

# ALEXANDER ROBEL

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## EDUCATION

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**Harvard University, Cambridge, MA** 2010-2015  
PhD in Earth & Planetary Sciences  
**Duke University, Durham, NC** 2006-2010  
BS w/Honors in Earth and Ocean Sciences ◇ BA in Physics ◇ Minor in Mathematics

## PROFESSIONAL APPOINTMENTS

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**Assistant Professor, Earth and Atmospheric Sciences, Georgia Tech** *Starting Aug. 2018*  
**NOAA CGC and Stanback Postdoctoral Fellow (Joint Appointment)** *Sep. 2015-Aug. 2018*  
California Institute of Technology, Division of Geological and Planetary Science (Host: Victor Tsai)  
University of Chicago, Geophysical Sciences Department (Host: Doug MacAyeal)

## PUBLICATIONS

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Minchew, B.M., C. Meyer, **A.A. Robel**, G.H. Gudmundsson and M. Simons. How ice rheology evolves in glacier shear margins, *In review*.  
**Robel, A.A.** (2017), Thinning sea ice weakens buttressing force of iceberg mélange and promotes calving, *Nature Communications*, 8, 14596, [DOI:10.1038/ncomms14596](https://doi.org/10.1038/ncomms14596).  
**Robel, A.A.**, V. Tsai, B. Minchew, and M. Simons (2017), Tidal modulation of ice stream buttressing stresses, *Annals of Glaciology*, 1–9, [DOI:10.1017/aog.2017.22](https://doi.org/10.1017/aog.2017.22).  
**Robel, A.A.** and E. Tziperman (2016), The role of ice stream dynamics in deglaciation, *J. Geophys. Res. Earth Surf.*, 121, 1540–1554, [DOI:10.1002/2016JF003937](https://doi.org/10.1002/2016JF003937).  
**Robel, A.A.**, C. Schoof, and E. Tziperman (2016), Persistence and variability of ice stream grounding lines on retrograde bed slopes, *The Cryosphere*, 10, 1883–1896, [DOI:10.5194/tc-10-1883-2016](https://doi.org/10.5194/tc-10-1883-2016).  
**Robel, A.A.**, C. Schoof, and E. Tziperman (2014), Rapid grounding line migration induced by internal ice stream variability, *J. Geophys. Res. Earth Surf.*, 119, 2430–2447, [DOI:10.1002/2014JF003251](https://doi.org/10.1002/2014JF003251).  
**Robel, A.A.**, E. DeGiuli, C. Schoof, and E. Tziperman (2013), Dynamics of ice stream temporal variability: Modes, scales, and hysteresis, *J. Geophys. Res. Earth Surf.*, 118, 925–936, [DOI:10.1002/jgrf.20072](https://doi.org/10.1002/jgrf.20072).  
**Robel, A.A.**, M.S. Lozier, S.F. Gary, G.L. Shillinger, H. Bailey, S.J. Bograd, (2011). Projecting uncertainty onto marine megafauna trajectories. *Deep Sea Research I*, 58, 915–921, [DOI:10.1016/j.dsr.2011.06.009](https://doi.org/10.1016/j.dsr.2011.06.009).

## NON-REFEREED AND IN-PREP PUBLICATIONS

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**Robel, A.A.**, G. Roe, M. Haseloff. Response of marine-terminating glaciers to forcing: Time scales, sensitivities, instabilities and stochastic dynamics, *In prep*.  
**Robel, A.A.** and V. Tsai, A theory for deglacial meltwater pulses, *In prep*.  
Schoof, C. and **A.A. Robel**, Temperate surging and bifurcations in subglacial drainage models, *In prep*.  
**Robel, A.A.** (2015), News and Views: The long future of Antarctic melting, *Nature*, 526, 327–328, [DOI:10.1038/526327a](https://doi.org/10.1038/526327a).  
**Robel, A.A.** (2015), Ice Stream Variability and Links to Climate. Dissertation, Earth & Planetary Sciences, Harvard University. Advisors: Eli Tziperman, Christian Schoof. Committee: Jim Rice, Jerry Mitrovica, Rick O’Connell. [Link](#).

## FUNDED GRANT PROPOSALS

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Theory and Models of Ice Sheet Surface Melting Instabilities in the Past and Future. NSF-OPP Award 1735715, \$225K, September 1, 2017 - August 31, 2019. PI: V. Tsai. **Co-Investigator: A. Robel.**

## HONORS AND RECOGNITIONS

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- NOAA Climate & Global Change Postdoctoral Fellowship, 2015-2017
- Caltech Stanback Postdoctoral Fellowship in Environmental Science, 2015-2017
- National Science Foundation Graduate Research Fellowship, 2013-2015
- National Defense Science and Engineering Graduate (NDSEG) Fellowship, 2010-2013
- Distinction in Teaching, Bok Center for Teaching & Learning, Harvard University, Spring 2012
- Angier B. Duke Memorial Scholarship, 2006-2010
- Robert C. Byrd Scholarship, 2006-2010
- Mellon-Mays Undergraduate Fellowship, 2008-2010
- American Physical Society Corporate Minority Scholarship 2006, 2007
- North Carolina Space Grant Undergraduate Scholarship, 2007

## SELECTED RECENT CONFERENCE PRESENTATIONS

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**Robel, A. A.**, G. Roe. “Grounding line retreat induced by stochastic forcing of marine-terminating glaciers.” EGU General Assembly, April 2017, Vienna, Austria.

**Robel, A. A.** (Invited) “Simulating sea ice interactions with ice sheets through granular iceberg mélange in a discrete element model.” SIAM Conference on Computational Science and Engineering, February 2017, Atlanta GA.

**Robel, A. A.** (Invited) “Thinning sea ice weakens buttressing force of iceberg mélange.” AGU Fall Meeting, December 2016, San Francisco, CA.

**Robel, A. A.**, V. Tsai, B. Minchew, M. Simons. “Tidal modulation of ice stream buttressing stress and subglacial meltwater production.” WAIS Workshop, October 2016, Sterling, VA.

**Robel, A. A.**, E. Tziperman. “The role of ice stream dynamics in deglaciation.” AGU Fall Meeting, December 2015, San Francisco, CA.

**Robel, A. A.**, C. Schoof, E. Tziperman. “Rapid grounding line migration induced by internal variability of a marine-terminating ice stream.” WAIS Workshop, September 2013, Sterling, VA.

## DEPARTMENTAL PRESENTATIONS

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**University of Texas**, Institute for Geophysics Seminar, September, 2017. **University of Washington**, ESS Glaciology Sack Lunch Seminar, August 2017. **Harvard University**, Earth and Planetary Sciences Colloquium, April 2017. **Georgia Institute of Technology**, Earth and Atmospheric Sciences Seminar, March 2017. **University of California, Irvine**, Earth System Science Departmental Seminar, February 2017. **Massachusetts Institute of Technology**, Oceanography Sack Lunch Seminar, November 2016. **Duke University**, Earth and Ocean Sciences Seminar, September 2016. **California Institute of Technology**, Environmental Science and Engineering Seminar, October 2015. **Stanford University**, Dept. of Geophysics, March 2015. **Penn State**, Dept. of Geosciences, Glaciology Seminar, June 2014. **University of Chicago**, James Franck Institute, Computations in Science Seminar, April 2014. **UMass Amherst**, Dept. of Geosciences, Guest Lecture Series, April 2014. **UC San Diego**, Scripps Institute of Oceanography, Climate, Atmospheric Science and Physical Oceanography Seminar, February 2014. **Columbia University**, Lamont-Doherty Earth Obs., Marine Geology, Geophysics, Seismology & Tectonophysics Seminar, April 2013.

## SERVICE & TEACHING

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- **Journal Reviewer:** Nature, Proceedings of the National Academy of Sciences, Journal of Geophysical Research, Journal of Climate
- **Proposal Review Panelist:** NASA Earth Science Division, US-Israel Binational Science Foundation
- **Conference Session Convener:** AGU Fall Meeting 2015, GSA Annual Meeting 2017
- **Teaching Fellow:** Harvard Applied Math 205, Advanced Scientific Computing: Numerical Methods, Fall 2013; Harvard EPS 231, Climate Dynamics, Spring 2013; Harvard EPS 134, Global Warming Debates: The Reading Course, Spring 2012.