Scott Angus MacLennan

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Education

2019 **Princeton University**, Princeton, NJ, USA
Ph.D., Geosciences
Thesis: *Temporal constraints on Archean crustal geodynamics and Neoproterozoic glaciation*
Advisors: Blair Schoene and Adam Maloof

2015 **Princeton University**, Princeton, NJ, USA
M.A., Geosciences

2012 **University of Cape Town**, Cape Town, South Africa
M.Sc. Geology
Thesis: *Structural, Geophysical and Geochemical characterization of a Mesoarchean Paleosuture zone, Barberton Greenstone Belt, South Africa*
Advisors: Maarten de Wit, Ute Weckmann, Erik Spangenberg, Oliver Ritter and Moctar Doucoure

2008 **University of Cape Town**, Cape Town, South Africa
B.Sc. (Hons) Geology
Thesis: *Geology of the Kaaimansgat Inlier, Western Cape*
Advisors: Christie Rowe and Maarten de Wit

Scientific Publications

1. Thomas Muedi, **Scott A MacLennan**, Dawid Szymanowski, Blair Schoene, Jahan Ramezani, Jeffrey Oalmann, Bastien Linol (2022), Constraining the timescales of mafic magmatism of the Central Karoo Large Igneous Province using high precision U-Pb zircon geochronology. *South African Journal of Geology*

2. Martijn Klaver, **Scott A MacLennan**, Mauricio Ibanez-Mejia, Francois Tissot, Peter Vroon, Marc-Alban Millet (2021), Reliability of detrital marine sediments as proxy for continental crust composition: the effects of hydrodynamic sorting on Ti and Zr isotope systematics. *Geochimica et Cosmochimica Acta*

3. Sean T Kinney, **Scott A MacLennan**, C Brenhin Keller, Blair Schoene, Jacob B Setera, Jill A Van Tongeren and Paul E Olson (2021), Zircon U-Pb geochronology constrains continental expression of Great Meteor Hotspot magmatism. *Geophysical Research Letters*

4. Lin Wang, **Scott A MacLennan**, Feng Cheng (2020),From a proximal-deposition-dominated basin sink to a significant sediment source to the Chinese Loess Plateau: Insight from the quantitative provenance analysis on the Cenozoic sediments in the Qaidam basin, northern Tibetan Plateau. *Palaeogeography, Palaeoclimatology, Palaeoecology*

5. **Scott A MacLennan**, Michael P Eddy, Arthur J Merschat, Akshay K Mehra, Peter Crockford, Adam C Maloof, C. Scott Southworth, Blair Schoene (2020), Geologic evidence for an icehouse Earth prior to the Sturtian global glaciation. *Science Advances*

6. Victor Guevara, **Scott MacLennan**, Mark Caddick, Blair Schoene, Besim Dragovic, Andrew Kylander-Clark, Chris Coueslan (2019), Timescales of Archean ultrahigh-temperature metamorphism: integration of high-spatial and high-temporal resolution U-Pb petrochronology. *Journal of Petrology*

7. Yuem Park, Nicholas Swanson-Hysell, **Scott MacLennan**, Adam Maloof, Mulubrhan Gebreslassie, Marissa Tremblay, Blair Schoene, Mulugeta Alene, Eliel Anttila, Tadele Tesema, and Bereket Haileab (2019), The lead-up to the Sturtian Snowball Earth: Neoproterozoic chemostratigraphy time-calibrated by the Tambien Group of Ethiopia. *GSA Bulletin*

8. Eddy, MP, Ibanez-Mejia, M, Burgess, SD, Coble, MA, Cordani, UG, DesOrmeau, JW, Gehrels, GE, Li, X, **MacLennan, S**, Pecha, M, Sato, K, Schoene, B, Valenica, VA, Vervoort, JD, and Wang, T (2019), GHR1 - a new Eocene natural reference material for in situ U-Pb Geochronology and Hf isotopic analysis of zircon. *Geostandards and Geoanalytical Research*

9. **Scott MacLennan**, Yuem Park, Nicholas Swanson-Hysell, Adam Maloof, Blair Schoene, Mulubrhan Gebreslassie, Eliel Antilla, Tadele Tesema, Mulugeta Alene, and Bereket Haileab (2018), The arc of the Snowball: U-Pb dates constrain the Islay anomaly and the initiation of the Sturtian glaciation. *Geology*,46(6), pp.539-542

10. Maarten de Wit, Harald Furnes, **Scott MacLennan**, Moctar Doucoure, Blair Schoene, Ute Weckmann, Uma Martinez, Sam Bowring (2018), Paleoarchean bedrock lithologies across the Makhonjwa Mountains of South Africa and Swaziland linked to geochemical, magnetic and tectonic data reveal early plate tectonic genes flanking subduction margins. *Geoscience Frontiers.*, 9(3), pp.603-665.

11. Rowe, Christie D., Nils R. Backeberg, Tamsyn van Rensburg, **Scott A. MacLennan**, Carly Faber, Catherine Curtis, and Pia A. Viglietti (2010), Structural geology of Robben Island: Implications for the tectonic environment of Saldanian deformation. *South African Journal of Geology.*, 113(13), pp.57-72.

Teaching and Mentoring Experience

I was a teaching assistant for two classes at Princeton University. The mineralogy class gave students an introduction into symmetry, crystal structures, crystal chemistry and mineral identification in hand sample. The Natural Disasters class was aimed at non-majors and covered the fundamental observations that support plate tectonics, seismic and volcanic hazards and walked students through the greenhouse effect and the possible effects of climate change.

2022	Lecturer	**GEOL2027A**: Geology for civil engineers
2018	Thesis co-advisor	Mentored undergraduate student thesis on using Al concentration in hornblende to constrain emplacement depth of Mesoarchean granitoids
2016	Teaching Assistant	**GEO 378**: Mineralogy Responsible for creating and grading labs
2015	Teaching Assistant	**GEO 103**: Natural Disasters Responsible for a lab group
2014	Teaching Assistant	**GEO 103**: Natural Disasters Responsible for grading examinations
2014	Teaching Assistant	**GEO 378**: Mineralogy Responsible for creating and grading labs

Conference Abstracts

2020 **Scott MacLennan**, Michael Eddy, Arthur Merschat, Akshay Mehra, Peter Crockford, Adam Maloof and Blair Schoene., Constraining late Tonian climate through U-Pb geochronology of the glacigenic Konnarock Formation from southwest Virginia, USA: *Geological Society of America Meeting*, Oral Presentation.

2019 **Scott MacLennan**, Michael Eddy, Arthur Merschat, Akshay Mehra, Peter Crockford, Adam Maloof and Blair Schoene., New U-Pb age control on the Neoproterozoic Konnarock Formation, Virginia, USA: Implications for Tonian climate and Snowball Earth initiation: *Gordon Research Conference- Geochronology*, Poster Presentation.

2018 **Scott MacLennan**, Blair Schoene., U-Pb age constraints and chemostratigraphy from the pre-Sturtian Tambien group, Ethiopia: *North East Geobiology Symposium*, Oral Presentation.

2017 **Scott MacLennan** and Blair Schoene., Using U-Pb apatite thermochronology to track the structural evolution of granitoid-orthogneiss domes from the Archean Pilbara craton: *American Geophysical Union Fall Meeting*, Oral Presentation.

2016 **Scott MacLennan** and Blair Schoene., New apatite U-Pb thermochronological constraints on the development of granite-gneiss domes in the Mesoarchean eastern Pilbara craton *35th International Geological congress*, Oral Presentation.

2016 **Scott MacLennan**,Yuem Park, Adam Maloof, Nick Swanson Hysell, Blair Schoene, Elliel Antilla, Tadele Tasema, Mulubrhan Gebreslassie, Mulugeta Alene, Berekat Haileab ., New geochronological constraints on the upper Tambien Basin, northern Ethiopia, reveal that it records a continuous record of paleoenvironmental conditions leading into the Sturtian glaciation: *North East Geobiology Symposium*, Poster Presentation.

2015 **Scott MacLennan** and Blair Schoene., Thermal and Temporal Constraints on the Development of Dome and Keel Structures in the Eastern Pilbara Craton Using U-Pb Thermochronology: *American Geophysical Union Fall Meeting*, Oral Presentation.

2011 **Scott MacLennan**, Ute Weckmann, Eric Spangenberg, Oliver RItter and Maarten de Wit., Electrical conductivity of rocks from the Barberton Greenstone Bellt, South Africa, using Impedance Spectroscopy: *German Geophysical Society*, Poster Presentation.

2010 **Scott MacLennan**, Ute Weckmann, Eric Spangenberg, Oliver Ritter and Maarten de wit., Geophysical and Structural transect across an Archean suture zone: *Inkaba yeAfrica*, Poster Presentation.

Field Experience

2018	Southwest Virginia, USA [1 week]	*Exploratory geochronological sampling in Neoproterozoic diamictite in a Laurentian rift sequence*
2015, 2017	Northern Ethiopia [4 Months]	*Sample collection, field mapping and sedimentological characterization of a complete pre-Sturtian succession*
2016	Death Valley, Nevada, USA [2 weeks]	*Exploratory geochronological sampling around sediments that record the Shuram carbon isotope excursion*
2013, 2014	Northwest Australia [4 Months]	*Sample collection and structural analysis across Mesoarchean granite-gneiss domes and supracrustal successions*
2010, 2011	Central Zambia [16 Months]	*Field mapping, soil sampling, core logging and sampling in a hydrothermal base metal deposit*
2009, 2010	Barberton Greenstone Belt [3 Months]	*Field mapping and structural analysis in a metasomatized ultramafic complex, as well as facilitating a magnetotelluric geophysical data acquisition campaign*
2008	Western Cape, South Africa [1 Month]	*Field mapping of a Neoproterozoic structural window within the Cape Fold Belt*

Laboratory expertise

Princeton University	TIMS U-Pb lab	*General management of clean lab. Responsibilities included high purity acid distillation, ordering lab supplies, routine maintenance of mass spectrometer and monitoring data acquisition reliability using standard reference materials*
University of Rochester	Trace metals lab	*General management of clean lab. Responsible for high purity acid distillation, design and development of new elemental separation proceedures using ion exchange resins.*

Professional Experience

Jan 2012 - June 2013 The MSA Group, Johannesburg, South Africa
Field Geologist: Responsible for core logging, geological mapping, sediment and rock chip sampling, data entry and progress updates for clients.

Awards and Honors

2017 Arnold Guyot Teaching Award

Press Coverage

2018 Science Magazine: "Ancient Earth froze over in a geologic instant"
http://www.sciencemag.org/news/2018/06/ancient-earth-froze-over-geologic-instantly