

P17 Potential predictability of heavy precipitation in the contiguous United States and the Madden-Julian Oscillation

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The Madden-Julian Oscillation (MJO) has a significant role in weather and climate variability. The MJO significantly influences the occurrence of heavy precipitation around the globe. Since the MJO involves intense tropical convective heating anomalies, tropical-extratropical interactions are significant during its life cycle. Consequently, the MJO modulates the skill of weather forecasts in the medium and extended ranges.

This study investigates potential predictability of heavy precipitation over the United States during boreal winter using the Weather Research and Forecasting (WRF) model. WRF is configured with one grid (18 km horizontal grid spacing) over the contiguous United States. MJO events are identified with outgoing longwave radiation from polar orbiting satellites and zonal winds (850-hPa and 200-hPa) from NCEP Climate Forecast System Reanalysis (CFSR) during 1979-2013. Ten MJO events in which heavy precipitation occurred over the western and eastern United States are selected to create a composite MJO event. Predictability experiments are conducted initializing WRF during the eight phases of the MJO life cycle. The presentation will discuss the importance of the MJO in modulating the precipitation variability over the United States and estimates of potential predictability of heavy precipitation.