

# Sheree Armistead

✉ sheree.armistead@gmail.com | 📍 Ottawa, Canada | 🐦 @geoSheree

I am a multi-disciplinary geoscientist interested in the links between plate tectonics, Earth evolution and mineral systems, and the cyclical and secular changes of these through time. I am particularly interested in isotope geochemistry and using computational techniques to analyse large datasets both temporally and spatially. Using these skills, I am keen to unravel the geological evolution of different regions and piece together past supercontinents.

## Geoscience Employment

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- 2019 – current **Postdoctoral Research Fellow**  
Geological Survey of Canada and Laurentian University 📍 Ottawa, Canada
- Collaborative project with the Geological Survey of Canada and Metal Earth at Laurentian University
  - Using a large database of Pb isotopes from mineral deposits and applying various computational techniques to understand the implications for Earth evolution
  - Focusing on the Superior Province in Canada to understand more broadly the cyclical and secular changes in VMS deposit formation through time
- 2015 – 2019 **PhD Candidate**  
The University of Adelaide 📍 Adelaide, Australia
- Primarily used Isotope geochemistry, structural geology and statistical/computational techniques to construct models for the tectonic evolution of Madagascar and India during the Precambrian
  - Integrating large datasets of isotopic data to develop plate reconstructions for Madagascar from the Archean to early Cambrian
- 2015 **Geochronologist & Mineral Systems Geologist**  
2014 **Graduate Geoscientist**  
Geoscience Australia, Australian Government 📍 Canberra, Australia
- I worked primarily on the Tasmanides of eastern Australia and applied a range of geochemical techniques to understand the mineral potential for this region
- 2012 – 2013 **Undergraduate Geologist**  
BHP Billiton Mitsubishi Alliance 📍 Brisbane, Australia

## Education

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- 2015 – 2019 **PhD Geoscience**  
The University of Adelaide 📍 Adelaide, Australia  
Thesis: Tectonic evolution of Madagascar over three billion years of Earth's history
- 2010 – 2013 **Bachelor of Science, Honours (first class)**  
Monash University 📍 Melbourne, Australia  
Thesis: The structural evolution of the North Portia Cu-Au-Mo deposit, Curnamona Province, South Australia

## Skills

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**Geochemistry:** I have extensive experience analysing various rocks and minerals for U–Pb, Pb–Pb, Lu–Hf, O, Rb–Sr and major/trace element geochemistry. I am an experienced user of rock preparation facilities, SEM, LA-ICP-MS, LA-QQQ-ICP-MS, SHRIMP and more.

**Structural geology:** I am experienced in structural geology using observations from field work, drillcore data and geophysics. I have used these data to develop 3D models, with a specific focus on mineral systems.

**Computational:** I am an advanced user of R, ArcGIS and GPlates. I am proficient at using data science approaches to manage, analyse and interpret large datasets and generate plate reconstruction models.

**Field work:** I have extensive field experience including geophysical instrument deployment, mapping, structural geology, drillcore logging and sample collection. I have worked in various remote regions of Australia, Madagascar and India.

## Research Publications

[Click here for Google Scholar profile](#)

Merdith, A.S., Williams, S.E., Collins, A.S., Tetley, M.G., Mulder, J.A., Blades, M.L., Young, A., **Armistead, S.E.**, Cannon, J., Zahirovic, S. and Muller, D.R., in review. A continuous, kinematic full-plate motion model from 1 Ga to present. *Earth-Science Reviews*.

**Armistead, S.E.**, Collins, A.S., Redaa, A., Gilbert, S., Jepson, G., Gillespie, J., Blades, M.L., Foden, J.D. and Razakamanana, T., 2020. [Structural evolution and medium-temperature thermochronology of central Madagascar: implications for Gondwana amalgamation](#). *Journal of the Geological Society*.

**Armistead, S.E.**, Collins, A.S., Merdith, A.S., Payne, J.L., Cox, G.M., Foden, J.D., Razakamanana, T. and De Waele, B. 2019. [Evolving marginal terranes during Neoproterozoic supercontinent reorganisation: constraints from the Bemarivo Belt in northern Madagascar](#). *Tectonics*.

**Armistead, S.E.**, Betts, P.G., Ailleres, L., Armit, R.J. and Williams, H.A., 2018. [Cu-Au mineralisation in the Curnamona Province, South Australia: A hybrid stratiform genetic model for Mesoproterozoic IOCG systems in Australia](#). *Ore Geology Reviews*.

**Armistead, S.E.**, Collins, A.S., Payne, J.L., Foden, J.D., De Waele, B., Shaji, E. and Santosh, M., 2017. [A re-evaluation of the Kumta Suture in western peninsular India and its extension into Madagascar](#). *Journal of Asian Earth Sciences*.

Merdith, A.S., Collins, A.S., Williams, S.E., Pisarevsky, S., Foden, J.F., Archibald, D., Blades, M.L., Alessio, B.L., **Armistead, S.**, Plavsá, D., Clark, C. and Muller, D.R., 2017. [A full-plate global reconstruction of the Neoproterozoic](#). *Gondwana Research*.

**Armistead, S.E.**, Skirrow, R.G., Fraser, G.L., Huston, D.L., Champion, D.C. and Norman, M.D., 2017. Gold and intrusion-related Mo-W mineral systems in the southern Thomson Orogen, New South Wales. *Geoscience Australia Record*, Record 2017/05.

**Armistead, S.E.** and Fraser, G.L., 2015. New SHRIMP U-Pb zircon ages from the Cuttaburra and F1 prospects, southern Thomson Orogen, New South Wales. *Geoscience Australia Record*, Record 2015/20.

Waltenberg, K., Blevin, P.L., Bull, K.F., Cronin, D.E. and **Armistead, S.E.**, 2016. New SHRIMP U-Pb zircon ages from the Lachlan Orogen and the New England Orogen, New South Wales. *Geoscience Australia Record*, Record 2016/28.

Roach, I.C., **Armistead, S.E.**, Brodie, R.C., Clarke, J.D.A., Doublier, M.P., Main, P.T., McPherson, A.A. and Skirrow, R.G., 2015. The Southern Thomson Orogen VTEMplus AEM Survey: Using airborne electromagnetics as an UNCOVER application. *Geoscience Australia Record*, Record 2015/29.

## Invited Talks

2018 Invited pannelist 'Challenges and Solutions', Women in Earth and Environmental Sciences Australiasia (WOMEESA) workshop, *Australian Geoscience Council Convention, Adelaide, Australia*.

2018 Deciphering key events of Neoproterozoic orogenesis in Madagascar: insights from structure and thermochronology, *Petrology and Geochemistry Seminar, Australian National University (ANU), Canberra, Australia*.

2016 Multi-dimensional scaling of detrital zircon data to constrain provenance and tectonics in Madagascar and India, *EarthByte Seminars, The University of Sydney, Australia*.

## First-Authored Conference Presentations

2019 Tectonic geography of Madagascar during the Precambrian. *IGCP 648 Symposium, Toliara, Madagascar*. [keynote talk]

2018 The evolution of northern Madagascar during the Neoproterozoic: implicaitons for Rodinia and Gondwana plate reconstructions. *IGCP 648 Symposium, Yichang, China*. [oral]

- 2018 Tectonic evolution of the Neoproterozoic Bemarivo Belt in northern Madagascar: from Rodinia to Gondwana, *Australian Geoscience Council Convention, Adelaide, Australia*. [oral]
- 2018 Deciphering key events of Neoproterozoic orogenesis in Madagascar: insights from structure and multiple thermochronometers, *European Geosciences Union General Assembly, Vienna, Austria*. [poster]
- 2018 Detrital provenance of the Itremo Group in central Madagascar using trace elements and Hf isotopes in zircon, *European Geoscience Union General Assembly, Vienna, Austria*. [poster]
- 2017 The structural evolution of central Madagascar: a tale of two orogenies, *Puzzling out Gondwana, Bangkok, Thailand*. [oral]
- 2017 Suturing Madagascar and India: New insights from Lu-Hf data and multi-dimensional scaling of U-Pb detrital zircon data, *Rodinia Conference, Townsville, Australia*. [oral]
- 2017 A structural transect through central Madagascar – constraining the Neoproterozoic tectonic evolution, *Rodinia Conference, Townsville, Australia*. [poster]
- 2016 A re-evaluation of the Kumta Suture in southwest India and its extension into Madagascar, *The 35th International Geological Congress, Cape Town, South Africa*. [oral]
- 2016 A re-evaluation of the Kumta Suture in southwest India and its extension into Madagascar, *Australian Earth Sciences Convention, Adelaide, Australia*. [poster]
- 2015 Structural evolution of the North Portia Cu-Au-Mo deposit, Curnamona Province, South Australia, *South Australian Exploration and Mining Conference, Adelaide, Australia*. [poster]
- 2015 Structural evolution of the North Portia Cu-Au-Mo deposit, Curnamona Province, South Australia, *Specialist Group in Tectonics and Structural Geology (SGTSG), Caloundra, Australia*. [poster]
- 2015 Gold- and Tungsten-Molybdenum-bearing mineral systems of the southern Thomson Orogen, New South Wales, Australia, *Society of Economic Geologists (SEG) Conference, Hobart, Australia*. [poster]
- 2013 Structural evolution and controls on the North Portia Cu-Au-Mo deposit, Curnamona Province, South Australia, *Victorian Universities Earth and Environmental Sciences Conference*. [oral]
- 2013 Geophysical applications for IOCG exploration over the Benagerie Ridge Magnetic Complex, Curnamona Province, South Australia, *Australia Society of Exploration Geophysicists (ASEG) Victoria branch student conference*. [oral]

## Teaching and Advising

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### 2016– Teaching Assistant

- 2019 The University of Adelaide, Adelaide, Australia
  - Honours level: New Zealand Field Geoscience
  - Third year: Flinders Ranges Field Geoscience
  - Second year: Geochemistry II
  - First year: Earth's Interior, Geology for engineers, Earth Systems field trip
- 2017 **Advisor for BSc. (advanced) undergraduate project** (co-advisor with Prof. Alan Collins)
  - Flinders Ranges geochronology project: teaching second year undergraduate student how to prepare zircon samples for U-Pb analysis, using SEM and LA-ICP-MS instrumentation, data processing and interpretation, and preparation of data to present at a student conference.

## Awards, Scholarships and Grants

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- Dean's Commendation for Doctoral Thesis Excellence, 2019
- International Geoscience Programme (IGCP) Australian National committee travel grant to attend the European Geosciences Union General Assembly, Vienna, Austria, 2018
- IGCP Australian National committee travel grant to attend the Rodinia Conference, Townsville, 2017
- IGCP 648 project travel grant to present at the Rodinia Conference, Townsville, 2017
- IGCP Australian National committee travel grant to attend IGCP 648 Rodinia, Townsville, 2017

- IGCP 648 project to present at the 35<sup>th</sup> International Geological Congress in Cape Town, South Africa, 2016
- IGCP Australian National committee travel grant to attend the 35<sup>th</sup> IGC in Cape Town, South Africa, 2016
- Geological Society of Australia (SA) travel grant to attend SGTSG conference, Caloundra, 2015
- Best Oral Presentation in the category Economic Geology, Geodynamics and Stratigraphy, VUEESC, 2013
- First Prize Oral Presentation ASEG Victoria branch student conference, 2013
- BHP Billiton Mitsubishi Alliance Tertiary Scholarship, 2012 – 2013
- Monash Residential Services Residential Advisor Scholarship, 2012
- Monash Residential Services Undergraduate Equity Bursary, 2012
- Monash University Support Bursary, 2012

## Short Courses and Field Symposia

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- IGCP 648 Field Symposium in Madagascar (event organiser), 2019
- IGCP 648 Field Symposium in South China – from Rodinia to Pangea, 2018
- IGCP 648 Isotope Database workshop – Rodinia Conference, 2017
- Pre-EGU 2018 field trip with Professor Bernhard Grasemann – Deformation processes in the Lower crust, Bohemian Massif, Austria, 2018
- Orogenic Gold Deposits: Geology, Geochemistry, Exploration Criteria, and Global Patterns – Australian Earth Sciences Convention workshop with Dr Richard J. Goldfarb, 2016
- IGCP 648 Isotope Database workshop – 2016 International Geological Congress, 2016
- Professional development short course series: influencing, negotiation, presentation skills, 2014
- Honours short course: Exploration Field Skills, University of Tasmania, 2013
- Honours short course: Igneous geodynamics and magmatic ore deposits, University of Melbourne, 2013
- Honours short course: Geology from Geophysics, Monash University, 2013
- Honours short course: Advanced Structural Mapping, Bermagui, 2013

## Professional Service

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### **Committees/events organising**

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| 2019      | IGCP field symposium to Madagascar, field trip and conference co-organiser  |
| 2018 – 19 | Organised events for International Women's Day, including guest panel, group discussions. 2019 event with WOMEESA (Women in Earth and Environmental Sciences Australasia)       |
| 2016 – 19 | University of Adelaide Fire Warden  |
| 2017 – 18 | Geological Society of Australia student mentoring night. Involved inviting professionals from industry, government and academia to participate in speed mentoring with students |
| 2016 – 19 | Committee member for the GSA South Australia division   |
| 2016 – 19 | Social Media Manager (Twitter and Facebook) for the Geological Society of Australia pages   |
| 2017      | GESSEA (Geol. Society of Australia Earth Sciences Student Symposium, South Australia) committee   |
| 2016      | Australian Earth Sciences Convention, Adelaide – organising committee and social media manager  |
| 2012 – 13 | Australasian Institute of Mining and Metallurgy (AusIMM), Student Chapter committee   |

### **Editorial**

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| 2017           | Guest editor, Geoscience Frontiers East Africa special issue  |
| 2016 – current | Reviewer for several journals including: Journal of the Geological Society, Lithos, Gondwana Research, Minerals |

### Geoscience Working Groups

- 2015 – current IGCP 648 Supercontinent Cycles and Global Geodynamics. Member of international group contributing to research on supercontinent cycles, participating in conferences, contributing to workshops on global database development for geological and geochronological data
- 2015 – current IGCP 638 Gondwana Map. Member of international group contributing to research on Gondwana. Research visit to Rio de Janeiro, Brazil to contribute to Gondwana Map development. Currently collaborating with researchers from Brazil (IGCP 628 project leader) on tectonics of Madagascar with manuscript in preparation

### Science Communication

- 2015 – current Contributions to science blogs, e.g. RiAUS, Traveling Geologist, Rock Head Sciences
- [Gondwanan tectonics in India with Sheree Armistead](#)
  - [Arkaroola Field Camp, South Australia with Sheree Armistead](#)
  - [A day in the GeoLife Series: Sheree Armistead](#)

### Outreach

- 2014 – current
- Assisting with school group visits to the University of Adelaide
  - University of Adelaide Open Day, facilitating Earth Science demonstrations
  - Geoscience Australia Open Day, communicating Earth Science research to the community

### Other Experience, Certificates and Qualifications

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- Certificate IV in Frontline Management
- 4WD certificate
- Senior first aid
- Mental Health First Aid
- Monash University Residential Advisor 2012
- Former Country Fire Authority Volunteer Firefighter (training and certificates in a range of firefighting skills)