[EE] Evening Poster | A (Atmospheric and Hydrospheric Sciences) | A-CG Complex & General

[A-CG36]Satellite Earth Environment Observation

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In recent years, we cannot avoid facing issues on global environmental changes that occur in various spatiotemporal scales. The earth environmental observation data by satellites became the necessary basic data to tackle and solve those issues. Due to the recent advancement in the observation sensor technique and the data processing technique, the satellite observation has been showing rapid progress, and the time is changing from examining the accuracy of the observation sensor data to the advancement of the data application, leading to broaden potential users. In these days application became synergetic, so we comprehensively pick
up this topic in the Atmospheric and Hydrospheric Sciences Session of this Union Meeting that enables to comprise the atmospheric, oceanic and land sciences; by combining the intelligence and the knowledge of the party, we propose a session that aims to prompt further studies towards the issues on earth environmental change, the advancement in the data application and future plans of Earth Observation missions.

[ACG36-P01]Early results of GCOM-C "Shikisai" polarization observation and its calibration plan

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The purpose of the GCOM (Global Change Observation Mission) project is conducting global and long-term observations of the earth’s environment from space. Its main role is to observe water circulation and climate change, and monitor the earth’s health from space. The GCOM-C, which is one of the two series of satellites for GCOM system (GCOM-C and GCOM-W), has been launched successfully at 10:26 a.m. (local time) on 23th Dec. 2017 from the Tanegashima Space Center by H-IIA vehicle No.37. The first images of GCOM-C, which were obtained by using the test radio wave transmitted from GCOM-C on 1st to 6th Jan. 2018, has been released from JAXA on Jan. 12th. For the three months after launch as the initial checkout phase, performance check and calibration of the sensor is carried out.

SGLI (Second generation GLobal Imager), which is equipped on GCOM-C is a multi-band optical imaging radiometer with 19 spectral channels that can measure light intensity from near ultraviolet to thermal infrared (380nm to 12um) radiation reflected or emitted on the earth. SGLI consists of two radiometer components: VNR (Visible and Near Infrared Radiometer) and IRS (InfraRed Scanning radiometer).The optical unit is comprised of a non-polarized light (NP) observation sensor with 11 channels from 380nm to 868.5nm that scans areas in the nadir direction, and a polarized light (PL) observation sensor with 2 channels of 673.5nm and 868.5nm that can provide multi-angle observations by switching to directional angles ranging from +45 to -45 degree.

The PL unit can be observed at a resolution of 1km with a swath width of approximately 1150km.

Polarization observations, measured at 0, 60 and 120 degree for polarization angles, are calculated using the Stokes parameters: I, Q and U. It is especially expected to enable to retrieve land aerosol using polarization and ultraviolet (380nm) band with higher accuracy because the advantage of using these bands is mainly their little dependency on the surface reflectance. We will introduce the method of the SGLI polarization observation and the calibration plan of the polarization sensitivity for NP and PL sensor.