The NASA GEOS-5 Aerosol Forecasting System

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The NASA Goddard Earth Observing System modeling and data assimilation environment (GEOS-5) is maintained by the Global Modeling and Assimilation Office (GMAO) at the NASA Goddard Space Flight Center. Near-realtime meteorological forecasts are produced to support NASA satellite and field missions. We have implemented in this environment an aerosol module based on the Goddard Chemistry, Aerosol, Radiation, and Transport (GOCART) model. This modeling system has previously been evaluated in the context of hindcasts based on assimilated meteorology. Here we focus on the development and evaluation of the near-realtime forecasting system. We present a description of recent efforts to implement near-realtime biomass burning emissions derived from the Moderate Resolution Imaging Spectroradiometer (MODIS) fire radiative power products. We as well present a developing capability for improvement of aerosol forecasts by assimilation of aerosol information from MODIS.