

# LIZ C. LOGAN

201 E 24th Street, Austin TX, 78712

(512) 796-6953 ◊ logan@ices.utexas.edu ◊ liz.curry.logan@gmail.com

## PROFESSIONAL APPOINTMENTS

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<b>Postdoctoral researcher (adviser: Patrick Heimbach)</b> Institute for Computational Engineering and Sciences University of Texas at Austin	Nov 2015 - present
<b>Graduate teaching assistant</b> Department of Geological Sciences University of Texas at Austin	Jan 2015 - May 2015
<b>Graduate research assistant</b> Institute for Geophysics University of Texas at Austin	Aug 2009 - Nov 2015

## EDUCATION

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<b>PhD, Geophysics</b> Jackson School of Geoscience, University of Texas at Austin Dissertation: "Modes of deformation in ice in dynamic regions: applications to basal crevasses and calving." Advisers: Ginny Catania / Luc Lavier	August 2009 - Dec 2015
<b>BA, Environmental Sciences</b> Columbia College, Columbia University. Thesis: "Tracking mesoscale eddies in an ocean numerical model." Adviser: Alexey Kaplan	August 2005 - May 2009

## AWARDS

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NSF support for International Glaciological Society meeting, Scripps	July 2016
Acceptance to Advanced Climate Dynamics Course, Newfoundland	Feb 2016
Banks Fellowship in Geomorphology, UT Austin	Jan 2014 - Aug 2014
Gale White Fellowship, Institute for Geophysics, UT Austin	Sept 2009 - May 2010
Lamont-Doherty Summer Intern Program	June Aug 2008
IBM Thomas J. Watson Memorial Scholarship	Sept 2005 - May 2009

## PUBLICATIONS

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Finalized:

1. **Logan L. C.**, Lavier L. L., Choi E, Tan E, Catania, G. A. (2017) Semi-brittle rheology and ice dynamics in DynEarthSol3D, The Cryosphere , doi:10.5194/tc-11-117-2017.
2. **Logan L**, Catania G, Lavier L, and Choi E (2013) A novel method for predicting fracture in floating ice. Journal of Glaciology, 59(216), doi: 10.3189/2013JoG12J210.

In prep:

1. **Logan L.C.**, Heimbach, P., Naranaynan, S. H. K., Greve, R. SICOPOLIS-AD: an adjoint method produced by OpenAD for adjoint sensitivities and optimization problems on ice sheets, for Geoscientific Model Development
2. **Logan L. C.**, Lavier L. L., Choi E, Tan E, Holt, J, and Catania, G. A. Calving geometry linked to semi-brittle rheology, for Journal of Geophysical Research

## PRODUCTS CO/DEVELOPED

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- **DynIceSol3D (C++)** a freely available numerical model to study dynamic ice problems, including ice failure; see publication 1 for formal presentation  
(code at: <https://bitbucket.org/lizcurrylogan/dynice3d-dice>)
- **Sicopolis-AD (Fortran90)** the adjoint model for SICOPOLIS, providing comprehensive sensitivities for optimization problems and sensitivity tests; see <https://www.overleaf.com/read/xytynbhbhxmccc> for the Quickstart Manual (code at: [www.sicopolis.net](http://www.sicopolis.net))

## TALKS GIVEN

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1. (invited: April 2018) American Physical Society, From the Quarks to the Cosmos, Columbus, OH
2. (invited: Fall 2016) Departmental Lecture Series, Iowa State University
3. Ignite Speaker Series (awarded, July 2016), International Glaciological Society Symposium on Interactions between Glaciers and Ice Sheets, Scripps, La Jolla: The fates of Thwaites: semi-brittle ice and potential calving rates.
4. LANS Seminar, Argonne National Lab (May 2016): Cracks in glacier ice: an exploration of rheology, boundary conditions, and (ice) failure.
5. MIT, ECCO2 Group (Feb 2016): Dissertation research.
6. Invited panelist, Jackson School of Geosciences 10 Year Anniversary (Dec 2015)
7. Jackson School of Geosciences, Fall Commencement, distinguished speaker
8. Brown Bag Lunch, University of Texas Institute for Geophysics (Apr 2015): Modes of deformation in ice.
9. Logan L, Catania G, Lavier L, and Choi E (2012) A novel method of basal crevasse height estimation and subsequent rifting, AGU Fall Meet.

## CONFERENCE PARTICIPATION

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1. Logan, L. C., Narayanan, S. H. K., Greve, R., and P. Heimbach (2017) : Greenland regional and ice-sheet-wide volume sensitivity to boundary and initial conditions, AGU Fall Meet Suppl., Abstract
2. Logan, L. C., Lavier, L. L., Choi, E., Tan, E., Catania, G., and J. Holt (2017) : Calving geometry linked to semi-brittle rheology, AGU Fall Meet. Suppl., Abstract
3. Reber, J. E., McGee, I., Logan, E. (2016), Break up of ice sheets: an integrated numerical and experimental approach, GSA, Denver, CO
4. Logan, L. C., Lavier, L. L., Choi, E., Tan, E., Catania, G (2016) Calving geometry linked to semi-brittle rheology on Thwaites Glacier, Antarctica. IGS Symposium on Interactions of Glaciers and Ice Sheets, Scripps, La Jolla
5. Logan L, Lavier L, Choi E, Tan E, Catania G (2014) DynEarthSol3D: numerical studies of basal crevasses and calving blocks, Eos Trans. AGU, Fall Meet. Suppl., Abstract
6. Logan L, Lavier L, Choi E, Tan E, Catania G (2014) DynEarthSol3D: unstructured finite element method to model visco-elasto-plastic ice dynamics, IGS Symposium on Contribution of Glaciers and Ice Sheets to Sea Level Change, Abstract
7. Logan, L., Catania, G., Lavier, L., Choi, E. (2012) Observations and Modeling of Grounding Line Basal Crevasses, IGS Symposium on Glacier and Ice Sheets in a Changing Climate, Abstract
8. Logan, L., Catania, G., Lavier, L. (2011) Observations and Modeling of Grounding Line Basal Crevasses: Connections between Surface Speed, Topography and Crevasse Morphology Eos Trans. AGU, Fall Meet. Suppl., Abstract

9. Logan, E., Lavier, L., Bennett, R. (2010) Models of Slow Slip Events Using a Strain Wave Formulation in a Lithosphere Perturbed by Fluid Filled Shear Fractures. Eos Trans. AGU, Fall Meet. Suppl., Abstract
10. Logan, L., R. B. Scott, B. K. Arbic, C. L. Holland, A. Sen, and B. Qiu (2006), Persistent, patchy, and robust small-scale anisotropy in the upper ocean: A fundamental shift in our view of geostrophic turbulence, Eos Trans. AGU, 87(52), Fall Meet. Suppl., Abstract
11. Sen, A., B. K. Arbic, R. B. Scott, C. L. Holland, E. Logan, and B. Qiu (2006), Persistent small-scale features in maps of the anisotropy of ocean surface velocities implications for mixing?, Eos Trans. AGU, 87(52), Fall Meet. Suppl., Abstract

## NON-REFEREED PUBLICATIONS

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1. "Analog Modeling Recreates Millions of Years in a Few Hours", EoS Meeting Report, 9 Nov 2017, Reber, J., Dooley, T., and **L. C. Logan**.
2. "Driving in reverse: the hidden story of Greenland and my trip to the land of the rising sun," <http://www.catania-ice.org/news/>, 24 Oct 2017, **L. C. Logan**.

## COURSES CO/TAUGHT

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<b>Fall 2016</b>	Introduction to Scientific Computing, University of Texas undergraduate research elective
<b>Fall 2015</b>	Calving mechanics, a lecture in Dr. Ginny Catania's Glaciology class
<b>Spring 2015</b>	Introduction to Computational Geosciences, Programming in Fortran and MatLab

## SERVICE RELATED ACTIVITIES

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<b>May 2017</b>	Co-organized Second Workshop on Analog Modeling of Tectonic Processes; Austin, Texas
<b>Dec 2015</b>	Served as scientific judge for Graduate Student Research Symposium, University of Texas