

Sebastian Uhlemann

PROFESSOR OF ENVIRONMENTAL GEOPHYSICS · DR. SC.

University of Bremen, Germany

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Summary

Professor of Environmental Geophysics with 10+ years experience specializing in geophysical imaging and monitoring of hydrological characteristics and processes. My research focuses on the development and application of geoelectrical and electromagnetic techniques to understand subsurface processes that impact upon groundwater dynamics, natural hazards, and interactions with plants and the atmosphere at a range of scales. This includes:

- Development of novel sensing and monitoring approaches applied to natural hazards, groundwater recharge, environmental pollution, and sustainable management of energy resources,
- Integrated monitoring and modelling of geophysical, hydrological, and geomechanical properties and processes
- Machine learning for automated processing of multi-modal data streams.

Education

Dr. sc. in Applied Geophysics

ETH ZURICH

Zurich, Switzerland

Sep. 2013 - Apr. 2018

- Thesis title: Geoelectrical monitoring of moisture driven processes in natural and engineered slopes

Advisors: Prof. Dr. Hansruedi Maurer, Prof. Dr. Jonathan Chambers

- Awarded with an ETH Silver Medal for an outstanding Ph.D. thesis

Delft, The Netherlands

Zurich, Switzerland

Aachen, Germany

Aug. 2010 - Aug. 2012

M.Sc. in Applied Geophysics

TU DELFT, ETH ZURICH, RWTH AACHEN

- Graduated with distinction (cum laude)

B.Sc. in Geoinformation Sciences and Geophysics

FREIBERG UNIVERSITY OF MINING AND TECHNOLOGY

Freiberg, Germany

Oct. 2007 - Aug. 2010

Experience

University of Bremen

PROFESSOR OF ENVIRONMENTAL GEOPHYSICS

Bremen, Germany

Oct. 2024 - present

Freelancing Scientist

Potsdam, Germany

Nov. 2022 - Oct. 2024

Lawrence Berkeley National Laboratory

RESEARCH SCIENTIST

Berkeley, CA, USA

Sep. 2020 - Oct. 2022

Lawrence Berkeley National Laboratory

POSTDOCTORAL SCHOLAR

Berkeley, CA, USA

Jun. 2018 - Sep. 2020

British Geological Survey

RESEARCH GEOPHYSICIST

Nottingham, UK

Sep. 2012 - May 2018

Teaching experience

LECTURING

Full Professor

UNIVERSITY OF BREMEN

Bremen, Germany

2024 - present

- Lecturing under- and graduate courses on Near Surface Geophysics, Well logging, Environmental Hazards, Earth's potential fields
- Supervision of B.Sc. and M.Sc. research theses

Visiting Professor

AMRITA CENTER FOR WIRELESS NETWORKS AND APPLICATIONS

Amritapuri, India

2020 - present

- Teaching "Geodetic, Geotechnical and Geophysical monitoring methods"
- Lecturing graduate course on Geophysical Monitoring
- Supervision of M.Sc. research theses

Awards

2022	AGU Near Surface Geophysics Early Career Achievement Award , for significant contributions to the field of near-surface geophysics by an early career researcher	Chicago, USA
2019	ETH Silver Medal , in recognition of an outstanding doctoral thesis	Zurich, Switzerland
2015	Best Paper Award , 21st European Meeting of Environmental and Engineering Geophysics	Turin, Italy
2015	Best Early Stage Researcher Poster , EU-COST TU2012 annual workshop	Porto, Portugal
2015	Best Paper Award , 20th European Meeting of Environmental and Engineering Geophysics	Athens, Greece

Professional Activities & Associations

2025 - present	Chair , M.Sc. examination board, University of Bremen
2022 - present	Near Surface Geophysics Representative , AGU Fall meeting program committee
2023 - 24	Secretary , AGU Near Surface Section
2019 - present	Associate editor , Near Surface Geophysics & Journal of Applied Geophysics
2018 - 2020	Special issue editor , Near surface geophysics for geohazard assessment in <i>Near Surface Geophysics</i> ; Mining and Mineral Exploration Geophysics in <i>Minerals</i>
2018 - present	Member , Hydrogeophysics Technical Committee, Near Surface Geophysics Executive Committee. American Geophysical Union (AGU)
2018 - present	Volunteer for Groundwater Relief , UK Charity providing hydrogeological and groundwater expertise to support humanitarian efforts to eradicate water poverty
	Member , American Geophysical Union (AGU), European Association of Geoscientists and Engineers (EAGE), European Geosciences Union (EGU), Bay Area Geophysical Society (BAGS)
	Reviewer , Water Resources Research; Science of the Total Environment; Geophysical Journal International; Scientific Reports; Geomorphology; Journal of Hydrology; Engineering Geology; and other journals

Selected Bibliography

Journal papers: 79

h-Index: 33

Citations: 2655

Source: Web of Science

Selected First Author Peer-reviewed Journal Publications

- [1] **S. Uhlemann**, L. Peruzzo, C. Chou, K. H. Williams, S. Wielandt, C. Wang, N. Falco, Y. Wu, B. Carr, P. Meldrum, J. Chambers, and B. Dafflon. "Variations in Bedrock and Vegetation Cover Modulate Subsurface Water Flow Dynamics of a Mountainous Hillslope". In: *Water Resources Research* 60 (2 Feb. 2024). ISSN: 0043-1397. DOI: 10.1029/2023WR036137.
- [2] **S. Uhlemann**, I. Shirley, S. Wielandt, C. Ulrich, C. Wang, S. Fiolleau, J. Peterson, J. Lamb, E. Thaler, J. Rowland, S. S. Hubbard, and B. Dafflon. "Estimating Permafrost Distribution Using Co-Located Temperature and Electrical Resistivity Measurements". In: *Geophysical Research Letters* 50 (17 Sept. 2023). ISSN: 0094-8276. DOI: 10.1029/2023GL103987.
- [3] **S. Uhlemann**, B. Dafflon, H. M. Wainwright, K. H. Williams, B. J. Minsley, K. D. Zamudio, B. Carr, N. Falco, C. Ulrich, and S. S. Hubbard. "Surface parameters and bedrock properties co-vary across a mountainous watershed: Insights from Machine Learning and Geophysics". In: *Science Advances* (2022). DOI: 10.1126/sciadv.abj2479.
- [4] **S. Uhlemann**, C. Ulrich, M. Newcomer, P. Fiske, J. Kim, and J. Pope. "3D Hydrogeophysical Characterization of Managed Aquifer Recharge Basins". In: *Frontiers in Earth Sciences* (2022). DOI: 10.3389/feart.2022.942737.
- [5] **S. Uhlemann**, B. Dafflon, J. Peterson, C. Ulrich, I. Shirley, S. Michail, and S. S. Hubbard. "Geophysical Monitoring Shows that Spatial Heterogeneity in Thermohydrological Dynamics Reshapes a Transitional Permafrost System". In: *Geophysical Research Letters* (2021). DOI: 10.1029/2020GL091149.
- [6] **S. Uhlemann**, J. Chambers, P. Wilkinson, H. Maurer, A. Merritt, P. Meldrum, O. Kuras, D. Gunn, A. Smith, and T. Dijkstra. "Four-dimensional imaging of moisture dynamics during landslide reactivation". In: *Journal of Geophysical Research: Earth Surface* 122 (2017), pp. 398–418. DOI: 10.1002/2016JF003983.
- [7] **S. Uhlemann**, S. Hagedorn, B. Dashwood, H. Maurer, D. Gunn, T. Dijkstra, and J. Chambers. "Landslide characterization using P- and S-wave seismic refraction tomography – The importance of elastic moduli". In: *Journal of Applied Geophysics* 134 (2016), pp. 64–76. DOI: 10.1016/j.jappgeo.2016.08.014.
- [8] **S. Uhlemann**, A. Smith, J. Chambers, N. Dixon, T. Dijkstra, E. Haslam, P. Meldrum, A. Merritt, D. Gunn, and J. Mackay. "Assessment of ground-based monitoring techniques applied to landslide investigations". In: *Geomorphology* 253 (2016), pp. 438–451. DOI: 10.1016/j.geomorph.2015.10.027.