1.3 WRF-Chem V4.0: A summary of status and updates.

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In this presentation, we describe recent updates as well as ongoing work as part of the Weather Research and Forecasting (WRF) model as it is coupled with chemistry. WRF-Chem V4.0 includes new features such as an updated gas phase chemistry scheme Model for Ozone and Related Tracers (MOZART) version T1, a new heterogeneous gas chemistry (based on the Regional Atmospheric Chemistry Mechanism) option coupled with the ISORROPIA II aerosol thermodynamic model and a new version of the Model for Simulating Aerosol Interactions and Chemistry scheme (MOSAIC II).

In addition, a parameterization for potential vorticity based stratospheric ozone calculation, a Henry's Law Constant table (to use the same constants across different chemistry parameterizations), a diagnostics scheme for aerosol-radiation feedback calculations and Integrated Reaction Rate diagnostics option were added to the new version of WRF-Chem. These and other additions, enhancements and bug fixes provide the users with more versatile and up to date tools to simulate a wide range of atmospheric chemistry processes and meteorology-chemistry interactions. A brief overview of the current WRF-Chem applications and future development will be also discussed.