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RESEARCH INTERESTS

- *Geysers*: why do geysers reactivate or become dormant? What controls the interval between eruptions? How can geyser research improve our understanding of volcanoes?
- *Hydrothermal monitoring*: what are cost-effective ways to monitor geysers and other thermal features? How do we design monitoring systems that reduce spatial and temporal biases in our understanding of geysers?
- *Citizen science*: how can we involve the public in research in a way that is meaningful to both scientists and the public?

EDUCATION

PhD, Earth and Planetary Science (Expected 2024)

University of California, Berkeley

BSci, Physics (2018)

University of Wisconsin-Eau Claire

PUBLICATIONS

Refereed articles:

Reed, M. H., Holahan, M., & Manga, M. (in review). Snow systematically suppresses signals from Steamboat Geyser. *Geophysical Research Letters*.

Reed, M. H., Munoz-Saez, C., Hajimirza, S., Wu, S.-M., Barth, A., Girona, T., et al. (2021). The 2018 reawakening and eruption dynamics of Steamboat Geyser, the world's tallest active geyser. *Proceedings of the National Academy of Sciences*, 118(2).

<https://doi.org/10.1073/pnas.2020943118>

Other publications:

Reed, M. H., & Manga, M. (2021). A mysterious reawakening of the world's tallest geyser from decades of sleep. *TheScienceBreaker*, 7(3).

<https://doi.org/10.25250/thescbr.brk575>

Reed, M. H., & Manga, M. (2021). Insights into the eruptions of Steamboat Geyser. *Yellowstone Caldera Chronicles*.
<https://www.usgs.gov/observatories/yvo/news/insights-eruptions-steamboat-geyser>

Maurer, R., **Reed, M. H.**, Cooper, K., & Overwijk, J. (2020). The gazer's guide to remotely enjoying Steamboat Geyser: Part II. *The Geyser Gazer Sput*, 34(6), 9–11.

PRESENTATIONS AND POSTERS

Reed, M. H., Barth A., & Manga, M. (2022). The underwater sights and sounds of thumping hot springs in the Upper Geyser Basin. 15th Biennial Scientific Conference on the Greater Yellowstone Ecosystem. *Poster*.

Young, J. W., Altstidl, J. M., Altstidl, T. R., **Reed, M. H.**, Boekel, W. (2022). GeyserTimes: a platform for crowdsourced geyser data. 15th Biennial Scientific Conference on the Greater Yellowstone Ecosystem. *Poster*.

Reed, M. H., Barth, A., Girona, T., Hajimirza, S., Hurwitz, S., Karlstrom, L., Karplus, M. S., Manga, M., Muñoz-Saez, C., Rashtbehesht, S. H., & Wu, S. M. (2019). Multiparameter Study of Eruptive Behavior at Steamboat Geyser, Yellowstone. 2019 AGU Fall Meeting, Abstract V33D-0196. *Poster*.

Reed, M., Liberty, L. M., Mikesell, T. D., & Harper, T. (2016). Two-phase evolution of the Camas Prairie, Idaho revealed by active seismic methods. 2016 AGU Fall Meeting, Abstract T51F-2993. *Poster*.

Reed, M. (2015). In hot water and tight spots: Navigating obstacles in research and in life. UW-Eau Claire Provost's Honors Symposium. *Nominated presentation*.

WORK EXPERIENCE

Scientific Advisor (2021–present)

GeyserTimes

- Volunteers for the nonprofit organization GeyserTimes, which hosts a database of crowdsourced geyser observations.
- Leads project to create a repository of curated datasets that are ideal for scientific and educational use.
- Creates policy for adding new thermal features to the database.
- Responds to support questions from scientists.

Graduate Student Researcher (08/2021–05/2022, 08/2018–11/2019)

University of California, Berkeley

- Interprets hydrographs and computes geyser eruption volumes from streamflow data.
- Analyzes broadband seismic data and computes power spectra of geyser signals.

- Reconstructs historical geyser activity from the past century by locating and reading National Park Service reports and memos.
- Analyzes underwater acoustic data collected in hot springs.

Administrative Processor II (09/2020–08/2021)

Insight Global

As Administrative Processor I:

- Utilized attention to detail to review applications to the Pacific Gas and Electric (PG&E) Net Energy Metering program.
- Routinely exceeded production targets by as much as 25%.

Promoted to Administrative Processor II (01/2021):

- Managed 3 direct reports.
- Trained new hires in the application review process and implemented new training modules to promote active learning.
- Handled complicated interactions with solar installers and customers with clear communication.
- Created and maintained documentation of process guidelines.

Tutor (2017–2018)

University of Wisconsin-Eau Claire

- Tutored peers in lower division physics and chemistry courses.

Intern (06/2016–08/2016)

Incorporated Research Institutions for Seismology/Boise State University

- IRIS REU internship with mentors Dylan Mikesell and Lee Liberty.
- Conducted research on the Camas Prairie, ID basin with active and passive seismic methods.
- Used active seismic data and well logs to identify previously unmapped faults.

TECHNICAL SKILLS

Programming languages:

- Python
- Java

Specialized knowledge of programs and packages:

- ArcGIS and QGIS
- ObsPy
- Microsoft Office
- ImageJ
- Audacity

FIELDWORK AND OUTDOOR EXPERIENCE

Extensive fieldwork experience in Yellowstone, WY:

- Knowledge of safety procedures for traveling in hydrothermal areas with boiling water and thin crusts.

- Deployed dense geophone arrays around geysers while using handheld GPS to mark deployment locations (2021).
- Installed hydrophone and HOBO temperature loggers in thermal features (2021).
- Lowered GoPro cameras with a custom-built apparatus into hot springs (2021).
- Wrote the permit application for, organized, and led two field campaigns to obtain water samples from major eruptions of Steamboat Geyser (2019).
- Collected water and sinter samples in the Upper Geyser Basin (2019).

Other fieldwork experience in Camas Prairie, ID:

- Obtained seismic reflection data along dirt roads, which involved operation of a mobile streamer full of geophones, GPS, data recorders, and a hydraulic hammer (2016).

Outdoor skills/experience:

- Cross-country travel in mountainous and/or snowy terrain with a medium weight pack.
- Strong swimming skills.
- Caving in limestone caves and lava tubes.
- Single rope technique: changeovers, rebelay, knot crossings, and basic rigging to natural anchors.

SERVICE AND OUTREACH

Hello, Nature podcast, episode 5: "Hello, Yellowstone" (2021)

Dustlight Productions and REI Co-op Studios

- Brief appearance to provide background information on geysers and hot springs.

Science Sessions podcast, episode "Eruption of Steamboat Geyser" (2021)

Proceedings of the National Academy of Sciences

- Interviewed to discuss research findings on Steamboat Geyser published in *PNAS*.

Lesson Presenter (05/17/2019)

Bay Area Scientists Inspiring Students

- Taught a tectonics lesson to two 6th grade classes at Madera Elementary.

HONORS AND AWARDS

Louderback Award, UC Berkeley (2022)

Honorable Mention, NSF Graduate Research Fellowship Program (2019)

Member, Sigma Pi Sigma (2017)

Jacob Clarkson Memorial Scholarship, UW-Eau Claire (2016)

Karlgaard Physics Scholarship, UW-Eau Claire (2016)

Blugold Fellow, UW-Eau Claire (2014)

National Merit Scholar (2014)

AFFILIATIONS

Geological Society of America

American Geophysical Union

National Speleological Society

GeyserTimes