

Heavy precipitation events in central Vietnam during boreal autumn and its relationship to MJO activity

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Rainy season in central Vietnam is from late September to early December. Heavy rainfall events were mostly occurred during the rainy season. VPREX2010 was conducted in central Vietnam during autumn of 2010, and five heavy rainfall events were observed. Wu et al. (2012) analyzed a heavy rainfall event, and pointed out that interaction between an westward moving tropical depression from the western North Pacific to the South China Sea and convective active region of MJO approaching the Maritime Continent (MC) have influence to produce the heavy rainfall event. In this study we investigated impact of MJO on heavy rainfall events in central Vietnam using 26-years long surface daily rainfall data.

We defined "heavy rainfall over broad area (HRBA)" as the day when heavy rainfall was observed at more than 15 stations. RMM (Wheeler & Hendon, 2004) was utilized for creating statistics of rainfall for each MJO phase. We found that 69% of HRBA events are concentrated in Phase 4 to 6, those phase correspondents to convective center appearing in the MC. Composite map of rainfall anomaly in Vietnam based on APHROTIDE rainfall data showed that positive rainfall anomaly was appeared in central and southern part of Vietnam when MJO existed around the MC. These results suggest that convection center of MJO around the MC plays important role for preparing regional scale circulation during heavy rainfall events in central Vietnam, at least in a statistical sense.

Keywords: Vietnam, Heavy precipitation, MJO