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Department of Atmospheric Sciences Seminar Announcement

Department of Atmospheric Sciences, S.O.E.S.T., University of Hawai'i at Mānoa
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Why the Rainfall Response to El Niño over the Maritime Continent is Weaker and Non-uniform in Boreal Winter than in Boreal Summer

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Date: Wednesday, November 1, 2017
Refreshments: 3:00pm at MSB lanai
Free Cookies, Coffee & Tea Provided
(Please Bring Your Own Cup)
Seminar Time: 3:30pm
Location: Marine Sciences Building, MSB 100

Abstract:

The Maritime Continent (hereafter MC) is regarded as one of the most crucial regions in climate research. It is located in the Indian Ocean-Pacific warm pool region, where abundant moisture evaporated from the warm pool forms the largest rainy area over the globe. The rainfall variability over this region exhibits a rich spectrum, ranging from diurnal to interdecadal timescales and also exhibits regional features. Previous studies have shown that wet season (boreal winter) precipitation during El Niño years is difficult to predict, while dry season (boreal summer) rainfall can be predicted well. Enhancing the understanding of the wet season MC rainfall response to ENSO will help improve the interannual rainfall prediction over this region and assist decision making of crop and plantation management. This work focuses on the interannual variability of rainfall over the MC through the diagnosis of anomalous large-scale circulation patterns and a local moisture budget analysis to strengthen the predictability of wet season El Niño precipitation. It is found that during El Niño mature winter, when anomalous Walker cells across the equatorial Pacific and Indian Ocean are strengthened, an anomalous low-level ascending motion starts to develop during late fall over the western MC. This anomalous ascending motion is key to the non-uniform MC rainfall response to El Niño during boreal winter. More details about the seasonal dependent mechanisms of MC rainfall response to El Niño will be further discussed in this talk.