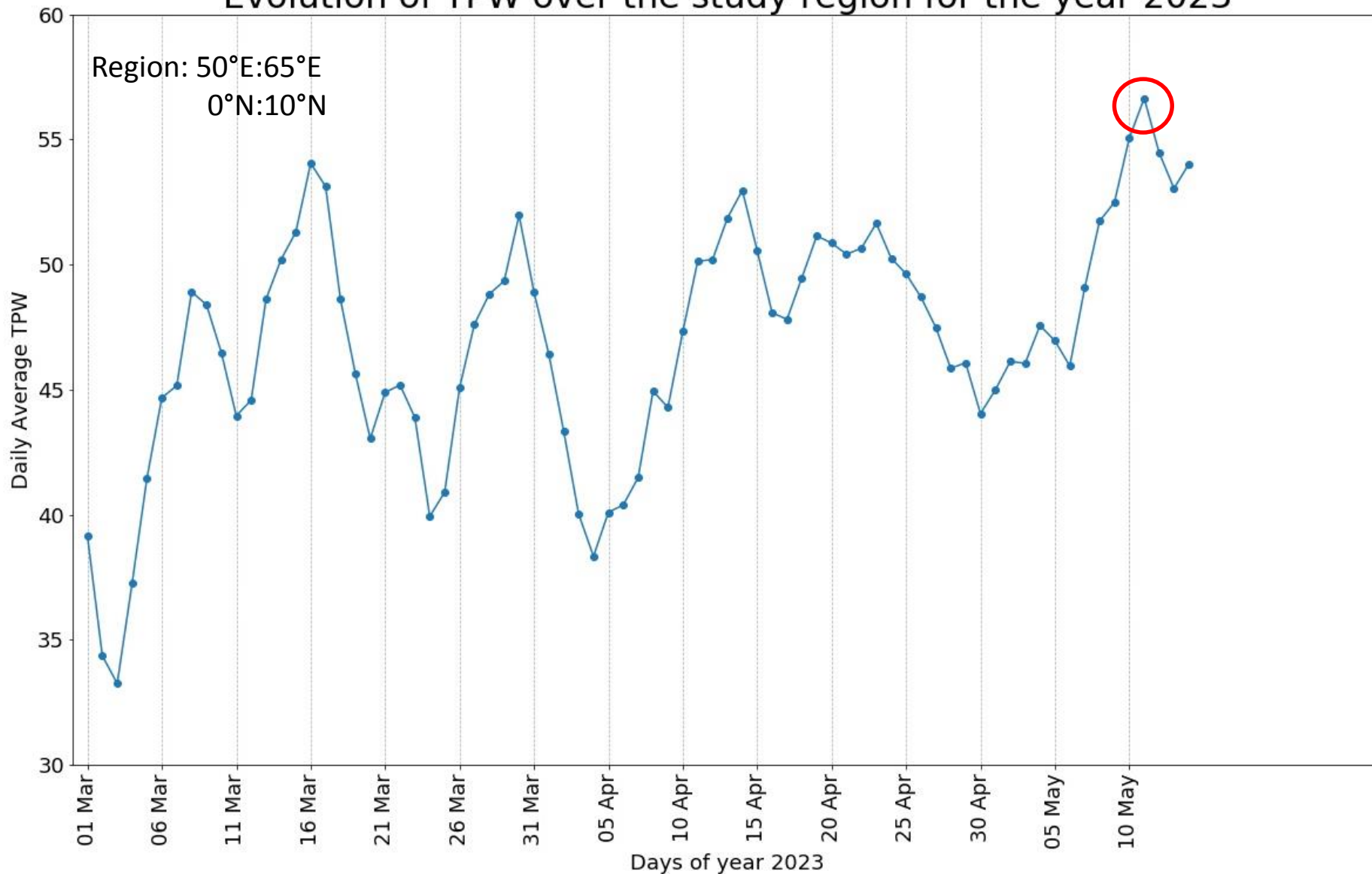


# Study of Monsoon Onset over Kerala during 2023 using satellite observations

Evolution of TPW over the study region for the year 2023



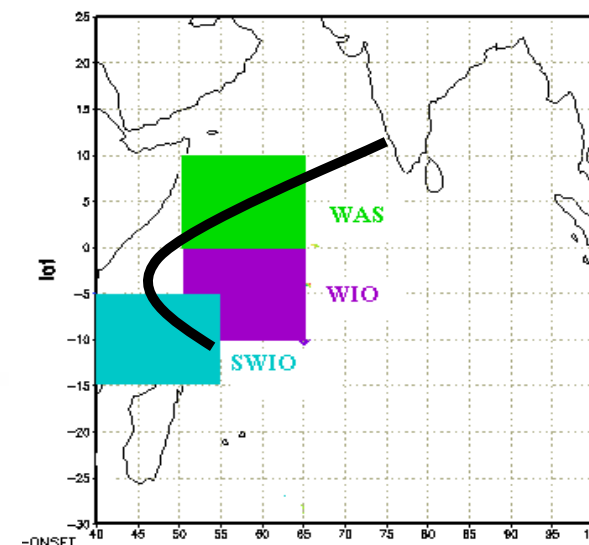
Peak of TPW:

11 May 2023

Prediction of Onset:

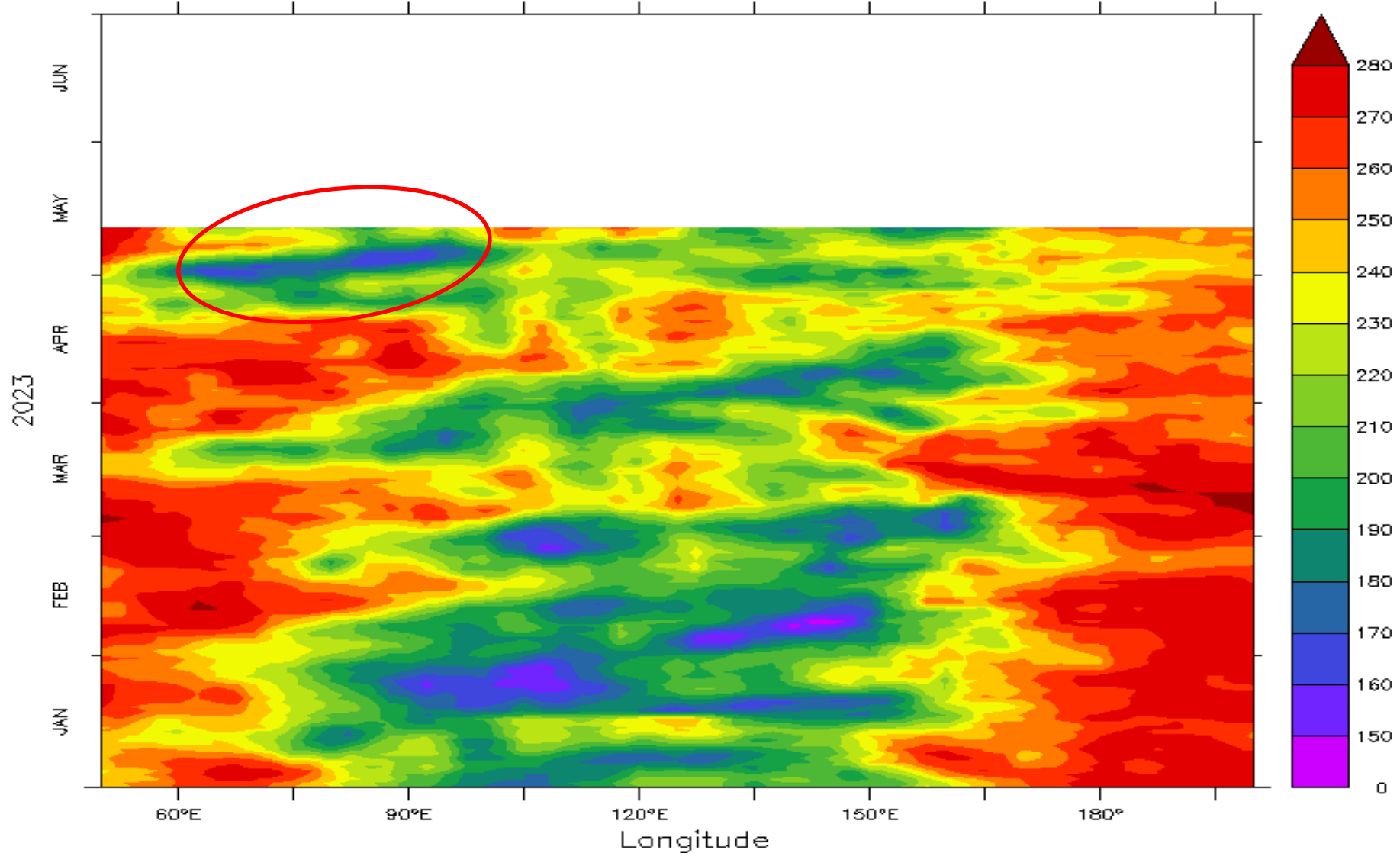
29 May 2023

(after 18 days from  
peak of TPW,  $\pm 4$  days)



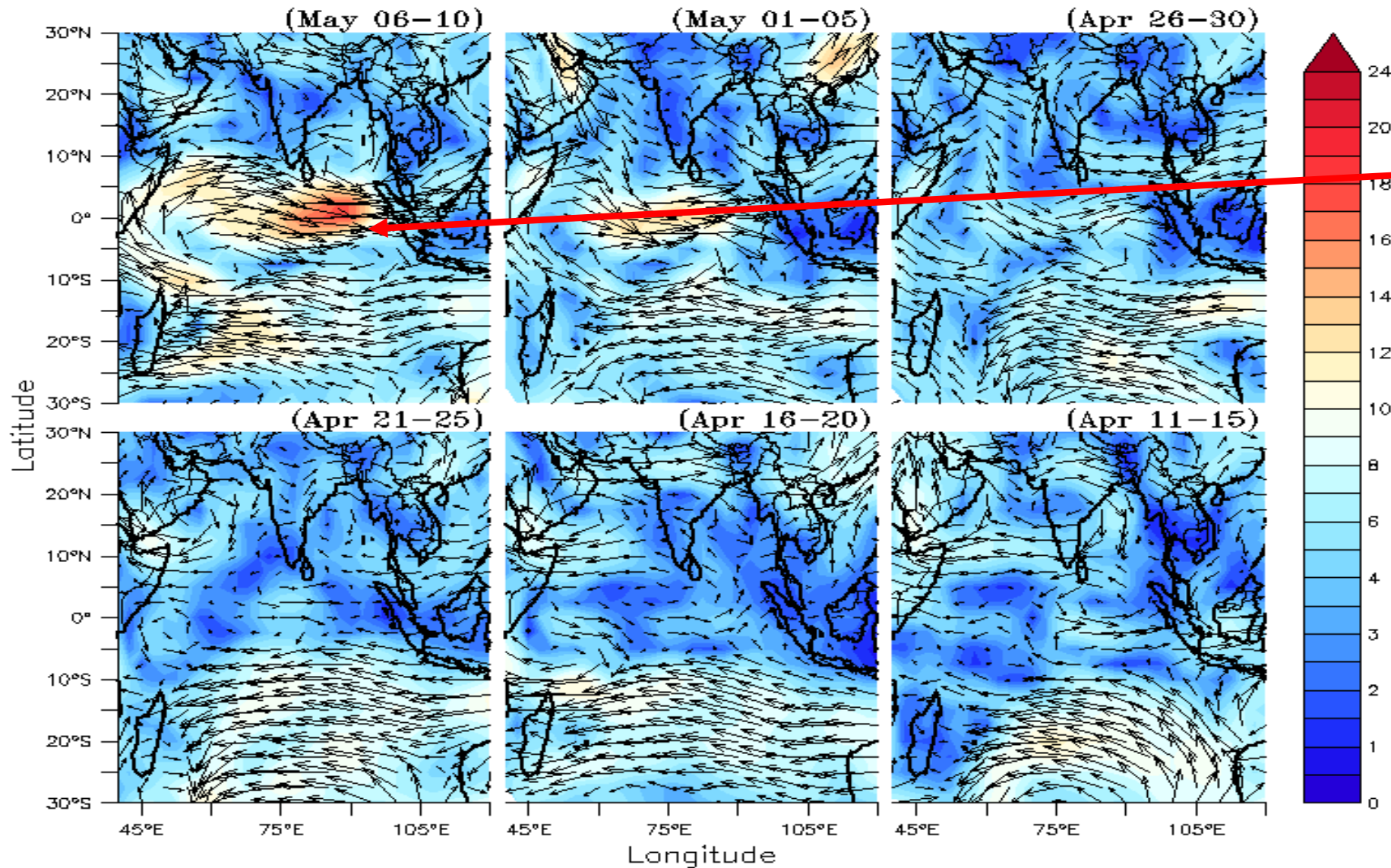
# Formation of MJO over Equatorial Indian Ocean during pre-monsoon 2023

Identification of MJO over equator using daily OLR (2023)



# Pentad Wind at 850 hPa during pre-monsoon month of 2023

NCEP Wind at 850 hPa (Apr 2023)



The wind reversal over equator can be seen and the westerly wind got stronger after the peak TPW achieved.

## Conclusion

- A peak of TPW over the Arabian Sea (50°E:65°E; 0°N:10°N) is occurred 18 days prior to Onset at Kerala.
- MJO start forming at the same time over equatorial Indian Ocean.
- The monsoon wind (wind reversal over equator and strong westerly wind) over Arabian Sea into Indian landmass started after the peak of TPW observed.
- The Onset process get disturbed if cyclone formed during the said period (a case of 2021).
- **The present analysis lead to the conclusion that the Onset may occurred on 29 May 2023 with a error of  $\pm 4$  days.**
- Due to the cyclone present in Bay of Bengal, we would like to observe the situation for another couple of days before giving the final prediction.

**Thank You**