## P56 RRTMG within WRF: An extensive assessment of performance

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The Developmental Testbed Center (DTC) performed extensive testing and evaluation with the Advanced Research WRF (ARW) dynamic core for two physics suite configurations, with a goal of assessing the forecast and computational performance of the updated Rapid Radiative Transfer Model (RRTMG) long- and short-wave radiation schemes. One configuration was based on the previous operational configuration of the Air Force Weather Agency (AFWA), while the second configuration substituted the long- and short-wave radiation schemes (RRTM/Dudhia) with the RRTMG radiation schemes. The RRTMG schemes, while more computationally demanding, are more sophisticated and are currently being used in both research and operation centers.

This presentation will assess the forecast performance of these two configurations over a 15-km CONUS domain. Both configurations were run over the same yearlong period, allowing for a direct comparison of performance between the two. Due to the extensive testing period, this study provides robust results and the ability to investigate seasonal and regional performance. A brief evaluation of traditional verification metrics for surface variables will be provided reference. Emphasis will be focused on several case studies in order to investigate the improvements and/or deficiencies within the radiation budgets for the two configurations. SURFRAD data from several of the network's observation stations will be used to provide objective verification for a select number of radiation variables (e.g., incoming short- and long-wave radiation). An analysis of computational resources required to run each configuration will also be discussed.