

## Global dataset creation of soil moisture and vegetation water contents using Aqua/AMSR-E data

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Soil moisture and vegetation biomass are important components of the hydrology of land surfaces. Accurate monitoring of these components is essential in understanding energy and water cycles and ecological system processes. Microwave remote sensing using satellites is an effective method for collecting global information on land surface hydrology.

In this study, we created a global dataset of soil moisture (SM) and vegetation water content (VWC) from data observed by the Advanced Microwave Scanning Radiometer for the Earth Observing System (AMSR-E) mounted on Aqua satellite that was launched on May 2002. The soil moisture algorithm of Koike et al. was revised by focusing on the vegetation component, and applied to the AMSR-E data.

The SM dataset was verified by comparison of estimated and measured data at CEOP reference sites. Compared with results estimated by the JAXA standard product version 5 (created by the algorithm before the current revision), the results of the SM dataset showed an improvement in accuracy. On the other hand, VWC dataset was not validated quantitatively due to lack of in-site data. However, an inter-annual variation of VWC at wheat belt in Australia was in good agreement with variation of wheat production.