



Experimental high-resolution NWP: Preliminary results using the WRF model

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During the BAMEX (Bow Echo and Mesoscale Convective Vortex Experiment) field program which took place during the spring and summer of 2003 in the central US, the nonhydrostatic WRF model with 4 km gridspacing was used to produce daily 36 h forecasts of convection. This forecast experiment was repeated in 2004. These 4 km forecasts are produced using an explicit representation of convection - no convective parameterization is used, and the forecasts are initialized using only synoptic-scale analyses. We have found that these forecasts often predict mesoscale convective systems that subjectively correspond to observed systems, and they appear to possess some skill in depicting the type of convective organization (non-squall versus squall line). Furthermore, the forecasts also often reproduce the observed convective structures associated with severe weather such as bow echoes and isolated severe long-lived (supercell-like) storms. We will present some example forecasts and preliminary verification results illustrating the potential value of these forecasts. Additionally, we will discuss forecast biases and errors that point to model formulation problems and, of course, the inability of any model to resolve convection with a 4 km gridspacing.