UNIVERSITY of HAWAI'I MĀNOA

Department of Atmospheric Sciences
Special 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

SCHOOL OF OCEAN AND EARTH SCIENCE AND TECHNOLOGY

Orographic Convection and Precipitation in the Tropics: Wind Speed Control and Aerosol Interactions

Alison D. Nugent, Ph.D.
NSF Postdoctoral Fellow
National Center for Atmospheric Research

Date: Monday, May 2, 2016
Refreshments: 1:30pm
Free Cookies, Coffee & Tea Provided
(Please Bring Your Own Cup)
Seminar Time: 2:00pm
Location: Kuykendall Hall, KUY 101

Abstract:

Mountains around the globe control precipitation patterns and water resources. Here the focus is on understanding orographic precipitation in the tropics over a small island. An aircraft dataset from the Dominica Experiment (DOMEX) which took place in the eastern Caribbean is utilized. The aircraft measured upstream and downstream airflow properties as well as the convective clouds and precipitation over the island. These flight data along with an idealized numerical model are used to understand the role of wind speed in controlling the transition from thermally to mechanically forced orographic convection. When the convection is thermally driven, DOMEX observations show clear evidence of aerosol-cloud-precipitation interactions and the aerosol-aware Thompson microphysics scheme in WRF is used to investigate. Using this framework of understanding from an orographic case, a broader view of marine cloud microphysics can be gained.