Aerosol retrieval over East Asia from GOSAT-CAI measurements

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An aerosol retrieval algorithm for East Asia was developed from Thermal And Near infrared Sensor for carbon Observation-Cloud and Aerosol Imager (TANSO-CAI) launched in January 2009 onboard the Greenhouse Gases Observing Satellite (GOSAT). In this study, surface reflectance is determined from 45-day composite of Rayleigh and gas corrected reflectance and the reflectance data of channel 2 and 3 of CAI were used. To distinguish aerosol absorptivity, Two methods waere considered using blue channels from Geostationary Ocean Color Imager (GOCI) launched in March 2012 onboard the Communication, Ocean, and Meteorological Satellite (COMS) and single scattering albedo method using channel 1 of TANSO-CAI. To investigate aerosol optical properties over the East Asia, inversion products from AERONET sun-photometer observation using the method from Kim et al. (2007) were analyzed and look-up table approach to retrieve optical properties of aerosol was adopted. The algorithm provides aerosol optical depth (AOD) and size information where AOD were compared with those of AERONET from March 2012 to February 2013 in this study. The comparison results show that performance of the algorithm has reasonable agreements with coefficients of determination show range from 0.71 to 0.86 and regression slope ranged from 0.69 to 0.88, depending on season. Based on the obtained results with CAI algorithm developed continuous updates are carried out for the further improvement.