



Climatology of Atmospheric Aerosol derived from AERONET Observations

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The importance of aerosol on the climate system has been emphasized in many studies. Remote sensing using satellite has been usually used to monitor global aerosol distribution and variation. Most satellite-based algorithms for aerosol have adopted Look-Up Table (LUT), precalculated by radiative transfer models with assumptions for aerosol properties. These assumptions make a critical error for aerosol retrievals. To remove significant error from the assumptions, database of aerosol properties (Aerosol Optical Thickness, Phase function, and Single Scattering Albedo) at several sites are compiled with Level 2.0 AERONET data (cloud-screened and quality-assured). Especially, the difference of aerosol properties under heavily and lightly-aerosol-loaded conditions are separately analyzed. The compiled database of aerosol properties derived at several AERONET sites can be used for application in aerosol retrievals. It is freely available on request. Trends in aerosol optical properties using AERONET data are studied.