

## CV Dr. Natalie Orlowski

**Affiliation:** Chair of Hydrology, University of Freiburg, Germany

### Education

- 2014 (Dr. rer. nat.) Ph.D. in Natural Sciences, Justus Liebig University Giessen, Germany
- 2010 MSc. of Environmental and Resource Management, Justus Liebig University Giessen, Germany
- 2008 BSc. of Science in Agricultural Sciences and Environmental Management, Justus Liebig University Giessen, Germany

### Professional experience

- Since 2017 Assistant Professor in Hydrology (“habilitation position”), Chair of Hydrology, University of Freiburg, Germany
- 2016 Visiting Fellow, Global Institute for Water Security (GIWS), University of Saskatchewan, Canada
- 2015–2017 Lecturer in Hydrology, Institute of Landscape Ecology and Resources Management (ILR), Justus Liebig University Giessen, Germany
- 2014–2015 Postdoctoral Fellow, GIWS, University of Saskatchewan, Canada
- 2010–2015 Research Associate, ILR, Justus Liebig University Giessen, Germany

### Key projects with third-party funding (past 5 years)

- 2021–2023 Research grant “ZIM project”- TurbidEye- Entwicklung eines optischen Sensors für die *in-situ* Messung und Identifikation von Mikroplastikpartikeln in fließenden und stehenden Gewässern” Ministry of Economic Affairs and Energy, €186.394, PI.
- 2020–2023 Individual research grant “Using advances in stable water isotopy to quantify species- and interspecific ecohydrological feedback processes and water transit times of different tree stands”. German Research Foundation, (OR 480/2-1) €371,433, PI.
- 2020–2023 Travel grant “Tracking regional food authenticity using a novel classification approach based on multiple stable isotopes and mixture models”. DAAD-PPP with Hong-Kong, €13,798, PI.
- 2021 Workshop organization funding “Water and nutrient fluxes in ecosystems under a changing climate - a tracer-based perspective”. Academy of Science Heidelberg, DEU, €11,000.
- 2020–2021 Individual field stipend “Refining tree xylem *in-situ* stable water isotope probes”. German Hydrological Society, €2,000.
- 2019–2020 Research grant “Comparing species-specific water transport velocities in trees by means of stable water isotopes”. Scientific Society Freiburg, University of Freiburg, 4,940 €.

### Professional distinctions and community service

- Since 2023 EGU subdivision Chair on Estuaries, wetlands & ecohydrology
- Since 2021 Cash auditor, German Association for Stable Isotope Research
- 2020–2024 National representative & working group co-leader, COST Action (CA19120) “WATSON: WATER isotopes in the critical zONE: from groundwater recharge to plant transpiration”, European Cooperation in Science & Technology
- 2021 Main workshop organizer “Water and nutrient fluxes in ecosystems under a changing climate - a tracer-based perspective”, Academy of Science Heidelberg

- Since 2020 Associate editor for “Hydrology and Earth System Sciences”
- Since 2020 Member of TC “Microplastics”, Federal Association of Soil, DEU
- 2019–2020 Special issue editor for “Hydrology and Earth System Sciences”
- Since 2019 Representative at the PhD Committee University of Freiburg
- Since 2018 Representative at the QSM-Commission for B.Sc. and M.Sc. programs, Faculty of Environment and Natural Resources, University of Freiburg, DEU
- 2017 Scientific committee, EGU Leonardo Conference, “Water stable isotopes in the hydrological cycle”, Black Forest, DEU
- Since 2016 Main-convener and chair of eight sessions at EGU, Vienna, Austria and six sessions at AGU, USA

#### Awards and honors

- 2020 Outstanding reviewer award, Vadose Zone Journal  
iFZ Masters award for project supervision “Model-based transit time assessment in a rural catchment”, Justus Liebig University Giessen
- 2016 Best poster presentation award of the Annual Meeting of the German Association for Stable Isotope Research
- 2015 Postgraduate Scholarship, Friedrich-Ebert-Foundation, Bonn
- 2011–2014

#### Supervisions:

*PhDs Ongoing:* 2; main-supervisor of 13 M.Sc. and 22 B.Sc. theses at different Institutes.

#### 8 selected peer-reviewed publications relevant for the STSM application:

*Orlowski's research has produced 16 peer-reviewed publications with an h-index of 11 (Scopus, Apr 2023). Marked with \* are MSc/BSc students.*

1. Millar C., Janzen K., Nehemy M. F., Koehler G., Hervé-Fernández P., Wang H., **Orlowski N.**, Barbeta A., and McDonnell J. J. (2022): On the urgent need for standardization in isotope-based ecohydrological investigations. *Hydrol. Process.*, 36(10), e14698. <https://doi.org/10.1002/hyp.14698>.
2. Mennekes D.\*, Rinderer M., Seeger S., **Orlowski N.** (2021): Ecohydrological travel times derived from in situ stable water isotope measurements in trees during a semi-controlled pot experiment, *Hydrol. Earth Syst. Sci.*, 25(8), 4513–4530, <https://doi.org/10.5194/hess-25-4513-2021>.
3. **Orlowski N.**, and Breuer L. (2020): Sampling soil water along the pF curve for  $\delta^2\text{H}$  and  $\delta^{18}\text{O}$  analysis, *Hydrol. Process.*, 34, 4959-4972, <https://doi.org/10.1002/hyp.13916>.
4. Kübert A., Paulus S.\*, Dahlmann A., Werner C., Rothfuss Y., **Orlowski N.\*\***, and Dubbert M. (2020): Water stable isotopes in ecohydrological field research: comparison between In situ and destructive monitoring methods to determine soil water isotopic signatures, *Front Plant Sci*, 11, 387, <https://doi.org/10.3389/fpls.2020.00387>.\*\*shared last authorship
5. Sprenger M., Stumpp C., Weiler M., Aeschbach W., Allen S. T., Benettin P., Dubbert M., Hartmann A., Hrachowitz M., Kirchner J. W., McDonnell J. J., **Orlowski N.**, Penna D., Pfahl S., Rinderer M., Rodriguez N., Schmidt M., and Werner C. (2019): The Demographics of Water: A Review of Water Ages in the Critical Zone, *Rev. Geophys.*, 57, 800-834, <https://doi.org/10.1029/2018rg000633>.
6. **Orlowski N.**, Pratt D. L., and McDonnell J. J. (2016): Intercomparison of soil pore water extraction methods for stable isotope analysis, *Hydrol. Process.*, 30, 3434-3449, <https://doi.org/10.1002/hyp.10870>.
7. **Orlowski N.**, Breuer L., and McDonnell J. J. (2016): Critical issues with cryogenic extraction of soil water for stable isotope analysis, *Ecohydrology*, 9, 3-10, <https://doi.org/10.1002/eco.1722>.
8. **Orlowski N.**, Frede H.-G., Brüggemann N., and Breuer L. (2013): Validation and application of a cryogenic vacuum extraction system for soil and plant water extraction for isotope analysis, *J. Sens. Sens. Syst.*, 2, 179–193, <https://doi.org/10.5194/jsss-2-179-2013>.