

EINAT LEV

Lamont-Doherty Earth Observatory, Columbia University
61 Route 9W, Palisades, NY 10964
845-365-8616 einatlev@ldeo.columbia.edu

EDUCATION

2009	Ph.D.	Massachusetts Institute of Technology, Cambridge MA Title: Seismic and Viscous Anisotropy in the Earth's Mantle: Observations and Implications. Adviser: Bradford H. Hager	Geophysics
2001	B.Sc.	Tel-Aviv University, Tel-Aviv, Israel	Geophysics and Computer science

APPOINTMENTS

7/18-present	–	Lamont Associate Research Professor (junior), Columbia University, New York, NY (included a maternity leave in 2020-2021 and reduced activity in 2020-2021 during COVID-19 due to parental roles)
9/13-6/18	–	Lamont Assistant Research Professor, Columbia University, New York, NY (included a maternity leave in 2014)
9/14-11/14	–	Visiting professor, Earth Research Institute, University of Tokyo, Japan
10/09-08/13	–	Lamont-Doherty Postdoctoral Fellow, Columbia University, New York, NY
7/09-9/09	–	Postdoctoral researcher, Massachusetts Institute of Technology, Cambridge, MA
9/03-6/09	–	Graduate Research Assistant, Massachusetts Institute of Technology, Cambridge, MA
6/00-6/03	–	Software engineer, Gilat Satellite Networks, Israel

GRANTS AND AWARDS (AT LDEO)

- “Collaborative Research: Laboratory and theoretical study of geyser dynamics”, NSF award TBD (lead, \$207,000).
- “RISE: Take a Look Inside: Magnetic Resonance Imaging of Magma Analogues to Study Volcanic Eruptions”, Columbia University (co-lead, \$160,000)
- “Anticipating Volcanic Eruption in Real-Time (AVERT)” Moore Foundation (co-lead, \$2,450,000)
- “NSF/GEO-NERC: Collaborative Research: Multi-scale investigation of rheology and emplacement of multi-phase lava” NSF award EAR-1929008 (lead, \$374,000)
- “CAREER: Investigating the Impact of Temporal and Spatial Variations on Lava Emplacement Through Numerical and Physical Models” NSF award EAR-1654588 (lead, \$540,000)
- “RISE: Investigating magma dynamics and volcanic eruptions using real-time 4D microscopy of bubble interactions with a flowing solid-liquid mush”, Columbia University (lead, \$160,000)
- “Lunar Impact Melt Flows: Geological Mapping, Experimental Simulation, and Numerical Modeling”, NASA award 14-SSW14-2-0067 (\$106,000)
- “NSF INCLUDES Early Engagement in Research: key to STEM retention”, NSF award 1649310 (\$300,000)
- “Active Lava Lakes as a Window into Magma and Volcano Dynamics” NSF award EAR-1348022 (lead, \$310,000)
- “Collaborative Proposal: Evolution of Lava Channel Networks: Implications for Lava Flow Hazards and Mitigation”, Lead PI: Katherine Cashman. NSF award EAR-1250554 (\$40,000)

Visiting professorship exchange program, Earthquake Research Institute (ERI), University of Tokyo, 2014 (est. worth \$25,000)

“Connecting Lava Rheology and Flow Dynamics Using Novel Field and Modeling Techniques”, NSF award EAR-1118943 (lead, \$150,000).

Brinson Foundation funding for extension of postdoctoral fellowship at LDEO (\$40,000)

LDEO Advisory Board Innovation Award – Lava rheology field experiment (\$20,000)

REFEREED ARTICLES

(†=student/postdoc)

In review/revision

†Carr, B., **Lev, E.**, Bennett, K., Edwards, C., Soule, A., Vallejo Vargas, S., *Mapping and classification of volcanic deposits using multi-sensor Unoccupied Aerial Systems*, Revision submitted to Remote Sensing of the Environment

Role: Lead collaboration with co-authors; guided data collection in the field; mentored postdoctoral scientist (lead author); reviewed and provided feedback on entire manuscript

†Birnbaum, J., **Lev, E.** and Llewellyn, E., *Rheology of three-phase lava analogues determined via dam-break experiments*, In review at Proceedings of the Royal Society A

Role: Initiated the project, supervised graduate student first author, participated in experiments and writing.

Lev, E., Hamilton, C., Stadermann, A. and Neish, C., *Emplacement conditions of lunar impact melt flows*, In revision at Icarus.

Role: Co-PI on funding grant, lead modeling and writing efforts

2021

Lev, E., *UAVs for volcanology studies*, in UAVs in Environmental Sciences, ed. A. Eltner and A. Rovere (WBG Publishers), in press

Role: Invited; Sole author

26. †Oppenheimer, J., Patel, K., Lindoo, A., Hillman, E.M.C. and **Lev, E.**. *High-Speed 3D Imaging of Multiphase Systems: Applying SCAPE Microscopy to Analogue Experiments in Volcanology and Earth Sciences*, Geochemistry, Geophysics, Geosystems (2021), e2020GC009410

Role: Initiated project and secured funding; guided experiments; mentored postdoctoral scientist (lead author); coordinated writing of the manuscript; reviewed and provided feedback on entire manuscript.

25. †Conroy, C., and **Lev, E.** (2020), *A discontinuous Galerkin finite element model for “high” speed channelized lava flows*, Geoscientific Model Development – Discussions (2021) 1-27

Role: Initiated the project; Provided field observations and performed velocimetry analysis; Supervised postdoc lead author.

2020

24. **Lev, E.** and Boyce, C. *Opportunities for Characterizing Geological Flows Using Magnetic Resonance Imaging*. iScience (2020), 101534.

Role: Initiated the project; lead writing of section about geological applications; produced figures; reviewed and provided feedback on entire manuscript.

23. Dundas, C. M., Keszthelyi, L., **Lev, E.**, Rumpf, M. E., Hamilton, C. W., Höskuldsson, Á. and Thordarson, T. *Lava-water interaction and hydrothermal activity within the 2014-2015 Holuhraun Lava Flow Field, Iceland*. Journal of Volcanology and Geothermal Research (2020) 408, 107100.

Role: Performed video velocimetry analysis for river flow rates; Participated in field work and manuscript writing.

22. Le Moigne, Y., Zuerk, J., Williams-Jones, G., **Lev, E.**, Calahorrano-Di Patre, A. and Anzieta, J. *Standing Waves in High Speed Lava Channels: A Tool for Constraining Lava Flow Dynamics and Eruptive Parameters*, Journal of Volcanology and Geothermal Research (2020) 401. doi: 10.1016/j.jvolgeores.2020.106944

Role: Performed video velocimetry analysis; Provided input on flow dynamics and rheology; Participated in writing of the manuscript.

21. James, M. R., Carr, B., D'Arcy, F., Diefenbach, A., Dietterich, H., Fornaciai, A., **Lev, E.**, Liu, E., Pieri, D., Rodgers, M., Smets, B., Terada, A., von Aulock, F., Walter, T., Wood, K. and Zorn, E. *Volcanological applications of unoccupied aircraft systems (UAS): Developments, strategies, and future challenges*, Volcanica, (2020) 3(1), pp. 67-114. doi: 10.30909/vol.03.01.67114

Role: Led and wrote section on effusive eruptions; Provided feedback on entire article

2019

20. †Birnbaum, J., Keller, T., Suckale, J. and **Lev, E.**, *Periodic outgassing as a result of unsteady convection in Ray Lava Lake, Mount Erebus, Antarctica*, Earth and Planetary Science Letters (2019) 530, 115903.

Role: Initiated collaboration between the teams; Provided field observations of lake dynamics; Mentored graduate student lead author during writing.

19. **Lev, E.**, Ruprecht, P., Oppenheimer, C., Peters, N., Patrick, M., Hernandez, P., Spampinato, L., Marlow, J., *A global synthesis of lava lake dynamics*, Journal of Volcanology and Geothermal Research (2019) 381, 16-31

Role: Initiated the project; Gathered data from collaborators; Lead all the data analysis; Wrote the manuscript

18. **Lev, E.**, †Rumpf, M.E. and Dietterich, H., *Analog experiments of lava flow emplacement*, Annals of Geophysics, 61 (2019), 53.

Role: Wrote the manuscript; Participated in and guided the laboratory experiments included in it; Mentored student participants

17. Rudolph, M., Sohn, R. and **Lev, E.**, *Fluid oscillations in a laboratory geyser with a bubble trap*, Journal of Volcanology and Geothermal Research, 368, 100-110

Role: Designed and participated in laboratory experiments; Analysed video recordings of experiments;

16. Morrison, A., Zanetti, M., Hamilton, C., **Lev, E.**, Neish C., and Whittington, A., *Rheological investigation of lunar highland and mare impact melt simulants*, Icarus, v. 317 (2019), 307-323.

Role: Co-PI on the grant funding the project; Participated in discussions of rheology and impact melt flow dynamics and in writing the manuscript

2018

15. †Rumpf, M.E., **Lev, E.** and Wysocki, R., *The influence of small-scale topography on lava flow advance*, Bulletin of Volcanology (2018), 80(7), 63.

Role: Initiated the project; Directed the lead author in laboratory work; Coordinated lava lab experiments; Guided writing of manuscript; Mentored the postdoc first author

2017

14. Dietterich, H., **Lev, E.**, Chen, J., Richardson, J. and Cashman, K., *Benchmarking computational fluid dynamics models of lava flow simulation for hazard assessment, forecasting, and*

risk management, Journal of Applied Volcanology (2017) 6:9

Role: Initiated the benchmarking effort; Conducted experiments using one of the tools; Participated in writing of the manuscript; Mentored postdoc first author

2016

13. Patrick, M., Orr, T., Swanson, D.A. and **Lev, E.**, *Shallow and deep controls on lava lake surface motion at Kīlauea Volcano*, Journal of Volcanology and Geothermal Research (2016), doi: 10.1016/j.jvolgeores.2016.11.010.

Role: Conducted velocimetry analysis of lava lake footage; Participated in discussions and writing of the manuscript.

12. Patrick, M., Orr T., Sutton, A.J., **Lev, E.**, Thelen, W. and Fee, D., *Gas pistonning and episodic outgassing in the lava lake at Halema'uma'u Crater, Kīlauea Volcano, during 2010–2014*, Earth and Planetary Science Letters, v. 433, p. 326-338 (2015) doi:10.1016/j.epsl.2015.10.052

Role: Conducted velocimetry analysis of lava lake footage; Participated in discussions and writing of the manuscript.

2015

11. Dietterich, H., Cashman, K., Rust, A. and **Lev, E.** *Diverting lava flows in the laboratory*, Nature Geoscience, v. 8, no. 7, (2015), doi: 10.1038/ngeo2470

Role: Co-PI on the funding grant; Participated in and guided lava lab experiments; Participated in discussions and writing of the manuscript

10. Cordonnier, B., **Lev, E.** and Garel, F., *Benchmarking volcanic mass flow models*. In: Detecting, Modeling and Responding to Effusive Eruptions, Geological Society, London, Special Publications, V. 426 (2015), doi: 10.1144/SP426.7

Role: Initiated the benchmarking effort; Lead discussions of which benchmarks to select and what codes to include; Reached out to benchmark participants to obtain results; Participated in writing of the manuscript

2014

9. **Lev, E.** and James, M. R., *The Influence of Cross-sectional Channel Geometry on Rheology and Flux Estimates for Active Lava Flows*, Bull. Volcanol., v. 76 (2014), doi: 10.1007/s00445-014-0829-3

Role: Conducted the research and the entire modeling activity; Designed and ran all models and post-analysis. Wrote the manuscript.

2013

8. Edwards, B., J. Karson, R. Wysocki, **E. Lev**, U. Keuppens, *Experimental Insights on Natural Lava-Ice/Snow Interactions*, Geology, v. 41, p. 851-854 (2013) doi: 10.1130/G34305.1

Role: Participated in lava lab experiments and data collection; Provided velocimetry and thermal data analysis; Participated in writing of the manuscript.

2012

7. **Lev, E.**, M. Spiegelman, J. Karson and R. Wysocki, *Investigating lava flow rheology using video analysis and numerical flow models*, Journal of Volcanology and Geothermal Research, v. 247-248, p. 62-73 (2012) doi:10.1016/j.jvolgeores.2012.08.002

Role: Initiated the project and secured funding; Lead lava lab experiments; Conducted all data analysis; Designed and ran numerical models; Wrote the manuscript.

2011 and earlier (results of PhD thesis)

6. **Lev, E.** and B.H. Hager, *Anisotropic viscosity changes the thermal structure of subduction zone wedges*, Geochem. Geophys. Geosys., v. 12 (2011), Q04009, doi:10.1029/2010GC003382

5. Grove, T. L. , C. B. Till, **E. Lev**, N. Chatterjee and E. Médard, *Kinematic variables and water transport control the formation and location of arc volcanoes*, Nature, v. 459 (2009), doi:10.1038/nature08044.
4. **Lev, E.** and B.H. Hager, *Prediction of anisotropy from flow models – a comparison of three methods*, Geochem. Geophys. Geosys., v. 9 (2008), Q07014, doi:10.1029/2008GC002032
3. **Lev, E.** and B.H. Hager, *Rayleigh-Taylor Instabilities with anisotropy lithospheric viscosity*, Geophys. Jour. Int., v. 173 (2008), p. 806-814
2. Sol, S., Meltzer, A., Burgmann, R., van der Hilst, R.D., King, R., Chen, Z., Koons, P.O., **Lev, E.**, Liu, Y.P., Zeitler, P.K., Zhang, X., Zhang, J., Zurek, B., *Geodynamics of the southeastern Tibetan Plateau from seismic anisotropy and geodesy*, Geology, v. 35 (2007), p. 563-566.
1. **Lev, E.**, M. D. Long and R.D. van der Hilst, *Seismic anisotropy in eastern Tibet from shear wave splitting reveals changes in lithospheric deformation*, Earth. Planet. Sci. Lett., v. 251 (2006) 293-304.

ARTICLES NEARING SUBMISSION

(†=student/postdoc; Drafts available upon request)

1. Carr, B., **Lev, E.** *Lava dome stability at Sinabung Volcano, Indonesia: insight from UAS-derived 4D structure and slope stability models*, To be submitted to Journal of Volcanology and Geothermal Research

INVITED PRESENTATIONS

Lava flows, magma rheology, and volcanology:

1. *Review of Lava Flow Research*, CIDER conference, Berkeley, Summer 2019
2. *Academia's role during the response to the 2018 Kilauea eruption*, CONVERSE workshop, November 2018
3. *Field observations as constraints for numerical models of lava flows and lakes*, Cities on Volcanoes 10, Naples, Italy, September 2018
4. Geology and Environmental Science department seminar, Ben-Gurion University, Be'er-Sheva, Israel, April 2017
5. School of Earth and Planetary Science, Tel-Aviv University, Israel, April 2017
6. Geology department seminar, City College, the City University of New York, November 2016
7. Department of Earth and Planetary Science, American Museum of Natural History, March 2016
8. Penn State geology department seminar, April 2015
9. Department of Geological Sciences, University of Oregon, February 2015
10. The Levich Institute for Physico-chemical Hydrodynamics, City University of New York, February 2015
11. Department of Geophysics, Stanford University, February 2015
12. Earthquake Research Institute, Tokyo University, November 2014
13. National Institute of Earth Science and Disasters (NIED), Japan, October 2014
14. Geological Sciences department, Tokyo University, September 2014
15. Geology department, Yale University, April 2014
16. *Investigating lava flow rheology using video analysis and numerical flow models*, IAVCEI meeting, Japan 2013
17. Division of Geological and Planetary Sciences, California Institute of Technology, January 2013
18. Dept. of Geology and Planetary Science, University of Pittsburgh, November 2012
19. Department of Environmental Sciences and Energy Resources, Weizmann Institute of Science, Israel, May 2012
20. Department of Earth and Planetary Science, American Museum of Natural History, March 2012

Anisotropic viscosity in geodynamical flow models:

1. SUNY-Stony Brook Geology Colloquium, 2010
2. Lamont-Doherty Earth Observatory, LDEO, April 2009
3. Physics Department, Colorado University-Boulder, March 2009
4. *Anisotropic viscosity in geodynamical flow models*, CIG Mantle convection and lithospheric dynamics, UC-Davis, July 2008
5. *Anisotropic viscosity in geodynamical flow models*, Gordon Research Conference on Rock Deformation, NH, August 2008
6. Department of Geosciences, Princeton University, April 2008
7. Department of Earth, Environmental and Planetary Sciences, Brown University, 2007
8. Geology and Geophysics department, Woods Hole Oceanic Institute, 2006

CONFERENCE TALKS AND POSTERS

1. Halverston, B., Whittington, A., Hammer, J., Degraffenried, R. **Lev, E.**, Dietterich, H., †Birnbbaum, J., Patrick, M., Parcheta, C., †Carr, C., Zoeller, M., Trusdell, F., Llewellyn, E., *V002-0016 - Vesicularity, crystallinity, and implications for rheology of the Kīlauea 2018 Lava Flows*, AGU Fall meeting, December 2020
2. Namiki, A., **Lev, E.**, †Birnbbaum, J., *An Experimental Model of Unconfined Bubbly Lava Flows*, AGU Fall meeting, December 2020
3. Halverston, B., Whittington, A., Hammer, J., Degraffenried, R. **Lev, E.**, Dietterich, H., †Birnbbaum, J., Patrick, M., Parcheta, C., †Carr, C., Zoeller, M., Trusdell, F., Llewellyn, E., *Vesicularity and Rheology of the Kīlauea 2018 Lava Flows*, Goldschmidt conference, June 2020
4. **E. Lev**, J. Birnbbaum†, C. Conroy†, A. Whittington, B. Halverson, J. Hammer, E. Llewellyn, *The rheology of three-phase lavas and magmas*, Goldschmidt conference, June 2020
5. †Birnbbaum, J. and **Lev, E.**, *Investigating the rheology of particle- and bubble-bearing lava using analogue flows and numerical simulations*, GSA annual meeting, September 2019
6. †Carr, B., **Lev, E.**, Bennett, K., Edwards, C., Soule, A., Vallejo Vargas, S., *Mapping and classification of volcanic deposits using multi-sensor Unoccupied Aerial Vehicles*, New York Data Science Forum, June 2019
7. †Carr, B., **Lev, E.**, Bennett, K. and Edwards, C., *Utilization of an sUAS-Based Thermal Camera to Determine Relative Thermal Inertia of Volcanic Deposits*, 50th Lunar and Planetary Science Conference, Houston, TX, March 2019
8. †Carr, B., **Lev, E.**, *Activity and hazards of the ongoing eruption of Sinabung Volcano, Indonesia, evaluated using UAS-derived datasets*, AGU Fall meeting, Washington DC, December 2018
9. †Conroy, C. and **Lev, E.**, *Towards modeling lava breakouts*, AGU Fall meeting, Washington DC, December 2018
10. **Lev, E.**, Oppenheimer, J., Carr, B., Perroy, R., Dietterich, H. and Diefenbach, A. *Assessing lava flow dynamics and rheology using sUAS data*, AGU Fall Meeting, Washington DC, December 2018
11. **Lev, E.**, Ruprecht P., Lloyd, A. and Moon, R., *Investigating the Quizapu lava flows from the air and on the ground*, AGU Fall Meeting, New Orleans, LA, December 2017
12. **Lev, E.**, Ruprecht P., Lloyd, A. and Moon, R., *A tale of two flows – A field study at Quizapu Volcano, Chile*, IAVCEI Scientific Assembly, Portland, OR, August 2017
13. **Lev, E.**, Ford, C., Patrick, M. and Unglert, K., *Cooling and degassing of lava lakes – global and local perspectives*, IAVCEI Scientific Assembly, Portland, OR, August 2017

14. Morrison, A., Zanetti, M., Hamilton, C., Neish, C., **Lev, E.** and Whittington, A., *Rheology of lunar highland and mare impact melt simulants: JSC-1a, Stillwater anorthosite, and Stillwater norite*, IAVCEI Scientific Assembly, Portland, OR, August 2017
15. Plank, T., Rasmussen, D., Buff, L., **Lev, E.**, Roman, D., Hauri, E., Nicolaysen, K., and Izbekov, P., *The role of slab depth in the magma input to volcanic arcs*, IAVCEI meeting, Portland, OR, August 2017
16. †Rumpf, E. and **Lev, E.**, *Experimental Investigation of the Influence of Small-Scale Topography on Lava Flow Advance*, IAVCEI Scientific Assembly, Portland, OR, August 2017
17. Dundas C. M., Keszthelyi L., Hamilton C. W., Bonnefoy L. E., Scheidt S. P. et al. *The Hydrothermal System of the 2014–2015 lava Flows at Holuhraun, Iceland: An Analog for Martian Lava-Water Interactions*, Lunar and Planetary Science Conference, March 2017
18. Suckale, J., Qin, Z., Culha, C. and **Lev, E.**, *Towards an avatar for deciphering the modes of three-phase interactions in lava lakes*, AGU Fall Meeting, 2016
19. **Lev, E.**, Dietterich, H. and Rumpf, M.E., *The influence of rheology on the interaction of lava flows with obstacles*, 9th Cities on Volcanoes meeting, Puerto Varas, Chile, November 2016
20. **Lev, E.**, Rumpf, M.E., Hamilton, C. and Scheidt, S., *Mapping Lava Flow Morphology and Structure With Unmanned Aerial Vehicles*, 2nd Virtual Geoscience Conference, Bergen, September 2016
21. Dietterich, H., **Lev, E.** and Chen, J., *Benchmarking computational fluid dynamics models for lava flow simulation*, EGU meeting, 2016
22. **Lev, E.**, Oppenheimer, C., Spampinato, L., Hernandez, P. and Unglert, K., *A comparative Study of Circulation Patterns at Active Lava Lakes*, EGU meeting, 2016.
23. Dietterich, H. **Lev, E.**, Jiangzhi, C., Cashman, K. and Honor, C., *Benchmarking Computational Fluid Dynamics Models for Application to Lava Flow Simulations and Hazard Assessment*, AGU Fall Meeting, 2015
24. †Rumpf, E.M. and **Lev, E.**, *Investigating lava-substrate interactions through flow experiments with syrup, wax, and molten basalt*, AGU Fall Meeting, 2015
25. Patrick, M., Orr, T., Swanson, D. and **Lev, E.**, *Shallow outgassing changes disrupt steady lava lake activity, Kīlauea Volcano*, AGU Fall Meeting, 2015
26. **Lev, E.** and James, M.R., *The influence of cross-sectional channel geometry on rheology and flux estimates for active lava flows*, AGU Fall Meeting, 2013
27. **Lev, E.**, M. Spiegelman, J. Karson and R. Wysocki, *Investigating lava flow rheology using video analysis and numerical flow models*, IAVCEI meeting, Japan 2013 (INVITED)
28. **Lev, E.**, M. Spiegelman, J. Karson and R. Wysocki, *Investigating Lava Rheology Using Video Analysis and Flow Models*, IUGG/IAVCEI meeting, Australia, 2011
29. **Lev, E.**, *Numerical modeling of lava flows*, PASI Open Vent volcanoes workshop, Costa Rica, 2011
30. **E. Lev** and B.H. Hager, *Anisotropic viscosity in geodynamical flow models*, Gordon Research Conference on Rock Deformation, NH, August 2008 (INVITED)
31. **E. Lev** and B.H. Hager, *Anisotropic viscosity in geodynamical flow models*, CIG Mantle convection and lithospheric dynamics, UC-Davis, July 2008 (INVITED)
32. **E. Lev** and B.H. Hager, *Anisotropic viscosity in geodynamical flow models*, AGU Fall meeting, 2007. (Part of a special session dealing with rheological anisotropy in earth sciences, held jointly by the tectonophysics, seismology, cryosphere and mineral physics sections).

33. **E. Lev**, M.D. Long and R.D. van der Hilst, *Seismic anisotropy in Eastern Tibet from shear-wave splitting*, AGU Fall meeting, 2005)(Received Best Student Presentation Award)
34. **Lev, E.**, Oppenheimer, J., Carr, B., Perroy, R., Dietterich, H. and Diefenbach, A., *Assessing lava flow dynamics and rheology using sUAS data*, AGU Fall Meeting, Washington DC, 2018
35. Wegleitner, K. and **Lev, E.**, *Investigating the Effect of Viscosity and Pulsating Effusion Rates on Lava Dome Morphology Through Physical Models*, AGU Fall Meeting, Washington DC, 2018
36. Carr, B. and **Lev, E.**, *Activity and hazards of the ongoing eruption of Sinabung Volcano, Indonesia, evaluated using UAS-derived datasets*, AGU Fall Meeting, Washington DC, 2018
37. Oppenheimer, J., Patel, K., **Lev, E.** and Hillman, E., *A New 4D Imaging Method for Three-Phase Analogue Experiments in Volcanology and Other Three-Phase Systems*, AGU Fall Meeting, Washington DC, 2018
38. Dietterich, H., ad others, *Lava flow hazard modeling and the assessment of effusion rates and topographic change with UAS and lidar during the 2018 Kilauea lower East Rift Zone eruption*, AGU Fall Meeting, Washington DC, 2018
39. †Rasmussen, D., and others, *How Slab Depth is Reflected in Aleutian Arc Magmas*, AGU Fall Meeting, Washington DC, 2018
40. Turrin, M., **Lev, E.**, Xu, C. and Newton, R. '*INCLUDING*' partnerships to build authentic research into K-12 science education', AGU Fall Meeting, New Orleans, LA, 2017.
41. Morrison, A.A., Zanetti, M., Hamilton, C.W., **Lev, E.**, Neish, C.D. and Whittington, A. *Liquid viscosity measurements of lunar highland and mare impact melt simulants: JSC-1A, Stillwater anorthosite, and Stillwater norite*, GSA Annual Meeting, 2016
42. **Lev, E.**, Dietterich, H., Rumpf, M.E. and Mossel, C.N., *Experimental investigation of the impact of cooling and solidification on lava flow interaction with obstacles*, AGU Fall Meeting, 2016
43. †Rumpf, M.E., **Lev, E.**, Hamilton, C., and Scheidt, S., *The Influence of Bed Roughness on Lava Flow Emplacement and Morphology: A Laboratory and Field Study*, 9th Cities on Volcanoes meeting, Puerto Varas, Chile, November 2016
44. **Lev, E.**, Ruprecht, P., Patrick, M., Oppenheimer, C., Peters, N., Spampinato, L., Hernandez, P., Unglert, K. and Barreyre, T., *A Rare Window Into Magmatic Conduit Processes: Time Series Observations From Active Lava Lakes* , AGU Fall Meeting 2015
45. Ford, C. and **Lev, E.**, *Red Hot: Determining the Physical Properties of Lava Lake Skin*, AGU Fall Meeting, 2015
46. **Lev, E.** *Circulation patterns in active lava lakes*, Gordon Research Conference, 2015
47. **Lev, E.** and Redmond, T.C., *Circulation patterns in active lava lakes*, AGU Fall Meeting 2014
48. Edwards, B.R., J. Karson, R. Wysocki, **E. Lev**, I.N. Bindeman, and U. Kueppers. *Experimental Insights on Natural Lava-Ice/Snow Interactions and Their Implications for Glaciovolcanic and Submarine Eruptions*, AGU Fall Meeting, 2012
49. **Lev, E.**, M. Spiegelman, J. Karson, R. Wysocki, *Investigating Lava Properties using Experiments, Video Analysis, Infrared Thermometry and Numerical Flow Models*, AGU Fall Meeting, 2012
50. **Lev, E.**, M. Spiegelman, J. Karson, R. Wysocki, *Investigating Lava Rheology Using Man-Made Lava Flows, Computer Vision, and Flow Models*, Chapman Conference on Hawaiian Volcanism, 2012
51. **Lev, E.**, M. Spiegelman, J. Karson, R. Wysocki, *Investigating Lava Rheology Using Man-Made Lava Flows, Computer Vision, and Flow Models*, AGU Fall Meeting, 2011

52. Tarlow, S., **E. Lev**, C.J. Zappa, J. Karson, R. Wysocki, *Investigating Cooling Rates of a Controlled Lava Flow using Infrared Imaging and Three Heat Diffusion Models*, AGU Fall Meeting, 2011
53. **Lev, E.**, *Extracting Lava Velocity and Rheology from Computer-Vision Analysis of Lava Flow Videos*, IUGG/CMG meeting, Pisa, Italy, 2010
54. **Lev, E.** and B.H. Hager, *Anisotropic viscosity in geodynamical flow models – Rayleigh-Taylor instabilities as a test example*, The Cutting Edge “Preparation for an academic career in geosciences” workshop, Madison, WI
55. **Lev, E.** and B.H. Hager, *Anisotropic viscosity in geodynamical flow models – Rayleigh-Taylor instabilities as a test example*, International school of geophysics, 2007, Carry-Le-Rouet, France
56. **Lev, E.** and B.H. Hager, *Anisotropic viscosity in geodynamical flow models – Rayleigh-Taylor instabilities as a test example*, Gordon Research Conference on Interior of the Earth, June 2007
57. **Lev, E.**, M.D. Long and R.D. van der Hilst, *Seismic anisotropy in Eastern Tibet from shear-wave splitting*, International workshop on seismic anisotropy, Trest, Czech Republic, 2006
58. **Lev, E.**, M.D. Long and R.D. van der Hilst, *Seismic anisotropy in Eastern Tibet from shear-wave splitting*, MYRES II, Verbana, Italy, July 2006
59. **Lev, E.** and B.H. Hager, *Mixing of Differentiated Oceanic Crust in a Convecting Mantle with Depth and Temperature Dependent Properties*, International Workshop on Numerical Modeling of Mantle Convection and Lithospheric Dynamics, Erice, Italy 2005

TEACHING EXPERIENCE (AS INSTRUCTOR)

Columbia University School of Professional Studies

Sustainability in the Face of Natural Disaster (at the Sustainability Science Masters program)

Columbia University, Department of Earth and Environmental Science

Earth’s System: Solid Earth (EES2200)

Lamont-Doherty Earth Observatory

Volcanic systems: from the magma chamber to post-eruption

Massachusetts Institute of Technology

Earth Science, Energy, and the Environment (MIT 12.021) – Course development

Teaching assistant:

- Geodynamics – Graduate level (MIT 12.520)
- Application of Continuum Mechanics in Earth Sciences – Undergraduate level (MIT 12.005)

“Introduction to geology” at MIT’s High-School Summer Program (HSSP)

ADVISING AND MENTORING

All lists reverse-chronologically.

★ indicates a student from an underrepresented minority or a non-traditional student

1. Postdocs

- Dr. Colton Conroy, LDEO Postdoctoral Researcher *Two and three dimensional models of lava flows using Discontinuous Galerkin Methods*
- Dr. Brett Carr, NSF Postdoctoral Fellow
The Stability of Viscous Lavas: Understanding the Driving Processes and Greatest Hazards

- Dr. Julie Oppenheimer, LDEO Postdoctoral Researcher
Investigating magma dynamics and volcanic eruptions using real-time 4D microscopy of bubble interactions with a flowing solid-liquid mush
- Dr. M. Elise Rumpf, NSF Postdoctoral Fellow
Laboratory investigation of lava flows on variable substrates
- Dr. Xiaoliang Li (Chinese Academy of Science) Visiting postdoctoral researcher
Emplacement of lava flows and domes on rough surfaces

2. Graduate students

- Jasper Baur (LDEO),
PhD student, primary advisor, 2020-present
- Elisa Biagioli (U. Genoa),
Visiting student, February-April 2020
- Janine Birnbaum (LDEO),
PhD student, primary advisor, 2018-present
- Anna Barth (LDEO),
PhD student, thesis committee member
- Daniel Rasmussen (LDEO),
PhD 2019, thesis committee member

3. Undergraduate students

- ★Mariam Diakite (CUNY)
SSFRP team leader, three-phase lava rheology and flow dynamics
- ★Rya Inman (Columbia University, Senior thesis)
Impact of slurry particle concentration and effusion rate changes on experimental lava dome emplacement
- Kate Anne Wegleitner (Columbia University, Summer undergraduate intern)
Experimental study on the impact of effusion rate variations on lava dome emplacement
- ★Robert S. Moon (Columbia University, Summer undergraduate intern)
Construction and analysis of high-resolution topography models of Quizapu lava flows
- Jeras Dieleman (U. Delft Senior thesis)
Estimating lava flow roughness from elevation data
- Christy Jenkins (Barnard), Senior thesis,
Using Landsat's visible bands to constrain the temperature of erupting lavas
- Elizabeth Eiden (Caltech), Summer undergraduate intern,
Influence of a break in slope on lava flow morphology
- Carolien Mossel (SUNY-Geneseo), Summer undergraduate intern,
Influence of a solidification and crust formation on the interaction of lava flows with topography
- Hanna Jane Cohen (Columbia University), Senior thesis
Identifying lava flow morphology from aerial photographs
- ★Mark Cooper (Columbia University),
Modifying laboratory setup to accommodate a range of fluids
- ★Camera Ford (Brown University), LDEO undergraduate summer intern, Senior thesis
Cooling of vesicular lava in a lake

- ★Alanna Williams (Columbia University), Earth Institute Intern
Image analysis of lake patterns
- Taylor Redmond (George Washington University) LDEO undergraduate summer intern
Lava lake circulation patterns; Experimental lava flow velocity measurements
- ★José Mendez (Columbia University),
Analysis of Lava Lake Footage to Detect Circulation Patterns
- Caitlin Meadows (U. of Michigan), LDEO undergraduate summer intern, Lead mentor: Dr. Tim Creyts
Experimental study of subglacial drainage systems using gelatin
- Scott Tarlow (Wheaton College), LDEO undergraduate summer intern, Lead Mentor: Dr. Chris Zappa
Cooling Rates of a Controlled Lava Flow using Infrared Imaging and Heat Diffusion Models

4. High-school students

- ★Ryan Burgos, The Urban Assembly New York Harbor School
- ★Lexylee Lyons, Northern Valley Old Tappan
- Cassandra Cooper, Ethical Culture High School
- Victor Stevens and Matthieu André, Lycée Français
- Julia Grandury, Lycée Français
- Asha Grossberndt, Bedford Central School District

PROFESSIONAL SERVICE

1. Community Organization and Leadership

- Co-PI on NSF Research Coordination Network (RCN) titled "Community Network for Volcanic Eruption Response (CONVERSE)" (Lead PI: Tobias Fischer. Role: Lead on Modelling, co-lead on UAVs)
- Co-PI on Global Volcano Observatory (GloVo) Mid-scale Infrastructure proposal (Lead PI: Diana Roman)

2. Conference Service

- Host and organizer, Computational Infrastructure for Volcanology – a planning workshop, LDEO (Virtual), February 2021
- Co-organizer and moderator, Novel instrumentation for volcano monitoring, LDEO (Virtual), February 2021
- Disciplinary lead (Modeling), CONVERSE Volcanic Eruption Simulation, UNM (Virtual), November 2020
- Moderator, GeoPrisms workshop on Tectonics and Volcanism in the Aleutians, LDEO, August 2019
- Co-proposer and Organizer of the Community Volcano Experiment Workshop, Albuquerque NM, 2018
- Co-organizer of VolcaNYC, an annual meeting and field trips for volcanologists in the New York City area (Once a year since 2017)
- Organizer of pre-conference workshop on UAVs in Volcanology, IAVCEI meeting, 2017
- Organizer of post-conference workshop on Numerical Modeling using OpenFOAM, IAVCEI meeting, 2017
- Organizer of GeoPRISMS mini-workshop about volcanoes at AGU Fall meeting 2016
- Member of steering committee for the 3rd Virtual Geoscience meeting in 2018

- Member of the scientific programming committee for the 2017 IAVCEI Scientific Assembly
- Organizer of session: “Styles of Volcanism: Forecasting, pattern recognition and monitoring developing eruptions” at AGU 2015 Fall Meeting
- Organizer of session: ‘Lava Flows: Integrating Field and Remote Sensing Observations, Laboratory Experiments, and Modeling’, AGU Fall Meeting 2014
- Organized a workshop about magma and lava rheology at the 2013 IAVCEI meeting, Kagoshima, Japan
- Organizer of special session: “Volcanic Flow and Magma Properties: Field, Laboratory and Hazard Assessment”, AGU Fall Meeting, 2013 (cosponsored by EGU-GMPV and MSA)
- AGU Fall meetings Outstanding Student Paper Award Judge , 2009-present
- AGU Fall meetings Session chair for Tectonophysics/Seismology, 2006-2009
- Organizer of special session: “Rheological Anisotropy in the Earth Sciences”, AGU Fall Meeting, 2007

3. University Service

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- LDEO Executive Committee member (2019-present)
- LDEO Vision Committee (Throughout 2020)
- Earth Institute Research Facilitation task force member
- LDEO Code of Conduct committee member
- LDEO Fluid Mechanics laboratory (a community facility), designer and facilitator (2016-present)
- LDEO postdoctoral fellowship, selection committee member (2016, 2017, 2018)
- Search committee, Marine Geology postdoc researcher
- 50 years to Plate Tectonics, organizing committee
- Division representative at the LDEO Campus Life Committee, 2013-2015
- Member of the LDEO special task force on diversity, 2011
- Co-organizer of LDEO Geodynamics seminar, 2009-present
- Organizer of LDEO’s Geophysics seminar (joint SGT and MG&G), 2010-2011
- Graduate students representative for the EAPS Visiting Committee, 2007-2009
- Secretary of EAPS graduate students advisory council (EGSAC), 2006-2007
- Organizer of the MIT Geology and Geophysics weekly students seminar, 2005-2006
- Coordinator of EAPS Graduate Student Mentoring program, 2005-2009
- Organizing Committee of Geophysics monthly seminar, 2004

4. Peer reviewer for:

- *Bulletin of Volcanology*
- *Earth and Planetary Science Letters*
- *USGS Special Publication on Kilauea*
- *G-Cubed*
- *Geology*
- *Annals of Geophysics*
- *Geophysical and Astrophysical Fluid Dynamics*
- *Geophysical Journal International*
- *Journal of Geophysical Research – Solid Earth*
- *Journal of Geophysical Research – Planets*
- *NSF (mail-in and panels)*
- *NASA (mail-in and panels)*
- *Physics of Earth and Planetary Interiors*
- *Tectonophysics*

FIELDWORK EXPERIENCE

- 10/2018 UAV-baed survey of the 2018 eruption of Sierra Negra, Galapagos
- 07/2018 Large-scale explosion experiment, University of Buffalo, UAV survey
- 10/2018 UAV-baed survey of the 2018 eruption of Sierra Negra, Galapagos
- 07/2018 Large-scale explosion experiment, University of Buffalo, UAV survey
- 05/2018 UAV-baed response to the 2018 eruption of Kilauea's Lower East Rift Zone
- 08/2017 UAV aerial photography of lava domes in Oregon and California
- 08/2016 Infrared and visible video recording of lava lake at Masaya, Nicaragua
(by PhD students Anna Barth and Yonatan Goldsmith)
- 02/2015 Aerial photography and sampling of lava flows at Quizapu volcano, Chile
- 08/2015 Aerial photography using unmanned aerial vehicles (UAVs) of the
2014-2015 Holuhraun lava flow, Iceland
- 03/2015 Thermal imaging and mapping of recent lava flow and lava lake activity, Hawaii
- 11/2014 UAV aerial survey of the 1986 lava flows on Izu Oshima island, Japan
- 09/2014 UAV aerial survey of the Shinmoedake lava dome of Kirishima volcano, Japan
- 08/2012 Infrared and visible video recording of lava flows in Hawai'i
- 01/2010 PASI Field Course on Open Vent Volcanoes, Costa Rica
- 08/2009 Mapping lava channels on Mauna Loa, Hawai'i using LiDAR
(P.I.s: Kathy Cashman and Adam Soule)
- 06/2008 WHOI Geodynamics field trip, Costa Rica
- 07/2006 Deployment of a PASSCAL-Earthscope seismic network in the Cascades, WA
(P.I.s: Ken Creager, Geoff Abers, Stephane Rondenay)
- 01/2006 Geologic Mapping Field Camp, Southern Arizona
- 09/2004 Geology field trip to Sichuan province (Eastern Tibet), China (P.I.: Leigh Royden)
- 2004-2008 Geophysics Field Camp, Riverside Mountains, Southern California

MEDIA AND PUBLIC OUTREACH

- Opinion column on CNN about the Fagradalsfjall eruption (3/25/2021)
- TED-style talk at the LDEO Virtual Open House and an Earth Institute Q&A follow-up (October 2020)
- Panelist on *The Volcano Alarm*, part of The Earth Institute virtual lecture series (6/16/2020)
- Scientific advisor to a children's book about volcanoes by Gail Gibbons
- Judge and keynote speaker at CryptoBot Cyber camp, Pace University, August 2019
- Panelist, Diversity in STEM panel, New York Academy of Sciences, August 2019
- Instructor, How to read a scientific paper?, The River Project summer program, August 2019
- Podcast and live on-stage guest at *Person, Place, Thing, with Randy Cohen*
- Multiple interviews at national and international media outlets (i.e., BBC, NPR, Nova), including a May 2018 article about the Kilauea 2018 eruption that won CNN's "most popular op-ed of 2018"
- Lecture to National Park staff about using UAS to map lava flows in Sierra Negra, Galapagos, October 2018
- Lecture about the 2018 Kilauea eruption and response, LDEO Open House public event, October 2018
- Earth2Class workshop to educators about volcanology, September 2018
- Lecture about lava flows, the Bruce Museum, Greenwich CT, January 2018

- Lava flow demonstrations at World Science Festival and LDEO Open House events (both annually)
- NYC Science and Engineering Fair, Earth and Planetary Science, Head judge (annually)
- Lectures about plate tectonics and geophysics at the Lycée High-school, NY, 2015 and 2016
- Multiple blog posts on the Earth Institute blog “State of the Planet” about volcanology field work
- Interviewed for Science regarding the Bárðarbunga eruption, 2014
- Academic Minute program about lava flows, NPR, 2013
- Scientific Consultant to LEGO First League (Natural Hazards) team from Dobbs Ferry, NY (January 2014, contact: Jen Cadenhead)
- Interviewed to Discovery Channel Canada regarding lava experiments (June 2013, contact: Maja Klempner)
- Interviewed to New Scientist regarding lava experiments (Article published August 2013, contact: Julian Smith)
- Geoscience Congressional Visit Day, NY state team, September 2011
- Teacher of "Introduction to geology" class, MIT’s High-School Summer Program (HSSP), Summer 2007
- Mentor in KEYs (Keys to Empowering Youth) project at MIT, 2005-2008