

Luisa von Albedyll (PhD)

Postdoctoral Researcher in Polar Remote Sensing

Contact

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Education

- 01/2019 – 11/2022 **Ph.D. in Physics** University of Bremen and Alfred Wegener Institute
- *passed with Summa cum Laude*
 - Focus: Sea ice dynamics from **satellite remote sensing** and sea ice thickness from airborne electromagnetic induction soundings
 - Thesis: Sea ice deformation and sea ice thickness change
- 10/2015 – 11/2018 **M. Sc. Environmental Physics** University of Bremen
- *passed with distinction*
 - Focus: Polar oceanography, **passive microwave remote sensing**
 - Thesis: Structure and variability of the circulation at tidal to intra-seasonal time scales near the 79 North Glacier
- 03/2017 – 04/2017
- Including **Masters Course: Remote Sensing of the Cryosphere**, University Centre in Svalbard (UNIS), Norway
- 10/2012 – 09/2015 **B. Sc. Geosciences** University of Potsdam
- *passed with distinction*
 - Focus: Time series analysis, past climate research in polar regions,
 - Thesis: ¹⁰Be concentrations in an ice core from Akademii Nauk (Russian Arctic) for validation of the age-depth relationship: development of a sample scheme
- 08/2014 – 12/2014
- Including **Bachelor Course: Arctic Geosciences**, UNIS, Norway

Professional Experience

Employments

- Since 10/2023 Climate Change Initiative Fellow and Postdoctoral Researcher, **European Space Agency** and **Alfred Wegener Institute** (Bremerhaven, Germany):
- Project ACCURATE: Unraveling the thermodynamic and dynamic contributions to Arctic sea ice thickness change using multiple **climate data records** and **climate models**
 - Analysis of satellite climate data records for sea ice thickness change
- 11/2022 – 10/2023 Postdoctoral Researcher, **Alfred Wegener Institute** (Bremerhaven, Germany) in the sea ice physics section:
- Climate observations from multiple satellite sensor systems
 - Arctic sea ice mass balance and sea ice dynamics
- 01/2019 – 11/2022 Ph.D. Student, **Alfred Wegener Institute** (Bremerhaven, Germany) in the sea ice physics section
- Modelling and satellite remote sensing of sea ice thickness change
 - Processing of SAR satellite images for sea ice drift and deformation
 - Field work in the Arctic Ocean

- 05/2017 – 07/2017 Intern, [World Glacier Monitoring Service](#) (Zürich, Switzerland)
- Glacier mass balances in Greenland retrieved from remote sensing (TanDEM-X)
 - Curation and **quality assurance** of glacier fluctuation data
- 03/2016 – 10/2016 Science Communicator, [Universum Science Center](#) (Bremen, Germany)
- Science communication: Educational programs and science shows for children and adults
- 01/2015 – 02/2015 Intern, [German Research Center for Geosciences \(GFZ\)](#), (Potsdam, Germany)
- Introduction to past climate research and quaternary geology
 - Analysis and lab work of varved lake sediments
- 11/2011 – 05/2012 Intern, [Fundación Progreso and Chile Ambiente](#) (Santiago, Chile)
- GIS-based analysis of the geomorphology of the Andes
 - Science communication: Development of a geomorphological field guide to increasing awareness for sustainability

Related activities

Since 2021 [Reviewing scientific articles](#) for different journals, including, e.g., The Cryosphere, Scientific Data, and Remote Sensing of environment

[Expeditions](#) to the Arctic Ocean:

- 2023 • **Charcot23** (Le Commandant Charcot: sea ice work on ice)
- 2020 • **MOSAIC Leg 4** (R/V *Polarstern*: sea ice work on-ice and with helicopters)
- 2018 • **MSM76**, (R/V *Maria S. Merian*): Oceanography work, **leader** of CTD watch
- 2017 • **PS109** (R/V *Polarstern*, *Arctic Ocean*): Oceanography work

2021 [Supervision of](#) Intern

[Convener](#) at international conferences:

- 2022 • 1st MOSAiC conference (Potsdam, Germany, Apr 25-29)
- 2023 • 2nd MOSAiC conference (Boulder, USA, Feb 13-17)
- 2023 • IGS (Bremerhaven, Germany, Jun 4-9)

Research focus

Topic: Arctic sea ice mass balance: Temporal and spatial evolution of dynamic thickness change, sea ice dynamics and sea ice leads.

Methods: Satellite remote sensing (SAR/Sentinel-1, altimetry/CryoSat-2)

Summer schools and workshops

- 2020 Sea Ice Deformation in Physics and Engineering (NTNU, Norway)
- 2018 ESA “Cryosphere remote sensing training course” (University Centre in Svalbard, Norway)
- 2017 EUMETSAT workshop “Using the Copernicus Marine Data Stream for Ocean Applications” (Oostende, Belgium)

Grants, awards, and scholarships

- 2022 [Wladimir Köppen Award](#) for outstanding Ph.D. thesis
- 2022 [Briese Award for Marine Research](#) for outstanding Ph.D. thesis
- 2022 [Alfred Wegener Institute’s award](#) for outstanding Ph.D. thesis

- 2022, 2023 **Travel grants** for early career scientists for the IGS, 1st and 2nd MOSAiC conference in Bremerhaven (Germany), Potsdam (Germany) and Boulder (USA)
- 2018, 2021 Two **Awards for the best poster** at Arctic Frontiers (Tromsø) and the 27th International Polar Conference (Rostock)
- 2018 Two **Awards for outstanding master thesis** awarded by Bruker Daltonik GmbH and OHB
- 2012-2018 State **scholarship** during University studies provided by Cusanuswerk

Institutional and associational Responsibilities

- since 2023 **Member of the International Glaciological Society**
- since 2018 **Member of the Deutsche Gesellschaft für Polarforschung**
- 2020/2021 **Reviewing applications** for the MOSAiC summer school (2019)
- since 2018 **Board member with a leading role** in the **Association of Polar Early Career Scientists (APECS)** Germany.
- **chair:** 2020/2021
 - **co-chair:** 2019/2020 and 2021/2022
- since 2019 **Outreach and Science Communication** in co-operation with APECS, ArcTrain, and AWI Media. Guest in podcasts, author of outreach articles, speaker at outreach events, active on YouTube (CryoSpace - Observing ice from satellites) and Twitter (@Lalbedyll). For examples, please see LinkedIn profile.

Language and Software Skills

- German Native
- English Fluent in speaking, reading, writing (TOEFL score 115/120)
- Spanish Basic command in speaking, reading, writing
- Typography LaTeX, Microsoft Office
- Scientific PYTHON, MATLAB, QGIS, ArcGIS, SNAP, Illustrator

International conferences (only first author contributions)

- 2023 Talk: New ice production in leads estimated from SAR-derived sea ice divergence, IGS, June 4-9, Bremerhaven
- 2023 Talk: 2nd International MOSAiC Science Conference, February 13-17, Boulder (USA)
- 2022 Talk: ESA Living Planet Symposium, May 23 –27, Bonn
- 2021 Talk+Poster: 1st International MOSAiC Science Conference, April 25 –29, Potsdam
- 2020 Virtual booth: Arctic Frontiers 2021, February 1-4, Tromsø (online)
- 2019 Talk: AGU Fall Meeting 2020, December 1 –17, Online
- 2019 Talk + poster: 9th International Workshop on Sea Ice Modelling, Data Assimilation and Verification, June 17, Bremen
- 2018 Poster: 27th International Polar Conference, March 25 –29 March, Rostock,

Scientific peer-reviewed publications (5 first-author, 12 co-author)

- 2023 Ringeisen, D., Hutter, N., and **von Albedyll, L.**: Deformation lines in Arctic sea ice: intersection angle distribution and mechanical properties, The Cryosphere, 17, 4047–4061, <https://doi.org/10.5194/tc-17-4047-2023>, 2023
- Itkin, P., Hendricks, S., Webster, M., **von Albedyll, L.**, Arndt, S., Divine, D., Jaggi, M., Oggier, M., Raphael, I., Ricker, R., Rohde, J., Schneebeil, M., Liston, G. E.: Sea ice and snow characteristics from year-long transects at the MOSAiC Central

Observatory, *Elementa: Science of the Anthropocene*, 11 (1): 00048
<https://doi.org/10.1525/elementa.2022.00048>, 2023

Neckel, N., Fuchs, N., Birnbaum, G., Hutter, N., Jutila, A., Buth, L., **von Albedyll**, L., Ricker, R., Haas, C.: Helicopter-borne RGB orthomosaics and photogrammetric digital elevation models from the MOSAiC Expedition. *Sci Data* 10, 426, <https://doi.org/10.1038/s41597-023-02318-5>, 2023

Clemens-Sewall, D., Polashenski, C., Frey, M. M., Cox, C. J., Granskog, M. A., Macfarlane, A. R., Fons, S.W., Schmale, J., Hutchings, J. K., **von Albedyll**, L., Arndt, S., Schneebeli, M., and Perovich, D.: Snow Loss Into Leads in Arctic Sea Ice: Minimal in Typical Wintertime Conditions, but High During a Warm and Windy Snowfall Event, *Geophysical Research Letters*, 50, <https://doi.org/10.1029/2023gl102816>, 2023

2022 **von Albedyll**, L., Hendricks, S., Grodofzig, R., Krumpfen, T., Arndt, S., Belter, H., Cheng, B., Birnbaum, G., Hoppmann, M., Hutchings, J., Itkin, P., Lei, R., Nicolaus, M., Ricker, R., Rohde, J., Suhrhoff, M., Timofeeva, A., Watkins, D., Webster, M., Haas, C.: Thermodynamic and dynamic contributions to seasonal Arctic sea ice thickness distributions from airborne observations, *Elementa: Science of the Anthropocene*, 10 (1): 00074. <https://doi.org/10.1525/elementa.2021.00074>, 2022

Smith, M.M., **von Albedyll**, L., Raphael, I.A., Lange, B.A., Matero, I., Salganik, E., Webster, M.A., Granskog, M.A., Fong, A., Lei, R., Light, B.: Quantifying false bottoms and under-ice meltwater layers beneath Arctic summer sea ice with fine-scale observations, *Elementa: Science of the Anthropocene*, 10 (1): 000116, <https://doi.org/10.1525/elementa.2021.000116>, 2022

Webster, M.A., Holland, M., Wright, N.C., Hendricks, S., Hutter, N., Itkin, P., Light, B., Linhardt, F., Perovich, D.K., Raphael, I.A., Smith, M.M., **von Albedyll**, L., Zhang, J.: Spatiotemporal evolution of melt ponds in the Arctic: MOSAiC observations and model results, *Elementa: Science of the Anthropocene*, 10 (1): 000072. <https://doi.org/10.1525/elementa.2021.000072>, 2022

Nicolaus, M., Perovich, D. K., Spreen, G., Granskog, M. A., **von Albedyll**, L., Angelopoulos, M., Anhaus, P., Arndt, S., Belter, H. J., Bessonov, V., Birnbaum, G., Brauchle, J., Calmer, R., Cardellach, E., Cheng, B., Clemens-Sewall, D., Dadic, R., Damm, E., de Boer, G., Demir, O., et al.: Overview of the MOSAiC expedition: Snow and sea ice, *Elementa: Science of the Anthropocene*, 10, <https://doi.org/10.1525/elementa.2021.000046>, 2022.

Jutila, A., Hendricks, S., Ricker, R., **von Albedyll**, L., Krumpfen, T., Haas, C.: Retrieval and parameterisation of sea-ice bulk density from airborne multi-sensor measurements, *The Cryosphere*, 16, 259–275, <https://doi.org/10.5194/tc-16-259-2022>, 2022.

2021 **von Albedyll**, L., Haas, C., and Dierking, W.: Linking sea ice deformation to ice thickness redistribution using high-resolution satellite and airborne observations, *The Cryosphere*, 15, 2167–2186, <https://doi.org/10.5194/tc-15-2167-2021>, 2021

von Albedyll, L., Schaffer, J., Kanzow, T.: Ocean Variability at Greenland's Largest Glacier Tongue Linked to Continental Shelf Circulation, *Journal of Geophysical Research: Oceans*, 126, <https://doi.org/10.1029/2020JC017080>, 2021

Krumpen T., **von Albedyll**, L., Goessling H.F., Hendricks S., Juhls B., Spreen G., Willmes S., Belter H.J., Dethloff K., Haas, C., Kaleschke L., Katlein C., Tian-Kunze X., Ricker R., Rostosky P., Rückert J., Singha S., Sokolova J.: MOSAiC drift expedition from October 2019 to July 2020: sea ice conditions from space and comparison with previous years. *The Cryosphere* 15(8): 3897–3920. <https://doi.org/10.5194/tc-15-3897-2021>, 2021

Belter, H. J., Krumpen, T., **von Albedyll**, L., Alekseeva, T. A., Birnbaum, G., Frolov, S. V., Hendricks, S., Herber, A., Polyakov, I., Raphael, I., Ricker, R., Serovetnikov, S. S., Webster, M., and Haas, C.: Interannual variability in Transpolar Drift summer sea ice thickness and potential impact of Atlantification, *The Cryosphere*, 15, 2575–2591, <https://doi.org/10.5194/tc-15-2575-2021>, 2021

2020 Krumpen, T., Birrien, F., Kauker, F., Rackow, T., **von Albedyll**, L., Angelopoulos, M., Belter, H. J., Bessonov, V., Damm, E., Dethloff, K., Haapala, J., Haas, C., Harris, C., Hendricks, S., Hoelemann, J., Hoppmann, M., Kaleschke, L., Karcher, M., Kolabutin, N., Lei, R., Lenz, J., Morgenstern, A., Nicolaus, M., Nixdorf, U., Petrovsky, T., Rabe, B., Rabenstein, L., Rex, M., Ricker, R., Rohde, J., Shimanchuk, E., Singha, S., Smolyanitsky, V., Sokolov, V., Stanton, T., Timofeeva, A., Tsamados, M., and Watkins, D.: The MOSAiC ice floe: sediment-laden survivor from the Siberian shelf, *The Cryosphere*, 14, 2173–2187, <https://doi.org/10.5194/tc-14-2173-2020>, 2020.

Schaffer, J., Kanzow, T., von Appen, W., **von Albedyll**, L., Arndt, J. E., Roberts, D. H.: Bathymetry constrains ocean heat supply to Greenland's largest glacier tongue. *Nat. Geosci.* 13, 227–231, <https://doi.org/10.1038/s41561-019-0529-x>, 2020.

2018 **von Albedyll**, L., Machguth, H., Nussbaumer, S. U., and Zemp, M.: Elevation changes of Holm Land Ice Cap, northeast Greenland, from 1978 to 2012–2015 derived from high-resolution digital elevation models, *Arctic, Antarctic, and Alpine Research*, <https://doi.org/10.1080/15230430.2018.1523638>, 2018

2017 **von Albedyll**, L., Opel, T., Fritzsche, D., Merchel, S., Laepple, T. and Rugel, G.: ¹⁰Be in the Akademii Nauk ice core – first results for CE 1590–1950 and implications for future chronology validation. *Journal of Glaciology*, <https://doi.org/10.1017/jog.2017.19>, 2017

Outreach peer-reviewed publications

2022 Loebel, E., **von Albedyll**, L., Mourot, R., and Nicola, L.: Let's talk fieldwork: early-career scientists sharing practical knowledge about polar fieldwork, *Polarforschung*, 90, 29–32, <https://doi.org/10.5194/polf-90-29-2022>, 2022.

2021 **von Albedyll**, L.: Polarfuchs (Kolumne), *Polarforschung*, 89, 115–117, <https://doi.org/10.5194/polf-89-115-2021>, 2021.