

ATS/CIRA Colloquium

Thomas Chase

CU Department of Geography

Modeling and Predicting Three Asian Monsoon Systems

September 20, 2007

ATS room 101; Discussion will begin at 3:30pm

Refreshments will be served at 3:00pm in the coffee lounge

Monsoons are hydro-climatological circulations of enormous importance to regional water supplies and agriculture and also to the global circulation of the atmosphere and therefore global precipitation patterns. I compare the effects of landcover change and land surface hydrology on summer monsoonal circulation in three distinct Asian monsoon regions, India, Northeast Asia and Southeast Asia from general circulation modeling experiments and in statistical prediction models based on observations. We find that the correct land surface hydrology is vital to simulating regional monsoons as well as the global climate and can have impacts on global land surface temperature of similar magnitude to that observed over the past century. Additionally, the predictability of east Asian monsoon rainfall is nearly doubled when pre-monsoon season vegetation characteristics are included in a forecast model over using sea surface temperatures alone. Both results highlight the importance of the land surface in simulating and predicting both regional and global climate.