AERONET, OPAC and the UV

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It has been wildly recognized that aerosol optical properties are among the most uncertain parameters when modeling UV radiation. However, obtaining aerosol optical properties in the UV is a difficult task because aerosol monitoring projects are mainly interested in optical properties of aerosols which can be found in the visible and near infrared part of the solar spectrum. To give such an example the worldwide AERONET (AERosol RObotic NETwork) is one of the most successful aerosol monitoring network and retrieves aerosol optical properties at 440, 670, 870, and 1020 nm, respectively. Little is known about aerosol optical properties (especially single scattering albedo and asymmetry parameter) in the UV. A typical approach often involves extrapolation of aerosol optical properties from the visible into the UV. The OPAC (Optical Properties of Aerosols and Clouds) would let one retrieve aerosol optical properties along the whole wavelength range. But OPAC is only a data-base and modeling aerosol optical conditions proper is not guaranteed. We present an approach to combine field AERONET retrievals with OPAC. Therefore we have developed a Monte Carlo search algorithm to best fit AERONET retrievals to OPAC at specific wavelengths. Once AERONET retrievals at 440, 670, 870, and 1020 nm can be described by OPAC it will give us some more insights into aerosol optical properties and its influence on radiation in the UV based on OPAC. By the same token we will also address whether it is sufficient to use AERONET retrievals at 440 nm for modeling UV radiation.