

Lindsey J. Heagy

Assistant Professor
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Appointments

- 2021 – present **Assistant Professor**
Department of Earth, Ocean and Atmospheric Sciences
University of British Columbia
- 2018 – 2021 **Postdoctoral Researcher**
Department of Statistics
University of California, Berkeley

Education

- 2012 – 2018 **PhD** in Geophysics, University of British Columbia
Thesis: *Electromagnetic imaging for subsurface injections*
Advisor: Douglas Oldenburg
Themes: inverse problems, numerical simulations, electromagnetics
- 2008 – 2012 **BSc** with First Class Honors in Geophysics, University of Alberta

Professional Experience

- 2016 – 2017 **Aranz Geo Canada Limited** (Calgary, AB)
Computational Geophysics Consultant (part-time)
- 2015 – 2016 **3point Science Inc** (Calgary, AB)
Computational Geophysicist (part-time)
- 2014
Jun. – Aug. **Schlumberger Doll Research** (Boston, MA)
Geophysics Intern
- 2013
Jun. – Aug. **Schlumberger Electromagnetic Imaging** (Richmond, CA)
Geophysics Intern
- 2012
May – Aug. **ConocoPhillips Canada** (Calgary, AB)
Geophysics Summer Student
- 2011
May – Aug. **Alfred Wegener Institute of Polar and Marine Research** (Bremerhaven, Germany)
Geophysics Summer Student

Funding

Awarded

- 2021 – 2026 **Co-PI:** Pacific Rim Ocean Data Mobilization and Technology (PRODIGY).
NSERC CREATE
PI: Philippe Tortell (UBC)
Co-PIs: Susan Allen (UBC), Michael Bostock (UBC), Roberta Hamme (UVic), Jody Klymak (UVic), Matias Salibian-Barrera (UBC), Andrea Scott (Waterloo), Raymond Ng (UBC), Charles Perin (UVic), Stephanie Waterman (UBC)

- 2019 **External Collaborator:** Improving Water Security in Mon State, Myanmar via Geophysical Capacity Building.
Geoscientists Without Borders (\$50,000)
PI: Douglas Oldenburg (UBC)

Software and Open Science

I contribute to a number of open-source software projects, all of which are accessible through my GitHub profile (<https://github.com/lheagy>). Some of the larger projects include:

- 2014 – present **GeoSci.xyz**
Core maintainer and contributor to online interactive textbooks for geophysics. Resources include:
- **Geophysics for Practicing Geoscientists:** an introductory resource on applied geophysics (<http://gpg.geosci.xyz>)
 - **Electromagnetic Geophysics:** a graduate level resource on the theory and application of electromagnetic geophysical methods (<http://em.geosci.xyz>)
 - **GeoSci Labs:** a collection of Jupyter notebooks for exploring concepts in geophysics (<https://github.com/geoscixyz/geosci-labs>)
- 2014 – present **SimPEG**
Core maintainer and community developer. Software repositories include:
- **SimPEG:** software for numerical simulations and inversions in geophysics (<https://github.com/simpeg/simpeg>)
 - **discretize:** meshing and discretization tools for finite volume and inverse problems (<https://github.com/simpeg/discretize>)
 - **geoana:** analytic solutions for common physics problems relevant to geophysics (<https://github.com/simpeg/geoana>)

Teaching

Undergraduate Courses

- 2013 – 2016 **Teaching Assistant:** EOSC 350: Environmental, Geotechnical, and Exploration Geophysics.
University of British Columbia
Instructor: Douglas Oldenburg
- 2015 **Teaching Assistant:** Directed Studies: Inversion in Applied Geophysics.
University of British Columbia
Instructor: Douglas Oldenburg
- 2012 **Teaching Assistant:** EOSC 354: Analysis of Time Series and Inverse Theory for Earth Scientists.
University of British Columbia
Instructor: Michael Bostock

Workshops & Short Courses

- 2021 **Instructor:** Introduction to Jupyter
Leadership in Environmental and Digital innovation for Sustainability (LEADS) Summer School

with Devin Cowan

<https://github.com/lheagy/leads-intro-jupyter>

2020

Instructor: Simulations and inversions with SimPEG

Software Underground Transform 2020

youtube: [jZ7Sj9cnnso](https://www.youtube.com/watch?v=jZ7Sj9cnnso)

Instructor: Interactive exploration with widgets and dashboards

UBC JupyterDays 2020

<https://ubc-dsci.github.io/jupyterdays/sessions/heagy/widgets-and-dashboards.html>

Instructor: Introduction to Jupyter and IPython

ICESat2 Hackweek

with Instructors: Sebastian Alvis, Shane Grigsby, Yara Mohajerani, Fernando Pérez

(<https://github.com/ICESAT-2HackWeek/intro-jupyter>)

Instructor: Best Practices for Developing and Sustaining Your Open-Source Research Software

AGU Fall Meeting 2020

with Instructors: Rene Gassmoeller, Bane Sullivan and Leah A. Wasser

2019

Instructor: Best Practices for Developing and Sustaining Your Open-Source Research Software

AGU Fall Meeting 2019

with Instructors: Rene Gassmoeller, Lion Krischer, Leonardo Uieda, Bane Sullivan, Timo Heister and Wolfgang Bangerth

Instructor: Data sharing and collaboration tools; Steps to reproducible research

Geohackweek 2019

with Instructors: Don Setiawan and Joe Meyer

(<https://geohackweek.github.io>)

2018

Instructor: Best Practices for Modern Open-Source Research Codes

AGU Fall Meeting 2018

with Instructors: Leonardo Uieda, Lion Krischer, and Florian Wagner

(<https://github.com/agu-ossi/2018-agu-oss>)

Co-Instructor: EM methods in exploration.

University of Houston Petroleum Geophysics - Summer 2018 Short Course

Lead Instructor: Douglas Oldenburg, Co-Instructor: Seogi Kang

(<https://courses.geosci.xyz/houston2018>)

Co-Instructor: 3D EM Modelling and Inversion with Open Source Resources.

AEM 2018: 7th International Workshop on Airborne Electromagnetics in Kolding, Denmark

Lead instructor: Douglas Oldenburg, Co-Instructor: Seogi Kang

(<https://courses.geosci.xyz/aem2018>)

2017

Co-Instructor: Geophysical Electromagnetics: Fundamentals and Applications

Society of Exploration Geophysics Distinguished Instructor Short Course

Lead instructor: Douglas Oldenburg, Co-Instructor: Seogi Kang

(<http://disc2017.geosci.xyz>)

- Locations:
 - Denver, USA (January 30-31, 2017)
 - Perth, Australia (July 27-28, 2017)
 - Adelaide, Australia (August 2-3, 2017)
 - Brisbane, Australia (August 7-8, 2017)
 - Delft, Netherlands (September 11-12, 2017)
 - Bonn, Germany (September 18-19, 2017)
 - Vienna, Austria (September 21-22, 2017)
 - Zurich, Switzerland (September 26-27, 2017)
 - Aarhus, Denmark (October 2-3, 2017)
 - Toronto, Canada (October 27, 2017)
 - Mexico City, Mexico (November 6-7, 2017)
 - Buenos Aires, Argentina (November 13-14, 2017)
 - Santiago, Chile (November 16-17, 2017)
 - Santa Cruz de la Sierra, Bolivia (November 22-23, 2017) - Canceled
 - Rio de Janeiro, Brazil (November 28-29, 2017)
 - Calgary, Canada (December 5-6, 2017)
 - Vancouver, Canada (December 12-13, 2017)

2016 **Organizer:** Geophysical Simulation and Inversion (August 19-21, 2016)
Banff International Research Station,
Organized with Douglas Oldenburg, Adam Pidlisecky and Rowan Cockett
(<http://www.birs.ca/events/2016/2-day-workshops/16w2695>)

Service

Steering Councils

2020 – **Co-founder and Steering Council Member:** International Interactive Computing Col-
present laboration (2i2c)
<https://2i2c.org>

Editorial

2017 – **Editor:** Journal of Open Source Software
2019 Topics: geoscience, geophysics (<http://joss.theoj.org/about>)

Conferences & Workshops

2021 [upcoming] **Session Co-convener: Open-source software for near-surface geophysics
and its applications**
AGU Fall Meeting 2021
Co-conveners: Seogi Kang, Aakash Ahamed and Dieter Werthmüller

[upcoming] **Session Co-convener: Open-Source Software, Notebooks and FAIR Soft-
ware**
AGU Fall Meeting 2021
Co-conveners: Jens Klump, Fernando Pérez and Leah Wasser

[upcoming] **Session Co-convener: Electromagnetic induction in Earth**
Joint Scientific Assembly IAGA-IASPEI 2021

Co-conveners: Alexander Grayver, Alison Kirby and Oliver Ritter

Judge: Earth, Ocean and Atmospheric Sciences Poster Corral

2020 **Town Hall Chair:** Scripts to Software Frameworks: How Do We Share Our Research Code?

AGU Fall Meeting 2020

Co-conveners: Bane Sullivan, Jens F. Klump, and Fernando Pérez

Session Co-convener: Open-Source Packages and FAIR Software: Challenges with Identifying the Best Tools, Communicating Data Quality, and Making Analytical Code FAIR I and II eLightning

AGU Fall Meeting 2020

Co-conveners: Jens F. Klump, Shelley Stall, and Rene Gassmoeller

Session Track Chair: Jupyter in Scientific Research.

JupyterCon 2020

Co-chair with: Hans Fangohr

2019 **Session Co-convener:** Communities of Practice for Jupyter Notebooks.

Moore-Sloan Data Science Environments Summit

Organized with: James Colliander and Fernando Pérez

Session Co-Convener: Collecting resources on best practices for scientific software development.

Moore-Sloan Data Science Environments Summit

Organized with: Fernando Pérez

Chair: SciPy Birds of a Feather (BoF) Sessions.

SciPy Conference

(<https://www.scipy2019.scipy.org/bof-sessions>)

2018 **Town Hall Organizer:** Community Forum: The role of an open-source software initiative within the AGU.

American Geophysical Union (AGU) Annual Meeting

Co-organized with: Lion Krischer and Leonardo Uieda

Session Convener: Short Talks: A tour of open-source software packages for the geosciences.

American Geophysical Union (AGU) Annual Meeting

Co-organized with Florian Wagner, Jens Klump and Lion Krischer

2017 **Panel Discussion Organizer:** Open Source Software in the Geosciences.

American Geophysical Union (AGU) Annual Meeting

Co-organized with Anna Kelbert, Luz Andelica Caudillo Mata, Jared Peacock, Suzan van der Lee, Juan Lorenzo

(<https://youtu.be/0GO4ZZ5Ry6M>)

Program Committee Member: JupyterCon, August 22-25, New York, NY

(<https://conferences.oreilly.com/jupyter/jup-ny>)

Mentoring

2014 – 2015 **Undergraduate Research Mentor** Research Experience Program at the University of British Columbia

Student: Mohamed Rassas

Project: A comparison of conventional and open channel hydraulic fracturing and the importance of imaging to optimize the fracturing process

Reviewing

- American Geophysical Union (AGU) book proposal
- Computers & Geosciences
- Exploration Geophysics
- Geophysical Journal International (GJI)
- IEEE Transactions on Geoscience and Remote Sensing
- Journal of Open Source Education (JOSE)
- Journal of Open Source Software (JOSS)
- The Leading Edge
- Society of Exploration Geophysics Abstracts

Awards

- 2020 **Jupyter Distinguished Contributor Award**
Membership in the Distinguished Contributors is meant to recognize the work of community members that have gone above-and-beyond in their work on the open-source Jupyter project. (\$500)
- 2019 **Gerald W. Hohmann Career Achievement Award: Outstanding Junior Scientist**
Awarded for advances in simulation and inversion of electromagnetic data and promotion of an open source culture for collaborative, inclusive and reproducible research. (\$2,500)

Graduate

- 2016 **UBC Library: Innovative Dissemination of Research Award**
Awarded for the SimPEG framework and community development. With Rowan Cockett and Seogi Kang. (\$1,000)
- 2014 – 2017 **NSERC Vanier Scholarship**
Vanier Scholars demonstrate leadership skills and a high standard of scholarly achievement in graduate studies in the social sciences and/or humanities, natural sciences and/or engineering and health. The Vanier Scholarship is the top graduate scholarship in Canada. (\$50,000 × 3)
- 2014 – 2017 **Alexander Graham Bell Canada Graduate Scholarship**
Awarded to high caliber scholars who are engaged in a doctoral program in the natural sciences or engineering (\$35,000 × 3, declined)
- 2014 – 2018 **Four Year Fellowship (FYF) for PhD Students**
Selection based on academic excellence, upon the recommendation of the graduate program at UBC (\$18,000 × 4, declined 3/4)
- 2013 **Special UBC Graduate Scholarship - W.H. Mathews Scholarship**
Awarded for academic achievement in Earth, Ocean and Atmospheric Sciences at UBC (\$5,000)

Undergraduate

- 2012 **Governor General's Silver Medal**
Awarded annually to the three undergraduate students (institution-wide) who achieve the highest academic standing overall upon graduation from his/her Bachelor degree program.

- 2012 **Lieutenant-Governor's Gold Medal**
Awarded to the convocating student from an Honours program in the Faculty of Science who has shown the highest distinction in scholarship (University of Alberta)
- 2012 **APEGGA Past Presidents' Medal in Geophysics**
Awarded to the convocating student who is a Canadian Citizen or Permanent Resident with the highest academic standing in a specialization or honours program in Geophysics on the basis of the final year

Publications

Peer Reviewed Publications

- 2021 Astic, T., **Heagy, L. J.** & Oldenburg, D. W., 2020. Petrophysically and geologically guided multi-physics inversion using a dynamic Gaussian mixture model. *Geophysical Journal International*. doi: [10.1093/gji/ggaa378](https://doi.org/10.1093/gji/ggaa378). arXiv: [2002.09515](https://arxiv.org/abs/2002.09515)
- Werthmüller, D., Rochlitz, R., Castillo-Reyes, O., & **Heagy, L. J.**, 2021. Towards an open-source landscape for 3D CSEM modelling. *Geophysical Journal International*. doi: [10.1093/gji/ggab238](https://doi.org/10.1093/gji/ggab238). arXiv: [2010.12926](https://arxiv.org/abs/2010.12926)
- 2020 Fournier, D., **Heagy, L. J.** & Oldenburg, D. W., 2020. Sparse magnetic vector inversion in spherical coordinates. *Geophysics*. doi: [10.1190/geo2019-0244.1](https://doi.org/10.1190/geo2019-0244.1)
- Heagy, L. J.**, Kang, S., Cockett, R. & Oldenburg, D. W., 2020. Open source software for simulations and inversions of airborne electromagnetic data. *Exploration Geophysics*. doi: [10.1080/08123985.2019.1583538](https://doi.org/10.1080/08123985.2019.1583538). arXiv: [1902.08238](https://arxiv.org/abs/1902.08238)
- Kang, S., Oldenburg, D. W. & **Heagy, L. J.**, 2020. Detecting induced polarization effects in time-domain data: a modeling study using stretched exponentials. *Exploration Geophysics*. doi: [10.1080/08123985.2019.1690393](https://doi.org/10.1080/08123985.2019.1690393). arXiv: [1909.12993](https://arxiv.org/abs/1909.12993)
- Oldenburg, D. W., **Heagy, L. J.**, Kang, S. & Cockett, R., 2020. 3D electromagnetic modelling and inversion: a case for open source. *Exploration Geophysics*. doi: [10.1080/08123985.2019.1580118](https://doi.org/10.1080/08123985.2019.1580118). arXiv: [1902.08245](https://arxiv.org/abs/1902.08245)
- 2019 **Heagy, L. J.** & Oldenburg, D. W., 2019. Modeling electromagnetics on cylindrical meshes with applications to steel-cased wells. *Computers & Geosciences*. doi: [10.1016/j.cageo.2018.11.010](https://doi.org/10.1016/j.cageo.2018.11.010). arXiv: [1804.07991](https://arxiv.org/abs/1804.07991)
- Heagy, L. J.** & Oldenburg, D. W., 2019. Direct current resistivity with steel-cased wells. *Geophysical Journal International*. doi: [10.1093/gji/ggz281](https://doi.org/10.1093/gji/ggz281). arXiv: [1810.12446](https://arxiv.org/abs/1810.12446)
- 2018 Cockett, R., **Heagy, L. J.** & Haber, E., 2018. Efficient 3D inversions using the Richards equation. *Computers & Geosciences*. doi: [10.1016/j.cageo.2018.04.006](https://doi.org/10.1016/j.cageo.2018.04.006)
- 2017 **Heagy, L. J.**, Cockett, R., Kang, S., Rosenkjaer, G. K., & Oldenburg, D. W., 2017. A framework for simulation and inversion in electromagnetics. *Computers & Geosciences*. doi: [10.1016/j.cageo.2017.06.018](https://doi.org/10.1016/j.cageo.2017.06.018)
- Caudillo-Mata, L. A., Haber, E., **Heagy, L. J.** & Schwarzbach, C., 2017. A framework for the upscaling of the electrical conductivity in the quasi-static Maxwell's equations. *Journal of Computational and Applied Mathematics*. doi: [10.1016/j.cam.2016.11.051](https://doi.org/10.1016/j.cam.2016.11.051)
- 2015 Cockett, R., Kang, S., **Heagy, L. J.**, Pidlisecky, A. & Oldenburg, D. W., 2015. SimPEG: An open source framework for simulation and gradient based parameter estimation in geophysical applications. *Computers & Geosciences*. doi: [10.1016/j.cageo.2015.09.015](https://doi.org/10.1016/j.cageo.2015.09.015)

Non Peer Reviewed Publications

- 2021 Oldenburg, D. W., **Heagy, L. J.** & Kang, S., 2021. Geophysical electromagnetics: A retrospective, DISC 2017, and a look forward. *The Leading Edge*. doi: [10.1190/tle40020140.1](https://doi.org/10.1190/tle40020140.1)
- 2019 Barba, L. A., Bazán, J., Brown, J., Guimera, R. V., Gymrek, M., Hanna, A., **Heagy, L. J.**, Huff, K. D., Katz, D. S., Madan, C., Moerman, K., Niemeyer, K., Poulson, J. L., and Prins, P., Ram, K., Rokem, A., Smith, A. M., Thiruvathukal, G. K., Thyng, K., Uieda, L., Wilson, B. & Yehudi, Y., 2019. Giving software its due through community-driven review and publication. *OSF Preprints*. doi: [10.31219/osf.io/f4vx6](https://doi.org/10.31219/osf.io/f4vx6),
- 2018 Barba, L. A., Barker, L. J., Blank, D. S., Brown, J., Downey, A. B., George, T., **Heagy, L. J.**, Mandli, K. T., Moore, J. K., Lippert, D., Niemeyer, K. E., Watkins, R. R., West, R. H., Wickes, E., Willing, C., & Zingale M., 2018. Teaching and Learning with Jupyter. <https://jupyter4edu.github.io/jupyter-edu-book/>
- 2017 Kang, S., **Heagy, L. J.**, Cockett, R., & Oldenburg, D. W., 2017. Exploring nonlinear inversions: A 1D magnetotelluric example. *The Leading Edge*. doi: [10.1190/tle36080696.1](https://doi.org/10.1190/tle36080696.1)
- 2016 Cockett, R., **Heagy, L. J.** & Oldenburg D. W., 2016. Pixels and their neighbors: Finite volume. *The Leading Edge*. doi: [10.1190/tle35080703.1](https://doi.org/10.1190/tle35080703.1)

Conference Publications

(† : award)

- 2020 Cholia, S., **Heagy, L. J.**, Henderson, M., Paine, D., Hays, D., Bianchi, L., Choshal, D., Pérez, F., & Ramakrishnan, L., 2020. Towards Interactive, Reproducible Analytics at Scale on HPC Systems. *Supercomputing 2020*.
- Fan, K., Oldenburg, D. W., Maxwell, M., Cowan, D., Kang, S., **Heagy, L. J.**, & Capriotti, J., 2020. Improving water security in Mon State, Myanmar via geophysical capacity building. *SEG Technical Program Expanded Abstracts*. doi: [10.1190/segam2020-3425913.1](https://doi.org/10.1190/segam2020-3425913.1)
- Kang, S., Capriotti, J., Oldenburg, D. W., **Heagy, L. J.**, & Cowan, D., 2020. Improving water security in Mon State, Myanmar via geophysical capacity building. *SEG Technical Program Expanded Abstracts*. doi: [10.1190/segam2020-3428432.1](https://doi.org/10.1190/segam2020-3428432.1)
- Heagy, L. J.**, Oldenburg, D. W., Pérez, F., & Beran, L., 2020. Machine learning for the classification of unexploded ordnance (UXO) from electromagnetic data. *SEG Technical Program Expanded Abstracts*. doi: [10.1190/segam2020-3428369.1](https://doi.org/10.1190/segam2020-3428369.1)
- Oldenburg, D. W., **Heagy, L. J.**, Kang, S., Cowan, D., Capriotti, J., Fan, K. & Maxwell, M., 2020. The role of open source resources and practices in capacity building. *SEG Technical Program Expanded Abstracts*. doi: [10.1190/segam2020-3428404.1](https://doi.org/10.1190/segam2020-3428404.1)
- 2016 Yang, D., Oldenburg, D. W. & **Heagy, L. J.**, 2016. 3D DC resistivity modeling of steel casing for reservoir monitoring using equivalent resistor network. *SEG Technical Program Expanded Abstracts*. doi: [10.1190/segam2016-13868475.1](https://doi.org/10.1190/segam2016-13868475.1)
- 2015 **Heagy, L. J.**, Cockett, R., Oldenburg, D. W. & Wilt, M., 2015. Modelling electromagnetic problems in the presence of cased wells. *SEG Technical Program Expanded Abstracts*. doi: [10.1190/segam2015-5931035.1](https://doi.org/10.1190/segam2015-5931035.1)
- Kang, S., Cockett, R., **Heagy, L. J.**, & Oldenburg, D. W., 2015. Moving between dimensions in electromagnetic inversions. *SEG Technical Program Expanded Abstracts*. doi: [10.1190/segam2015-5930379.1](https://doi.org/10.1190/segam2015-5930379.1)

- 2014 Caudillo-Mata, L. A., Haber, E., **Heagy, L. J.**, & Oldenburg, D. W., 2014. Numerical upscaling of electrical conductivity: A problem specific approach to generate coarse-scale models. *SEG Technical Program Expanded Abstracts*. doi: [10.1190/segam2014-1488.1](https://doi.org/10.1190/segam2014-1488.1)
- Devriese, S. G. R., Corcoran, N., Cowan, D., Davis, K., Bild-Enkin, D., Fournier, D., **Heagy, L. J.**, Kang, S., Marchant, D., McMillan, M. S., Mitchell, M., Rosenkjar, G. K., Yang, D. & Oldenburg, D. W., 2014. Magnetic inversion of three airborne data sets over the Tli Kwi Cho kimberlite complex. *SEG Technical Program Expanded Abstracts*. doi: [10.1190/segam2014-1205.1](https://doi.org/10.1190/segam2014-1205.1)
- Fournier, D., **Heagy, L. J.**, Corcoran, N., Cowan, D., Devriese, S. G. R., Bild-Enkin, D., Davis, K., Kang, S., Marchant, D., McMillan, M. S., Mitchell, M., Rosenkjar, G. K., Yang, D., Oldenburg, D. W., 2014. Multi-EM systems inversion - Towards a common conductivity model for the Tli Kwi Cho complex. *SEG Technical Program Expanded Abstracts*. doi: [10.1190/segam2014-1110.1](https://doi.org/10.1190/segam2014-1110.1)
- Heagy, L. J.**, Cockett, R., & Oldenburg, D. W., 2014. Parametrized inversion framework for proppant volume in a hydraulically fractured reservoir. *SEG Technical Program Expanded Abstracts*. doi: [10.1190/segam2014-1639.1](https://doi.org/10.1190/segam2014-1639.1)
- Wilt, M., **Heagy, L. J.** & Chen, J., 2014. Hydrofracture Mapping and Monitoring with Borehole Electromagnetic (EM) Methods. *76th EAGE Conference and Exhibition*. doi: <https://doi.org/10.3997/2214-4609.20141174>
- 2013 † **Heagy L. J.** & Oldenburg, D. W., 2013. Investigating the potential of using conductive or permeable proppant particles for hydraulic fracture characterization. *SEG Technical Program Expanded Abstracts*. doi: [10.1190/segam2013-1372.1](https://doi.org/10.1190/segam2013-1372.1)
† Award of Merit (Best Student Paper, Annual Meeting)

Presentations

Keynote or Invited

- 2021 **Heagy, L. J.**, 2021. Keynote. Openness: a new dimension to science. *5th Annual PyCon Colombia*. (Virtual)
- Heagy, L. J.**, 2021. Geophysical inversions, data science and collaboration opportunities. *Mineral Deposit Research Unit Speaker Series*
- Heagy, L. J.**, 2021. Towards open science: learnings from open source communities. *Sustainability in the Digital Age Speaker Series*. <https://sustainabilitydigitalage.org/author/admin/page/2/>
- Heagy, L. J.**, Kang, S., & Oldenburg, D. W., 2021. Capturing knowledge in code: SimPEG and GeoSci. *MTNet EMinar Series*. youtube: [UetPdFS4JaQ](https://www.youtube.com/watch?v=UetPdFS4JaQ)
- 2020 **Heagy, L. J.**, 2020. Community driven development of open source tools for simulations and inversions of geophysical data. *GAGE/SAGE Plenary Session*. youtube: [UE5MPi5aBhk](https://www.youtube.com/watch?v=UE5MPi5aBhk)
- Heagy, L. J.**, 2020. Towards open, collaborative practices in geophysics: examples from the SimPEG community. *Chevening Talks*. Tabasco Province, Mexico (Virtual)
- Heagy, L. J.**, 2020. Towards open, collaborative practices in geophysics. *Bay Area Geophysics Society*.

- Heagy, L. J.**, 2020. Reproducibility as the engine of science: tools for reproducible research. *Scientific publication beyond the text: Sharing research objects*. Stanford Center for Reproducible Neuroscience
- Heagy, L. J.**, 2020. From geophysical inversions to open, collaborative geoscience. *Stanford Geophysics Seminars*
- 2019 **Heagy, L. J.**, Oldenburg, D. W., Kang, S., Melo, A. T. and Pérez, F., 2019. Interactive geophysics: GeoSci.xyz. *AGU Fall Meeting*
- Heagy, L. J.**, 2019 Jupyter meets the Earth: from geophysical inversions to open, collaborative geoscience *Colorado School of Mines Heiland Lecture*. Golden, CO
- Heagy, L. J.**, 2019. Jupyter meets the Earth: from geophysical inversions to open, collaborative geoscience. *Women In Data Science Stanford Earth*. Stanford, CA
- Heagy, L. J.**, 2019. Keynote. Capturing knowledge in code. *7th Latin American Conference for Scientific Python*. Bogotá, Colombia. youtube: <https://youtu.be/cb-gFHRZC1c>
- Heagy, L. J.** 2019. Keynote. Science enabled by open source tools and communities: Geophysical simulations and inversions. *Pangeo annual meeting*. Seattle, WA.
- Heagy, L. J. & Oldenburg, D. W.**, 2019. Exploring the Physics of Electromagnetics with Steel-Cased Wells Using Open-Source Tools. *International Union of Geodesy and Geophysics (IUGG)*. Montreal, Canada.
- Heagy, L. J.**, 2019. Sharing Reproducible Computations on Binder. *Symposium on Data Science and Statistics (SDSS)*. Seattle, WA.
- 2016 **Heagy, L. J.**, Cockett, R., & Oldenburg, D. W., 2016. GeoSci: practices to collaboratively build online resources for geophysics education. *AGU Fall Meeting*
- Heagy, L. J. & Oldenburg, D. W.**, 2016. Examining the impact of steel cased wells on electromagnetic signals. *AGU Fall Meeting*
- 2014 **Heagy, L. J. & Oldenburg, D. W.**, 2014. Using electromagnetics to delineate proppant distribution in a hydraulically fractured reservoir. *SEG Development and Production Forum, Santa Rosa CA*.

Other Presentations

(† : award)

- 2021 Capriotti, J., **Heagy, L. J.** & Kuttai, J., 2021. Geophysical simulations and inversions with SimPEG. *Engineering and Mining Geophysics 2021*. European Association of Geoscientists & Engineers (EAGE).
- 2020 Capriotti, J., Kang, S., Cowan, D., **Heagy, L. J.** & Oldenburg, D. W., 2020. Open-source direct current resistivity software development for groundwater applications. *AGU Fall Meeting*
- Cima, A., Sapienza, F., Snow, T., Grigsby, S., **Heagy, L. J.**, Pérez & Siegfried, M., 2020. Fusion of ICESat-2 and complementary remote sensing data for interactive visualization in Jupyter. *AGU Fall Meeting*
- Fan, S., Oldenburg, D. W., Maxwell, M., Cowan, D., **Heagy, L. J.**, Kang, S., Capriotti, J., Stephens, M., Maung, S., Aye, Y. Y. & Oo, Z. L., 2020. Improving Water Security in Southeastern Myanmar via Geophysical Capacity Building. *AGU Fall Meeting*
- Grigsby, S., Sapienza, F., Snow, T., Cima, A., **Heagy, L. J.**, Siegfried, M., Pérez, & Taylor, J., 2020. Spatio-Temporal Interpolation of Cloud Data. *AGU Fall Meeting*

- Heagy, L. J.**, 2020. SimPEG Overview. *SEG Workshop on SimPEG for Mineral Explorationists*
- Heagy, L. J.**, Oldenburg, D. W., Pérez, F., & Beran, F., 2020. Using neural networks for the classification of unexploded ordnance (UXO) from electromagnetic data. *SEG Workshop on Machine Learning/Artificial Intelligence in Mineral Exploration*
- Heagy, L. J.**, Capriotti, J., Kuttai, J., Cowan, D., Pérez, F., Hamman, J., Banihirwe, A., & Paul, K., 2020. Advances in Magnetotelluric modelling and inversion with SimPEG. *AGU Fall Meeting*
- Moges, E., Zhang, L., Larsen, L., **Heagy, L. J.**, & Pérez, F., 2020. Jupyter Supported Interactive Data Processing Workflow for Intensively Monitored Watersheds across the US. *AGU Fall Meeting*
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- Pérez, F., Hamman, J., Larsen, L., Paul, K., **Heagy, L. J.**, Moges, E., Banihirwe, A., Sundell, E., Cima, A., & Sapienza, F., 2020. Jupyter meets the Earth: connecting Jupyter development with geoscience research. *JupyterCon*
- Pérez, F., Hamman, J., Larsen, L., Paul, K., **Heagy, L. J.**, Moges, E., Banihirwe, A., Cima, A., Sapienza, F., Sundell, E., & Holdgraf, C., 2020. Jupyter meets the Earth: advancing an open ecosystem that supports science. *AGU Fall Meeting*
- Sapienza, F., Snow, T., Cima, A., Grigsby, S., **Heagy, L. J.**, Pérez, F., Siegfried, M., & Taylor, J., 2020. Multimodal Dataset Integration for Cloud Masking of ICESat-2. *AGU Fall Meeting*
- Scheick, J., Arendt, A. A., **Heagy, L. J.**, Paolo, F., Pérez, F., & Steiker, A., 2020. icepyx: Developing Community and Software Around ICESat-2 Data. *AGU Fall Meeting*
- Werthmüller, D., Rochlitz, R., Castillo-Reyes, O., & **Heagy, L. J.**, 2020. Open-Source Landscape for Three-Dimensional Controlled-Source Electromagnetic Modeling. *AGU Fall Meeting*
- 2019 Sheick, J., Arendt, A. A., **Heagy, L. J.**, & Pérez, F., 2019. Introducing icesat2py, an Open Source Python Library for Obtaining and Working with ICESat-2 Data. *AGU Fall Meeting*
- 2018 **Heagy, L. J.**, Kang, S., Cockett, R., & Oldenburg, D. W., 2018. Open source software for simulations and inversions of airborne electromagnetic data. *AEM 2018: 7th International Workshop on Airborne Electromagnetics*
- 2017 **Heagy, L. J.**, Cockett, R. & Oldenburg, D. W., 2017. Modular electromagnetic simulations with applications to steel cased wells. *6th International Symposium on Three-Dimensional Electromagnetics*.
- Heagy, L. J.** & Cockett, R., 2017. Deploying a reproducible course. *JupyterCon 2017*. youtube: https://youtu.be/XY3Tq9Wd1_A
- Heagy, L. J.** & Cockett, R., 2017. Interactive Geophysics. *SciPy Conference*. youtube: <https://youtu.be/NuUe2ja5LCE>
- Heagy, L. J.**, Fournier, D., Kang, S. & Miller, C., 2017. Simulation and parameter estimation in geophysics. *British Columbia Geophysical Society Meeting*
- 2016 **Heagy, L. J.**, Using open source tools to refactor geoscience education. *SciPy Conference*. youtube: <https://youtu.be/IW2LDsevvDk>

- Kang, S., Cockett, R., **Heagy, L. J.** and Oldenburg, D. W., 2016. Practices to enable the geophysical research spectrum: from fundamentals to applications. *AGU Fall Meeting*
- 2015 Cockett, R., **Heagy, L. J.**, Kang, S. & Rosenkjaer, G. K., 2015. Development practices and lessons learned in developing SimPEG. *AGU Fall Meeting*
- Heagy, L. J.**, 2015. Using Python to Span the Gap between Education, Research, and Industry Applications in Geophysics. *SciPy Conference*. youtube: <https://youtu.be/4msHJMBvzaI>
- Heagy, L. J.**, Cockett, R., Kang, S., Rosenkjaer, G. K. & Oldenburg, D. W., 2015. simpegEM: An open-source resource for simulation and parameter estimation problems in electromagnetic geophysics. *AGU Fall Meeting*
- Heagy, L. J.**, Cockett, R., Kang, S. & Oldenburg, D. W., 2015. Real simulation tools in introductory courses: packaging and repurposing our research code. *AGU Fall Meeting*
- 2014 †**Heagy, L. J.**, Oldenburg, D. W. & Chen, J., 2014. Where does the proppant go? Examining the application of electromagnetic methods for hydraulic fracture characterization. *CSEG GeoConvention*
- † Student Honourable Mention: Integrated Poster

Media

- 2021 Guest on On Earth with Dr. Lindsey Heagy - Geo Data Scientist, June 17, 2021. *On Earth Podcast* by the UBC Pacific Museum of Earth (<https://podcasts.apple.com/ca/podcast/on-earth-with-dr-lindsey-heagy-geo-data-scientist/id1562034229?i=1000525904011>)
- 2020 Guest on Science Thursday and blog series by Coiled:
- Interactive Computing at Scale with Dask, August 2, 2020 (<https://coiled.io/blog/large-scale-simulations-heagy>)
 - Bomb Detection with Dask and Machine Learning, August 18, 2020 (<https://coiled.io/blog/bomb-detection-with-dask-and-machine-learning>)
 - Imaging Earth's subsurface with Python and Jupyter, September 24, 2020. (<https://youtu.be/1FVakd0Bja4>)
- Guest on Episode 5: Exploration - Are we Swamped by Data?, May 31, 2020. *Discovery to Recovery* by the Society of Economic Geologists and Seequent (<https://www.buzzsprout.com/1012126>)
- 2018 Guest on Episode 163: Python in Geoscience, May 25, 2018. *Talk Python to Me* by Michael Kennedy (<https://talkpython.fm/>)
- 2017 Guest on Episode 41: Inverterizer, Apr. 24, 2017. *Undersampled Radio* by Graham Ganssle and Matt Hall (<https://undersampledrad.io>)
- Guest on Episode 11: Geophysical Electromagnetics - 2017 DISC, Jan. 24, 2017. *Seismic Soundoff* by the Society of Exploration Geophysicists (<http://seg.org/podcast>)
- 2012 Article: Science 100 pioneer grounded in geophysics. *University of Alberta Spring Convocation 2012: Celebrating Talented People* (<https://www.ualberta.ca/news-and-events/newsarticles>)