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Impact of assimilated satellite observations on tropical cyclone precipitation analyses and forecasts

W. Lewis

Dept. of Atmospheric & Oceanic Science, Univ. of Wisconsin, Madison, WI 20771, USA

Tropical Cyclones are among the most destructive natural phenomena, not only on account of extreme wind but also due to the excessive amounts of precipitation that these storms are capable of generating. Here we attempt to determine the extent to which remotely sensed observations can improve model-based analyses and forecasts of the precipitation fields associated with tropical cyclones. To accomplish this task, we assimilate infrared (10.7 micron) imagery from GOES-12 and passive microwave imagery from the Special Sensor Microwave Imager (SSMI) aboard the DMSP satellites using an ensemble Kalman filter (EnKF) within the University of Wisconsin Nonhyrdostatic Modeling System (UW-NMS).