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Editorial

Madden–Julian Oscillation

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Received: 7 March 2018; Accepted: 9 March 2018; Published: 11 March 2018

The Madden–Julian Oscillation (MJO) is the most important mode of tropical intraseasonal variability. The MJO influences precipitation and temperature variability in the tropics, as well as extratropics and high latitudes of both hemispheres. The influential nature of the MJO has also been noted on occurrences of extreme weather events, accuracy of weather forecasts, interactions with El Niño/Southern Oscillation (ENSO), deep ocean variability, distributions of tropical cyclones and hurricanes, tropospheric ozone changes, surface chlorophyll, and phytoplankton variations in tropical oceans and coastal areas. The oscillation exhibits important seasonal changes and pronounced interannual and multi-year variations.

This *Atmosphere* Special Issue collected nine original papers dealing with research associated with the MJO. Liang et al. [1] examines intraseasonal variability in sea surface temperatures in the south tropical Indian Ocean and modulation of thermocline variability. They conclude that the MJO strongly modulates surface heat fluxes and therefore thermocline changes. Alvarez et al. [2] developed statistical analysis to characterize intraseasonal modes of variability and show that the MJO is an important controlling factor of precipitation variability in South America. Wang et al. [3] develops a modeling framework to examine the effect of convective adjustment during the MJO life cycle. Ren and Ren [4] study the MJO influence on extreme rainfall in southern China and the degree to which the Climate Forecast System model is able to forecast extreme rainfall occurrences. Zhu et al. [5] develop an empirical forecast model of subseasonal rainfall variability in China. Curtis [6] uses the variability of the MJO and El Nino/Southern Oscillation to examine global seasonal rainfall variations. Shinoda et al. [7] analyzes data from the Cooperative Indian Ocean Experiment on Intraseasonal Variability/Dynamics of the Madden-Julian Oscillation (CINDY/DYNAMO) field campaigns to study one MJO event and the remote influence of the MJO. Haertel et al. [8] uses a Lagrangian model framework to investigate moisture flux variations during the evolution of the MJO. Ichikawa and Inatsu [9] develop a new methodology to estimate the potential predictability of the MJO. This Special Issue brings original and important contributions on different aspects of the MJO and should contribute to a better understanding of the MJO.

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