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A dual-view optimal estimation scheme for aerosol retrieval using AATSR data.

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The differing path lengths of AATSR's forward and nadir views aid in elucidating the contributions from aerosol interactions and surface reflectance to observed top-of-atmosphere (TOA) radiance. This poster presents an effort to extend the Oxford-RAL retrieval of Aerosol and Clouds (ORAC) scheme used by the GRAPE and GlobAEROSOL projects, which currently uses data from the nadir viewing geometry only, to take advantage of the dual-view capabilities AATSR offers.

The new algorithm uses optimal estimation to retrieve retrieve aerosol optical depth at 550 nm, effective radius and surface albedo at 550 nm for both forward and nadir viewing geometries (with the spectral shape of the surface is constrained by an a priori model, based on Cox and Munk statistics for the sea, and MODIS data for the land). At present the 4 channels in the visible region of the spectrum are used; future work will incorporate the infrared channels to improve characterisation of effective radius and provide information on aerosol layer height.

The scheme has been tested largely over oceanic scenes; results obtained using nadir-only, forward-only and dual-view data are discussed to hint at possible errors and scope for improvement.