P35 Diagnosing systematic model-error in WRF from time-averaged tendencies

Losch, Florian *University of Bonn, Germany*, Judith Berner, Kate Fossell, Glen Romine, Craig Schwartz, and Chris Snyder, *National Center for Atmospheric Research*

Systematic biases between model and observations can be detected by studying the analysis increments obtained from cycled data assimilation experiments. When averaged over many different initial conditions, a non-zero analysis increment points to systematic discrepancies between the model and observations and - in the case of unbiased observations - directly to systematic model bias. The “initial tendency method” is a way to study the sources of this bias. It is based on the fact, that the mean analysis increment equals the mean initial tendency from the dynamical core and all physical parameterizations. As such this method is a unique and an important tool to study the sources of systematic model error. The relative contribution of deep convection, shallow convection, planetary boundary layer, radiation, micro-physics to systematic model bias will be presented in cycled ensemble forecasts at cloud-permitting resolution. Particular emphasis will be given to deep-convective events. The results will be compared to the bias in the German version of the COSMO model run at 3km.