



**BMKG**

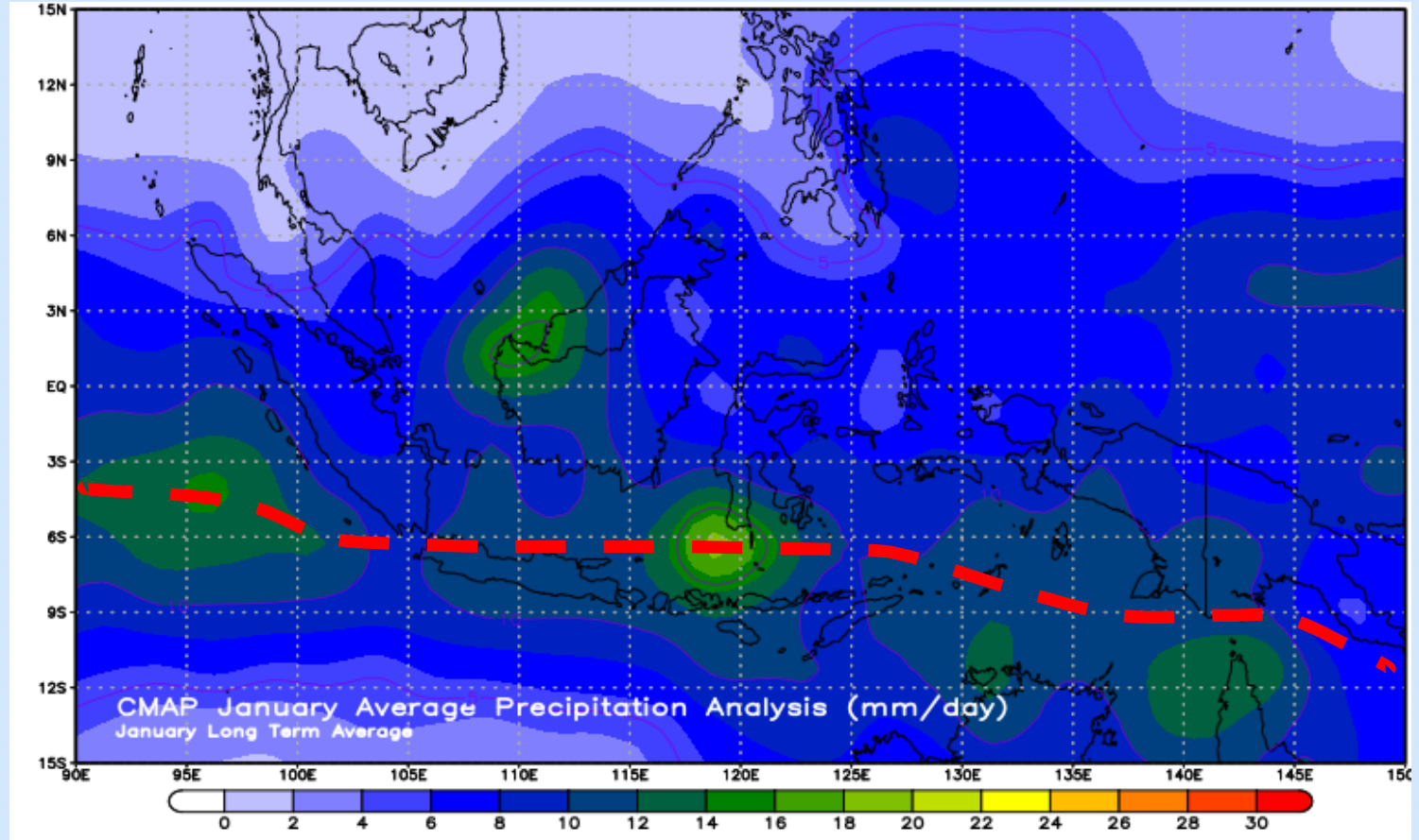
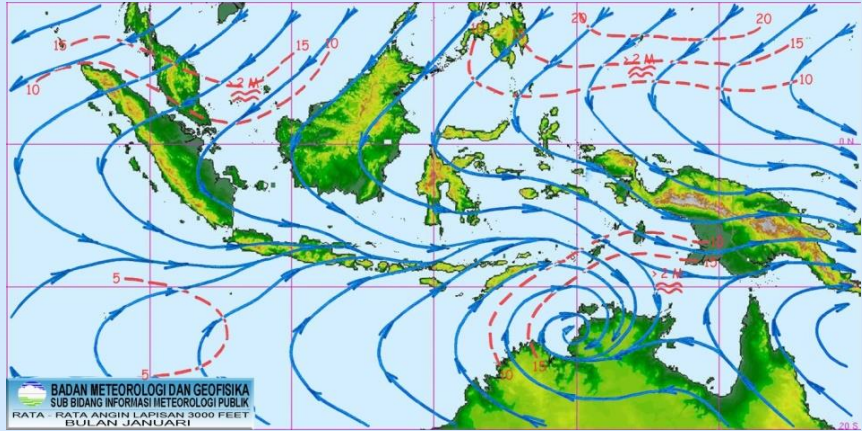
# **ITCZ Displacement in the event of MJO on the Maritime Continent during Asian Monsoon Period**

**Achmad Rifani, Mia Khusnul Khotimah, Nanda Alfuadi  
Center for Public Weather Services, BMKG**

**For the  
Australian VLab Centre of Excellence Regional Focus Group Meeting  
31 October 2017**

# ITCZ on the Maritime Continent

## January



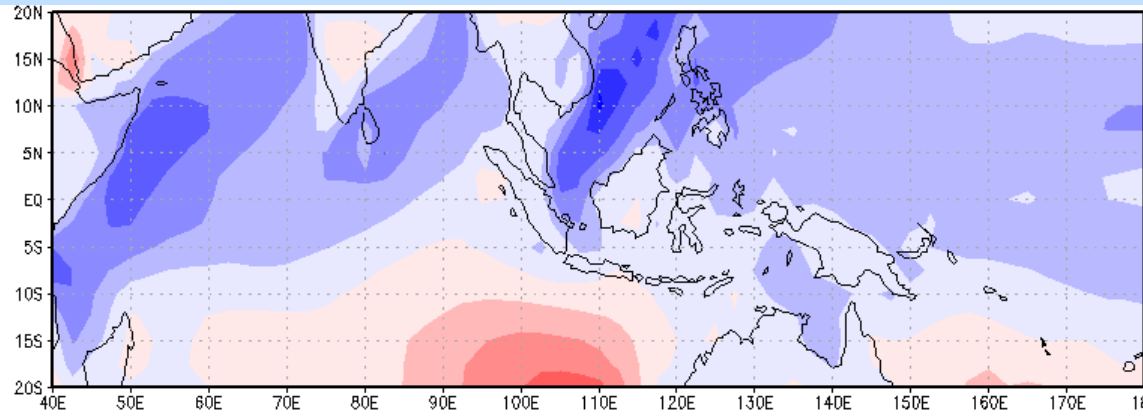
- 1x1° ECMWF Reanalysis for wind and vorticity field
- Satellite IR Data.
- During phase 2 – 5 MJO, in December - February



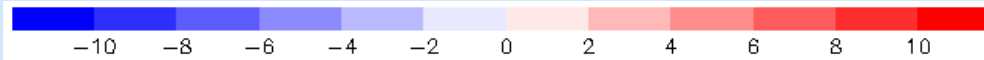
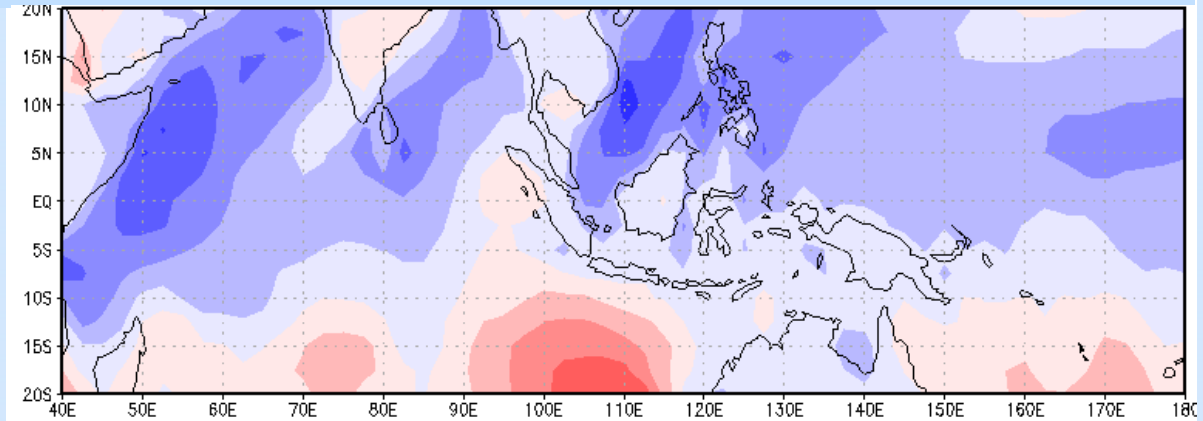
# ITCZ on the Maritime Continent

## DJF, MJO Phase 3

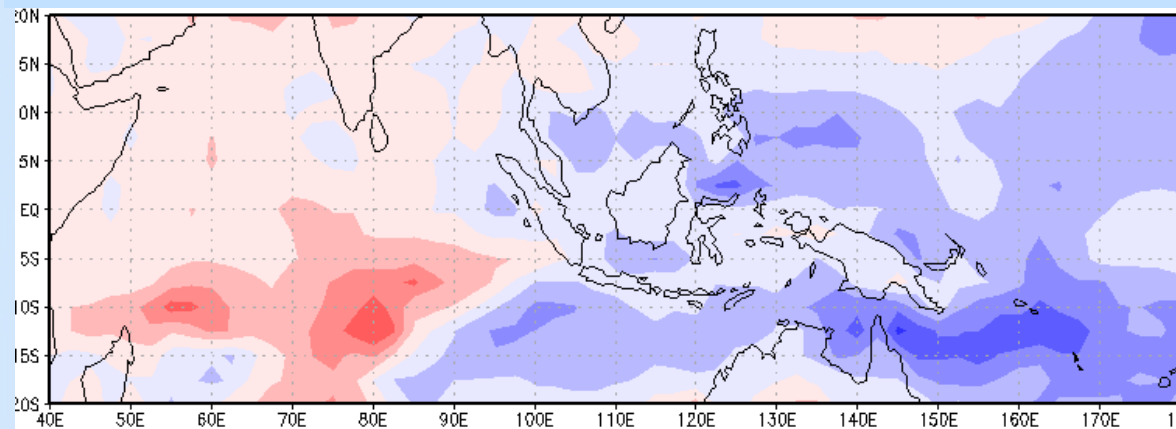
1000 mb Meridional Wind Average (DJF, 2007 – 2016)



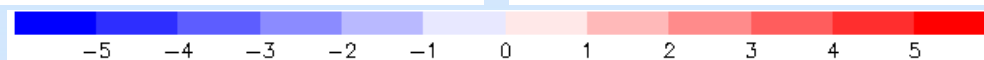
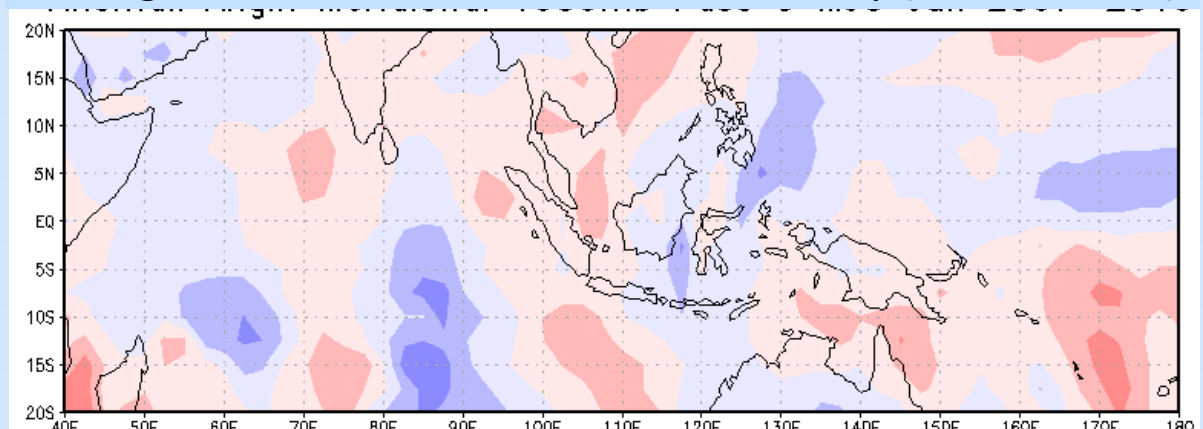
1000 mb Meridional Wind Average during Phase 3 MJO



Average 1000 mb Zonal Wind Anomaly (Phase 3 MJO)



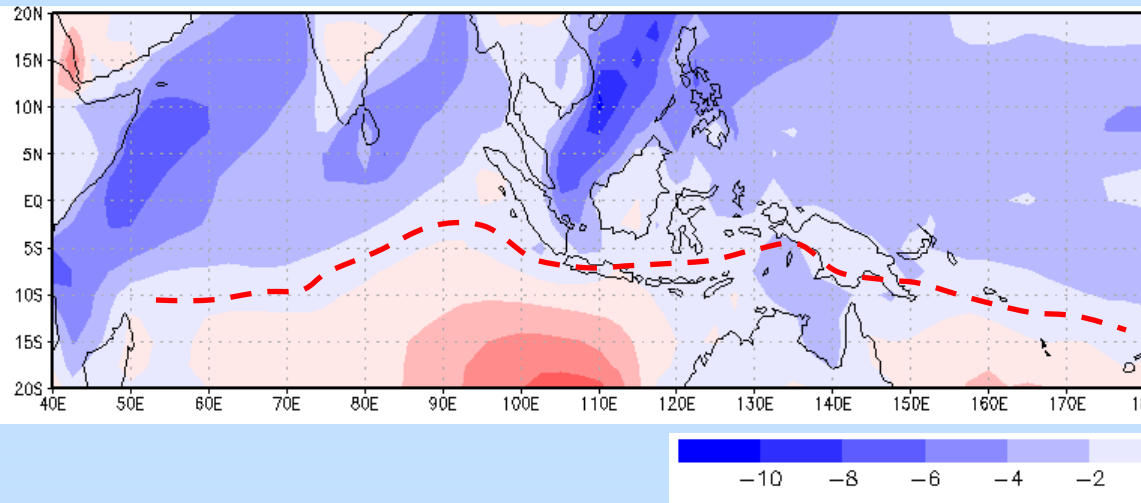
Average 1000 mb Meridional Wind Anomaly (Phase 3 MJO)



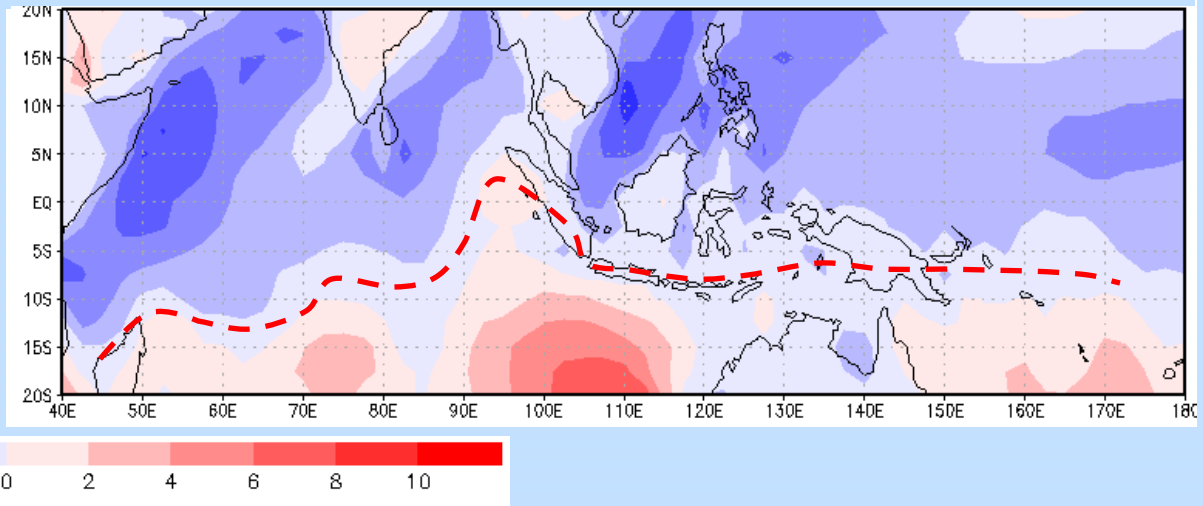
# ITCZ on the Maritime Continent

## DJF, MJO Phase 3

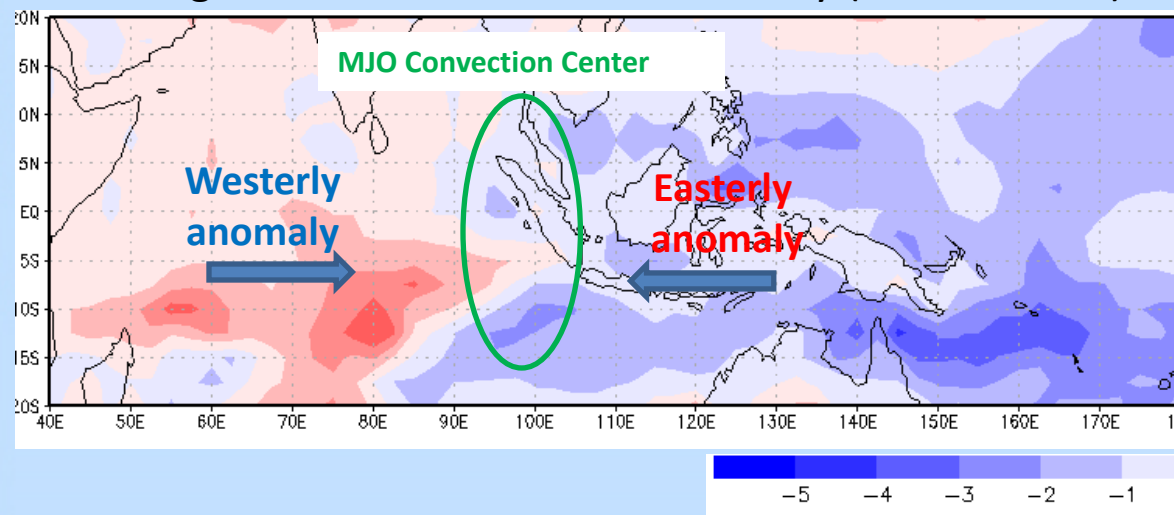
1000 mb Meridional Wind Average (DJF, 2007 – 2016)



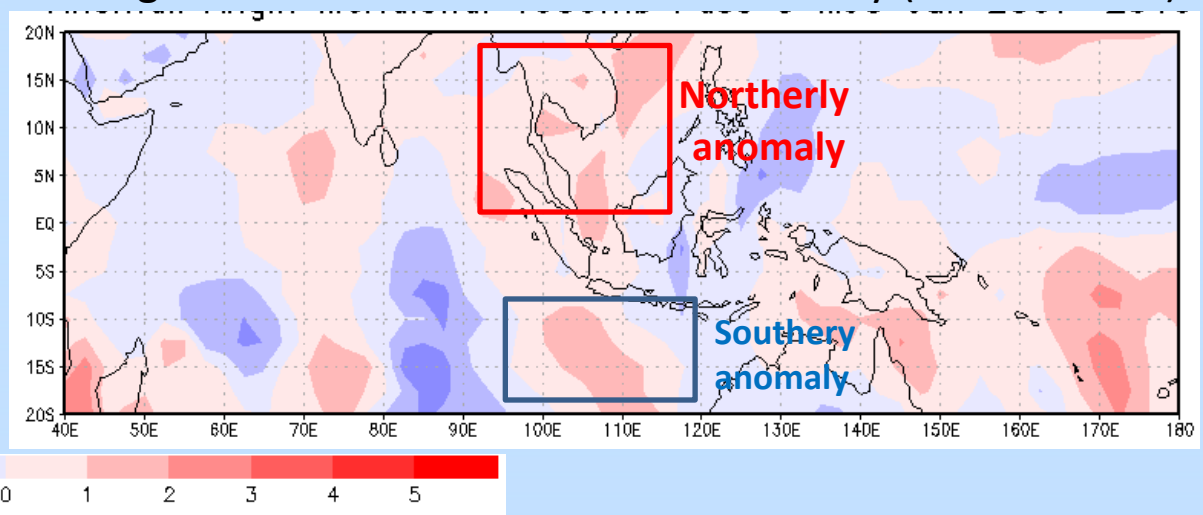
1000 mb Meridional Wind Average during Phase 3 MJO



Average 1000 mb Zonal Wind Anomaly (Phase 3 MJO)



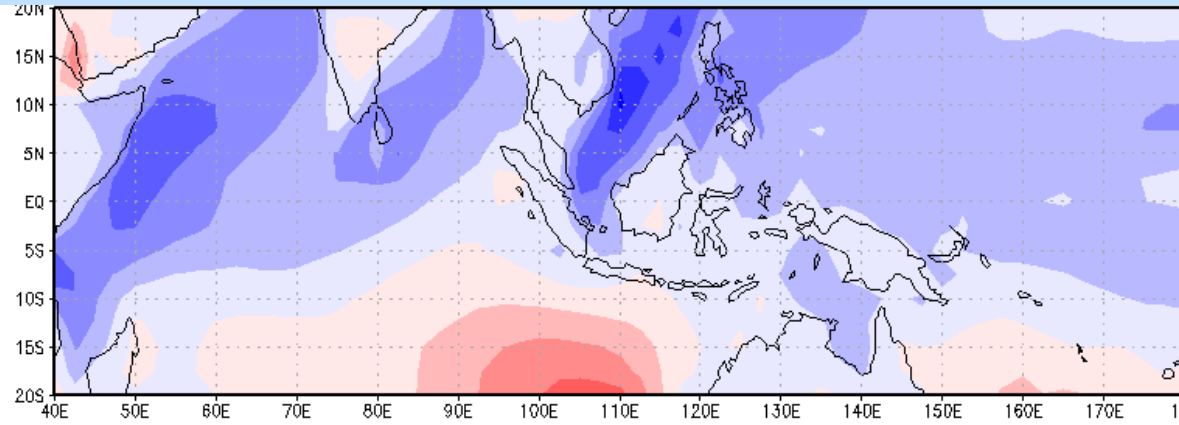
Average 1000 mb Meridional Wind Anomaly (Phase 3 MJO)



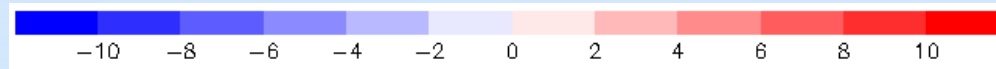
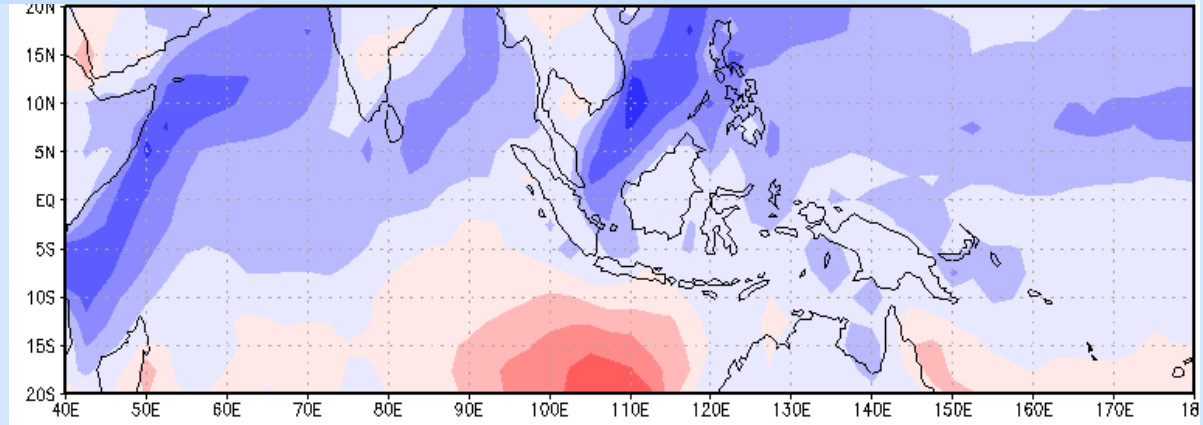
# ITCZ on the Maritime Continent

## DJF, MJO Phase 4

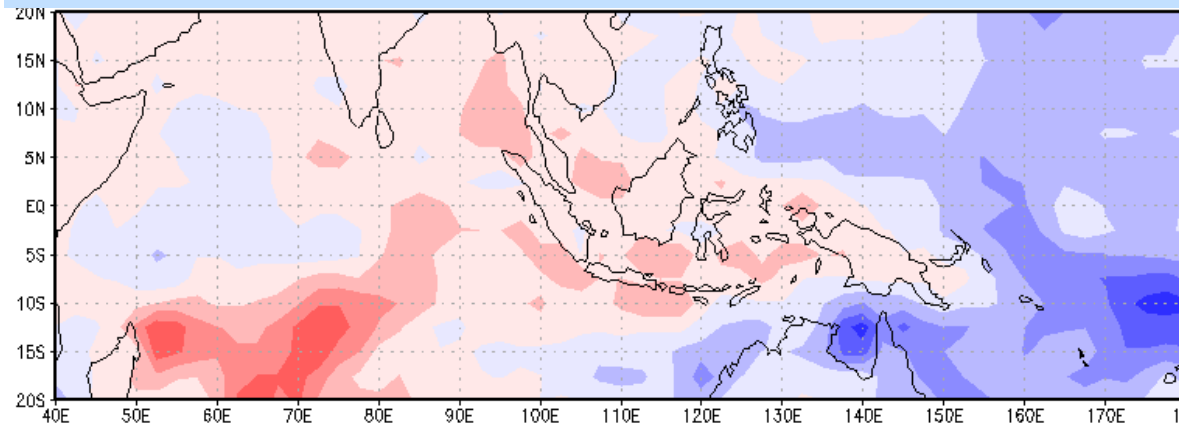
1000 mb Meridional Wind Average (DJF, 2007 – 2016)



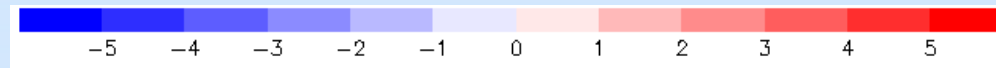
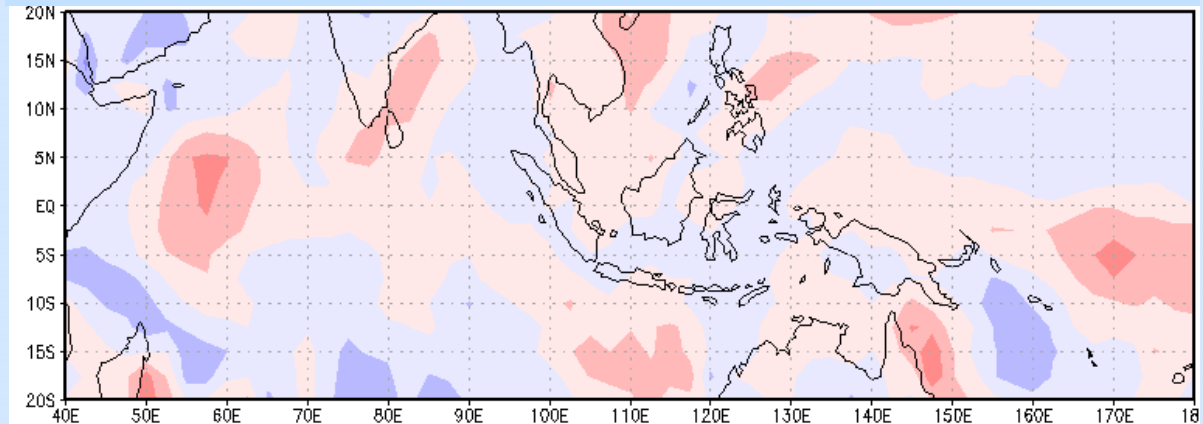
1000 mb Meridional Wind Average during Phase 4 MJO



Average 1000 mb Zonal Wind Anomaly (Phase 4 MJO)



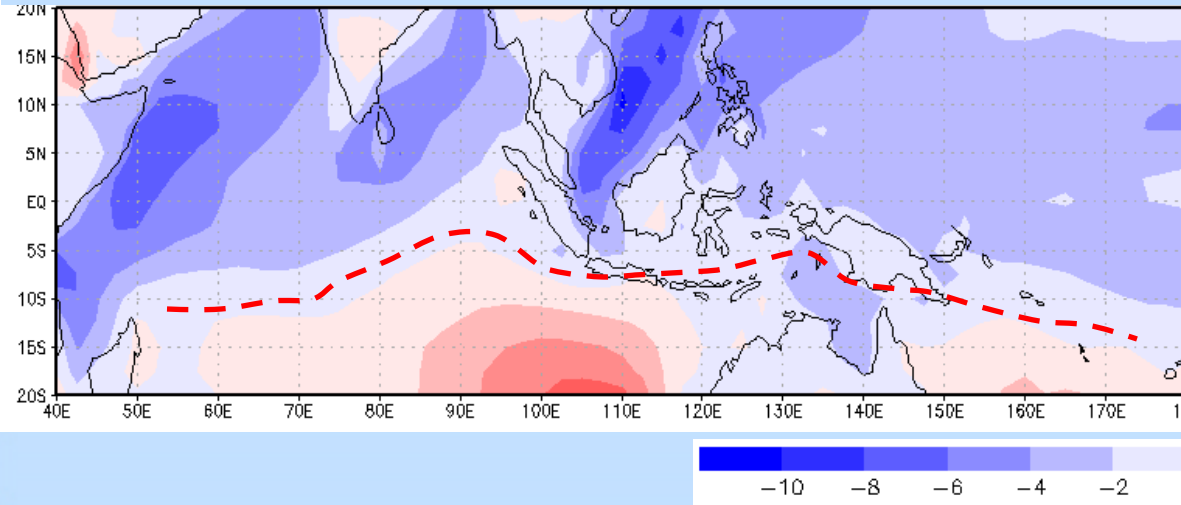
Average 1000 mb Meridional Wind Anomaly (Phase 4 MJO)



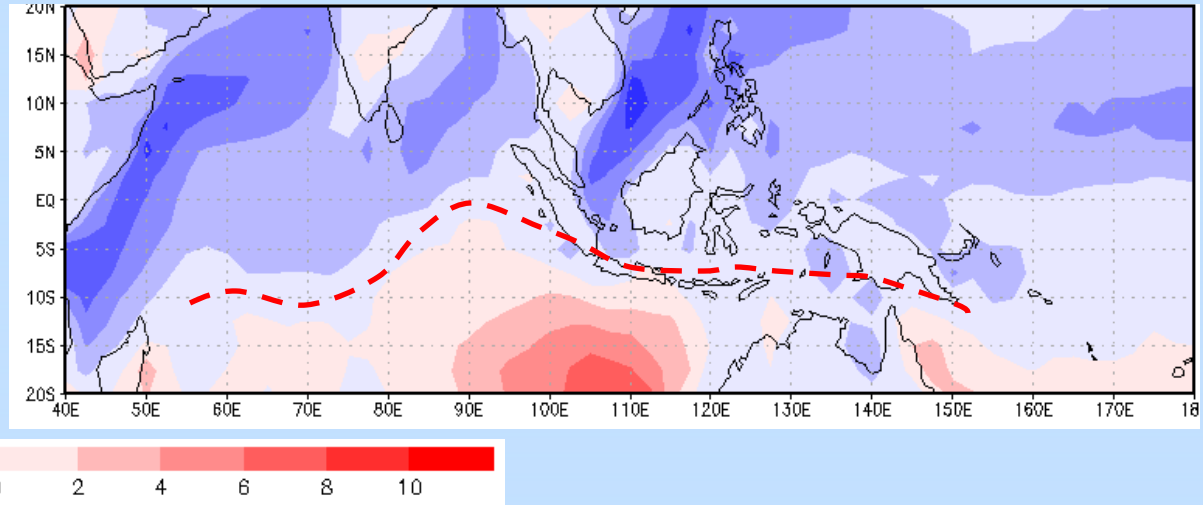
# ITCZ on the Maritime Continent

## DJF, MJO Phase 4

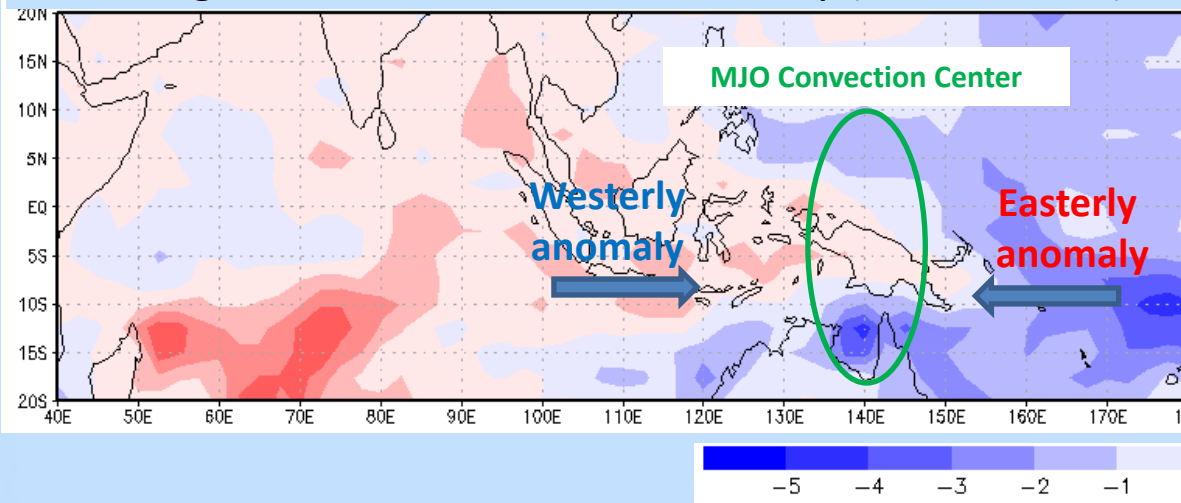
1000 mb Meridional Wind Average (DJF, 2007 – 2016)



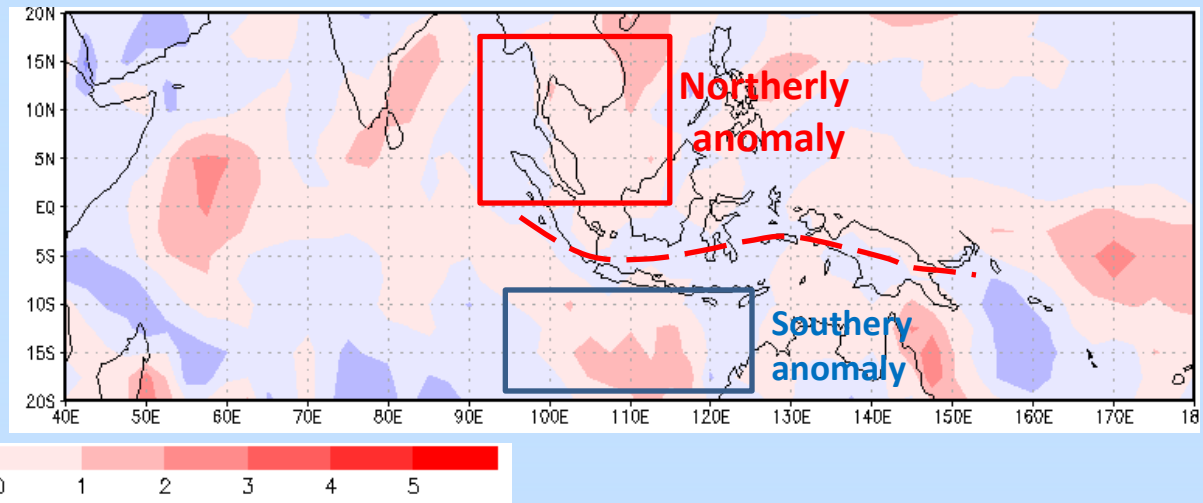
1000 mb Meridional Wind Average during Phase 4 MJO



Average 1000 mb Zonal Wind Anomaly (Phase 4 MJO)



Average 1000 mb Meridional Wind Anomaly (Phase 4 MJO)

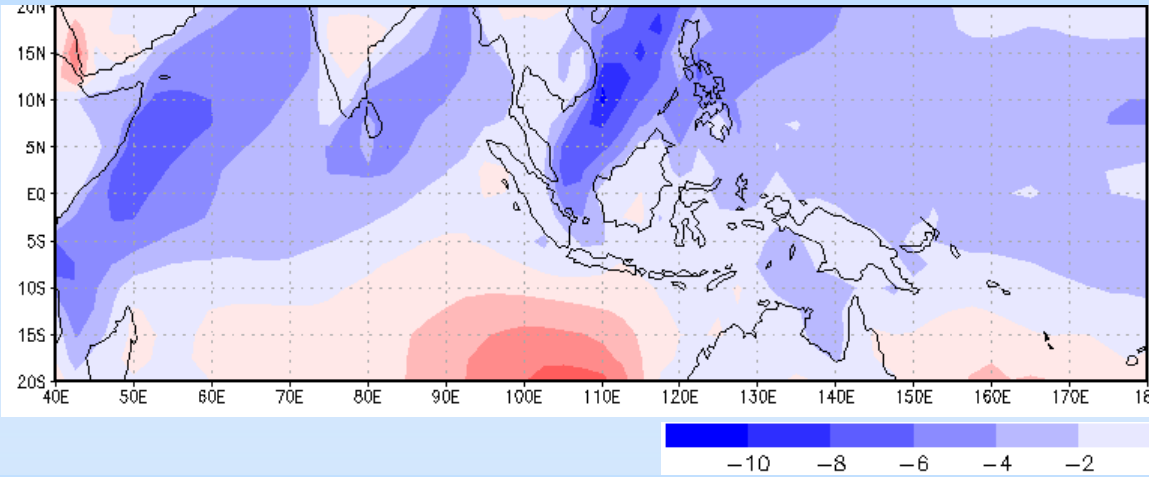




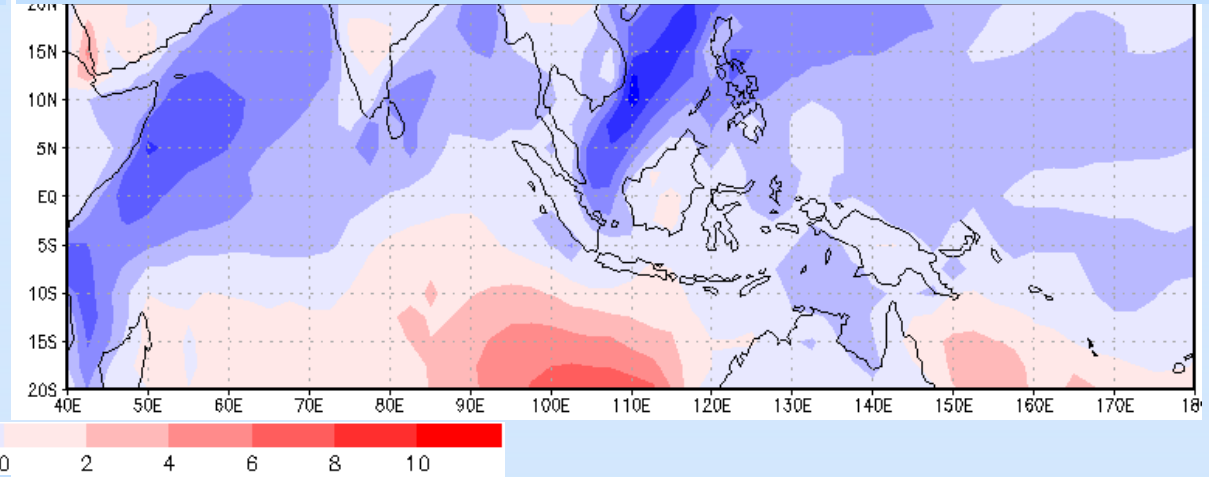
# ITCZ on the Maritime Continent

## DJF, MJO Phase 5

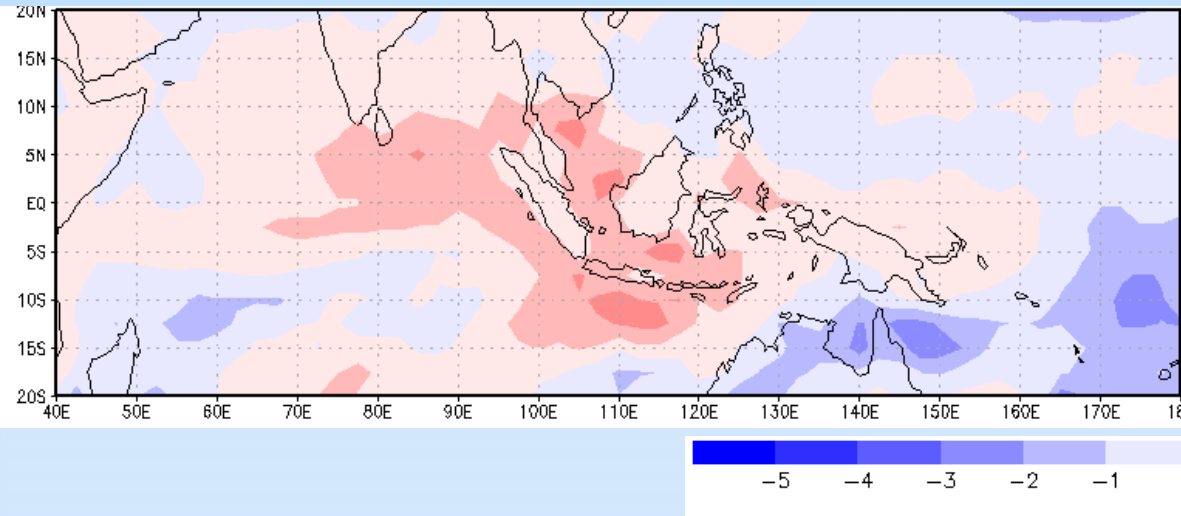
1000 mb Meridional Wind Average (DJF, 2007 – 2016)



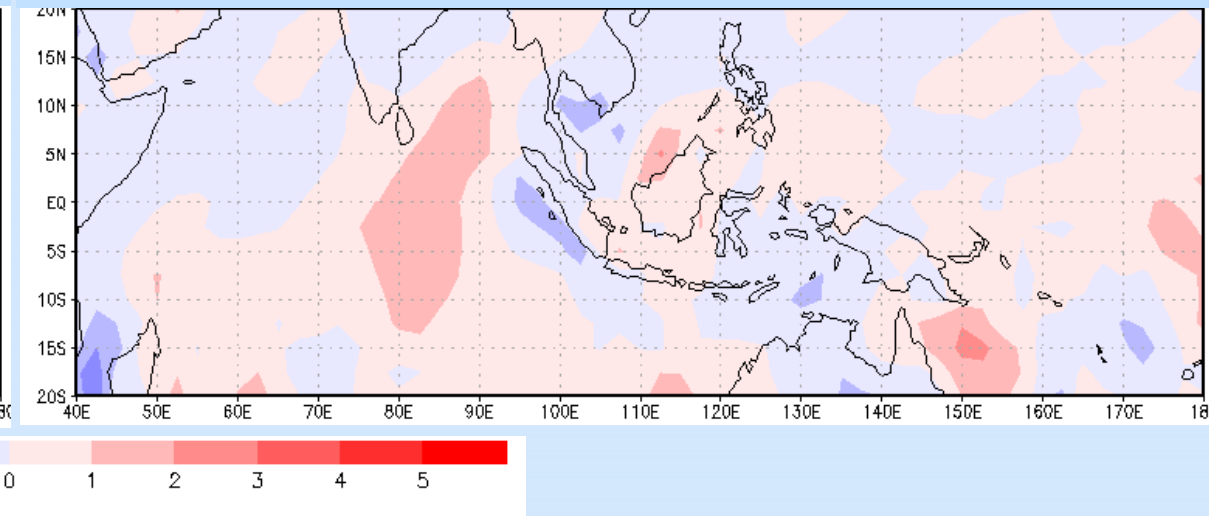
1000 mb Meridional Wind Average during Phase 4 MJO



Average 1000 mb Zonal Wind Anomaly (Phase 4 MJO)



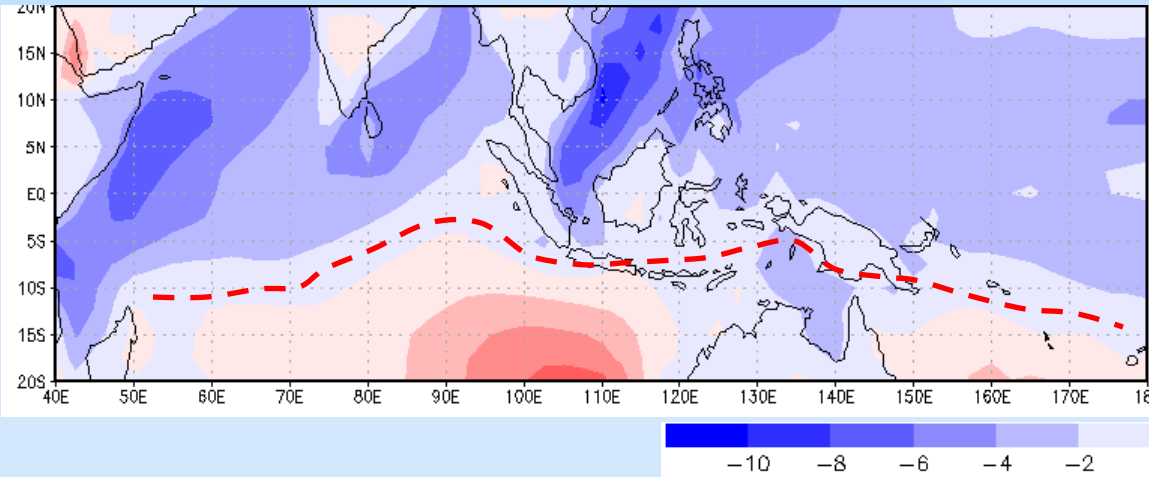
Average 1000 mb Meridional Wind Anomaly (Phase 4 MJO)



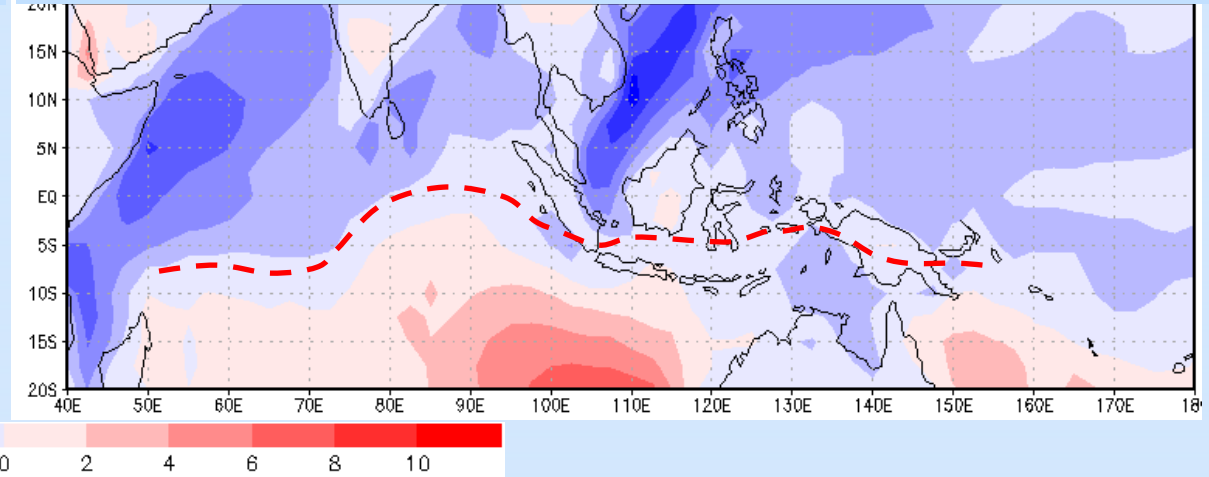
# ITCZ on the Maritime Continent

## DJF, MJO Phase 5

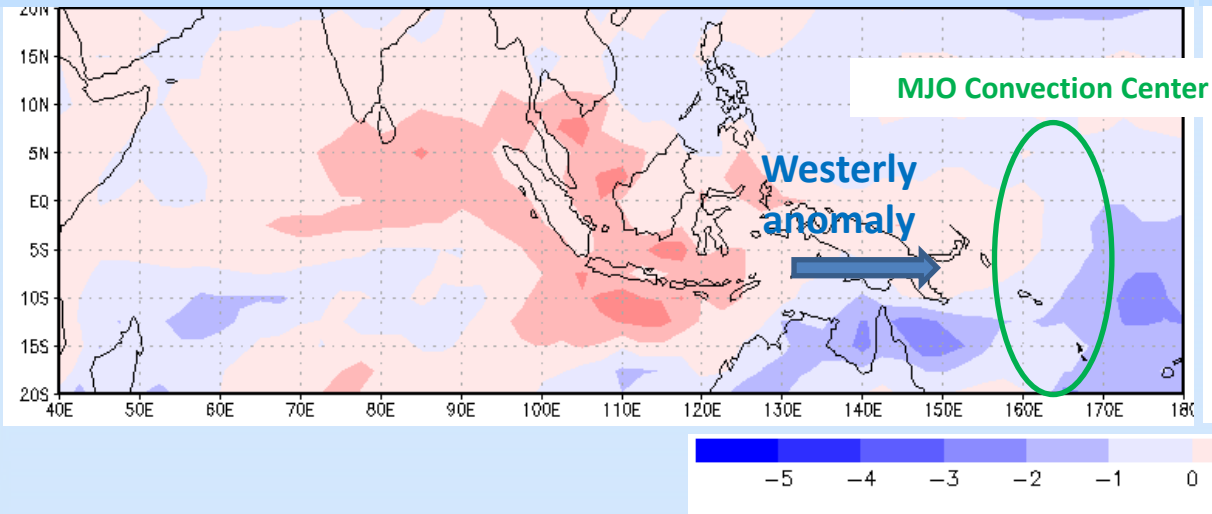
1000 mb Meridional Wind Average (DJF, 2007 – 2016)



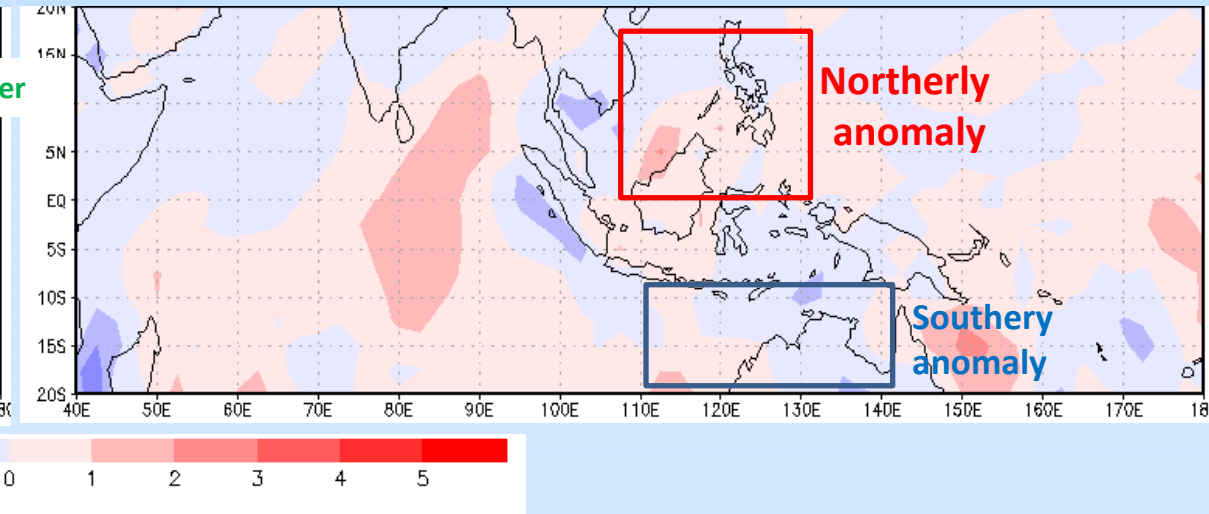
1000 mb Meridional Wind Average during Phase 5 MJO



Average 1000 mb Zonal Wind Anomaly (Phase 5 MJO)



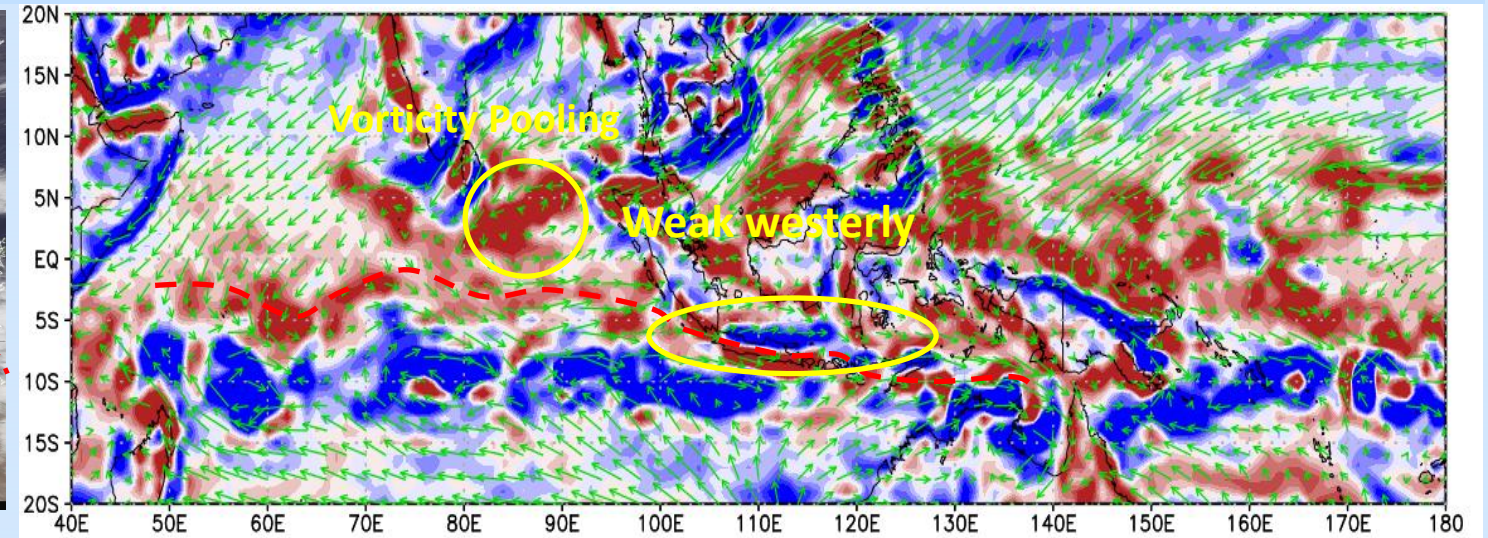
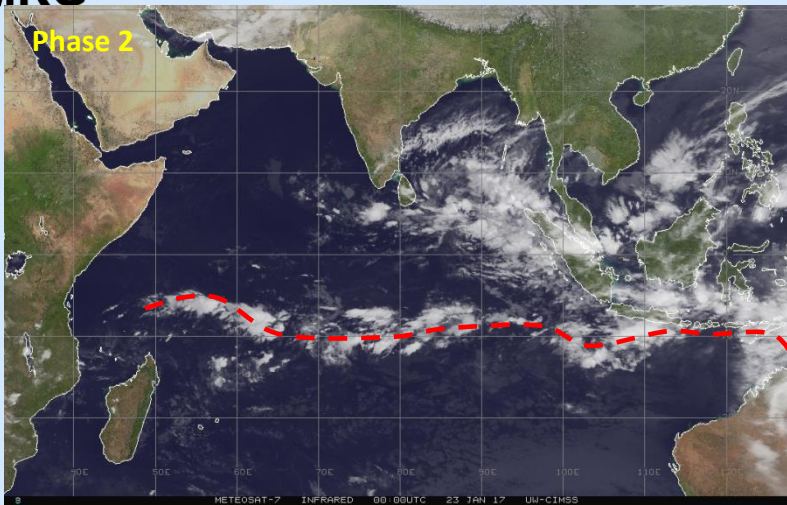
Average 1000 mb Meridional Wind Anomaly (Phase 5 MJO)



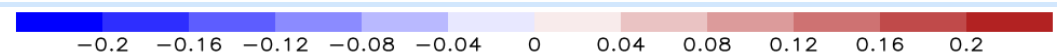
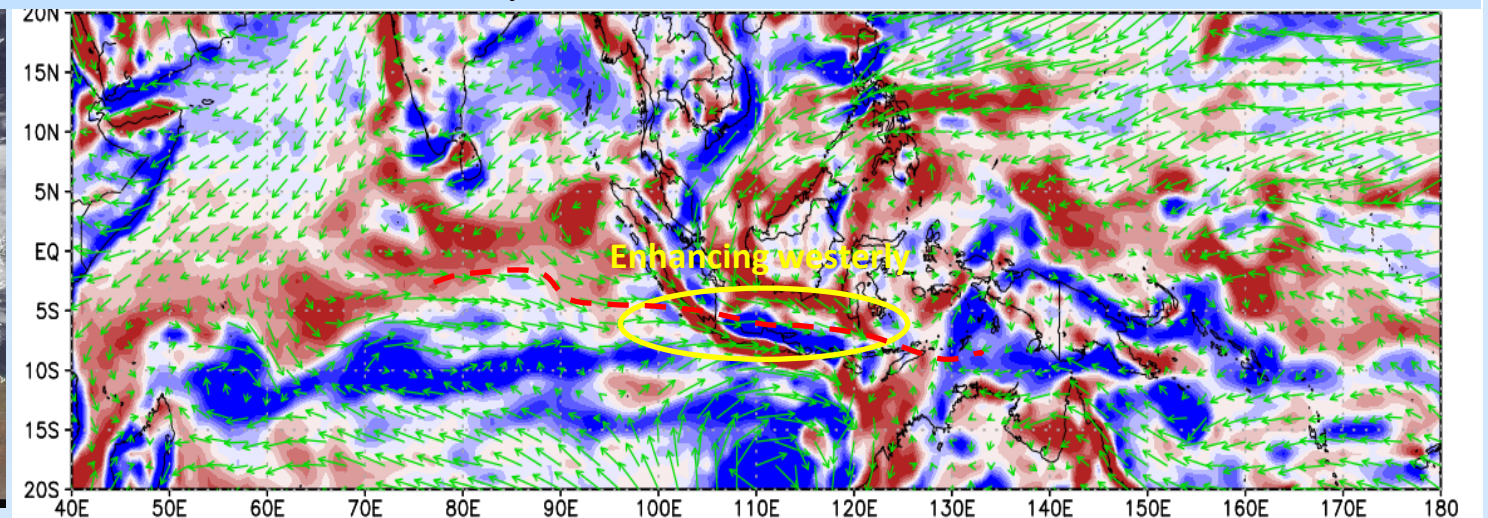
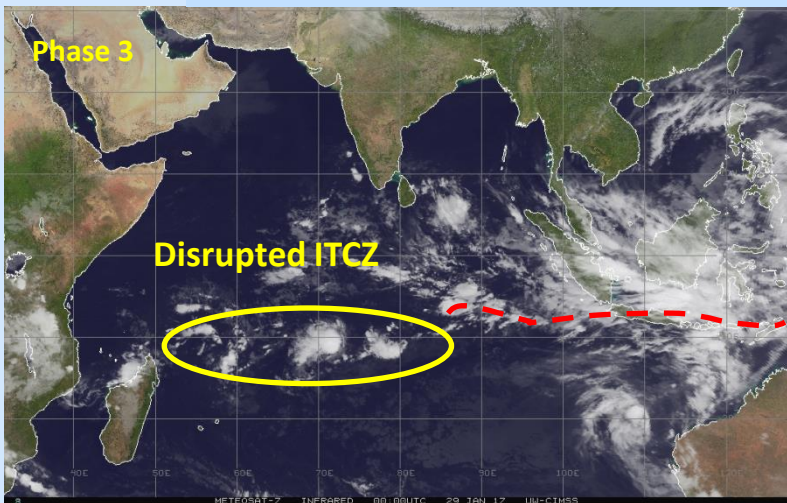


# Case Study During Phase 2 - 5 MJO

1000 mb Wind and Vorticity 23 Jan 2017 – 00Z



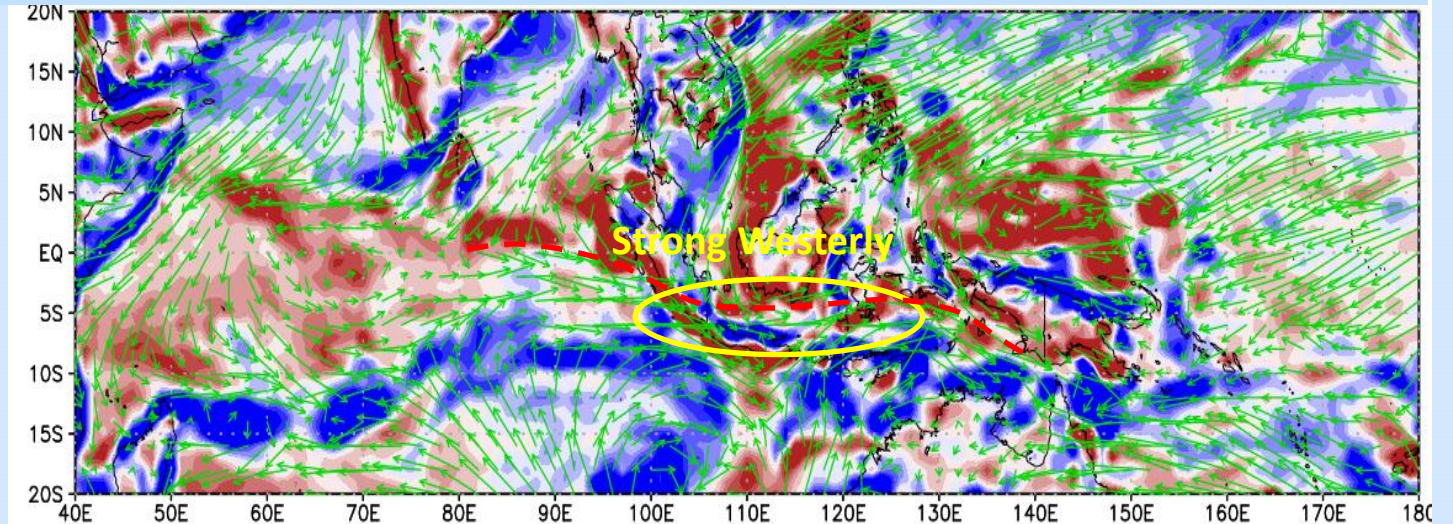
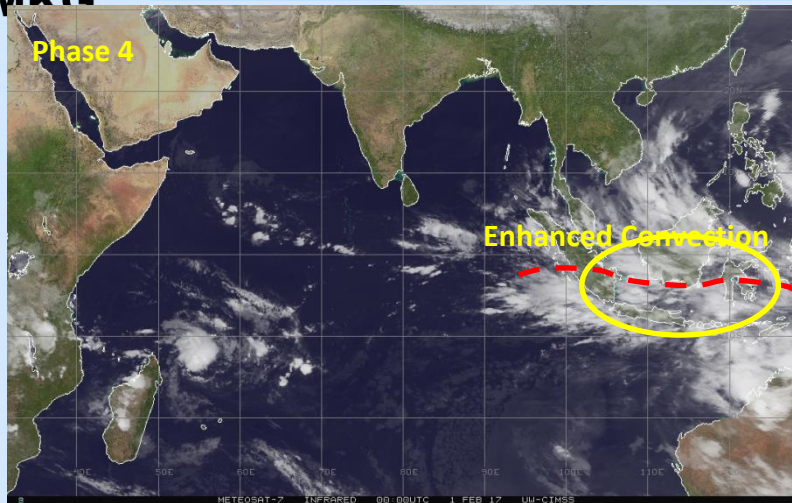
1000 mb Wind and Vorticity 29 Jan 2017 – 00Z



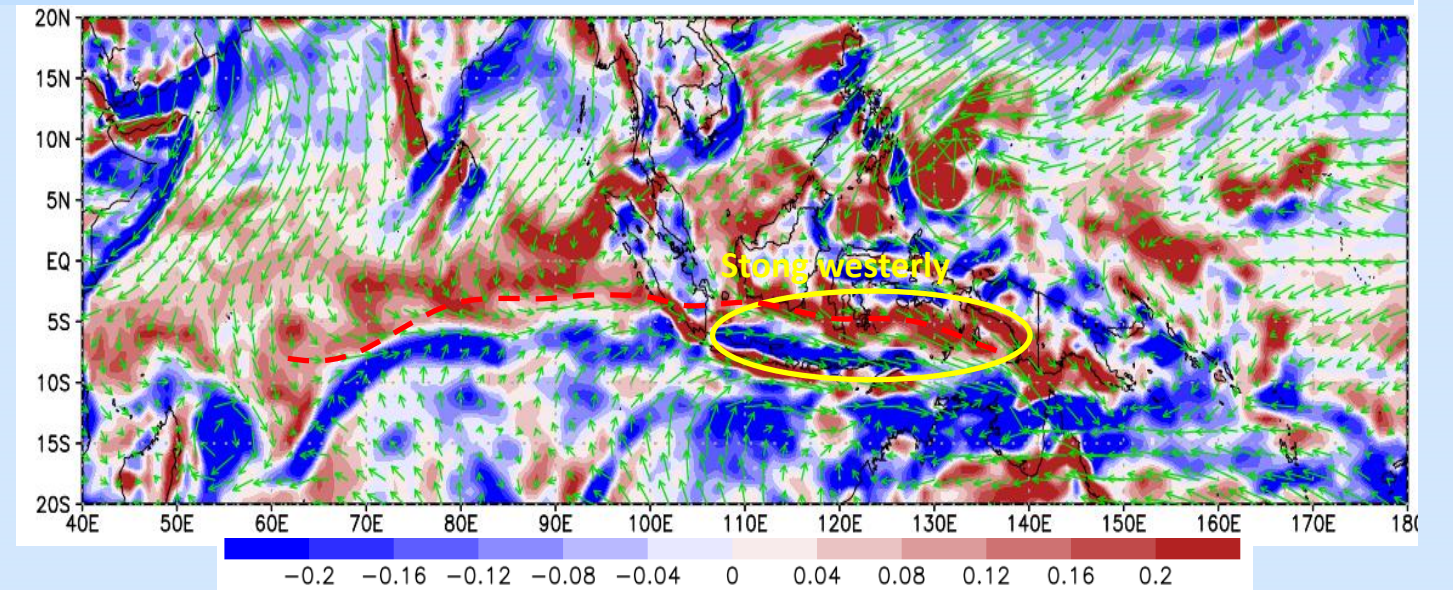
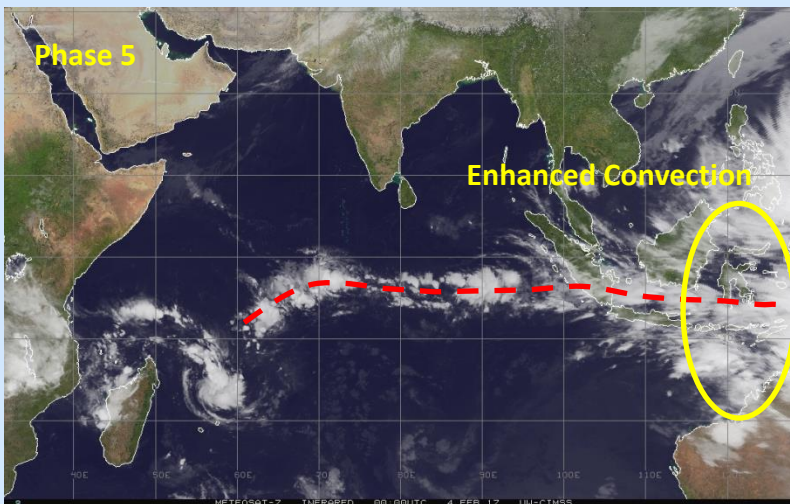


# Case Study During Phase 2 - 5 MJO

1000 mb Wind and Vorticity 01 Feb 2017 – 00Z



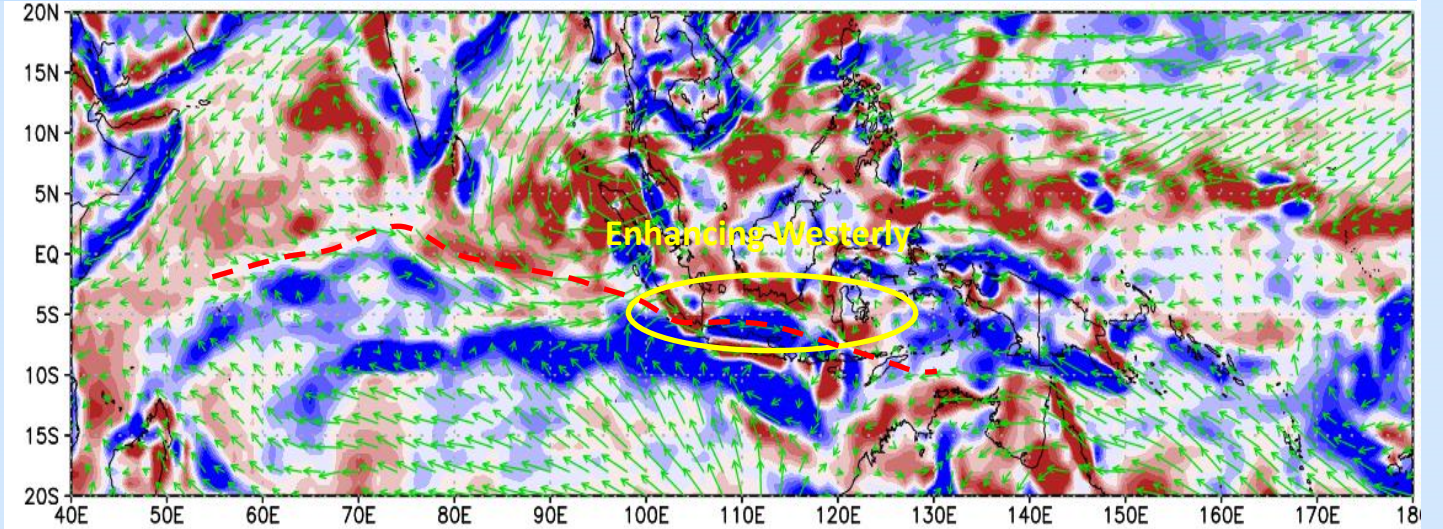
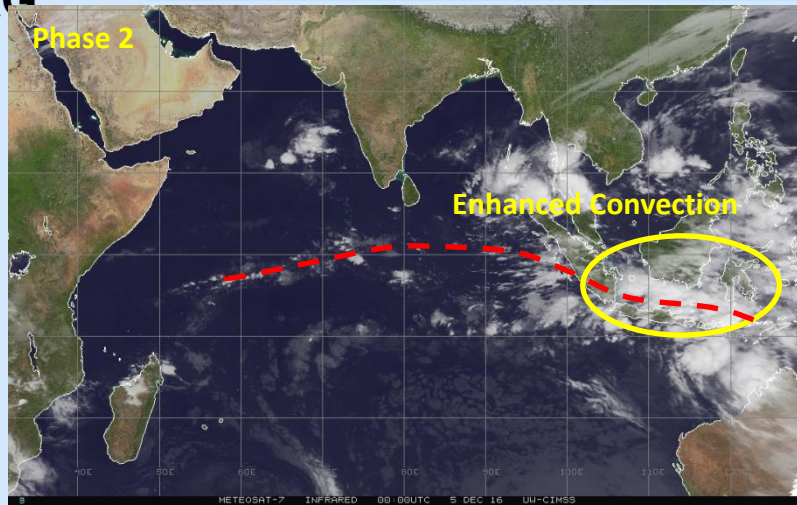
1000 mb Wind and Vorticity 04 Feb 2017 – 00Z



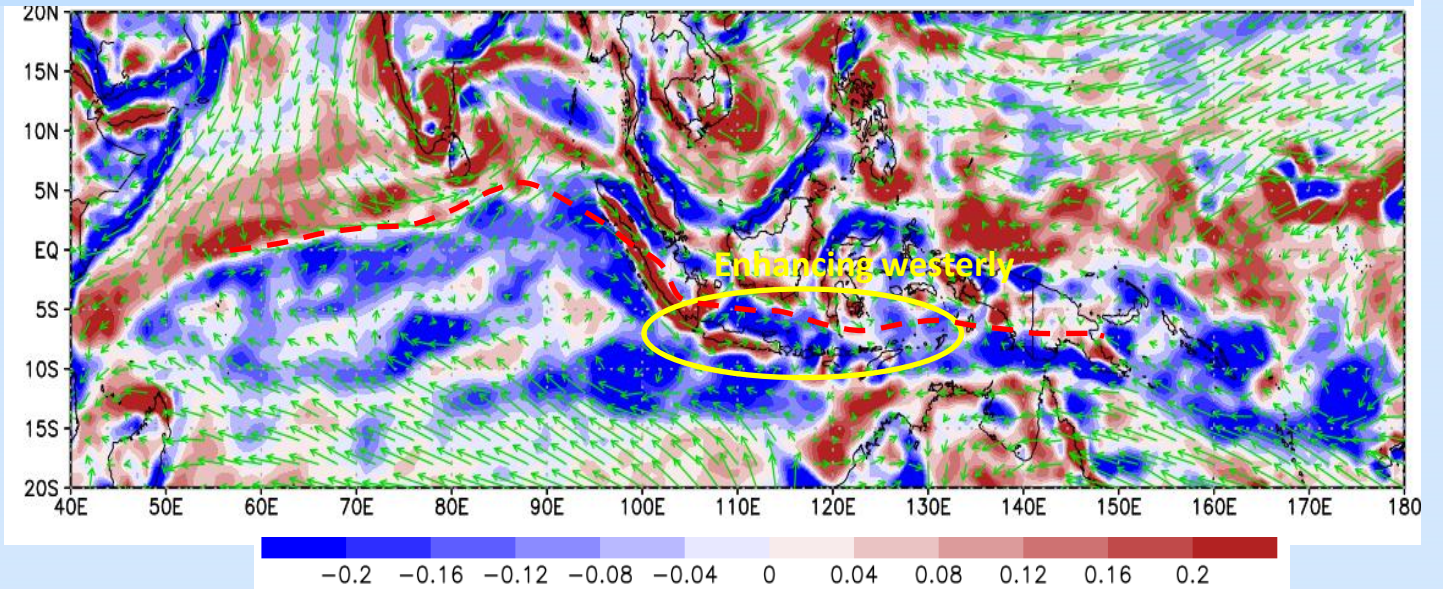
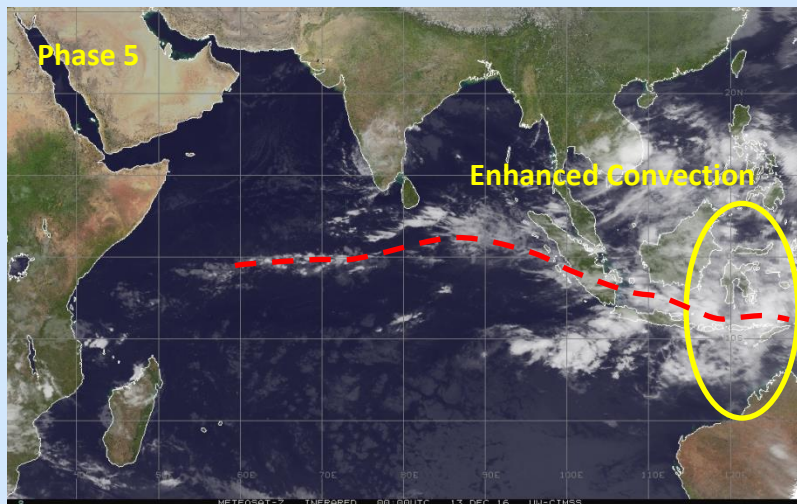


# Another Comparison Case

1000 mb Wind and Vorticity 05 Dec 2016 – 00Z



1000 mb Wind and Vorticity 13 Dec 2016 – 00Z





# Summary

- On average ITCZ located around  $6 - 10^{\circ} \text{S}$  in Maritime Continent area during Asian Monsoon period.
- ITCZ shifted towards north to equator during phase 3 to phase 5 of MJO event.
- The shifting occurred due to enhancement of westerly wind around equator and southerly enhancement from  $100 - 140^{\circ} \text{E}$
- ITCZ shifting and MJO event contributed to enhancement of convection near equator area along Maritime Continent



**BMKG**

**THANK YOU  
TERIMA KASIH**

**For the  
Australian VLab Centre of Excellence Regional Focus Group Meeting  
31 October 2017**

