



Contribution ID: 110

Type: **Oral presentation**

A zonal component of monsoons and the variability in the strength of the Madden-Julian Oscillation events

Wednesday, 3 April 2019 16:45 (15 minutes)

Understanding the variations in the strength of the Madden-Julian Oscillation events as they propagate across the Indo-Pacific Maritime Continent (MC) has been an important challenge. In this study a method of estimating moisture sources associated with sustenance of MJO strength directly from precipitation observation is introduced. The method is used to show the existence of slow eastward propagating zonal moisture flux convergence due to the difference between the longitudes of the Asian and Australian monsoon convergence centers. The variability in the strength of individual MJO events is related their propagation across this moisture convergence signal. Specifically, November, December and January events are likely stay within this convergence signal and therefore may sustain their strength. February, March and April events tend to start weaker and strengthen as they catch up with it. May, June and July events are most likely to weaken for they leave the convergence signal behind.

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Session Classification: Prediction and verification