Last update: 2025-06-23

BRADLEY PAUL LIPOVSKY

Department of Earth and Space Sciences
University Washington
Seattle, WA 98103

bpl7@uw.edu
http://bradlipovsky.github.io

RESEARCH AND TEACHING INTERESTS

- **Mechanics of Earth processes**: creating novel mechanical models of fundamental Earth processes, especially models that relate to geophysical observables such as seismic waves; novel wave propagation problems, especially involving multiphase coupling
- **Fiber sensing**: leveraging the ongoing revolution in optical fiber-based sensing methods to make new observations of earth, environmental, and planetary processes. Encompasses existing technologies, i.e., distributed acoustic sensing (DAS) and distributed temperature sensing (DTS), as well as collaborations to develop new sensing strategies, i.e., over longer range or with lower power requirements.
- **Environmental geophysics**: the use of seismology, remote sensing, distributed sensing, or other measurements of physical quantities to create knowledge about environmental systems
- **Glaciology**: ice dynamics, basal sliding, ice fracture, ice shelves and ice streams, ice–ocean interactions

EDUCATION AND EMPLOYMENT

2020 –	Assistant Professor, **University of Washington**, Department of Earth and Spaces Sciences
2018 – 2020	Lecturer, Research Associate, **Harvard University** Dept. of Earth and Planetary Sciences
2017–2018	Postdoctoral Research Associate, **Harvard University**, Dept. of Earth and Planetary Sciences. Supervisor: James Rice.
2017	Doctor of Philosophy, **Stanford University**, Geophysics. Supervisor: Eric Dunham (Dept. of Geophysics and Institute for Computational and Mathematical Engineering)
2011	Master of Science, **University of California, Riverside**, Earth Science. Supervisor: Gareth Funning (Dept. of Earth Science).
2008	Bachelor of Arts, **Cornell University** , Mathematics
2004	Associate of Arts, **Lake Tahoe Community College**, Mathematics

PEER-REVIEWED PUBLICATIONS

** Student or postdoc in my research group*

Submitted

37. Fitchner, A. ... **Lipovsky, B.P.**,"Fibre-optic exploration of the cryosphere." Submitted to Geophysical Journal International, 20 June 2025. Preprint.
36. Edasi, S. H.*, **Lipovsky, B.P.**,"Training Glaciers to Ignore the Oceans: A Global Data-Driven Assessment of Glacier–Ocean Interactions." Submitted to Journal of Glaciology on 10 June 2025.
35. Graeff, D.*, **Lipovsky, B.P.**, and 21 co-authors, "Tidewater glacier calving process chain illuminated by seafloor fiber sensing." Submitted on 17 March 2025.

34. Bezu, C.*, **Lipovsky, B.P.**, Shapero, D., Banwell, A.F., "Ice shelf evolution combining flow, flexure, and fracture'.' Revised for Journal of Glaciology, June. 2025

33. Cruz, C*. and **Lipovsky, B.P.** , "Fracturing during freezing in salty ice: preliminary analysis using a low-cost model system", Submitted to Journal of Glaciology, Feb. 2025

32. McGuire, J.J., ... **Lipovsky, B.P.** , and 20 coauthors, "Fiber Optic Sensing for Earthquake Hazards Research, Monitoring and Early Warning." Submitted to Seismological Research Letters, Feb. 2025.

31. Glover, H. E., M.M. Smith; M.E. Wengrove, E.F. Williams*, J. Thomson, M. Ifju, **Lipovsky, B.P.** , "Comparisons of Seafloor Distributed Fiber-optic Sensing Datasets and Empirical Calibrations for Inferring Ocean Surface Gravity Waves." Submitted revisions Feb 2025, Journal of Atmospheric and Oceanic Technology. Preprint.

2025

30. Morris, A*., **Lipovsky, B. P.**, Walker, C.C., Marsh, O. ,"Measurement of Ice Shelf Rift Width with ICESat-2 Laser Altimetry: Automation, Validation, and the Behavior of Halloween Crack, Brunt Ice Shelf, East Antarctica", Accepted June 2025. Preprint.

29. Shi, Q.*, E. F. Williams*, **B. P. Lipovsky**, M, A. Denolle, W. S. Wilcock, D. S. Kelley, K. M. Schoedl, "Multiplexed Distributed Acoustic Sensing offshore Central Oregon," Accepted, Seismological Research Letters, Feb 2025. DOI.

28. Chien, C., Gerstoft, P., Hatfield, W., Hollberg, L., **Lipovsky, B.P.**, Manos*, J.M., Mellors, R., Winebrenner, D., Zumberge, M., Calibrating Strain Measurements: A Comparative Study of DAS, Strainmeter, and Seismic Data. AGU Earth and Space Science. DOI.

2024

27. Svennevig, ... **Lipovsky, B. P.**, ..., and 66 other co-authors, "An Extraordinary Tsunamigenic Rockslide Into a Greenland Fjord Rang The Earth For 9 Days", Science. DOI.

26. Ni, Y.*, Denolle, M. A., Shi, Q., **Lipovsky, B. P.**, Pan, S., Kutz, J. N., Wavefield reconstruction of distributed acoustic sensing: compression, wavefield separation, and edge computing, Journal of Geophysical Research – Machine Learning. DOI.

25. Manos, J. M.*, Gräff, D., Martin, E., Paitz, P., Walter, F., Fichtner, A., **Lipovsky, B. P.** (2024). DAS to Discharge: Using Distributed Acoustic Sensing (DAS) to infer glacier runoff. Journal of Glaciology. DOI.

24. Olinger, S.*, **Lipovsky, B. P.**, Denolle, M., "Ocean coupling controls rupture velocity of fastest observed ice shelf rift propagation event," (2024). AGU Advances. DOI.

2023

23. Yiyu, N.*, Denolle, M.A., Fatland, R., Alterman, N., **Lipovsky, B.P.**, and Knuth, F., "An Object Storage for Distributed Acoustic Sensing", (2023). Link.

22. Douglass, A.*, Abadi, S., **Lipovsky, B. P.**, "Distributed Acoustic Sensing for detecting near surface hydroacoustic signals" (2023) JASA Express Letters. Link.

21. Booth, A., Christoffersen, P., Pretorius, A., Chapman, J., Hubbard, B., Smith, E., de Ridder, S., Nowacki, A., **Lipovsky, B. P.**, Denolle, M. "Characterising sediment thickness beneath a Greenlandic outlet glacier using distributed acoustic sensing: preliminary observations and progress towards an efficient machine learning approach" (2023). Annals of Glaciology. Link.

20. Wilcock, W., Abadi, S., **Lipovsky, B. P.**, "Distributed Acoustic Sensing recordings of low-frequency whale calls and ship noises offshore central Oregon" (2023). JASA Express Letters. Link.

2022

19. Köpfli, M.* , Gräff, D. , **Lipovsky, B. P.**, Selvadurai, P. A., Farinotti, D., Walter, F., "Hydraulic Conditions for Stick-Slip Tremor Beneath an Alpine Glacier" (2022). Geophysical Research Letters. Link.

18. S. Olinger*, **Lipovsky, B. P.**, Denolle, M. A., Crowell, B. "Tracking the Cracking: a Holistic Analysis of Rapid Ice Shelf Fracture Using Seismology, Geodesy, and Satellite Imagery on the Pine Island Glacier Ice Shelf, West Antarctica" (2022). Geophysical Research Letters. Link.

17. **Lipovsky, B. P.**, "Density matters: ice compressibility and glacier mass estimation" (2022). Link.

2021

16. Gräff, D.*, Kopfli, M., Walter, F., **Lipovsky, B. P.**, Selvadurai, P. A., Daniel Farinotti, D., "Sub-Structure of Microseismic Stick-Slip Ruptures at the Bed of an Alpine Glacier," (2021) Geophysical Research Letters. Link.

15. Guerin, G.*, Mordret, A., Rivet, D., **Lipovsky, B. P.**, Minchew, B. M., "Frictional origin of slip events of the Whillans Ice Stream, Antarctica." (2021) Geophysical Research Letters. Link.

14. Aster, R. C., **Lipovsky, B. P.**, Cole, M. S. H, Bromirski, P. D., Gerstoft, P., Nyblade, A., Wiens, D., Stephen, R., "Swell-Triggered Seismicity at the Near-Front Damage Zone of the Ross Ice Shelf" (2021). Seismological Research Letters. Link.

2020

13. **Lipovsky, B. P.**, "Ice shelf rift propagation: stability, three dimensional effects, and the role of marginal weakening" (2020). The Cryosphere. Link.

2019

12. Danré, P., Yin, J.*, **Lipovsky, B. P.**, Denolle, M. "Earthquakes Within Earthquakes: Patterns in Rupture Complexity" (2019). Geophysical Research Letters. Link.

11. 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.

10. **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.

9. Gräff, D.*, **Lipovsky, B.P.**, Walter, F.. "Crack wave resonances within the basal water layer" (2019). Annals of Glaciology. Link.

8. 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 – 2014

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.
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.
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.
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.

GRANTS AND FUNDING

8. "Collaborative Research: GreenFjord-FIBER, Observing the Ice-Ocean Interface with Exceptional Resolution", 2024, Lead PI, National Science Foundation, $497,704.
7. Supplement to STC: Center for OLDest Ice EXploration, 2024, Co-PI, National Science Foundation, $52,329.
6. "RAPID: Multiplexed Distributed Acoustic Sensing (DAS) at the Ocean Observatory Initiative (OOI) Regional Cabled Array (RCA)", 2024 , Lead PI, National Science Foundation, $198,069.
5. "Acoustic Monitoring of Marine Mammals with Distributed Acoustic Sensing (DAS): Applications to Southern Resident Killer and Humpback Whales", 2023 , Co-PI, Paul G. Allen Family Foundation, $1,500,000.
4. Collaborative Research: Improving Model Representations of Antarctic Ice-shelf Instability and Breakup due to Surface Meltwater Processes," 2023 , Co-PI, "National Science Foundation. $371,742.
3. "A Photonic Sensing Facility at the University of Washington," 2021 , Lead PI, The Murdock Charitable Trust, $947,000.
2. "An Antarctic Rift Catalog from ICESat-2 Observations," 2020 , Lead PI, National Aeronautics and Space Administration. $599,993.
1. "NSFGEO-NERC: Collaborative Research: A new mechanistic framework for modeling rift processes in Antarctic ice shelves validated through improved strain-rate and seismic observations," 2020 , Co-PI, National Science Foundation. $362,278.

Total funds raised: $4,529,115.

FIELD WORK

2024	Cook Inlet, Alaska, USA
2023	Mt Rainier, WA, USA
2023	Eqalorutsit Kangiglit Sermiat, Southern Greenland
2021	Easton Glacier, WA, USA.
2018–2019	"Seismic observations of rapid subglacial hydrological switching," Solmaheimajokull, Iceland and Gorner Glacier, Switzerland.
2015	"High resolution heterogeneity at the Base of Whillians 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

2022-23	UW ESS 107, "Introduction to the Cryosphere"
2021	UW ESS 411/511, "Continuum Mechanics"
2019	Harvard EPS 268, "Machine Learning Across the Earth and Planetary Sciences".
2018	Harvard EPS 253, "Glaciology".
2013–2016	*Teaching assistant*, Stanford Geophysics 120/220, "Ice, Water, Fire"

ADVISING

Postdoctoral Scholars

2024-	**Qibin Shi**, submarine Distributed Acoustic Sensing
2023-	**Chris Miele**, Ice shelf flow, fracture, and flexure
2023-	**Ethan Williams**, *UW Geohazards Initiative Postdoctoral Fellow*, Distributed acoustic sensing of ocean surface gravity waves. Starting as Assistant Professor at U.C. Santa Cruz, Summer 2025.
2022-	**Dominik Gräff**, Distributed acoustic sensing in Greenland
2021-2023	**Ash Morris**, ICESat-2 Antarctica Rift Catalog. Now Remote Sensing Officer for the Svalbard Integrated Arctic Earth Observing System. Website.

Doctoral Students

2022–	**Veronica Gaete Elgueta**, Distributed acoustic sensing in volcanic environments
2021–	**Parker Sprinkle**, Enhanced Geothermal Systems
2021–	**John-Morgan Manos**, Geophysical observations of glacier surface hydrology.
2018-2023	**Steph Olinger**, PhD student at Harvard University studying ice shelf seismology. Co-advised with Marine Denolle. Now the Thomsen Postdoctoral Fellow in the Department of Geophysics at Stanford University. Website.

Masters Students

2021-2024	**Simon Hans Edasi**, PhD Student at UW, Machine learning and glacier thickness estimation

Undergraduate Students

2023-	**Jake Ward**, DAS earthquake detection
2023-	**Cody Cruz**, Ice hydraulic fracturing experiments
2022-	**Aidan Dealy**, ICESat-2 Ice Shelf Roughness
2021-2023	**Amanda Syamsul**, Surface loading and earthquakes. Now a PhD student at UCSC.
2021	**Victoria Johnson**, Glacier seismology
2021	**Simon Hans Edasi**, Machine learning in glaciology
2019	**William Flanagan**, Masters student at Harvard University studying subglacial hydrology and seismology. Co-advised with Marine Denolle.
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.

External examinations

2024-	**Carlos Becerril**, Université Côte d'Azur. "Dévelopment de la measure acoustique distribuée (Distributed Acoustic Sensors, DAS) en basse fréquence pour la détection des tsunamis."

SYNERGISTIC ACTIVITIES

Leadership and Advisory Roles

2024	Invited Participant, Internet-S Workshop
2024	Invited Participant, Second Rapid Access Ice Drilling (RAID) Workshop
2024	Participant, Joint Task Force on SMART Cables, Sensor Review Working Group
2022-2024	Invited Participant, United States Geological Survey (USGS) Powell Center, "Optical Fiber Seismology"
2023	Invited Participant, Bureau of Offshore Energy Management, Particle Motion and Substrate Vibration Workshop
2023	Cryosphere Section Lead, Distributed Acoustic Sensing (DAS) Research Coordination Network (RCN).
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
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

Editorial Roles

2023-24	Handling Editor, Seismica
2018–19	Scientific Editor, Annals of Glaciology, Special Issue on Cryoseismology

Conference Leadership

2023	Co-chair, Understanding Earth Systems with Fiber-Optic Cables, Seismological Society of America Annual Meeting
2021-22	Co-chair, Distributed Acoustic Sensing (DAS) Research Coordination Network (RCN), Cryosphere Working Group
2018-21	Convener, "Environmental seismology: A Geophysical Tool to study Surface and Near Surface Processes" session at the American Geophysical Union Fall Meeting.
2018–20	Convener, "Environmental seismology" session at the Seismological Society of America annual meeting.
2013	Convener and chair, "Seismicity in the cryosphere", session at the Annual Meeting of the American Geophysical Union

Journal and Other Reviewing Activity

ongoing	Reviewer for scientific journals, including: Science, Science Advances, Proceedings of the National Academy of Sciences, The Cryosphere, Geophysical Research Letters, Journal of Geophysical Research, Nature Communications, Earth and Planetary Science Letters, Journal of Glaciology, Annals of Glaciology, Cold Regions Science and Technology, Remote Sensing of Environment, Ocean Engineering, Journal of the Acoustical Society of America
ongoing	Reviewer for government agencies, including: the National Aeronautics and Space Administration, 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)

PROFESSIONAL AWARDS AND SERVICE

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

UW COMMITTEES, DUTIES, AND SERVICE

Committees

2021-23	Graduate Student Admissions Committee. Wrote code to migrate applications out of MyGrad. Organized visits for the majority of admitted students.
2021-22	Colloquium Committee

Service

2021-23	Founding PI of the University of Washington Photonic Sensing Facility, a facility currently used by half a dozen UW research groups and about as many external groups. Successfully funded the facility and procured major equipment.
2021-22	Oversaw renovations of a postdoctoral researcher office space (ATG 219) and a shared geophysical field lab space (ATG 211)
2021-22	Supported renovations of a High Performance Computing (HPC) lab (JHN 375; project lead Marine Denolle)
2021-22	Participated in the Opportunities in Glacier InVEstigation (OGIVE) summer undergraduate research program (organized by T. J. Fudge). Wrote proposals for external funding for the program (pending).

INVITED TALKS AND OUTREACH

2025

- Fiber Optic Sensing Association (FOSA) Mid-Year Meeting at UC Berkeley, Invited Keynote
- Glaciology Outreach Talk, Kulshan Randonnée Race, Concrete WA
- GFZ, Seminar Series on Rifts and Rifted Margins, Online
- Oxford University, Department of Earth Sciences Colloquium

2024

- Pacific Northwest National Laboratory, Subsurface Science Seminar
- 2nd RAID Science Planning Workshop, 2024, Invited Disciplinary Talk on Borehole Instrumentation
- Institut Français de Recherche pour l'Exploitation de la Mer, Laboratory for Ocean Physics and Satellite remote sensing, Seminar Talk
- University of Oregon, Department of Earth Sciences, Department Colloquium
- University of California at Los Angeles, Department of Earth, Planetary, and Space Sciences, Department Colloquium

2023

- International Union of Geology and Geophysics (IUGG), Berlin, Invited Presentation in session "Advances in Earthquake and Explosion Monitoring Using Distributed Acoustic Sensing"
- Oregon State University, College of Earth, Ocean, and Atmospheric Sciences, Department Colloquium
- University of California at Los Angeles, Department of Earth, Planetary, and Space Sciences, Department Colloquium

2022

- Boise State University, Department of Geoscience, Department Colloquium
- University of Montana, Department of Computer Sciences, Department Colloquium
- NASA Goddard Sea Level Rise Seminar

2021

- Invited Participant, AGU Fall Meeting, SCIWS7, Distributed Acoustic Sensing in Earth Sciences: From Novice to Cutting Edge
- University of California at Santa Cruz, Department of Earth and Planetary Sciences Colloquium

2020

- Oxford University, Department of Earth Sciences, Seismology Seminar
- University of Washington, Department of Earth and Space Sciences, Colloquium

2019

- American Geophysical Union, Fall Meeting, Cryosphere section, " Pathways to eureka from unexplained phenomena and interdisciplinary approaches to glaciology"
- Institut de Physique du Globe de Paris, Geophysics Seminar
- Antarctic Research Centre, University of Wellington, Glaciology Seminar
- American Physical Society, "Physics of Natural Phenomena" session
- Department of Geology and Geophysics, Woods Hole Oceanographic Institution
- Department of Mechanical Engineering, University of Colorado at Boulder

2018

- Grands Séminaires ISTerre, Institut des Sciences de la Terre, Université Grenoble Alpes (Honorary)

2017

- Brown University Department of Earth, Environmental and Planetary Sciences, Department Colloquium
- Lamont Doherty Earth Observatory, Seismology Seminar

2016

- Massachusetts Institute of Technology, Friday Informal Seminar Hour (FISH)
- University of Kansas, Department Colloquium
- University of Washington, Glaciology Lunch

2015

- University of California, Santa Cruz, Department of Earth and Planetary Sciences Colloquium
- Massachusetts Institute of Technology, Friday Informal Seminar Hour (FISH)

2014

- American Geophysical Union Fall Meeting, Invited Presentation
- Scripps Institution of Oceanography, Institute of Geophysics and Planetary Physics, University of California–San Diego
- California Institute of Technology, Seismo Lab Seminar

pre-2013

2013	Earthquake Research Institute, University of Tokyo, Seminar Talk
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