

## Early phase retrieval of aerosol optical characteristics by Himawari-8

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Himawari-8 is a geostationary meteorological satellite launched in October 2014 by. It equips an imager, called Advanced Himawari Imager (AHI). Himawari-8/AHI is a latest imager as a geostationary satellite. For example, AHI has 16 bands from visible (0.47 $\mu$ m) to thermal infrared (13.3 $\mu$ m) Moreover, AHI can observe East Asia, South-East Asia, Oceania, and West Pacific area as often as 10 min. The resolutions of sensors are as fine as 0.5km for 0.64 $\mu$ m, 1.0km for 0.47 $\mu$ m, 0.51 $\mu$ m, and 0.86 $\mu$ m, and 2.0km for 1.6 $\mu$ m to 13.3 $\mu$ m. These high resolution and high frequent observation are very unique for geostationary satellite. We are selected as "Himawari-8's data quality evaluator" by JMA, and now JAXA is receiving Himawari-8's data.

In this study, we have retrieved aerosol characteristics from Himawari-8's data. As a package of aerosol retrieval, we used REAP (Higurashi and Nakajima, 1999), and retrieved aerosol optical thickness and Angstrom Exponent over the ocean. We need to assume some of the parameters of aerosol in the satellite remote sensing when we make Look Up Table. We have assumed bimodal-lognormal distribution as a size distribution. Mode radii and standard deviations are cited by Fukuda et al (2013)'s value. mode radius for coarse mode is 3.86 $\mu$ m and that for fine mode is 0.148 $\mu$ m. Standard deviation for coarse mode is 2.0 and that for fine mode is 1.56. Complex refractive indexes are calculated from AERONET (Aerosol Robotic Network) observations. We used AERONET data in Anmyon (126.330E, 36.539N), Baengnyeong (124.630E, 37.966N), Fukuoka (130.475E, 33.524N), Gangneung WNU (128.867E, 37.771N), Shirahama (135.357E, 33.697N), and Yonsei University (126.935E, 37.564N), and we calculated the average value;  $1.51 + i*0.0226$  for 0.64 $\mu$ m and  $1.53 + i*0.0233$  for 0.86 $\mu$ m. As a threshold of cloudiness, we applied CLAUDIA's threshold test concept. (Ishida et al., 2009) However, some of the thresholds are tuned for Himawari-8. We will also compare our result with ground truth obtained by AERONET.

Keywords: Himawari-8, aerosol