

Validation of AMSR2 ocean products –Construction of validation system–

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In Global Change Observation Mission (GCOM), a satellite named GCOM-Water (GCOM-W) was launched in May 2012 to observe the effective geophysical parameters for understanding the global change of water cycle. The Japan Aerospace Exploration Agency (JAXA) has provided the ocean products (sea surface temperature and sea surface wind speed), which are made from brightness temperature observed by the Advanced Microwave Scanning Radiometer 2 (AMSR2) loaded onto GCOM-W, since May 2013. In general, satellite products are updated frequently, because the validation of data and the development of algorithm continue after these were released. The JAXA already updated the AMSR2 ocean products one time and will continue the updating. Accordingly, we tried to develop a validation system (VS) offering continuously and speedily the significant information for improvement of products in order to validate the AMSR2 ocean products from a long-term perspective and under a unified reference.

The VS mainly consists of two components. The first component is "Inter-comparison between the several gridded data". In this component, the VS outputs the spatial distributions of average and standard deviation for each grid datum, the time series of the regional mean, and the mean difference and the Root Mean Square (RMS) difference between the grid data and the reference data that are made preparations in advance. The second component is "Comparison with in situ data". In this component, the grid data are compared with high quality meteorological data observed by the moored buoys or the ships. As a result, the basic statistics (bias, RMS error, correlation coefficient and so on) and the figures (scatter plot and time series on buoy positions) are obtained. About the above-mentioned results, we can graphically check by the html files, which are automatically created in the VS.

As an example, we show the screenshots of results of comparison between AMSR2 sea surface temperature data and moored buoy data in an attached figure. In this result, AMSR2 data were validated using 24,660 daily mean data observed by 97 moored buoys from 2012 to 2014. We can check not only the results for all buoy data, but also the results for each year, each band of latitude, and each buoy.

Keywords: GCOM-W, AMSR2, mooring buoy data, marine meteorology, sea surface temperature

