IRS2012-239-1
International Radiation Symposium 2012
Dahlem Cube, Berlin, Germany, 06 – 10 August 2012

Aerosol retrieval using GOCI

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Hourly aerosol properties in East Asia are retrieved from the first Geostationary Ocean Color Imager (GOCI) launched in June 2010 onboard the Communication, Ocean, and Meteorological Satellite (COMS). A multi-channel algorithm was developed to retrieve aerosol optical depth (AOD), fine-mode fraction (FMF), and aerosol type in 500m$\times$500m resolution. To develop optimized algorithm for the target area of GOCI, optical properties of aerosol are analyzed from extensive observation of AERONET sunphotometers to generate lookup table. Surface reflectance of turbid water is determined from 30-day composite of Rayleigh- and gas corrected reflectance. By applying the present algorithm to top-of-the atmosphere reflectance, three different aerosol cases dominated by anthropogenic aerosol contains black carbon (BC), dust, and non-absorbing aerosol are analyzed to test the algorithm. The algorithm retrieves AOD, and size information together with aerosol type which are consistent with results inferred by RGB image in a qualitative way. The comparison of the retrieved AOD with those of MODIS collection 5 and AERONET sunphotometer observations shows reliable results. Especially, the application of turbid water algorithm significantly increases the accuracy in retrieving AOD at Anmyon station.