



Department of Atmospheric Sciences Special Seminar Announcement

Department of Atmospheric Sciences, S.O.E.S.T., University of Hawai'i at Mānoa
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Improving Forecasts of Extreme Rainfall: PRECIP 2020



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Date: Friday, February 21, 2020
Seminar: 2:30 pm
Location: IPRC Conference Room, POST 414
International Pacific Research Center
Networking: 2:00 pm with light refreshments

Abstract:

Extreme rainfall is a high impact weather phenomenon that profoundly affects people around the world, but our fundamental understanding and quantitative forecast skill for these events remains limited. Tropical cyclones (TCs) can produce some of the most prodigious rainfall accumulations over wide areas, making them critical and challenging events to predict. To address these important scientific and forecast challenges, the Prediction of Rainfall Extremes Campaign In the Pacific (PRECIP) will be conducted in spring/summer 2020 to improve our understanding of the multiscale dynamic, thermodynamic, and microphysical processes that produce extreme precipitation. Research observations will be collected in four event types that meet a global definition of 'extreme' across a spectrum of rainfall intensity and duration: deep convective cores, wide convective cores, broad stratiform regions, and tropical cyclones. The experiment is designed to maximize the chances of observing a variety of heavy rainfall events in the moisture-rich natural laboratory of the western North Pacific in order to find the commonalities. The U.S. National Science Foundation is supporting the National Center for Atmospheric Research S-PolKa radar, Colorado State University Sea-Pol radar, radiosondes, and disdrometers in Taiwan and Japan. Aircraft observations in and around TCs will be conducted by partner projects supported by NOAA, Taiwan, and Japan. A primary scientific focus will be on the impacts of diabatic heating and cooling on TC intensity, structure, and rainfall from air-sea interaction and microphysical processes. A comprehensive modeling effort will be undertaken before, during, and after the campaign to inform observational strategies as well as to identify model deficiencies to improve prediction of TCs and extreme rainfall. The campaign will be conducted with international partner projects during the period leading up to and including the 2020 Tokyo Olympics as part of an international effort to address the global problem of extreme weather.