

## **Sensitivity of convective precipitation development over the Southern Great Plains to patterns of soil moisture**

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This work will address the sensitivity to initial soil moisture conditions of convective precipitation patterns over the Southern Great Plains of the United States on days with and without strong synoptic forcing. The Weather Research and Forecasting Model – Advanced Research WRF (WRF) will be initialized with North American Regional Reanalysis data and nested with an inner domain of 4 km over the Southern Great Plains. A control run of WRF will be run for the duration of each severe weather outbreak to be studied and precipitation data will be compared to those from the National Centers for Environmental Prediction Stage IV product. I will then adjust the initial soil moisture conditions in the control run to determine how precipitation patterns as well as other meteorological variables respond to different soil moisture patterns. Preliminary results from the control runs will be shown here. Early results show that an un-nested WRF run simulates a severe weather event in early May 2010 but does not capture the magnitude of it, probably due to the low resolution used. Applying nesting will allow the model to simulate the mesoscale features allowing for a more suitable comparison with the Stage IV product.