DANIEL ANDREW FROST

University of South Carolina
School of Earth, Ocean, and Environment
701 Sumter Street
EWS 516
Columbia, SC
USA

Personal phone: +1 602-810-7064
Work email: dafrost@berkeley.edu
Personal email: dafrst@gmail.com
Website: https://danielafrost.com/

Education

Ph.D. The University of Leeds October 2010 - July 2014

Thesis: "Seismic observation of the Earth's small-scale structure"
Structure of lower mantle using scattered seismic waves and relation to large-scale features
Detecting the edge of the Pacific Large Low Shear Velocity Province using P-waves

MEarthSci The University of Oxford October 2006 - October 2010

Earth Sciences 2.1 Classification
Masters thesis: "A marine geophysical study of the Tonga Trench-Louisville ridge collisional system in the South-West Pacific Ocean"

Employment

Assistant Professor University of South Carolina August 2022 - present

Research in global seismology and local earthquakes in South Carolina
Teaching Introduction to Geology and Data Science in Earth, Ocean, and Environmental Sciences

Assistant Project Scientist University of California, Berkeley August 2019 - August 2022

Funded by NSF grant 1829283: Resolving the influence of mantle heterogeneity on estimates of inner core anisotropy, and NSF grant 2027181: Collaborative Research: Towards improved imaging of the outermost core through determination of the effects of lowermost mantle heterogeneity and anisotropy, and NSF grant 2050011: Imaging deep mantle structure beneath Alaska using full waveform tomography
Understanding structure and tectonics of mantle beneath Alaska
Implementing regional box tomography
Improving resolution of deep Earth by understanding shallow mantle influence

Postdoctoral Scholar University of California, Berkeley May 2016 - July 2019

Funded by NSF grants 1135452 and 1829283: Resolving the influence of mantle heterogeneity on estimates of inner core anisotropy
Inner core anistoropy using exotic seismic phases and seismic arrays and mineral physics
Supporting the research output and organisation of the Cooperative Institute for Dynamic Earth Research (CIDER) program
Preparing educational reports on multidisciplinary topics for CIDER
PDRA: Barbara Romanowicz

Postdoctoral Scholar Arizona State University August 2014 - May 2016

Funded by NSF grant PVS0695: Deep mantle cycling of oceanic crust

Distribution of small-scale heterogeneities throughout both the upper and lower mantle and their relation to mantle dynamics and subduction
The influence of broad lower mantle heterogeneities on deep-travelling S-waves and the effect on analysis of outer core structure
PDRA: Edward Garnero

Research Interests

Whole Earth structure, earth evolution, cross-disciplinary studies, influence of convection on mantle structure, seismic scattering, core structure, anisotropy, chemical heterogeneity, D″ complexity, array seismology, tomographic inversion, developing seismic methodologies

Awards

Doonbos prize: Recognised for innovative techniques to image Earth's small-scale structure and cross-disciplinary studies linking seismic observations to geodynamics and mineralphysics to constrain the structure of Earth's core.

Publications - in print or in review

Authors marked with * are students that I supervise.

20. Wolf, J., **Frost, D.A.**, Brewster*, A., Long, M.D., Garnero, E., West, J.D. Widespread D′,′ anisotropy beneath North America and the northeastern Pacific Ocean and implications for upper mantle anisotropy measurements *submitted to JGR*

19. Wolf, J., Long, M., **Frost, D.A.**, Nissen-Meyer, T. , The expression of mantle seismic anisotropy in the global seismic wavefield *accepted at GJI*

18. **Frost, D.A.**, Garnero, E.J., Creasy, N., Wolf, J., Bozdag, E., Long, M.D., Aderoju,* A., Vite, R.: Heterogeneous mantle effects on the behavior of SmKS waves and outermost core imaging, *published in GJI*

17. Wolf, J., Long, M., **Frost, D.A.**, 2024, Ultralow velocity zone and deep mantle flow beneath the Himalayas linked to subducted slab, Nat. Geosci

16. Rost, S., **Frost, D.A.**, Nowacki, A., Cobden, L. , 2023, Wavefield distortion imaging of Earth's deep mantle, EPSL, 604, 118011

15. Creasy, N., Bozdag, E., **Frost, D.A.**, Snieder, R., 2023, SKS Polarization Anomalies Due to the Coriolis Force, Bull. Seis. Soc. Am.

14. Wolf, J., **Frost, D.A.**, Long, M., Garnero, E., Aderoju, A., Creasy, N., Bozdag, E., 2022, Observations of mantle seismic anisotropy using array techniques: shear-wave splitting of beamformed SmKS phases, J. Geophys. Res

13. **Frost, D.A.**, Avery, M.S., Buffett, B.A., Chidester, B.A., Deng, J., Dorfman, S. M., Li, Z., Liu, L., Lv, M., Martin, J.F. , 2022, Multidisciplinary constraints on the thermal-chemical boundary between Earth's core and mantle, *G3, 23, 3*

12. **Frost, D.A.**, Romanowicz, B., Lasbleis, M., Chandler, B., 2021. Dynamic history of the inner core constrained by seismic anisotropy, Nat. Geosci., 14, p. 531–535

11. **Frost, D.A.**, Romanowicz, B., 2021. Effects of upper mantle structure beneath Alaska on core wave absolute and differential measurements: implications for estimates of inner core anisotropy, Phys. Earth. Planet. Int., 315, 106713

10. McMahon, S., Ivarsson, M., Wacey, D. , Saunders, M., Belivanova, V., Muirhead, D., Knoll, P., Steinbock, O., **Frost, D.A.**, 2021. Dubiofossils from a Mars-analogue subsurface palaeoenvironment: the limits of biogenicity criteria, Geobiology

8. **Frost, D.A.**, Romanowicz, B., Roecker, S., 2020. Upper mantle slab under Alaska: contribution to anomalous core-phase observations on South Sandwich to Alaska paths, Phys. Earth. Planet. Int., 299, 106427

8. **Frost, D.A.**, Romanowicz, B., 2019. On the orientation of the fast and slow directions of anisotropy, Phys. Earth Planet. Int., 286, p. 101-110

7. **Frost, D.A.**, Garnero, E.J., Rost, S., 2018. Dynamical links between small- and large-scale mantle heterogeneity: seismological evidence, Earth Planet. Sci. Lett., 482, p. 135-146

6. **Frost, D.A.**, Romanowicz, B., 2017. Constraints on Inner Core anisotropy using array observations of P′P′, Geophys. Res. Lett., 44, p. 10,878-10,886

5. **Frost, D.A.**, Rost, S., Garnero, E.J., Li, M., 2017. Seismic evidence for Earth's crusty deep mantle, Earth Planet. Sci. Lett., 470, p. 54-63

4. Rader, E., Emry, E., Schmerr, N., **Frost, D.A.**, Cheng, C., Menard, J., Yu, C., Geist, D., 2015. Characterization and Petrological Constraints of the Midlithospheric Discontinuity, G-Cubed, p. 3484-3504

3. Rost, S., Earle, P.S.., Shearer, P.M., **Frost, D.A.**, Selby, N.D., 2015. Seismic Detections of small-scale heterogeneities in the deep Earth, Springer Monograph, in *The Earth's Heterogeneous Mantle*, c. 12, p. 367-390

2. **Frost, D.A.**, Rost, S., 2014. The P-wave Boundary of the Large-Low Shear Velocity Province beneath the Pacific, Earth Planet. Sci. Lett., 403, p. 380-392

1. **Frost, D.A.**, Rost, S., Selby, N.D., Stuart, G.W., 2013. Detection of a tall ridge at the core-mantle boundary from scattered PKP energy, Geophys. J. Int., 195, p. 558-574

Publications - in preparation

Frost, D.A., Waszek, L.: The sharpness of the inner core hemispheres: assessing the impact of the upper mantle on PKiKP

Frost, D.A., Rost, S.: Physical properties of scattering heterogeneities throughout the mantle

Publications - non peer-reviewed

Frost, D.A., Romanowicz, B.: On the different flavours of seismic reference models, https://escholarship.org/uc/item/7wb6377n

Presentations

Colloquia Presentations - invited

2024 Carolinas Earthquake Engineering Research Institute
Frost, D.A.*, The Elgin earthquake swarm: patterns, causes, and context

2023 University of Florida
Frost, D.A.*, Dynamic history of the inner core constrained by seismic anisotropy

2023 Virginia Tech
Frost, D.A.*, Dynamic history of the inner core constrained by seismic anisotropy

2023 Georgia Tech University
Frost, D.A.*, Dynamic history of the inner core constrained by seismic anisotropy

2022 University of Georgia
Frost, D.A.*, Dynamic history of the inner core constrained by seismic anisotropy

2022 Auburn University
Frost, D.A.*, Dynamic history of the inner core constrained by seismic anisotropy

2022 Lehigh University
Frost, D.A.*, Dynamic history of the inner core constrained by seismic anisotropy

2022 California State University, Long Beach
Frost, D.A.*, Dynamic history of the inner core constrained by seismic anisotropy

2022 University of South Carolina
Frost, D.A.*, Dynamic history of the inner core constrained by seismic anisotropy

2020 Scripps Institution of Oceanography
Frost, D.A.*, Dynamic history of the inner core constrained by seismic anisotropy

2020 Durham University
Frost, D.A.*, Dynamic history of the inner core constrained by seismic anisotropy

2019 UC Berkeley
Frost, D.A.*, Dynamic history of the inner core constrained by seismic anisotropy

2019 Mississippi State University
Frost, D.A.*, Detecting the growth rings of Earth's core with seismology

2019 UC Davis
Frost, D.A.*, Seismological evidence of the dynamical links between small- and large-scale mantle structure

2019 UCLA
Frost, D.A.*, Inner core dynamics from patterns of seismic anisotropy

2018 California Institute of Technology
Frost, D.A.*, Seismological evidence of the dynamical links between small- and large-scale mantle structure

2018 New Mexico State University
Frost, D.A.*, The dynamical links between small- and large-scale mantle structures: seismological evidence

2016 Earth and Life Science Institute, Tokyo
Frost, D.A.*, Seismically mapping kilometre-scale structures throughout the mantle

2016 University of California, Berkeley
Frost, D.A.*, Seismically mapping kilometre-scale structures throughout the mantle

Conference Presentations - invited

2023 Gordon Research Conference Mt Holyoke College

Frost, D.A., Romanowicz, B., Lasbleis, M., Chandler, B.: Dynamic history of the inner core constrained by seismic anisotropy

2022 Study of Earth's Deep Interior Taipei
Frost, D.A., Romanowicz, B., Lasbleis, M., Chandler, B.: Dynamic history of the inner core constrained by seismic anisotropy

2017 European Geophysical Association General Assembly Vienna
Frost, D.A.*, Rost, S., Garnero, E.J.: Romanowicz, B., The dynamic connection between small and large-scale mantle heterogeneity

2015 American Geophysical Union Fall Meeting San Francisco
Frost, D.A.*, Rost, S., Garnero, E.J.: Seismic detection of oceanic crust in Earth's lower mantle and its relation to large-scale mantle structure

2013 European Geophysical Association General Assembly Vienna
Frost, D.A.*, Rost, S., Selby, N.D.: A global study of the lowermost mantle using scattered PKKP waves (PK●KP)

2012 Faculty of Environment Conference Leeds
Frost, D.A.*, Rost, S., Selby, N.D.: Stuart, G.W., The Earth in detail: Seismology as a tool for studying the Earth's fine-scale structure

2012 Congres de Doctorants IPGP, Paris
Frost, D.A.*, Rost, S., Selby, N.D.: Stuart, PKP Scattering: Detecting a Heterogeneous Ridge Above the Core-Mantle Boundary

Conference Presentations - contributed

2023 American Geophysical Union Fall Meeting San Francisco
Vite Sanchez, R., Bozdag, E., **Frost, D.A.***,: Investigating mantle corrections on SmKS measurements with full-waveform modeling

Aderoju, A., Garnero, E., **Frost, D.A.***, Vite Sanchez, R., Bozdag, E., Wolf, J., Long., M.D.,: An Iterative Beamforming Methodology Applied to SmKS waves

Frost, D.A.*, Romanowicz, B.A., Das, P.P.: Assessing the effects of mantle structure on seismic models of the inner core

Das, P.P., Buffet, B.A., **Frost, D.A.***: Inner Core Flow Inferred From the Presence Of Elastic Anisotropy

Xu, E., Wolf, J., **Frost, D.A.***, Long, M.D.: Investigating lowermost mantle anisotropy near Australia using a beamforming approach

Wolf, J., Long, M.D., **Frost, D.A.***: Deformation near ultralow velocity zones in the deep mantle

Malayil, A.M., **Frost, D.A.***: Determining the Origin of Elgin, SC Earthquake Swarm Using Seismic Nodal Data

Peng, Z., Adeboboye, O., Chuang, L.Y., **Frost, D.A.***, Jaume, S.C., Neves, M.: High-Precision Analysis of the Seismicity in the Vicinity of Elgin Swarm Sequence in South Carolina: Phase Detection, Event Relocation and Focal Mechanisms

Fernandez, A, **Frost, D.A.***, Crotwell, P.H., Malayil, A.M., Peng, Z., Adeboboye, O.: Crustal Structure Underneath South Carolina Determined by Teleseismic Receiver Function Analysis; an Approach to Resolve the Crustal Configuration Under the Elgin–Lugoff Seismic Swarm

2023 South-East North-East Regional Geological Society of America Reston

Frost, D.A.*, Ford, A., Robinson, C., Zollinger, L., White., S.M., Crotwell, P.H.: ANALYSIS OF NETWORK AND NODAL SEISMIC DATA TO CHARACTERIZE THE ELGIN, SOUTH CAROLINA EARTHQUAKE SWARM

Howard, S., Morrow, R., Crotwell., P.H., **Frost, D.A.***, Jaume, S.C., Kellogg, J., White, S.M.: ELGIN, SOUTH CAROLINA EARTHQUAKE SWARM, DECEMBER 2022 TO PRESENT

2022 American Geophysical Union Fall Meeting Chicago

Wolf, J., Li., Mingmin, **Frost, D.A.**, Long, M., Garnero, E.J.: Reconciling observations of deep mantle anisotropy beneath the Pacific Ocean with predictions from mantle flow models

Adourian, S., **Frost, D.A.***, Romanowicz, B., : A merging package for multi-scale, multi-resolution tomographic models

Frost, D.A.*, Adourian, S., Romanowicz, B.: The regional structure of the Alaskan Mantle: a full waveform inversion approach

2021 American Geophysical Union Fall Meeting San Francisco

Integrating URGE deliverables into a department-level strategic plan for enhancing diversity

Creasy, N., **Frost, D.A.**, Bozdag, E., Snieder, R., Effect of the Coriolis Force on Body Wave Polarization Anomalies Inferred From 3D Wave Simulations

Frost, D.A.*, Romanowicz, B., Adourian, S.: waveform box tomography to image deep mantle structure beneath Alaska

Aderoju, A., **Frost, D.A.**, Garnero, E.J., Bozdag, E., Creasy, N., Wolf, J., Long, M.: Documenting SmKS Slowness, Back Azimuth, and Travel Time Anomalies using Seismic Array Methodologies

Wolf, J., Long, M., **Frost, D.A.**, Creasy, N., Aderoju, A., Garnero, E.J., Bozdag, E.: Improving resolution of mantle seismic anisotropy using array techniques: Shear wave splitting of beamformed SmKS phases

2021 IAGA-IASPEI Joint Scientific Assembly Hyderabad

Frost, D.A.*, Romanowicz, B., Imaging deep mantle structure beneath Alaska using full waveform tomography

Frost, D.A.*, Romanowicz, B., Lasbleis, M., Chandler, B., Dynamic history of the inner core constrained by seismic anisotropy

2021 Alaska EarthScope and Beyond

Frost, D.A.*: Impact of Earthscope in Alaska on studies of the Earth's interior

2019 American Geophysical Union Fall Meeting San Francisco

Frost, D.A.*, Romanowicz, B., Lasbleis, M., Chandler, B., Seismic evidence of slow translation of the iron-nickel inner core

Frost, D.A.*, Romanowicz, B., Roecker, S., Upper mantle slab beneath Alaska: major contribution to the South Sandwich to Alaska anomalous PKPdf observations

2019 IUGG General Assembly Montreal

Frost, D.A., **Romanowicz, B.***, Chandler, B., Lasbleis, M., Seismic evidence of slow translation of the inner core

2018 American Geophysical Union Fall Meeting Washington D.C.
Frost, D.A.*, Romanowicz, B., Lasbleis, M., Chandler, B., Inner Core Dynamics From Patterns of Seismic Anisotropy

Roecker, S., **Frost, D.A.***, Romanowicz, B., Structure of the Crust and Upper Mantle beneath Alaska Determined from the Joint Inversion of Arrival Times and Waveforms of Regional and Teleseismic Body Waves

Lv, M., Margaret S.A., Chen, X., Chidester, B., Deng, J., Farcy, B.J., **Frost, D.A.***, Li, Z., Martin, J.F., Buffett, B.A., Dorfman, S., and Liu, L.: A multidisciplinary assessment of heat flux at the core mantle boundary

Waszek, L., Burdick, S., Lasbleis, M.., **Frost, D.A.***, Anandawansha, R., Combining global tomographic inversions with geodynamical growth models to constrain the origins of Earthś inner core features

2018 Study of Earth's Deep Interior Edmonton
Frost, D.A.*, Romanowicz, B., Axially dependent Inner Core anisotropy from low order inner core convection

2018 Dynamics and evolution of Earth's coupled core-mantle system Royal Astronomical Society
Frost, D.A.*, Romanowicz, B., Axially dependent Inner Core anisotropy from low order inner core convection

2017 American Geophysical Union Fall Meeting New Orleans
Frost, D.A.*, Romanowicz, B., Investigating the source of anomalous PKP travel times on South-Sandwich to Alaska paths

2017 Gordon Research Conference: Interior of the Earth Mount Holyoke
Frost, D.A.*, Romanowicz, B., Constraints on Inner Core structure from P'P' array-based observations

2017 Gordon Research Seminar: Interior of the Earth Mount Holyoke
Frost, D.A.*, Romanowicz, B., Constraints on Inner Core structure from P'P' array-based observations

2017 European Geophysical Association General Assembly Vienna
Frost, D.A.*, Romanowicz, B., Constraints on Inner Core structure from P'P' array-based observations

2016 American Geophysical Union Fall Meeting San Francisco
Frost, D.A.*, Romanowicz, B., Constraints on Inner Core structure from P'P' array-based observations

Ko, B., Holt, A., Gao, C., **Frost, D.A.***, Karaoglu, H., Lai, H., Yuan, K., Li, M., Campbell, S.M.., Shim, S.-H., Irving, J.C.E.., Kellogg, L.H.., Miller, S.M.., Probing the lower mantle composition and thermal structure: Insights from D"

2016 Study of Earth's Deep Interior Nantes
Frost, D.A.*, Garnero, E.J., Rost, S., Connection across scales of seismic heterogeneity throughout the mantle

2015 American Geophysical Union Fall Meeting San Francisco
Frost, D.A.*, Garnero, E.J., TA sub-array measurements of SmKS ray parameters to determine lower mantle influence

2014 American Geophysical Union Fall Meeting San Francisco
Frost, D.A.*, Rost, S., Garnero, E.J., A dynamical context for small-scale heterogeneity throughout the mantle beneath subduction

2014 Study of Earth's Deep Interior Kanagawa, Japan
Frost, D.A.*, Rost, S., Selby, N.D., A global study of the lowermost mantle using short and long period scattered PKKP waves (PK●KP)

2013 American Geophysical Union Fall Meeting San Francisco
Frost, D.A.*, Rost, S., Selby, N.D., A global study of the lowermost mantle using short and long period scattered PKKP waves (PK●KP)

Frost, D.A.*, Rost, S., Constraining lower mantle anomalies using USArray

Rost, S., **Frost, D.A.***, The distribution of small-scale heterogeneity at the core-mantle boundary

2013 BGA Postgraduate Research in Progress Meeting Cambridge
Frost, D.A.*, Rost, S., Selby, N.D., A global study of the lowermost mantle using scattered PKKP waves (PK●KP)

2013 Gordon Research Conference: Interior of the Earth Mount Holyoke
Frost, D.A.*, Rost, S., Selby, N.D., A global study of the lowermost mantle using scattered PKKP waves (PK●KP)

2013 Gordon Research Seminar: Interior of the Earth Mount Holyoke
Frost, D.A.*, Rost, S., Selby, N.D., Stuart, G.W., PKP Scattering: Detecting a Heterogeneous Ridge Above the Core-Mantle Boundary

2012 Structure and Dynamics of Earth's Deep Mantle College de France
Frost, D.A.*, Rost, S., Selby, N.D., PKKP Scattering: A tool for the global study of the Core-Mantle Boundary

2012 BGA Postgraduate Research in Progress Meeting Leeds
Frost, D.A.*, Rost, S., Selby, N.D., PKKP Scattering: A tool for the global study of the Core-Mantle Boundary

2012 Study of Earth's Deep Interior Leeds
Frost, D.A.*, Rost, S., Selby, N.D., PKKP Scattering: Towards a global study of the Core-Mantle boundary

2011 American Geophysical Union Fall Meeting San Francisco
Frost, D.A.*, Rost, S., Selby, N.D., Stuart, G.W., PKP Scattering: Detecting a heterogeneous ridge about the Core-Mantle boundary

2011 BGA Postgraduate Research in Progress Meeting Oxford
Frost, D.A.*, Rost, S., Selby, N.D., Stuart, G.W., PKP Scattering: Detecting a heterogeneous ridge about the Core-Mantle boundary

Proposals - funded

Amounts listed are funds assigned to the institution I was associated with.

2023 USC: Mini Magellan
$750 *Structure of the mantle beneath Alaska and South America*
Role: PI

2023 USC: UREP
$1000 *Locating earthquakes in the Elgin swarm*
Role: PI

2023 National Science Foundation Geophysics program
$165,975 *Collaborative Research: High Resolution Imaging of the Elgin Earthquake Swarm*
Role: CoI, PI: Peng, Z. (Georgia Tech),

2023 National Science Foundation Geophysics program - RAPID
$7,390 *RAPID: Imaging of the Elgin Earthquake Swarm*
Role: CoI, PI: Peng, Z. (Georgia Tech),

2021 National Science Foundation CSEDI program
$408,190 *Collaborative Research: The Origins and Implications of Inner Core Seismic Anisotropy*
Role: PI, CoIs: Buffett, B. (UC Berkeley), and Miyagi, L. (University of Utah)

2021 National Science Foundation Geophysics program
$221,284 *Imaging deep mantle structure beneath Alaska using full waveform tomography*
Role: PI, CoI: Romanowicz, B. (UC Berkeley)

2020 National Science Foundation Geophysics program
$72,612 *Collaborative Research: Towards improved imaging of the outermost core through determination of the effects of lowermost mantle heterogeneity and anisotropy*
Role: CoI, PI: Garnero, E.J. (Arizona State University), CoIs: Bozdag, E. (Colorado School of Mines), and Long, M. (Yale University).

2018 National Science Foundation Geophysics program
$152,142 *Resolving the influence of mantle heterogeneity on estimates of inner core anisotropy*
Role: Co-author and named researcher. PI: Romanowicz, B..

2014 National Science Foundation Cooperative Studies Of The Earth's Deep Interior program
Value: $550,121 *Deep Mantle Cycling of Oceanic Crust*
Role: Co-author and named researcher. The seismological investigations (one third of the proposed activities) were built around my skill base, to specifically fund my involvement in the multidisciplinary research. PI: Garnero, E.J., CoIs: McNamara, A., Shim, S.-H.

2014 Preparatory Commission for the Comprehensive Nuclear Test-ban Treaty Organization (CTBTO) Young Scientist Research Award
Value: 9 months *Characterisation of small-scale heterogeneities beneath IMS arrays for improved source location and magnitude estimation*
Role: Authored proposal and the project was awarded, but I turned this down to accept a postdoctoral position at Arizona State University

Research Training

2018 CIDER Summer School UC Santa Barbara, California
Worked to constrain the nature of the thermal boundary layer at the core-mantle boundary from a multidisciplinary approach

2017 MEXT Shin-Gakujutsu Winter school — Kusatsu, Japan
"Origin and Evolution of Deep Primordial Reservoirs"

2016 CIDER Summer School — UC Santa Barbara, California
Worked on integrating multidisciplinary observations and experiments of the lower mantle to understand its chemical and thermal structure

2014 ELSI Summer School — Earth and Life Sciences Institute, Tokyo
"Computational Tools for Planetary Formation and Earth Evolution"

2013 Seismic network deployment
Assisted in decommissioning Faultlab Dense Array in Northern Anatolia in Turkey

2013 CIDER Summer School — UC Berkeley, California
Worked on the nature, prevalence, and possible explanations for observations of the Mid-Lithospheric Discontinuity

2010, 2012 Research Scientist — AWE Blacknest, UK
Analysed seismic scattering using CTBTO data

2009 Volunteer Research Scientist — Centre of Exchange and Research in Volcanology, Colima University, Mexico
Volunteered as a research assistant for 2 months working with seismic data and thermal camera images to analyse volcanic activity at Volcan de Colima. Took part in several field trips to observe and sample Volcan de Colima

Teaching

Teaching Experience

University of South Carolina

- Introduction to Geology (GEOL 101)
- Data Science in Earth, Ocean, and Environmental Sciences (GEOL/MSCI/ENVR 365/490)

University of California, Berkeley

- Guest instructor: Earthquake of the week EPS 256 (2018, 2019) - Graduate level
- Guest lecturer: Physics of the Earth's Interior EPS122 (2017)

Arizona State University

- Undergraduate student pitching workshop (2015)

The University of Leeds

- Teaching assistant: Global Seismology (2011, 2012, 2013)
- Guest lecture on graduate research: Global Seismology (2013)
- Teaching assistant: Computing (2011, 2012, 2013)
- Teaching assistant: Geological fieldwork courses (2011, 2012, 2013)
- Teaching assistant: Petrology (2013)
- Teaching assistant: Inverse theory (2012)
- Teaching assistant: Geological map skills (2012)
- Teaching assistant: Applied geophysics (2011)
- Teaching assistant: Geophysical data acquisition field course (2011)

Teaching Training

University of California, Berkeley

Postdoc Teaching Opportunities Program Learner-centered teaching course (May 2020)
Pathways to Scientific Teaching training course (Feb 2020)

Mentoring Experience

Current Graduate Students

Cristian Ademar Fernandez (PhD): University of South Carolina (2023-onwards)
Prajna Paramita Das (PhD): co-supervising with Bruce Buffett at University of California, Berkeley (2022-onwards)
Adeolu Aderoju (PhD): co-supervising with Edward Garnero at Arizona State University (2020-onwards)

Past Graduate Students

Sevan Adourian (PhD): co-supervising with Barbara Romanowicz at UC Berkeley (2021-2023)
UC Berkeley Compass undergraduate student mentor (Fall 2020)
Three undergraduate students and one graduate student at the American Geophysical Union Fall Meeting (2017-2019)

Current Undergraduate Students

Jada Bollmeyer: University of South Carolina (2023-onwards)
Alexia Brewster: University of South Carolina (2023-onwards)

Past Undergraduate Students

Ann Mariya Malayil: Rutgers University (Summer 2023)
Ashley Ford: University of South Carolina (2022-2023)
Chase Robinson: University of South Carolina (2022-2023)
Logan Zollinger: University of South Carolina (2022-2023)

Activities Related to Promoting Justice, Equity, Diversity, and Inclusion (JEDI)

While several of my activities have components of JEDI, I list here the activities where JEDI was the central focus.

2020-2021	Member of Earth and Planetary Sciences URGE pod contributing to justice, equity, diversity, inclusion, and access deliverables for use in department's strategic plan
2020-2021	Member of Berkeley Seismological Laboratory Outreach & Diversity Equity Inclusion Accessibility work group
2021-present	Preparing geoscience course materials for use in Bay Area Community Colleges, aiming to expand undergraduate applicant pool.
2021-present	Mentoring undergraduate research students recruited from UC Berkeley's Underrepresented Researchers of Color (UROC) program, aiming to increase diversity of graduate pool
Spring 2021	Remotely taught seismology and about careers to 4th and 5th grade students in Tracy, California, aiming to broaden awareness of earth science in areas with large proportions of students from underrepresented groups
2018	STEM mentor for Be A Scientist program in a Bay Area middle school, aiming to support science literacy of in a location with a large proportions of students from underrepresented groups
2018	Taught statistical analysis to students for science fair projects in a Bay Area middle school, aiming to support science literacy of in a location with a large proportions of students from underrepresented groups

Service

Scientific Service

Reviewer: Earth and Planetary Science Letters, Journal of Geophysical Research, Geophysical Journal International, Geophysical Research Letters (Editor's Citation for Excellence in Refereeing, 2019), Seismological Research Letters

2023	Representative to Earthscope for the University of South Carolina
2023	Secretary to AGU section Studies of Earth's Deep Interior
2023	Session convener at upcoming American Geophysical Union Fall Meeting
2022	Session co-convener at American Geophysical Union Fall Meeting
2021	Session co-convener at American Geophysical Union Fall Meeting
2020	Session co-convener at American Geophysical Union Fall Meeting
2020	American Geophysical Union Fall Meeting OSPA Liaison
2015-2020	American Geophysical Union Fall Meeting OSPA Judge
2016-2019	Maintaining CIDER's online presence
2019	Supported the organisation of CIDER summer program
2018	Organised CIDER pre-AGU workshop
2018	Supported the running and organisation of CIDER summer program
2017	Co-organised CIDER pre-AGU workshop
2017	Assisted with running CIDER summer program
2016	Organised student pitching competition at Arizona State University
2012	Assisted with delegate services for the SEDI 2012 meeting held in Leeds
2012	Co-organised the British Geophysical Association Postgraduate Research in Progress Meeting held in Leeds

Service to University

2023-onwards	Director of the South Carolina Seismic Network
2022-2024	Representative to the University of South Carolina Faculty Senate for the School of Earth, Ocean, and Environment
2019	Co-organised Berkeley Seismological Lab seminar series
2018	Organised lab-wide discussion meetings on recent seismicity and professional development
2017	Postdoc representative on UC Berkeley Seismological Lab web design committee
2016	Co-organised Berkeley Seismological Lab seminar series
2015	Organised research group-wide social meetings at Arizona State University
2013	Postgraduate student representative at both the research institute and school level at University of Leeds

Outreach

2022-2024	Appeared on local media 20+ times discussing earthquakes in Elgin, South Carolina
Fall 2023	Presented to students at local high school in Columbia South Carolina about jobs in geoscience
Fall 2020	Contributed to public lecture series for NSF-funded grant
February 2020	Presented research and about science careers at Berkeley City College
2019	Popping the Science Bubble - public research talk at Berkeley Public Library
2019	Presented at UC Berkeley CalDay on Earth's core to advertise geophysics research to prospective students
2019	Support Berkeley Seismological Laboratory at UC Berkeley CalDay
2019	Presented research and basic seismology lesson to 7th grade students visiting from local school
2019	Remotely taught seismology to 3rd and 4th grade students at school in central Kansas
2019	Taught tectonics to 6th grade students with Bay Area Science in Schools
2019	Remotely engaged with third grade students at a rural school to discuss earthquake hazards and research
2018	Engaged with the public at a question and answer session at The Bay Area Science Festival
2018	Presented on behalf of UC Berkeley Seismological Lab at the City of Berkeley ShakeOut
2018	Presented at UC Berkeley Compass to advertise geophysics research across campus
2018	Presented at UC Berkeley CalDay on Earth's core to advertise geophysics research to public
2018	Supported Berkeley Seismological Laboratory at UC Berkeley CalDay
2017	Taught seismology to 6th grade students with Bay Area Science in Schools
2017	Presented on behalf of UC Berkeley Seismological Lab at the Bay Area Science Festival

Professional Development

2020	University of California, Diversity, Equity, and Inclusion Discussion Group Postdoc discussion of inclusion in STEM education
2018	University of California, Beyond Diversity lectures Discussion of inclusion in STEM education
2016	University of California, Berkeley Postdoctoral Development Courses Management and Python programming
2015	Arizona State University Postdoctoral Development Course Pitching and application writing
2015	IRIS Webinars Programming skills and career development