P52 Testing of the Grell-Freitas convective scheme with HWRF.

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In the past two decades, there has been a steady decrease in track forecast errors. However, the decrease in intensity forecast errors was not as impressive, and more work is needed to meet the goals of the Hurricane Forecast Improvement Project (HFIP). Predicting rapidly intensifying (RI) storms is still a particular challenge for modelers and forecasters. The model physical parameterizations, and the interactions among different schemes, are critical to model performance. In recent years, the Developmental Testbed Center (DTC) ran experiments of HWRF with a variety of cumulus schemes, but none outperformed the operational configuration. However, in recent tests, preliminary results indicate that the DTC was able to realize forecast improvements, especially for longer lead times, from an upgrade of the convective scheme.

The DTC tested and evaluated HWRF with the scale aware Grell-Freitas (GF) cumulus scheme and compare the results against a control using the Scale-Aware Simplified Arakawa Schubert (SASAS) scheme. Assessments were done through a combination of physical process diagnostics, as well as traditional track and intensity verification. Additionally, evaluation of storm-scale fields will be explored to further investigate sensitivities to the GF scheme in HWRF.