



UNIVERSITY
of HAWAI'I
MĀNOA

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



****Hybrid Seminar: In-Person & Virtual****

Impact of Radio Occultation Data on the Prediction of Tropical Cyclogenesis

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University Corporation for Atmospheric Research (UCAR)
Boulder, Colorado

You are invited to our hybrid Atmospheric Sciences Spring 2022 seminar at HIG 309 or via Zoom.

When: April 6, 2022 at 3:30PM HST

Meeting admission: 3:15PM HST

Register in advance for this meeting:

<https://hawaii.zoom.us/meeting/register/tJcof--qqjMiEtXX9J8yHV3K8NrAjdJsakyN>

After registering, you will receive a confirmation email containing information about joining the meeting.

Abstract:

Tropical cyclones are one of the most devastating severe weather systems that are responsible for huge loss of lives and properties every year. Accurate prediction of tropical cyclogenesis by numerical models has been a significant challenge, largely because of the lack of observations over the tropical oceans. The atmospheric limb sounding technique, which makes use of radio signals transmitted by global navigation satellite systems (GNSS), has evolved as a robust global observing system. This technique, known as radio occultation (RO) can provide valuable water vapor and temperature observations for the analysis and prediction of tropical cyclogenesis. Using the WRF modeling and data assimilation system, we show that the assimilation of RO data can substantially improve the skills of the model in predicting the tropical cyclogenesis for ten typhoon cases that took place over the Western Pacific from 2008 to 2010. To gain insight on the impact of GNSS RO data assimilation, we perform a detailed analysis of the formation process of Typhoon Nuri (2008), and examine how the assimilation of the GNSS RO data enables the model to capture the cyclogenesis. The joint Taiwan-U.S. COSMIC-II mission was launched in June 2019. It has been providing more than 6,000 GNSS RO data per day over the tropics since March 2020. The assimilation of GNSS RO data from COSMIC-2 is shown to increase the probability of detection and reduce false alarm for the prediction of tropical cyclogenesis.

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COMET Program Activities and Support of University Education
Elizabeth Page, Director, UCP Education & Training Center
Paul Kucera, Assistant Director, International Capacity Development
COMET Program

Abstract:

The COMET Program, part of the UCAR Community Programs Education and Training Center, has brought innovation training opportunities to the community for over 30 years. University faculty and students are likely most familiar with the MetEd training portal website (www.meted.ucar.edu) and the over 1000 online lessons that are available free of charge. The topics covered by these lessons continue to grow as does the number of languages offered (now nine).

Some new and not so new features in MetEd may be of interest. In response to the challenges that universities have faced during the COVID pandemic, NSF funded COMET to map the lessons to common undergraduate courses and to bundle the graphics in these lessons to facilitate downloading. These resources can be found on a dedicated part of the course catalog: https://www.meted.ucar.edu/education_training/ucourses. Another feature that may not be well known but has been around for a while are booster questions. Learners can subscribe to these questions when they take the quiz associated with a lesson and will receive emailed follow up questions to help them retain the information presented in the lesson.

Another activity of interest is COMET's 3D Printed Weather Stations (3D PAWS). 3D-PAWS sensors currently measure pressure, temperature, relative humidity, wind speed, wind direction, precipitation, and visible/infrared/UV light, stream height and snow pack. The system uses a Raspberry Pi single-board computer for data acquisition, data processing, and communications. The 3D printer files for these instruments are open source and a user guide is available online <https://sites.google.com/ucar.edu/3dpaws/downloads/manual>.

For additional information please contact:

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There will be an open PIZZA PARTY after the seminar. All are invited!