UNIVERSITY of HAWAI'I MĀNOA

Department of Atmospheric Sciences & IPRC
Joint Seminar Announcement

SCHOOL OF OCEAN AND EARTH SCIENCE AND TECHNOLOGY

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
&
International Pacific Research Center, S.O.E.S.T., University of Hawai'i at Mānoa
1680 East-West Road, POST 401; Honolulu, HI 96822 ☎956-5019

SEMINAR TITLE:

The Physical-Empirical TC ACE Seasonal Forecast Models in Taiwan Area and their Sources of Predictability

Dr. Mong-Ming Lu
Research and Development Center
Center Weather Bureau, Taiwan

Date:	**Wednesday, February 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:

Tropical cyclone (TC) is the most hazardous high-impact weather system in Taiwan. Long-lead seasonal forecast of the TC activity around Taiwan is highly beneficial to the society in particular disaster prevention and management, but extremely challenging due to the relatively small target area and highly variable TC genesis locations and tracks. Using the accumulative cyclone kinetic energy (ACE) of the invading TCs within the 'influence domain' defined as an area extending 300 km away from the Taiwan island coastline as predictand, two sets of physical-empirical forecast models have been developed. The predictors include the sea surface temperatures (SSTs) and the sea level pressure (SLP), and their tendency over the Pacific, Atlantic and Indian oceans and extratropical land areas in East Asia. The earliest producing time of the forecast is in late May because the large-scale condition during May is critical to the following tropical cyclone season TC activity over the western North Pacific. Two sets of forecast models are separately for ACE in the peak (June-September) and late (September-November) seasons because the sources of predictability are different. For the peak season forecast, the predictability is rooted in the spring to summer evolution of the monsoon subtropical high-ENSO system of a decaying ENSO event. When the spring SST anomaly is warm over equatorial western Pacific, while it is cold but with a warming tendency over tropical South Indian Ocean, the coupled atmospheric and oceanic anomalies evolve into a favorable large scale condition conducive for active typhoon occurrence in the Taiwan area during the ensuing summer. For the late season forecast, the predictability is rooted in the spring to summer teleconnection of Atlantic-Pacific-Southeast Asia marginal seas during the developing phase of an ENSO event.