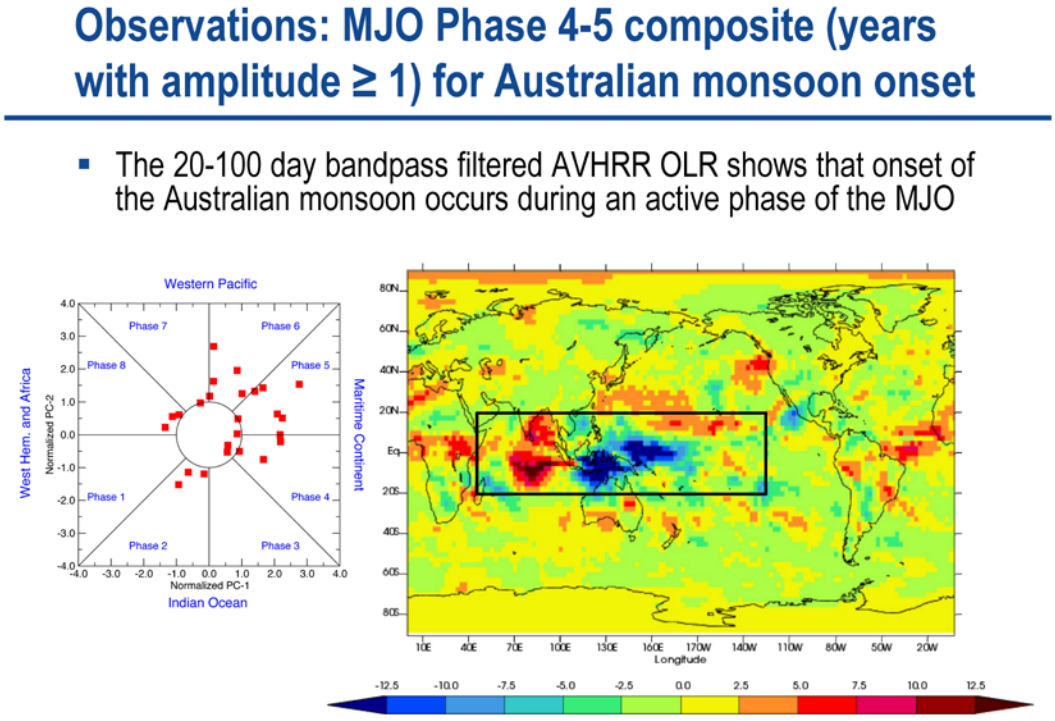
Intraseasonal Variability and the Onset of Monsoon Rainfall

Kenneth R. Sperber
Program for Climate Model Diagnosis and Intercomparison
Lawrence Livermore National Laboratory
P.O. Box 808, L-103
Livermore, CA 94551 USA

In this paper the relationship between intraseasonal variability and the onset of Indian and Australian monsoon is studied in the CMIP5 Historical simulations, based on observational evidence that the Madden-Julian Oscillation impacts monsoon onset over Australia (Hendon and Liebmann 1990), for example. Sperber and Annamalai (2014) revealed substantial biases in the onset of monsoon. For example, over the India most models exhibit late monsoon onset and the interannual variability of the onset date is not well represented. An hypothesis is that the onset errors are related to the fidelity of the simulated boreal summer intraseasonal variability. The analysis indicates that in observations the Boreal Summer Intraseasonal Variability (Madden-Julian Oscillation) dominates the onset of Indian (Australian) monsoon in nearly 50% of the years analyzed (1979-2004). Only a few of the models are skillful in representing these statistics and the spatial pattern of the intraseasonal variability at the time of onset.



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