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

[A-CG36]Satellite Earth Environment Observation

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Thu. May 24, 2018 5:15 PM - 6:30 PM Poster Hall (International Exhibition Hall7, Makuhari Messe)

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-P31]Three-Way Error Analysis between AMSR2, Himawari-8, and In Situ Surface Temperature Observations

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Keywords:sea surface temperature, microwave radiometer, infrared radiometer

For sea surface temperature (referred to as SST) observed by satellite, skin temperature of around 10 μm depth from ocean surface is observed by infrared radiometer, and sub-skin temperature of around 1 mm depth is observed by microwave radiometer.
Therefore, SST errors observed by satellite occur due to influence of solar radiation when sea surface wind speed is weak and so on, so in conventional verification, SST observed by water temperature and depth measurement of marine buoy which observe water temperature of around 1 m is taken as ground truth and has been verified with satellite data.
However, marine buoy data also has errors due to aged degradation of measuring instruments and weather condition, it is important to evaluate each error including marine buoy.
For this reason, in this study, SST observed by Advanced Microwave Scanning Radiometer2 (AMSR2) which is the microwave radiometer carried by Global Change Observation Mission – Water (GCOM-W) satellite, and SST observed by Advanced Himawari Imager (AHI) which is the infrared radiometer carried by Himawari - 8 geostationary meteorological satellite and SST observed by marine buoy were compared and verified.
Marine buoy data are iQuam dataset provided by National Oceanic and Atmospheric Administration (NOAA), and among them, only high quality buoys was extracted in this study. For validation condition, firstly, I matched up SST observed by AMSR2 with SST observed by buoy, and next, matched up SST observed by Himawari with buoy SST used only AMSR2 matcu-up data, and finally, matched SST observed by AMSR2 with SST observed by Himawari. And, I calculated the relative error as above and evaluated

each absolute error by referring to ANNE G. O’CARROLL, JOHN R. EYRE, AND ROGER W. SAUNDERS(2007).
In this study, I show the results of evaluation between AMSR2, Himawari-8, and In Situ sea surface temperature Observations.