

AMELIE SCHMITT

INSTITUTION Climate Service Center Germany (GERICS),
Helmholtz-Zentrum Hereon, Hamburg
ADDRESS Fischertwiete 1 20095 Hamburg
TELEPHONE +49 (0) 40 226 338 478
ORCID [0000-0003-3346-9748](https://orcid.org/0000-0003-3346-9748)

RESEARCH INTERESTS

- exchange processes between the atmospheric boundary layer and the underlying surface: over irrigated fields, vegetation in rain forests, or sea ice
- land surface models and regional climate models
- weather impacts on sustainable transportation

CURRENT POSITION (SINCE 02/2023)

PostDoc at GERICS in the Helmholtz Young Investigator Group Uncertain Water Resources under global change (UWaRes, ms.hereon.de/uwares/). Responsibilities include:

- Model development of the regional climate model REMO: implementation of irrigation schemes
- Coupling of REMO with the hydrological model CWatM
- Model tuning and testing

PROFESSIONAL EXPERIENCE

2018–2023 PostDoc at the Atmospheric Measurements and Process Modeling Group of the Meteorological Institute, University of Hamburg

PROJECTS:

- CLICCS A3 - CANOPIES IN THE EARTH SYSTEM
- VERBUNDPROJEKT ATTO: PILOTPROJEKTE - TEILPROJEKT 5: SIMULATION OF THE TERRESTRIAL WATER AND CARBON CYCLES IN AN EARTH SYSTEM MODEL

TASKS:

Modeling of exchange processes between land surface, forest canopy and atmosphere within a tropical rain forest using the earth system model ICON and the land surface model JSBACH

2015–2018 PostDoc at the Sea Ice Remote Sensing group of the Institute of Oceanography, University of Hamburg

PROJECT:

- EU HORIZON 2020: SPICES (SPACE-BORNE OBSERVATIONS FOR DETECTING AND FORECASTING SEA ICE COVER EXTREMES)

TASKS:

Improving algorithms for sea ice thickness retrieval from the passive microwave sensors SMOS and SMAP

2012–2015 PhD student at the Alfred Wegener Institute Helmholtz Centre for Polar and Marine Research in Bremerhaven (Polar Meteorology section)

PROJECT:

- REPRESENTATION OF THE CONVECTIVE ATMOSPHERIC BOUNDARY LAYER IN COLD-AIR OUTBREAKS IN REGIONAL MODELS: A JOINED STUDY BASED ON OBSERVATIONS, LARGE EDDY SIMULATION AND MESOSCALE MODELLING

TASKS:

Studying convective processes in the polar atmospheric boundary layer over sea ice leads and during cold air outbreaks: statistical analysis of aircraft measurements as well as model results using a Lagrangian box model and the mesoscale model METRAS

EDUCATION

2012–2015 PhD degree in environmental physics, University of Bremen
2011–2012 BSc in Oceanography, University of Hamburg
2009–2011 MSc in Meteorology, University of Hamburg
2008 Exchange semester at the University of Oklahoma, USA
2006–2009 BSc in Meteorology, University of Hamburg

STIPENDS AND AWARDS

2016 PhD price of the Förderverein des Alfred-Wegener-Instituts
2011 Fritz Prosiegel Stipend of the Studierendenwerk Hamburg
2008 ISAP stipend of the German Academic Exchange Service (DAAD)

PUBLICATIONS

Some articles were published under my birth name Amelie Tetzlaff.

Schmitt, A. U., Ament, F., de Araújo, A. C., Sá, M., Teixeira, P., 2023: Modeling atmosphere–land interactions at a rainforest site – a case study using Amazon Tall Tower Observatory (ATTO) measurements and reanalysis data, *Atmosph. Chem. Phys.*, *23*(16), 9323–9346, doi:[10.5194/acp-23-9323-2023](https://doi.org/10.5194/acp-23-9323-2023)

Schmitt, A. U., Burgemeister, F., Dorff, H., Finn, T., Hansen, A., Kirsch, B., Lange, I., Radtke, J., Ament, F., 2023 Assessing the weather conditions for urban cyclists by spatially dense measurements with an agent-based approach, *Met. App.*, *30*(6), e2164, doi:[10.1002/met.2164](https://doi.org/10.1002/met.2164)

Schmitt, A. U., Lüpkes, C., 2023: Attributing near-surface atmospheric trends in the Fram Strait region to regional sea ice conditions. *The Cryosphere*, *17*(8), 3115–3136, doi:[10.5194/tc-2022-185](https://doi.org/10.5194/tc-2022-185)

Michaelis, J., **Schmitt, A. U.**, Lüpkes, C., Hartmann, J., Birnbaum, G., Vihma, T., 2022. Observations of marine cold-air outbreaks: a comprehensive data set of airborne and dropsonde measurements from the Springtime Atmospheric Boundary Layer Experiment (STABLE). *Earth System Science Data*, *14*(4), 1621–1637, doi:[10.5194/essd-14-1621-2022](https://doi.org/10.5194/essd-14-1621-2022)

Muchow, M., **Schmitt, A. U.**, Kaleschke, L., 2021: A lead-width distribution for Antarctic sea ice: a case study for the Weddell Sea with high-resolution Sentinel-2 images. *The Cryosphere*, *15*(9), 4527–4537, doi:[10.5194/tc-15-4527-2021](https://doi.org/10.5194/tc-15-4527-2021)

- Michaelis, J., Lüpkes, C., **Schmitt, A. U.**, Hartmann, J., 2021: Modelling and parametrization of the convective flow over leads in sea ice and comparison with airborne observations. *Quarterly J. Royal Meteorol. Society*, 147, 914–943, doi:[10.1002/qj.3953](https://doi.org/10.1002/qj.3953)
- Mäkynen, M., Haapala, J., and 23 co-authors including **Schmitt, A. U.**, 2020: Satellite Observations for Detecting and Forecasting Sea-Ice Conditions: A Summary of Advances Made in the SPICES Project by the EU’s Horizon 2020 Programme. *Remote Sens.*, 12(1214), doi:[10.3390/rs12071214](https://doi.org/10.3390/rs12071214)
- Schmitt, A. U.** and Kaleschke, L., 2018: A Consistent Combination of Brightness Temperatures from SMOS and SMAP over Polar Oceans for Sea Ice Applications. *Remote Sens.*, 10(553), doi:[10.3390/rs10040553](https://doi.org/10.3390/rs10040553)
- Tetzlaff, A.**, Lüpkes, C. and Hartmann, J., 2015: Aircraft-based observations of the atmospheric boundary layer modification over Arctic leads. *Quarterly J. Royal Meteorol. Society*, 141(692), 2839–2856, doi:[10.1002/qj.2568](https://doi.org/10.1002/qj.2568)
- Tetzlaff, A.**, Lüpkes, C., Birnbaum, G., Hartmann, J., Nygård, T. and Vihma, T., 2014: Brief Communication: Trends in sea ice extent north of Svalbard and its impact on cold air outbreaks as observed in spring 2013. *The Cryosphere*, 8, 1757–1762, doi:[10.5194/tc-8-1757-2014](https://doi.org/10.5194/tc-8-1757-2014)
- Tetzlaff, A.**, Kaleschke, L., Lüpkes, C., Ament, F. and Vihma, T., 2013: The impact of heterogeneous surface temperatures on the 2-m air temperature over the Arctic Ocean under clear skies in spring. *The Cryosphere*, 7, 153–166, doi:[10.5194/tc-7-153-2013](https://doi.org/10.5194/tc-7-153-2013)
- Lüpkes, C., Vihma, T., Jakobson, E., König-Langlo, G. and **Tetzlaff, A.**, 2010: Meteorological observations from ship cruises during summer to the central Arctic: a comparison with reanalysis data. *Geophys. Res. Lett.*, 37, L09810, doi:[10.1029/2010GL042724](https://doi.org/10.1029/2010GL042724)

DATASETS

- Lüpkes, C., Hartmann, J., **Schmitt, A. U.**, Birnbaum, G., Vihma, T. and Michaelis, J. (2021): Airborne and dropsonde measurements in MCAOs during STABLE in March 2013 [dataset publication series]. PANGAEA, doi:[10.1594/PANGAEA.936635](https://doi.org/10.1594/PANGAEA.936635)
- Michaelis, J., Hartmann, J., **Schmitt, A. U.**, Birnbaum, G., Vihma, T., Lüpkes, C. (2023): High resolution aircraft measurements on three days over Wijdefjorden, Svalbard during the STABLE campaign in March 2013 [dataset publication series]. Alfred Wegener Institute, Helmholtz Centre for Polar and Marine Research, Bremerhaven, PANGAEA, doi:[10.1594/PANGAEA.961263](https://doi.org/10.1594/PANGAEA.961263)
- Schmitt, A.** and Kaleschke, L. (2018). Combined SMOS and SMAP sea ice thickness Arctic (1.0) [Data set]. Zenodo. doi:[10.5281/zenodo.1631855](https://doi.org/10.5281/zenodo.1631855)
- Schmitt, A.** and Kaleschke, L. (2018). SMAP L1B Brightness Temperatures Arctic (3.0) [Data set]. Zenodo. doi:[10.5281/zenodo.1627379](https://doi.org/10.5281/zenodo.1627379)
- Schmitt, A.** and Kaleschke, L. (2018). SMOS Brightness Temperatures at 40° incidence angle Arctic (Version v620) [Data set]. Zenodo. doi:[10.5281/zenodo.1631761](https://doi.org/10.5281/zenodo.1631761)