

**SSEC/CIMSS  
Seminar**

**SUSANNE CREWELL**  
Institute of Geophysics and Meteorology  
University of Cologne

**The Potential of Remote Sensing Observations  
for Evaluating and Improving Mesoscale Models**

In the last few years, a new generation of mesoscale numerical weather prediction (NWP) models became operational, where these models employ more detailed microphysics and have decreased horizontally grid spacing (i.e., horizontal resolution is  $< 3$  km). One example is the COSMO-DE model operated by the German Weather Service that was specifically developed to better forecast severe weather events related to deep moist convection. Within a dedicated research program on "Quantitative Precipitation Forecasting", a long-term evaluation of COSMO-DE is performed using a variety of multi-dimensional remote sensing observations from radar, satellite, and ground-based profiling stations. The amount of precipitation at the ground results from a complex process, thereby requiring that various water cycle parameters be assessed in order to identify systematic model deficits that affect the forecast quality of precipitation. For example, we have shown the impact of radiosonde biases on water vapor and cloud forecasts. The deployment of ARM's Mobile Facility within the Black Forest during the Convective and Orographically induced Precipitation Study (COPS) in 2007 offers a unique chance to illustrate how detailed remote sensing observation can support NWP development. Additionally, ground-based remote sensing observations taken in Benin as part of the African Monsoon Multidisciplinary Analysis (AMMA) project are used to assess the quality of a mesoscale model in that data sparse region to forecast the development of the Inner Tropical Depression (ITD).

**Tuesday, 4 November 2008**  
**9:00 a.m.**  
**Room AOSS 351**