

CURRICULUM VITAE

Bradley J. Peters

ETH Postdoctoral Fellow & Lecturer
Institut für Geochemie und Petrologie, ETH Zürich
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Professional Appointments

Postdoctoral Fellow, Lecturer

Institut für Geochemie und Petrologie, ETH Zürich
February 2019 – present

Supervisor: Maria Schönbacher

Current research projects:

- Determination of the ^{142}Nd compositions of primitive and recycled mantle domains contributing to global hotspot volcanism
- Constraining of the relationship between the ^{182}W composition of global hotspots and other geochemical tracers of metal-silicate and silicate-silicate differentiation
- Constraining the effects of crustal assimilation on Hadean ^{142}Nd signatures of global continental flood basalts

Postdoctoral Fellow

Department of Terrestrial Magnetism, Carnegie Institution for Science
October 2016 – December 2018

Supervisor: Richard W. Carlson

Education

Scripps Institution of Oceanography, San Diego, CA

Ph.D., Earth Science, August 2016

Supervisor: James M.D. Day

Scripps Institution of Oceanography, San Diego, CA

M.S., Earth Science, March 2013

College of William & Mary, Williamsburg, VA

B.S. with Honors, *cum laude*, Geology, May 2011

(“Honors” is a research designation and *cum laude* is a grade point average designation)

Supervisor: Brent E. Owens

The School for Field Studies, Jakar, Bhutan and Atenas, Costa Rica

Two summer, field-based research courses

Instructional Activity

Teaching development

- Foundations of teaching and learning (ETH course, 2019)
- Flipping a geochemistry classroom using team-based learning (Goldschmidt workshop, 2017)

Age groups 5-8

- Be a scientist! (Teaching assistant, 2010)

Age groups 13-18

- Volcanoes: Hawaii (Teaching assistant, 2009)

Upper-division undergraduate

- Introduction to petrology (Teaching assistant, 2014)
- Introduction to geological field methods (Teaching assistant, 2012-2014)
- Introduction to geochemistry (Teaching assistant, 2012)

Graduate

- Concepts and quantitative methods in geochemistry (Lecturer, 2019)

Mentored students

- M. Halfar (M.Sc. anticipated 08/2020, primary supervisor)

Grants and fellowships (ca. US\$0.5M internal, US\$0.9M external)

2020-2024	SNF <i>Ambizione</i> Grant (CHF884'844)
2019-2021	ETH Zürich Postdoctoral Fellowship (CHF229'600; ETH & Marie Curie Actions COFUND)
2016-2018	Carnegie Institution for Science Postdoctoral Fellowship
2015-2016	Devendra & Aruna Lal Fellowship
2011-2012	University of California Regents Fellowship

Awards

2016	Geochemical Society Student Conference Travel Award
2014	Scripps Institution of Oceanography Graduate Student Excellence Award (twice)
2014	Geological Society of America Graduate Student Research Grant
2011	Naval Research Enterprise Internship
2010	College of William and Mary Honors Research Fellowship
2007	College of William and Mary James Monroe Scholarship

Invited public lectures

06/2020	Goldschmidt2020 Conference Session 05f, Mantle Structure and Composition: The View from Intraplate Volcanism
02/2020	Geophysical Fluid Dynamics Group, ETH Zürich
03/2019	Department of Earth Science, ETH Zürich
02/2018	Department of Geology, College of William & Mary
01/2018	Department of Mineral Sciences, National Museum of Natural History
03/2017	Department of Terrestrial Magnetism, Carnegie Institution for Science
03/2017	Department of Atmospheric, Oceanic, and Earth Sciences, George Mason University
02/2017	Department of Geology, University of Maryland
09/2015	Lamont-Doherty Earth Observatory, Columbia University

Professional service

2016-pres.	Reviewer, <i>Chemical Geology</i> , <i>Earth and Planetary Science Letters</i> , <i>ACS Earth and Space Science</i> , <i>Geochimica et Cosmochimica Acta</i> , <i>G-Cubed</i> , <i>Journal of South American Earth Sciences</i>
2020	Co-convenor, <i>Ancient mantle heterogeneities through time: from observations to modeling</i> (02c), Goldschmidt2020 meeting
2018	Co-convenor, <i>Formation and preservation of heterogeneous domains in the silicate Earth</i> (GMPV/GD), European Geosciences Union General Assembly 2018
2017	AGU Fall Meeting Outstanding Student Paper Award adjudicator
2016	Student Committee, Earth Section faculty search, Scripps Institution of

2013-2014 Oceanography
Coordinator, Geosciences Research Division seminar series, Scripps Institution of Oceanography

Field and Shipboard Experience

09/2015 Hawaii Volcanoes National Park, HI
06/2015 La Réunion, France (*trip leader*)
08/2014 Stillwater intrusive complex, MT; Columbia River flood basalt, OR (*trip co-leader*)
01/2014 Deccan Traps, India (*trip leader*)
09/2012 "West of Baja" (WOBA) scientific cruise (R/V Melville)
09/2011 Bathymetric mapping transit, San Diego-Panama City (R/V Melville)
05/2011 Big Bend National Park, TX
07/2010 Piedmont Province, VA

Professional Memberships

- Geochemical Society
- American Geophysical Union
- European Geosciences Union

Peer-reviewed publications

10. **Peters, B.J.**, Mundl-Petermeier, A., Carlson, R.W., Walker, R.J., Day, J.M.D. The relationship between Hadean Nd and W isotopic signatures in the Réunion hotspot and other global hotspots. *In review*, 12/2019.
9. **Peters, B.J.**, Mundl-Petermeier, A., Horan, M.F., Carlson, R.W., Walker, R.J. (2019) Chemical separation of tungsten and other trace elements for TIMS isotope ratio measurements using organic acids. *Geostandards and Geoanalytical Research*, 43, 245-259. doi: 10.1111/ggr.12259
8. **Peters, B.J.**, Shahar, A., Carlson, R.W., Day, J.M.D. and Mock, T.D. (2019) A sulfide perspective on iron isotope fractionation in ocean island basalt petrogenesis. *Geochimica et Cosmochimica Acta*, 245, 59-78. doi: 10.1016/j.gca.2018.10.015
7. **Peters, B.J.**, Carlson, R.W., Day, J.M.D. and Horan, M.F. (2018) Hadean silicate differentiation preserved by anomalous ¹⁴²Nd in the Réunion hotspot source. *Nature*, 555, 89-93. doi: 10.1038/nature25754
6. Owens, B.E. and **Peters, B.J.** (2018) Ferruginous quartzites in the Chopawamsic Terrane, Piedmont Province, Virginia: Evidence for an ancient back-arc hydrothermal system. *Economic Geology*, 113(2), 421-438. doi: 10.5382/econgeo.2018.4556
5. **Peters, B.J.** and Day, J.M.D. (2017) A geochemical link between plume head and plume tail volcanism. *Geochemical Perspectives Letters*, 5, doi: 10.7185/geochemlet.1742
4. **Peters, B.J.**, Day, J.M.D., Hilton, D.R., Greenwood, R.C., Gibson, J. and Franchi, I. (2017) Helium-oxygen-osmium isotopic and elemental constraints on the mantle sources of the Deccan Traps. *Earth and Planetary Science Letters*, 478, 245-257. doi: 10.1016/j.epsl.2017.08.042
3. **Peters, B.J.**, Day, J.M.D. and Taylor, L.A. (2016) Early mantle heterogeneities in the Réunion hotspot source inferred from highly siderophile elements in cumulate xenoliths. *Earth and Planetary Science Letters*, 448, 150-160. doi: 10.1016/j.epsl.2016.05.015
2. **Peters, B.J.** and Day, J.M.D. (2014) Assessment of relative Ti, Ta and Nb (TITAN) enrichments in ocean island basalts. *Geochemistry, Geophysics, Geosystems*, 15, doi:10.1002/2014GC005506.
1. Day, J.M.D., **Peters, B.J.** and Janney, P.E. (2014) Oxygen isotope systematics of South African olivine melilitites and implications for HIMU mantle reservoirs. *Lithos*, 202-203, 76-84. doi: 10.1016/j.lithos.2014.05.009

Conference Proceedings

Peters, B., Day, J.M.D. (2020) Origins of ¹⁴²Nd heterogeneity in Deccan Flood basalts. Goldschmidt2020 meeting Session 5f invited presentation, Honolulu, HI, USA, 21-26 June 2020.

- Birmingham, K.R., Walker, R.J., Finlayson, V.A., **Peters, B.J.**, Nakanishi, N., Rudnick, R.L., Day, J.M.D., Jackson, M.G., Pearson, D.G. (2020) The search for preserved late-stage accretionary components in terrestrial materials. Goldschmidt2020 meeting Session 2g invited presentation, Honolulu, HI, USA, 21-26 June 2020.
- Peters, B.**, Mundl-Petermeier, A., Carlson, R.W., Walker, R.J., Day, J.M.D. (2019) Lithophile-siderophile constraints on Hadean processes preserved in hotspot sources. Abstract 2635 presented at the Goldschmidt2019 meeting, Barcelona, Spain, 18-23 August 2019.
- Peters, B.J.**, Mundl, A., Horan, M.F., Carlson, R.W., Walker, R.J. (2018) A framework for efficient chemical separation of tungsten and other trace elements using organic acids for high-precision mass spectrometry: Abstract 450901 presented at the 2018 AGU Fall Meeting, Washington, DC, USA, 12 December 2018.
- Peters, B.J.**, Mundl, A., Carlson, R.W., Day, J.M.D., Walker, R.J. (2018) The Hadean geochemical heritage of the Réunion hotspot source: Abstract 3603 presented at the Goldschmidt2018 meeting, Boston, MA, USA, 11-17 August 2018.
- Peters, B.J.**, Shahar, A., Day, J.M.D., Carlson, R.W., Mock, T.D. (2018) Iron isotope variations in the Réunion hotspot mantle source: Abstract 10003 accepted for presentation at the European Geosciences Union 2018 General Assembly, Vienna, Austria, 9-13 April 2018.
- Peters, B.J.**, Carlson, R.W., Day, J.M.D., Horan, M.F. (2017) Hadean silicate differentiation revealed by anomalous ^{142}Nd in the Réunion hotspot source: Abstract 276003 presented at the 2017 AGU Fall Meeting, New Orleans, USA, 11 December 2017.
- Lyakov, J., Durkin, K., Hirsch, L., **Peters, B.J.**, Hattingh, R., Day, J.M.D. (2017) Evaluating the cause(s) of Ti, Ta, and Nb (TITAN) enrichment in ocean island basalts using LA-ICP-MS: Abstract 248427 presented at the 2017 AGU Fall Meeting, New Orleans, USA, 11-15 December 2017.
- Peters, B.J.**, Carlson, R.W., Day, J.M.D. (2017) An elevated ^{142}Nd signature in the Réunion mantle source: Abstract 3132 presented at Goldschmidt2017 Conference, Paris, France, 17 August 2017.
- Peters, B.J.**, Day, J.M.D., Taylor, L.A. (2016) Early mantle heterogeneities in the Réunion hotspot source inferred from highly siderophile elements in cumulate xenoliths: Abstract 1889 presented at Goldschmidt2016 Conference, Yokohama, Japan, 27 June 2016.
- Peters, B.J.**, Day, J.M.D. (2014) Trace-element signatures of Réunion hotspot-ridge interactions: Abstract 3902 presented at Goldschmidt2014 Conference, Sacramento, CA, 9-13 June.
- Peters, B.J.**, Day, J.M.D. (2013) Assessment of relative Ti, Ta and Nb (TITAN) enrichments in global ocean island basalts: Abstract V13F-2667 presented at 2013 Fall Meeting, AGU, San Francisco, CA, 9-13 December.
- Peters, B.J.**, Owens, B.E. (2011) Mineralogical and geochemical constraints on the origin of ferruginous quartzites in the Chopawamsic Terrane, Piedmont Province, Virginia: *Geological Society of America Abstracts with Programs*, 43(2), 29.

Thesis Works

- Peters, B.J.** Secular and recent trends in the geochemistry of the Réunion hotspot and other global hotspots: Ph.D. thesis, Scripps Institution of Oceanography, La Jolla, CA, 440 pp.
- Peters, B.J.** Mineralogical and geochemical constraints on the origin of ferruginous quartzites in the Chopawamsic Terrane, Piedmont Province, Virginia: B.S. honors thesis, College of William and Mary, VA, 98 pp.