

Biographical Sketch: Dr. Jacob Richardson

*Planetary Geology, Geophysics, and Geochemistry Lab, NASA Goddard Space Flight Center
8800 Greenbelt Road, Greenbelt, MD 20771*

Education (2 years since PhD)

- Ph.D.** 2016 Geological Sciences, University of South Florida, Tampa, FL
Dissertation: *Modeling the Construction and Evolution of Distributed Volcanic Fields on Earth and Mars*
- B.Sc.** 2010 Geology, Eastern Michigan University, Ypsilanti, MI

Employment History

- 2016-Present *Postdoctoral Researcher: NASA Postdoctoral Program Fellowship, NASA Goddard Space Flight Center, Greenbelt, MD*
- 2014-2016 *Research Assistant: University of South Florida, Tampa, FL*
- 2011-2014 *Teaching Assistant: University of South Florida, Tampa, FL*
- 2010-2012 *Geophysicist: Stinger Ghaffarian Technologies, Greenbelt, MD*

Awards and Honors

- Richard A. Davis Ph.D. Fellowship, School of Geosciences, University of South Florida, 2015*
- Betty Pierazzo International Student Travel Award, Planetary Science Institute, 2014*
- Stephen E. Dworkin Planetary Geoscience Award, Geologic Society of America, 2010*
- NASA Student Ambassador, NASA, 2010-2011*

Professional Service

- Workshop Coordinator, Commission of Statistics in Volcanology, International Association of Volcanology and Chemistry of the Earth's Interior (IAVCEI)
- Committee Member, Education/Outreach Committee of the Volcanology, Geochemistry, and Petrology Section of the American Geophysical Union
- External Reviewer for NASA Mars Data Analysis Program
- Review Panelist for NASA Earth and Space Science Fellowship Program (NESSF), Earth Surface and Interior
- Reviewer for Journals: *Geophysical Research Letters*, *Journal of Volcanology and Geothermal Research*, *Computers & Geosciences*

Peer Reviewed Publications (9)

- 2018 Charbonnier, S., Connor, C., Connor, L., Sheridan, M., Oliva Hernández, J., **Richardson, J.** (2018) Modeling the October 2005 lahars at Panabaj (Guatemala). *Bulletin of Volcanology*. <https://doi.org/10.1007/s00445-017-1169-x>.
- 2017 Dietterich, H., Lev, E., Chen, J., **Richardson, J.**, Cashman, K. (2017) Benchmarking computational fluid dynamics models of lava flow simulation for hazard assessment, forecasting, and risk management. *Journal of Applied Volcanology*. <http://dx.doi.org/10.1186/s13617-017-0061-x>.
- Richardson, J.**, Wilson, J. Connor, C., Bleacher, J., Kiyosugi, K. (2017) Recurrence rate and magma effusion rate for the latest volcanism on Arsia Mons, Mars. *Earth and Planetary Science Papers*. <http://dx.doi.org/10.1016/j.epsl.2016.10.040>.

- 2015 **Richardson, J.**, Connor, C., Wetmore, P., Connor, L., Gallant, E. (2015) Role of sills in the development of volcanic fields: Insights from lidar mapping surveys of the San Rafael Swell, Utah. *Geology*. <http://dx.doi.org/10.1130/G37094.1>.
- Kubaneck, J., **Richardson, J.**, Charbonnier, S., Connor, L. (2015) Lava flow mapping and volume calculations for the 2012-3 Tolbachik, Kamchatka fissure eruption using bistatic TanDEM-X InSAR. *Bulletin of Volcanology*. <http://dx.doi.org/10.1007/s00445-015-0989-9>.
- Lillis, R., Dufek, J., Kiefer, W., Black, B., Manga, M., **Richardson, J.**, Bleacher, J. The Syrtis Major volcano, Mars: A multidisciplinary approach to interpreting its magmatic evolution and structural development. *Journal of Geophysical Research: Planets*. <http://dx.doi.org/10.1002/2014JE004774>.
- Marshall, A., Connor, C., Kruse, S., Malservisi, R., **Richardson, J.**, Courtland, L. Connor, L., Wilson, J., Karegar, M. Subsurface structure of a maar–diatreme and associated tuff ring from a high-resolution geophysical survey, Rattlesnake Crater, Arizona. *Journal of Volcanology and Geothermal Research*. <http://dx.doi.org/10.1016/j.jvolgeores.2015.09.006>.
- Malservisi R., Schwartz S., Voss, N., Protti, M., Gonzalez, V., Dixon, T., Jiang, Y., Newman, A., **Richardson, J.**, Walter, J., Voyenko, D. Multiscale postseismic behavior on a mega thrust: the 2012 Nicoya earthquake, Costa Rica, *Geochemistry, Geophysics, Geosystems*. <http://dx.doi.org/10.1002/2015GC005794>.
- 2013 **Richardson, J.**, Bleacher, J., Glaze, L. The volcanic history of Syria Planum, Mars. *Journal of Volcanology and Geothermal Research*. <http://dx.doi.org/10.1016/j.jvolgeores.2012.11.007>.

Submitted Peer-Reviewed Publications

- Gallant, E., Connor, C. Richardson, J., Wetmore, P., Connor, L. Lava flow hazard assessment for the Idaho National Laboratory, a nuclear facility on the eastern Snake River Plain, USA. *In Review, Geology*.

Grants Awarded

- 2018 Lidar Measurements through Non-transparent Atmospheres, *Goddard Fellows Innovative Challenge, NASA Goddard Space Flight Center*
Role: Co-Investigator
Award: \$45,000
- 2017-2019 Volcanic Impacts on Planetary Atmospheres: Research and Reconnaissance Strategies (VIPARRS), *NASA Goddard Space Flight Center Science Task Group*
Role: Deputy Lead
Award: Combined 1 FTE for 10 science team members.
- 2016-present Role of magmatic hot zones in the lithospheric evolution of Mars and Earth, *NASA Postdoctoral Program*.
Role: Principle Investigator
Award: \$60,000 annual stipend plus \$8,000 annual travel allowance, two years.
- 2014-2017 Evaluating the Role of Distributed Volcanism in the Development of the Tharsis Region of Mars, *Mars Data Analysis Program, NASA*.

Role: Graduate Student Co- Investigator

Award: \$164,400

2013 San Rafael, UT: Survey of Exposed Subsurface Volcanic Features, *National Center for Airborne Laser Mapping (NCALM) Seed Grant*.
<http://dx.doi.org/10.5069/G908638S>

Role: Principal Investigator

Award: 54 sq. km aerial lidar survey

Selected Mars-Related Conference Abstracts

- 2017 **Richardson, J.**, Wilson, J., Connor, C., Germa, A., Kiyosugi, K., Perry, C. Volcanic Event Age Model: Consolidating multiple date models to estimate recurrence rate. Conference Abstract #1052. International Association of Volcanology and Chemistry of the Earth's Interior (IAVCEI) 2017 Scientific Assembly, Portland, OR.
Richardson, J., Wilson, J., Connor, C., Bleacher, J. *Magma Flux at Arsia Mons, Mars, Over the Past 300 Million Years*. Abstract #1964. 48th Lunar and Planetary Science Conference, Houston, TX.
- 2015 **Richardson, J.**, Wilson, J., Connor, C., Bleacher, J. *Recurrence Rate Estimation of Distributed Volcanism in Arsia Caldera, Mars*. Abstract #2801, 46th Lunar and Planetary Science Conference, Houston, TX.
- 2014 **Richardson, J.**, Bleacher, J., Connor, C., Connor, L., Glaze, L. *Investigating the role of small vent volcanism during the development of Tharsis Province, Mars*. American Geophysical Union Fall Meeting, San Francisco, CA.
Richardson, J., Connor, C., Malservisi, R., Bleacher, J., Connor, L. *LiDAR observations of an Earth magmatic plumbing system as an analog for Venus and Mars distributed volcanism*. European Geosciences Union Annual Meeting, Vienna, Austria.
- 2012 **Richardson, J.**, Miller, D., Bleacher, J., Connor, C., Gregg, T., Connor, L., Glaze, L. *Comparison of Monogenetic Volcano Clusters on Earth, Venus, and Mars*. American Geophysical Union Fall Meeting, San Francisco, CA.
Richardson, J., Bleacher, J., Connor, C., Connor, L. *Using Spatial Density to Characterize Volcanic Fields on Mars*. Abstract #2314, 43rd Lunar and Planetary Science Conference, Houston, TX.
- 2010 Bleacher, J., **Richardson J.**, Richardson, P., Glaze, L., Baloga, S., Greeley, R., Hauber, E., Lillis, R., *Updates to the catalog of Tharsis province small volcanic vents, Mars*. Abstract #1615, 41st Lunar and Planetary Science Conference, Houston, TX.
Richardson, J., Bleacher, J., Baptista, A. *Identification of volcanic ridge in northern Syria Planum, Mars: Constraint on Geologic History of Syria*. Abstract #1427, 41st Lunar and Planetary Science Conference, Houston, TX.

Interns Mentored

Saira Hamid	Spring, 2018	Mapping the Tharsis Montes Chasmata, Mars.
Rhianna Moore	Spring, 2018	Lava flow channel morphology in the Tharsis Volcanic Province, Mars.

Ph.D Graduate Advisor: Chuck Connor (University of South Florida, Tampa, FL, USA).