

Overview of the September 2009 Southeast U.S. Flood Event

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From 19-22 September 2009, 10-20" of rain fell over northern Georgia and upstate South Carolina resulting in at least \$250 million in damages and 11 deaths. Record high river levels were set at multiple locations, including along the Chattahoochee River. A moist mid- and lower-atmosphere (long, skinny CAPE profiles; precipitable water values two standard deviations above normal) combined with confluent flow at the surface and upslope enhancement to produce torrential rainfall over the area. Flood and flash flood warnings were issued in advance by the local NWS offices but the magnitude of the rainfall was grossly underforecast by the larger scale numerical models. Higher resolution (<5 km) convection-permitting numerical guidance [in the WRF (Weather Research and Forecasting) Model framework] more accurately predicted the potential amount of precipitation, but not necessarily in the right location.

This presentation examines the precursory synoptic environment of the flood event and summarizes both the model and human forecast performance from the perspective of the HPC (Hydrometeorological Prediction Center). Particular focus is placed on the potential role of high-resolution guidance in anticipating such flood events.

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