

PROF. DR. ELISA MANTELLI

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CURRENT POSITION

Professor of Glaciology (W2 Tenure-Track) *4/2024 - current*
LMU München, Department of Earth and Environmental Science &
Alfred Wegener Institute for Polar and Marine Research, Glaciology Section.

PREVIOUS PROFESSIONAL APPOINTMENTS

Vertretungs Professur *6/2023 - 3/2024*
LMU München, Department of Earth and Environmental Science

Adjunct Lecturer *3/2023 - 3/2024*
University of Tasmania, Institute for Marine and Antarctic Studies

Lecturer (equivalent to US Assistant Professor) *8/2021 - 2/2023*
University of Tasmania, Institute for Marine and Antarctic Studies

Postdoctoral Research Associate *5/2019 - 7/2021*
Princeton University & GFDL, Atmospheric & Oceanic Sciences Program
Faculty host: Dr. O. Sergienko

Visiting Postdoctoral Scholar *5/2019 - 7/2021*
Stanford University, Geophysics Department
Faculty host: Prof. D. Schroeder

Postdoctoral Research Scholar *1/2017 - 4/2019*
Stanford University, Geophysics Department
Advised by Profs. D. Schroeder & J. Suckale

Postdoctoral Research Scholar *5/2016 - 12/2016*
University of British Columbia, Department of Earth, Ocean and Atmospheric Sciences
Advised by Prof. C. Schoof

EDUCATION

Ph.D., Environmental Engineering, Politecnico di Torino *3/2013 - 3/2016*
Dissertation: *Mathematical models of ice stream dynamics and supraglacial drainage*
Supervised by Prof. C. Camporeale; external examiners: Profs. P. Perona & J. Kingslake

M.Sc., Environmental Engineering, Politecnico di Torino *2010 - 2012*
Dissertation: *A theoretical study of instabilities in film flows over permeable walls*
Supervised by Profs. C. Camporeale & C. Manes.
Grade: 110 cum laude/110, highest honor.

B.Sc., Environmental Engineering, Politecnico di Torino *2007 - 2010*
Grade: 110/110.

RESEARCH GRANTS**ERC Starting Grant 2022**

6/2023-5/2028

Project title: PHAST - A physics-based study of ice stream dynamics.

Role: PI.

Amount: 1.8M euros.

Helmholtz Professorship for Excellent Women Scientists*awarded 2022, current*

Role: PI. The funding supports the establishment of a permanent, joint Professorship in Glaciology at AWI and LMU München.

Amount: 200k euros/year, permanently.

Australian Center for Excellence in Antarctic Science [[website](#)]

2022 - 2025

Role: Chief Investigator.

Amount: 20M AUD (split among 40 CIs).

Helmholtz Young Investigator Award 2022*(declined)*

Role: PI.

Amount: 1.5M euros.

CIMES research fellowship, Princeton University & NOAA

2019 - 2021

Role: PI. This is a personal grant that funded my postdoctoral work on ice-ocean interactions.

Amount: 130k USD.

HONORS & AWARDS

Certificate for outstanding mentoring and teaching, Stanford University	2019
Travel award, 26th West Antarctic Ice Sheet Workshop, Camp Julian (CA)	2019
Travel award, IGS Symposium on Five Decades of Radioglaciology, Stanford (CA)	2019
Travel award, 25th West Antarctic Ice Sheet Workshop, Stony Point (NY)	2018
Award for the best doctoral dissertation in Environmental Engineering, Politecnico di Torino	2016
Doctoral scholarship, Politecnico di Torino (90k EUR)	2013-2016
Scholarship for research abroad, Scuola Interpolitecnica di Dottorato (10k EUR)	2014-2016
Travel award, 2013 AGU Fall Meeting, San Francisco (CA)	2013
M.Sc. scholarship, Autostrade per l'Italia (10k EUR)	2011-2012
Award for outstanding M.Sc. dissertation, Unione Industriale di Torino	2012

INVITED CONFERENCE TALKS & SEMINARS

- **Invited conference talks/ workshop participation:** [5] Selected as ‘key participant’ in the invitational workshop ‘*The Physics of Changing Polar Climate*’, Kavli Institute for Theoretical Physics (2025); [4] invitational workshop ‘*Mathematical Modeling in Glaciology*’, Banff International Research Station, Canada (2020) [[recording](#)]; [3] ‘*Climate Symposium*’, Yale University, USA (2020, postponed); [2] AGU Fall Meeting, San Francisco, USA (2019); [1] SIAM CSE19, Spokane, USA (2019).
- **Department seminars:** [2022] Harvard University; University of Oxford; LMU München; Alfred Wegener Institute; Ca’ Foscari University of Venice. [2021] University of Texas at Austin; Colorado School of Mines. [2020] British Antarctic Survey; ETH Zürich; UC Santa Cruz; Princeton University. [2019] Lamont-Doherty Earth Observatory. [2018] Geophysical Fluid Dynamics Laboratory; California Institute of Technology; University of Oregon. [2016] Stanford University.

MENTORING & SUPERVISION

- **Postdoctoral advisor:** Dr. Tilly Woods (mathematical glaciology, LMU, 11/2024 - current); Dr. Cristina Gerli (data-model integration, LMU, 10/2024 current); Dr. Francesca Falcini (glacier geophysics, AWI, 1/2024 - current); Dr. Daniel Richards (ice anisotropy, University of Tasmania, 1/2023 - 10/2024).
- **PhD supervisory committee member:** Charlotte Carter (AWI, 2023 - ongoing); Leah - Sophie Muhle (Univ. Tuebingen, 2024 - ongoing).
- **PhD examination committee member:** Clara Henry (Univ. Tuebingen, 11/2023); Thomas Gregov (Univ. Liege & ULB, 2/2025).
- **BSc/MSc thesis advisor:** Sophie Brass (LMU Physics MSc, started 2023); Madison Goldberg (Stanford Geophysics, 2018); Marnie Bryant (Stanford Geophysics, 2017); Chiara Roati (Politecnico di Torino, 2016-2017); Matteo Bertagni (Politecnico di Torino, 2015-2016); Loris Elba (Politecnico di Torino, 2014-2015).
- **Unofficial co-supervision:** Eliza Dawson (Ph.D., Stanford Univ., 2018 - 2023); Indraneel Kas-malkar (Ph.D., Stanford Univ., 2017-2019).

TEACHING

- **Instructor:** ‘*Special Topics in Glaciology*’, M.Sc. Geophysics, LMU Munich (WS 2024); ‘*Geophysics Research: Overview on Methods and Open Questions*’, M.Sc. Geophysics, LMU Munich (WS 2023, WS 2024).
- **Curriculum development:** undergraduate major in Antarctic Cryosphere & Solid Earth, University of Tasmania (2022).
- **Guest lecturer:** ‘*Introduction to Radioglaciology*’ at the IGS Symposium on Five Decades of Radioglaciology, Stanford, 2019. ‘*Environmental Fluid Mechanics*’, M.Sc. Environmental Engineering, Politecnico di Torino, 2016.

REFEREEING ACTIVITIES

- **Scientific editor** for ‘*The Cryosphere*’, impact factor of 5.7 (since Sept. 2021).
- **Review panelist** for NASA ROSES (2020) and Marie Skłodowska-Curie Postdoctoral Fellowships (2022).
- **Proposal reviewer** for the US National Science Foundation, Office of Polar Programs and the French Agence Nationale de la Recherche.
- **Referee** for manuscripts in Nature, Proceedings of the Royal Society A, Journal of Fluid Mechanics, Journal of Geophysical Research-Earth Surface, The Cryosphere, Annals of Glaciology, Journal of Glaciology, Earth Surface Dynamics, Hydrological Processes.

SERVICE TO THE COMMUNITY

- **Convener and chair** of the session ‘*Advances and future opportunities for the integration of ice sheet models with geophysical observations*’, EGU General Assembly, 2020-2025.
- **Member** of the Executive Committee of the ‘*Commission on Mathematical Geophysics of the IUGG*’, 2023 - present.

- **Co-organizer** of *'Maths on Ice'*, an online seminar series/discussion forum on mathematical glaciology. With Ronja Reese, Sam Pegler, and Ian Hewitt (2021-2023).
- **Organizing committee member**, International Glaciological Society's *'International Symposium on Five Decades of Radioglaciology'* (Stanford Univ., July 2019).

PUBLICATIONS

n.b.: † denotes equal contributions; advisees are underlined.

UNDER REVIEW

- [15] Richards D. H., **Mantelli E.**, Pegler S. S., Piazzolo S. *A comparative study of fabric evolution models and anisotropic rheologies*. The Cryosphere (2024). [\[link\]](#).
- [14] Bingham G. R. and others including **Mantelli E.**. *Review Article: Antarctica's internal architecture: Towards a radiostratigraphically-informed age–depth model of the Antarctic ice sheets*. The Cryosphere (2024). [\[link\]](#).

PEER-REVIEWED PUBLICATIONS

- [13] Dawson E., Schroeder D., Chu W., **Mantelli E.**, Seroussi H. *Heterogeneous basal thermal conditions underpinning the Adelie-George V Coast, East Antarctica*. Geophys. Res. Letters (2024). [\[link\]](#).
- [12] Hank K., Tarasov L., **Mantelli E.** *Modeling sensitivities of thermally and hydraulically driven ice stream surge cycling* Geoscientific Model Development (2023). [\[link\]](#).
- [11] Dawson E., †Schroeder D., †Chu W., †**Mantelli E.**, †Seroussi H. *Ice mass loss sensitivity to the Antarctic Ice Sheet basal thermal state*. Nature Communications (2022). [\[link\]](#).
- [10] †Schoof C., †**Mantelli E.** *The role of sliding in ice stream formation*. Proceedings of the Royal Society A (2021). [\[link\]](#)
- [9] Goldberg M., Schroeder D., Castelletti D., **Mantelli E.**, Ross N., Siegert M. *Automated detection and characterization of Antarctic basal units using radar sounding data: Demonstration in Institute Ice Stream, West Antarctica*. Annals of Glaciology (2020). [\[link\]](#)
- [8] **Mantelli E.**, Haseloff M., Schoof C. *Ice sheet flow with thermally activated sliding. Part I: The role of advection*. Proceedings of the Royal Society A (2019). [\[link\]](#)
- [7] †**Mantelli E.**, †Schoof C. *Ice sheet flow with thermally activated sliding. Part II: The stability of subtemperate regions*. Proceedings of the Royal Society A (2019). [\[link\]](#)
- [6] Castelletti D., Schroeder D.M., **Mantelli E.**, Hilger A. *Layer optimized SAR processing and slope estimation in radar sounder data*. Journal of Glaciology (2019). [\[link\]](#)
- [5] Kasmalkar I., **Mantelli E.**, Suckale J. *Spatial heterogeneity in subglacial drainage driven by till erosion*. Proceedings of the Royal Society A (2019). [\[link\]](#)
- [4] Castelletti D., Schroeder D., **Mantelli E.**, Hilger A. *Unfocused SAR processing for englacial layer slope estimation using radar sounder data*. Proceedings of the 2018 IEEE International Geoscience and Remote Sensing Symposium (2018). [\[link\]](#)
- [3] **Mantelli E.**, Bertagni M., Ridolfi L. *Stochastic ice stream dynamics*. Proceedings of the National Academy of Sciences of the United States of America (2016). [\[link\]](#)
- [2] **Mantelli E.**, Camporeale C., Ridolfi L. *Supraglacial channel inception: processes and modeling*. Water Resources Research (2015). [\[link\]](#)
- [1] Camporeale C., **Mantelli E.**, Manes C. *Interplay among unstable modes in films over permeable walls*. Journal of Fluid Mechanics (2013). [\[link\]](#)