

EGU21-12449

<https://doi.org/10.5194/egusphere-egu21-12449>

EGU General Assembly 2021

© Author(s) 2022. This work is distributed under the Creative Commons Attribution 4.0 License.



Validation practices for satellite soil moisture retrievals: What are (the) errors?

Alexander Gruber¹ and the Validation Good Practice Team*

¹KU Leuven, Heverlee, Belgium (alexander.gruber@kuleuven.be)

*A full list of authors appears at the end of the abstract

In this talk, we present the results of a recently published milestone publication for the validation of global coarse-scale satellite soil moisture products (doi:10.1016/j.rse.2020.111806). It is a community effort in which validation good practice guidelines have been developed. We provide theoretical background, a review of state-of-the-art methodologies for estimating errors in soil moisture data sets, practical recommendations on data pre-processing and presentation of statistical results, and a recommended validation protocol that is supplemented with an example validation exercise focused on microwave-based surface soil moisture products. We conclude by identifying research gaps that should be addressed in the near future. The presented guidelines are endorsed by the Land Product Validation Subgroup of the Committee on Earth Observation Satellites (<https://lpvs.gsfc.nasa.gov>) and aim to serve as exemplary work for the development of similar best practice guidelines in other communities.

Validation Good Practice Team: Alexander Gruber (Department of Earth and Environmental Sciences, KU Leuven, Heverlee, Belgium); Gabrielle De Lannoy (Department of Earth and Environmental Sciences, KU Leuven, Heverlee, Belgium); Clement Albergel, (European Space Agency Climate Office, ECSAT, Harwell Campus, Oxfordshire, UK); Amen Al-Yaari (Sorbonne Université, UMR 7619 METIS, Paris, France); Luca Brocca (Research Institute for Geo-Hydrological Protection, National Research Council, Perugia, Italy); Jean-Christophe Calvet (Météo-France, Toulouse, France); Andreas Colliander (NASA Jet Propulsion Laboratory, California Institute of Technology, Pasadena, CA, USA); Michael Cosh (USDA ARS, Hydrology and Remote Sensing Laboratory, Beltsville, MD, USA); Wade Crow (USDA ARS, Hydrology and Remote Sensing Laboratory, Beltsville, MD, USA); Wouter Dorigo (Department of Geodesy and Geoinformation, TU Wien, Vienna, Austria); Clara Draper (Physical Sciences Laboratory, NOAA Earth System Research Laboratories, Boulder, Colorado); Martin Hirschi (Institute for Atmospheric and Climate Science, ETH Zürich, Zürich, Switzerland); Yann Kerr (CESBIO (UMR 5126 — CNES, CNRS, UT3, IRD), Toulouse, France); Alexandra Konings (Department of Earth System Science, Stanford University, Stanford, CA, United States); William Lahoz (Norwegian Institute for Air Research, 2027 Kjeller, Norway); Kaighin McColl (Department of Earth and Planetary Sciences, Harvard University, Cambridge, MA, USA.); Carsten Montzka (Institute of Bio- and Geosciences: Agrosphere (IBG-3), Research Center Juelich, Germany); Joaquin Muñoz-Sabater (European Centre for Medium-Range Weather Forecasts, Shinfield Road, Reading, UK); Jian Peng (Department of Remote Sensing,

Helmholtz Centre for Environmental Research–UFZ, Leipzig, Germany); Rolf Reichle (NASA Goddard Space Flight Center, Greenbelt, Maryland, USA); Philippe Richaume (CESBIO (UMR 5126 — CNES, CNRS, UT3, IRD), Toulouse, France); Christoph Rüdiger (Department of Civil Engineering, Monash University, Victoria, Australia); Tracy Scanlon (Department of Geodesy and Geoinformation, TU Wien, Vienna, Austria); Robin van der Schalie (VanderSat B.V., Haarlem, The Netherlands); Jean-Pierre Wigneron (UMR 1391 ISPA, INRAE Bordeaux, Bordeaux, France); and Wolfgang Wagner (Department of Geodesy and Geoinformation, TU Wien, Vienna, Austria)