Climate Test Bed (CTB) Seminar Series

Presents

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NOAA/NCEP/CPC
College Park, MD

Monitor Drought Occurrence Probability—A New Framework for Monitoring

11:00 AM – 12:00 NOON , Thursday, February 28, 2013
EMC Conference Room #2155

NOAA Center for Weather and Climate Prediction
5830 University Research Court, College Park, MD 20740

Abstract

Drought is a complex phenomenon. To monitor drought in real time, we use physically based indices. Standardized Precipitation Indices (SPIs) are used to monitor the precipitation deficits. Soil Moisture (SM) Percentiles (SMP) and Standardized runoff indices (SRI) are employed to monitor soil moisture and runoff deficits respectively. Because long term observations of runoff and soil moisture are not available, SM and runoff are often derived from the North American Data Assimilation system (NLDAS). There are large uncertainties in the NLDAS systems and different indices have different time scales. While all indices are likely to detect the same drought event and capture its evolution, differences are often too large to classify drought into D0 to D4 categories.

We propose a probabilistic approach. Instead of monitoring ensemble means, we monitor the drought occurrence probability in each drought category (D0 to D4) derived from indices from different assimilation systems and different models. This new framework takes into consideration of uncertainties in indices and provides the regional information of drought classification. It also estimates the best or worst scenarios in near real time and the probability for them to occur.