P28 A simple modification to improve interaction between convective parameterization and grid scale microphysics

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We describe a simple modification of convective parameterizations for resolutions when grid spacing is too small for explicit resolution of deep convection but is sufficiently fine to resolve the overall structure of the MCS (i.e., around 10 to 30 km). Such grid spacings are often used for very long WRF runs such as regional climate simulations. The modification more tightly couples the convective updraft within the parameterization to the grid-scale microphysics. We test this approach in multi-year simulations using the Kain-Fritsch, Grell, and Tiedtke convective parameterizations within the WRF-ARW model. The results show considerable improvement in the generation and realism of propagating MCSs in comparison to the unmodified schemes.