



The MODIS aerosol algorithm: Critical evaluation and plans for Collection 6

Lorraine Remer (1), Robert Levy (2), Shana Mattoo (2), Richard Kleidman (2), Ilan Koren (3), and Vanderlei Martins (4)

(1) NASA/Goddard Space Flight Center, Lab. for Atmospheres, Greenbelt MD, United States (Lorraine.A.Remer@nasa.gov), (2) SSAI, NASA/Goddard Space Flight Center, Greenbelt MD, United States (Robert.C.Levy@nasa.gov; shana.mattoo@nasa.gov; richard.g.kleidman@nasa.gov), (3) Dept. of Environmental Sciences, Weizmann Institute of Science, Rehovot Israel (Ilan.Koren@weizmann.ac.il), (4) Dept. of Physics, UMBC, Baltimore MD United States (martins@umbc.edu)

For ten years the MODIS aerosol algorithm has been applied to measured MODIS radiances to produce a continuous set of aerosol products, over land and ocean. The MODIS aerosol products are widely used by the scientific and applied science communities for a variety of purposes that span operational air quality forecasting to estimates of clear-sky direct radiative effects over ocean and aerosol-cloud interactions. The products undergo continual evaluation, including self-consistency checks and comparisons with highly accurate ground-based instruments. The result of these evaluation exercises is a quantitative understanding of the strengths and weaknesses of the retrieval, where and when the products are accurate and the situations where and when accuracy degrades. We intend to present results of the most recent critical evaluations including the first comparison of the over ocean products against the shipboard aerosol optical depth measurements of the Marine Aerosol Network (MAN), the demonstration of the lack of sensitivity to size parameter in the over land products and identification of residual problems and regional issues. While the current data set is undergoing evaluation, we are preparing for the next data processing, labeled Collection 6. Collection 6 will include transparent Quality Flags, a 3 km aerosol product and the 500 m resolution cloud mask used within the aerosol retrieval. These new products and adjustments to algorithm assumptions should provide users with more options and greater control, as they adapt the product for their own purposes.