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Title: Intraseasonal variability associated with monsoon rainfall in Thailand

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Abstract:

This study is an investigation of intraseasonal variability of monsoon rainfall over Thailand and its associated dynamical structure. Thailand rainfall season spans the period June through November. Wavelet analysis is performed on a 30-year (1981-2010) daily dataset, and shows that the most significant spectral peak is within the 30-70 day frequency band. Empirical Orthogonal Function (EOF) is performed on this frequency band path filtered daily rainfall anomalies. The first mode captures 36.1% of total intraseasonal variance and reveals a significant enhancement of rainfall anomaly covering the most upper portion of northern Thailand, with maximum anomalies in the northeast. The second mode captures 24.4% of the total variance and reveals a suppression of regional rainfall covering the southern part of Thailand and a partial enhancement in the northeast. The principal component time series show a coherent and strong intraseasonal rainfall variability pattern consistent with the intraseasonal peaks detected on the wavelet analysis. Results of the first two EOFs are used to identify 55 intraseasonal events with occurrence of extreme rainfall over Thailand. Lagged/lead composites on the rainfall events and the associated circulation and SST are constructed to investigate the impact of the MJO on Thailand rainfall. The ability of the CFSv2 to depict these patterns is presented.

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