

## The Impact of Trans-equatorial Asian Winter Monsoon and the MJO on Extreme Precipitation over Western Java Island

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An extreme precipitation/flood event that occurred in the Indonesian capital of Jakarta in Java Island in the middle of January 2013 coincided with an active phase of the Madden-Julian Oscillation (MJO) with the enhanced convective phase centered the western Pacific. Analyzing upper-air sounding data showed that strong upper westerly winds persisted over the island prior to and during the heavy rain event, which were caused by the active phase of the MJO. Ocean surface winds from the WindSat satellite showed a persistent trans-equatorial monsoonal flow from the Northern Hemisphere in mid-January prior to and during the extreme precipitation event. Meteorological radar observations indicated regular genesis of convection at night over the sea to the northwest of the island, and southeastward propagation over the island from the nighttime to early morning. The results suggest that the eastward propagation of an active phase of the MJO exerted a strong influence on the formation of extreme heavy rain over western Java Island.

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