



Study on the cloud detection of GOCI by using the simulated surface reflectance from BRDF-model for the land application and meteorological utilization

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COMS (Communication, Ocean, and Meteorological Satellite) was launched at French Guiana Kourou space center on 27 June 2010. Geostationary Ocean Color Imager (GOCI), which is the first ocean color geostationary satellite in the world for observing the ocean phenomena, is able to obtain the scientific data per an hour from 00UTC to 07UTC. Moreover, the spectral channels of GOCI would enable not only monitoring for the ocean, but for extracting the information of the land surface over the Korean Peninsula, Japan, and Eastern China. Since it is extremely important to utilize GOCI data accurately for the land application, cloud pixels over the surface have to be removed. Unfortunately, infra-red (IR) channels that can easily detect the water vapor with the cloud top temperature, are not included in the GOCI sensor. In this paper, the advanced cloud masking algorithm will be proposed with visible and near-IR (NIR) bands that are within GOCI bands. The main obstacle of cloud masking with GOCI is how to handle the high variable surface reflectance, which is mainly depending on the solar zenith angle. In this study, we use semi-empirical BRDF model to simulate the surface reflectance by using 16 day composite cloudy free image. When estimating the simulated surface reflectance, same geometry for GOCI observation was applied. The simulated surface reflectance is used to discriminate cloud areas especially for the thin cloud and shows more reasonable result than original threshold methods.