[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-P13]Verification of Global Satellite Mapping of precipitation (GSMaP) in Japan - Effectiveness of Reliability Flag -

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Precipitation is one of the most essential parameters in the Earth system. Many places in the world face water problems, such as water shortages and floods. Due to address these water issues, JAXA has developed and provided Global Satellite Mapping of Precipitation (GSMaP), which is hourly global precipitation dataset. It is under the Global Precipitation Measurement (GPM) mission and contributes.

GSMaP allows us to capture the hourly horizontal distribution of precipitation with good latency after observation. The spatial resolution is 0.1 x 0.1 degrees latitude/longitude. It has been used for various kinds of utilization purposes, not only for meteorology but also for hydrology, agriculture, and so on.

In terms of accuracy, GSMaP algorithms were updated in several times, and GSMaP has been getting more accurate day by day, however, it is known that the inhomogeneous of accuracy is existed depending on algorithm characteristics. We newly added the idea of “Reliability Flag” and started to distribute the flag data to inform the general algorithm characteristics. (Referring to data format description http://sharaku.eorc.jaxa.jp/GSMaP/document/DataFormatDescription.pdf).

The reliability flag consists of 10 levels, from 1 to10, and 10 is the best and 1 is the worst; higher values demonstrate higher reliability. The sensor information, low accuracy due to low surface temperature, and the elapsed time after the last observation by microwave radiometers are taken into consideration.

In this study, GSMaP is validated around Japan by using Radar-AMeDAS (Automatic Meteorological Data Acquisition System) composite data. Radar-AMeDAS is by Japan Meteorological Agency, which is an hourly rainfall analysis generated from ground-based precipitation radars corrected by automated rain gauges (Makihara et al. 1996; Makihara 2000, 2007). Some validation indices like spatial correlation coefficient, root mean square errors, and probability of detection are calculated over land, ocean, and coastal area respectively. Some initial results in this study are given and consistent with Kubota et al. 2009, which verified the GSMaP product with Radar-AMeDAS, including for each sensor types. We focus on reliability flag and verify the effectiveness of it.