Department of Atmospheric Sciences
Seminar Announcement

Department of Atmospheric Sciences, **S.O.E.S.T.**, University of Hawai'i at Mānoa
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A Simplified Algorithm to Estimate Latent Heating Rate Using Vertical Rainfall Profiles Over the Tibetan Plateau

Professor Rui Li

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Date:	**Wednesday, February 13, 2019**
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:

In this study, a simplified semi-physical retrieval algorithm for latent heat (LH) released from precipitation over the Tibetan Plateau is derived and analyzed. The physical basis of this algorithm is that the vertical gradient of rain rate ($-dR/dZ$ or Γ) represents the temporal rate of rain formation based on the steady state assumption, and the precipitation formation rate is closely related to the cloud formation rate, which is directly proportional to the latent heating rate. In this algorithm, the LH rate is represented as a linear function of Γ with fixed slope and intercept term determined by 3-month Weather Research and Forecasting Model simulations over the Tibetan Plateau. Comparison to model results shows that the retrieval scheme can correctly capture the main features of LH horizontally and vertically. Comparison with results from other two widely accepted LH algorithms using Global Precipitation Measurement Dual Precipitation Radar real observations shows that this retrieval scheme generally agrees with them over low-altitude areas but yields more convective-type LH over the highlands with a relatively low heating center. This algorithm is specially designed for application to high altitudes. With this algorithm and the associated coefficients provided, researchers can readily do LH retrieval in their cases of interest by themselves. The only required input is the vertical profile of rain rate, which is available from current satellite precipitation radar observations.

Bio:

Dr. Li is a professor in the School of Earth and Space Science (SESS) in the University of Science and Technology of China (USTC). He got his Ph.D. in Atmospheric Science in USTC in 2005, and he ever worked as a post-doc and a full research scientist in the State University of New York at Albany from 2006 to 2013.