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CIVIL AND ENVIRONMENTAL ENGINEERING
TENNESSEE TECHNOLOGICAL UNIVERSITY

BY

Ling Tang

PhD Candidate

Department of Civil and Environmental Engineering

“Transferring Satellite Rainfall "Error" from Known Points to Unknown Locations: Is it Realistic for NASA?”

Tuesday, April 28, 2009

11.00AM-12.00NOON

PRESCOTT HALL ROOM 425

Abstract

A fundamental paradox of satellite rainfall data is that it is most useful over ungauged locations where there is no way of deriving uncertainty information directly using ground validation (GV) data. This study investigates how much error information can be 'transferred' from known locations to ungauged points using a geostatistical spatial interpolator. The method of ordinary kriging was implemented on mid-western United States assuming that 50% of the region lacked GV rainfall data. Various error metrics were interpolated for the non-GV grid boxes (for which the true error metric value was known *a priori*) using kriging and a nearest neighborhood window (of size equivalent to the correlation length of the metric). This process was repeated for 10 realizations of randomly selected gridboxes (comprising 50% of the total domain) and the accuracy of kriging was then assessed statistically. Preliminary results indicate that kriging has promise for transferring error information to ungauged locations, particularly for Probability of Detection (POD) and RMSE. Future extension of this work will test the role played by % missing

Speaker Bio

Ling Tang is a PhD candidate in the Department of Civil and Environmental Engineering. She is a NASA Earth System Science Fellowship recipient since 2008. Her major advisor is Dr. Faisal Hossain.