

Assimilation of Satellite AOD Retrievals to Improve Aerosol Forecasts with FV3-GOCART

Mariusz Pagowski (1,3), Arlindo Da Silva (2), Georg A. Grell (3), Stuart McKeen (1,5), and Shobha Kondragunta (4)

(1) University of Colorado, CIRES, Boulder, Colorado, (2) NASA/Goddard Space Flight Center, (3) NOAA/ESRL/GSD, Boulder, Colorado, (4) NOAA/STAR/NESDIS, (5) NOAA/ESRL/CSD, Boulder, Colorado

In 2016 NOAA chose the FV3 dynamical core as a basis for its future global modeling system, the Next Generation Global Prediction System (NGGPS). We present an implementation of online aerosol modules into the FV3 based modeling system and its assimilation framework. The parameterization of aerosols is based on simple bulk aerosol modules from the Goddard Chemistry Aerosol Radiation and Transport (GOCART) model. The assimilation methodology relies on an EnKF approach that is based on the operational version used for NWP. Aerosol observations include debiased aerosol optical depth at 550 nm from MODIS satellite. Results and evaluation of the system against VIIRS AOD retrievals and NASA's MERRA-2 is shown.