

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 fellow** at **Stanford University** with Paul Segall spring 2024-present
- Combining seismic, geodetic, and video data with earthquake cycle simulations to understand volcanic caldera collapse
 - Proposing a computer vision geodesy SURGE project and advising an undergraduate student intern
- Mendenhall postdoctoral fellow** at **U.S. Geological Survey CalVO** with Kyle Anderson summer 2021-spring 2024
- Developed coupled fluid-solid numerical models of earthquake cycles during volcanic caldera collapse
 - Organized volcano geodesy community model verification and validation exercises
 - Field work mapping ash veins, coring sediments, cosmogenic and luminescence dating, seismic and magnetotelluric surveys
 - Participated in California volcano monitoring and Mauna Loa eruption response
- Graduate research** at **University of Oregon** with Leif Karlstrom summer 2016-spring 2021
- Cataloged long-period seismicity at Kilauea 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 Kilauea 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 six undergraduate and graduate earth science courses at **University of Oregon** winter 2017-fall 2020
- Undergraduate research** at **Rice University** with 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, Python, COMSOL, Mathematica, QGIS
- Subjects:** fluid and solid mechanics, numerical methods, signal processing, inverse methods, finite element methods, code optimization, machine learning, computer vision, seismology, geodesy, volcanology, fault mechanics, glaciology

Publications

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|------------------------------|---|
| 2024 Nature Geoscience | Crozier J , Dufek J, Karlstrom L, Cahalan R, Anderson K, Thelen W, Liang C, Benage M. <i>Explosive 2018 eruptions at Kilauea driven by a collapse-induced stomp-rocket mechanism.</i> |
| 2024 JGR Solid Earth | Crozier J , Anderson K. <i>Earthquake Cycle Mechanics during Caldera Collapse: Simulating the 2018 Kilauea Eruption.</i> |
| 2023 Bulletin of Volcanology | Crozier J , et al. <i>Understanding the drivers of volcano deformation through geodetic model verification and validation</i> |
| 2023 Eos | Karlstrom L, Holtzman B, Barth A, Crozier J , Pate A. <i>Earth is noisy. Why should its data be silent?</i> |
| 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. <i>Outgassing through magmatic fractures enables effusive eruption of silicic magma</i> |
| 2022 Science Advances | Crozier J , Karlstrom L. <i>Evolving magma temperature and volatile contents over the 2008-2018 eruption of Kilauea Volcano</i> |
| 2021 JGR Solid Earth | Crozier J , Karlstrom, L. <i>Wavelet-based characterization of very-long-period seismicity reveals temporal evolution of shallow magma system over the 2008–2018 eruption of Kilauea Volcano</i> |
| 2019 JGR Solid Earth | Liang C, Crozier J , Karlstrom L, Dunham E. <i>Magma oscillations in a conduit-reservoir system, application to very long period (VLP) seismicity at basaltic volcanoes—Part II: Data inversion and interpretation at Kilauea Volcano</i> |
| 2018 The Cryosphere | Crozier J , Karlstrom L, Yang K. <i>Basal control of supraglacial meltwater catchments on the Greenland Ice Sheet</i> |
| 2017 JGR Solid Earth | Gonnermann H, Giachetti T, Fliedner C, Nguyen C, Houghton B, Crozier J , Carey R. <i>Permeability during magma expansion and compaction</i> |