



Comparisons between the METEOSAT Land Daily Aerosol product, ground-based observations and other satellite aerosol products

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The Land Daily Aerosol Algorithm is developed at EUMETSAT to derive the mean daily tropospheric aerosol load and the surface reflectance from observations acquired by the SEVIRI radiometer on-board the Meteosat Second Generation satellites. Based on the Optimal Estimation method, this algorithm infers the aerosol optical depth from a forward radiative transfer model against daily accumulated observations in the 0.6, 0.8 and 1.6 SEVIRI bands. These daily time series provide the angular sampling used to discriminate the radiative effects that result from the surface anisotropy, from those caused by the aerosol scattering. The inverted forward model explicitly accounts for the surface anisotropy and the multiple scattering for the coupled surface-atmosphere system. The aerosol classes used for the inference are defined by their single scattering albedo and their phase function. These classes are the result of an original analysis of ground-based observations provided by AERONET, accounting for the sphericity and the non-sphericity of the aerosol particles.

MSG/SEVIRI full-disk demonstration data sets have been generated for several periods between 2004 and 2007. Comparisons were made with other aerosol products such as the aerosol optical thickness derived from the AERONET network observations or the MODIS data. The Land Daily Aerosol demonstration data sets are made available to potential users for testing.