Extensive aerosol retrieval algorithm evaluation within the ESA aerosol_cci project

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In mid-2010 the ESA Climate Change Initiative project aerosol_cci started. The project aims at preparing consistent prototype algorithms for the production of long-term aerosol datasets from several European Earth Observation sensors. The project builds on 8 existing algorithms for ATSR, MERIS, SCIAMACHY, POLDER, GOMOS and OMI. In its first phase an in-depth analysis and comparison of the retrieval results for a selected dataset and specific case studies is conducted in order to understand the strengths and weaknesses of each algorithm. Through inter-comparison and validation against other satellite and ground-based reference datasets, the reasons for differences between the algorithms are explored in detail. At the same time elements of community algorithms and harmonized retrieval are worked out. This analysis covers the different assumptions and algorithms on optical aerosol properties, surface reflectance / bi-directionality treatment and cloud masking as well as auxiliary datasets used.