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Precipitation Forecasts Improvement by Assimilating Radar Reflectivity for Typhoon Morakot

Yuanfu Xie, Shuyuan Liu, and SauNei Hui
US Government, NOAA Earth System Research Laboratory, Boulder, United States (yuanfu.xie@noaa.gov, +1 303 497 6821)

Typhoon Morakot produced a huge precipitation over Taiwan Island and caused tremendous damage. Better assimilation of radar reflectivity data would have strong impact on the precipitation forecasts. In this study, radar reflectivity data is assimilated into a WRF model using Space and Time Multiscale Analysis System. The precipitation forecasts have been improved not only in the precipitation amount but also in more accurate locations. A hydrostatic balance is also added into the analysis so that STMAS can produce more thermo-dynamic balance initial condition for improving the forecasts. Numerical results will be presented comparing to the forecasts without assimilating radar reflectivity.