

KATHLEEN F. MCKEE

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EDUCATION

University of Alaska Fairbanks, Fairbanks, AK
Ph.D. in Geophysics **2013 - 2017**
Dissertation: Detection, source location, and analysis of volcano infrasound
Advisor: Dr. David Fee

Michigan Technological University, Houghton, MI
Peace Corps Masters International - M.S. in Geology **2008 - 2012**
Thesis: Using auto- and cross-correlations from seismic ambient noise to monitor velocity changes at Villarrica Volcano, Chile
Advisor: Dr. Gregory P. Waite

University of Tulsa, Tulsa, OK
B.S. Geosciences **2004 - 2008**
Minor: Mathematics
Advisor: Dr. J. Bryan Tapp

AWARDS

NSF Earth Sciences Postdoctoral Fellowship Dec. 2017 – 2019
NSF East Asia Pacific Summer Institute Fellowship June – August 2015

PEER-REVIEWED PUBLICATIONS

McKee, K., D. Fee, M. Haney, R. S. Matoza, and J. J. Lyons (in review), Infrasound signal detection and back-azimuth estimation using ground-coupled airwaves on a seismo-acoustic sensor pair, *Journal of Geophysical Research: Solid Earth*

Matoza, R. S., D. Fee, D. Green, A. Le Pichon, J. Vergoz, M. M. Haney, T. D. Mikesell, L. Franco, O. A. Valderrama, M. R. Kelley, **K. McKee**, L. Ceranna (in review), Local, regional, and remote seismo-acoustic observations of the April 2015 VEI 4 eruption of Calbuco volcano, Chile, *Journal of Geophysical Research: Solid Earth*

McKee, K., D. Fee, A. Yokoo, R. S. Matoza, K. Kim (2017). Analysis of gas jetting and fumarole acoustics at Aso Volcano, Japan, *Journal of Volcanological and Geothermal Research* **340** 16-29
<http://doi.org/10.1016/j.jvolgeores.2017.03.029>

McKee, K., D. Fee, C. Rowell, and A. Yokoo (2014). Network-based evaluation of the infrasonic source location at Sakurajima Volcano, Japan, *Seismological Research Letters* **85** 1200-1211,
<http://doi.org/10.1785/0220140119>

CONFERENCE PRESENTATIONS

McKee, K., Fee, D., Haney, M., Lyons, J., Matoza, R. S. (2017) "Infrasound signal detection and characterization using ground-coupled airwaves on a single seismo-acoustic sensor pair." Oral presentation at: International Association of Volcanology and Chemistry of Earth's Interior Scientific Assembly. Portland, OR.

McKee, K., Fee, D., Haney, M., Lyons, J., Matoza, R. S. (2016) "Infrasound signal detection and characterization using ground-coupled airwaves on a single seismo-acoustic sensor pair." Poster presentation at: American Geophysical Union Fall Meeting. San Francisco, CA.

Matoza, R. S., Fee, D., Vergoz, J., Green, D. N., Pichon, A. L. E., Haney, M., Kelley, M. R., **McKee, K.** (2016) "Global and regional volcanic infrasound from the April 2015 eruption of Calbuco, Chile." Oral presentation at: American Geophysical Union Fall Meeting. San Francisco, CA.

McKee, K., Fee, D., Yokoo, A., Matoza, R. S., Kim, K. (2016) "Analysis of Fumarole Acoustics at Aso Volcano, Japan." Oral presentation at: Japan-Kamchatka-Alaska Subduction Processes 9th Biennial Workshop. Fairbanks, AK.

McKee, K., Yokoo, A., Fee, D., Huang, Y., Yoshikawa, S., Utsugi, M., Minami, T., Ohkura, T. (2015) "Analysis of Fumarole Acoustics at Aso Volcano, Japan." Poster presentation at: American Geophysical Union Fall Meeting. San Francisco, CA.

McKee, K., Fee, D., Rowell, C. R., Yokoo, A. (2014) "Network-based evaluation of infrasonic source location at Sakurajima Volcano, Japan." Poster presentation at: Cities on Volcanoes Meeting. Yogyakarta, Indonesia.

McKee, K., Fee, D., Rowell, C. R., Johnson, J. B., Yokoo, A., Matoza, R. S. (2013) "Network-based evaluation of infrasound source location at Sakurajima Volcano, Japan." Poster presentation at: American Geophysical Union Fall Meeting. San Francisco, CA.

Fee, D., Yokoo, A., Johnson, J. B., Rowell, C. R., **McKee, K.**, Matoza, R. S., Swanson, E., Iguchi, M., Nakamichi, H. (2013) "Observations from a Dense Infrasound Sensor Network on Sakurajima Volcano, Japan: a Benchmark Dataset for the Volcano Acoustics Community." Oral presentation at: American Geophysical Union Fall Meeting. San Francisco, CA.

McKee, K., Waite, G. P., Richardson, J. (2013) "How Ambient is Ambient Noise?" Oral presentation at: International Association of Volcanology and Chemistry of Earth's Interior Scientific Assembly. Kagoshima, Japan.

McKee, K., Waite, G. P., Richardson, J. (2012) "Using auto-correlations from seismic ambient noise to monitor velocity changes at Villarrica Volcano, Chile." Oral presentation at: American Geophysical Union Fall Meeting. San Francisco, CA.

TEACHING EXPERIENCE

Alaska Summer Research Academy, UAF

Instructor**June 2014**

Co-developed and taught two-week science camp on volcanoes and volcanic hazards for middle school age students. Activities ranged from learning about volcanic rock types in the lab and in the field to investigating volcanic eruptions with analog models.

Michigan Teacher Excellence Program, MTU

Research Assistant**2012 – 2013**

Worked with professors and veteran teachers to capacitate participants, Michigan middle and high school science teachers, in earth science during two-week summer field courses. Aided in quarterly Pedagogy Days in which participants learned about inquiry-based science education and worked to adapt lessons to inquiry style.

GE2000 – Understanding the Earth, MTU

Teaching Assistant**May – June 2012**

Taught semi-weekly lab practicum in basic geology and geological concepts and graded assignments.

Michigan Teacher Excellence Program, MTU

Teaching Assistant**July 2009**

Managed and helped implement two-week summer field course on earth science for middle and high school science teachers.

Advisor: Dr. William I. Rose

Summer Youth Program, MTU

Instructor**June 2009**

Developed curriculum and taught two one-week geological engineering camps for high school age students with particular focus on landslides.

RESEARCH EXPERIENCE

Carnegie Institution for Science, Washington, D.C.

NSF Earth Sciences Postdoctoral Fellow**December 2017 – 19**

Proposed, granted funding, and investigating the volume flux using seismically derived tilt, infrasound, and gas data at Stromboli Volcano, Italy.

Mentors: Dr. Diana Roman, Dr. David Fee, and Dr. Greg Waite

Collaborators: Dr. Maurizio Ripepe and Dr. Alessandro Aiuppa

Aso Volcanological Laboratory, Aso, Japan

NSF East Asia Pacific Summer Institute Fellow

Proposed, granted funding, investigated and published paper on the acoustics of gas jetting fumaroles at Aso Volcano in collaboration with local volcanologists.

Advisor: Dr. Akihiko Yokoo

June – August 2015

U.S. Geological Survey, Anchorage, AK

Alaska Volcano Observatory Volunteer

Investigated detection of ground-coupled airwaves in seismo-acoustic data produced by Cleveland and Pagan volcanoes. Assisted in preparation of acoustic array deployed at Cleveland volcano.

Advisor: Dr. Matthew Haney

June – August 2014

Peru

U.S. Peace Corps Development Specialist in Water and Sanitation

Co-planned and implemented a three-day girls leadership camp focused on career exploration, goal achievement, self-esteem and sexual health.

Secured funding through grants and donations and oversaw the camp's budget. Worked with local leaders and student to obtain funds, ~\$500, to establish a community library containing 500 books and a world map, Peru map and mural painted by local students.

2009 – 2011

Michigan Technological University, Houghton, MI

Graduate Research Assistant

Assisted fellow graduate student serving in Peace Corps through acquisition of papers for research. Learned to use Trimble high precision GPS and data reduction software.

Advisors: Dr. John S. Gierke and Dr. William I. Rose

2008 – 2009

Colorado Mesa University, Grand Junction, CO

NSF Research Experience for Undergraduates

Collaborated on a field-based study of landscape evolution in Western Colorado's Gibbler Gulch. Used GPS, aerial photography, and topographic maps to map terrace features. Created and used stratigraphic columns with carbon dated charcoal to clarify arroyo evolution timeline.

Advisors: Dr. Lawrence S. Jones and Dr. Andres Aslan

June – July 2005

Geoscience Department, University of Tulsa, Tulsa, OK

Summer Undergraduate Research Program

Assisted in restoration study of the Oklahoma grasslands damaged from brine spills. Worked with a team to assess the status of a brine scar using ground penetrating radar, GPS, and soil samples.

Advisors: Dr. J. Bryan Tapp and Dr. Winton Cornell

June – July 2015

FIELD EXPERIENCE

Unalaska, Alaska

AVO Field Assistant**July 2016**

Worked on a three-person team to disassemble 54 seismic stations deployed in three arrays on the island and one network around Makushin Volcano in two weeks.

Santiaguito Volcano, Guatemala

Principal Scientist – NSF Workshops on Volcanoes, Quetzaltenango, Guatemala**January 2016**

Co-organized and deployed an acoustic network. Gave an introductory talk on volcano infrasound to international group of volcano researchers, observers and students.

Aso Volcano, Japan

Principal Investigator – EAPSI Fellow at Aso Volcanological Laboratory**June – August 2015**

Led the deployment of 6-elements acoustic array with local collaborators and adjusted deployment relative to volcanic activity.

Wake Atoll, U.S. Minor Outlying Islands

Nuclear Arms Control Technology Field Assistant**Feb. – March 2015**

Aided in completing permanent infrasound array installation. This included instrument installation and wind noise reduction system and solar panel assembly.

Sakurajima Volcano, Japan

Workshop Participant – Volcano Acoustics: from installation to analysis**July – August 2013**

Assisted with the installation of, data collection from and retrieval of 5 infrasound sensors.

Colima Volcano, Mexico

Participant – NSF Pan-American Advanced Studies Institutes Workshop: Applying Computational Models to Real-Case Scenarios for Volcanic Hazard Assessment**January 2013**

Modeled tephra fall, pyroclastic density currents, and lahars at Colima Volcano using Tephra2, Titan2D, and Laharz, respectively. Compared model predictions with field observations.

Clintonville, WI

Field Assistant**March 2012**

Assisted with the installation of 4 broadband sensors with 2 collocated infrasound microphones at each in an effort to assess the recent shallow seismicity disturbing the town.

Villarrica Volcano, Chile

Field Assistant**February 2011**

Assisted with data retrieval and seismic station relocation and removal. Learned to use UV camera to image the volcanic plume.

ACHIEVEMENTS

Geophysical Institute Graduate Student Association President, Michigan Space Grant Consortium Graduate Fellowship, University of Tulsa McMahon Scholarship, Advanced Placement Scholar, Girl Scout Gold, Silver and Leadership Awards, Presidential Service Gold Award

LANGUAGES

English – Native language
Spanish – speak, read, and write with basic competence

MEMBERSHIPS

American Geophysical Union
Association for Women Geoscientists
Seismological Society of America
International Association of Volcanology and Chemistry of Earth's Interior

REFERENCES

David Fee, Ph.D.

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Wilson Alaska Technical Center
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University of Alaska Fairbanks
Fairbanks AK 99775
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Gregory P. Waite, Ph.D.

Associate Professor
Department of Geological and Mining Engineering
and Sciences
Michigan Technological University
Houghton, MI 49931
Office: 906-487-3554
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Matthew Haney, Ph.D.

Research Geophysicist
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