Controls on Upper Ocean Processes that Impact Intraseasonal Variability in the Maritime Continent Region

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ABSTRACT

This study focuses on identifying the major factors controlling the sea surface temperature, SST, in the Maritime Continent region. Variability of SST on intraseasonal to seasonal timescales strongly influences the maintenance and propagation of the MJO in the region with potential feedbacks between the atmosphere and ocean. In order to make a fair assessment of the role of the ocean in the maintenance and propagation of MJOs over the Maritime Continent in coupled models it is necessary to determine how well the ocean component of the coupled system is capturing the ocean state.

A combination of observations and models will be used to determine the physical processes that influence the response of the upper ocean and SST to intraseasonal to seasonal variability of the atmosphere in the Maritime Continent region. A major focus will be salinity, its influence on the stratification of the upper ocean and associated warming of the surface ocean. The factors influencing the presence of fresh surface layers, their temporal and spatial scales, and impact on SST will be ascertained. We will also determine what it takes for a model to capture their impact properly. The results will be used as a guide to improve ocean/atmosphere interactions in coupled models.