



Aerosol correction above land in the framework of the MERIS GLOBAL LAND SURFACE ALBEDO MAPS Project

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This work presents the aerosol correction processor as integrated into the data processing scheme of the ALBEDO MAPS Project funded by the European Space Agency (ESA). The objective of the ALBEDO MAPS project is to derive global monthly maps of spectral and broadband albedos from data acquired by the Medium Resolution Imaging Spectrometer (MERIS) at a spatial resolution of 10 km (0.1°). The surface albedo, as derived from MERIS data, will significantly improve the estimation of MERIS atmospheric products and will be used as auxiliary parameters in the ENVISAT Ground Segment for the generation of standard MERIS Level2 products. Herein we restrict the description of the data processing to the branch of the aerosol correction which derives the surface directional reflectance (SDR). The proposed correction algorithm is based on inverse modeling of radiative transfer simulations by using artificial neural network techniques in order to derive the SDR from MERIS Level2 data already being corrected for gaseous absorption and Rayleigh scattering, the required additional information about the aerosol is taken from Level2 data products (MOD04) of the Moderate Resolution Imaging Spectroradiometer (MODIS). When applying the aerosol correction algorithm to the MERIS full resolution data (250m at nadir) acquired in summer 2003 over Germany, the derived spectral SDRs are in excellent agreement with ground measurements of the surface reflectance.