



Deriving the geometry dependent surface reflectance from the geostationary satellite observations and its application to aerosol retrieval

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Currently operational geostationary satellites provide the volumetric earth-observing data, which can be useful to retrieve geophysical parameters such as surface reflectance (SR) and aerosol optical thickness (AOT). The algorithm based on the correction of the geometry dependent atmospheric transmission data has been developed to retrieve both parameters from the geostationary observation platforms. The retrieval process combining with the atmospheric correction, minimum reflection technique, and look-up table (LUT) application for both the Geostationary Ocean Color Imager (GOCI) and the Advanced Himawari Imager (AHI) data. Because geostationary observations can provide geometry dependent surface reflection, we used them for timely aerosol retrieval. A quantitative and qualitative comparison with the other operational products of surface reflectance and aerosol products from the Aerosol Robotic Network (AERONET) and MODerate resolution Imaging Spectroradiometer (MODIS) showed that the algorithm gave error of within the tolerable error ranges of 5% surface reflectance and 10% AOT. Further work will be progressed to fully implement the operational algorithm after launch of the next generation geostationary satellites, namely the Geostationary Earth Orbit Korea Multi-Purpose Satellite (GEO-KOMPSAT-2B, shortly GK-2B) platform.

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