

Impact of AQUA Satellite Data on Hurricane Forecast: Danielle 2010

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This study focuses on the impact of AQUA satellite data from AIRS and AMSU on the forecast of hurricane Danielle by the Global Forecast System (GFS) model. The data assimilation method adopted to ingest the data is the Gridpoint Statistical method (GSI) which is based on the three dimensional variational (3DVAR) data assimilation technique. Two experiments were carried out to investigate the impact of AQUA satellite radiance observation on the forecast of hurricane Danielle. The first experiment (Control) assimilated all the available data while the second experiment (No AQUA) incorporated all the observations but the AQUA satellite data. Data assimilation cycling started one week prior to hurricane genesis, on 15 August 2010 06 UTC. The root mean square track forecast error shows slightly negative impact at the early lead time and slightly positive impact at later lead time. However, the root mean square intensity forecast errors by the Control are shown to be lower than No AQUA for all forecast hours, indicating positive impact of the AQUA data on the intensity forecast.

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