Jamie Farrell

Curriculum Vitae
January 2025

Present position

Jamie M. Farrell, Ph.D.
Research Associate Professor
University of Utah Seismograph Stations
Chief seismologist of the Yellowstone Volcano Observatory
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Google Scholar

Education

Ph.D. in Geophysics, University of Utah, 2014
Dissertation: *Seismicity and tomographic imaging of the Yellowstone crustal magmatic-tectonic system.*

M.S. in Geophysics, University of Utah, 2007
Thesis: *Space-time seismicity and development of a geographical information system database with interactive graphics for the Yellowstone region.*

B.S. in Geology, Utah State University, 2001
Senior Thesis: *Finding the Pre-Grand Canyon Colorado River: Petrology of the Muddy Creek Formation North of Lake Mead.*

Professional Experience

Research Associate Professor, University of Utah, 2023 - present
Research Assistant Professor, University of Utah, 2015 - 2023
Chief Seismologist, Yellowstone Volcano Observatory, Aug. 2017-present
Postdoctoral Fellow, University of Utah, 2013-2015
Research Assistant, University of Utah, 2004-2013
Instructor, University of Utah, on Earthquakes & Volcanoes, 2006 fall semester
Teaching Assistant, University of Utah, 2002-2004
Research Assistant, Utah State University, Summer 2001

Peer reviewed publications

Published

Reed, M.H., A. Barth, T. Taira, **J. Farrell**, and M. Manga (2024), A shake and a surge: Assessing the possibility of an earthquake-triggered eruption of Steamboat Geyser, Volcanica, 7(2), 733-748, https://doi.org/10.30909/vol.07.02.733748.

Farrell, J., K.D. Koper, and R.A. Sohn (2023), The relationship between wind, waves, bathymetry, and microseisms in Yellowstone Lake, Yellowstone National Park, *J. Geophys. Res.*, *128*, e2022JB025943, doi:10.1029/2022JB025943.

Wu, S-.M., H-.H. Huang, F-.C. Lin, **J. Farrell**, and B. Schmandt (2023), Extreme seismic anisotropy indicates shallow accumulation of magmatic sills beneath Yellowstone caldera, *Earth Planet. Sci. Lett.*, *616*, doi:10.1016/j.epsl.2023.118244.

Liu, C-.N., F-.C. Lin, M. Manga, **J. Farrell**, S-.M. Wu, M.H. Reed, A. Barth, J. Hungerford, and E. White (2023), Short and long-term thumping cycle variations of Doublet Pool in Yellowstone National Park, USA, Geophys. Res. Lett., *50(4)*, https://doi.org/10.1029/2022GL101175.

Wilson, C.J.N., G.F. Cooper, K.J. Chamberlain, S.J. Barker, M.L. Myers, F.I. Kemp, and **J. Farrell** (2021), No single model for super-sized magma bodies and their eruptions, *Nat. Rev. Earth Environ.*, *2(9)*, 610-627, doi:10.1038/s43017-021-00191-7.

Wu, S.M., F.C. Lin, **J. Farrell**, W. Keller, E.B. White, J.D.G. Hungerford (2021), Imaging the subsurface plumbing complex of Steamboat Geyser and Cistern Spring with hydrothermal tremor migration using seismic interferometry, *J. Geophys. Res.*, *126*, e2020JB021128, doi:10.1029/2020JB021128.

Baker, B., M.M. Holt, K.L. Pankow, K.D. Koper, and **J. Farrell** (2021), Monitoring the 2020 Magna, Utah, earthquake sequence with nodal seismometers and machine learning, *Seismol. Res. Lett.*, *92(2A)*, 787-801, doi:10.1785/0220200316.

Pang, G., K.D. Koper, M. Mesimeri, K.L. Pankow, B. Baker, **J. Farrell**, J. Holt, J.M. Hale, P. Roberson, R. Burlacu, J.C. Pechmann, K. Whidden, M.M. Holt, A. Allam, and C. Duross (2020), Seismic analysis of the 2020 Magna, Utah, earthquake sequence: evidence for a listric Wasatch Fault, *Geophys. Res. Lett.*, *47(18)*, doi:10.1029/2020GL089798.

Wu, S.M., F.C. Lin, **J. Farrell**, B. Shiro, L. Karlstrom, P. Okubo, and K.D. Koper (2020), Spatiotemporal seismic structure variations associated with the 2018 Kilauea eruption based on temporary dense geophone arrays, *Geophys. Res. Lett.*, *47(9)*, doi:10.1029/2019GL086668.

Russo, E., A. Tibaldi, G.P. Waite, F.L. Bonali, F. Massin, and **J. Farrell** (2020), Unraveling the complex deformation pattern at Yellowstone plateau through seismicity and fracture analysis, *Tectonophysics*, *778*, doi:10.1016/j.tecto.2020.228352.

Schmandt, B., C. Jiang, and **J. Farrell** (2019), Seismic perspectives from the western U.S. on magma reservoirs underlying large silicic calderas, *J. Volcanol. Geotherm. Res.*, *384*, 158-178, doi:10.1016/j.volgeores.2019.07.015.

Wu, S.M., F.C. Lin, **J. Farrell**, and A. Allam (2019), Imaging the deep subsurface plumbing of Old Faithful geyser from low-frequency hydrothermal tremor migration, *Geophys. Res. Lett.*, *46*, 7315-7322, doi:10.1029/2018GL081771.

Pang, G., K.D. Koper, J.M. Hale, R. Burlacu, **J. Farrell**, and R.B. Smith (2019), The 2017-2018 Maple Creek earthquake sequence in Yellowstone National Park, USA, *Geophys. Res. Lett.*, *46*, 4653-4663, doi:10.1029/2019GL082376.

Jiang, C., B. Schmandt, **J. Farrell**, F.C. Lin, and K.M. Ward (2018), Seismically anisotropic magma reservoirs underlying silicic calderas, *Geology*, *46(8)*, 727-730, doi:10.1130/G45104.1.

Farrell, J., S.M. Wu, K.M. Ward, and F.C. Lin (2018), Persistent noise signal in the FairfieldNodal three-component 5-Hz geophones, *Seismol. Res. Lett.*, *89(5)*, 1609-1617, doi:10.1785/0220180073.

Jiang, C., B. Schmandt, S.M. Hansen, S. Dougherty, R.W. Clayton, **J. Farrell**, and F.C. Lin (2018), Rayleigh and S wave tomography constraints on subduction termination and lithospheric foundering in central California, *Earth Planet. Sci. Lett.*, *488*, 14-26, doi:10.1016/j.epsl.2018.02.009.

Morgan, L.A., W.C.P. Shanks, J.B. Lowenstern, **J. Farrell**, and J.E. Robinson (2017), Geologic field-trip guide to the volcanic and hydrothermal landscape of the Yellowstone Plateau: U.S. Geological Survey Scientific Investigations Report 2017-5022-P, 100 p., https://doi.org/10.3133/sir20175022P.

Wu, S.M., K.M. Ward, **J. Farrell**, F.C. Lin, M. Karplus, and R.B. Smith (2017), Anatomy of Old Faithful from subsurface seismic imaging of the Yellowstone Upper Geyser Basin, *Geophys. Res. Lett.*, *44(20)*, 10240-10247, doi:10.1002/2017GL075255.

Wang, Y., F.C. Lin, B. Schmandt, and **J. Farrell** (2017) Ambient noise tomography across Mount St. Helens using a dense seismic array, *J. Geophys. Res.*, *122*, doi:10.1002/2016JB013769.

Huang, H.-H, F.C. Lin, B. Schmandt, **J. Farrell**, R. B. Smith, and V. Tsai (2015), The Yellowstone magmatic system from the mantle plume to the upper crust, *Science*, *348*, doi:10.1126/science.aaa5648.

Farrell, J., R. B. Smith, S. Husen, and T. Diehl (2014), Tomography from 26 years of seismicity revealing that the spatial extent of the Yellowstone crustal magma reservoir extends well beyond the Yellowstone caldera, *Geophys. Res. Lett.*, *41*, doi:10.1002/2014GL059588.

Shelly, D.R., D. Hill, F. Massin, **J. Farrell**, R.B. Smith, and T. Taira (2013), A fluid-driven earthquake swarm on the margin of the Yellowstone caldera, *J. Geophys. Res.*, *118*, 1-15, doi:10.1002/jgrb.50362.

Massin, F., **J. Farrell**, and R. B. Smith (2013), Repeating earthquakes in the Yellowstone volcanic field: implications for rupture dynamics, ground deformation, and migration in earthquake swarms, *J. Volcanol. Geotherm. Res.*, *257*, 159-173, doi: 10.1016/j.jvolgeores.2013.03.022.

Farrell, J., R. B. Smith, T. Taira, W. L. Chang, and C. M. Puskas (2010), Dynamics and rapid migration of the energetic 2008-2009 Yellowstone Lake earthquake swarm, *Geophys. Res. Lett.*, *37*, L19305, doi:10.1029/2010GL044605.

Chang, W. L., R. B. Smith, **J. Farrell**, and C. M. Puskas (2010), An extraordinary episode of Yellowstone caldera uplift, 2004-2010, from GPS and InSAR observations, *Geophys. Res. Lett.*, *37*, L23302, doi:10.1029/2010GL045451.

Farrell, J., S. Husen, and R. B. Smith (2009), Earthquake swarm and *b*-value characterization of the Yellowstone volcano-tectonic system, *J. Volcanol. Geotherm. Res.*, *188*, 260-276, doi:10.1016/j.jvolgeores.2009.08.008.

White, B. J. P., R. B. Smith, S. Husen, **J. Farrell**, and I. Wong (2009), Seismicity and earthquake hazard analysis of the Teton-Yellowstone region, Wyoming, *J. Volcanol. Geotherm. Res.*, *188*, 277-296, doi:10.1016/j.jvolgeores.2009.08.015.

Smith, R. B., M. Jordan, B. Steinberger, C. M. Puskas, **J. Farrell**, G. P. Waite, S. Husen, W. L. Chang, and R. O'Connell (2009), Geodynamics of the Yellowstone hotspot and mantle plume: Seismic and GPS imaging, kinematics, and mantle flow, *J. Volcanol., Geotherm. Res.*, *188*, 25-56, doi:10.1016/j.jvolgeores.2009.08.020.

Chang, W. L., R. B. Smith, C. Wicks, **J. Farrell**, and C. M. Puskas (2007), Accelerated uplift and magma intrusion of the Yellowstone caldera, 2004-2006, *Science*, *318*, no. 5852, 952-956.

Velasco, A.A., C. J. Ammon, **J. Farrell**, and K. Pankow (2004), Rupture directivity of the 3 November 2002 Denali fault earthquake determined from surface waves, *Bull. Seism. Soc. Am.*, *94*, no. 6B, S293-S299.

Teaching Experience

Instructor

GEO 4510/4520, Field Geology I,II, Summer 2021 – Co taught with Dr. Tonie Van Dam. Co-taught the geophysics portion of field camp. Due to COVID, this course was fully remote. Taught the students how to use various geophysical computing software, how to download geophysical datasets, how to interpret geophysical datasets, and how to put it all together in a scientific paper.

GEO 6920-017, Grad Student seminar on Seismology, Spring 2021 – Co taught with Dr. Keith Koper. Supervised a group of grad students as we chose different papers on a variety of seismology topics and had in depth discussions on them.

GEO 6920-030, MSSST, University of Utah, Spring 2020 – Co-taught the geophysics portion of the class and focused on volcano seismology and how volcanoes are monitored using different geophysical methods and how volcanoes vary across the globe.

Earthquakes & Volcanoes, GEO-1030/3030, University of Utah, Fall 2006 – An intro level geology course on the occurrence, characteristics, and processes of earthquakes and volcanic eruptions on a global scale interpreted in terms of plate tectonics. Scientific and social aspects of living in earthquake and volcano country. Case histories from the western United States and elsewhere.

Teaching Assistant

Seismology 1: Tectonophysics and Elastic Waves, GEO-5210/6211, University of Utah - Continuum mechanics of Earth materials, tensor formulation of deformation and stress, fracture, flow, and rheology of the Earth materials; constitutive relationships; wave propagation, wave equations, reflection/refraction, travel time determinations. Introduction to analytic problem solving using computer tools. I was a TA under Bob Smith.

Earthquake Seismology and Risk Assessment, GEO-5330/6330/7330, University of Utah – Earthquake physics and methods of earthquake hazard assessment, earthquake mechanics; wave propagation, instrumentation, surface waves, interpretation of seismograms and earthquake location methods. A special section of the course can be taken separately that focuses on earthquake risk assessment including use of fault, earthquake history, strong ground motion, attenuation, and principles of deterministic and probabilistic earthquake risk assessment. Homework will emphasize computational and interpretational methods and will require computer skills in Fortran and Matlab or Maple. I was a TA under Bob Smith.

Invited Talks for Organizations

65th Anniversary of the 1959 Hebgen Lake Earthquake Event, August 2024
-*The Hebgen Lake Earthquake and its lasting effects on the Yellowstone volcanic and hydrothermal system.*

Yellowstone Volcano Observatory Biennial Meeting, May 2024
-*Shaking in Yellowstone: Recent upgrades and findings.*

Yellowstone National Park Spring Interpreter Training, Old Faithful, YNP, May 2024.
-*Research on the Yellowstone hydrothermal features.*

Yellowstone National Park Winter Interpreter Training, Old Faithful, YNP, Dec. 2023.
-*Research on the Yellowstone hydrothermal features.*

Yellowstone Volcano Observatory Biennial Meeting, May 2022
-*Seismic Research and Monitoring of the Yellowstone Volcanic System.*
Pittsburgh Geological Society, March 2022.
-*A multi-scale view of the Yellowstone Volcanic System.*
Boise State University Invited Lecture, February 2022.
-*A multi-scale view of the Yellowstone Volcanic System.*
University of Utah Distinguished Lecture Series, October 2021.
-*A multi-scale view of the Yellowstone Volcanic System.*
Yellowstone Volcano Observatory, Zoom Lecture, August 2020.
-*Using Seismology to Image the Steamboat/Cistern Hydrothermal Plumbing System in the Norris Geyser Basin.*
Weber State University Dept. of Earth and Environmental Sciences Distinguished Lecture Series, November 2019.
-*Shake, Rattle, and Roll: An Update on the Status of the Yellowstone Volcanic System and its World Famous Geysers.*
Park City Rotary Club, October 2019.
-*Earthquakes in Utah.*
60th Anniversary of the 1959 Hebgen Lake Earthquake Event, August 2024
-*The Hebgen Lake Earthquake and its lasting effects on the Yellowstone volcanic and tectonic system.*
Natural History Museum of Utah public lecture, Salt Lake City, UT, August 2019.
-*Shake, Rattle, and Roll: An Update on the Status of the Yellowstone Volcanic System and its World Famous Geysers*
Yellowstone National Park Spring Interpreter Training, Old Faithful, YNP, May 2019.
-*Old Faithful and the Upper Geyser Basin: Using Seismology to better Understand the World's Most Famous Geyser*
West Yellowstone public lecture, West Yellowstone, MT, May 2019.
-*Earthquake Activity in and Around Yellowstone: Using seismology to better Understand the Yellowstone Volcanic and Geothermal System*
Yellowstone Geothermal Monitoring Meeting, Bozeman, MT, April, 2019
-*Geothermal Monitoring using Seismic and GPS*
BYU student research seminar, November 2018.
-*The Yellowstone Hotspot: Unraveling the Plumbing System of one of the World's Largest Volcanoes*
Utah County Inconceivable, Planning for the Unthinkable meeting, October 2018.
-*Shaking and Baking in the Intermountain West: Earthquakes and Volcanoes, where, when, and how?*
Yellowstone Volcano Observatory meeting, May 2018.
-*What's Shaking in Yellowstone: Earthquakes in and around Yellowstone National Park*
Eastern Idaho Public Health Earthquake Preparedness Seminar, April 2018.
-*Earthquakes in the Intermountain West: When, Where, Why, How?*

University of Wyoming Distinguished Lecture – 02/19/2018

-Seismic imaging of the Yellowstone Upper Geyser Basin using a dense seismic array.

2018 Chapman Conference (Merging Geophysical, Petrochronologic, and Modeling Perspectives of Large Silicic Magma Systems

-Seismic Imaging of a Large Silicic System: What we Know About the Yellowstone Magmatic System

Yellowstone National Park Fall Forum Training – September, 2017

-Yellowstone seismicity & The Upper Geyser Basin seismic imaging project.

Swiss Federal Institute of Technology Zurich (ETHZ) – September. 2017

- Seismic imaging of the Yellowstone Upper Geyser Basin using a dense seismic array.

Seismological Society of America Annual Meeting – April, 2017

- Using dense geophone arrays to image subsurface hydrothermal structure in the Upper Geyser Basin, Yellowstone National Park.

Eastern Idaho Public Health Earthquake Preparedness Seminar – April 11, 2017

-Earthquakes in the Intermountain West: When, Where, Why, How?

Utah Field House of Natural History Lecture Series – June 16, 2016

-The Yellowstone hotspot: One of the world's largest volcanoes.

University of Utah Vice President for Research Nakama Research Seminar (Salt Lake City, UT) – November 6, 2015

- New Techniques to Better Understand the Yellowstone Supervolcano.

Timpanogos Club (Salt Lake City, UT) – October 22, 2015

- The Yellowstone Hotspot: One of the World's Largest Volcanoes.

Geological Society of America Rocky Mtn. Section Meeting (Casper, WY) – May 21, 2015

- Recent Discoveries of Yellowstone's Magmatic Plumbing System, Seismic Swarms, and Their Relationship to Current Deformation.

Kamloops Exploration Group (Kamloops, B.C.) – March 5, 2015

- The Yellowstone Hotspot: One of the World's Largest Volcanoes

Bergen Student Society and Norwegian Geological Society (Bergen, Norway) – Sept. 30, 2014

- The Yellowstone Hotspot: One of the World's Largest Volcanoes

Utah State University Science Unwrapped – March 30, 2012

- Yellowstone Supervolcano: Myths and Realities

U.S.G.S. Volcano/Earthquake Science Center Seminar – March 14, 2012

- Yellowstone dynamics from earthquake-volcano interactions

Swiss Federal Institute of Technology Zurich (ETHZ) – Feb. 2012

- Seismicity in the Yellowstone Volcanic Region: Insights from Recent Earthquake Swarms

The Yellowstone Snowmobile Guides Association, West Yellowstone, MT.

The Nature Conservancy, Flat Ranch, Island Park, ID.

The Utah Museum of Natural History Science Movie Night, Supervolcano, Jan. 2010.

Madison High School, Rexburg, ID, "The Year Without a Summer" and Yellowstone.

Affiliations

American Geophysical Union (AGU)
Seismological Society of America (SSA)
Geological Society of America (GSA)

Awards

Best Student Presentation: 2013 SSA National Meeting, Salt Lake City, UT
Best Student Poster: 2009 EarthScope National Meeting, Boise, ID
Utah State University Dept. of Geology 2001 Outstanding Graduating Senior
Utah State University Dept. of Geology 2000 Field Camp Scholarship recipient

Selected Conference Abstracts

Farrell, J., J.M. Hale, and B. Baker (2024), Long-period earthquakes in the Yellowstone volcanic system: When, Where, Why?, Seismological Society of America Annual Meeting, 2024, Anchorage, AK.

Czech, T., and **J. Farrell** (2024), Analysis of Yellowstone earthquake swarms after relocating using NonLinLoc-SSST and a 3D velocity model, Seismological Society of America Annual Meeting, 2024, Anchorage, AK.

Czech, T., **J. Farrell,** F.-C. Lin, C.-N. Liu, S. Rabade, and B. Schmandt (2022), Using a dense linear array to image the Yellowstone magmatic and hydrothermal system, Abstract V32C-0087 presented at 2022 Fall meeting, AGU, Chicago, IL, 12-16 Dec.

Farrell, J., K.D. Koper, and R.A. Sohn (2022), Primary and secondary microseism generation in Yellowstone Lake, Yellowstone National Park, USA, Abstract S12C-07 presented at 2022 Fall meeting, AGU, Chicago, IL, 12-16 Dec.

Farrell, J., S.-M. Wu, F.-C. Lin, B. Schmandt, H.-H. Huang (2022), Imaging the Yellowstone magmatic system with active and passive sources recorded by a dense geophone array, 15th Biennial Scientific Conference on the Greater Yellowstone Ecosystem, Bozeman, MT, 15-18, May.

Farrell, J., S.-M. Wu, F.-C. Lin, B. Schmandt, H.-H. Huang (2021), Imaging the Yellowstone magmatic system with active and passive sources recorded by a dense geophone array, Abstract V15G-0136 presented at 2021 Fall meeting, AGU, New Orleans, LA, 13-17 Dec.

Farrell, J., K.D. Koper, S. Rabade, N. Forbes, R. Burlacu, R.A. Sohn (2019), Towards a better understanding of shallow water microseism generation in Yellowstone Lake, Yellowstone National Park, Abstract T21F-0373 presented at 2019 Fall meeting, AGU, San Francisco, CA, 9-13 Dec.

Farrell, J., F.C. Lin, M. Miller, S.M. Wu, Y. Wang, E.M. Berg, B. Shiro, P. Okubo, and J.C. Chang (2018), Seismic monitoring of the 2018 Kilauea eruption using a temporary dense geophone array, Abstract V41B-07 presented at 2018 Fall meeting, AGU, Washington D.C., 10-14 Dec.

Farrell, J., and R.B. Smith (2017), The Yellowstone crustal magmatic system: Our current understanding and what's next, IAVCEI 2017 Scientific Assembly, Portland, OR, 14-18 August, 2017.

Farrell, J., F.C. Lin, S.M. Wu, R.B. Smith, and M. Karplus (2017), Using dense geophone arrays to image subsurface hydrothermal structure in the Upper Geyser Basin, Yellowstone National Park, *Seismol. Res. Lett.*, *88(2B)*, 553.

Farrell, J., F.C. Lin, A. Allam, R.B. Smith, and M. Karplus (2016), Using a large N geophone array to identify hydrothermal seismic sources in the Upper Geyser Basin of Yellowstone National Park, Abstract S53C-04 presented at 2016 Fall meeting, AGU, San Francisco, Calif., 12-16 Dec.

Smith, R.B., and **J. Farrell** (2016), The Yellowstone crustal magmatic system: what we know and what we don't know, Abstract V43G-01 presented at 2016 Fall meeting, AGU, San Francisco, Calif., 12-16 Dec.

Farrell, J., and F.-C. Lin (2015), Imaging the Yellowstone magmatic system using multi-component ambient noise cross-correlation and tomography, Abstract V31E-3071 presented at 2015 Fall Meeting, AGU, San Francisco, Calif., 12-16 Dec.

Wang, Y., F.-C. Lin, and **J. Farrell,** (2015), Rayleigh wave tomography of Mount St. Helens, Washington from ambient seismic noise, Abstract S41A-2705 presented at 2015 Fall Meeting, AGU, San Francisco, Calif., 12-16 Dec.

Farrell, J., and F.-C. Lin, (2015), Imaging the Yellowstone magmatic system using surface waves from ambient noise cross-correlation, 2015 EarthScope National Meeting, Stowe, VT., June 15-17.

Farrell, J., R.B. Smith, H.-H Huang, F.-C. Lin, W.-C Chang, and C.M. Puskas, (2015), Recent discoveries of Yellowstone's magmatic plumbing system, seismic swarms and their relationship to current deformation, Geological Society of America, *Abstracts with Programs*, *47*(6), 7.

Farrell, J., R.B. Smith, D. Shelly, C.M. Puskas, and W.C. Chang (2014), The Mw4.8 Norris Geyser Basin earthquake of 30 March, 2014 and its relationship to crustal deformation and seismic activity of the Yellowstone volcanic system, Abstract S11E-4400 presented at 2014 Fall Meeting, AGU, San Francisco, Calif., 15-19 Dec.

Farrell, J., Robert B. Smith, and F.-C. Lin (2014), Dynamics of the Yellowstone volcanic system using 4D seismic imaging, *Seismol. Res. Lett.*, *85(2)*, 479.

Talks at National and Regional Meetings

2022 AGU Fall Meeting

Primary and secondary microseism generation in Yellowstone Lake, Yellowstone National Park, USA

2022 15th Biennial Scientific Conference on the Greater Yellowstone Ecosystem

Imaging the Yellowstone magmatic system with active and passive sources recorded by a dense geophone array

2018 AGU Fall Meeting

Seismic monitoring of the 2018 Kilauea eruption using a temporary dense geophone array

2018 Chapman Conference (Merging Geophysical, Petrochronologic, and Modeling Perspectives of Large Silicic Magma Systems

Seismic Imaging of a Large Silicic System: What we Know About the Yellowstone Magmatic System

2017 IAVCEI Scientific Assembly

The Yellowstone crustal magmatic system: Our current understanding and what's next.

2017 SSA Annual Meeting

Using dense geophone arrays to image subsurface hydrothermal structure in the Upper Geyser Basin, Yellowstone National Park.

2016 AGU Fall Meeting

Using a large N geophone array to identify hydrothermal seismic sources in the Upper Geyser Basin of Yellowstone National Park

The Yellowstone crustal magmatic system: what we know and what we don't know

2015 GSA Rocky Mtn. Section Meeting

Recent discoveries of Yellowstone's magmatic plumbing system, seismic swarms and their relationship to current deformation.

2014 SSA Annual Meeting

Dynamics of the Yellowstone volcanic system using 4D seismic imaging.

2013 SSA Annual Meeting

Crustal Velocity Structure and Seismicity of the Yellowstone Volcanic System from Automated Waveform Analysis of Body Waves, 1984-2011.

2012 AGU Fall Meeting

Crustal velocity structure and seismicity of the Yellowstone volcanic field from automated waveform analysis of P- and S-wave data of Yellowstone earthquakes from 1984-2012.

2009 AGU Fall Meeting

Geodetic and seismic monitoring of Yellowstone: A living, breathing, shaking volcano.

2009 GSA Rocky Mountain Section Meeting

Source properties and deformation analysis of the 2008-2009 Yellowstone Lake earthquake swarm.

2009 SSA Annual Meeting

Source properties and deformation analysis of the 2008-2009 Yellowstone Lake earthquake swarm.

2003 AGU Fall Meeting

Seismic and GPS monitoring of the 2003 Norris Geyser Basin hydrothermal disturbance, Yellowstone National Park.

Field Experience

Planned and organized a ~650 nodal seismic deployment in Yellowstone National Park with an accompanying active seismic source experiment using a vibroseis truck in the Summer of 2020

Planned and organized the seismic deployment of 51 Nodal seismometers in and around Steamboat Geyser, Yellowstone National Park, in 2018 and 2019.

Planned and organized an NSF RAPID funded deployment of 80 nodal seismometers in response to the 2018 eruption of Kilauea volcano in Hawaii. All data are available at the IRIS DMC.

Planned and organized the seismic deployment of over 500 Nodal seismometers in and around Old Faithful, Yellowstone National Park in 2015, 2016, and 2017.

Planned and organized GPS and gravity campaigns in Yellowstone in 2007, 2008, 2009, and 2010 where we would collect data at ~30 stations in and around Yellowstone including backcountry sites that required travel by boat/helicopter.

Aid University of Utah Seismograph Stations field engineer Dave Drobeck in routine maintenance of Yellowstone seismograph stations of the Yellowstone Seismic Network.

Planned and organized a focused seismic and geodetic study of the Norris Geyser Basin in Yellowstone National Park in 2003 & 2006. We installed 7 broadband seismometers and 8 GPS stations to monitor ongoing anomalous activity in the Norris Geyser Basin.

Helped Dr. Greg Waite install seismometers in and around Mt. St. Helens in 2005 during a time of unrest.

Yellowstone/Teton Field Trips Led

2017 IAVCEI Scientific Assembly (Yellowstone) – September, 2017
Geological Society of America (Yellowstone/Teton) – June, 2015
Wyoming Geological Association (Yellowstone) – Aug. 2012
Shell Oil (Tetons)
Utah State University Dept. of Geology (Yellowstone)
Yellowstone Association Institute Course (Aug. 2010)
- "The Grand Tour of Yellowstone Geology"
- 3 day course

Postdoctoral Fellows

Sin-Mei Wu – Ph.D. University of Utah (currently at ETH, Zurich)

Graduate Student Advisory Committee Member

Chair

Tessa Czech – Ph.D. University of Utah (Current)

Committee Member

Nicholas Forbes – M.S. University of Utah (Current)
Cheng-Nan Liu – Ph.D. University of Utah (Current)
Qicheng Zeng – Ph.D. University of Utah (Current)
Sin-Mei Wu – Ph.D. University of Utah

Yadong Wang – Ph.D, University of Utah

Students Helped with Graduate Projects

Bonnie Pickering White – M.S. University of Utah
Katrina Settles DeNosaquo – M.S. University of Utah
Elena Russo – M.S. Michigan Tech

List of Collaborators

Robert B. Smith – University of Utah
Christine M. Puskas – Earthscope Consortium.
Wu-Lung Chang – National Central University, Taiwan
Gregory P. Waite – Michigan Tech
Fred Massin – Swiss Federal Institute of Technology
Taka'aki Taira – University of California Berkeley
Stephan Husen – Swiss Federal Institute of Technology
Tobias Diehl – Swiss Federal Institute of Technology
David Shelly – USGS
Marianne Karplus – University of Texas at El Paso
Keith Koper – University of Utah
Jeff Hungerford – Yellowstone National Park
Jake Lowenstern – USGS
Mike Poland – USGS
Fan-Chi Lin – University of Utah
Hsin-Hua Huang – Academia Sinica, Taiwan
Cliff Thurber – University of Wisconsin
David Mencin – Earthscope Consortium.
Brandon Schmandt – University of New Mexico
Rob Sohn – Woods Hole Oceanographic Institution
Lindsay Worthington – University of New Mexico