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# Aerosol optical depth retrieval using the MERIS observation

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Surface reflectance determination and aerosol type selection are the two main challenges for space-borne aerosol remote sensing, especially for those instruments lacking of near-infrared channels, high-temporal observations, multi-angles abilities and/or polarization information. However, space based instruments like the MEdium Resolution Imaging Spectrometer (MERIS) and the successor, Ocean and Land Colour Instrument (OLCI) with high calibration accuracy and high spatial resolution provide unique abilities for obtaining valuable aerosol information for a better understanding of the impact of aerosols on climate, which is still one of the largest uncertainties of global climate change evaluation.
In this study, a new Aerosol Optical Depth (AOD) retrieval algorithm is presented. Global aerosol type and surface spectral dataset were used for the aerosol type selection and surface reflectance determination. A modified Ross-Li mode is used to describe the surface Bidirectional Reflectance Distribution Function (BRDF) effect. The comparison with operational MODIS C6 product and the validation using AErosol RObotic NETwork (AERONET) show promising results.