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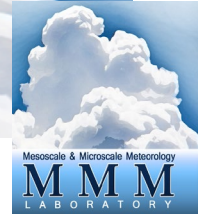
Mesoscale & Microscale Meteorology
MMM LABORATORY

Assessing Predictability and Prediction Skill of the MJO in ECMWF S2S Reforecast

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The Madden-Julian Oscillation (MJO) has been recognized as a source of predictability of the global weather on the subseasonal-to-seasonal (S2S) time scales. However, the MJO initiation and eastward propagation of the large-scale convection/precipitation over the Indo-Pacific warm pool remain to be difficult to evaluate quantitatively in NWP and climate models. This study aims to better understand the predictability and model prediction skill of the MJO using a new Large-scale Precipitation Tracking (LPT) method developed by Kerns and Chen (2016, 2020) based on a 20-year TRMM-GPM precipitation data and the ECMWF S2S reforecast from 1998-2018. The advantage of LPT is its explicit representation of the MJO precipitation in terms of both zonal and meridional structure and variability in time and space. The S2S reforecast reproduced the observed MJO climatology in terms of the total number of the MJO events and seasonal variability very well. However, the timing and location of the MJO precipitation, especially over the tropical Indian Ocean and the Maritime Continent, is less well predicted. These results help assessing predictability of various aspects of the MJO. Similar analyses are carrying out using other global NWP and climate models. In general, coupled atmosphere-ocean models outperform uncoupled atmosphere models. In addition to the MJO, general characteristics of multiscale precipitation and across-scale interactions (e.g., MJO-El Niño onset) will be discussed.

Thursday, 24 June 2021, 3:30PM (MDT)

For Zoom information, please contact
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Seminar will also be live webcast:
https://operations.ucar.edu/live-mmm

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