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Using radiance of cloud shadow for retrieve Investigation of AOD retrieval with Himawari-8 satellite data

Ta-Min Sun (1,3), Yuan-Hsiang Chang (1,4), Kuo-En Chang (2,5), Tang-Huang Lin (1,6)

(1) Center for Space and Remote Sensing Research, National Central University, Zhongli, Taiwan, (2) Institute of Space Science, National Central University, Zhongli, Taiwan , (3) jacky811227@gmail.com, (4) henryt888@yahoo.com.tw, (5) k.e.chang31@gmail.com, (6) thlin@csrsr.ncu.edu.tw

As we know, the emission of pollutants, such as dust storm, biomass burning and anthropogenic pollution are serious issues related to the environmental change and human health topics in Asia. With the high temporal observation over a broad area, the new generated geostationary satellite, Himawari-8 (H-8) seems to be a good choice for atmospheric pollution monitor. It can provide the observation over Asia with 16 bands in visible and thermal infrared spectral every 10 minutes. For the atmospheric pollutant monitor by means of remote sensing, the retrieval of aerosol optical depth (AOD) is the most important index. In this study, the long method is employed for AOD retrieval which depends on the path radiance significantly. Apparent radiance of the suitable cloud shadow is selected as the path radiance. In order to let the atmospheric pollution monitor is used efficiently, so the distribution of the path radiance is using the objective analysis to expand it. The results of AOD retrieval from H-8 visible data are well consistent with MODIS (Moderate Resolution Imaging Spectroradiometer) AOD products and ground measurements AERONET (Aerosol Robotic Networks), indicating the practical of proposed approach for the AOD retrieval with H-8 data.