

Preliminary research on validation for the atmospheric correction of HIMAWARI-8 AHI data using SKYNET data

*Hirokazu YAMAMOTO¹, Satoshi Tsuchida¹

1. Geological Survey of Japan, AIST

Himawari-8 was developed by the Japan Meteorological Agency (JMA) and launched on October 7, 2014, and the official operation started on July 7, 2015, and data has also been distributed by the National Institute of Information and Communications Technology (NICT) and Center for Environmental Remote Sensing (CEReS) at Chiba University. Himawari-8 has a multispectral sensor, Advanced Himawari Imager (AHI) that can observe the visible and near infrared (VNIR), short wavelength infrared (SWIR), and thermal infrared (TIR). Although the spatial resolution of AHI sensor is 0.5 km to 2 km, it is possible to observe the hemisphere at a high frequency every 10 minutes. In recent years, there are many researches on vegetation monitoring using geostationary satellite data that can be frequently observed. Biophysical parameters can be derived from satellite sensors data, and the atmospherically corrected surface reflectance product is a key role dataset. We already develop simple atmospheric correction algorithm for Himawari-8 AHI sensor data, and it is needed validation process for generated products. We have three validation sites for ground-based measurement of atmospheric parameters in Japan. Skyradiometer POM02 manufactured by PREDE Co., Ltd. are installed to measure the atmospheric parameters over the above 3 sites. POM02 can measure various parameters of the aerosol optical properties, which are transferred to SKYNET (<http://atmos3.cr.chiba-u.jp/skyenet/>). SKYNET is a ground-based radiation observation network for aerosol/cloud researches, and provides many kinds of aerosol properties, which are accessible freely via internet. Each site has upward view sky images, and we selected ground-based aerosol data under completely clear sky conditions. This research show our simple atmospheric correction algorithm and the example results of validation using the atmospheric aerosol optical characteristics obtained by the POM02 installed over 3 validation sites.

Keywords: Himawari-8 AHI, Atmospheric Correction, Validation, POM02, SKYNET