Dr. Einat Lev

Contact Information

Lamont Assistant Research Professor
Lamont-Doherty Earth Observatory
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Research Interests

- Physical volcanology
- Rheology of geologic materials
- Numerical modeling
- Analog fluid experiments
- Scientific visualization
- Unmanned aerial systems for geosciences

Academic Appointments

- Research Associate — September 2016 to present
  American Museum of Natural History
  Focus: Physical Volcanology, Microscopy and imaging of geologic materials
- Lamont Assistant Research Professor — September 2013 to present
  Lamont-Doherty Earth Observatory, Columbia University
  Focus: Physical Volcanology and Numerical Geodynamics
- Visiting Professor — September to December 2014
  Earthquake Research Institute, University of Tokyo
  Focus: Modeling the 2011 Shinmoedake dome-building eruption
- Postdoctoral Research Fellow/Scientist — October 2009 to August 2013
  Lamont-Doherty Earth Observatory, Columbia University
  Supervisor: Professor Marc Spiegelman
  Focus: Quantitative investigation of lava rheology and flow dynamics
- Graduate research assistant — 2003-2009
  Department of Earth, Atmospheric and Planetary Sciences, MIT
  Supervisor: Professor Bradford H. Hager
  Focus: Seismic and viscous anisotropy in the Earth's mantle

Education

- Ph.D., Geophysics, May 2009
  Massachusetts Institute of Technology, Cambridge, MA,
  Thesis Topic: *Seismic and Viscous Anisotropy in the Earth's Mantle: Observations and Implications*
  Adviser: Professor Bradford H. Hager
- B.Sc., June 2001
  Tel-Aviv University
  Cum laude, Double major: Geophysics and Computer Science

Refereed Journal Publications

[1] Lev, E., *Remarks on and insight from analog experiments of lava flow emplacement*, in revision for Annals of Geophysics.

[2] Rudolph, M., Sohn, R. and Lev, E., *Fluid oscillations in a laboratory geyser with a bubble trap*, Journal of Volcanology and Geothermal Research, in press

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

[4] 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.

[5] 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

[6] 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.

[7] Patrick, M., Orr T., Sutton, A.J., **Lev, E.**, Thelen, W. and Fee, D., *Gas pistoning 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

[8] 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

[9] 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

[10] **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

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

[12] **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

[13] **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

[14] 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.

[15] **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

[16] **Lev, E.** and B.H. Hager, *Rayleigh-Taylor Instabilities with anisotropy lithospheric viscosity*, Geophys. Jour. Int., v. 173 (2008), p. 806-814

[17] 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.

[18] **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), p. 293-304.

Papers in Preparation (Drafts available upon request):

[1] Birnbaum, J., Keller, T., Suckale, J. and **Lev, E.**, Episodic degassing from unsteady lava lake convection in Ray Lava Lake, Mount Erebus, Antarctica. To be submitted to Earth and Planetary Science Letters.

[2] Magnall, N., James, M., Tuffen, H., Fink, J., Anderson, S. and **Lev, E.**, *Core upwelling versus breakout formation in silicic lava flows.*

[3] **Lev, E.** and Ruprecht, P. *Global comparison of Circulation Patterns at Active Lava Lakes.*

[4] **Lev, E.** and Ford, C. *Cooling of a high vesicularity lava.*

[5] **Lev, E.**, Hamilton, C., Rump, M.E. and Neish, C., *Modeling the emplacement of super-heated impact melt flows*

Grants and Awards

"CAREER: Investigating the Impact of Temporal and Spatial Variations on Lava Emplacement Through Numerical and Physical Models" NSF award EAR-1654588 ($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 ($160,000)

"Lunar Impact Melt Flows: Geological Mapping, Experimental Simulation, and Numerical Modeling", NASA award 14-SSW14-2-0067 ($106,000)

"Active Lava Lakes as a Window into Magma and Volcano Dynamics" NSF award EAR-1348022 ($310,000)

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

Research Assistance award, Flow-3D by Flow Science (est. worth $5,000)

"Collaborative Proposal: Evolution of Lava Channel Networks: Implications for Lava Flow Hazards and Mitigation", Lead PI: Katherine Cashman. NSF award EAR-1250554 ($40,000)

"Connecting Lava Rheology and Flow Dynamics Using Novel Field and Modeling Techniques", NSF, award EAR-1118943 ($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)

Lamont-Doherty Postdoctoral Fellowship

EAPS (MIT) award for excellence in teaching ($1000)

Best student presentation award, AGU Fall meeting, 2005, San Francisco

MIT Presidential Fellowship, 2003-2004

Best Programming Project Award, Tel-Aviv University, 2000

Rafi Katzman Award for Excellence in Freshmen Year Studies, Tel-Aviv University, 1999

Conference Talks

[1] **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

[2] **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

[3] **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

[4] 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

[5] 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

[6] 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

[7] Dundasm 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

[8] 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

[9] **Lev, E.**, Dietterich, H. and Rumpf, M.E., *The influence of rheology on the interaction of lava flows with obstacles*, 9^{th} Cities on Volcanoes meeting, Puerto Varas, Chile, November 2016

[10] **Lev, E.**, Rumpf, M.E., Hamilton, C. and Scheidt, S., *Mapping Lava Flow Morphology and Structure With Unmanned Aerial Vehicles*, 2^{nd} Virtual Geoscience Conference, Bergen, September 2016

[11] Dietterich, H., **Lev, E.** and Chen, J., *Benchmarking computational fluid dynamics models for lava flow simulation*, EGU meeting, 2016

[12] **Lev, E.**, Oppenheimer, C., Spampinato, L., Hernandez, P. and Unglert, K., *A comparative Study of Circulation Patterns at Active Lava Lakes*, EGU meeting, 2016.

[13] 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

[14] Rumpf, E.M. and **Lev, E.**, *Investigating lava-substrate interactions through flow experiments with syrup, wax, and molten basalt*, AGU Fall Meeting, 2015

[15] Patrick, M., Orr, T., Swanson, D. and **Lev, E.**, *Shallow outgassing changes disrupt steady lava lake activity, Kīlauea Volcano*, AGU Fall Meeting, 2015

[16] **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

[17] **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)

[18] **Lev, E.** , M. Spiegelman, J. Karson and R. Wysocki, *Investigating Lava Rheology Using Video Analysis and Flow Models*, IUGG/IAVCEI meeting, Australia, 2011

[19] **Lev, E.**, *Numerical modeling of lava flows*, PASI Open Vent volcanoes workshop, Costa Rica, 2011

[20] **E. Lev** and B.H. Hager, *Anisotropic viscosity in geodynamical flow models*, Gordon Research Conference on Rock Deformation, NH, August 2008 (INVITED)

[21] **E. Lev** and B.H. Hager, *Anisotropic viscosity in geodynamical flow models*, CIG Mantle convection and lithospheric dynamics, UC-Davis, July 2008 (INVITED)

[22] **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).

[23] **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)

Conference Posters

[1] 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.

[2] 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 anothosite, and Stillwater nortite*, GSA Annual Meeting, 2016

[3] **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

[4] 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*, 9^{th} Cities on Volcanoes meeting, Puerto Varas, Chile, November 2016

[5] **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

[6] Ford, C. and **Lev, E.**, *Red Hot: Determining the Physical Properties of Lava Lake Skin*, AGU Fall Meeting, 2015

[7] **Lev, E.** *Circulation patterns in active lava lakes*, Gordon Research Conference, 2015

[8] **Lev, E.** and Redmond, T.C., *Circulation patterns in active lava lakes*, AGU Fall

Meeting 2014

[9] 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

[10] **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

[11] **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

[12] **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

[13] 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

[14] **Lev, E.**, *Extracting Lava Velocity and Rheology from Computer-Vision Analysis of Lava Flow Videos*, IUGG/CMG meeting, Pisa, Italy, 2010

[15] **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

[16] **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

[17] **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

[18] **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

[19] **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

[20] **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

Lectures and Seminars

[1] Geology and Environmental Science department seminar, Ben-Gurion University, Be'er-Sheva, Israel, April 2017

[2] School of Earth and Planetary Science, Tel-Aviv University, Israel, April 2017

[3] Geology department seminar, City College, the City University of New York, November 2016

[4] Department of Earth and Planetary Science, American Museum of Natural History, March 2012

[5] Penn State geology department seminar, April 2015

[6] Department of Geological Sciences, University of Oregon, February 2015

[7] The Levich Institute for Physico-chemical Hydrodynamics, City University of New York, February 2015

[8] Department of Geophysics, Stanford University, February 2015

[9] Earthquake Research Institute, Tokyo University, November 2014

[10] National Institute of Earth Science and Disasters (NIED), Japan, October 2014

[11] Geological Sciences department ,Tokyo University, September 2014

[12] Geology department, Yale University, April 2014

[13] Division of Geological and Planetary Sciences, California Institute of Technology, January 2013

[14] Dept. of Geology and Planetary Science, University of Pittsburgh, November 2012

[15] Department of Environmental Sciences and Energy Resources, Weizmann Institute of Science, Israel, May 2012

[16] Department of Earth and Planetary Science, American Museum of Natural History, March 2012

[17] SUNY-Stony Brook Geology Colloquium, 2010

[18] Physics Department, Colorado University-Boulder, March 2009

[19] Department of Geosciences, Princeton University, 2008

[20] Department of Earth, Environmental and Planetary Sciences, Brown University, 2007

[21] Geology and Geophysics department, Woods Hole Oceanic Institute, 2006

Advising and Mentoring

Postdocs:

- **Dr. Brett Carr,**
  LDEO Posdoctoral Researcher
  The Stability of Viscous Lavas: Understanding the Driving Processes and Greatest Hazards
- **Dr. Julie Oppenheimer,**
  LDEO Posdoctoral 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

Graduate students:

- **Anna Barth (LDEO),**
  Graduate student, Committee member
- **Daniel Rasmussen (LDEO),**
  Graduate student, Committee member

Undergraduate students:

- **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),**
  LDEO undergraduate work-study student
  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),**
  Columbia University Work-Study student
  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 intern, Lead Mentor: Dr. Chris Zappa
  Investigating Cooling Rates of a Controlled Lava Flow using Infrared Imaging and Three Heat Diffusion Models

High-school students:

- **Cassandra Cooper (Ethical Culture)**,
  Cooling of high-vesicularity lavas and analogs
- **Victor Stevens and Matthieu André (Lycée Français)**
  Bubble nucleation in viscous fluids via degassing of acetone and water
- **Julia Grandury (Lycée Français)**,
  Laboratory investigation of lava flows – interaction with obstacles
- **Asha Grossberndt,**
  Laboratory investigation of lava flows – bed roughness

Teaching Experience

Columbia University, Department of Earth and Environmental Science

Instructor

- Earth's System: Solid Earth (EES2200)

Lamont-Doherty Earth Observatory

Co-instructor

- Volcanic systems: from the magma chamber to post-eruption

Massachusetts Institute of Technology

New class development

- Earth Science, Energy, and the Environment (MIT 12.021)

Teaching assistant

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

Co-teacher

- "Introduction to geology" at MIT's High-School Summer Program (HSSP)

University Service

- LDEO postdoctoral fellowship, selection committee member
- Search committee, Marine Geology postdoc rsearcher
- 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), 2010-201
- 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

Professional Service

Peer reviewer for:

- *Bulletin of Volcanology*
- *Earth and Planetary Science Letters*
- *G-Cubed*
- *Geology*
- *Geophysical and Astrophysical Fluid Dynamics*
- *Geophysical Journal International*

- *Journal of Geophysical Research*
- *NSF (mail-in and panel)*
- *NASA (mail-in and panel)*
- *Physics of Earth and Planetary Interiors*
- *Tectonophysics*

Conference Service

- 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 3^{rd} 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

Computer Experience

Programming Languages:

- Matlab (fluent)
- C (fluent)
- shell scripting (good)
- C++ (some)
- Fortran (some)
- Python (some)
- R (basic)

Numerical modeling codes:

- Finite Elements: Elmer, Fluidity, Underworld/Gale, Citcom, Conman, Adina
- Finite Volume/Elements: OpenFOAM
- Volume-Of-Fluid: Flow-3D, VolcFlow

Photogrammetry tools:
- PhotoScan (Agisoft)
- Pix4D
- Matlab's Computer Vision and Structure from Motion packages
- CloudCompare

Seismology:
- SAC, Seismic Handler, IRIS SeismoQuery, OBSpy

Mapping, imaging and meshing:
- ArcGIS, Paraview, ImageJ, GMsh, MeshLAB

Crystallography:
- D-Rex, ImageSXM

Version Control and Software Configuration Management:
- Mercurial, Git, SVN

Lab experience

- Since 2015 — Lead the construction of a Fluid Mechanics Laboratory at LDEO and performed analog fluid flow experiments
- 2014 — Analog multiphase experiments and rheology measurements at Tokyo University
- Since 2010 — Experimental lava flows at Syracuse University facility (at least twice a year)

Field work experience

- 2018 — UAV-baed response to the 2018 eruption of Kilauea's Lower East Rift Zone
- 2017 — UAV aerial photography of lava domes in Oregon and California
- 2016 — Infrared and visible video recording of lava lake at Masaya, Nicaragua (by Anna Barth and Yonatan Goldsmith)
- 2015 — Aerial photography and sampling of lava flows at Quizapu volcano, Chile
- 2015 — Aerial photography using unmanned aerial vehicles (UAVs) of the 2014-2015 Holuhraun lava flow, Iceland
- 2015 — Thermal imaging and mapping of recent lava flow and lava lake activity, Hawaii
- 2014 — UAV aerial survey of the Shinmoedake lava dome of Kirishima volcano, Japan
- 2014 — UAV aerial survey of the 1986 lava flows on Izu Oshima island, Japan
- 8/2012 — Infrared and visible video recording of lava flows in Hawaii
- 1/2010 — PASI Field Course on Open Vent Volcanoes, Costa Rica
- 8/2009 — Mapping lava channels on Mauna Loa, Hawai'i using LiDAR (P.I.s: Kathy Cashman and Adam Soule)
- 6/2008 — WHOI Geodynamics field trip, Costa Rica
- 7/2006 — Deployment of a PASSCAL-Earthscope seismic network in the Cascades, WA (P.I.s: Ken Creager, Geoff Abers, Stephane Rondenay)
- 1/2006 — Geologic Mapping Field Camp, Southern Arizona
- 9/2004 — Geology field trip to Sichuan province (Eastern Tibet), China (P.I.: Leigh Royden)
- 2004, 2008 — Geophysics Field Camp, Riverside Mountains, Southern California

Community and Outreach

- Lava flow demonstrations at World Science Festival (2016) and LDEO Open House events
- Gave lectures about plate tectonics and geophysics at the Lycée High-school, NY, 2015 and 2016

- Regular contributor of blog posts to 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
- NYC Science and Engineering Fair, Earth and Planetary Science, Head judge, March 2011, 2012, 2014
- "Dynamics of Lava Flows" display at the LDEO Open House, 2010, 2012, 2016
- 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

MORE INFORMATION

More information and auxiliary documents can be found at
http://ldeo.columbia.edu/~einatlev/