

Graham A. Hagen-Peter

Post-Doctoral Researcher

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Education

September 2015: PhD in Geological Sciences, UC Santa Barbara

May 2010: BSc in Geology, University of Vermont; *summa cum laude*

Professional Experience

Current: Post-doctoral researcher at *Aarhus University, Denmark*

2015–2016: Visiting assistant professor at *St. Olaf College and Carleton College, MN*

2015: Instructor at *UC Santa Barbara*

2010–2015: Graduate student researcher and teaching assistant at *UC Santa Barbara*

2007–2010: Teaching and lab assistant at the *University of Vermont*

2005– 2010: Operating Room Assistant at *Fletcher Allen Health Care, Burlington, VT*

Teaching Experience

Courses as instructor:

Geology and Geohazards of Taiwan (*UCONN; adjunct instructor*)

Introduction to Geology (*Carleton*)

Antarctic Earth Science (*Carleton*)

Introductory Geology (“Geophysics”; *St. Olaf*)

Antarctic Earth Science (*UCSB*)

Courses as teaching assistant: Dynamic Earth, Dinosaurs, Tectonics, Analytical Methods in Mineralogy, Spring Field Camp, Summer Field Camp

Research Areas (On-going and Recent)

Present: Developing methods for trace element and isotopic analyses of archaeological metals

Present: Tracking magmatic processes using Sr isotopes in plagioclase measured *in situ* by LA-MC-ICPMS

Present: Linking petrology of kimberlite-borne xenoliths to geophysical observations from western Greenland

Present: Developing analytical routines and community reference materials for LA-ICPMS measurements of Sr isotopes in plagioclase and Pb isotopes in K-feldspar

2010–2017: Re-evaluating radiogenic isotope records to estimate the relative roles of crustal growth and recycling through continental arc magmatism

2010–2016: Variations in the timing, composition, source, and differentiation history of continental arc magmatism in the Ross orogen, Antarctica

2012–2015: Coupling garnet Lu-Hf and monazite U-Pb geochronology with phase equilibria modelling to study convergent margin dynamics and inform interpretations of accessory mineral dates in metamorphic rocks

2009– 2010: Intracontinental deformation in the Tavan Har basement block, southeastern Mongolia (*Undergraduate senior thesis; Advisor: Dr. Laura Webb at University of Vermont*)

Technical Experience

Clean Laboratory: Isotope-dilution ion-exchange chromatography for Lu-Hf geochronology; Low-blank clean lab chemistry and ion exchange chromatography for whole-rock Sr and Nd isotopes

SEM/EPMA: Imaging with CL, BSE, WDS maps; Mineral composition measurements with EDS (semi-quantitative) and WDS (quantitative)

ICPMS: Experience with single-collector (quadrupole and magnetic sector) and multi-collector ICPMS; Laser-ablation MC-ICPMS of U-Th-Pb, Hf, Nd, Pb, and Sr isotopes in various minerals; Laser-ablation split-stream ("LASS") analysis of zircon, monazite, plagioclase, and metals; Trace element measurements of various minerals, glasses, and synthetic metals by laser ablation; High precision solution MC-ICPMS

Other: Micro-XRF; Mineral separations and other rock sample preparation

Software: Adobe Illustrator, Iolite, Iqpet, Mathematica, MATLAB, MELTS, Perple_X, THERMOCALC

Publications

Published and Accepted Articles

Hagen-Peter, G. and Cottle, J.M. (2018). Evaluating the relative roles of crustal growth versus reworking through continental arc magmatism: A case study from the Ross orogen, Antarctica. *Gondwana Research*, 55, 153–156. * **Invited GR Focus Review Article**

Poletti, J.E., Cottle, J.M., and **Hagen-Peter, G.** (2016). Petrochronologic constraints on the origin of the Mountain Pass Intrusive Suite, California. *Journal of Petrology*, 57, 1555–1598.

- Hagen-Peter, G.** and Cottle, J.M. (2016). Synchronous alkaline and subalkaline magmatism in the Ross orogen, Antarctica: Insights into magmatic sources and processes within a continental arc. *Lithos*, 262, 677–698.
- Hagen-Peter, G.**, Cottle, J.M., Smit, M., and Cooper, A.F. (2016). Coupled garnet Lu-Hf and monazite U-Pb geochronology constrain early convergent margin dynamics in the Ross orogen, Antarctica. *Journal of Metamorphic Geology*, 34, 293–319.
- Hagen-Peter, G.**, Cottle, J.M., Tulloch, A.J., and Cox, S.C. (2015). Mixing between enriched lithospheric mantle and crustal components in a short-lived subduction-related magma system, Dry Valleys area, Antarctica: Insights from U-Pb geochronology, Hf isotopes, and whole-rock geochemistry. *Lithosphere*, 7, 174–188.
- Conference Abstracts**
- Hagen-Peter, G.**, Kooijman, E., Andreasen, R., Barfod, G., Schmitt, M., Karlsson, A., Tegner, C., Leshner, C. (2018). Sr isotope determinations in plagioclase and silicate glasses by LA-MC-ICPMS: Refinements in methodology and development of community standards. *14th European Workshop on Laser Ablation Abstract*.
- Hagen-Peter, G.**, Tegner, C., Thy, P., Leshner, C. (2018). Strontium isotopes in plagioclase record magma chamber dynamics of the Skaergaard intrusion. *33rd Nordic Geological Winter Meeting Abstract*.
- Hagen-Peter, G.**, Vestergaard, C., Tegner, C., Ulrich, T., Andreasen, R., Leshner, C. (2017). Strontium isotopes in plagioclase constrain mantle sources and crustal differentiation processes of the Skaergaard Intrusion and Kialineq Complex of eastern Greenland. *Goldschmidt Abstract*.
- Skursch, O., Tegner, C., Corfu, F., Cawthorn, G., **Hagen-Peter, G.**, Leshner, C. (2017). On the relationship of the Nebo Granite to the Rustenburg Layered Suite, Bushveld Complex. *Goldschmidt Abstract*.
- Hagen-Peter, G.**, Cottle, J.M. (2017). Evaluating the relative roles of crustal growth and recycling through continental arc magmatism in the Ross orogen, Antarctica. *EGU Abstract 2017-11659*.
- Briggs, S., Smit, M., Cottle, J., **Hagen-Peter, G.** (2015). The P-T-t History of the Alpine Schist, New Zealand: Constraining Tectonic Processes During the Late Stages of Gondwana Breakup. *AGU Fall Meeting Abstract V41A-3061*
- Hagen-Peter, G.A.**, Cottle, J.M. (2014). Coeval alkaline and subalkaline magmatism in a continental arc: Geochemical and isotopic insights on contrasting magma sources in the Ross orogen, Antarctica. *GSA Abstracts with Programs*.
- Briggs, S., Cottle, J.M., **Hagen-Peter, G.A.** (2014). Combined U-Th-Pb monazite and Lu-Hf garnet ages from the Alpine Schist: Implications for the timing and duration of barrovian metamorphism in the Southern Alps, New Zealand. *GSA Abstracts with Programs*.
- Hagen-Peter, G.A.**, Cottle, J.M. (2013). Syn- and post-orogenic alkaline magmatism in a continental arc: Along-strike variations in the composition, source, and timing of igneous activity in the Ross Orogen, Antarctica. *AGU Fall Meeting Abstract T13A-2520*.

- Hagen-Peter, G.A.**, Smit, M.A., Cottle, J.M., Schmidt, J (2013). First garnet Lu-Hf ages for the Ross orogen, Antarctica: Garnet growth preceding arc magmatism. *GSA Abstracts with Programs*.
- Hagen-Peter, G.A.**, Cottle, J.M., Tulloch, A. (2011). Exploring the petrochronology of subduction-related magmatism in the Ross Orogen: a case study from Dry Valleys, southern Victoria land, Antarctica. *GSA Abstracts with Programs*, 43(5), 46.
- Webb, L.E., Taylor, J.P., Heumann, M.J., Johnson, C.L., Stypula, M., **Hagen-Peter, G.A.** (2010). Thermochronologic records of intraplate deformation in the northern East Gobi Fault Zone, Mongolia. *AGU Fall Meeting Abstract T51A-2004*.
- Hagen-Peter, G.A.**, Webb, L.E., Stypula, M. (2009). Large-scale folding in the Tavan Har basement block, southeastern Mongolia and its relevance to Phanerozoic intracontinental deformation. *AGU Fall Meeting Abstract T33C-1921*.
- Stypula, M., Webb, L.E., **Hagen-Peter, G.A.** (2009). Evidence for partial melting at northern Tavan Har and relationship to Late Triassic sinistral shear in the East Gobi Fault Zone, southeastern Mongolia. *AGU Fall Meeting Abstract T33C-1920*.
- Taylor, J.P., Webb, L.E., Johnson, C.L., Heumann, M.J., **Hagen-Peter, G.A.**, Gehrels, G.E. (2009). Testing the existence of the South Gobi Microcontinent: U-Pb zircon dating of tectonites within the East Gobi Fault Zone, southeastern Mongolia. *AGU Fall Meeting Abstract T33C-1919*.

Grants, Fellowships, and Awards

- 2015: ScienceLine certificate for constant support in promoting K–12 science education, *UCSB*
- 2014: NSF East Asia and Pacific Summer Institute Fellowship, *U.S. National Science Foundation*
- 2014: GSA Student Research Grant
- 2012 & 2014: ScienceLine Outstanding Contributor, *UC Santa Barbara*
- 2013: Graduate Opportunity Fellowship, *UC Santa Barbara*
- 2013: Richard V. Fisher Scholarship for Volcanology, *UC Santa Barbara*
- 2012: Harry Glicken Memorial Graduate Fellowship, *UC Santa Barbara*
- 2011: Richard and Eleanor Migues Field Research Prize, *UC Santa Barbara*
- 2010: Charles G. Doll Award, *University of Vermont*
- 2009: Arthur J. and Claire Heiser Joseph B. Tinker Memorial Grant, *University of Vermont*
- 2009: Hawley Award Research Grant, *University of Vermont*
- 2008 & 2009: Vermont Space Grant Consortium Undergraduate Scholarship, *Vermont-NASA EPSCoR*

Outreach Activities

- 2016: Coordinator of “Science Night” at Greenvale Elementary School in Northfield, MN
- 2014–2015: UCSB Department of Earth Science outreach committee representative
- 2011– 2015: UCSB ScienceLine scientist
- 2010– 2015: Numerous outreach visits to grade schools in Santa Barbara, Isla Vista, and Vermont, including guest lectures and participation in “science nights”
- 2011– 2015: “Geologists On Ice” blog (www.antarctica360.net)
- 2012: UCSB Summer Institute in Mathematics and Science mentor
- 2011: UCSB Summer Research Mentorship Program Participant

Other Professional Activities

Reviewer for *G³*, *Geoscience Frontiers*, *Gondwana Research*, *Journal of Petrology*, *Minerals*, *Nature Geoscience*, and *Macmillan Learning* (textbook)

Invited Talks

Carleton College (USA)

Academia Sinica (Taiwan)

National Taiwan University (Taiwan)

Languages

English: Primary language

Danish: Intermediate level

Chinese: Elementary level