



Exploring the sensitivity of supercell forecasts to initial condition resolution

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Due to observational limitations, the initial conditions for convective forecasts lack information at finer scales that are critical to storm evolution. This raises an important question: how quickly and accurately are poorly initialized scales in convective storms “spun up” as the forecast proceeds? This question is particularly important to the Warn-On-Forecast paradigm, in which $O(1\text{ h})$ NWP model forecasts would provide valuable guidance to severe thunderstorm, tornado, and flash flood warning operations. This issue is explored by comparing 333-m WRF-ARW supercell simulations whose initial conditions are filtered using progressively larger cutoff wavelengths. Special emphasis is placed on storm track, low-level vorticity, total rainfall, and other quantities critical to convective warning operations.