



## **Prof. Wouter Dorigo**

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<http://climers.geo.tuwien.ac.at/>

### **Background**

Wouter Dorigo received the M.Sc. degree in physical geography and the M.A. degree in Italian language and translation from the Utrecht University in 2000 and 2001, respectively. In 2008 he received his PhD degree in remote sensing from the Technische Universität München.

For his PhD studies Wouter worked at the Imaging Spectroscopy group of the German Aerospace Center (DLR) in Oberpfaffenhofen and spent several months at INRA Bioclimatology, Avignon, France. Since 2007, he has been working at TU Wien, Vienna, Austria, first as a postdoctoral research fellow at the Institute of Photogrammetry and Remote Sensing, and from 2012 to April 2017 as Senior Scientist in the Remote Sensing Research Group of the Department of Geodesy and Geoinformation (GEO). Since May 2017, Wouter leads the new research group Climate and Environmental Remote Sensing (CLIMERS) at TU Wien GEO.

Wouter's main research interest is remote sensing of the water cycle and of vegetation. Within these areas, he focuses on geophysical parameter retrieval through physical and semi-empirical methods, calibration and validation, up- and downscaling, data merging, and time series analysis. He has a vast research experience with various Earth observation systems, including active and passive microwave systems, hyper- and multispectral sensors, airborne laser scanning, and multi-angular remote sensing. Using Earth observation data Wouter tries to understand and quantify the dynamics (trends, extremes) and interactions of vegetation and the water cycle in a changing climate.

Wouter has played a leading role in developing the multi-decadal ESA CCI global soil moisture data set of merged active and passive microwave soil moisture retrievals (<http://www.esa-soilmoisture-cci.org/>) and in establishing the International Soil Moisture Network (<http://ismn.geo.tuwien.ac.at/>), a data hosting facility that harmonizes and makes available to the user community soil moisture data from over 50 ground-based networks. Both products are being used by thousands of users worldwide. Wouter has the scientific lead of the Copernicus Climate Change Service for soil moisture (C3S; <https://climate.copernicus.eu/>), which will be operational from July 2017.

## Activities in education

Wouter has more than 10 years teaching experience in remote sensing at BSc and MSc level with a focus on microwave and optical remote sensing of the water cycle and vegetation, climate and environmental monitoring, and digital image processing.

## Recent projects

- **ESA CCI Soil Moisture** (<http://www.esa-soilmoisture-cci.org/>): Science, software prototyping, production, and validation of the most consistent soil moisture dataset from active and passive microwave observations. Role: Science lead
- **Copernicus Climate Change Service (C3S) Soil Moisture** (<https://climate.copernicus.eu/>): Operational and near-real-time production of multi-satellite soil moisture Climate Data Records to support Copernicus Climate Change Services. Role: Science lead
- **Earth2Observe** (H2020; <http://www.earth2observe.eu/>): Integration of earth observations, in-situ datasets and models to construct a consistent global water resources reanalysis dataset Role: lead of Earth observation work package
- **SMOSnet International Soil Moisture Network** (ESA-EOP; <http://ismn.geo.tuwien.ac.at/>): Design, implementation, quality control, and operation of a centralized data portal for global in-situ soil moisture data. Role: Principle Investigator
- **ESA Water Cycle Multi-Mission Observation Strategy – Mediterranean** (WACMOS-MED; ): Improving water budget estimates using remote sensing and linking Atlantic and Mediterranean climate. Role: Task lead EO dataset benchmarking + climate variability

## Selected publications

1. **Dorigo, W.A.**, Gruber, A., De Jeu, R.A.M., Wagner, W., Stacke, T., Loew, A., Albergel, C., Brocca, L., Chung, D., Parinussa, R.M., Kidd, R. (2015). Evaluation of the ESA CCI soil moisture product using ground-based observations. *Remote Sensing of Environment*; 162, 380-395, doi: 10.1016/j.rse.2014.07.023
2. **Dorigo, W.A.**, de Jeu, R.A.M., Chung, D., Parinussa, R.M., Liu, Y., Wagner, W., Fernandez-Prieto, D. (2012) Evaluating global trends (1988-2010) in harmonized multi-satellite soil moisture data. *Geophysical Research Letters*, 39, L18405
3. Liu, Y.Y., **Dorigo, W.A.**, Parinussa, R.M., de Jeu, R.A.M., Wagner, W., McCabe, M.F., Evans, J.P., van Dijk, A.I.J.M. (2012). Trend-preserving blending of passive and active microwave soil moisture retrievals, *Remote Sensing of Environment*, 123, 280-297
4. **Dorigo, W.A.**, Scipal, K., Parinussa, R.M., Liu, Y.Y., Wagner, W., de Jeu, R.A.M., Naeimi, V. (2010). Error characterisation of global active and passive microwave-based soil moisture datasets. *Hydrology and Earth System Sciences*, 14, 2605-2616.
5. Taylor, C.M., de Jeu, R.A.M., Guichard, F. Harris, P.P., **Dorigo, W.A.** (2012). Afternoon rain more likely over drier soils. *Nature*, 489, 282–286.