



## **Exploration of OMI products for air quality applications through comparisons with models and observations**

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The Ozone Monitoring Instrument (OMI) onboard NASA's Aura satellite was launched in July 2004, and is now providing daily global observations of total column ozone, NO<sub>2</sub>, and SO<sub>2</sub>, as well as aerosol information. Algorithms have also been developed to produce daily tropospheric ozone and NO<sub>2</sub> products. The tropospheric ozone product reported here is a tropospheric residual computed through use of Aura Microwave Limb Sounder (MLS) ozone profile data to quantify stratospheric ozone. We are investigating the applicability of OMI products for use in air quality modeling, forecasting, and analysis. These investigations include comparison of the OMI tropospheric O<sub>3</sub> and NO<sub>2</sub> products with global and regional models and with lower tropospheric aircraft observations. Large-scale transport of pollution seen in the OMI tropospheric O<sub>3</sub> data is compared with output from NASA's Global Modeling Initiative global chemistry and transport model. On the regional scale we compare the OMI tropospheric O<sub>3</sub> and NO<sub>2</sub> with fields from the National Oceanic and Atmospheric Administration and Environmental Protection Agency (NOAA/EPA) operational Eta/CMAQ air quality forecasting model over the eastern United States. This 12-km horizontal resolution model output is roughly of equivalent resolution to the OMI pixel data. Correlation analysis between lower tropospheric aircraft O<sub>3</sub> profile data taken by the University of Maryland over the Mid-Atlantic States and OMI tropospheric column mean volume mixing ratio for O<sub>3</sub> will be presented. These air-

craft data from forecast high ozone days in summer are representative of the lowest 3 kilometers of the atmosphere, the layer in which much of the locally-generated and regionally-transported ozone exists.