

4th workshop on assimilating satellite cloud and precipitation observations for NWP



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Recent developments in microphysical modelling

Tuesday, 4 February 2020 14:45 (25 minutes)

This presentation will discuss the most recent developments of the Thompson-Eidhammer aerosol-aware bulk microphysics parameterization in the Weather Research and Forecasting (WRF) model. Detailed comparisons of many types of observed data have been used to improve the scheme over numerous years including satellite, radar, surface, and aircraft observations. The most recent observational data comparison came from an aircraft field campaign in winter 2019 in the Great Lakes region of the United States versus a WRF model run in real time to support flight planning using a 600-meter grid increment. Also a new technique to improve cloud initialization was incorporated in the absence of a full-scale data assimilation system. Further improvements leveraging the latest satellite data resources can provide aerosol, cloud particle phase and size retrievals to make larger improvements. A specific focus of the presentation will be the prediction of supercooled liquid water clouds and very hazardous freezing drizzle conditions. The former is a well-known shortcoming of nearly all global circulation models and the latter is a significant aviation hazard.

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