Geophysical Research Abstracts
Vol. 18, EGU2016-5159-1, 2016
EGU General Assembly 2016

Evaluation of sea surface salinity retrieval from SMAP

Tong Lee (1), Thomas Meissner (2), Frank Wentz (2), and Gary Lagerloef (3)

(1) NASA Jet Propulsion Laboratory, MS 300-323, Pasadena, California, United States (tong.lee@jpl.nasa.gov), (2) Remote Sensing Systems, Santa Rosa, California, United States, (3) Earth and Space Research, Seattle, Washington, United States

NASA's Soil Moisture Active Passive (SMAP) satellite, launched on January 29, 2015, has been delivering measurements since April 2015. Although SMAP's primary mission objective is to measure soil moisture, its L-band radiometer-radar design that is similar to Aquarius (NASA's ocean salinity measuring satellite that ended its operation in June 2015) provides a potential mean to continue Aquarius' legacy. SMAP's radiometer, designed for land applications, has less precision than its Aquarius counterpart. However, the spatial resolution of SMAP's measurements is better than that of Aquarius by several times. SMAP's radar, which would have provided wind measurements needed to correct for surface roughness effect on SSS retrieval, stopped functioning in July 2015. Despite this, the Aquarius team has used the Aquarius experience to retrieve SSS from SMAP's radiometer measurements using auxiliary wind measurements. This presentation evaluates the fidelity of the SMAP SSS in depicting various oceanographic features from open oceans to coastal regions. A quantitative comparison between SMAP SSS and in-situ Argo float measurements and between SMAP and satellite SSS from Aquarius and SMOS during their overlapping periods will be presented. The evaluation demonstrates the very encouraging SSS retrieval from SMAP, which provides temporal continuity of SSS measurements beyond Aquarius.