

# BRADLEY PAUL LIPOVSKY

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## RESEARCH AND TEACHING INTERESTS

- Mechanical modeling of glaciers and ice sheets
- Geophysical observation of the ice sheets, particularly using seismology
- Novel uses of seismological observation to observe environmental processes

## PROFESSIONAL EXPERIENCE

- 2018 – **Lecturer, Research Associate, and Principal Investigator**, Dept. of Earth and Planetary Sciences, Harvard University
- 2017–2018 **Postdoctoral Research Associate**, Dept. of Earth and Planetary Sciences, Harvard University. Supervisor: James Rice (Dept. of Earth and Planetary Sciences and School of Engineering and Applied Sciences).

## EDUCATION

- 2017 **Doctor of Philosophy**, Geophysics, Stanford University. Supervisor: Eric Dunham (Dept. of Geophysics and Institute for Computational and Mathematical Engineering)
- 2011 **Master of Science**, Earth Science, University of California, Riverside. Supervisor: Gareth Funning (Dept. of Earth Science).
- 2008 **Bachelor of Arts**, Mathematics, Cornell University
- 2004 **Associate of Arts**, Mathematics, Lake Tahoe Community College

## PUBLICATIONS

\* *Student Advisee/Co-advisee*

2020

14. **Lipovsky, B. P.**, "Ice shelf rift propagation: stability, three dimensional effects, and the role of marginal weakening". Submitted to the Cryosphere, October 10, 2019. Preprint available on the Cryosphere Discussions. [Link](#).

2019

13. P. Danré, J. Yin\*, **Lipovsky, B. P.**, M. Denolle, "Earthquakes Within Earthquakes: Patterns in Rupture Complexity" (2019). Geophysical Research Letters. [Link](#).
12. S. Olinger\*, **Lipovsky, B. P.**, D. Wiens, R. Aster, P. Bromirski, Z. Chen, P. Gerstoft, A. Nyblade, R. Stephen "Tidal and Thermal Stresses Drive Seismicity along a Major Ross Ice Shelf Rift" (2019). Geophysical Research Letters. [Link](#).

11. **Lipovsky, B.P.**, Meyer, C.R., Zoet, L.K., McCarthy, C., Hansen, D.D., Rempel, A.W., Gimbert, F., “Glacier sliding, seismicity, and sediment entrainment” (2019). *Annals of Glaciology*. [Link](#).
10. Gräff, D.\*, **Lipovsky, B.P.**, Walter, F.. “Crack wave resonances within the basal water layer” (2019). *Annals of Glaciology*. [Link](#).
9. Minchew, B. M., Meyer, C.R., Pegler, S.S., **Lipovsky B.P.**, Rempel, A.W., Gudmundsson, G.H. and Iverson, N.R., “Comment on: “Friction at the bed does not control fast glacier flow” by L. A. Stearns and C. J. van der Veen” (2019). *Science*. [Link](#).

2018

7. Schöpa, A., Chao, W., **Lipovsky, B.P.**, Hovius, N., White, R. S., Green, R. G., Turowski, J. M. Dynamics of the Askja Caldera July 2014 landslide from seismic signal analysis: precursor, motion and aftermath (2018). *Earth Surface Dynamics*, Special issue “From Process to Signal - Advancing Environmental Seismology.” [Link](#).
6. **Lipovsky, B.P.** (2018), “Ice shelf rift propagation and the mechanics of wave-induced fracture”. *J. Geophys. Res. Oceans* [Link](#).

2017

5. **Lipovsky, B.P.**, and Dunham, E. M. (2017), “Slow-slip events on the Whillans Ice Plain, Antarctica, described using rate-and-state friction as an ice stream sliding law”. *J. Geophys. Res. Earth Surface* [Link](#).

2016

4. Mordret, A., Mikesel, D., Harig, C., **Lipovsky, B. P.**, Prieto, G. A. (2016) “Monitoring southwest Greenland’s ice sheet melt with ambient seismic noise”. *Science Advances*. [Link](#).
3. **Lipovsky, B.P.**, and Dunham, E.R. (2016), “Tremor during ice stream stick-slip”. *The Cryosphere*. [Link](#).

2015

2. **Lipovsky, B.P.**, and Dunham, E.R. (2015), “Vibrational modes of hydraulic fractures: Inference of fracture geometry from resonant frequencies and attenuation”. *J. Geophys. Res.* [Link](#).

2014

1. Gonzalez A., Gonzalez-Garcia J.J., Sandwell, D.T., Fialko, Y., Agnew, D.C., **Lipovsky, B.P.**, Fletcher, J.M., Nava-Pichardo, F.A. (2014) GPS coseismic and postseismic surface displacements of the El Mayor-Cucapah earthquake. *J. Geophys. Res.* [Link](#).

## HONORS, FELLOWSHIPS, AND AWARDS

2017	Early Career Scientist Outstanding Presentation Award, WCRP/IOC Conference on Regional Sea Level Changes and Coastal Impacts
2017–2018	Postdoctoral Fellowship, Dept. of Earth and Planetary Sciences, Harvard University
2011–2015	Mannon Family Fellowship, Dept. of Geophysics, Stanford University
2010	AGU Outstanding Student Paper Award

## GRANTS AND FUNDING

- 2020            Lead PI, "An Antarctic Rift Catalog from ICESat-2 Observations" National Aeronautics and Space Administration. \$599,993.
- 2020            Co-PI, "NSFGEO-NERC: Collaborative Research: A new mechanistic framework for modeling rift processes in Antarctic ice shelves validated through improved strain-rate and seismic observations." National Science Foundation. \$363,461.

## FIELD WORK

- 2018–2019      "Seismic observations of rapid subglacial hydrological switching," Solmaheimajokull, Iceland and Gorner Glacier, Switzerland.
- 2015            "High resolution heterogeneity at the Base of Whillans Ice Stream and its Control on Ice Dynamics", Whillans Ice Stream, West Antarctica.
- 2012            "Observational constraints on the processes acting in icefalls from seismicity", Juneau Ice Field, Alaska
- 2010–2011      "Rapid postseismic GPS observations following the El Mayor-Cucapah earthquake", Mexicali, Mexico.

## TEACHING

- 2019            **Lecturer**, Harvard EPS 268, "Machine Learning Across the Earth and Planetary Sciences".
- 2018            **Lecturer**, Harvard EPS 253, "Glaciology".
- 2013–2016      **Teaching Assistant and Informal Guest Lecturer**, Stanford Geophysics 120/220, "Ice, Water, Fire"

## ADVISING

## Graduate Students (Co-advised)

- 2018–            **Seth Olinger**, PhD student at Harvard University studying ice shelf seismology.
- 2019–            **William Flanagan**, Masters student at Harvard University studying subglacial hydrology and seismology.

## Undergraduate Students

- 2017            **Vladislav Sevostianov**, Semester-long internship, Harvard University. Laboratory experiments on the frictional properties of ice.
- 2015            **Janine Birnbaum**, Summer internship, Stanford University. Research focusing on finite element modeling of ice stream loading.
- 2014            **Dilia Olivo**, Summer internship, Stanford University. Research focusing on rapidly repeating stick slip motion in glaciers.

## SYNERGISTIC ACTIVITIES

<i>ongoing</i>	Reviewer for scientific journals, including: The Cryosphere, Geophysical Research Letters, Journal of Geophysical Research, Science Advances, Nature Communications, Earth and Planetary Science Letters, Annals of Glaciology, Journal of the Acoustical Society of America, Proceedings of the National Academy of Sciences
<i>ongoing</i>	Reviewer for government agencies, including: the U.S. National Science Foundation, the U. S. Geological Survey, the Swiss National Science Foundation, the Australian Antarctic Division, and the French Polar Institute Paul-Emile Victor (IPEV)
2020	Convener, “Environmental seismology” session at the Seismological Society of America annual meeting.
2019	Convener, “Environmental seismology: A Geophysical Tool to study Surface and Near Surface Processes” session at the American Geophysical Union Fall Meeting.
2018–19	Scientific Editor, Annals of Glaciology, Special Issue on Cryoseismology
2019	Convener, “Environmental seismology” session at the Seismological Society of America annual meeting.
2018	Convener, “Environmental seismology: using geophysical tools for Earth surface processes research” session at the American Geophysical Union Fall Meeting.
2018	Convener, “Environmental seismology” session at the Seismological Society of America annual meeting.
2016	Participant, United States Ice Drilling Program, Science Advisory Board Meeting
2015	Student Member, Cryosphere Faculty Search Committee, Department Geophysics, Stanford
2014	Student presentation judge, Stanford School of Earth Science Research Review
2013	Convener and chair, “Seismicity in the cryosphere”, session at the Annual Meeting of the American Geophysical Union
2011–2012	Member, Graduate Student Advisory Council, Department of Geophysics
2010–2012	Student Representative, American Geophysical Union, Geodesy Section
2009–2010	University of California–Riverside Earth Science Graduate Association, President

## INVITED PRESENTATIONS

2019	American Geophysical Union, Fall Meeting, Cryosphere section, “ Pathways to eureka from unexplained phenomena and interdisciplinary approaches to glaciology”
2019	Institut de Physique du Globe de Paris
2019	Antarctic Research Centre, University of Wellington
2019	School of Surveying, University of Otago
2019	American Physical Society, “Physics of Natural Phenomena” session.
2019	Department of Geology and Geophysics, Woods Hole Oceanographic Institution
2019	Department of Mechanical Engineering, University of Colorado at Boulder
2018	Grands Séminaires ISTerre, Institut des Sciences de la Terre, Université Grenoble Alpes
2018	Institut des Géosciences de l’Environnement, Université Grenoble Alpes
2017	Brown University Department of Earth, Environmental and Planetary Sciences, Department Colloquium
2017	Lamont Doherty Earth Observatory, Seismology Seminar
2016	Massachusetts Institute of Technology, Friday Informal Seminar Hour
2016	University of Kansas
2016	University of Washington, Glaciology Lunch
2015	University of California, Santa Cruz
2015	Massachusetts Institute of Technology, Friday Informal Seminar Hour
2014	American Geophysical Union Fall Meeting, Invited Presentation
2014	Scripps Institution of Oceanography, Institute of Geophysics and Planetary Physics, University of California–San Diego
2014	California Institute of Technology
2013	Earthquake Research Institute, University of Tokyo, Japan
2010	Southern California Earthquake Center Annual Meeting: Workshop on Transient Anomalous Strain Detection
2010	USGS Public Lecture Series Symposium at Pasadena City College
2009	Southern California Earthquake Center Annual Meeting: Workshop on Transient Anomalous Strain Detection