

**P23** Impacts of GPSRO data assimilation on a heavy rainfall case simulation in an observation system simulation experiment.

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This research is based on “FORMOSAT-7/COSMIC-2 Program (simplified as FORMOSAT-7 Program in the following descriptions)”, cooperating with Central Weather Bureau (CWB) and Taiwan Typhoon and Flood Research Institute (TTFRI) to develop the Global Positioning System Radio Occultation (GPSRO) application technique. The FORMOSAT-7 has 12-satellites which are deployed in two clusters of 6-satellites into the designated low and high inclination orbits. In this research, we compose the Hybrid analysis scheme with two different data assimilation Systems, The Local Ensemble Transform Kalman Filter (LETKF) and WRF-Three Dimensional Variational Data Assimilation system (3DVAR). We use GPSRO data from the two clusters of FORMOSAT-7 into Observation System Simulation Experiment (OSSE), and choose a strong Mei-Yu case which happened in June 2012 as a study case. In this study, we use 15 km resolution model result as the natural run in OSSE, and use 45 km resolution in Hybrid assimilation system to produce control run and assimilation run. By analyzing these OSSE results, we can realize the benefit of the GPSRO data from the two clusters of FORMOSAT-7. Also we can evaluate the Impact of Hybrid data assimilation system within GPSRO data from FORMOSAT-7 and the forecast performance of Hybrid system within severely weather system.