



# Andreas PLACH

DATE OF BIRTH November 12<sup>th</sup>, 1984

NATIONALITY Austrian

## EDUCATION

- 09/2015 TO 03/2019 **PhD in Earth Science** - Univ. Bergen, Norway  
Focused on the design, execution and analysis of **numerical simulation of climate-ice interaction** in Greenland during the Eemian interglacial period (MIS5e; approx. 130,000 – 115,000 years ago; as an analogue for warmer future climate conditions). **Extensively analysed global and regional climate simulations** and used several surface mass balance (SMB) models. **Performed** ice sheet **simulations** with a 3D higher-order, finite-element ice sheet model (Ice Sheet System Model; ISSM) **on high-performance computer (HPC) clusters**. Within the ERC-funded ice2ice project which consisted of a very diverse group of modelers and observationalists (about 100 members).  
Thesis: **“Simulation of the Eemian Greenland ice sheet”**  
supervised by [Kerim Hestnes Nisancioglu](#), [Andreas Born](#), [Bo Møllesø Vinther](#)  
Download link: [http://bora.uib.no/bitstream/handle/1956/19443/Andreas%20Plach\\_Elektronisk.pdf?sequence=1&isAllowed=y](http://bora.uib.no/bitstream/handle/1956/19443/Andreas%20Plach_Elektronisk.pdf?sequence=1&isAllowed=y)
- 10/2011 TO 11/2013 **Master in Physics** (with distinction) - Univ. Graz, Austria  
Focused on Geophysics with the elective **Atmospheric Physics and Climate**  
Thesis: **“Atmospheric wind profiling based on LEO-LEO infrared-laser occultation”**  
supervised by [Gottfried Kirchengast](#), [Veronika Proschek](#)  
Download link: <http://wegcwww.uni-graz.at/publ/wegcreports/2014/WCV-SciRep-No57-APlach-Feb2014.pdf>
- 01/2009 TO 10/2011 **Master in Environmental System Sciences** (with distinction) - Univ. Graz, Austria  
Focused on Geography with the elective **Mountain and Climate Geography**  
Thesis: **“Modelling of the water balance for the catchment of the Enns river (Styria)”**  
supervised by [Ulrich Strasser](#)  
Download link (German): <http://unipub.uni-graz.at/obvugrhs/download/pdf/216559?originalFilename=true>
- 10/2005 TO 07/2011 **Bachelor in Physics / Bachelor in Environmental System Sciences** - Univ. Graz, Austria

## WORK EXPERIENCE

- since 07/2020 **Postdoc Researcher**, Dept. of Meteorology and Geophysics, Univ. Vienna  
In the research group of [Prof. Andreas Stohl](#) – atmospheric transport modelling
- since 07/2020 affiliated as a **Postdoc Researcher**, Physics Inst., Climate and Environmental Physics (CEP), Univ. Bern  
With [Prof. Markus Leuenberger](#) – data analysis of trace gas concentrations and (Eddy Covariance) flux measurements
- 01/2020 TO 06/2020 **IT Consultant**, self-employed, Graz

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- 04/2019 TO 09/2019 **Postdoc Researcher**, Dept. of Earth Science, Univ. Bergen.  
Analysed climate-related time series focusing on detection, description, and quantification of abrupt changes. Won the funding for this project by competition.
- 09/2015 TO 03/2019 **PhD research fellow**, Dept. of Earth Science, Univ. Bergen.
- 11/2013 TO 08/2015 **Scientific project staff**, Wegener Center for Climate and Global Change, Univ. Graz.  
Published my master thesis in the EGU journal Atmospheric Measurement Techniques. Implemented a new statistical optimization algorithm for the retrieval of atmospheric profiles from satellite remote sensing (radio occultation technique; ESA projects OPSGRAS and OPSCLIM-PROP).
- 02/2012 TO 05/2012 **Scientific project staff**, Department of Geography and Regional Science, Univ. Graz.  
Modelled the mass and energy balance of Freya glacier in NE-Greenland (FreyEX project) with the physically-based snow model AMUNDSEN. Error-corrected precipitation data accounting for prevailing wind speeds.
- 08/2007 **Internship** at the Central Institution for Meteorology and Geodynamics (ZAMG), Headquarter Styria, Graz, Austria  
Validated particulate matter (PM10) forecasts.

## PERSONAL QUALIFICATIONS

### LANGUAGES

GERMAN mother tongue    ENGLISH European level C1    NORWEGIAN European level B1

### IT KNOWLEDGE

- PROGRAMMING SKILLS Python, Bash, Fortran, R, C++, basic web design (HTML, CSS, JavaScript), IDL, Mathematica
- SOFTWARE PACKAGES LaTeX, LibreOffice, Gimp, Inkscape, git, svn, slurm, and other open source packages, MS Office, ArcGIS, Erdas Imagine
- OTHER IT KNOWLEDGE comfortable in Linux environments, experience with numerical simulations and high-performance computer (HPC) clusters

### ADDITIONAL EDUCATION

- 03/2018 Arctic glacier field course, Qeqertarsuaq, Disko Island, Greenland
- 09/2017 Ice Core Analysis Techniques (ICAT) course 2017, Univ. of Copenhagen
- 09/2017 Glacier safety course for field work in Greenland, Jondal, Norway
- 02/2017 Ethics course, Univ. of Bergen
- 09/2016 Karthaus Summer School 2016 on “Glaciers and ice sheets in the climate system”, Karthaus, Italy
- 08/2016 Advanced Climate Dynamics Course (ACDC) summer school 2016 “Role of High Latitudes in Centennial to Millennial Scale Climate Variability”, Newfoundland, Canada

- 05/2016 Scientific writing course at the Univ. of Bergen
- 02/2016 Glaciology course (AG-825) at the Univ. Centre in Svalbard (UNIS), Longyearbyen, Svalbard, Norway
- 01/2016 Geilo Winter School 2016 on Visualization, Geilo, Norway

## RESEARCH STAYS / FIELD WORK

- 10/2017 TO 12/2017 Three month **research stay at the Centre for Ice and Climate (CIC), Univ. Copenhagen**. Presented my research at two international workshops and a steering committee meeting (East Greenland Ice-Core Project; <https://eastgrip.org/>). Co-organized an international workshop.
- 07/2017 TO 08/2017 One month **field work on the Greenland ice sheet** as part of the EastGRIP project; Catalogued newly drilled ice cores, participated in the surface science program, and monitored atmospheric radar measurements.
- 06/2016 One month **research stay at the Atmosphere and Ocean Research Institute (AORI)**, Division of Climate System Research, Center for Earth Surface System Dynamics, Paleoenvironmental Research, **Univ. Tokyo, with Prof. Ayako Abe-Ouchi**. Presented my research at the Climate Division seminar, at an international conference, and at an international workshop.
- 10/2015 One week visit at the **Continuous Flow Analysis (CFA) melting campaign** of the Renland ice core, **Centre for Ice and Climate (CIC), Univ. Copenhagen**
- 09/2009 TO 12/2009 **Semester abroad** (Joint Study) at the **Univ. New Brunswick, Fredericton, Canada**

## REFERENCES

- Professor Dr. Kerim Hestnes Nisancioglu Department of Earth Science, Univ. of Bergen  
E-mail: [kerim@uib.no](mailto:kerim@uib.no); Phone: +47 55 58 98 66
- Forsker Dr. Andreas Born Department of Earth Science, Univ. of Bergen  
E-mail: [andreas.born@uib.no](mailto:andreas.born@uib.no); Phone: +47 55 58 34 06
- Univ.-Prof. Dr. Gottfried Kirchengast Wegener Center for Climate and Global Change and Institute for Geophysics, Astrophysics, and Meteorology/Institute of Physics, Univ. of Graz  
E-mail: [gottfried.kirchengast@uni-graz.at](mailto:gottfried.kirchengast@uni-graz.at); Phone: +43 31 63 80 84 31

## SCIENTIFIC CONTRIBUTIONS

- Plach, A.**, Vinther, B. M., Nisancioglu, K. H., Vudayagiri, S., and Blunier, T. (2020): Greenland climate simulations show high Eemian surface melt, *Clim. Past Discuss.* [preprint], <https://doi.org/10.5194/cp-2020-101>. **SCIENTIFIC ARTICLE.**
- Plach, A.**, Nisancioglu, K. H., Langebroek, P. M., Born, A., and Le clec'h, S. (2019): Eemian Greenland ice sheet simulated with a higher-order model shows strong sensitivity to surface mass balance forcing, *The Cryosphere*, 13, 2133–2148, <https://doi.org/10.5194/tc-13-2133-2019>. **SCIENTIFIC ARTICLE.**
- Plach, A.**, Nisancioglu, K. H., Langebroek, P. M., Born, A., and Le clec'h, S. (2019): Eemian Greenland ice

sheet simulated with a higher-order model shows strong sensitivity to SMB forcing. EGU2019-7383. Session CR5.3/CL4.06 EGU General Assembly 2019. Vienna. April 2019. **TALK.**

**Plach, A.**, Nisancioglu, K. H., Le clec'h, S., Born, A., Langebroek, P. M., Guo, C., Imhof, M., and Stocker, T. F. (2018): Eemian Greenland SMB strongly sensitive to model choice, *Clim. Past*, 14, 1463–1485, <https://doi.org/10.5194/cp-14-1463-2018>. **SCIENTIFIC ARTICLE.**

**Plach, A.**, Nisancioglu, K. H., and Le clec'h, S. (2018): Simulated Eemian Greenland Surface Mass Balance shows strong sensitivity to SMB model choice. EGU2018-8693. Session CR1.2/CL4.19. EGU General Assembly 2018. Vienna. April 2018. **TALK.** / PalMod International Open Science Conference, Vienna. April 2018. **POSTER.**

International Greenland surface mass balance workshop. Danish Meteorological Institute (DMI), Copenhagen. Organized by Mottram, R., and **Plach, A.** in November 2018. **WORKSHOP ORGANIZATION / TALK.**

**Plach, A.** (2018): Meltwater production in a warmer climate. Influence on NEGIS?. North East Greenland Ice Stream (NEGIS) workshop and EastGRIP steering committee meeting. October 2017. **TALK.**

**Plach, A.** and Nisancioglu, K. H. (2016): Simulation of the Greenland Ice Sheet (GrIS). How is the GrIS behaving in a warmer climate? Division seminar. Atmosphere and Ocean Research Institute (AORI). Division of Climate System Research. University of Tokyo. Tokyo, Japan. June 2016. **INVITED TALK.**

**Plach, A.** and Nisancioglu, K. H. (2016): Modeling the Greenland Ice Sheet during the Eemian Interglacial. A review with focus on the atmosphere-ice coupling scheme. Japan-Norway Arctic Science and Innovation Week, Tokyo, Japan / Goldschmidt Conference 2016. Yokohama, Japan. June 2016. **POSTER.**

**Plach, A.** and Nisancioglu, K. H. (2016): Simulation of the Greenland Ice Sheet (GrIS). Coupling atmosphere and ice sheet. Greenland In a Warmer Arctic (GIWA) workshop. Gif-sur-Yvette, France. May 2016. **INVITED TALK.**

**Plach, A.** and Nisancioglu, K. H. (2016): Sea level rise from the Greenland Ice Sheet during the Eemian interglacial: Review of previous work with focus on the surface mass balance. EGU General Assembly 2016, Vienna. April 2016. **POSTER.**

**Plach, A.**, Proschek, V., and Kirchengast G. (2015): Profiling wind and greenhouse gases by infrared-laser occultation: algorithm and results from end-to-end simulations in windy air. *Atmos. Meas. Tech.*, 8, 2813-2825, <https://doi.org/10.5194/amt-8-2813-2015>, July 2015. **SCIENTIFIC ARTICLE.**

**Plach, A.**, Proschek, V., and Kirchengast, G. (2014): Profiling wind and greenhouse gases by infrared-laser occultation: algorithm and results from simulations in windy air. EGU General Assembly 2014, Vienna. April 2014. **POSTER.**

Proschek, V., **Plach, A.**, and Kirchengast G. (2014): Wind and greenhouse gas retrieval from LEO-LEO IR laser occultation in windy air: algorithm description and performance analysis. Tech. Rep. for ESA/ESTEC No. 1/2014 AEXPWIND TN4. Graz, Austria: Wegener Center, University of Graz. January 2014. **TECHNICAL REPORT.**

**Plach, A.** (2013): Atmospheric wind profiling based on LEO-LEO infrared-laser occultation. Wegener Center for Climate and Global Change, University of Graz. October 2013. **MASTER THESIS.**

**Plach, A.**, Proschek, V., Syndergaard, S., and Kirchengast, G. (2013): Initial results of a new algorithm for atmospheric wind profiling based on infrared-laser occultation. International Workshop on Occultations for Probing Atmosphere and Climate, Seggau, September 2013. **POSTER.**

Marke, T., **Plach, A.**, Hanzer, F., Strasser, U., Hynek, B., Schöner, W., and Weyss, G. (2012): Simulating the mass- and energy balance of Freya Glacier (NE-Greenland) using the physically based snow model AMUNDSEN. EGU General Assembly 2012, Vienna. April 2012. **POSTER.**

**Plach, A.** (2011): Modelling of the water balance for the catchment of the Enns river (Styria). Department of Geography and Regional Science. University of Graz, Austria. August 2011. **MASTER THESIS.**