P51 Sensitivity of HWRF simulations to parameter variations in the Grell-Freitas convection scheme.

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Parameterization of convection is known to play an important role in the numerical simulation of tropical cyclogenesis on the mesoscale. There is, however, uncertainty in the specification of some variables within any parameterization. With regard to convection, for example, the parameterized distribution of heating and the interaction of detrained hydrometeors with the model microphysics can impact the intensity of the simulated cyclone, as well as the track, thermodynamic structure and radiative properties. In this study, the Grell-Freitas (GF) convection scheme is applied in the Hurricane Weather Research and Forecast (HWRF) model system to simulations of high-impact hurricanes from the 2017 season. Sensitivity to stochastic parameters in the GF scheme is explored, including the specification of cloud water detrainment, momentum transport, and the distribution of the vertical mass flux. Impact on vertical structure, convective and microphysical tendencies, and moisture fields will be shown, in addition to the cyclone track and intensity.