



An investigation into the predictability of the MJO

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The predictability of the Madden-Julian Oscillation (MJO) is of enormous interest because it is a short term climate variation with significant amplitude in the frequency band just beyond the limits of weather predictability. Thus, delimiting the dynamic predictability of the MJO will ascertain the magnitude of gains possible in the predictive skill of week two weather and the climate anomalies of monthly predictions. However, since the MJO is extremely difficult to simulate in global forecast and climate models, estimating the predictability of this phenomenon and its associated weather using the standard 'perfect' model twin experimental framework will almost assuredly give a biased estimate of the expected predictability of the MJO.

To circumvent the bias associated with the drift from nature which occurs in MJO forecasts, a mean corrected ensemble will be utilized to estimate the predictability of both the MJO tropical Rossby wave source, with concomitant planetary wave dispersion, and the higher-frequency midlatitude weather fluctuations embedded in the planetary wave field. This corrected ensemble will be compared with a standard, uncorrected ensemble of MJO forecasts to calibrate the effect of an accurate mean trajectory ensemble dispersion characteristics.