

EDUCATION

- PhD in Earth Science** at **University of Oregon**, GPA 3.6 summer 2016-spring 2021
BS in Earth Science with a geophysics concentration at **Rice University**, GPA 3.15 fall 2012-spring 2016
 • Geology field camp at South Dakota School of Mines and Technology, semester abroad at the University of Otago in New Zealand

RESEARCH and EXPERIENCE

- NSF postdoctoral fellowship** at **Stanford University** spring 2024-present
 • Combining seismic, geodetic, petrologic, and video data with simulations to understand caldera collapse
- Mendenhall postdoctoral fellowship** at **U.S. Geological Survey California Volcano Observatory** summer 2021-spring 2024
 • Modeling earthquake and fluid mechanics during caldera collapse
 • Organizing volcano geodesy community model verification and validation exercises
 • Field work cataloging tuffisites, coring sediments, cosmogenic and luminescence dating, seismic and magnetotelluric surveys
 • Participating in California volcano monitoring and Mauna Loa eruption response
- Graduate research** at **University of Oregon** with Dr. Leif Karlstrom summer 2016-spring 2021
 • Cataloged long-period seismicity at Kīlauea Volcano and inverted for seismic and GNSS data with coupled fluid-solid models
 • Combined seismic source inversions and 3d eruptive plume models for the 2018 eruption of Kīlauea Volcano
 • Modeled controls on ice sheet surface meltwater routing from supraglacial stream incision and bedrock topography
 • Nodal seismic deployments at Mt. St. Helens, Mt. Hood, and Mt. Rainier
- Volcanology workshop** with **CIDER** (Cooperative Institute for Dynamic Earth Research) summer 2019
 • Modeled two-phase conduit magma flow and fracture outgassing in the 2011 eruption of Cordón Caulle
- Teaching assistant** for undergraduate and graduate earth science courses at **University of Oregon** winter 2017-fall 2020
- Undergraduate research** at **Rice University** with Dr. Helge Gonnermann fall 2014-fall 2015
 • Modeled bubble-network permeability in magma, prepared and analyzed pumice samples with a porometer and permeameter
- Undergraduate field experience** through **Rice University** summer 2014-2015
 • Glacial grounding zone wedge stratigraphy in the Puget Sound and nodal seismic deployment with iMUSH at Mt. St. Helens
- Co-founder** at **ParkIT**, a startup founded by five Rice students that participated in the **OwlSpark** accelerator spring-fall 2013
 • Co-developed vehicle recognition and tracking algorithms using image-analysis and machine learning

TECHNICAL SKILLS

Programming languages/software: MATLAB, COMSOL, Python, Mathematica, QGIS

Subjects: signal processing, inverse methods, finite difference and finite element methods, code optimization, Fourier analysis, image analysis, machine learning, fluid dynamics, solid mechanics, seismology, geodesy

Publications

- (*accepted* Nature Geoscience) **Crozier J**, Dufek J, Karlstrom L, Cahalan R, Anderson K, Thelen W, Liang C, Benage M. *Explosive 2018 eruptions at Kīlauea driven by a collapse-induced stomp-rocket mechanism.*
- (*in review* JGR Solid Earth) **Crozier J**, Anderson K. *Earthquake Cycle Mechanics during Caldera Collapse: Simulating the 2018 Kīlauea Eruption.*
- 2023 Bulletin of Volcanology **Crozier J**, et al. *Understanding the drivers of volcano deformation through geodetic model verification and validation*
- 2023 EOS Karlstrom L, Holtzman B, Barth A, **Crozier J**, Pate A. *Earth is noisy. Why should its data be silent?*
- 2022 JVGR **Crozier J**, Tramontano S, Forte P, Oliva S, Gonnermann H, Lev E, Manga M, Myers M, Rader E, Ruprecht P, Tuffen H, Paisley R, Houghton B, Shea T, Schipper C, Castro J. *Outgassing through magmatic fractures enables effusive eruption of silicic magma*
- 2022 Science Advances **Crozier J**, Karlstrom L. *Evolving magma temperature and volatile contents over the 2008-2018 eruption of Kīlauea Volcano*
- 2021 JGR Solid Earth **Crozier J**, Karlstrom, L. *Wavelet-based characterization of very-long-period seismicity reveals temporal evolution of shallow magma system over the 2008–2018 eruption of Kīlauea Volcano*
- 2019 JGR Solid Earth Liang C, **Crozier J**, Karlstrom L, Dunham E. *Magma oscillations in a conduit-reservoir system, application to very long period (VLP) seismicity at basaltic volcanoes—Part II: Data inversion and interpretation at Kīlauea Volcano*
- 2018 The Cryosphere **Crozier J**, Karlstrom L, Yang K. *Basal control of supraglacial meltwater catchments on the Greenland Ice Sheet*
- 2017 JGR Solid Earth Gonnermann H, Giachetti T, Fliedner C, Nguyen C, Houghton B, **Crozier J**, Carey R. *Permeability during magma expansion and compaction*