Title: Aerosol Remote Sensing from AERONET, the ground-based satellite

Abstract:

Atmospheric particles including mineral dust, biomass burning smoke, pollution from carbonaceous aerosols and sulfates, sea salt, impact air quality and climate. The Aerosol Robotic Network (AERONET) program, established in the early 1990s, is a federation of ground-based remote sensing aerosol networks of Sun/sky radiometers distributed around the world, which provides a long-term, continuous and readily accessible public domain database of aerosol optical (e.g., aerosol optical depth) and microphysical (e.g., aerosol volume size distribution) properties for aerosol characterization, validation of satellite retrievals, and synergism with Earth science databases. Climatological aerosol properties will be presented at key worldwide locations exhibiting discrete dominant aerosol types. Further, AERONET's temporary mesoscale network campaign (e.g., UAE2, TIGERZ, DRAGON-USA.) results that attempt to quantify spatial and temporal variability of aerosol properties, establish validation of ground-based aerosol retrievals using aircraft profile measurements, and measure aerosol properties on compatible spatial scales with satellite retrievals and aerosol transport models allowing for more robust validation will be discussed.