UNIVERSITY of HAWAI'I MĀNOA

Department of Atmospheric Sciences Seminar Announcement

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SCHOOL OF OCEAN AND EARTH SCIENCE AND TECHNOLOGY

The diurnal cycle of column water vapor over Sumatra

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Date:	**Wednesday, October 17, 2018**
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 (MC) represents a very challenging region in the global climate system to understand from the perspective of deep convection. Reasons for the difficulties encountered include the complex shape and orientation of the islands, as well as their topography, which most climate models do not have sufficient resolution to represent accurately. As a consequence, models tend to exhibit systematic errors in the prediction of mean precipitation and its variability. Also, forecast models tend to exaggerate the disruption of the eastward propagation of the Madden-Julian Oscillation—one of the most important modes of intra-seasonal variation in the Tropics—upon its arrival on the MC. For these reasons, a better understanding of the links between deep convection and larger-scale dynamics, particularly the influence of the MC diurnal cycle, is of great importance in the study of the global climate. Here, we will present a new high-resolution dataset to study the diurnal cycle over the island of Sumatra. This dataset consists of a network of 60 GPS stations, known as the Sumatran GPS Array (SuGAr), established in 2002 to monitor tectonic processes along the coast of the island, to derive column (or precipitable) water vapor (cwv). We will first show the diurnal cycle reconstructed from the dataset, and we will discuss how it compares with other datasets, such as the COSMIC radio occultation and the NVAP-M data. A second point of comparison is obtained through numerical simulations with WRF, which we will use to constrain and better understand the diurnal cycle of cwv. Finally, using WRF to identify MJO events, we will discuss how the cwv diurnal cycle varies through the different phases of each event.