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Retrieval of aerosol climatology from Sun-Photometer measurements at Andenes, Norway.

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The chemical composition and loading of aerosols along the Norwegian coast are expected to be highly varying, making accurate remote sensing of coastal waters difficult. As a first step to remedy this shortcoming, we used a coupled atmosphere-ocean discrete ordinate radiative transfer model (C-DISORT) to investigate the sensitivity of the spectral and angular radiance distributions at the surface to variations in the concentration, size distribution, spectral refractive index of aerosols as well as to variations in the surface albedo. Secondly, we used Aerosol Robotic Network (AERONET) data from Andenes, Norway (69N, 16E) in combination with C-DISORT computations to retrieve a set of aerosol physical parameters which, when varied, caused significant variations in the surface radiances. The goal is to apply this retrieval method to long-term AERONET time series at Andenes in order to classify aerosol physical properties and build up an aerosol climatology database.