

# **The Quasi Biennial Oscillation regulation of the Madden Julian Oscillation**

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Madden-Julian Oscillation (MJO) is the dominant mode of intraseasonal variability in the tropics, which also makes a significant impact on extratropics. It is thus important to understand year-to-year variability of the MJO. Connections of the interannual variability of the MJO to the surface, such as El Niño-Southern Oscillation, have already been reported in literatures. However, the influence of stratospheric interannual variability, Quasi Biennial Oscillation (QBO), has not been carefully examined, while a recent study revealed that OLR anomalies associated with the MJO strengthen (weaken) during easterly (westerly) QBO phase. Therefore, our question is to examine whether and how the MJO activity changes in response to the changes associated with the QBO. How does the QBO set up changes in the background for MJO amplitude and propagation?

Key words: MJO, QBO, interannual variation