

Impact of GNSS tropospheric gradients on severe weather forecasts

Thursday 22 June 2023 10:25 (15 minutes)

The assimilation of Zenith Total Delays (ZTDs) has a positive impact on weather forecasts. On the other hand, tropospheric gradients are not yet assimilated by the weather agencies. In this work we study the impact of tropospheric gradients on weather forecasts. To do so we implemented the required operators into the Weather Research and Forecasting (WRF) Data Assimilation (DA) system and conducted three experiments: 1) Control run with only conventional data; 2) ZTD assimilation on top of control run, and; 3) ZTD and tropospheric gradient assimilation on top of control run. Initial tests are performed with a rapid update cycle framework with six hourly intervals based on the three-Dimensional Variational (3DVar) DA system. Results from the assimilation experiments are presented.

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Session Classification: New observational systems and sources of information