

JOHN ERICH CHRISTIAN

Curriculum vitae

Department of Geography, University of Oregon
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EDUCATION

- 2020 **University of Washington, Seattle WA**
PhD, Earth and Space Sciences (Advisors: Michelle Koutnik and Gerard Roe)
- 2014 **St. Olaf College, Northfield, MN**
BA, Physics, *Magna Cum Laude*

APPOINTMENTS

- 2023–present **Assistant Professor**, Dept. of Geography, University of Oregon
- 2021–2023 **Postdoctoral Fellow**, Earth and Atmospheric Sciences, Georgia Institute of Technology (Advisor: Alexander Robel)
- 2020–2021 **Postdoctoral Fellow**, Institute for Geophysics, University of Texas at Austin (Advisor: Ginny Catania)

PUBLICATIONS (* indicates undergraduate mentee)

Published/in press:

- 2023 Hoffman, A et al., including JE Christian. Scars of tectonic extension promote ice-sheet nucleation from Hercules Dome into West Antarctica. *Nature Geoscience* (2023), Doi: 10.1038/s41561-023-01265-5.
- 2022 Fudge, TJ et al., including JE Christian. A site for deep ice coring at West Hercules Dome: results from ground-based geophysics and modeling. *Journal of Glaciology* (2022), 69(275), 538–550.
- Christian, JE, A Robel, G Catania. A probabilistic framework for quantifying the role of anthropogenic climate change in marine-terminating glacier retreats. *The Cryosphere*, 16, (2022), pp. 2725–2743.
- Hills, B, et al., including JE Christian. Geophysics and thermodynamics at South Pole Lake indicate stability and a regionally thawed bed. *Geophysical Research Letters*, 49 (2) (2022).
- Christian, JE, E Whorton, E Carnahan, M Koutnik, G Roe. Differences in the transient response of individual glaciers: a case study in the Washington Cascades. *Journal of Glaciology*, 68(270) (2022), pp. 751–763.
- 2021 Roe, G, JE Christian, B Marzeion. On the attribution of industrial-era glacier mass loss to anthropogenic climate change. *The Cryosphere*, 15, (2021), pp. 1889–1905.
- 2020 Christian, JE, A Robel, C Proistosescu, G Roe, M Koutnik, K Christianson. The contrasting response of outlet glaciers to interior and ocean forcing. *The Cryosphere*, 14 (2020), pp. 2515–2535.

- 2019 Bonan, DB*, JE Christian, K Christianson. Influence of North Atlantic climate variability on glacier mass balance in Norway, Sweden, and Svalbard. *Journal of Glaciology*, 65(252) (2019), pp. 580-594.
- 2018 Christian, JE, M Koutnik, G Roe. Committed retreat: controls on glacier disequilibrium in a warming climate. *Journal of Glaciology*, 64 (246) (2018), pp. 675–688.
- 2016 Christian, JE, N Siler, M Koutnik, G Roe. Identifying dynamically induced variability in glacier mass-balance records. *Journal of Climate*, 29 (24) (2016), pp. 8915–8929.
- 2014 Keisling, BA, K Christianson, RB Alley, LE Peters, JE Christian, S Anandakrishnan, KL Riverman, A Muto, RW Jacobel. Basal conditions and ice dynamics inferred from radar-derived internal stratigraphy of the Northeast Greenland Ice Stream. *Ann. Glaciology*, 55 (67) (2014), pp. 127–137.
- Vallelonga, P et al., including JE Christian. Initial results from geophysical surveys and shallow coring of the Northeast Greenland Ice Stream (NEGIS). *The Cryosphere*, 8(4) (2014), pp.1275–1287.

FUNDED PROPOSALS

- 2023 Historical Simulations of Greenland Ice-sheet Dynamics: The Imprint of Early Ice Loss on Recent and Future Change. NSF Arctic Natural Sciences, Award 2315686, \$361K.
Lead PI: JE Christian, CO-I A Robel (Georgia Tech).

HONORS AND AWARDS

- 2022 EGU highlighted manuscript, The Cryosphere
- 2020 Institutional Postdoctoral Fellowship, University of Texas Institute for Geophysics
- 2020 David A. Johnston Award for Research Excellence, University of Washington
- 2018 NSF/USGS GRIP internship – “Committed glacier retreat in the WA Cascades”
- 2017 Mazamas graduate student research grant – “Glacier velocity on Mt. Baker, WA”
- 2015 NSF Graduate Research Fellowship
- 2014 GROE Fellowship, College of the Environment, University of Washington
- 2014 Top Scholar Award, University of Washington Graduate School

SELECTED PRESENTATIONS (Presenting author)

- 2023 Experiments with a coupled ice-flow and sediment-transport model: Grounding-Zone Wedge formation and effects on ice-stream stability. *Oral presentation*, AGU Fall Meeting, San Francisco, CA. Abstract EP12B-03.

The pace of glacier retreat: model experiments on the role of ice dynamics, climate forcing, and topography. *Colloquium*, Dept. of Earth Sciences, University of Oregon.

Model experiments on sedimentation and ice-stream stability. *Oral presentation*, Northwest Glaciologists Meeting, Seattle, WA.

A probabilistic framework for quantifying the role of anthropogenic climate forcing in marine-terminating glacier retreats. *Oral presentation*, EGU General Assembly 2023 (virtual). Abstract EGU23-11044.

Framing glacier retreat in the industrial era: accounting for climate variability, ice dynamics, and human-driven climate change. *Colloquium*, Dept. of Geography, University of Oregon.

- 2022 Can sedimentation pause grounding-line retreat over retrograde slopes? A case study on Pine Island Trough. *Oral presentation*, AGU Fall Meeting, Chicago, IL. Abstract PP45A-08.
- Can sedimentation pause grounding-line retreat over retrograde slopes? A case study on the Pine Island paleo ice stream. *Oral presentation*, West Antarctic Ice Sheet workshop, Estes Park, CO.
- A probabilistic framework for quantifying the role of anthropogenic climate forcing in marine-terminating glacier retreats. *Oral presentation*, International symposium on ice, snow, and water in a warming world, Reykjavik, Iceland.
- 2021 Disentangling natural versus anthropogenically-forced retreat of marine-terminating glaciers. *Poster*, AGU Fall Meeting, New Orleans, LA. Abstract C35A-0860.
- Disentangling the roles of natural variability and anthropogenic forcing in driving rapid outlet glacier retreat. *Virtual lighting talk*, West Antarctic Ice Sheet workshop.
- A probabilistic attribution framework for outlet glacier retreat. *Virtual poster*, WCRP Workshop on Attribution of multi-annual to decadal changes in the climate system.
- 2020 Distinct Outlet-Glacier Responses to Surface-mass-balance and Ocean Variability. *Oral presentation*, AGU Fall Meeting (virtual). Abstract C040-05.
- 2019 Contrasting outlet glacier responses to ocean vs. interior forcing. *Oral presentation*, West Antarctic Ice Sheet workshop, Julian, CA.
- Using snow radar to characterize the accumulation zone of South Cascade Glacier, Washington State. *Poster*, IGS symposium on Radioglaciology, Stanford University, CA.
- Mountain glacier disequilibrium in theory, and in the Washington Cascades. *Oral presentation*, Mount Rainier Researchers Workshop, Pacific Lutheran University, WA.
- 2018 What can short-term observations tell us about attribution and predictability of ice-stream response to climate? *Poster*, AGU Fall Meeting, Washington, DC. Abstract C31C-1533.
- 2017 Estimating glacier response times and disequilibrium in a changing climate. *Poster*, AGU Fall Meeting, New Orleans, LA. Abstract C33A-1182.
- 2016 Examining model hierarchies of glacier response to climate. *Oral presentation*, AGU Fall Meeting, San Francisco, CA. Abstract C51G-06.
- 2015 Identifying dynamically induced variability in glacier mass-balance records. *Oral presentation*, AGU Fall Meeting, San Francisco, CA. Abstract C51D-01.

TEACHING EXPERIENCE

Assistant Professor, University of Oregon, Department of Geography

2024 GEOG 321: Climatology

Teaching Assistant, Earth and Space Sciences, University of Washington

2018 ESS 402: Ice and climate-change science and societal response (Lead instructor: Michelle Koutnik)

2016 ESS 431/505: Principles of Glaciology (Lead instructors: Knut Christianson and Ed Waddington)

Guest lectures

- 2021 Earth System Modeling, Georgia Institute of Technology (one lecture)
2018 Ice and climate-change science and societal response, U. Washington (four lectures)
2016–2019 Principles of Glaciology, U. Washington (yearly guest lecture)
2015 Geophysical Continuum Mechanics, U. Washington (two lectures)

MENTORING

- 2021–present Daniel Otto, UW Earth and Space Sciences PhD student.
Co-advised with Gerard Roe.
2021 Mikayla Pascual, Georgia Tech REU program. Co-advised with Alex Robel.
2017–2018 David Bonan, UW Atmospheric Sciences undergraduate.
Co-advised with Knut Christianson.

FIELD EXPERIENCE

- 2019/2020 South Pole subglacial lake and Hercules Dome, Antarctica.
GPS and ice-penetrating radar surveys (5 weeks).
2017, 2018 Coleman Glacier, Mt. Baker, WA.
Radar interferometry and GPS measurements of ice velocity (multi-day trips).
2017, 2018 South Cascade Glacier, WA.
Winter mass balance and snow-radar surveys (1-week trips).

SUMMER SCHOOLS AND OTHER COURSES

- 2019 Advanced Climate Dynamics Course: “The Anthropocene”, Yosemite, CA
2016 Summer school on ice sheets and glaciers in the climate system, Karthaus, Italy
2015 Polar Geospatial Center remote-sensing bootcamp, University of Minnesota

SERVICE AND OUTREACH

- 2020-present Reviewer, *The Cryosphere*, *Climatic Change*, *Frontiers in Earth Sci.*, *Journal of Glaciology*
2021 Career panel, Stone Mountain Middle School
Virtual classroom lesson on glaciers (5th Grade), Atlanta Science Festival
2020–2023 Judge, AGU Outstanding Student Poster Awards
2015–2018 Glaciology outreach, Pacific Science Center’s Polar Science Weekend