

Jared R. Peacock

US Geological Survey
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Academic Qualifications

- 2009-2012 **Doctorate of Philosophy–Geophysics**
University of Adelaide, Australia, School of Earth and Environmental Sciences
Advisors: Dr. Graham Heinson, Dr. Stephan Thiel, and Dr. Martin Hand
Thesis Title: Magnetotelluric Monitoring
Project: Using magnetotellurics to monitor injection of fluids for an enhanced geothermal system.
- 2005-2007 **Master of Science–Geophysics**
Colorado School of Mines, Department of Geophysics
Advisors: Dr. John Scales and Dr. Gary Olhoeft
Thesis Title: Millimeter wave dielectric permittivity of water near 25° C
- 2000-2005 **Bachelor of Science–Geophysics**
Colorado School of Mines, Department of Geophysics
Advisor: Dr. John Scales

Research Experience

- Feb 2013–Present Mendenhall Post-Doctoral Fellow, US Geological Survey, Menlo Park, CA
Advisors: Darcy McPhee, David Ponce, Maggie Mangan, and Julie Donnelly-Nolan
Project: Create a 3D resistivity image of the Long Valley/Mono-Inyo Craters volcanic region in eastern California using magnetotellurics with the goal of delineating the geometry of magmatic and hydrothermal systems.
- Aug–Dec 2012 Research Geophysicist, Institute of Engineering and Earth Science, University of Auckland, New Zealand
Advisors: Graham Ryan, Peter Malin, and John Rugis
Projects: Create a 3D image of the Montserrat volcanic system from multi-disciplinary geophysics with the goal of locating optimal drilling targets for geothermal energy.

Awards

- 2013 Winner – Australian Innovation Challenge. Minerals and Energy category
- 2013 Mendenhall Post-Doctoral Scholarship, US Geological Survey, Menlo Park, CA, USA
- 2009 IPRS International Postgraduate Scholarship, University of Adelaide, Australia
- 2000-2005 Soccer and Track Athletic Scholarships at Colorado School of Mines

Complementary Skills

- Programing Python, QT, Matlab, Mathematica, Git, Shell Script, bit of Fortran and C++
- Manuscripts L^AT_EX, Word, Google Docs
- OS Linux, Windows, Android
- Geospatial ArcGIS, QGIS, Oasis Montage
- Visualization Paraview, EarthVision

Field Experience

Jul-Aug '16	Magnetotelluric survey, Mount St. Helens and Mt. Baker, play fairway project
Feb '16	Magnetotelluric survey, Medinah, Saudi Arabia
Aug '14, '15	Magnetotelluric survey, Mount St. Helens, part of iMush Project
Jun '13 - '16	Magnetotelluric survey, Mono Basin, California
Jun-Jul '05, '15	Summer of Applied Geophysical Experience (SAGE) Field Camp, Santa Fe, NM (Field Instructor '15)
May '10, '11	Magnetotelluric survey, Paralana, South Australia
Sep '10	Magnetotelluric, audio-magnetotelluric, and controlled source magnetotelluric survey, Great Sandy Desert, Western Australia, with Moombarriga Geoscience
Nov '08-Apr '09	Magnetotelluric survey, near Davis Station, Antarctica
Aug-Oct '06	Ground penetrating radar survey, Colorado School of Mines Campus, Golden, CO

Research Projects and Grants

2017	Assess geothermal potential of Umatilla, Washington <i>Funding Source:</i> US Department of Indian Affairs <i>Role:</i> Principal investigator to collect, process, model in 3-D, and help interpret magnetotelluric data to assess geothermal potential.
2016-Present	Geothermal Play Fairway Analysis: Washington State Geothermal Potential (http://energy.gov/eere/geothermal/play-fairway-analysis) <i>Funding Source:</i> US Department of Energy <i>Role:</i> Investigator to collect, process, model in 3-D, and help interpret magnetotelluric data at Mount Saint Helens and Mount Baker, Washington.
2016-Present	Frontier Observatory for Research in Geothermal Energy (FORGE) (http://energy.gov/eere/forge): Fallon, Nevada <i>Funding Source:</i> US Department of Energy <i>Role:</i> Investigator to collect, process, model in 3-D, and interpret magnetotelluric data as a model before a hole is drilled, in Phase III collect magnetotelluric data during stimulation as a monitoring survey.
2015-Present	Imaging magmatic system of Harrat Rahat, Saudi Arabia. Joint project with the Saudi Geological Survey and US Geological Survey. <i>Funding Source:</i> Saudi Geological Survey <i>Role:</i> Principal investigator to collect, process, model in 3-D, and help interpret magnetotelluric data.
2013-Present	Imaging Magma Under Mount Saint Helens (iMUSH) project (http://imush.org). <i>Funding Source:</i> National Science Foundation <i>Role:</i> Investigator to collect, process, model in 3-D, and help interpret magnetotelluric data.
2013-Present	Create 3-D geophysical of the Long Valley Caldera Volcanic System, California <i>Funding Source:</i> US Geological Survey <i>Role:</i> Principal investigator to collect, process, model in 3-D, and interpret magnetotelluric data to help build a 3-D geophysical model.
2013-Present	Geophysically characterize Mountain Pass Rare Earth Deposit, California <i>Funding Source:</i> US Geological Survey <i>Role:</i> Principal investigator to collect, process, model in 3-D, and help interpret Magnetotelluric data to help build a 3-D geophysical model.

Student Advisory

- Jeff Pepin PhD Candidate at New Mexico Institute of Mining and Technology ('15-present)
Advisors: Mark Person (NMT), Shari Kelly (NM Geological Survey), and Jesus Gomez (NMT)
Project: Modeling hydrothermal flow through the Truth or Consequences system by combining magnetotellurics and fluid flow simulation.
- Racine Boodram Masters Student at The University of the West Indies ('16-present)
Advisors: Graham Ryan, Oshaine Blake, Bridget Lynne
Project: Modeling the geothermal system on Montserrat using various geophysical methods.

Teaching Experience

- 2005-07 Teaching Assistant at Colorado School of Mines for Electric and Electromagnetic Geophysics (Gary Olhoeft), Quantum Mechanics (John Scales), Gravity and Magnetic Methods (Yaoguo Li), Solid Earth Geophysics (Tom Boyd), and Well Log Geophysics (Peter Hoekstra)
- 2010-12 Teaching Assistant at University of Adelaide for Introduction to Geophysics (Graham Heinson)
- 2015 Teaching Assistant at Summer of Applied Geophysics Experience (SAGE)

Peer Reviewed Publications

- Thiel, S., Rgenauer-Lieb, K., Peacock, J. R., Krieger, L., Soeffky, P. and Heinson, G., 2016, Conductivity response to interplate deformation: evidence from metamorphic devolatilization and crustal-scale fluid focusing, *Geophys. Res. Lett.*, *In Press*.
- Peacock, J. R., Mangan, M., McPhee, D., and Wannamaker, P. W., 2016, Imaging the hydrothermal system of Long Valley Caldera, California, with magnetotellurics in three dimensions, *Geophys. Res. Lett.*, *43*, doi:10.1002/2016GL069263. (Highlighted in EOS September 26, 2016)
- Peacock, J. R. and Selway, K., 2016, Magnetotelluric investigation of the Vestfold Hills and Rauer Group, East Antarctica, *J. Geophys. Res. Solid Earth*, **121**, 2258-2273, doi:10.1002/2015JB012677.
- Peacock, J. R., Mangan, M., McPhee, D., and Ponce, D., 2015, Imaging the magmatic system of Mono Basin, California with magnetotellurics in three dimensions, *J. Geophys. Res. Solid Earth*, **120**, 7274–7289, doi:10.1002/2015JB012071.
- Rosas–Carbajal, M., Linde, N., Peacock, J. R., Zyserman, F. I., Kalscheuer, T., Thiel, S., 2015, Probabilistic three–dimensional time–lapse of magnetotelluric data: application to an enhanced geothermal system, *Geophys. J. Int.*, **203**, 1946–1960, doi:10.1093/gji/ggv406.
- MacFarlane, J., Thiel, S., Pek., J., Peacock, J. R., and Heinson, G., 2014, Characterisation of induced fracture networks within an enhanced geothermal system using anisotropic electromagnetic modelling, *J. Volcan. Geotherm. Res.*, **288**, 1–7, doi:10.1016/j.jvolgeores.2014.10.002.
- Kreiger, L. and Peacock, J. R., 2014, MTPy: A Python toolbox for magnetotellurics, *Computers & Geoscience*, **72**, 167–175, doi:10.1016/j.cageo.2014.07.013.
- Peacock, J. R., Thiel, S., Heinson, G. and Reid, P., 2013, Time-lapse magnetotelluric monitoring of an enhanced geothermal system, *Geophysics*, **78**, p. B121-B130, doi:10.1190/geo2012-0275.1.

Ryan, G. A., J. R. Peacock, E. Shalev, and J. Rugis, 2013, Montserrat geothermal system: A 3D conceptual model, *Geophys. Res. Lett.*, **40**, 20382043, doi:10.1002/grl.50489.

Peacock, J. R., Thiel, S., Heinson, G. and Reid, P., 2012, Magnetotelluric monitoring of a fluid injection: Example from an enhanced geothermal system, *Geophys. Res. Lett.*, doi:10.1029/2012GL053080.

Alexander, B., Thiel, S., Peacock, J. R., 2012, Application of evolutionary methods to 3D geoscience modelling, *GECCO '12*, 1039–1046, doi:10.1145/2330163.2330308.

Peacock, J. R., 2009, Millimeter wave dielectric permittivity of water near 25° C, *J. Physics D: Applied Physics*, **42** doi:10.1088/0022-3727/42/20/205501.

van Wijk, K., Scales, J. A., Mikesell, T. D., Peacock, J. R., 2005, Toward non-contacting seismology: *Geophys. Res. Lett.*, **32**, doi:10.1029/2004GL021660.

Selected Presentations and Conference Publications

Peacock, J. R., Krieger, L., and Kirkby, A., 2016, *MTPy*: a Python Package for the MT Community, *23rd Electromagnetic Induction Workshop*, Chiang Mai, Thailand, [Poster].

Peacock, J. R., Mangan, M. T., McPhee, D., Ponce, D.A., 2016, Magnetotelluric Imaging of a Carbonatite Terrane in the Southeast Mojave Desert, California and Nevada, *23rd Electromagnetic Induction Workshop*, Chiang Mai, Thailand, [Poster].

Peacock, J. R., Denton, K., and Ponce, D.A., 2016, Three dimensional imaging of Long Valley volcanic system using magnetotellurics, *ASEG-PESA-AIG*, Adelaide, Australia, [Poster].

Peacock, J. R., Mangan, M. T., McPhee, D., Ponce, D.A., 2015, Three dimensional imaging of Long Valley volcanic system using magnetotellurics, *USGS Volcano Hazards Colloquim*, Menlo Park, CA, USA, [Presentation], http://media.wr.usgs.gov/vhz/VHZ_28apr15.mp4.

Peacock, J. R., McPhee, D., Ponce, D.A., Mangan, M., MacPherson-Krutzky, C. C., and Matson, G., 2013, Three dimensional visualization of Mono Basin, California from geophysical studies, *AGU Fall Meeting*, San Francisco, CA, USA, V11D-04 [Presentation]

Peacock, J. R., Thiel, S., Reid, P., Heinson, G., Malin, P., Rugis, J., Boese, C., 2013, Monitoring Enhanced Geothermal Fluids with Magnetotellurics, Test case: Paralana, South Australia, *SEG Forum on Microseismic Technology*, Napa, CA, USA [Presentation]

Peacock, J. R., Thiel, S., K. Selway, Collins, A. S. and Heinson, G., 2012, Magnetotelluric survey across the Vestfold Hills, East Antarctica, *AGU Fall Meeting*, San Francisco, CA, USA [Poster]

Peacock, J. R., Thiel, S., Reid, P., Messellier, M. and Heinson, G., 2012, Monitoring Enhanced Geothermal Fluids with Magnetotellurics, Test case: Paralana, South Australia, *AGU Fall Meeting*, San Francisco, CA, USA [Presentation]

Peacock, J. R., Thiel, S., Reid, P., Messellier, M. and Heinson, G., 2011, Monitoring Enhanced Geothermal Fluids with Magnetotellurics, Test case: Paralana, South Australia, *37th Stanford Geothermal Workshop*, Palo Alto, CA, USA [Presentation]

Peacock, J. R., Thiel, S., Reid, P., Heinson, G., 2011, Progress Towards Magnetotelluric Monitoring Of Enhanced Geothermal System Fluids, *IUGG*, Melbourne, Australia [Presentation]

Peacock, J. R., Selway, K., Heinson, G., 2011, Estimating Source Field Effects Using Time-Frequency Analysis: Lessons From Antarctica, *IUGG*, Melbourne, Australia [Presentation]

Peacock, J. R., Selway, K., Heinson, G., 2010, Estimating Source Field Effects Using Time-Frequency Analysis: Lessons From Antarctica, 20th *Electromagnetic Induction Workshop*, Cairo, Egypt [Presentation]

Peacock, J. R., Thiel, S., Reid, P., Heinson, G., 2010, Magnetotelluric Monitoring Of Enhanced Geothermal System Fluids, 20th *Electromagnetic Induction Workshop*, Cairo, Egypt [Poster]

Peacock, J. R., van Wijk, K., 2006, Progress Towards Non-Contacting Seismics, *SAGEEP Proceedings*, Seattle, WA, USA [Presentation]