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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  
2525 Correa Road, HIG 350; Honolulu, HI 96822 ☎956-8775



### **Simulations of global tropical cyclone activity: from reduced complexity to future projections**

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**Date:** Wednesday, March 15, 2017  
**Refreshments:** 3:00pm at MSB courtyard  
Free Cookies, Coffee & Tea Provided  
(Please Bring Your Own Cup)  
**Seminar Time:** 3:30pm  
**Location:** Marine Sciences Building, MSB 100

#### **Abstract:**

Using General Circulation Models (GCMs) for tropical cyclone studies is challenging due to the relatively small size of the storms, the intense convection and a host of large-scale--small-scale interactions. Nonetheless, high-resolution (i.e., grid spacing less than 30 km) GCMs are now becoming a tool of choice to evaluate tropical cyclones in current and future climate conditions. This talk presents a variety of Community Atmosphere Model version 5 (CAM5) simulations, ranging from simplified global radiative-convective equilibrium (RCE) simulations to full decadal simulations of present-day and future climate. The CAM5 configurations with varying complexity provide useful insights into the model's ability to simulate tropical cyclone characteristics, including intensity, size and structure. Furthermore, future projections using the Representative Concentration Pathway (RCP) 8.5 scenario for greenhouse gas concentrations are assessed and compared to present-day simulations. In general, we find a decrease in overall TC activity in a warming climate in regions across the globe, but increases in the most intense TCs. However, basin-scale projections of future TC activity are subject to large uncertainties due to uncertainties in future SST patterns and other climate controls (i.e., dust). Overall, this work is part of a continued effort to understand how weather extremes may vary in a changing climate using next-generation high-resolution climate models.