



Sun photometer aerosol retrievals during SALTRACE

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The Saharan Aerosol Long-range Transport and Aerosol-Cloud-Interaction Experiment (SALTRACE), aims at investigating the long-range transport of Saharan dust across the Atlantic Ocean. A large set of ground-based and airborne aerosol and meteorological instrumentation was used for this purpose during a 5-week campaign that took place during June-July 2013. Several Sun photometers were deployed at Barbados Island during this campaign. Two Cimels included in AERONET and the Sun and Sky Automatic Radiometer (SSARA) were co-located with the ground-based lidars BERTHA and POLIS. A set of optical and microphysical aerosol properties derived from Sun and Sky spectral observations (principal plane and almucantar configurations) in the range 340-1640nm are analyzed, including aerosol optical depth (AOD), volume size distribution, complex refractive index, sphericity and single scattering albedo. The Sun photometers include polarization capabilities, therefore apart from the inversion of sky radiances as it is routinely done in AERONET, polarized radiances are also inverted. Several dust events are clearly identified in the measurement period, with moderated AOD (500nm) in the range 0.3 to 0.6. The clean marine background was also observed during short periods. The retrieved aerosol properties are compared with the lidar and in-situ observations carried out within SALTRACE, as well as with data collected during the SAMUM campaigns in Morocco and Cape Verde, in order to investigate possible changes in the dust plume during the transport.