Evaluation of improved sea surface wind products from AMSR2 on GCOM-W

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An improved version of the sea surface wind speed products (version 3 beta) from the Advanced Microwave Scanning Radiometer-2 (AMSR2) on the Global Change Observation Mission-W (GCOM-W) satellite were evaluated by comparisons with offshore moored buoy measurements, outputs from the European Centre for Medium-Range Weather Forecasts (ECMWF) Interim Reanalysis (ERA-Interim), and vector wind data from the RapidScat scatterometer (RSCAT) onboard the International Space Station (ISS). In general, the AMSR2 wind speeds agreed well with the reference data. The Root Mean Square (RMS) difference between the AMSR2 and buoy measurements was 1.13 m/s, which is close to the mission goal of 1 m/s. It is clearly exhibited that a systematic bias, which was discernible in the previous version (version 2.1) of the AMSR2 wind products, has been reduced in the latest version. Results of the triple collocation analysis suggest that the random errors in the AMSR2 version 3 wind speed are very close to 1 m/s and are smaller than those in the outputs from the numerical weather prediction (NWP) models, if random errors in the reference wind data (buoy, NWP, and RSCAT) are considered explicitly.

Keywords: AMSR2, GCOM, Microwave radiometer, Sea surface wind, Air-sea interation, Remote sensing

