1.1 The Weather Research and Forecasting Model: 2015 annual update.

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This talk will summarize the changes to WRF for Versions 3.6.1 (released in August 2014) and Version 3.7 (released in April 2015). New options in Version 3.7 include a new version of the Tiedtke cumulus scheme, a scale-aware version of the Kain-Fritsch cumulus scheme, a sub-km scale version of the YSU scheme called the Shin-Hong PBL, a top-down mixing option in the YSU PBL, and a new cloud fraction option for radiation. Existing schemes have also had improvements. Notably the WSM/WDM microphysics options now also pass radius information to the RRTMG radiation, the urban canopy model has more hydrological processes, a faster version of RRTMG is added, the revised surface-layer scheme has been sped up, orographic blocking has been added to the gravity-wave drag option, lateral boundaries improved for long-term simulations. In the dynamics, vertical nesting is added, an option is added for advecting "theta_m" for better LES results, and to include microphysical species tendencies for dynamics. Idealized cases have been added for shallow convection and convective-radiative equilibrium. Many other improvements have been made to physics options, WRF-Hydro and SKEBS.