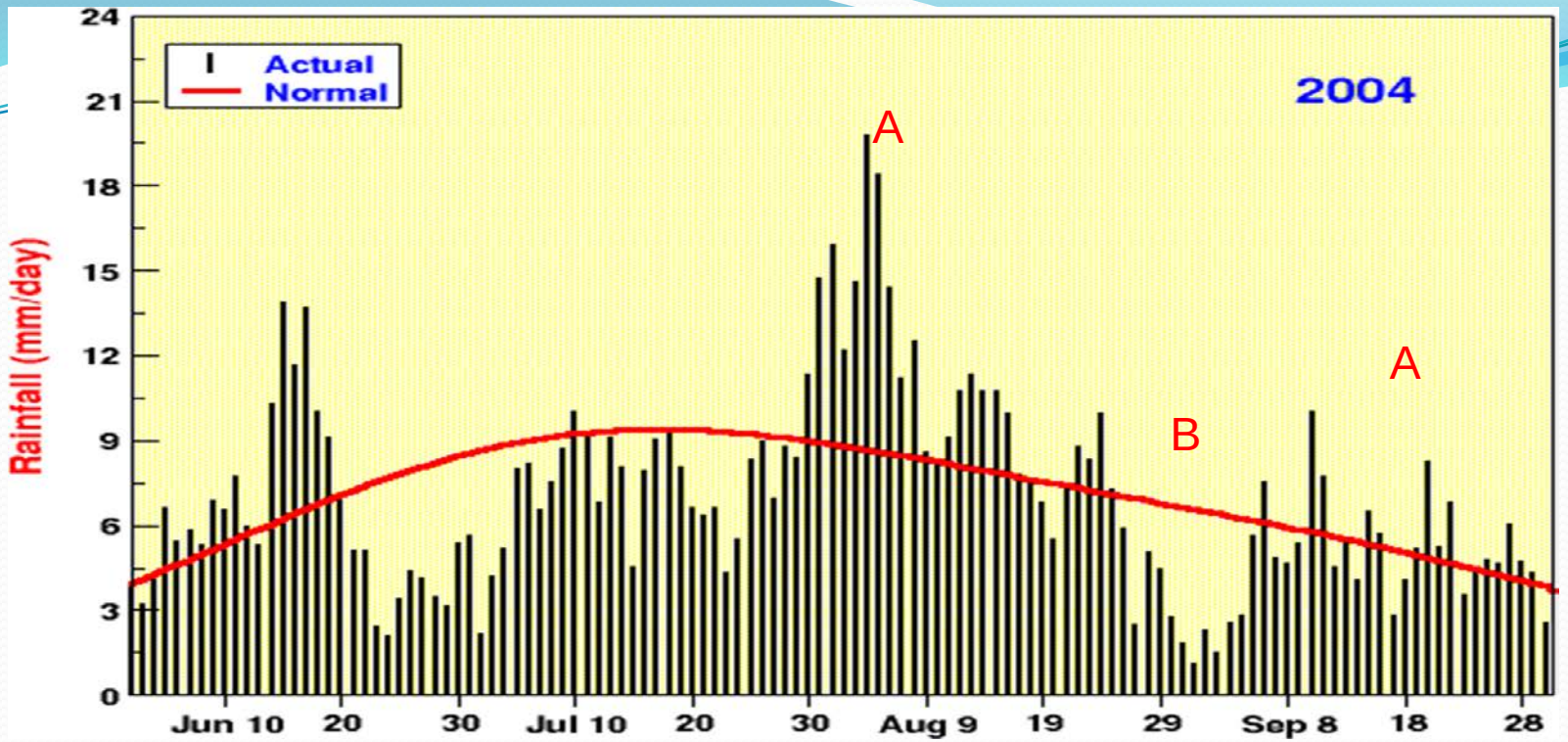
- Introduction
- Data
- Results
- Summary
- Acknowledgement

Introduction



Data

- Wind : NCEP/NCAR Reanalysis Data
- Sea Surface Temperature (SST): TMISST
- Outgoing Longwave Radiation(OLR): NOAA



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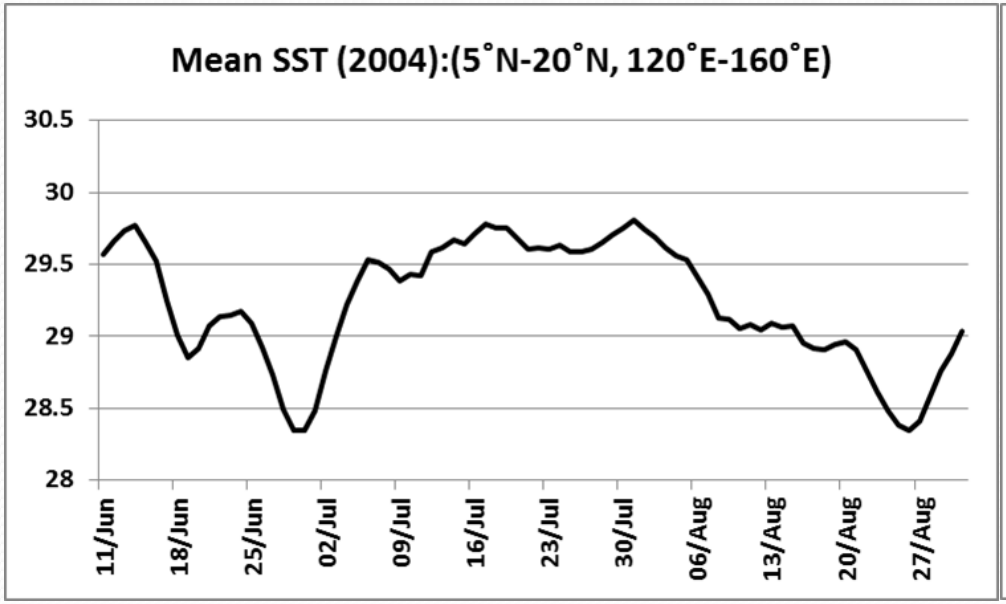

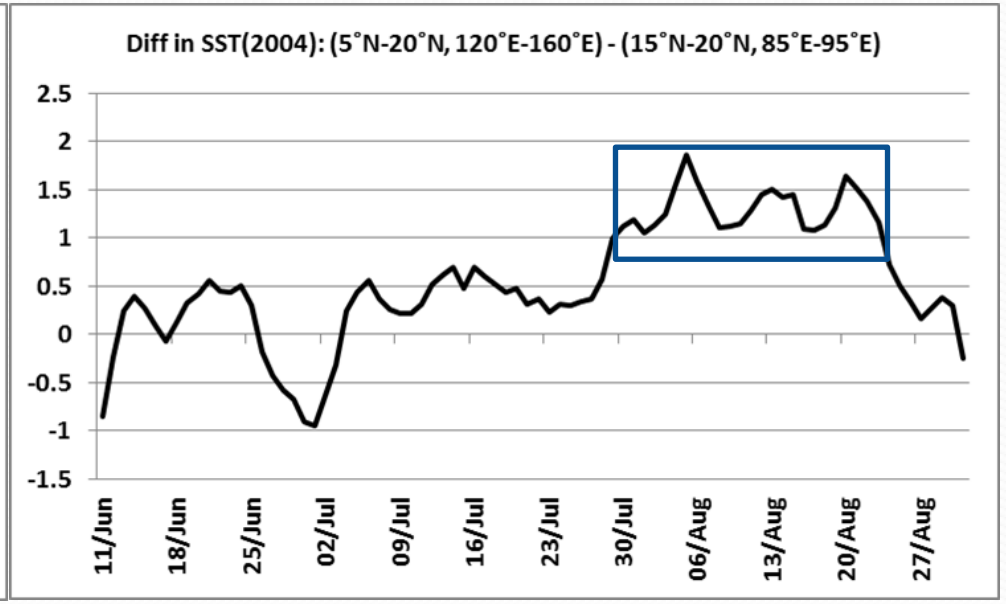

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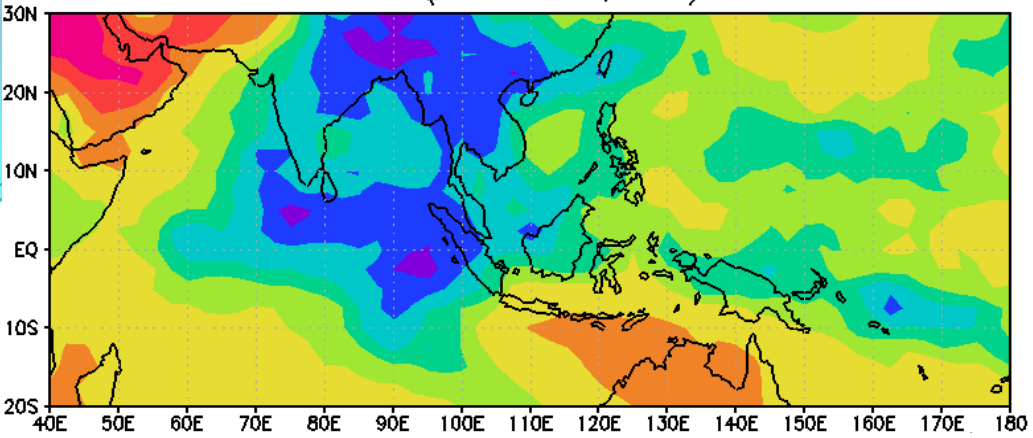

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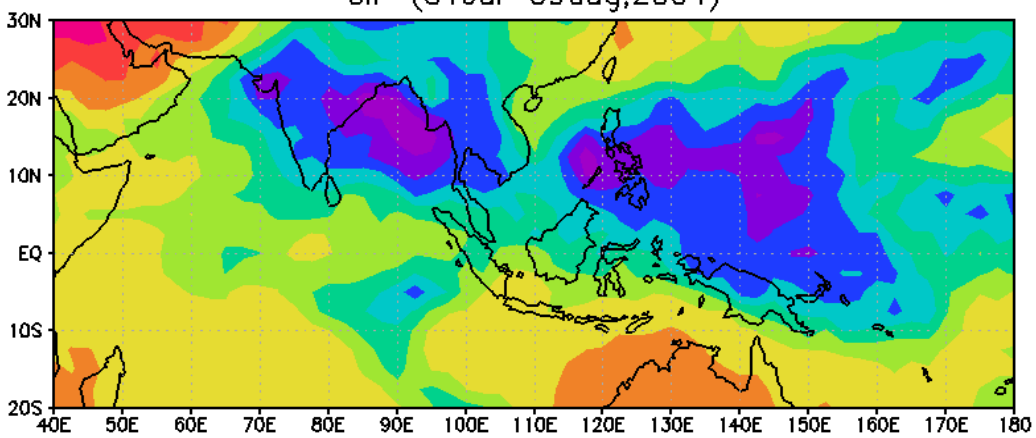

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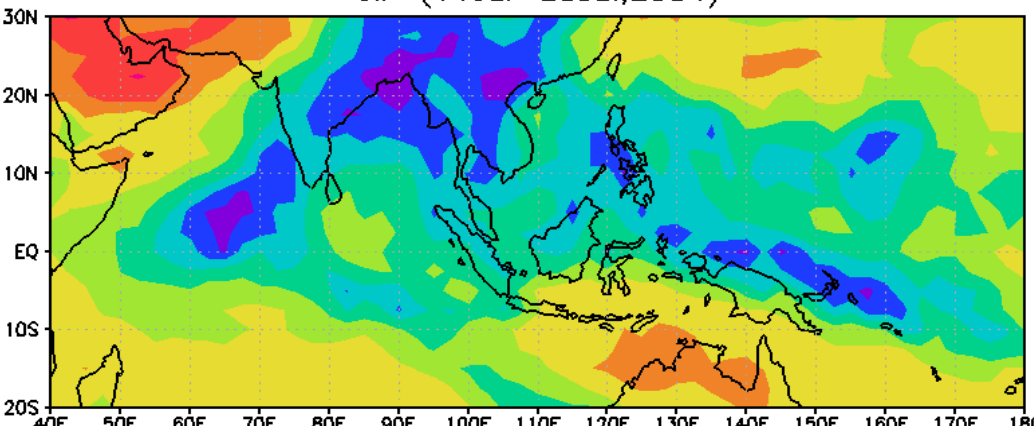

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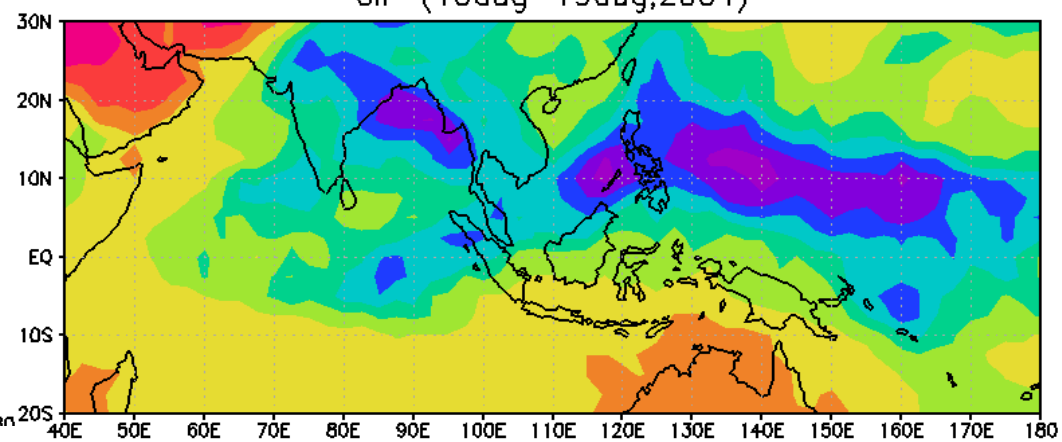

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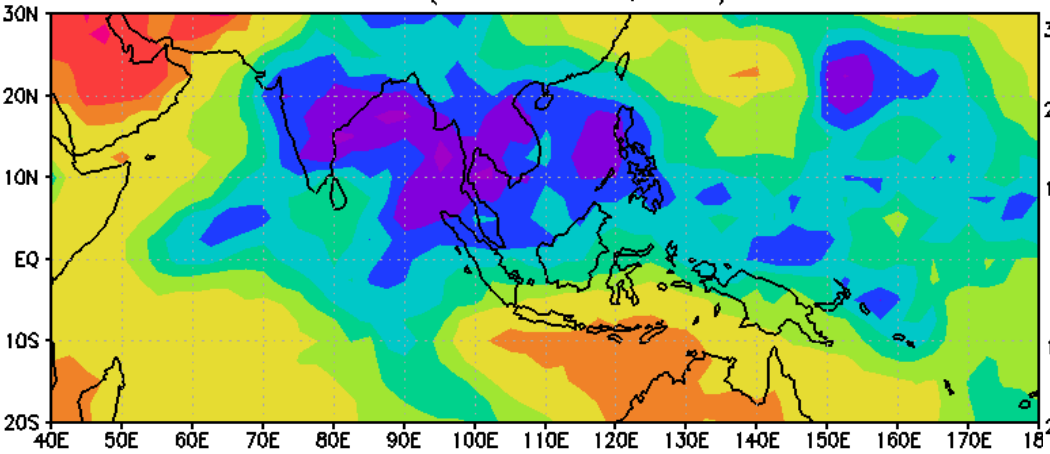

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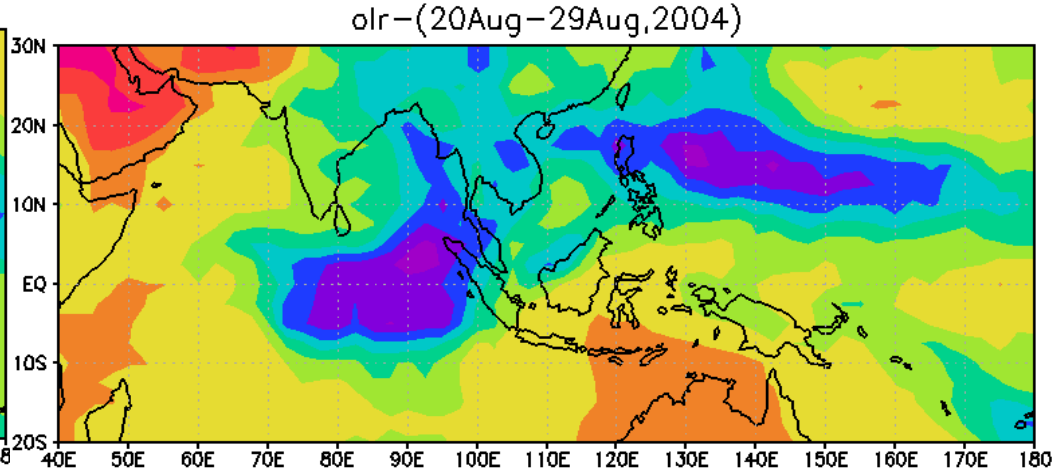

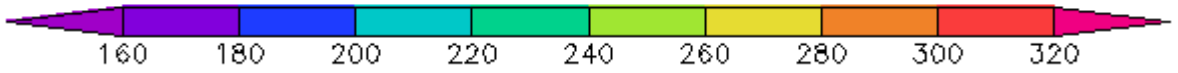

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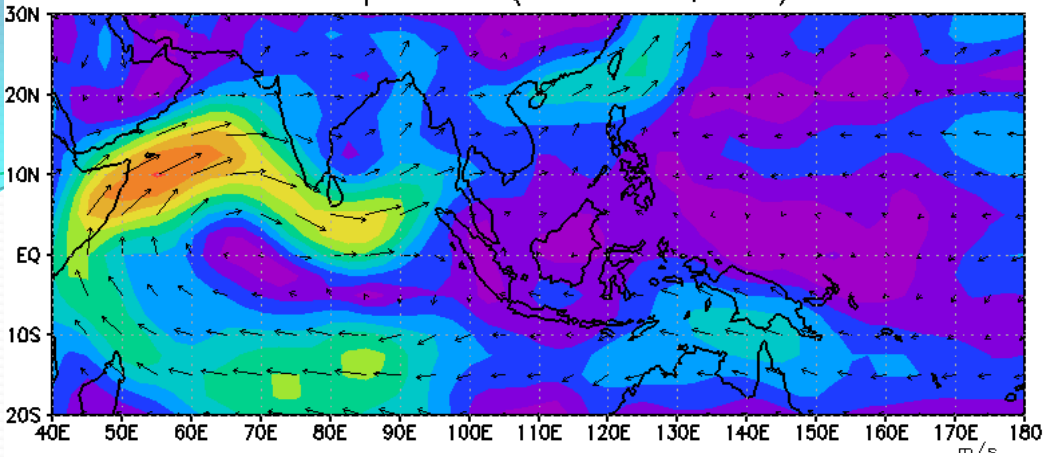

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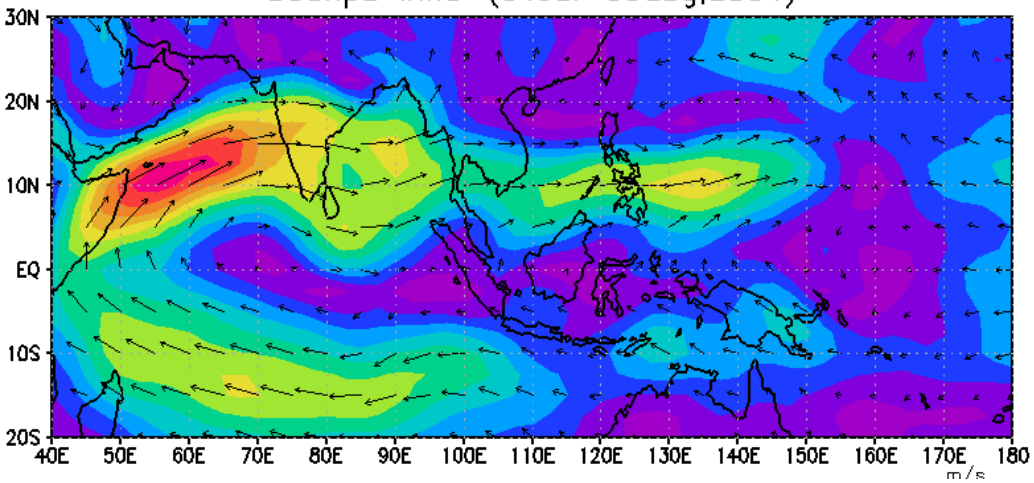

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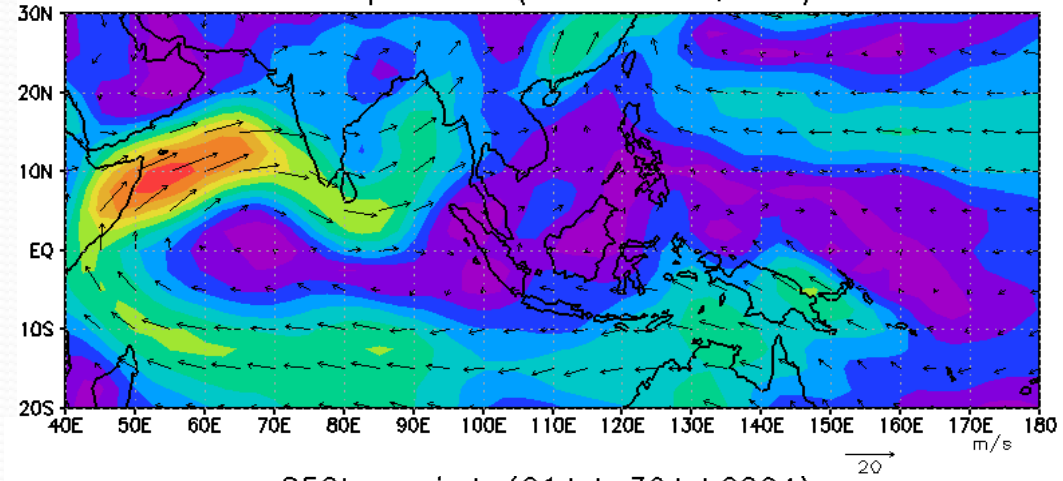

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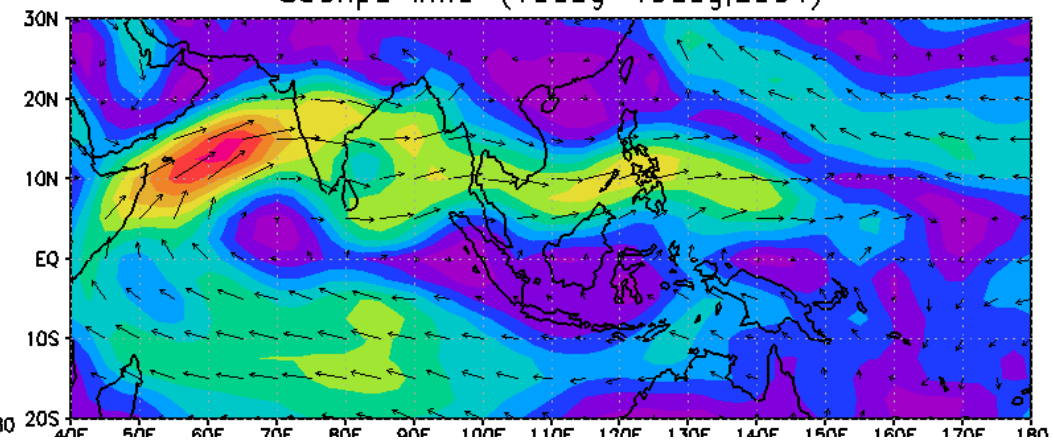

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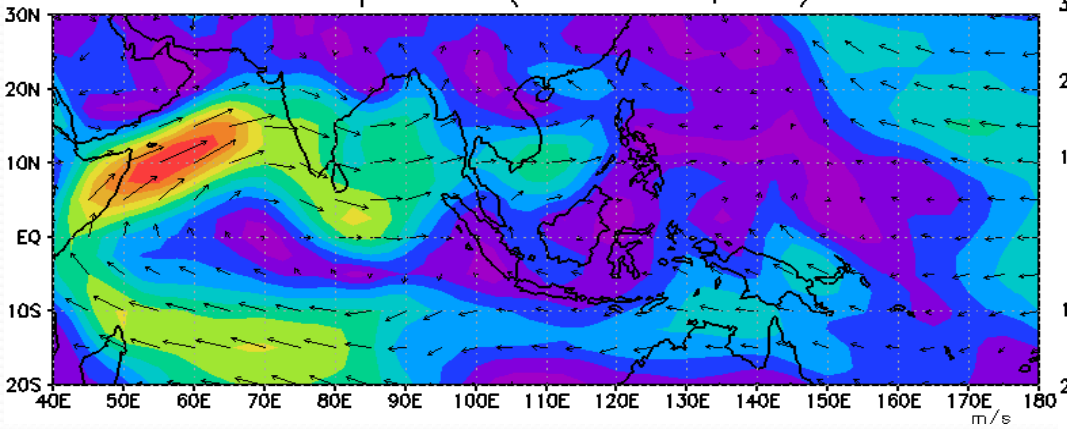

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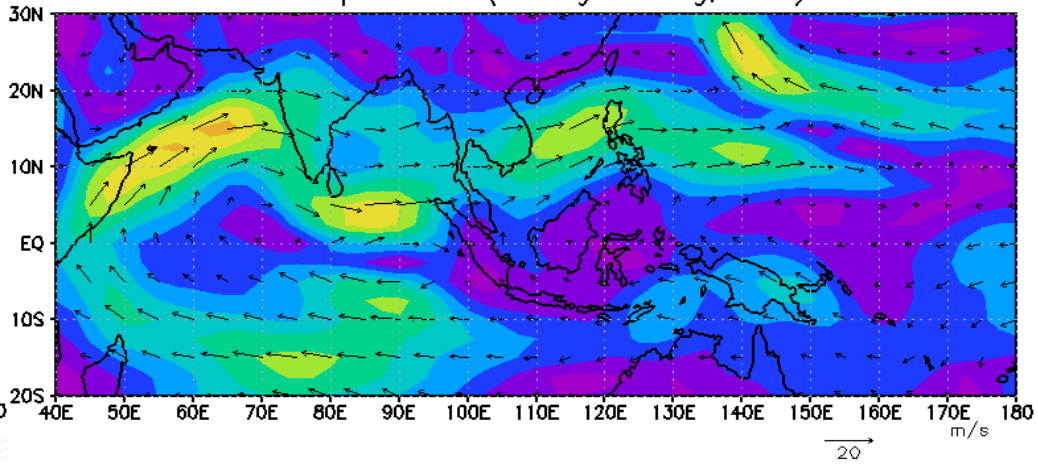

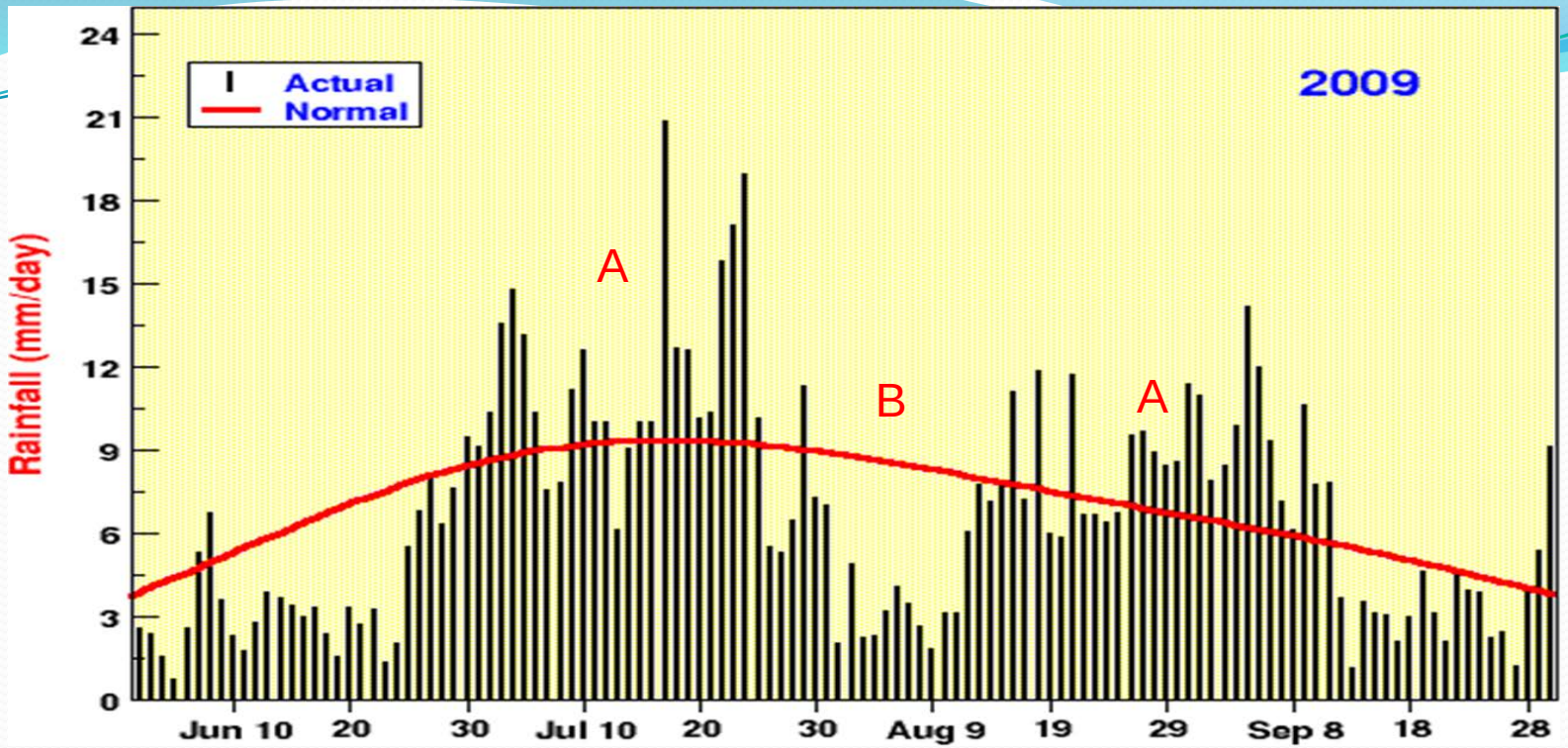

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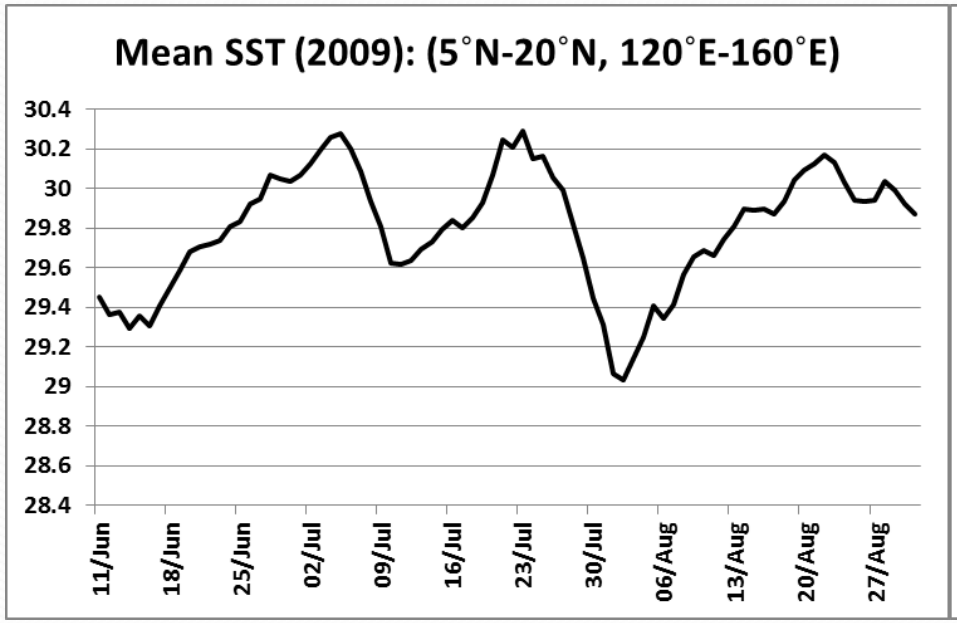

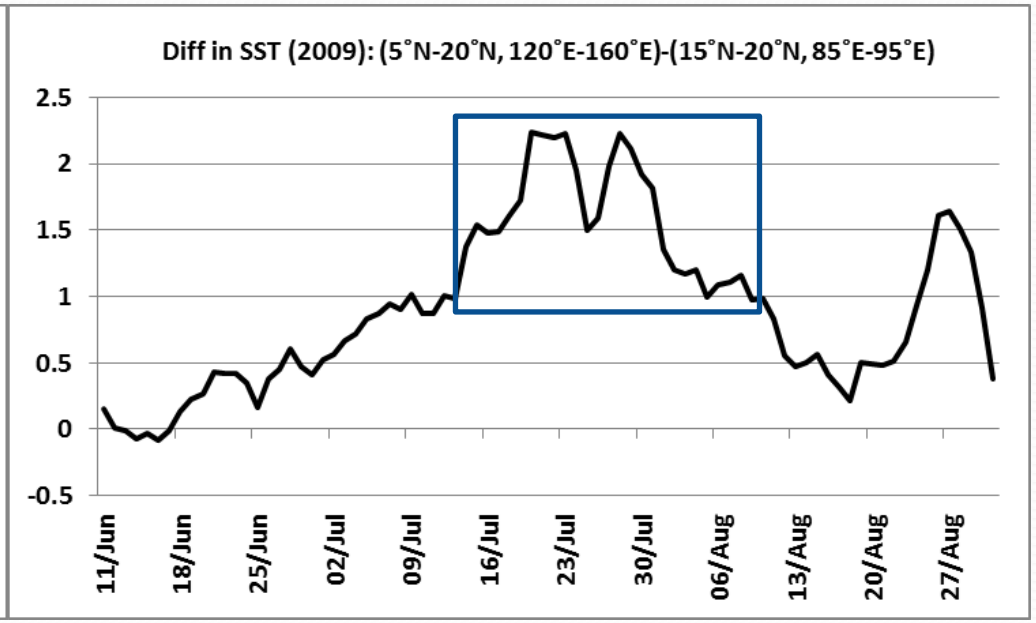

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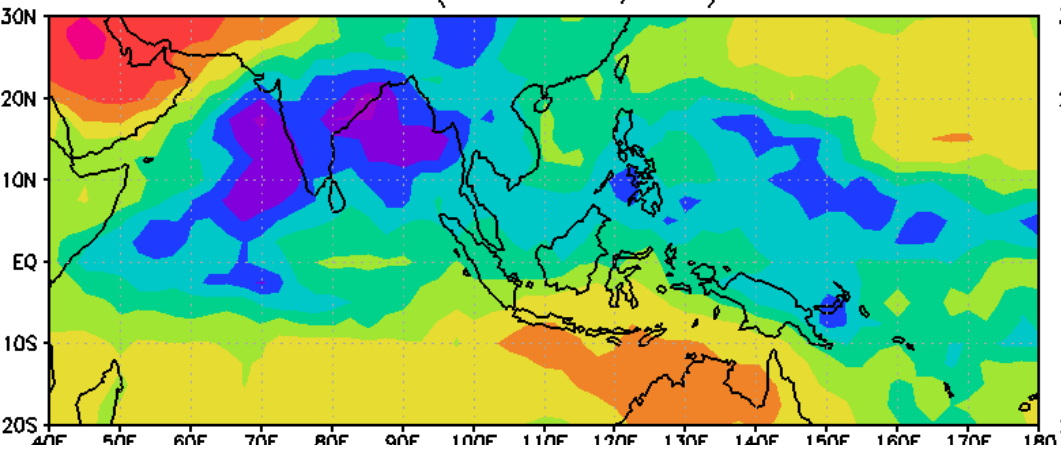

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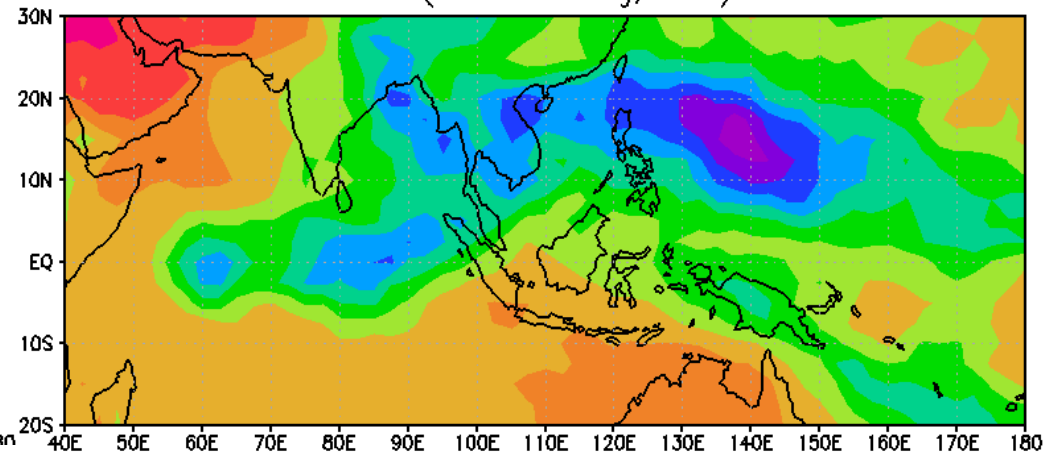

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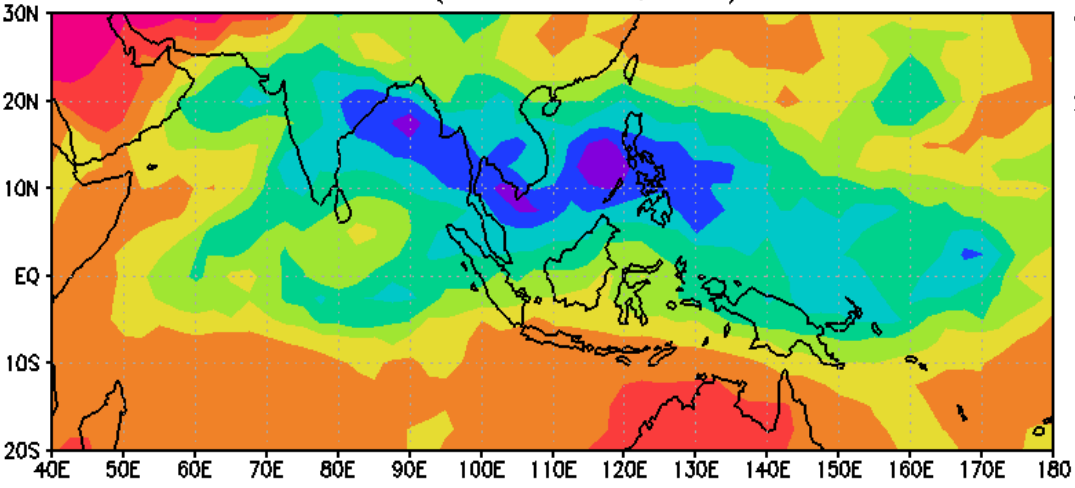

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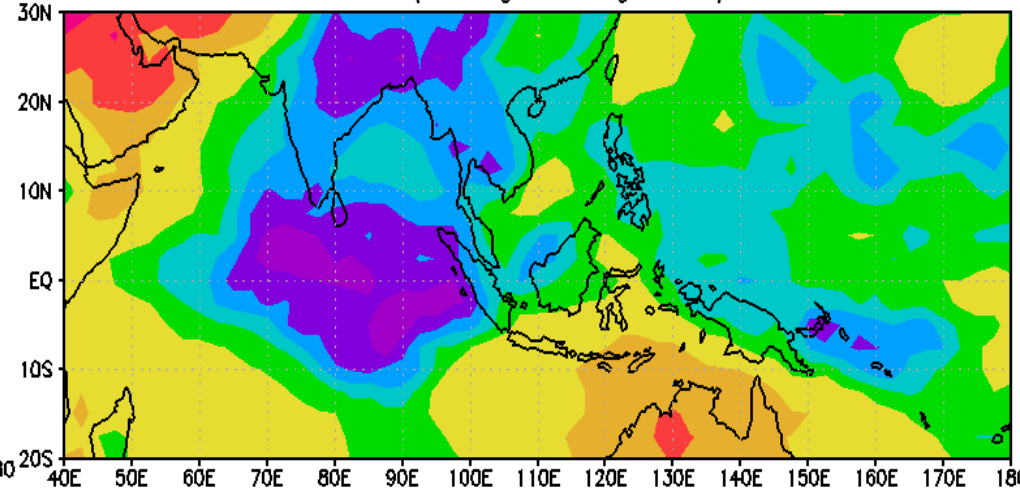

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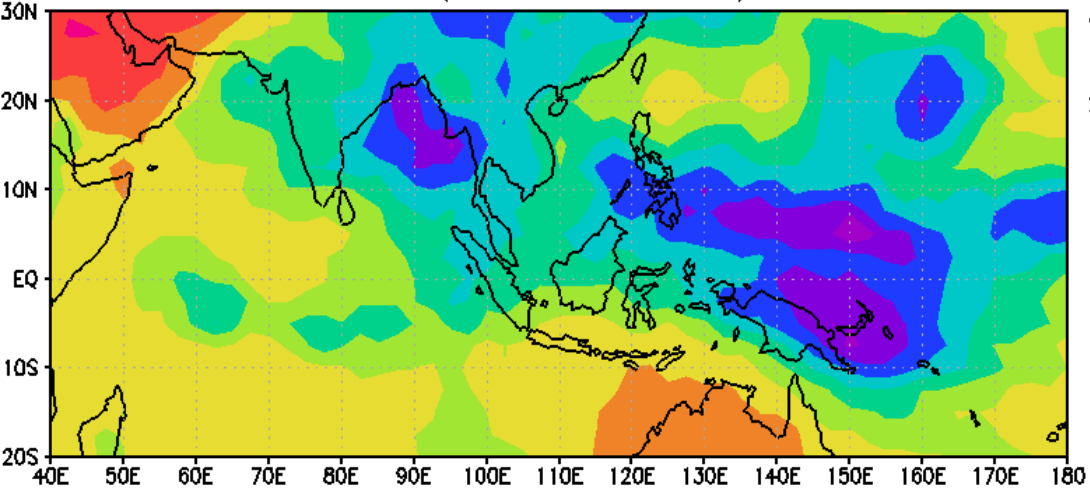

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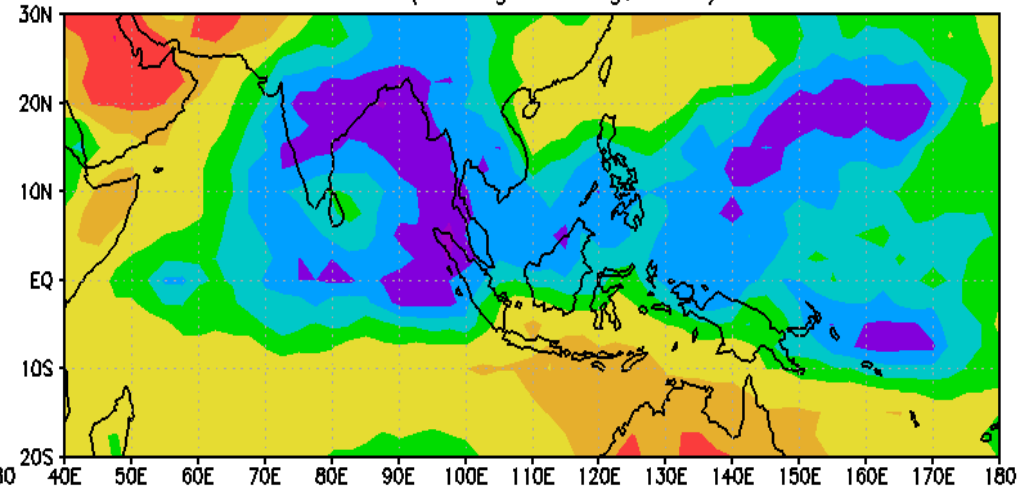

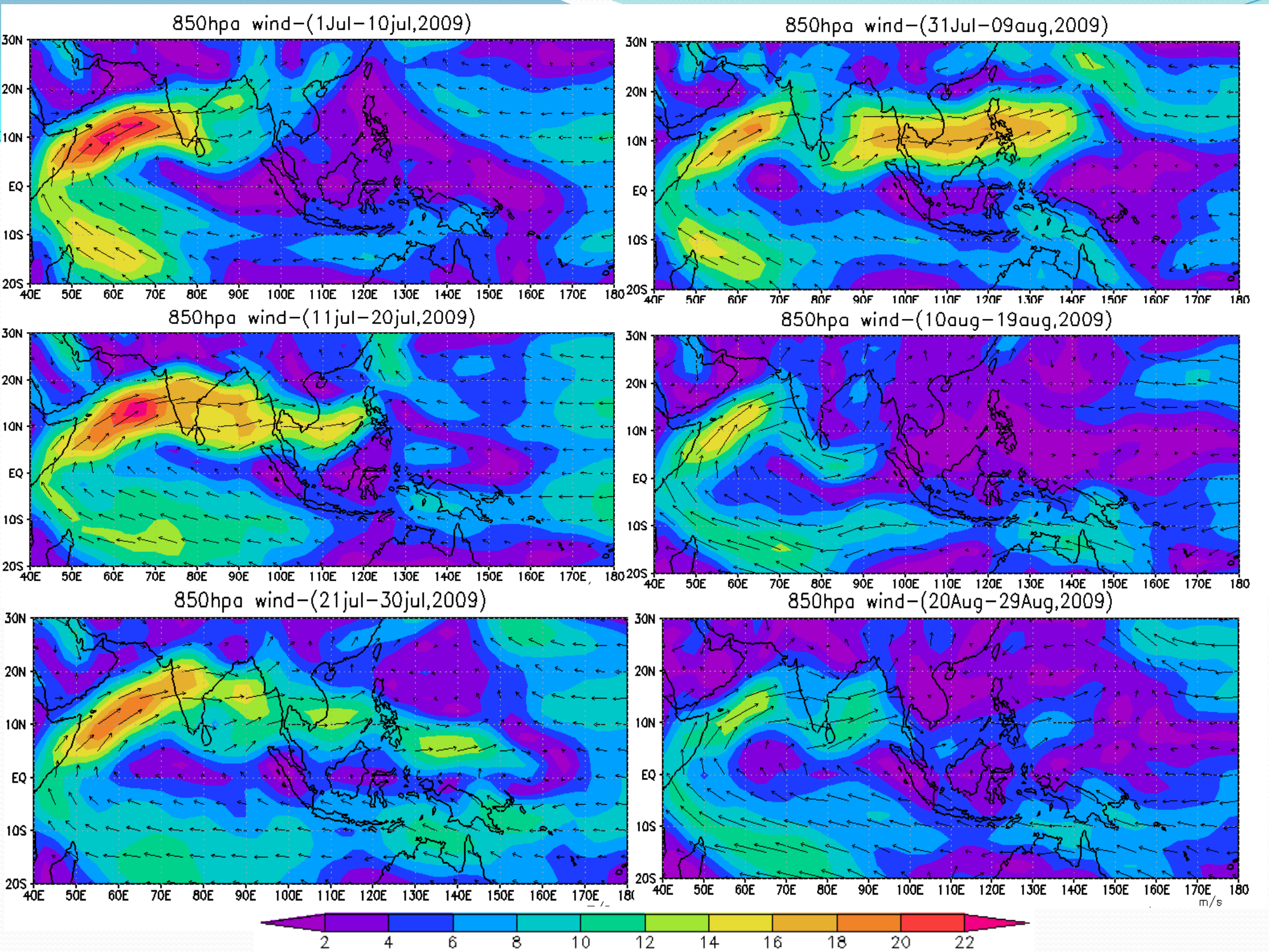
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850hpa wind-(21jul-30jul,2009)
850hpa wind-(20Aug-29Aug,2009)
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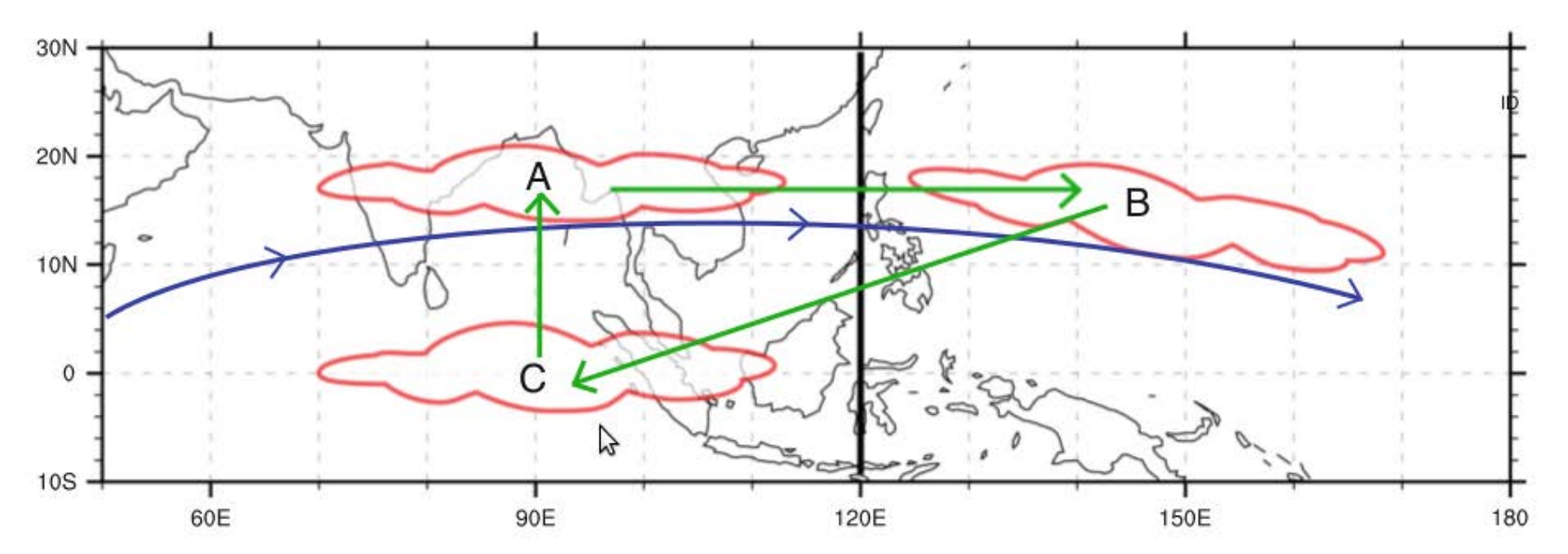
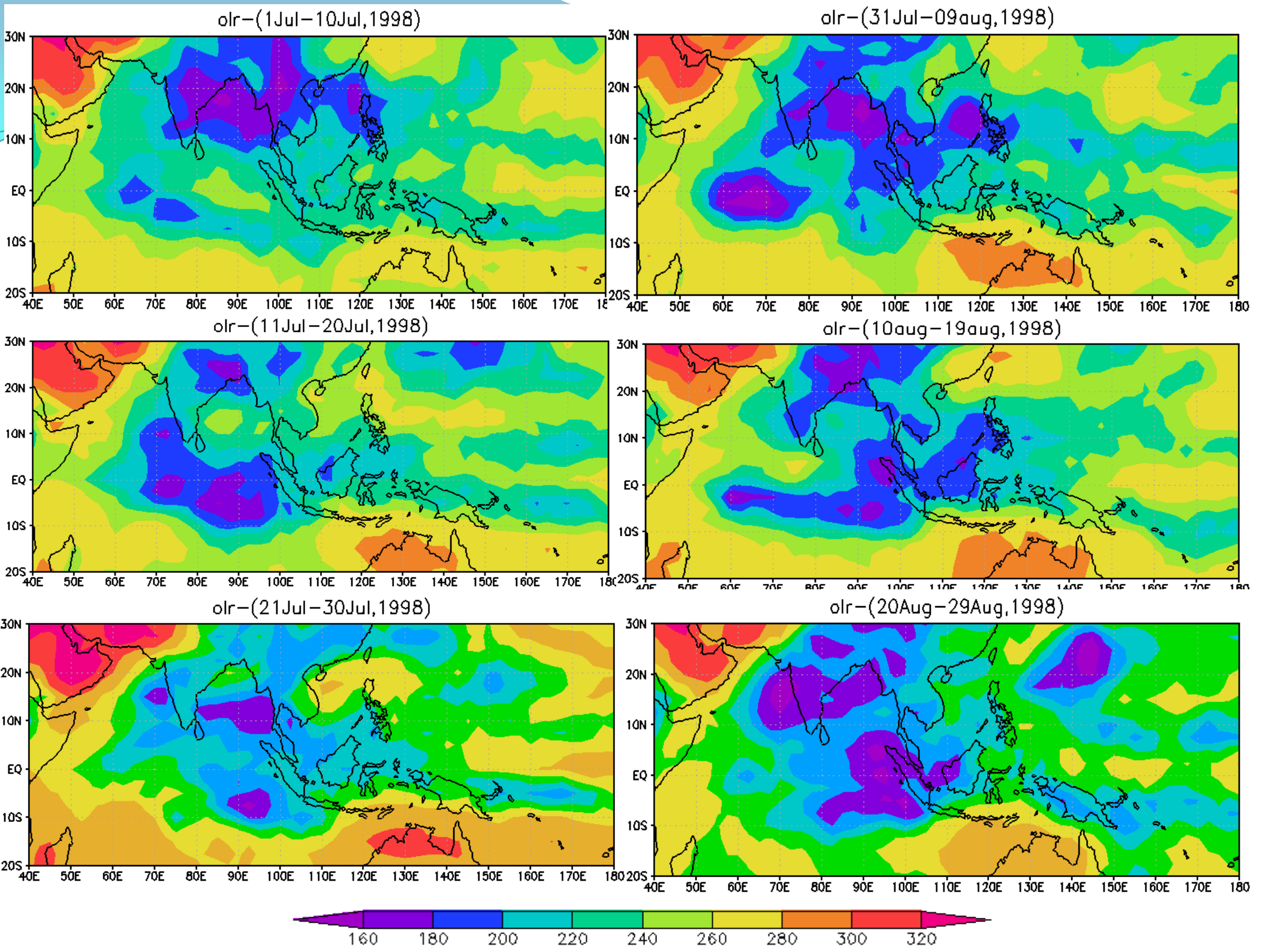


Schematic diagram showing the location A, B and C of convection in the active break cycle. Adopted from Joseph(2014)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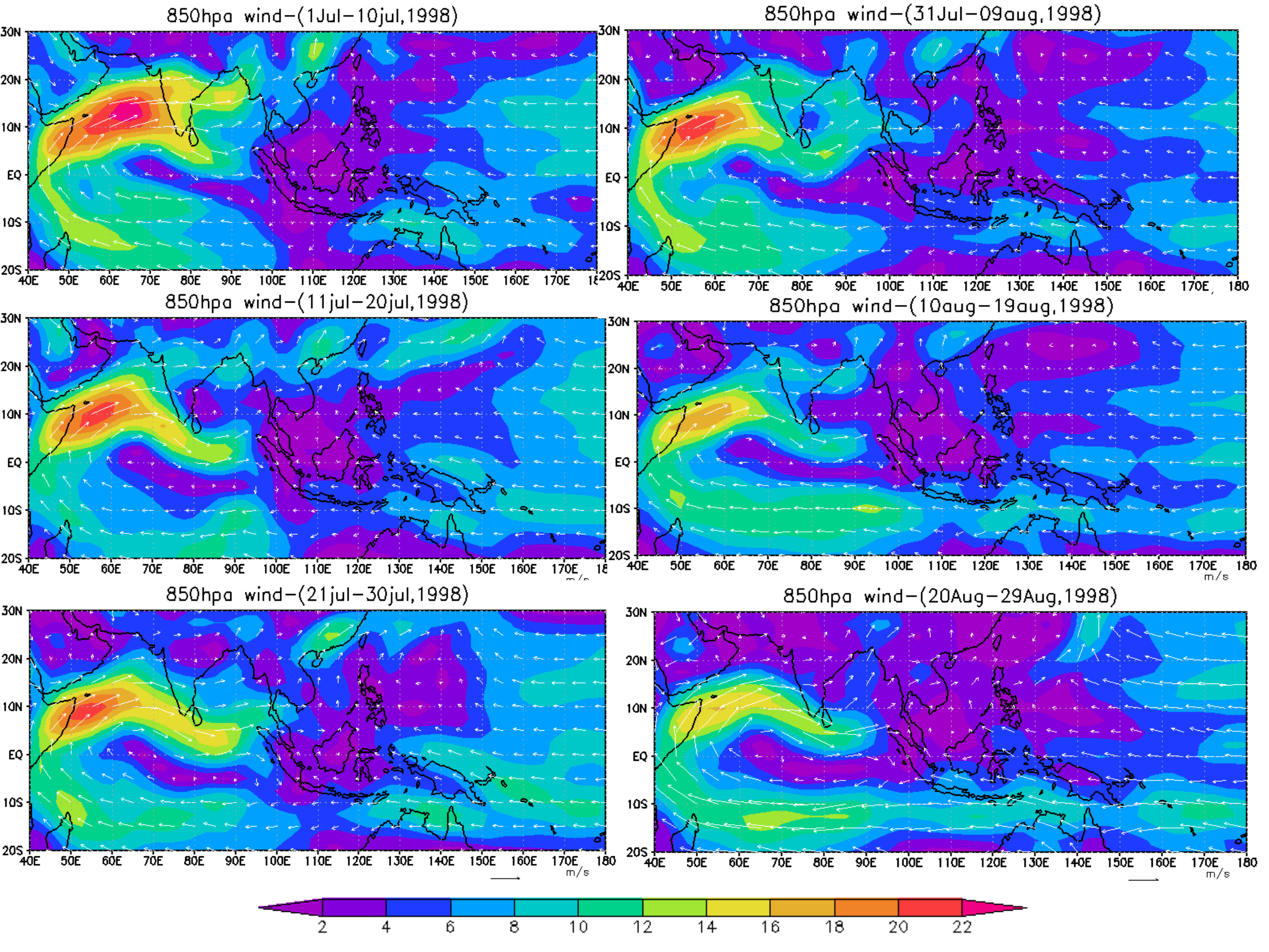
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850hpa wind-(20Aug-29Aug,1998)
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Summary

- In an El Nino year, when monsoon is active over Indian Ocean, clouds and rain are suppressed over west Pacific which has shallow mixed layer. As a consequence SST increases there.
- It is seen that when the SST difference between West Pacific and Bay of Bengal reaches 1°C, convection begins in West Pacific which pulls the LLJ towards the date line.
- Thus the eastward extension of the LLJ observed in the monsoon season in an El- Nino year happens only during the periods when monsoon is weak over India in the Active-break cycle
- In a La Nina year, the mixed layer over west Pacific Ocean is thick(60-70 m) and it has very little intra-seasonal variation of temperature, only a slow increase in SST during the monsoon season. LLJ does not get extension eastwards in west Pacific ocean beyond the Philippines (120E)

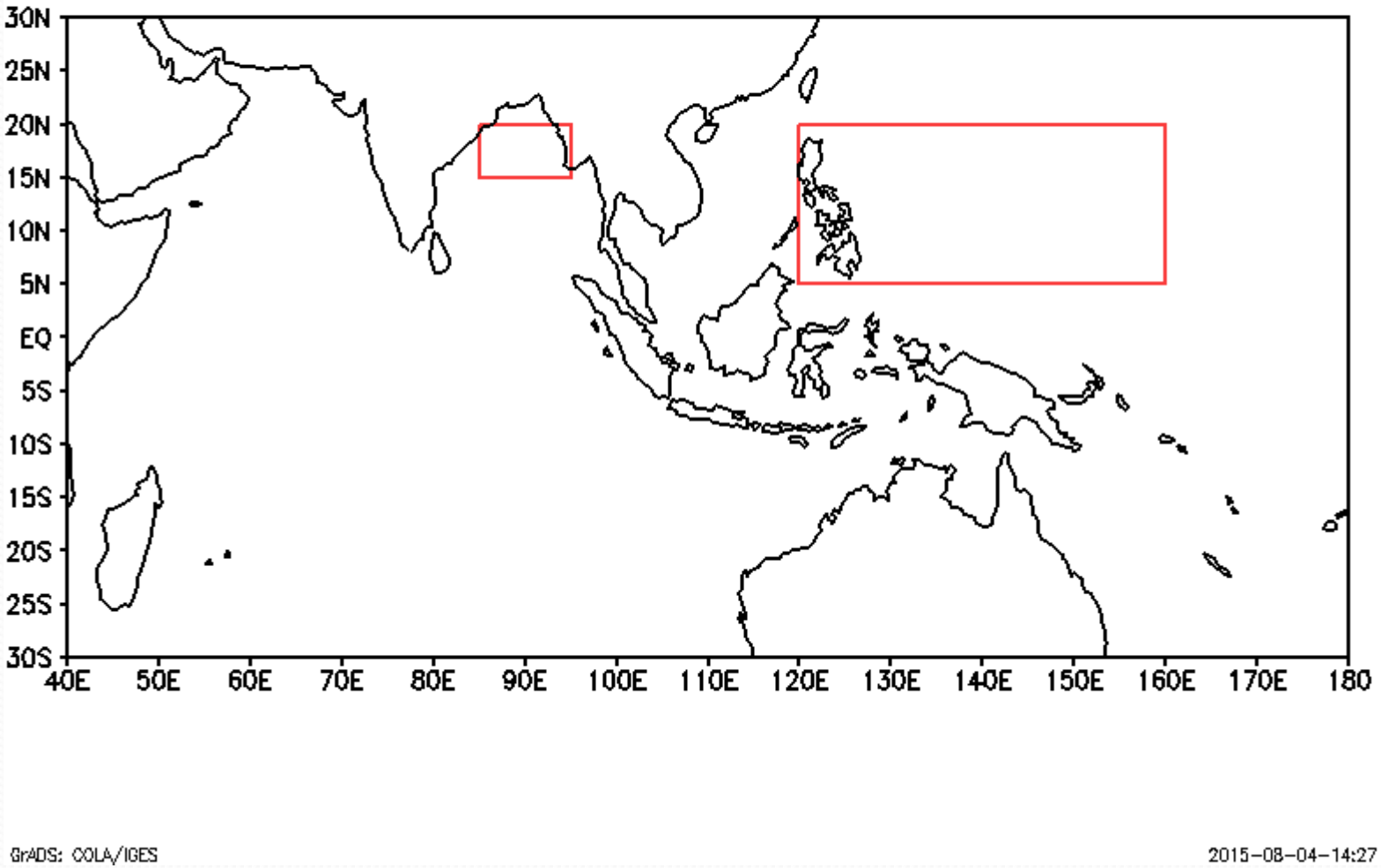
References

Joseph PV (2014) Role of ocean in the variability of Indian summer monsoon rainfall. Surveys Geophys 35: 723-738

Acknowledgement:

- I am thankful to Nansen Scientific Society for providing me a Ph.D fellowship

THANK YOU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