

**SSEC/CIMSS  
Seminar**

**MANISHA GANESHAN**  
**ESSIC, University of Maryland, College Park**

**Impact of model resolution on the  
forecast skill of warm season rainfall over the  
Chesapeake Bay**

Late-afternoon thunderstorms are often observed over the Chesapeake Bay watershed area during the warm season when the atmosphere is convectively unstable. In this study, the impact of enhancing model resolution from mesoscale to cloud-resolving scale on the prediction of warm season precipitation characteristics over the watershed is investigated. The WRF model is used at 37.5km, 7.5km and 2.5km resolutions to simulate several ensemble cases of convective rainfall. While the model resolution by itself has relatively little impact on the forecast skill, significant improvements are observed when convection is resolved explicitly as opposed to being parameterized. In particular, the early bias in the timing of afternoon convective rainfall is rectified through explicit convection. There is also a statistically significant improvement in representation of heavy rainfall characteristics. The poor performance of the cumulus scheme appears to be due to an inadequate representation of convective inhibition in its trigger mechanism. Such a diagnostic should serve to improve convective parameterization for coarse resolution simulations while providing a way forward to high-resolution ones.

**Monday, 18 July 2011**  
**10:00 a.m.**  
**Room AOSS 351**