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Education

Ph.D. in Geophysics, University of Utah, 2013
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

Postdoctoral Fellow, University of Utah, 2013-present
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

Affiliations

American Geophysical Union (AGU)
Seismological Society of America (SSA)
Geological Society of America (GSA)
American Association of Petroleum Geologists (AAPG)

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

Publications

First Author:

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.

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.

Contributing Author:

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.

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.

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.

Selected Conference Abstracts

- Farrell, J.,** S. Husen, and R. B. Smith (2013), Crustal Velocity Structure and Seismicity of the Yellowstone Volcanic System from Automated Waveform Analysis of Body Waves, 1984-2011, *Seismol. Res. Lett.*, 84(2), 297.
- Farrell, J.,** R. B. Smith, S. Husen (2012), 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, Abstract V11E-07 presented at 2012 Fall Meeting, AGU, San Francisco, Calif., 3-7 Dec.
- Farrell, J.,** R. B. Smith, F. Massin, S. Husen, R. Burlacu, K. Koper, and D. Drobeck (2011), High precision earthquake source and wave properties of the Yellowstone volcanic-tectonic system using automated seismic waveform analysis, Abstract S31B-2241 presented at 2011 Fall Meeting, AGU, San Francisco, Calif., 5-9 Dec.
- Farrell, J.,** F. Massin, R. B. Smith, B. J. P. White (2010), Persistent seismicity and energetics of the 2010 earthquake sequence of the Gros Ventre-Teton area, Wyoming, Abstract T51C-2073 presented at 2010 Fall Meeting, AGU, San Francisco, Calif., 13-17 Dec.
- Farrell, J.,** R. B. Smith, W. L. Chang, and C. M. Puskas (2009), Geodetic and seismic monitoring of Yellowstone: A living, breathing, shaking, volcano, *Eos Trans. AGU*, 90(52), Fall Meet. Suppl., Abstract V32B-02.
- Farrell, J.,** R. B. Smith, T. Taira, C. M. Puskas, R. Burlacu, J. Pechmann, H. Heasler, and J. Lowenstern (2009), The 2008-2009 intense Yellowstone Lake earthquake swarm: Magmatic origin from temporal hypocenter variations, GPS deformation, and explosive source moment tensors, *EarthScope National Meeting*, Boise, ID, May 12-15.
- Farrell, J.,** R. B. Smith, T. Taira, C. M. Puskas, R. Burlacu, J. Pechmann, H. Heasler, and J. Lowenstern (2009), Source properties and deformation analysis of the 2008-2009 Yellowstone Lake earthquake swarm, *Seismol. Res. Lett.*, 80(2), 339.
- Smith, R. B., **J. Farrell**, P. Gettings, and C. M. Puskas (2008), Temporal gravity and mass changes accompanying the 2004-2008 unprecedented uplift of the Yellowstone caldera, *Eos Trans. AGU*, 89(53), Fall Meet. Suppl., Abstract V51D-2066.
- Farrell, J.,** R. B. Smith, and G. P. Waite (2007), Temporal stress variations of the Yellowstone volcanic system: Seismic and magmatic contributions, *EarthScope National Meeting*, Monterrey, CA, March 27-30, Poster 2.
- Farrell, J.,** and R. B. Smith (2005), A geologic-GIS database for the Yellowstone-Teton volcanic and tectonic region, *Geological Society of America Abstracts with Programs*, 37, No. 7, p. 206.

- Farrell, J.**, and R. B. Smith (2005), A geologic-GIS database for the Yellowstone-Teton volcanic and tectonic region, *EarthScope in the Northern Rockies Meeting*, Bozeman, MT., Sept. 16-18.
- Farrell, J.**, R. B. Smith, D. Kilb, and E. Morikawa (2005), The Yellowstone GEO-GIS database: Facilitating integrated research and data distribution for Yellowstone geoscience, *GEON All Hands Meeting*, San Diego, CA., May 5-6.
- Farrell, J.**, S. Husen, and R. B. Smith (2005), Imaging the *b*-value distribution beneath the Yellowstone hydrothermal system, *EarthScope National Meeting*, Tamaya Resort, Santa Ana Pueblo, NM, March 28-31, Poster 058.
- Farrell, J.**, S. Husen, and R. B. Smith (2004), *b*-value mapping of the Yellowstone volcanic and hydrothermal system, *Eos Trans. AGU*, 85(47), Fall Meet. Suppl., Abstract S13A-1030.
- Farrell, J. M.**, G. P. Waite, R. B. Smith, C. M. Puskas, H. Heasler, B. Bartel, and C. Dietel (2003), Seismic and GPS monitoring of the 2003 Norris Geyser Basin hydrothermal disturbance, Yellowstone National Park, *Eos Trans. AGU*, 84(46), Fall Meet. Suppl., Abstract V31B-06.
- Farrell, J.**, R. B. Smith, H. M. Benz, K. L. Pankow, and S. Husen (2002), Amplified ground response across the western U.S. interior from the M7.9 Denali earthquake, *Eos Trans. AGU*, 83(47), Fall Meet. Suppl., Abstract S72F-1358.

Talks at National and Regional Meetings:

2003 AGU Fall Meeting

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

2009 SSA Annual Meeting

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

2009 GSA Rocky Mountain Section Meeting

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

2009 AGU Fall Meeting

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

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.

2013 SSA Annual Meeting

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

Invited Talks for Organizations:

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.

Field Trips Led:

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