

# Dr. Arttu Jutila

## Curriculum vitae

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Arttu-Jutila

25 May 2023

## Personal Information

Nationality Finnish  
Date of Birth 18 February 1992  
Place of Birth Inari, Finland

## Education

- Jan 2018 – Mar 2022 **Doctor of Natural Sciences (Dr. rer. nat)**, Faculty 1 — Physics / Electrical Engineering, University of Bremen, Bremen, Germany  
Work carried out at the Alfred Wegener Institute, Helmholtz Centre for Polar and Marine Research, Bremerhaven, Germany.  
○ Thesis: *Advancing microwave radar retrievals of snow depth on sea ice: Toward full characterisation of the snow and sea-ice layers* | doi: [10.26092/elib/1455](https://doi.org/10.26092/elib/1455) | Magna cum laude (1.0)  
○ Supervisor: Prof. Dr. Christian Haas  
○ Member of the Helmholtz Graduate School for Polar and Marine Research (POL-MAR).
- Jun 2017 – Dec 2017 **Doctoral Studies in Snow and Ice Studies**, University of Helsinki, Helsinki, Finland  
Doctoral Programme in Atmospheric Sciences | Renounced
- Dec 2014 – May 2017 **Master of Science in Geophysics**, University of Helsinki, Helsinki, Finland  
○ Thesis: *3D-modeling of snow in the Saariselkä region during the winter 2015–2016* | handle: [10138/184892](https://hdl.handle.net/10138/184892) | Eximia cum laude approbatur  
○ Supervisor: Prof. Matti Leppäranta | Minor subject: Meteorology | GPA 4.0/5.0
- Mar 2016 – Jun 2016 **Studies Abroad in Arctic Geophysics and Arctic Geology**, The University Centre in Svalbard (UNIS), Longyearbyen, Norway  
20 ECTS. Officially enrolled in the University of Bergen, Bergen, Norway.
- Aug 2010 – Dec 2014 **Bachelor of Science in Geophysics**, University of Helsinki, Helsinki, Finland  
○ Thesis: *Lumen kantokyky ja siihen vaikuttavat metamorfoosiprosessit* (Literature review of the bearing capacity of snow and snow metamorphism, in Finnish)  
○ Supervisor: Prof. Matti Leppäranta | Minor subjects: Meteorology and Physics | GPA 4.0/5.0  
○ Non-attending during the academic year 2013 – 2014 due to military service.

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## Experience

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### Research Foci

Snow on sea ice, sea-ice mass balance, remote sensing of the cryosphere.  
Currently, I focus on sea-ice measurements using airborne radar, laser, and electromagnetic induction sounding instruments.

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### Employment

- Since Oct 2021 **Postdoctoral Researcher**, *Alfred Wegener Institute, Helmholtz Centre for Polar and Marine Research*, Bremerhaven, Germany  
Processing and analysis of airborne laser scanner data within the framework of the project IceSense — Remote sensing of the seasonal evolution of climate-relevant sea ice properties, funded by the German Ministry for Education and Research (BMBF)
- Jun 2021 – Oct 2021 **Visiting Researcher**, *Alfred Wegener Institute, Helmholtz Centre for Polar and Marine Research*, Bremerhaven, Germany  
Finalizing my doctoral thesis
- Jan 2018 – Jun 2021 **Doctoral Researcher**, *Alfred Wegener Institute, Helmholtz Centre for Polar and Marine Research*, Bremerhaven, Germany
- Processing airborne microwave radar data to retrieve snow depth on sea ice and colocating other airborne sea-ice measurements
  - Participating in field work (details below)
- Jun 2019 – Aug 2019 **Visiting Researcher**, *Environment and Climate Change Canada*, Toronto, Ontario, Canada  
As part of my doctorate, visiting Dr. Joshua King and colleagues at Climate Research Division to work on snow depth retrievals from airborne microwave radar data using wavelet method
- Jul 2017 – Dec 2017 **Doctoral Researcher**, *University of Helsinki*, Helsinki, Finland  
Teaching assistant (details below)
- Aug 2014 – Jun 2017 **Research Assistant**, *University of Helsinki*, Helsinki, Finland
- Glaciological studies related to glacier response, dynamics, and modelling in the work package “Interaction between the glacier surface layer and the atmosphere” of the project “Absorbing Aerosols and Fate of the Indian Glaciers (AAFIG)” together with the Finnish Meteorological Institute (FMI) and The Energy and Resources Institute of India (TERI)
  - Participating in field work (details below)
  - Teaching assistant (details below)
- Oct 2010 – Apr 2017 **Student Ambassador**, *University of Helsinki*, Helsinki, Finland  
Presenting studies and everyday student life in university, faculty, and subject level in upper secondary schools and in education fair events.
- Jun 2012 – Aug 2012 **Research Assistant**, *Sodankylä Geophysical Observatory*, Sodankylä, Finland
- Manufacturing equipment boxes for pulsation magnetometers including planning and developing of machining methods
  - Maintenance of DAFNE seismometers
  - Participating in the construction work of the Kilpisjärvi Atmospheric Imaging Receiver Array ([KAIRA](#)) in Kilpisjärvi
  - Acting as a measuring instrument duty officer

- Jun 2011 – Aug 2011 **University Trainee, Sodankylä Geophysical Observatory, Sodankylä, Finland**
- Making technical drawings of pulsation magnetometer with CADS software
  - Milling regulator circuit boards for pulsation magnetometers
  - Maintaining VLF loop antennas
  - Participating in the construction work of the Kilpisjärvi Atmospheric Imaging Receiver Array (**KAIRA**) in Kilpisjärvi
  - Acting as a measuring instrument duty officer

## Field Work

- Mar – Apr 2023 **Airborne surveys over Arctic sea ice, IceBird Winter 2023**, Research aircraft Polar 6: Inuvik, Resolute Bay, Eureka (Canada), Station Nord (Greenland), Longyearbyen (Svalbard)
- Mission co-PI, flight planning
  - Operation of snow radar and airborne laser scanner to measure snow depth and surface topography on sea ice.
- Dec 2019 – Mar 2020 **Helicopterborne surveys over Arctic sea ice, PS122/2: Multidisciplinary drifting Observatory for the Study of Arctic Climate (MOSAIC), leg 2, RV Polarstern: Central Arctic Ocean**
- Principal investigator of helicopterborne measurements on leg 2 of the expedition
  - Operation of airborne laser scanner and infrared camera to measure surface topography and temperature of sea ice
  - Assistance in various on-ice measurements
  - Polar bear guarding
- Apr 2019 **Airborne surveys over Arctic sea ice, IceBird Winter 2019**, Research aircraft Polar 6: Inuvik, Canada & Utqiagvik (Barrow), USA
- Operation of snow radar and airborne laser scanner to measure snow depth and surface topography on sea ice.
- Jul 2018 **Field course at the Vernagtferner Glacier, Ötztal Alps, Austria**
- Geological and glaciological field trip to Austrian Alps covering geophysical measurements, classical field glaciology as well as geodesy.
- May 2018 **Expedition to the Lincoln Sea in the Arctic Ocean, ALERT2018, CFS Alert, Ellesmere Island, Canada**
- Investigating snow on sea ice including snow pit studies and on-ice microwave radar measurements
  - Ground-based ice thickness surveys
  - Field logistics support
- Mar 2017 **Snow and Ice Field Course, Lammi Biological Station, Finland**
- Teaching assistant for the snow and ice measurements on the field.
- Apr – May 2016 **Field labs during the course Snow and Avalanche Dynamics, Svalbard, Norway**
- Field techniques for snow and avalanche research, detailed snow pit studies.
- Mar – Apr 2016 **Field trips during the course Remote Sensing of the Cryosphere, Svalbard, Norway**
- Weekly field trips related to snow and ice, including snow pit studies, electromagnetic induction sounding measurements of sea-ice thickness, structure from motion of avalanches.
- Mar 2016 **Expedition to the Bay of Bothnia in the Baltic Sea, Sea Ice 2016, RV Aranda**
- Assistance in measuring irradiance through sea ice and studying snow properties, maintaining the vessel's exhaust data logger.
- Feb 2016 **Field trip to Lammi and Lake Pääjärvi, Lammi Biological Station, Finland**
- Organising and teaching a practical field trip of the course Snow and Ice Geophysics.

- Oct 2015 **Expedition to the Sunderdhunga Glacier in the Indian Himalayas, AAFIG2015**  
Measurements of the glacier surface layer.
- Sep 2015 **Field course in Micrometeorology and Hydrology**, Hyytiälä Forestry Field Station, Finland  
Group work on eddy covariance flux measurements.
- Oct 2014 **Expedition to the Pindari Glacier in the Indian Himalayas, AAFIG2014**  
Measurements of the glacier surface layer.
- Mar 2013 **Field trip to the Baltic Sea, RV Aranda**  
Intercalibration of 22 CTD instruments during the course Measurement Methods in Hydrospheric Geophysics.

## Teaching Activities

- 2015 – 2017 **Teaching Assistant**, *University of Helsinki*, Helsinki, Finland  
Bachelor and Master level courses including weekly exercise sessions, field work, and cold lab work:
- Snow and Ice Geophysics, spring 2016 & autumn 2017
  - Snow and Ice Field Course, March 2017
  - Basics of Hydrology, spring 2015 & 2017
- Jan 2013 **Substitute Teacher**, *Ivalo Upper Secondary School*, Ivalo, Finland  
Teaching English (17 h), Swedish (3 h), and health education (2 h) for upper secondary school students.
- Apr 2010 **Substitute Teacher**, *The Sámi Education Institute*, Ivalo, Finland  
Teaching mathematics and physics (13 h) for vocational school students studying tourism and hotel, restaurant, and catering services.

## Summer/Winter Schools & Workshops

- Jul 2019 **2<sup>nd</sup> Snow Microwave Radiative Transfer (SMRT) model training workshop**, *University of Waterloo, Waterloo, Ontario, Canada*  
Lectures and practical exercises about the SMRT model.
- Feb 2018 **4<sup>th</sup> Snow Science Winter School**, *Col du Lautaret, France*  
Lectures and field exercises on modern snow measurement techniques.
- Feb 2018 **1<sup>st</sup> Snow Microwave Radiative Transfer (SMRT) model training workshop**, *Col du Lautaret, France*  
Lectures and practical exercises about the SMRT model.
- Oct 2017 **First Finse International Snow Workshop**, *Finse, Norway*  
Presentations on snow observations, modeling, and applications. Visiting the research site and instrumentation at Finse Alpine Research Center.
- May 2013 **Atmospheric Science Summer School**, *Hyytiälä Forestry Field Station, Finland*  
Lectures on modern atmospheric research, exercises, visiting research infrastructure at the Hyytiälä Forestry Field Station.
- Sep 2012 **Micro-DICE Summer School: Microstructures of ice and snow**, *Obergurgl, Austria*  
Lectures on recent developments in microstructural analysis of ice and snow, including theory, analysis, experiment and numerical modelling. Field visit to Rotmoosferner.

## Other

Jul 2013 – Jun 2014 **Military Service**, the NCO School of the Air Force Academy, Jyväskylä, Finland, and the Utti Jaeger Regiment, Kouvola, Finland, Corporal (in Finnish: alikersantti), Aviation Weather  
Weather observations and METAR weather reports for the Helicopter Battalion.

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## Publications and Presentations

Since 2018 Three peer-reviewed publications as first author, ten peer-reviewed publications as co-author.

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### Peer-reviewed

13. **Jutila, A.** & Haas, C. C and K band microwave penetration into snow on sea ice studied with off-the-shelf tank radars. *Annals of Glaciology*. Accepted (2023).
12. Neckel, N., Fuchs, N., Birnbaum, G., Buth, L., Hutter, N., **Jutila, A.**, von Albedyll, L., Ricker, R. & Haas, C. Helicopter-borne RGB orthomosaics and photogrammetric Digital Elevation Models from the MOSAiC Expedition. *Scientific Data*. Accepted (2023).
11. Ricker, R., Fons, S., **Jutila, A.**, Hutter, N., Duncan, K., Farrell, S. L., Kurtz, N. T. & Fredensborg Hansen, R. M. Linking scales of sea ice surface topography: evaluation of ICESat-2 measurements with coincident helicopter laser scanning during MOSAiC. *The Cryosphere* **17**, 1411–1429. doi:[10.5194/tc-17-1411-2023](https://doi.org/10.5194/tc-17-1411-2023) (2023).
10. Thielke, L., Fuchs, N., Spreen, G., Tremblay, B., Birnbaum, G., Huntemann, M., Hutter, N., Itkin, P., **Jutila, A.** & Webster, M. A. Preconditioning of Summer Melt Ponds From Winter Sea Ice Surface Temperature. *Geophysical Research Letters* **50**, e2022GL101493. doi:[10.1029/2022GL101493](https://doi.org/10.1029/2022GL101493) (2023).
9. **Jutila, A.**, Hendricks, S., Ricker, R., von Albedyll, L., Krumpen, T. & Haas, C. Retrieval and parameterisation of sea-ice bulk density from airborne multi-sensor measurements. *The Cryosphere* **16**, 259–275. doi:[10.5194/tc-16-259-2022](https://doi.org/10.5194/tc-16-259-2022) (2022).
8. **Jutila, A.**, King, J., Paden, J., Ricker, R., Hendricks, S., Polashenski, C., Helm, V., Binder, T. & Haas, C. High-Resolution Snow Depth on Arctic Sea Ice From Low-Altitude Airborne Microwave Radar Data. *IEEE Transactions on Geoscience and Remote Sensing* **60**, 4300716. doi:[10.1109/TGRS.2021.3063756](https://doi.org/10.1109/TGRS.2021.3063756) (2022).
7. 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., Dethloff, K., Divine, D. V., Fong, A. A., Fons, S., Frey, M. M., Fuchs, N., Gabarró, C., Gerland, S., Goessling, H. F., Gradinger, R., Haapala, J., Haas, C., Hamilton, J., Hannula, H.-R., Hendricks, S., Herber, A., Heuzé, C., Hoppmann, M., Høyland, K. V., Huntemann, M., Hutchings, J. K., Hwang, B., Itkin, P., Jacobi, H.-W., Jaggi, M., **Jutila, A.**, Kaleschke, L., Katlein, C., Kolabutin, N., Krampe, D., Kristensen, S. S., Krumpen, T., Kurtz, N., Lampert, A., Lange, B. A., Lei, R., Light, B., Linhardt, F., Liston, G. E., Loose, B., Macfarlane, A. R., Mahmud, M., Matero, I. O., Maus, S., Morgenstern, A., Naderpour, R., Nandan, V., Niubom, A., Oggier, M., Oppelt, N., Pätzold, F., Perron, C., Petrovsky, T., Pirazzini, R., Polashenski, C., Rabe, B., Raphael, I. A., Regnery, J., Rex, M., Ricker, R., Riemann-Campe, K., Rinke, A., Rohde, J., Salganik, E., Scharien, R. K., Schiller, M., Schneebeli, M., Semmling, M., Shimanchuk, E., Shupe, M. D., Smith, M. M., Smolyanitsky, V., Sokolov, V., Stanton, T., Stroeve, J., Thielke, L., Timofeeva, A., Tonboe, R. T., Tavri, A., Tsamados, M., Wagner, D. N., Watkins, D., Webster, M. & Wendisch, M. Overview of the MOSAiC expedition: Snow and sea ice. *Elementa: Science of the Anthropocene* **10**, 000046. doi:[10.1525/elementa.2021.000046](https://doi.org/10.1525/elementa.2021.000046) (2022).

6. Thielke, L., Huntemann, M., Hendricks, S., **Jutila, A.**, Ricker, R. & Spreen, G. Sea ice surface temperatures from helicopter-borne thermal infrared imaging during the MOSAiC expedition. *Scientific Data* **9**, 364. doi:[10.1038/s41597-022-01461-9](https://doi.org/10.1038/s41597-022-01461-9) (2022).
5. Anhaus, P., Katlein, C., Nicolaus, M., Arndt, S., **Jutila, A.** & Haas, C. Snow Depth Retrieval on Arctic Sea Ice Using Under-Ice Hyperspectral Radiation Measurements. *Frontiers in Earth Science* **9**, 711306. doi:[10.3389/feart.2021.711306](https://doi.org/10.3389/feart.2021.711306) (2021).
4. Kari, E., **Jutila, A.**, Friedrichs, A., Leppäranta, M. & Kratzer, S. Measurements of light transfer through drift ice and landfast ice in the northern Baltic Sea. *Oceanologia* **62**, 347–363. doi:[10.1016/j.oceano.2020.04.001](https://doi.org/10.1016/j.oceano.2020.04.001) (2020).
3. Katlein, C., Mohrholz, V., Sheikin, I., Itkin, P., Divine, D. V., Stroeve, J., **Jutila, A.**, Krampe, D., Shimanchuk, E., Raphael, I., Rabe, B., Kuznetsov, I., Mallet, M., Liu, H., Hoppmann, M., Fang, Y.-C., Dumitrascu, A., Arndt, S., Anhaus, P., Nicolaus, M., Matero, I., Oggier, M., Eicken, H. & Haas, C. Platelet Ice Under Arctic Pack Ice in Winter. *Geophysical Research Letters* **47**, e2020GL088898. doi:[10.1029/2020GL088898](https://doi.org/10.1029/2020GL088898) (2020).
2. Lange, B. A., Haas, C., Charette, J., Katlein, C., Campbell, K., Duerksen, S., Coupel, P., Anhaus, P., **Jutila, A.**, Tremblay, P. O. G., Carlyle, C. G. & Michel, C. Contrasting Ice Algae and Snow-Dependent Irradiance Relationships Between First-Year and Multiyear Sea Ice. *Geophysical Research Letters* **46**, 10834–10843. doi:[10.1029/2019GL082873](https://doi.org/10.1029/2019GL082873) (2019).
1. Svensson, J., Ström, J., Kivekäs, N., Dkhar, N. B., Tayal, S., Sharma, V. P., **Jutila, A.**, Backman, J., Virkkula, A., Ruppel, M., Hyvärinen, A., Kontu, A., Hannula, H.-R., Leppäranta, M., Hooda, R. K., Korhola, A., Asmi, E. & Lihavainen, H. Light-absorption of dust and elemental carbon in snow in the Indian Himalayas and the Finnish Arctic. *Atmospheric Measurement Techniques* **11**, 1403–1416. doi:[10.5194/amt-11-1403-2018](https://doi.org/10.5194/amt-11-1403-2018) (2018).

### Preprints in Review

1. Nandan, V., Willatt, R., Mallett, R., Stroeve, J., Geldsetzer, T., Scharien, R., Tonboe, R., Landy, J., Clemens-Sewall, D., **Jutila, A.**, Wagner, D. N., Krampe, D., Huntemann, M., Yackel, J., Mahmud, M., Jensen, D., Newman, T., Hendricks, S., Spreen, G., Macfarlane, A., Schneebeli, M., Mead, J., Ricker, R., Gallagher, M., Duguay, C., Raphael, I., Polashenski, C., Tsamados, M., Matero, I. & Hoppman, M. Wind Transport of Snow Impacts Ka- and Ku-band Radar Signatures on Arctic Sea Ice. *The Cryosphere Discussions [preprint]*, 1–38. doi:[10.5194/tc-2022-116](https://doi.org/10.5194/tc-2022-116) (2022).

### Theses

2. **Jutila, A.** *Advancing microwave radar retrievals of snow depth on sea ice: toward full characterisation of the snow and sea-ice layers*. Doctoral thesis (Universität Bremen, 2022). doi:[10.26092/elib/1455](https://doi.org/10.26092/elib/1455).
1. **Jutila, A.** *3D-modeling of snow in the Saarisekä region during the winter 2015-2016*. handle:[10138/184892](https://doi.org/10.10138/184892). Master's thesis (University of Helsinki, 2017).

### Data Sets

9. Hendricks, S., **Jutila, A.**, Birnbaum, G., von Albedyll, L., Ricker, R., Hutter, N. & Haas, C. *Helicopter position and attitude during laser scanner flights of the MOSAiC expedition, version 1*. [64 data sets]. doi:[10.1594/PANGAEA.950278](https://doi.org/10.1594/PANGAEA.950278). 2022.
8. Hutter, N., Hendricks, S., **Jutila, A.**, Birnbaum, G., von Albedyll, L., Ricker, R. & Haas, C. *Gridded segments of sea-ice or snow surface elevation and freeboard from helicopter-borne laser scanner during the MOSAiC expedition, version 1*. [64 data sets]. Data set in review. doi:[10.1594/PANGAEA.950339](https://doi.org/10.1594/PANGAEA.950339). 2022.

7. Hutter, N., Hendricks, S., **Jutla, A.**, Birnbaum, G., von Albedyll, L., Ricker, R. & Haas, C. *Merged grids of sea-ice or snow freeboard from helicopter-borne laser scanner during the MOSAiC expedition, version 1.* [35 data sets]. Data set in review. doi:[10.1594/PANGAEA.950896](https://doi.org/10.1594/PANGAEA.950896). 2022.
6. **Jutla, A.**, Hendricks, S., Birnbaum, G., von Albedyll, L., Ricker, R., Helm, V., Hutter, N. & Haas, C. *Geolocated sea-ice or snow surface elevation point cloud segments from helicopter-borne laser scanner during the MOSAiC expedition, version 1.* [64 data sets]. Data set in review. doi:[10.1594/PANGAEA.950509](https://doi.org/10.1594/PANGAEA.950509). 2022.
5. **Jutla, A.**, Hendricks, S., Ricker, R., von Albedyll, L. & Haas, C. *Airborne sea ice parameters during the IceBird Winter 2019 campaign in the Arctic Ocean, version 1.* [Five data sets]. 2021. doi:[10.1594/PANGAEA.933912](https://doi.org/10.1594/PANGAEA.933912).
4. **Jutla, A.**, Hendricks, S., Ricker, R., von Albedyll, L. & Haas, C. *Airborne sea ice parameters during the PAMARCMIP2017 campaign in the Arctic Ocean, version 1.* [Four data sets]. 2021. doi:[10.1594/PANGAEA.933883](https://doi.org/10.1594/PANGAEA.933883).
3. **Jutla, A.**, King, J., Ricker, R., Hendricks, S., Helm, V. & Binder, T. *Airborne high-altitude snow depth on sea ice during aircraft flight P6\_211\_RESURV79\_2018\_1804100301, Version 1.* [One data set]. 2021. doi:[10.1594/PANGAEA.932702](https://doi.org/10.1594/PANGAEA.932702).
2. **Jutla, A.**, King, J., Ricker, R., Hendricks, S., Helm, V., Binder, T. & Haas, C. *Airborne snow depth on sea ice during the IceBird Winter 2019 campaign in the Arctic Ocean, Version 1.* [Seven data sets]. 2021. doi:[10.1594/PANGAEA.932790](https://doi.org/10.1594/PANGAEA.932790).
1. **Jutla, A.**, King, J., Ricker, R., Hendricks, S., Helm, V., Binder, T. & Herber, A. *Airborne snow depth on sea ice during the PAMARCMIP2017 campaign in the Arctic Ocean, Version 1.* [Six data sets]. 2021. doi:[10.1594/PANGAEA.932668](https://doi.org/10.1594/PANGAEA.932668).

## Reviewing Activity

Since 2022 Geophysical Research Letters

Since 2019 IEEE Transactions on Geoscience and Remote Sensing

IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing

## Presentations

Since 2015 Participation in seven international conferences, four oral presentations, six invited seminar talks.

30. **Jutla, A.** [Talk] *Multi-sensor airborne observations of Arctic Sea Ice: Recent results from the AWI IceBird Winter 2023 campaign in International Glaciological Society's Global Seminar Series, virtual, 3 May 2023.* url: [https://youtu.be/LtgS7iDaD\\_w](https://youtu.be/LtgS7iDaD_w) (2023).
29. **Jutla, A.**, Hutter, N., Hendricks, S., Ricker, R., Albedyll, L., Birnbaum, G. & Haas, C. [Talk] *MOSAIC airborne laser scanning of the sea-ice surface: data product overview and insights to seasonal roughness evolution in 2nd MOSAiC Science Conference, Boulder, Colorado, USA, 13–17 February 2023* (2023). doi:[10013/epic.3e3d86d9-55f2-410e-9042-912e0d3233d8](https://doi.org/10.10013/epic.3e3d86d9-55f2-410e-9042-912e0d3233d8).
28. Ricker, R., Fons, S., **Jutla, A.\***, Hutter, N., Duncan, K., Farrell, S. L., Kurtz, N. T. & Hansen, R. M. F. [Poster] *Linking scales of sea ice surface topography: evaluation of ICESat-2 measurements with coincident helicopter laser scanning during MOSAiC in 2nd MOSAiC Science Conference, Boulder, Colorado, USA, 13–17 February 2023* (2023). \*Presenting author.
27. Hutter, N., Bitz, C., von Albedyll, L., Hendricks, S. & **Jutla, A.** [Poster] *Observations of sea-ice deformation and floe interaction from satellite observations and airborne laser scanner surveys during MOSAiC in International MOSAiC Science Conference, Potsdam, Germany, 25–29 April 2022* (2022). doi:[10013/epic.7d3cb787-81d1-4922-b320-0eb836530b1e](https://doi.org/10.10013/epic.7d3cb787-81d1-4922-b320-0eb836530b1e).

26. **Jutila, A.** [Invited talk] *Sea-ice (and snow) observation methods — examples from MOSAiC 2019/20 in Seminar: Particularities of polar climate observations, Modern Aspects in Climate Physics I: Polar Climate, Christian-Albrechts-Universität zu Kiel & GEOMAR, Kiel, Germany and virtual, 15 February 2022 (2022).*
25. **Jutila, A.** & Haas, C.\*. [Talk] *C- and K-band microwave penetration into snow on sea ice studied with off-the-shelf tank radars in The International Glaciological Society's (IGS) International Symposium on Snow, Davos, Switzerland, 25–30 September 2022 (2022).* \*Presenting author.
24. **Jutila, A.**, Hendricks, S., Ricker, R., von Albedyll, L., Krumpfen, T., Hutter, N., Birnbaum, G. & Haas, C. [Talk] *Multi-sensor airborne observations of freeboard, snow depth, and sea-ice thickness in the Arctic in ESA Living Planet Symposium 2022, Bonn, Germany, 23–27 May 2022 (2022).* doi:[10013/epic.e47fdd72-13e5-4edd-beaf-10ad1db03c3d](https://doi.org/10.10013/epic.e47fdd72-13e5-4edd-beaf-10ad1db03c3d).
23. **Jutila, A.**, Hutter, N., Hendricks, S., Ricker, R., von Albedyll, L., Birnbaum, G. & Haas, C. [Poster] *Kilometer-scale digital elevation models of the sea ice surface with airborne laser scanning during MOSAiC in International MOSAiC Science Conference, Potsdam, Germany, 25–29 April 2022 (2022).* doi:[10013/epic.6e57f8c2-0d63-43f3-8b32-3a732636601e](https://doi.org/10.10013/epic.6e57f8c2-0d63-43f3-8b32-3a732636601e).
22. Anhaus, P., Katlein, C., Nicolaus, M., Arndt, S., **Jutila, A.** & Haas, C. [Talk] *Snow Depth Retrieval using Under-Ice Hyperspectral Radiation Measurements in Arctic Frontiers 2021, Tromsø, Norway and virtual, 1–4 February 2021 (2021).* doi:[10013/epic.4f318422-1d2b-4dcc-a35b-917fecf9949d](https://doi.org/10.10013/epic.4f318422-1d2b-4dcc-a35b-917fecf9949d).
21. Hutter, N., Hendricks, S., **Jutila, A.\***, Ricker, R., von Albedyll, L., Birnbaum, G. & Haas, C. [eLightning talk] *Kilometer-scale digital elevation models of the sea ice surface during MOSAiC with Airborne Laserscanning (ALS) in AGU Fall Meeting 2021, New Orleans, LA, USA and virtual, 13–17 December 2021 (2021).* doi:[10013/epic.6653caac-62d8-40cb-8f87-430814842eac](https://doi.org/10.10013/epic.6653caac-62d8-40cb-8f87-430814842eac). \*Presenting author.
20. **Jutila, A.** [Invited talk] *On the consistency of airborne sea-ice thickness, freeboard, and snow depth measurements in the late-winter Arctic: application to sea ice bulk density in CIRFA Seminar, Centre for integrated remote sensing and forecasting for Arctic operations (CIRFA), Tromsø, Norway and virtual, 15 April 2021 (2021).*
19. **Jutila, A.** [Invited talk] *On the consistency of airborne sea-ice thickness, freeboard, and snow depth measurements in the late-winter Arctic: application to sea ice bulk density in Marine research seminar, Finnish Meteorological Institute, Helsinki, Finland and virtual, 2 March 2021 (2021).*
18. **Jutila, A.** [Talk] *On the consistency of airborne sea-ice thickness, freeboard, and snow depth measurements in the late-winter Arctic: application to sea ice bulk density in Seminar Ocean, Ice and Atmosphere, Institute of Environmental Physics, University of Bremen, Bremen, Germany and virtual, 4 May 2021 (2021).*
17. **Jutila, A.**, Hendricks, S., Ricker, R., von Albedyll, L., Krumpfen, T. & Haas, C. [Poster] *Observing the Relationship Between Freeboard, Snow Depth, and Sea-Ice Thickness: Recent Advances in the AWI IceBird Campaigns in AGU Fall Meeting 2021, New Orleans, LA, USA and virtual, 13–17 December 2021 (2021).* doi:[10.1002/essoar.10508914.1](https://doi.org/10.1002/essoar.10508914.1).
16. **Jutila, A.** [Flash talk] *High-resolution snow depth on Arctic sea ice from low-altitude airborne microwave radar data in AWI Science Meeting, Alfred Wegener Institute, Bremerhaven, Germany, and virtual, 3–4 December 2020 (2020).*

15. Katlein, C., Mohrholz, V., Sheikin, I., Itkin, P., Divine, D. V., Stroeve, J., **Jutila, A.**, Krampe, D., Shimanchuk, E., Raphael, I., Rabe, B., Kuznetsov, I., Mallet, M., Liu, H., Hoppmann, M., Fang, Y., Dumitrascu, A., Arndt, S., Anhaus, P., Nicolaus, M., Matero, I., Oggier, M., Eicken, H. & Haas, C. [*eLightning talk*] *Platelet Ice under Arctic Pack Ice in Winter* in *AGU Fall Meeting 2020 and virtual, 1–17 December 2020* (2020). doi:[10013/epic.320ba9dd-acc9-4061-b82a-0782317cbb90](https://doi.org/10.10013/epic.320ba9dd-acc9-4061-b82a-0782317cbb90).
  14. Anhaus, P., Katlein, C., Nicolaus, M., Matero, I., Arndt, S., **Jutila, A.** & Haas, C. [*Talk*] *Snow-related variability of spectral light transmittance of Arctic First-Year-Ice in the Lincoln Sea* in *The International Glaciological Society's (IGS) International Symposium on Sea Ice at the Interface, Winnipeg, Canada, 18–23 August 2019* (2019). doi:[10013/epic.78920ae1-d069-4f23-8e01-5a0988212dcf](https://doi.org/10.10013/epic.78920ae1-d069-4f23-8e01-5a0988212dcf).
  13. Arndt, S., Paul, S., Stoll, N., **Jutila, A.** & King, J. [*Talk*] *Spatial scales of seasonal snow property variations on Antarctic sea ice* in *The International Glaciological Society's (IGS) International Symposium on Sea Ice at the Interface, Winnipeg, Canada, 18–23 August 2019* (2019). doi:[10013/epic.62123b03-f777-46c8-85e5-1fd29a1cf347](https://doi.org/10.10013/epic.62123b03-f777-46c8-85e5-1fd29a1cf347).
  12. Arndt, S., Stoll, N., **Jutila, A.** & Paul, S. [*Talk*] *Small-scale variability of snow properties on sea ice: from snow pits to the SnowMicroPen* in *76th Eastern Snow Conference, Fairlee, Vermont, USA, 4–6 June 2019* (2019). doi:[10013/epic.3a6a3a19-784a-479c-991a-51a3a121f2c0](https://doi.org/10.10013/epic.3a6a3a19-784a-479c-991a-51a3a121f2c0).
  11. Hendricks, S., Haas, C.\*, Krumpen, T., Herber, A., Birnbaum, G., Ricker, R. & **Jutila, A.\***. [*Poster*] *IceBird - A Pan-Arctic Airborne Sea Ice Observation System* in *The International Glaciological Society's (IGS) International Symposium on Sea Ice at the Interface, Winnipeg, Canada, 18–23 August 2019* (2019). doi:[10013/epic.a618874a-1f45-400c-9191-33dbfc348abc](https://doi.org/10.10013/epic.a618874a-1f45-400c-9191-33dbfc348abc).
- \*Presenting author.
10. **Jutila, A.** [*Flash talk*] *Snow depth on Arctic sea ice derived from airborne radar measurements in AWI PhD Days, Alfred Wegener Institute, Potsdam, Germany, 4–7 June 2019* (2019).
  9. **Jutila, A.**, Ricker, R., Hendricks, S., Paden, J., King, J., Polashenski, C., Lange, B., Michel, C. & Haas, C. [*Talk*] *Snow depth on Arctic sea ice derived from airborne radar measurements* in *The International Glaciological Society's (IGS) International Symposium on Sea Ice at the Interface, Winnipeg, Canada, 18–23 August 2019* (2019). doi:[10013/epic.8a0fef52-f10e-4e71-a1d1-ed4503da796b](https://doi.org/10.10013/epic.8a0fef52-f10e-4e71-a1d1-ed4503da796b).
  8. Anhaus, P., Katlein, C., **Jutila, A.**, Nicolaus, M. & Haas, C. [*Poster*] *Spectral Light Transmittance of Arctic Sea Ice* in *7th FAMOS Meeting 2018, Bergen, Norway, 23–26 October 2018* (2018). doi:[10013/epic.9033e6c9-e715-43d4-bd9a-1013a921fef7](https://doi.org/10.10013/epic.9033e6c9-e715-43d4-bd9a-1013a921fef7).
  7. **Jutila, A.** [*Invited talk*] *Lumen fysiikka ja ekologia muuttuvassa ilmastossa (Snow physics and ecology in the changing climate, in Finnish)* in *Autumn meeting of the biology and geography teachers union (BMOL ry), Finnish Science Centre Heureka, Vantaa, Finland, 18 November 2017* (2017).
  6. **Jutila, A.** [*Invited talk*] *Spatially distributed high-resolution snow evolution modeling* in *7th National Seminar on Snow on the Day of Pyry, Finnish Meteorological Institute, Helsinki, Finland, 1 November 2017* (2017).
  5. **Jutila, A.** [*Talk*] *3D-modeling of snow in the Saariselkä region during the winter 2015–2016* in *First Finse International Snow Workshop, Finse, Norway, 10–12 October 2017* (2017).
  4. **Jutila, A.** [*Talk*] *Interaction between the glacier surface layer and the atmosphere in the Indian glaciers — experiences in pictures* in *Finnish-Japanese early career arctic scientists (ECAS) workshop, Helsinki, Finland, 17 October 2016* (2016).

3. **Juttila, A.**, Hyvärinen, A.-P., Honkanen, H., Hooda, R. K., Tayal, S., Svensson, J., Sharma, V. P., Lihavainen, H. & Leppäranta, M. [Poster] *Interaction between the glacier surface layer and the atmosphere in the Indian glaciers in The International Glaciological Society's (IGS) Nordic Branch Meeting, Tromsø, Norway, 26–28 October 2016* (2016).
2. **Juttila, A.** [Invited lecture] *Lumi fysiikan näkökulmasta (Snow in physics point of view, in Finnish), A two-hour lesson to vocational degree students of reindeer husbandry and nature studies in The Sámi Education Institute, Kaamanen, Finland, 2 April 2015* (2015).
1. **Juttila, A.**, Hyvärinen, A.-P., Hooda, R. K., Tayal, S., Svensson, J., Sharma, V. P., Lihavainen, H. & Leppäranta, M. [Poster] *Interaction between the glacier surface layer and the atmosphere in the Indian glaciers in The International Glaciological Society's (IGS) International Symposium on Glaciology in High-Mountain Asia, Kathmandu, Nepal, 2–6 March 2015* (2015).

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## Grants and Scholarships

- Dec 2022 **MOSAiC Conference ECR travel award**, *2nd MOSAiC Science Conference*, 1000 USD  
To attend the 2nd MOSAiC Science Conference in Boulder, Colorado, USA, on 13–17 February 2023.
- May 2019 **IGS Student Travel Award**, *IGS Sea Ice Symposium*, 1000 CAD  
To attend the International Glaciological Society's (IGS) Symposium 'Sea Ice at the Interface' in Winnipeg, Canada, on 18–23 August 2019.
- Oct 2018 **Short-term research grant**, *The Helmholtz Graduate School for Polar and Marine Research (POLMAR), Bremerhaven, Germany*, 7000 EUR  
For a two-month research stay abroad at Environment and Climate Change Canada in Jun–Aug 2019.
- May 2016 **Travel grant**, *The Jubilee Fund, University of Helsinki, Helsinki, Finland*, 700 EUR  
For undergraduate studies abroad.
- Feb 2016 **Scholarship and travel grant**, *Nordplus, Helsinki, Finland*, 880 EUR  
Nordplus exchange program scholarship and travel grant for studies abroad.
- Feb 2016 **Scholarship**, *Pohjois-Pohjalainen Osakunta, Helsinki, Finland*, 1000 EUR  
A.V.V. Mikkola memorial scholarship for studies abroad.
- Feb 2012 **Travel grant**, *Maa- ja vesitekniikan tuki ry, Helsinki, Finland*, 500 EUR  
To attend the Micro-DICE Summer School on Microstructures of ice and snow in Obergurgl, Austria, on 26 August – 1 September 2012.

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## Outreach

- Sep 2022 **Blog post**, *On the life-cycle of a snowflake or completing a PhD in COVID times*, about my personal experiences during my doctoral studies:  
<https://tressacademic.com/snowflake-phd/>
- Jan 2022 **Short article**, *Greater than the sum of its parts: airborne multi-instrument sea-ice observations*, about airborne sea-ice bulk density measurements at [seaiceportal.de](https://www.meereisportal.de/en/news-overview/news-detail-view/greater-than-the-sum-of-its-parts-airborne-multi-instrument-sea-ice-observations):  
<https://www.meereisportal.de/en/news-overview/news-detail-view/greater-than-the-sum-of-its-parts-airborne-multi-instrument-sea-ice-observations>
- Jan 2021 **Interview for short article**, *Lumi (in Finnish)*, about snow in the daily regional newspaper *Keskisuomalainen*
- May 2020 **Interview for article**, *Tutkimusmatkalla Arktiksen sydämessä (in Finnish)*, about the MOSAiC expedition in the weekly local newspaper *Inarilainen*

- May 2020 **Short article**, *Sea Ice Ticker* Nr. 34, 15 May 2020: *MOSAIC's eyes in the sky*, about the MOSAiC helicopter measurements at *seaiceportal.de*  
<https://www.meereisportal.de/en/mosaic/sea-ice-ticker/>
- Jan – Feb 2020 **Daily updates**, *Airborne Laser Scanner & A dream comes true*, in the MOSAiC app  
[https://follow.mosaic-expedition.org/blog/mosaic\\_4-1-20/?lang=en](https://follow.mosaic-expedition.org/blog/mosaic_4-1-20/?lang=en)  
[https://follow.mosaic-expedition.org/blog/mosaic\\_13-02-20/?lang=en](https://follow.mosaic-expedition.org/blog/mosaic_13-02-20/?lang=en)
- Feb 2017 **Interview for short profile article**, *Lumen ja jään jäljillä (in Finnish)*, in the science magazine *Yliopisto* by the University of Helsinki  
<https://www.helsinki.fi/fi/uutiset/ilmasto-ja-luonnon-monimuotoisuus/lumen-ja-jaan-jaljilla>
- Mar 2016 **Interview**, in a special report of daily regional TV news about sea-ice measurements in the Baltic Sea (in Finnish)

## Memberships

- Since 2022 International Association of Cryospheric Sciences (IACS)  
 Since 2020 American Geophysical Union (AGU)  
 Since 2015 International Glaciological Society (IGS)  
 Since 2015 Association of Polar Early Career Scientists (APECS)  
 2012 – 2017 Geophysical Society of Finland  
 2010 – 2017 Geysir ry, *Helsinki, Finland*  
 Secretary of the Board (2012), Member of the Board (2011).  
 2010 – 2017 Pohjois-Pohjalainen Osakunta, *Helsinki, Finland*  
 Several positions, including Chairman of the Board (2015).

## Skills

### Languages

- Finnish Native language  
 English Fluent  
 Swedish Good  
 German Intermediate  
 Northern Sámi Basic

### Computer

- Scientific Python, MATLAB, ArcGIS, QGIS, ERDAS Imagine, ENVI, CAD(S), IDL, Fortran, Java  
 Typography L<sup>A</sup>T<sub>E</sub>X, Microsoft Office  
 OS Windows, Linux/Unix

### Other

- Seafarer Basic Safety Training STCW A-VI/1, valid until 1 October 2024  
 Finnish (EU) driver's license, classes B and T, since 31 March 2010