



Aerosol retrieval for second global imager on GCOM-C1

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The second global imager (SGLI) on global change observation mission - 1st climate satellite (GCOM-C1) will be launched in December of 2017 as a part of Japanese GCOM project. In addition, GCOM-W has already been launched in 2012. The SGLI is an imager which measures Earth's reflectance's from near ultra violet (NUV) to thermal infrared (TIR) for estimation of physical parameters of atmosphere, land and ocean. It can be pointed out that unique features of SGLI are as follows; 1) high resolution imager provides us 250 m resolution dataset from NUV to near infrared (NIR) wavelengths, 2) polarization information (I, Q, and U as Stokes components) are available at two wavelengths (red and NIR) with 45 degrees forward or backward tilting along satellite tracking direction. Note that the resolution of polarization channels is 1 km x 1 km at nadir.

This work introduces current status of aerosol retrieval algorithm for SGLI. Here we use the two set of stokes components (Q and U) at red and near infrared for polarization information as well as total reflectance at blue channel for aerosol retrieval. It is still difficult to retrieve variety of the aerosol properties simultaneously. We propose appropriate aerosol size distribution model which is based on compiled results of world wide NASA/AERONET observations. The proposed aerosol size distribution can reduce the number of unknown parameters. The values of complex refractive index of aerosols show weak dependence on wavelength for visible range, and hence it is assumed to be ranged from the value of 1.4 as transparent particles to the absorbing one as 1.60 - 0.02i. Further the reflectance of land surface should be taken into account. As a result, the aerosol properties obtained from the satellite data, radiation simulation and ground measurements are investigated.