Dr. Jesse Ray Reimink

(Updated July 22, 2020)

Current Position: Assistant Professor of Geosciences, Pennsylvania State University
Current address: 411 Deike Building
Department of Geosciences
The Pennsylvania State University
University Park, PA, 16803, USA

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APPOINTMENTS:

2019-present	Assistant Professor, Department of Geosciences, The Pennsylvania State University
2015-2019	Postdoctoral Fellow, Department of Terrestrial Magnetism, Carnegie Institution for Science

EDUCATION:

2011-2015	PhD student, Department of Earth and Atmospheric Sciences, University of Alberta: *Defended with no revisions, October 26, 2015*
2010-2011	MSc student, Department of Earth and Atmospheric Sciences, University of Alberta: *Upgraded to PhD program prior to completion of MSc*
2005-2009	Bachelor of Science; Hope College, Holland, Michigan, USA *Geology Major with a Biology Minor*

PEER REVIEWED PUBLICATIONS: *(291 citations, h-index of seven)*

* denotes student, [+]denotes co-first authors listed alphabetically

2020

15. **Reimink, J.R.,** Carlson, R.W., Mock, T. A cavity ion source for high-precision isotope-ratio analyses in the geosciences. Submitted to *Journal of Analytical Atomic Spectrometry, accepted*

14. **Reimink, J.R.,** Mundl-Pietermeier, A., Carlson, R.W., Shirey, S.B., Pearson, D.G., Walker, R.J., Tungsten isotope composition of the Archean depleted mantle and implications for core-mantle evolution, *Geochemistry, Geophysics, Geosystems, in press*

13. [+]Bauer, A.M., [+]**Reimink, J.R.**, Chacko, T., Foley, B.J., Shirey, S.B., Pearson, D.G., Zircon evidence for the progressive onset of mobile-lid tectonics, *Geochemical Perspectives Letters* (2020) **14**, 1-6

2019

12. **Reimink, J.R.,** Davies, J.H.F.L., Bauer, A.M., Chacko, T., A comparison between zircon from the Acasta Gneiss Complex and the Jack Hills region*, Earth and Planetary Science Letters* (2019) **531**, 115975

11. Carlson, R.W., Garçon, M., O'Neil, J., **Reimink, J.R.,** and Rizo, H., The Nature of Earth's First Crust. *Chemical Geology* (2019) **530**, 119321.

10. **Reimink, J.R.**, Pearson, D.G., Shirey, S.B., Carlson, R.W., Ketchum, J.F.W., Onset of new, progressive crustal growth in the central Slave craton at 3.5 Ga. *Geochemical Perspectives Letters* (2019) **10**, 8–13.

2018

9. Davies, J.H.F.L., Sheldrake, T., **Reimink, J.R.**, Wotzlaw, J.F., Möck, C., Finlay, A.J., Isochrons revisited: a new mixture model approach. *Geochemistry, Geophysics, and Geosystems.* (2018) **19,** 4025–4047

8. **Reimink, J.R.,** Bauer, A.M., Chacko, T., *Invited Review:* Chapter 15: The Acasta Gneiss Complex, in *Earth's Oldest Rocks, Vol. 2*, eds. V Bennett, M. Van Kranendonk, and J.E. Hofmann. Springer, (2018).

7. Mundl, A., Walker, R.J., **Reimink, J.R.**, Rudnick, R.L., Gaschnig, R.M., Temporal evolution of ^{182}W in the Upper Continental Crust. *Chemical Geology* (2018) **494,** 144-152 https://doi.org/10.1016/j.chemgeo.2018.07.036

6. **Reimink, J.R.**, Chacko, T., Carlson, R.W., Shirey, S.B., Liu, J., Stern, R.A., Bauer, A.M., Pearson, D.G., Heaman, L.M., Petrogenesis and tectonics of the Acasta Gneiss Complex derived from integrated petrology and ^{142}Nd and ^{182}W extinct nuclide-geochemistry. *Earth and Planetary Science Letters* (2018) **494,** 12–22, doi.org/10.1016/j.epsl.2018.04.047

Pre-2017

5. **Reimink, J.R.,** Davies, J.H.F.L., Chacko, T., Stern, R.A., Heaman, L.M., Pearson, D.G., Sarkar, C., Schaltegger, U., Creaser, R.A. No evidence for Hadean continents within Earth's oldest known zircon-bearing rock unit. *Nature Geoscience* (2016) **9,** 777–780, doi:10.1038/ngeo2786

4. **Reimink, J.R.,** Chacko, T., Stern, R.A., Heaman, L.M. The birth of a cratonic nucleus: lithogeochemical evolution of the 4.02–2.94 Ga Acasta Gneiss Complex. *Precambrian Research* (2016) **281,** 453–472, doi:10.1016/j.precamres.2016.06.007

3. **Reimink, J.R.,** Davies, J.H.F.L., Waldron, J.W.F., Rojas, X.D. Dealing with discordance: a novel approach for analyzing detrital zircon U-Pb datasets. *Journal of the Geological Society* (2016) **17,** 577–585, doi.org/10.1144/jgs2015-114

2. **Reimink, J. R.,** Chacko, T., Stern, R. A. & Heaman, L. M. Earth's earliest evolved crust generated in an Iceland-like setting. *Nature Geoscience* (2014) **7,** 529–533, doi:10.1038/ngeo2170

1. Hansen, E; **Reimink, JR**; Harlov, D. Titaniferous accessory minerals in very low-grade metamorphic rocks, Keweenaw Peninsula Michigan, USA. *Lithos* (2010) **116,** 167–174, doi.org/10.1016/j.lithos.2010.02.001

MANUSCRIPTS SUBMITTED AND IN REVIEW:

1. **Reimink, J.R.,** Carlson, R.W., Mock, T. A cavity ion source for high-precision isotope-ratio analyses in the geosciences. Submitted to *Journal of Analytical Atomic Spectrometry, in review*

2. *Bilak, G.S., Niemetz, K., Reyes, A.V., **Reimink, J.R.**, Chacko, T., Dufrane, S.A., Belosevic, M., Ketchum, J.W.F., Prospecting for ancient crustal relics in the Acasta Gneiss Complex using detrital zircons in Pleistocene eskers, *in revision, Geology*

3. **Reimink, J.R.,** Davies, J.H.F.L., Ielpi, A. Detrital zircons record the gradual rise of continents, *submitted, Earth and Planetary Science Letters*

OTHER PUBLICATIONS:

1. Bowring, S., Chacko, T., Heaman, L.H., **Reimink, J.R.** Acasta Gneiss Complex, in *Encyclopedia of Scientific Dating Methods*, eds. WJ Rink and J Thompson. Springer, 2015.

FUNDING OBTAINED (Total: NSF = $555,117):

- NSF-I&F, Collaborative Proposal: Development of a high-efficiency mass spectrometer: transitioning a high-efficiency ion source to a modern mass spectrometer (*Lead-PI, EAR-IF-1758571 $46,019*)

PIs – Jesse Reimink and Rick Carlson 2020-2021

- NSF-I&F, Development of a Simplified Cavity Thermal Ionization Source for Geosciences (*Co-PI, EAR-IF-1758571 $177,199*)
  PIs – Rick Carlson and Jesse Reimink 2018-2019
- NSF-OCE, Exploration of the Earliest Crust Forming Events on Earth
  Grant proposal based on Reimink's Carnegie Fellowship proposal (named Postdoc, OCE-1524384, $331,899)
  PIs – Richard Carlson and Steven Shirey 2015-2018

University of Alberta:

- Circumpolar/Alberta Boreal Research Grant
  Northern fieldwork support grant, $4500 2011

Hope College:

- Michigan Space Grant Consortium Undergraduate Fellowship 2008
  undergraduate summer research grant, $5000
- Michigan Space Grant Consortium Undergraduate Fellowship 2007
  undergraduate summer research grant, $5000

AWARDS AND SCHOLARSHIPS:

Carnegie Postdoctoral Fellowship 2015

- Department of Terrestrial Magnetism, Carnegie Institution for Science

Papers

- Journal of the Geological Society, Young Author of the Year Award 2016

Canadian National Awards:

- Foundation Scholarship, Mineralogical Association of Canada (PhD) 2014 ($5000)
- Mary-Claire Ward Geoscience Award, Geological Association of Canada and Prospector's & Developer's Association of Canada 2015 ($5000)

University of Alberta:

- Faculty of Science Dean's Excellence Award 2015 ($9000)
- Mary Louise Imrie Graduate Student Travel Award 2015 ($1300)
- Outstanding Teaching Assistant Award 2014
- Evelyn Wigham PhD Scholarship in Geology 2014 ($1800)
- GL Cumming Memorial Graduate Scholarship 2014 ($2500)
- Christopher Scarfe Memorial Graduate Scholarship 2012 ($1700)

Hope College:

- Otto Vander Velde All-Campus Award 2009
- Presidential Scholarship 2005-2009 ($14000/yr)
- Reinking Memorial Scholarship 2008-2009 ($2170)
- MI Byrd Honors Scholarship 2005-2007 ($1500/yr)
- NCAA Division III First Team All-American, Men's Basketball 2009
- Michael Visser Memorial Book Award – GES Department 2008
- Faculty Book Award – GES Department 2007
- Ancient Mystic Order of the Trilobite Award – GES Department 2006

Others:

- Student talk award – Northwest Territories Geoscience Forum 2014 ($1000)
- Science Award – Hudsonville High School 2005

PROFESSIONAL ACTIVITIES:

Reviewer:

- Nature, Nature Communications, Nature Geoscience, Science, Science Advances, Geology, Geochemical Perspectives Letters, Earth and Planetary Science Letters, Geochemistry/Geophysics/Geosystems, Geochimica et Cosmochimica Acta, Gondwana Research, Chemical Geology, Precambrian Research, Lithos, Terra Nova
- NSF Postdoctoral Fellowship Program, NSF EAR Program, Swiss National Science Foundation

Committees:

- Graduate Entrance Committee, Department of Geosciences, The Pennsylvania State University, 2019
- Carnegie Institute Postdoctoral Association Representative, 2017-2018

Member:

- American Geophysical Union
- Geochemical Society
- Mineralogical Society of American

Session Convener:

- American Geophysical Union Fall Meeting, 2016-2018; European Geophysical Union Spring Meeting, 2017; Goldschmidt, 2018-2020

TEACHING AND SUPERVISORY EXPERIENCE:

The Pennsylvania State University:

- Instructor, Introduction to Field Geology (GEOSCI 470) 2020
- Instructor, Physical Geology (GEOSCI 001) 2020
- Instructor, Earth Materials (GEOSCI 201) 2020
- Instructor, Evolution of the Crust (GEOSCI 497) 2019

University of Alberta:

- Grayson Bilak-University of Alberta MSc student 2017-2019
- Instructor, Precambrian Geology (EA432) 2014
- Co-supervisor; Mike Belosevic EA427 Directed Study 2013
- Guest Lecturer, Precambrian Geology (EA432) 2012-2013
- Guest Lecturer, Geochemistry (EA320) 2013
- Teaching Assistant, Igneous Petrology (EA331) 2011-2013
- Teaching Assistant, Metamorphic Petrology (EA332) 2012-2014
- Teaching Assistant, Advanced Geology Field School (EA333) 2011-2014
- Teaching Assistant, Mineralogy II (EA232) 2011
- Teaching Assistant, Mineralogy I (EA224) 2010

LEADERSHIP POSITIONS:

Carnegie Institution for Science:

- Geochemistry/Geophysics Seminar Organizer 2016
- DTM/GL Postdoctoral Association representative 2016

University of Alberta:

- Weekly Seminar Coordinator, EAS 2012-2014
- Geology Representative, EAS graduate student society 2011

Hope College:

- Team-Elected Captain, Men's Basketball 2007-2009

INVITED TALKS:

University of Florida, Department of Geological Sciences, Mar. 2020
American Geophysical Union Annual Meeting, 2019, *Novel Technological Advances in Mass Spectrometry Session*
Geological Survey of Canada Logan Club Talk Series, Oct. 2019
American Museum of Natural History, Earth and Planetary Sciences, Apr. 2019
Yale University, Mar. 2019
University of British Columbia, EOAS Seminar, Jan. 2019
Simon Fraser University, Departmental Seminar, Jan. 2019
Keynote, Northwest Territories Geoscience Forum, Nov. 2018
Smithsonian Institution Department of Mineral Sciences, Oct. 2018
George Mason University Observatory's *Evening Under the Stars* Public Lecture Series, Apr. 2017
University of Ottawa Seminar Series, Nov. 2016
University of Quebec at Montreal Seminar Series, Nov. 2016
Reimink, JR; Chacko, T; Davies, JHFL; Pearson, DG; Stern, RA; Heaman, LM; Carlson, RW; Shirey, SB. The birth of a cratonic core recorded by changes in petrological processes within the Hadean-Eoarchean Acasta Gneiss Complex, *AGU Fall Meeting,* 2016, *Oral Presentation*
MIT Geochemistry Colloquium, Oct. 2016
University of Maryland Geochemistry Colloquium, Oct. 2016
DTM Weekly Seminar, Feb. 2016

MEDIA AND SCIENCE OUTREACH:

- Interviewed Roadhouse Radio (Vancouver) about *Nature Geoscience* paper, September 2016
- Smithsonian Museum docent teaching, Radiometric Dating Techniques, June 2016
- Kamloops Exploration Group Lecture Series, 2015 (invited); Forming the early crust on Earth. *February 19, 2015*
- Interviewed on CBC Radio Show *Quirks and Quarks with Bob McDonald* about *Nature Geoscience* paper http://www.cbc.ca/quirks/episode/2014/05/31/2014-05-31/
- Guest Lecturer, Hudsonville High School Geology, 2011–present; lectures titled *Radiogenic Isotope Geology*, and *Careers in Geology*

RECENT CONFERENCE PRESENTATIONS:

Reimink, JR; Carlson, RW; Mock, T; Recent advances in cavity-thermal ionization mass spectrometry for high-precision isotope analysis, *Oral Presentation AGU Fall Meeting, 2019* (Invited)
Bauer, AM; **Reimink, JR**; Chacko, T; Foley, BJ; Shirey, SB; Pearson, DG; Zircon Hf isotope evidence for a global transition between stagnant- and mobile-lid tectonics, *AGU Fall Meeting, 2019*
Carlson, RW; **Reimink, JR**; Shirey, SB; Pearson, DG; Ketchum, JFW; The Transition from Hadean Crustal Working to Archean Craton Growth: The Example from the Slave Craton, *Oral Presentation, Geological Society of America Annual Meeting*, *2019* (Invited)
Reimink, JR; Pearson, DG; Shirey, SB; Carlson, RW; A Mundl-Petermeier; RJ Walker Extinct radionuclide signatures from juvenile crustal blocks within the Slave craton, *Goldschmidt Conference, 2019, Oral Presentation*
Reimink, JR; Carlson, RW; Mock, T; McBay, EH; Hexel, CR. Pushing beyond the current limits on Nd-isotope ratio measurement precision, *AGU Fall Meeting, 2018, Oral Presentation*
Carlson, RW; **Reimink, JR**; Shirey, SB; Pearson, DG; Mundl A; Walker, RJ; Ketchum, JWF. The

Transition from Reworking of Hadean Crust to Generation of New Archean Crust: The Slave craton Perspective, *AGU Fall Meeting 2018, Poster Presentation*

Bauer, A; **Reimink, JR;** Chacko, T; Transition from shallow- to deep-seated melting and inception of mobile lid tectonics at ~3.6 Ga in the Acasta Gneiss Complex, *AGU Fall Meeting 2018, Oral Presentation* (Invited)

Reimink, JR; Carlson, RW; Shirey, SB; Pearson, DG; Ketchum, JWF. The Diverse Origins of Cratonic Nuclei—A Perspective from the Slave Craton, *Goldschmidt Conference 2018, Oral Presentation*

Davies, JHFL; **Reimink, JR**; What can we learn from old detrital zircon? A comparison between zircon from Acasta and Jack Hills. *Goldschmidt Conference 2018, Poster Presentation*

Mundl, A.; Walker, RJ; **Reimink, JR**; Rudnick, RL; Gaschnig, RM. Compositional changes in the UCC through time revealed by tungsten isotopes, *AGU Fall Meeting*, 2017, *Invited Oral Presentation*

Reimink, JR; Carlson, RW; Shirey, SB; Pearson, DG; Kamber, BS. On the origin of cratonic 'high-mu' isotopic signatures, *AGU Fall Meeting,* 2017, *Poster Presentation*

Davies, JHFL; Sheldrake, T; **Reimink JR**; Moeck, C; Finlay, A. Isochrons revisted: a new approach to dealing with excess scatter, *Geological Society of America Annual Meeting,* 2017

Reimink, JR; Carlson, RW; Shirey, SB; Pearson, DG. Crustal Evolution of the Archean Slave Craton, NWT, Canada, *Goldschmidt Conference* 2017, *Oral Presentation*

Reimink, JR; Chacko, T; Davies, JHFL; Pearson, DG; Stern, RA; Heaman, LM; Carlson, RW; Shirey, SB. The birth of a cratonic core recorded by changes in petrological processes within the Hadean-Eoarchean Acasta Gneiss Complex, *Oral Presentation AGU Fall Meeting 2016* (Invited)

Reimink, JR; Chacko, T; Davies, JHFL; Pearson, DG; Stern, RA; Heaman, LM; Carlson, RW; Shirey, SB. Petrogenesis of the 4.02 Ga Idiwhaa tonalitic gneiss and implications for crust formation on the early Earth, *Goldschmidt Conference* 2016, *Oral Presentation*

Davies, JHFL; **Reimink, JR**. Extracting extra information from detrital zircon datasets using discordant data, *Goldschmidt Conference* 2016, *Poster Presentation*

Reimink, JR; Chacko, T; Davies, JHFL; Stern, RA; Pearson, DG; Heaman, LM; Creaser, RA; Detailed Petrochronology of the 4.02 Ga Idiwhaa Tonalitic Gneiss: Evidence Regarding Amount of Pre-existing Hadean Continental Crust, *Geological Society of America Annual Meeting,* 2015, *Oral Presentation*

Reimink, JR; Chacko, T; Stern, RA; Heaman, LM; Lithogeochemistry and distribution of 4.0–3.4 Ga units of the Acasta Gneiss Complex, NWT, Canada. *AGU/GAC/MAC Joint Meeting,* 2015, *Poster Presentation*

Reimink, JR; Chacko, T; Stern, RA; Heaman, LM; Davies, JHFL; Pearson, DG; Creaser, RA; An Iceland-like Setting for Generation of a ~4.02 Ga tonalite, Acasta Gneiss Complex, Canada. *AGU/GAC/MAC Joint Meeting,* 2015, *Oral Presentation*

Reimink, JR; Davies, JHFL; Rojas, X; Waldron, JWF; A new method for evaluating age distributions of detrital zircon datasets by incorporating discordant data. *European Geophysical Union Annual Meeting*, 2015, *Poster Presentation*