

Curriculum Vitae **Matthias Sprenger**

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Education

- 01/2012 – 11/2015 PhD in Hydrology (Grade: summa cum laude)
Topic: “Spatio-temporal effects on vadose zone water transit times”
Graduate School "Environment, Society and Global Change"
Albert Ludwigs University of Freiburg, Freiburg im Breisgau, Germany
- 10/2009 – 11/2011 Master of Science in BioGeosciences (best of the year)
Topic: “Modelling the water balance of a tropical plantation considering biodiversity effects”
University of Koblenz-Landau, Koblenz, Germany
- 08/2008 – 06/2009 Environmental and Resource Management as EU-ERASMUS exchange student
University of Iceland, Reykjavik, Iceland
- 10/2005 – 08/2008 Bachelor of Science in Geoecology
University of Bayreuth, Bayreuth, Germany

Work experience

- 08/2020 – present Earth Scientists (Hydrology) at the Earth and Environmental Sciences at the Lawrence Berkeley National Laboratory, Berkeley USA.
- 08/2018 – 07/2020 Visiting research scholar in the Ecohydrology & Watershed Science group at the Department of Forestry and Environmental Resources, North Carolina State University, Raleigh, USA.
- 07/2018 – 07/2020 Postdoctoral Research Fellowship (funded by the German Research Foundation) in the Surface Hydrology and Erosion Group, Institute of Environmental Assessment and Water Research (IDAEA-CSIC), Barcelona, Spain
I work on my own project dealing with “Water age dynamics in a Mediterranean catchment and their ecohydrological implications in a changing environment”. I contribute to current developments in water age modelling using hydrometric and tracer data from the Vallcebre catchments in NE Spain.
- 07/2018 – 06/2019 Honorary Research Fellow at Chair of Hydrology, Albert Ludwigs University of Freiburg, Freiburg, Germany
- 04/2018 – 06/2018 Postdoc (funded by the Wassernetzwerk Baden-Württemberg) at the Chair of Hydrology, Albert Ludwigs University of Freiburg, Freiburg, Germany
I was responsible for synthesizing ideas developed during a workshop on “Water ages in the hydrological cycle”.
- 04/2018 – 03/2019 Honorary Research Fellow at the Northern River Institute, School of Geoscience, University of Aberdeen, Aberdeen, Scotland

- 09/2015 – 03/2018 Postdoctoral Research Fellow at the Northern River Institute, School of Geoscience, University of Aberdeen, Aberdeen, Scotland
Project: Vegetation effects on water flow and mixing in high-latitude ecosystems (VeWa, ERC-funded research group led by Prof. Doerthe Tetzlaff)
I was responsible for soil and xylem water stable isotope sampling and the publication of the results (process understanding, site comparisons, modelling).
- 04/2015 – 08/2015 Parental leave
- 01/2012 – 03/2015 Research Associate at the Chair of Hydrology, Albert Ludwigs University of Freiburg, Freiburg, Germany
Project: Catchments as Organized Systems (CAOS, DFG funded research group, PIs of sub-project: Prof. Markus Weiler and Dr. Theresa Blume)
I was responsible for sampling of soil water, ground water, stream water and precipitation at the field sites in Luxembourg and the analysis of their stable isotopic compositions in the lab. I further took part in the installation of >40 sensor cluster sites. I used the data for hydrological modelling (calibration of 1-D numerical soil hydraulic model and assessment of travel times).

SCI Publications

22. **Sprenger M** & Allen ST (2020): What ecohydrologic separation is and where we can go with it, *Water Resources Research*, 56(7), e2020WR027238, doi: 10.1029/2020WR027238
21. Gallart F, Valiente M, Llorens P, Cayuela C, **Sprenger M**, Latron J (2020): Investigating young water fractions in a small Mediterranean mountain catchment: both precipitation forcing and sampling frequency matter, *Hydrological Processes*, doi: 10.1002/hyp.13806 (invited contribution for a special issue in *Hydrological Processes* on “Using water age to explore hydrological processes in contrasting environments”)
20. Knighton J, Kuppel S, **Sprenger M**, Smith A, Tetzlaff D, Soulsby C (2020): Using Isotopes to Incorporate Tree Water Storage and Mixing Dynamics into a Distributed Hydrologic Modeling Framework, *Ecohydrology*, 13(3), e2201, doi: 10.1002/eco.2201.
19. **Sprenger M**, Llorens P, Cayuela C, Gallart F, Latron J (2019): Mechanisms of consistently disconnected soil water pools over (pore)space and time, *Hydrology and Earth System Sciences*, 23, 2751-2762, doi: 10.5194/hess-23-2751-2019.
18. Zheng W, Wang S, **Sprenger M**, Liu B, Cao J: Response of soil water movement and groundwater recharge to extreme precipitation in a headwater catchment in the North China Plain, *Journal of Hydrology*, 576, 466-477, doi: 10.1016/j.jhydrol.2019.06.071.
17. **Sprenger M**, Stumpp C, Weiler M, Aeschbach W, Allen ST, Benettin P, Dubbert M, Hartmann A, Hrachowitz M, Kirchner JW, McDonnell JJ, Penna D, Orłowski N, Pfahl S, Rinderer M, Rodriguez N, Schmidt M, Werner C (2019): The demographics of water: A review of water ages in the critical zone, *Reviews of Geophysics*, 57(3), 800-834, doi: 10.1029/2018RG000633. (AGU Journal Highlights)
16. Zhu M, Wang S, Kong X, Zheng W, Feng W, Zhang X, Yuan R, Song X, **Sprenger M** (2019): Interaction of Surface Water and Groundwater Influenced by Groundwater Over-Extraction, Waste Water Discharge and Water Transfer in Xiong'an New Area, China, *Water*, 11(3), 539, doi: 10.3390/w11030539.
15. **Sprenger M**, Tetzlaff D, Buttle J, Laudon H, Soulsby C (2018): Water ages in the critical zone of long-term experimental sites in northern latitudes, *Hydrology and Earth System Sciences*, 22, 3965–3981, doi: 10.5194/hess-22-3965-2018.

14. **Sprenger M**, Tetzlaff D, Buttle J, Carey SK, McNamara JP, Laudon H, Shatilla N, Soulsby C (2018): Storage, mixing and fluxes of water in the critical zone across northern environments inferred by stable isotopes of soil water, *Hydrological Processes*, 32(12), 1720–1737, doi: 10.1002/hyp.13135. (Invited contribution to a Special Issue on “Water Shaped by and Shaping the Critical Zone”)
13. **Sprenger M**, Tetzlaff D, Buttle J, Laudon H, Leistert H, Mitchell C, Snelgrove J, Weiler M, Soulsby C (2018): Measuring and modelling stable isotopes of mobile and bulk soil water, *Vadose Zone Journal*, 17(1), 170149, doi: 10.2136/VZJ2017.08.0149. (Invited contribution to Special Issue on “Stable Isotope Approaches in Vadose Zone Research”, VZJ Research Highlight)
12. Soulsby C; Braun H, **Sprenger M**, Weiler M, Tetzlaff, D (2017): Influence of forest and shrub canopies on precipitation partitioning and isotopic signatures, *Hydrological Processes*, 31(24), 4282–4296, doi: 10.1002/hyp.11351.
11. **Sprenger M**, Tetzlaff D, Soulsby C (2017): Soil water stable isotopes reveal evaporation dynamics at the soil-plant-atmosphere interface of the critical zone, *Hydrology and Earth System Sciences*, 21(7), 3839–3858, doi: 10.5194/hess-21-3839-2017.
10. Angermann L, Jackisch C, Allroggen N, **Sprenger M**, Zehe E, Tronicke J, Weiler M, Blume T (2017): Form and function in hillslope hydrology: characterization of subsurface flow based on response observations, *Hydrology and Earth System Sciences*, 21(7), 3727-3748, doi: 10.5194/hess-21-3727-2017.
9. Jackisch C, Angermann L, Allroggen N, **Sprenger M**, Blume T, Tronicke J, Zehe E (2017): Form and function in hillslope hydrology: in situ imaging and characterization of flow-relevant structures, *Hydrology and Earth System Sciences*, 21(7), 3749-3775, doi: 10.5194/hess-2016-190.
8. **Sprenger M**, Tetzlaff D, Soulsby C (2017): No influence of CO₂ on the stable isotope analyses of soil waters with a OA-ICOS, *Rapid Communications of Mass Spectrometry*, 31(5), 430–436, doi: 10.1002/rcm.7815.
7. **Sprenger M**, Tetzlaff D, Tunaley C, Dick J, Soulsby C (2017): Evaporation fractionation in a peatland drainage network affects stream water isotope composition, *Water Resources Research*, 53(1), 851–866, doi: 10.1002/2016WR019258.
6. **Sprenger M**, Leistert H, Gimbel K, Weiler M (2016): Illuminating hydrological processes in the vadose zone with pore water stable isotopes, *Review of Geophysics*, 54(3), 674–704, doi: 10.1002/2015RG000515. (AGU Journal Highlights)
5. **Sprenger M**, Blume T, Seeger S, Weiler M (2016): Travel times in the vadose zone: variability in space and time, *Water Resources Research*, 52(8), 5727–5754, doi: 10.1002/2015WR018077.
4. **Sprenger M**, Erhardt M, Riedel M, Weiler M (2016): Historical tracking of nitrate in contrasting vineyard using water isotopes and nitrate depth profiles, *Agriculture, Ecosystems & Environment*, 222, 185–192, doi: 10.1016/j.agee.2016.02.014.
3. **Sprenger M**, Herbstritt B, Weiler M (2015): Established methods and new opportunities for pore water stable isotope analysis, *Hydrological Processes*, 29(25), 5174–5192, doi: 10.1002/hyp.10643. (Invited contribution to Special Issue on “Tracer advances in catchment hydrology”)
2. **Sprenger M**, Volkmann THM, Blume T, Weiler M (2015): Estimating flow and transport parameters in the unsaturated zone with pore water stable isotopes, *Hydrology and Earth System Sciences*, 19(6), 2617–2635, doi: 10.1002/hyp.10643.
1. **Sprenger M**, Oelmann Y, Weihermüller L, Wolf S, Wilcke W, Potvin C (2013): Tree species and diversity effects on soil water seepage in tropical plantation, *Forest Ecology and Management*, 309(0): 76-86, doi: 10.1016/j.foreco.2013.03.022. (Invited contribution to Special Issue on “Influence of tree species on forest soils: New evidence from field studies”)

Other publications

7. **Sprenger M** (2019): “Hydrologists Join Youth-Led #GlobalClimateStrike”, *EGU Hydrology Section Blog*, <https://blogs.egu.eu/divisions/hs/2019/09/24/climatestrike/>
6. **Sprenger M** (2019): Meet a leaf: Matthias Sprenger, *AGU Ecohydrology Section Blog*, <https://www.aguecohydrology.org/blog-adding-our-leaves/meet-a-leaf-matthias-sprenger> (invited)
5. **Sprenger M**, Stumpp C & Weiler M (2019): How old is the water from the tree canopy to groundwater? *Eos*, 100, doi: 10.1029/2019EO126157 (invited)
4. **Sprenger M** (2019): “Everything is interaction and reciprocal”, *EGU Hydrology Section Blog*, <https://blogs.egu.eu/divisions/hs/2019/05/22/everything-is-interaction-and-reciprocal/>
3. **Sprenger M** (2018): Travel Grant Report EGU General Assembly, *British Hydrological Society Circulation*, No. 138 (8/2018): 9 – 12 <http://www.hydrology.org.uk/dms-files.php?id=1328&action=doc>
2. **Sprenger M**, Tetzlaff D, Buttle J, Laudon H, Leister H, Mitchell C, Snelgrove J, Weiler M, Soulsby C (2018): New insights on how water is mixed in the soil. *CSA News magazine*, <https://dl.sciencesocieties.org/content/New-Insights-How-Water-Mixed-Soil> (invited)
1. **Sprenger M**, Weiler M (2017): Tracing Water Through the Critical Zone, *EOS*, 98, doi: 10.1029/2018EO074313 (invited)

Book chapter

Allen ST, **Sprenger M**, GJ Bowen, JR Brooks: Understanding temporal and spatial variation in source water: O and H isotopes from precipitation to xylem water (invited chapter for an edited book on “Stable Isotopes in Tree Rings: Inferring Physiological, Climatic and Environmental Responses”, eds. Siegwolf R, Brooks R, Roden J, and Saurer M, accepted)

Presentations

Invited presentations

9. **Sprenger M** & Allen ST (2019): Water-soil-vegetation dynamics deciphered by stable isotopes of water, *AGU Fall Meeting 2019*, San Francisco, USA.
8. Emanuel RE, Painter J, Saia S, Gregory J, **Sprenger M**, Rose J, Martin K, Bhattachan A (2019): Interactions between climate, land use, and infrastructure in the southeastern United States: Implications for water resources and society, *AGU Fall Meeting 2019*, San Francisco, USA.
7. Blume T, Beiter D, Demand D, Lieder E, **Sprenger M**, Weiler M (2018): The value of long-term observation for hydrological event response analysis, *AGU Fall Meeting 2018*, Washington DC, USA.
6. **Sprenger M** (2018): Insights into soil-plant interactions in the water cycle using stable isotopes, *Symposium on Ecological Restoration and Efficient Utilization of Water Resources in Semi-arid Regions*, Zhangjiakou, China.
5. **Sprenger M** (2017): Potential of stable water isotopes to understand effects of land use and climate change on soil functions, *Symposium on Soil Resources*, ETH Zürich, Switzerland.
4. **Sprenger M**, Tetzlaff D, Ala-Aho P, Buttle J, Laudon H, Mitchell C, Snelgrove J, Weiler M, Soulsby C (2017): Mobile and tightly bound soil water fluxes in northern environments, *EGU Leonardo Conference 2017 Water stable isotopes in the hydrological cycle*, Black Forest, Germany.
3. **Sprenger M**, Tetzlaff D, Weiler M, Soulsby C. (2017): Understanding water storage, mixing and travel times in soils using water stable isotopes, *EGU General Assembly 2017*, Vienna, Austria.
2. Blume T, Weiler M, Angermann L, Beiter D, Hassler S, Kaplan N, Lieder E, **Sprenger M** (2017): From one plot to many and from hillslopes to streams: Improving our understanding of catchment hydrology with a multi-scale experimental approach, *EGU General Assembly 2017*, Vienna, Austria.

1. Tetzlaff D, Buttle J, Carey S, Laudon H, McDonnell J, McNamara JP, Spence C, **Sprenger M**, van Huijgevoort M, Soulsby C (2016): Using stable isotopes and integrated flow-tracer modeling to conceptualise vegetation influences on water partitioning, storage and runoff generation in high-latitude environments, *EGU General Assembly 2016*, Vienna, Austria.

Invited research seminars

8. **Sprenger M** (2019): Application of stable isotopes in the critical zone towards a better understanding of hydrological processes, *Lawrence Berkeley National Laboratory*, August 2019, Berkeley, USA.
7. **Sprenger M** (2019): Using stable isotopes to investigate soil-plant interactions in the water cycle, *Western Carolina University*, April 2019, Cullowhee, USA.
6. **Sprenger M** (2018): Application of stable isotopes in the critical zone with example of travel time analysis, *Isotope Hydrology Seminar at Water Resources and Environmental Engineering, University of Oulu*, October 2018, Oulu, Finland.
5. **Sprenger M** (2018): Water age analysis in the critical zone using stable isotopes of water, *EPFL ECHO laboratory*, September 2018, Lausanne, Switzerland.
4. **Sprenger M** (2018): Understanding mixing and transport processes in the critical zone using stable isotopes of water, *Forum 2to3: Cryosphere and Geomorphology & Water and Climate, University of Zurich*, September 2018, Zurich, Switzerland.
3. **Sprenger M** (2018): Tracer-aided soil hydraulic modelling, *Center for Agricultural Resources Research, Chinese Academy of Science*, July 2018, Shijiazhuang, China.
2. **Sprenger M** (2017): Understanding water storage, mixing and travel times in soils using water stable isotopes, *CREAF Barcelona*, March 2017, Barcelona, Spain.
1. **Sprenger M** (2017): Understanding water storage, mixing and travel times in soils using water stable isotopes, *Geosciences Seminar Series, University of Aberdeen*, February 2017, Aberdeen, UK.

Other conference talks

12. **Sprenger M**, Llorens P, Gallart F, Latron J (2020): Subsurface runoff and recharge dynamics in a Mediterranean catchment based on StorAge Selection functions and end-member splitting analysis, *EGU General Assembly 2020*, Vienna, Austria. (conference cancelled, online presentation)
11. Gallart F, Llorens P, Cayuela C, **Sprenger M**, Latron J (2020): Young water fractions at diverse time scales are driven by runoff generation processes in a Mediterranean small research catchment, *EGU General Assembly 2020*, Vienna, Austria. (conference cancelled, online presentation)
10. Weiler M, Stumpp C, **Sprenger M** (2019): The Demographics of Water: Water Ages and New Tracer Techniques in the Critical Zone, *27th IUGG General Assembly*, Montréal, Canada.
9. **Sprenger M**, Llorens P, Cayuela C, Gallart F, Latron J (2019): Observation of continuously separated mobile and immobile soil water pools despite temporary full saturation, *EGU General Assembly 2019*, Vienna, Austria. (PICO)
8. Gallart F, Valiente M, Llorens P, Cayuela C, **Sprenger M**, Latron J (2019): Investigating young water fractions in different hydrological compartments of a small Mediterranean mountain catchment: Mountain catchments may release large young water fractions, *EGU General Assembly 2019*, Vienna, Austria.
7. **Sprenger M**, Stumpp C, Allen ST, Benettin P, Dubbert M, Hartmann A, Hrachowitz M, Orłowski N, Pfahl S, Rinderer M, Rodriguez N, Werner C, Weiler M (2018): Towards improved travel time estimates that account for interfaces in the hydrological cycle, *AGU Fall Meeting 2018*, Washington D.C., USA.

6. **Sprenger M**, Tetzlaff D, Soulsby C (2018): Water ages in the critical zone of northern environments: Relation between storage and travel times of transpiration and recharge fluxes, *EGU General Assembly 2018*, Vienna, Austria.
5. Tetzlaff D, Ala-Aho P, Buttle J, Carey C, Kohn M, Kuppel S, Laudon H, McDonnell J, McNamara J, Spence C, **Sprenger M**, Smith A, Soulsby C (2017): Using stable isotopes to understand Vegetation-Water linkages across northern landscapes, *EGU Leonardo Conference 2017 Water stable isotopes in the hydrological cycle*, Black Forest, Germany.
4. Weiler M, **Sprenger M**, Volkmann T, Seeger S, Leister H (2017): Coupled field sampling and modelling of soil and plant water stable isotopes to quantify site specific hydrological fluxes, *CGU/CSAFM 2017*, Vancouver, Canada.
3. **Sprenger M**, Weiler M, Blume T (2014): Water transit times in the unsaturated zone: Spatio-temporal variation and its application for the characterization of functional units. *AGU Chapman Conference*, Luxembourg, Luxembourg.
2. **Sprenger M**, Weiler M (2013): Potential of pore water stable isotope for optimization of soil physical parameters and predicting flow and transport in the unsaturated zone. *AGU Fall Meeting 2013*, San Francisco, USA.
1. **Sprenger M**, Gralher B, Weiler M (2013): Identifying flow processes in catchments with porewater isotope profiles. *EGU General Assembly 2013*, Vienna, Austria.

Poster presentations

16. Muhic F, Ala-Aho P, **Sprenger M**, Marttila H, Klöve B (2020): Mechanisms of soil matrix water replenishment in a sub-arctic till soil based on an isotope tracer experiment, *EGU General Assembly 2020*, Vienna, Austria. (conference cancelled, online presentation)
15. Cigala V, Burgard C, van Rijnsingen E, van Zelst I, Trani O, Alberti T, **Sprenger M**, et al. (2020): #SciComm via the European Geoscience Union Divisions' blogs: experiences from the editorial teams *EGU General Assembly 2020*, Vienna, Austria. (conference cancelled, online presentation)
14. **Sprenger M** (2020): Partitioning of Rainfall into Green and Blue Water using Stable Isotopes, *Water Collaborative Mini-Symposium*, Raleigh, USA.
13. **Sprenger M** & Allen ST (2019): Reconsidering ecohydrologic separation, *AGU Fall Meeting 2019*, San Francisco, USA.
12. Knighton J, Kuppel S, Smith A, **Sprenger M**, Tetzlaff D, Soulsby C (2019): Interpreting Tree Xylem Isotopic Measurements in the context of Tree Water Storage and Mixing, *AGU Fall Meeting 2019*, San Francisco, USA.
11. **Sprenger M**, Llorens P, Cayuela C, Gallart F, Latron J (2019): Detecting different subsurface water flow mechanisms with stable isotopes, *2019 Gordon Research Conference on Catchment Science: Interactions of Hydrology, Biology and Geochemistry*, Andover, USA
10. **Sprenger M**, Llorens P, Cayuela C, Gallart F, Latron J (2019): Detecting different subsurface water flow mechanisms with stable isotopes, *2019 Postdoctoral Research Symposium*, Raleigh, USA.
9. **Sprenger M**, Tetzlaff D, Soulsby C (2017): Tracing dynamics of soil – vegetation interactions in northern environments with stable isotopes, *EGU General Assembly 2017*, Vienna, Austria.
8. **Sprenger M**, Tetzlaff D, Buttle J, Crey J, Shatilla NJ, Laudon H, McNamara JP, Soulsby C (2016): Ecohydrological partitioning of water at long-term experimental sites in Northern latitudes using stable isotopes. *AGU Fall Meeting 2016*, San Francisco, USA.
7. **Sprenger M**, Erhardt M, Riedel M, Weiler M (2015): Historical tracking of nitrate in contrasting vineyard using water isotopes and nitrate depth profiles. *AGU Fall Meeting 2015*, San Francisco, USA.

6. Angermann L, Jackisch C, Allroggen N, **Sprenger M**, Weiler M, Blume T (2014): Interflow in Periglacial Slope Deposits: Importance, Spatial Extent and Conceptual Representation, *AGU Chapman Conference*, Luxembourg, Luxembourg.
5. Seeger S, **Sprenger M**, Weiler M (2014): How far do buckets get us? A flux tracking, topography driven conceptual lumped convolution model to rival the CAOS model, *AGU Chapman Conference*, Luxembourg, Luxembourg.
4. **Sprenger M**, Weiler M (2014): Transit times of water particles in the vadose zone across catchment states and catchment functional units, *EGU General Assembly 2014*, Vienna, Austria.
3. Jackisch C, **Sprenger M**, Allroggen N, van Schaik L, Weiler M, Zehe E (2014): Insights and questions raised from a multi-tracer plot-scale sprinkler experiment with time-lapse 3D GPR in a structured forested soil, *EGU General Assembly 2014*, Vienna, Austria.
2. **Sprenger M**, Wolf S, Buchmann N, Eugster W, Weihermüller L, Wilcke W, Oelmann Y (2012): Tree species effects on seepage fluxes in soil in a tropical afforestation. *4th EUROSIL Conference*, Bari, Italy.
1. **Sprenger M**, Wolf S, Buchmann N, Eugster W, Weihermüller L, Wilcke W, Oelmann Y (2012): Der Effekt von Baumarten auf die Versickerungsraten auf einer tropischen Aufforstung. *Tag der Hydrologie*, Freiburg, Germany.

Teaching

Instructor

Black Forest Autumn School on “Water Ages in the Hydrological Cycle” in 2019 for graduate and postgraduate students (with Markus Weiler, James W. Kirchner, Christine Stumpp, Markus Hrachowitz, Paolo Benettin)

Catchment Science Summer School at the University of Aberdeen in 2016 and 2017 for graduate and postgraduate students (with Jeffrey J. McDonnell and Chris Soulsby)

Short course at EGU General Assembly 2020 on “Hey, early career scientist! Be visible!”

Guest lectures

North Carolina State University in Spring 2020: “Watershed Hydrology” class on “Intro to Tracer Hydrology”

Western Carolina University in Spring 2019: “Watershed Hydrology” class on “Stable isotopes of water: Useful tool in Geoscience & Forestry”

UNC Chapel Hill in Spring 2019: “Introduction to Watershed Systems” class on “Investigation of Water flow and transport using stable isotopes”

North Carolina State University in Fall 2018: “Intro to Environmental Sciences” class on “Water use and management”

North Carolina State University in Fall 2018: “Watershed Hydrology” class on “Investigation of water in the unsaturated zone with stable isotopes”

American School of Barcelona for “Ecological Footprint” unit in 2018

Leadership Enterprise for a Diverse America (LEDA) program at Princeton University in Summer 2017: “Climate change”

American School of Barcelona for “Access to Water” unit in 2017

Leadership Enterprise for a Diverse America (LEDA) program at Princeton University in Summer 2016: “Climate change”

Albert Ludwigs University of Freiburg in Spring 2015: “Hydrologische Forschung (Hydrological research)”, Master level

Albert Ludwigs University of Freiburg in Spring 2014: “Hydrologische Forschung (Hydrological research)”, Master level

Supervision of students:

Bachelor thesis: Lena Nowotny, Albert Ludwigs University of Freiburg	2013
Master thesis: Nikos Anestis, Albert Ludwigs University of Freiburg	2014
Support of graduate and postgraduate students at the University of Aberdeen	2016-2018

Grants and Awards

EGU Early Career Scientist's Travel Support for attending EGU conference 2020	2020
German Academic Exchange Service (DAAD) Travel fund to attend EGU 2019	2019
Two-year Research Fellowship awarded by German Research Foundation (DFG), project number 397306994	2018
Research proposal awarded Marie Skłodowska-Curie Actions Seal of Excellence by the European Commission	2018
German Hydrological Society (DHG) Fieldwork Scholarship for research in Finland	2018
Collaborating partner with James Knighton in a CZO SAVI International Scholars Program	2018
British Hydrological Society travel grant for attending EGU 2018	2018
SAGES Pools Engagement in European Research for presenting at the EGU Leonardo Conference 2017 on "Water stable isotopes in the hydrological cycle"	2017
EGU Early Career Scientist's Travel Support for attending EGU conference 2017	2017
Travel fund SAGES for attending AGU Fall Meeting 2016	2016
Travel fund „Förderverein Hydrologie“ at Albert-Ludwigs-Universität Freiburg to attend AGU Fall Meeting 2015	2015
Travel fund Graduate School "Environment, Society and Global Change" to attend AGU Fall Meeting 2015	2015
DAAD-RISE scholarship to host an undergraduate for an internship (6 weeks)	2014
EGU Early Career Scientist's Travel Support for attending EGU conference 2014	2014
Travel fund Wissenschaftliche Gesellschaft Freiburg im Breisgau for presenting at AGU Fall Meeting 2013	2013
Fahnenberg-Scholarship of the Faculty of Environment and Natural Resources for a research visit at the McGuire lab at Virginia Tech	2013
EGU Early Career Scientist's Travel Support for attending EGU conference 2013	2013
PROMOS-Grant of DAAD for field work in Panama	2011
ERASMUS-Grant of DAAD for studying in Iceland	2008-2009

Academic service

Guest Editor

Special Issue in *Hydrology and Earth System Sciences* on "Water, isotope and solute fluxes in the soil-plant-atmosphere interface: Investigations from the canopy to the root zone" (with Orłowski N, Geris J, Llorens P, Wang L, Coenders M) in 2019 and 2020

Special Issue in *Water (MDPI)* on "Hillslope Hydrology: Towards Improved Process Understanding Using Modeling and/or Field Observations" (with Dusek J, Ameli A, Wang S) in 2019 and 2020

Reviewer for 79 reviews in total: *Hydrological Processes* (13), *Rapid Communications of Mass Spectrometry* (9), *Hydrology and Earth System Sciences* (8), *Water Resource Research* (7), *Ecohydrology* (6), *Journal of Hydrology* (5), *Water (MDPI)* (5), *Catena* (4), *Science of the Total Environment* (4), *Vadose Zone Journal* (3), *Agricultural and Forest Meteorology* (2), *Agriculture, Ecosystems & Environment* (2), *Biogeosciences*

(2), *New Phytologist* (2), *Scientific Reports* (1), *Hydrology Research* (1), *Plant and Soil* (1), *Scientific Data* (1), *Applied Geochemistry* (1), *Journal of Mountain Science* (1), *Cuadernos de Investigación Geográfica* (*Journal of Geographical Research*, 1)

Details: <https://publons.com/author/1179341/matthias-sprenger#stats>

Reviewer of grant proposals Wisconsin Water Resources Institute (2017) and Croatian Science Foundation (2019)

Opponent in PhD defense of Elina Isokangas at University of Oulu, Oulu, Finland (October 2018)

Editor and initiator of the EGU Hydrology Blog (since 2019)

Member of AGU Technical Committee Catchment Hydrology (since 2018)

Scientific Committee

EGU Galileo Conference and 2nd edition of the workshop on "Isotope-based studies of water partitioning and plant-soil interactions in forested and agricultural environments", 28.-30.07.2021 in Hannover, Germany (with Penna D, Beyer M, Geris J, Hopp L, Scandellari F)

EGU Leonardo Conference 2017 on "Water stable isotopes in the hydrological cycle", 16.-18.10.2017 in the Black Forest, Germany (with Weiler M and Stumpp C)

Invited participant

Workshop on "Water and nutrient fluxes in ecosystems under a changing climate - a tracer-based perspective" 04.-06.11.2020 organized by the Heidelberg Science Academy in Heidelberg, Germany.

Workshop on "Water Ages in the Hydrological Cycle" organized by the Water Network Baden-Württemberg, 18.-20.10.2017 in the Black Forest, Germany.

Primary Convener

2. EGU 2018 session: "Stable isotopes to study water dynamics in the soil-plant-atmosphere continuum" (with Geris J, Llorens P, Hissler C, Orlowski N)
1. AGU 2016 session: "Methods and Process Interpretations in the Soil-Plant-Atmosphere Continuum" (with Levia D F, Volkmann T, Van Stan J T)

Co-convener

5. AGU 2020 session: "Stable Isotopes in the Critical Zone: Methods, Applications and Process Interpretations" (with Good S, Orlowski N, Allen ST)
4. EGU 2020 session on "Stable isotopes to study water and nutrient dynamics in the soil-plant-atmosphere continuum" (with Geris J, Llorens P, Hissler C, Orlowski N)
3. AGU 2019 session: "Stable Isotopes in the Critical Zone: Methods, Applications and Process Interpretations" (with Good S, Orlowski N, Allen ST)
2. EGU 2019 session on "Water, isotope and solute fluxes in the soil-plant-atmosphere interface: Investigations from the canopy to the root zone" (with Orlowski N, Geris J, Llorens P, Hildebrandt A, Friesen J, Coenders-Gerrits M)
1. AGU 2018 session: "Stable Isotopes in the Critical Zone: Methods, Applications and Process Interpretations" (with Orlowski N, Dawson T, Good S)

Membership of scientific societies:

American Geophysical Union (AGU, since 2013), European Geoscience Union (EGU, since 2013), British Hydrological Society (BHS, since 2015), German Hydrological Society (DHG, since 2017), Verband für Geoökologie in Deutschland e.V. (VGÖD, since 2006), Förderverein Hydrologie Freiburg (since 2014), Scottish Alliance for Geoscience, Environment & Society (SAGES, 2015-2018)

Field work experiences

- 8/2019 Irrigation experiment using deuterated water at the Pallas National Park, Finland (PI: Dr. Pertti Ala-Aho, University of Oulu)
- 10/2018 Soil sampling for stable isotope analysis and snow survey installations at the Pallas National Park, Finland (PI: Dr. Pertti Ala-Aho, University of Oulu)
- 6/2018 Sensor and probe installation (soil moisture, meteorological data) and water, soil and xylem sampling for stable isotope analysis at two sites along the Rhone valley, France (PIs: Prof. Michael Singer, University of Cardiff, UK; Prof. Kelly Caylor, University of California Santa Barbara and Prof. John Stella, State University of New York)
- 05/2017 and 07/2018 Water sampling, soil moisture measurements and maintenance at the Vallcebre catchment, NE Spain (PIs: Dr. Pilar Llorens and Dr. Jérôme Latron, Institute of Environmental Assessment and Water Research, IDAEA-CSIC, Barcelona, Spain)
- 09/2015 – 09/2016 Soil and xylem sampling for stable isotope analysis in the Scottish Highlands in monthly intervals (PI: Prof. Doerthe Tetzlaff)
- 02/2012– 09/2014 Sensor installation (soil moisture, meteorological data, flow data) and soil and water sampling for stable isotopes analysis at 43 sites in Luxembourg in weeklong campaigns at roughly monthly intervals (PIs: Prof. Markus Weiler, University of Freiburg, Germany and Dr. Theresa Blume, GFZ Potsdam, Germany)
- 11/2013 Soil sampling in vineyards for stable isotope and nitrate analysis at the Kaiserstuhl, SW Germany (PI: Prof. Markus Weiler, University of Freiburg, Germany and Dr. Monika Riedel, State Institute for Viticulture and Enology, Freiburg, Germany)
- 04/2011 – 05/2011 Soil sampling at the Sardinilla experimental plantation (PIs: Prof. Yvonne Oelmann, University of Tübingen, Germany and Prof. Catherine Potvin, McGill University)

Further info via online links

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Loop profile: <https://loop.frontiersin.org/people/879486/overview>