Alexandra Mirjam Zuhr

Creative and enthusiastic Climate Scientist with a passion for paleoclimatology and polar regions. I am aiming for an improved understanding of climate variability and the complexity of the climate system. Excellent language skills in English and R. Extensive field and laboratory experience with tree rings, marine sediments, ice cores and stable isotopes. Interested in learning new tools and contributing to reducing uncertainties in future climate projections.

Education

09/2018–05/2022 **Doctoral candidate**, *Institute of Geosciences, University of Potsdam, Germany & Alfred Wegener Institute - Helmholtz Centre for Polar and Marine Research, Research Unit Potsdam, Germany*.
Title: Proxy signal formation in palaeoclimate archives. Supervisor: Prof. Thomas Laepple

10/2015–04/2018 **Climate and Environmental Sciences (M. Sc.)**, *University of Augsburg, Germany*, final grade: 1.45.
Thesis: Spatial and temporal variability of stable water isotopes in firn cores from Dronning Maud Land, East Antarctica. In cooperation with the Alfred Wegener Institute. Supervisors: Prof. Jucundus Jacobeit, Prof. Thomas Laepple.

2017 & 2018 **Arctic Geophysics**, *University Centre in Svalbard*.
Lectures: Chemical Oceanography in the Arctic, Arctic Atmospheric Boundary Layer and Local Climate Processes, grades: A.

10/2011–09/2015 **Physical Geography (B. Sc.)**, *Friedrich-Alexander University of Erlangen-Nuremberg, Germany*, final grade: 1.8.
Thesis: Investigations on climate variability in the Manaslu Himalaya using oxygen isotopes from tree rings. Supervisor: Dr. Jussi Grießinger.

08/2013–12/2013 **Erasmus semester**, *Universitet i Bergen, Norway*.
Focus: Palaeoclimatology, Oceanography.

Work Experience

since 10/2023 **Research associate**, *Geophysics, Department of Geosciences, University of Tübingen, Germany*.

05/2022–02/2023 **Research associate**, *Alfred Wegener Institute - Helmholtz Centre for Polar and Marine Research, Research Unit Potsdam, Germany*.

01/2020–02/2023 **Organiser of a Literature and Discussion Seminar**.
Biweekly seminar with theoretical lectures, invited speakers and paper discussions on stable states, tipping points and extreme events in the Earth system.

10/2021–02/2022 **Guest researcher**, *Laboratoire des Sciences du Climat et de l'Environnement, France*.
Analysis of stable water isotopologues and d-excess in surface snow from Dome C, Antarctica.

07/2020–03/2021 **Co-supervision of a master student**.
Topic: Noise analysis of isotopic compositions in firn at a low accumulation area on the Antarctic Plateau.

10/2019 **Guest researcher**, *National Taiwan University, Taiwan*.
Analysis of marine sediments, performing ITRAX measurements.

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10/2018–08/2019 **Co-supervision of a master student**.
Topic: Sample treatment and measurement methods to optimize the measurement accuracy for the stable isotopes of water with regard to a "Beyong EPICA - Oldest Ice Core" climate time series.

06/2019–08/2019 **Research expedition to Greenland**, *East Greenland Ice Core Project*, 7 weeks.
Leading the activities in the Surface Snow Programme. Regular tasks consist of photogrammetry, various snow sampling schemes, calibrations and maintenances of meteorological instrument and a laser spectrometer.

05/2018–07/2018 **Research expedition to Greenland**, *East Greenland Ice Core Project*, 8 weeks.
Assisting the Surface Snow Programme by conducting various snow sampling schemes, calibrating and maintaining meteorological instruments and a laser spectrometer. Setting up own experiments with photogrammetry and snow samplings.

07/2017–04/2018 **Student assistant**, *Alfred Wegener Institute - Helmholtz Centre for Polar and Marine Research*, Research Unit Potsdam, Germany, Stable Isotope Laboratory.

10/2016–03/2017 **Research semester**, *German Remote Sensing Data Center, German Aerospace Center*, Oberpfaffenhofen, Germany.
Analysis of a 30-year long time series of mesospheric temperatures to investigate gravity wave activity in the upper mesosphere and lower thermosphere. Supervisor: Prof. Dr. Michael Bittner.

03/2016–03/2017 **Student assistant**, *Chair of Atmospheric Physics, Institute for Physics*, University of Augsburg, Germany.

09/2014–10/2014 **Internship**, *Institute for Groundwater and Soil Protection*, Fürth, Germany.

2012 & 2014 **Student assistant**, *Institute for Geography*, Friedrich-Alexander Univeristy Erlangen-Nueremberg, Germany.

Scholarships

10/2022 **Travel support**, Financial support to participate at the IPICS conference.

10/2021–02/2022 **DAAD scholarship**, Stipend for a research stay at the *Laboratoire des Sciences du Climat et de l'Environnement*, Gif-sur-Yvette, France.

04/2019 **Roland Schlich travel support**, Financial support to participate at the EGU conference.

02/2018 **DAAD PROMOS scholarship**, Financial support for study stays abroad.

05/2017 **Scholarship from the University of Augsburg**, Financial support for study stays abroad.

08/2013–12/2013 **Erasmus scholarship**, Financial support for study stays abroad.

03/2013–11/2013 **Deutschlandstipendium**, Financial support.

Publications

2023 **Zuhr, A. M.**, Wahl, S., Steen-Larsen, H. C., Hörhold, M., Meyer, H., Gkinis, V. and T. Laepple. *Spatial and temporal stable water isotope data from the upper snowpack at the EastGRIP camp site, NE Greenland sampled in summer 2018.* Earth System Science Data Discussion, `https://doi.org/10.5194/essd-2023-136`.

2023 **Zuhr, A. M.** et al.. *Insights into German polar research during POLARSTUNDE.* Polarforschung, `https://doi.org/10.5194/polf-91-73-2023`.

2023 Hirsch, N., **Zuhr, A. M.**, Münch, T., Hörhold, M., Freitag, J., Dallmayr, R., and Laepple, T. *Stratigraphic noise and its potential drivers across the plateau of Dronning Maud Land, East Antarctica.* The Cryosphere, `https://doi.org/10.5194/tc-17-4207-2023`.

2023 **Zuhr, A. M.**, Wahl, S., Steen-Larsen, H. C., Hörhold, M., Meyer, H. and T. Laepple. *A snapshot on the buildup of the stable water isotopic signal in the upper snowpack at EastGRIP, Greenland Ice Sheet.* Journal of Geophysical Research: Earth Surface, https://doi.org/10.1029/2022JF006767.

2023 Harris Stuart, R., Faber, A.-K., Wahl, S., Hörhold, M., Kipfstuhl, S., Vasskog, K., Behrens, M., **Zuhr, A.**, and Steen-Larsen, H. C.. *Exploring the role of snow metamorphism on the isotopic composition of the surface snow at EastGRIP.* The Cryosphere, https://doi.org/10.5194/tc-17-1185-2023.

2022 Nicola, L., Loebel, E., and **A. M. Zuhr**. *Money makes our world go round – funding landscape for Polar Early Career Scientists in Germany.* Polarforschung, 90, 81–84, https://doi.org/10.5194/polf-90-81-2022.

2022 Wahl, S., Steen-Larsen, H. C., Hughes, A. G., Dietrich, L. J., **Zuhr, A.**, Behrens, M., Faber, A.-K., and M. Hörhold. *Atmosphere-Snow Exchange Explains Surface Snow Isotope Variability.* Geophysical Research Letters, https://doi.org/10.1029/2022GL099529.

2022 **Zuhr, A. M.**, Dolman, A. M., Ho, S. L., Groenveld, J., Grotheer, H., Su, C.-C. and T. Laepple. *Age-heterogeneity in marine sediments revealed by three-dimensional high-resolutionradiocarbon measurements.* Frontiers in Earth Science - Marine Geoscience, https://doi.org/10.3389/feart.2022.871902.

2021 Hughes, A. G., Wahl, S., Jones, T. R., **Zuhr, A.**, Hörhold, M., White, J. W. C., and Steen-Larsen, H. C. *The role of sublimation as a driver of climate signals in the water isotope content of surface snow: laboratory and field experimental results.* The Cryosphere, https://tc.copernicus.org/articles/15/4949/2021/.

2021 **Zuhr, A.**, T. Münch, H. C. Steen-Larsen, M. Hörhold and T. Laepple. *Local scale depositional processes of surface snow on the Greenland ice sheet.* The Cryosphere, https://tc.copernicus.org/articles/15/4873/2021/.

2020 Sedlak, R., **A. Zuhr**, C. Schmidt, S. Wüst, M. Bittner, G. G. Didebulidze and C. Price. *Intra-annual variations of spectrally resolved gravity wave activity in the upper mesosphere/lower thermosphere (UMLT) region.* Atmos. Meas. Tech., 13, 5117–5128, https://doi.org/10.5194/amt-13-5117-2020.

2019 Kokhanovsky, A.; ... **Zuhr, A.**; .... *Retrieval of Snow Properties from the Sentinel-3 Ocean and Land Colour Instrument*. Remote Sensing, 11(19), 2280; https://doi.org/10.3390/rs11192280.

Conferences & Workshops

03/2023 **Polar Seminar: Anthropocene in Polar and High-altitude Regions - Working Towards Solutions**, *Föhr, Germany*.
Talk: Uniting expertise and enthusiasm to shape the future of polar research.

10/2022 **3rd International Partnership in Ice Core Sciences**, *Crans Montana, Switzerland*.
Poster: A snapshot on the buildup of the stable water isotopic signal in the upper snowpack at EastGRIP, Greenland Ice Sheet.

05/2022 **European Geoscience Union**, *Vienna, Austria*.
Talk: What is driving the isotopic composition of surface snow in East Antarctica? - Insights from a multi-year time series of surface snow at Dome C.

07/2021 **Beyond Palaeoclimate Ping Pong**, *Heidelberg, Germany*.
PICO: Assessing time uncertainty in marine sediments by using three-dimensional high-resolution radiocarbon measurements from a marine box core.

04/2021 **European Geoscience Union**, *online*.
vPICO: Assessing time uncertainty and sediment mixing using three-dimensional high-resolution radiocarbon measurements from a marine box core.

11/2020 **EastGRIP Steering Committee Meeting**, *online*.
Talk: Depositional processes of surface snow on the Greenland ice sheet.

09/2019 **Karthaus Summer School**, Karthaus, Italy.
Focus on Ice Sheets and Glaciers in the Climate System.

04/2019 **European Geoscience Union**, *Vienna, Austria*.
PICO: Exploring the relationship between snow surface height variations and the isotopic composition at EastGRIP.

04/2019 **STAP19**, Workshop: 'Spatial and temporal analyses of geographic phenomena', Heidelberg University, Germany.

11/2018 **EastGRIP Steering Committee Meeting**, *Copenhagen, Denmark*.
Talk: Signal formation in snow and firn: Combining surface topography data and stable water isotopes.

03/2017 **Virtual Alpine Observatory Symposium**, *Bolzano, Italy*.
Poster: Filtering Effect of Planetary Waves on the Propagation of Gravity Waves: A Case Study.

Extracurricular Activities

since 10/2020 **Talks within Skype a Scientist**.
Connected with students in a 45-60 minute skype call to introduce them to climate sciences.

since 09/2020 **Member of the APECS Council**.
Member of the APECS international council, producing episodes for the APECS podcast *Polar Times*.

since 06/2020 **Chair and co-chair ot the APECS Germany national committee**.
Coordination of group activities and workshops,contact person to APECS International and the German Society for Polar Research.

06/2019–07/2020 **PhD representative**, *Alfred Wegener Institute*, Research Unit Potsdam, Germany.

since 11/2018 **Member of the APECS Germany Board**, *National committee of the Association for Polar Early Career Scientists*.

10/2015–04/2018 **Member of the student association**, *Geography Department, University of Augsburg, Germany*.

10/2013–09/2015 **Elected member of the student parliament**, *Friedrich-Alexander University Erlangen-Nuremberg, Germany*.

10/2012–09/2015 **Member of the student association**, *Geography Department, Friedrich-Alexander University Erlangen-Nuremberg, Germany*.

Technical Skills

Scientific	R, RStudio, Agisoft PhotoScan, Agisoft Metashape, QGIS, OceanDataView
Typography	Latex, MS Office, LibreOffice
OS	Linux, Unix, Windows, Mac

Languages

German	Native
English	Fluent
French	Basic

Other

04–09/2023 **Pacific Crest Trail**.
Hiking ~4260 km through California, Oregon and Washington in the USA.

12/2020 **Copernicus Masters**, *Winner of the BMVI Digital Transport Challenge*.
TransIce Nav - Solutions for safe navigation on and through ice in polar regions.
Prize money: 5,000 €.

11/2019 **Coding Copernicus - Remote Sensing Hackathon**, *Winner of the economy-challenge*.
Developed a web application for efficient and safe navigation over frozen water in the Arctic.

since 2010 **(Trail-)Running and triathlon competitions**, Different distances in several cities in Europe.