**ABSTRACT FINAL ID:** A22D-01;

**TITLE:** Using satellite aerosol retrievals to monitor surface particulate air quality *(Invited)*

**SESSION TYPE:** Oral

**SESSION TITLE:** A22D. Remote Sensing of Trace Gases and Aerosols: Air Quality Applications III

**AUTHORS (FIRST NAME, LAST NAME):** Robert C Levy[1, 2], Lorraine A Remer[2], Ralph A Kahn[2], D. Allen Chu[3, 2], Shana Mattoo[1, 2], Brent N Holben[2], Joel S Schafer[4, 2]

**INSTITUTIONS (ALL):** 1. SSAI, Lanham, MD, United States.
2. NASA-GSFC, Greenbelt, MD, United States.
3. JCET, UMBC, Baltimore, MD, United States.
4. Sigma Space Corporation, Lanham, MD, United States.

**ABSTRACT BODY:** The MODIS and MISR aerosol products were designed nearly two decades ago for the purpose of climate applications. Since launch of Terra in 1999, these two sensors have provided global, quantitative information about column-integrated aerosol properties, including aerosol optical depth (AOD) and relative aerosol type parameters (such as Ångstrom exponent). Although primarily designed for climate, the air quality (AQ) community quickly recognized that passive satellite products could be used for particulate air quality monitoring and forecasting. However, AOD and particulate matter (PM) concentrations have different units, and represent aerosol conditions in different layers of the atmosphere. Also, due to low visible contrast over brighter surface conditions, satellite-derived aerosol retrievals tend to have larger uncertainty in urban or populated regions. Nonetheless, the AQ community has made significant progress in relating column-integrated AOD at ambient relative humidity (RH) to surface PM concentrations at dried RH. Knowledge of aerosol optical and microphysical properties, ambient meteorological conditions, and especially vertical profile, are critical for physically relating AOD and PM. To make urban-scale maps of PM, we also must account for spatial variability. Since surface PM may vary on a finer spatial scale than the resolution of standard MODIS (10 km) and MISR (17km) products, we test higher-resolution versions of MODIS (3km) and MISR (1km research mode) retrievals. The recent (July 2011) DISCOVER-AQ campaign in the mid-Atlantic offers a comprehensive network of sunphotometers (DRAGON) and other data that we use for validating the higher resolution satellite data. In the future, we expect that the wealth of aircraft and ground-based measurements, collected during DISCOVER-AQ, will help us *quantitatively* link remote sensed and ground-based measurements in the urban region.