

Matthew G. Jackson

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Current Position	Post-doctoral Investigator, Woods Hole Oceanographic Institution. Post-doctoral supervisors: Dr. John Collins and Dr. Stanley R. Hart.
Education	Ph.D., Massachusetts Institute of Technology – Woods Hole Oceanographic Institution Joint Program. GPA: 4.8/5.0. Advisor: Dr. Stanley R. Hart. Defended October 31, 2007. B.S., Geology, 2001, Yale University. GPA: 3.75/4.00 Graduated <i>cum laude</i> with distinction in the major. Advisor: Dr. Philip D. Ihinger
Immigration Status	United States citizen
Awards/Honors	AGU Outstanding Student Paper Award, December 2005 NSF Graduate Research Fellowship, September 2002-August 2005. Fulbright Grant for geological study in Iceland, 2001-2002 WHOI Deep Ocean Exploration Institute award for deployment of seismic stations in Samoa, April 2005 WHOI Ocean Ventures Fund award for deployment of seismic stations in Samoa, March 2005. WHOI Coastal Ocean Institute award for geologic fieldwork in Samoa, June 2006 Yale Geology & Geophysics Dept. Belknap Prize for outstanding achievement in the geology major, May 2000. Yale Geology & Geophysics Dept. Hammer Prize for excellence in the Senior Thesis Presentation, May 2000.
Service	Session (poster) Co-Chair. Session V13B: “Active Mantle Upwellings and Volcanism: What Do We Know?” AGU, 2006.
Teaching	Guest Lecturer at Boston College, co-taught GE530: Marine Geology. Involved syllabus planning, lecture development, presentation, homework/exam development, grading, Spring 2007. Co-taught two day-long classes about local geology at Ta’u and Savai’i high schools in American and Independent Samoa, 2005 and 2006.
Invited Talks	“Sr isotopes in melt inclusions from Samoan basalts: Clues about the nature of FOZO.” Brown University, February 2006. “Mantle Dynamics Inferred From the Samoan Hotspot: Implications for Recycling and the Preservation of Hemispheric-Scale Geochemical

Anomalies.” Session U06: Chemical Geodynamics: The Road Ahead. AGU, 2007.

Synergistic Activities

Attended three-week CIDER workshop (Cooperative Institute for Deep Earth Research). Participated in discussions exploring interdisciplinary approaches to deep earth problems (see resulting manuscript: Courtier *et al.*, 2007). Summer 2006.

Field Work

Samoa Lithosphere Integrated Seismic Expedition (SLISE). Installed seismic stations along the Samoan Island chain with graduate student funding. Project goal is to relate lithospheric thickness (using receiver functions) to geochemistry of the islands. Fall 2005 to present.

Shipboard Scientific Party, R/V Kilo Moana, ALIA expedition: Dredged Samoan seamounts to constrain hotspot age-progression. May 2005.

Shipboard Scientific Party, R/V Atlantis: Deep-sea coral collection from New England Seamounts with DSV Alvin. May-June 2003.

Publications

1. **Jackson, M.G.**, S.R. Hart, A.A.P. Koppers, H. Staudigel, J. Konter, J. Blusztajn, M.D. Kurz and J.A. Russell (2007). The return of subducted continental crust in Samoan lavas. *Nature* **448**, 684-687.
2. **Jackson, M.G.**, M.D. Kurz, S.R. Hart and R.K. Workman (2007). New Samoan lavas from Ofu Island reveal a hemispherically heterogeneous high $^3\text{He}/^4\text{He}$ mantle. *Earth Planet. Sci. Lett.*, *in press*.
3. Courtier, A.M., **M.G. Jackson**, J.F. Lawrence, Z. Wang, C.-T.A. Lee, R. Halama, J.M. Warren, R. Workman, W. Xu, M.M. Hirschmann, A.M. Larson, S.R. Hart, C. Lithgow-Bertelloni, L. Stixrude and W.-P. Chen (2007). Correlation of seismic and petrologic thermometers suggests deep thermal anomalies beneath hotspots. *Earth. Planet. Sci. Lett.*, *in press*.
4. Putirka, K.D., M. Perfit., F.J. Ryerson and **M.G. Jackson** (2007). Ambient and excess mantle temperatures, olivine thermometry, and active vs. passive upwelling. *Chem. Geol.* **241**, 177-206.
5. **Jackson, M.G.** and S.R. Hart (2006). Strontium isotopes in melt inclusions from Samoan basalts: Implications for heterogeneity in the Samoan plume. *Earth Planet. Sci. Lett.* **245**, 260-277.
6. **Jackson, M.G.**, N. Oskarsson, R.G. Trønnes, J.F. McManus, D.W. Oppo, K. Grönvold, S.R. Hart and J.P. Sachs (2005). Holocene loess deposition in Iceland: Evidence for millennial-scale atmosphere-ocean coupling in the North Atlantic. *Geology* **33**, 509-512.
7. Workman, R.K., S.R. Hart, **M.G. Jackson**, M. Regelous, K.A. Farley, J. Blusztajn and M. Kurz (2004). Recycled metasomatised lithosphere as the origin of the Enriched Mantle II (EM2) end-member: Evidence from the Samoan Volcanic Chain. *Geochem. Geophys. Geosys.* (G-cubed), **5**, doi:10.1029/2003GC000623.
8. Hart, S.R., H. Staudigel, A.A.P. Koppers, J. Blusztajn, E.T. Baker, R. Workman, **M.G. Jackson**, E. Hauri, M. Kurz, K. Sims, D. Fornari, A. Saal and S. Lyons (2001). Vailulu'u undersea volcano: The new Samoa. *Geochem. Geophys. Geosys.* (G-cubed), **1**, doi:10.1029/2000GC000108.

Manuscripts under Review

1. Koppers, A.A.P., J.A. Russell, **M.G. Jackson**, J. Konter, H. Staudigel and S.R. Hart (2007). Samoa reinstated as a primary hotspot trail. *Geology*, submitted June 2007.
2. **Jackson, M.G.**, S.R. Hart, A.E. Saal, N. Shimizu, M.D. Kurz, J. Bluztajn and A. Skovgaard. High $^3\text{He}/^4\text{He}$ hotspot lavas expose the Earth's "missing" Titanium, Tantalum and Niobium (TITAN): The missing link between continental crust and depleted mantle found? *Geochem. Geophys. Geosyst.* (G-cubed), submitted October 2007.
3. Workman, R.K. S.R. Hart, J.M. Eiler and **M.G. Jackson**, Oxygen isotopes in Samoan lavas: confirmation of continent recycling. *Geology*, submitted November 2007.

Manuscripts in Preparation

1. **Jackson, M.G.**, and S.R. Hart, Global Sr and Nd isotope disequilibrium between hotspot lavas and clinopyroxene phenocrysts: Evidence for a fractal tree melting regime. *To be submitted to Chem. Geol.*
2. **Jackson, M.G.**, and M.D. Kurz, Neon isotopes from Samoan basalts: A primordial component in high $^3\text{He}/^4\text{He}$ lavas. *To be submitted to Earth Planet. Sci. Lett.*
3. **Jackson, M.G.**, and S.R. Hart, A genetic approach to mantle taxonomy, and the geochemical structure of the Samoan plume. *To be submitted to Geochem. Geophys. Geosyst.* (G-cubed).

Selected Abstracts

1. **Jackson, M.G.**, S.R. Hart, A. Koppers and H. Staudigel (2006). Old shield basalts from Savai'i Island, Samoa: Validation of a plume-hotspot model for the Samoan chain, *EOS* (Transactions of AGU) **87**, V13B-0671.
2. **Jackson, M.G.**, S.R. Hart and L. Ball (2006). Strontium isotopes in melt inclusions from Samoan basalts: Implications for heterogeneity in the Samoan plume. *V.M. Goldschmidt Conf. Program and Abstracts* **70(18)**, p. A284.
3. **Jackson, M.G.**, M.D. Kurz, S.R. Hart and R.K. Workman (2005). Implications of new high $^3\text{He}/^4\text{He}$ values from the Samoan hotspot, *EOS* (Transactions of AGU) **86**, V41D-1485.
4. **Jackson, M.G.**, S.R. Hart and R.K. Workman (2004). Enigmatic Pb-isotope arrays (Galerays): A genetic approach to mantle taxonomy. *V.M. Goldschmidt Conf. Program and Abstracts* **14**, p. A560.
5. **Jackson, M.G.**, S.R. Hart and R.K. Workman (2003). History of the Samoan plume inferred from relationships between Pb-isotopes and olivine composition. *V.M. Goldschmidt Conf. Program and Abstracts* **13**, p. A183.
6. **Jackson, M.G.** and P.D. Ihinger (2000). Carbonatite expulsion from a lamprophyre: an integrated geochemical study of dike-wall rock interactions. *GSA Abstracts with Programs* **32(7)**, p. A436.

References

The following are the names and contact information for references that have worked closely with me during my Ph.D. research.

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