CLAIRE MARIE GUIMOND

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Education

Doctor of Philosophy in Earth Sciences (2019–)
University of Cambridge, Cambridge, England, UK
- *supervisors:* Dr. Oliver Shorttle & Dr. John Rudge

Master of Science in Earth & Planetary Science (2016–2018)
McGill University, Montréal, Québec, Canada
- *cGPA:* 4.0 (out of 4.0)
- *supervisor:* Dr. Nicolas Cowan *thesis title:* The direct imaging search for Earth 2.0

Bachelor of Science, Honours in Earth System Science (2011–2015)
with Minor Concentration English Literature
McGill University, Montréal, Québec, Canada
- *cGPA:* 3.7 (out of 4.0)
- *major specialization GPA:* 3.9
- *supervisor:* Dr. Boswell Wing *thesis title:* Controls on sulfur isotope fractionation in deep sea pore water

Publications

Peer-reviewed

Guimond, C. M., Noack, L., Ortenzi, G., and Sohl, F. (2021). Low volcanic outgassing rates for a stagnant lid Archean earth with graphite-saturated magmas. *Physics of the Earth and Planetary Interiors*, 320.

Ortenzi, G., Noack, L., Sohl, F., **Guimond, C. M.**, Grenfell, J. L., Dorn, C., Schmidt, J. S., Vulpius, S., Katyal, N., Kitzmann, D., & Rauer, H. (2020). Mantle redox state drives outgassing chemistry and atmospheric composition of rocky planets. *Scientific Reports*, 10.

Guimond, C. M. & Cowan, N. B. (2019). Three direct imaging epochs could constrain the orbit of Earth 2.0 inside the habitable zone. *The Astronomical Journal*, 157, 5.

Guimond, C. M. & Cowan, N. B. (2018). The direct imaging search for Earth 2.0: Quantifying biases and planetary false positives. *The Astronomical Journal*, 155, 230.

Submitted/under review

Guimond, C. M., Rudge, J. F., & Shorttle, O. Blue marble, stagnant lid: Could dynamic topography avert a waterworld? Under review at *The Planetary Science Journal*.

Non peer-reviewed [selected]

Noack, L., Ortenzi, G., **Guimond, C. M.**, Dorn, C. & Sohl, F. (2019). Degassing chemistry variation on rocky exoplanets. EPSC-DPS Joint Meeting, abstract id. EPSC-DPS2019-2003

Sohl, F., Ortenzi, G., Noack, L., **Guimond, C. M.**, Schmidt, J. & Vulpius, S. (2019). How magmatic degassing of C, O, and H affects Earth's early atmosphere. Extreme Solar Systems 4, id. 321.03. Bulletin of the American Astronomical Society, Vol. 51, No. 6

Guimond, C. M. & Cowan, N. B. (2019). Determining orbits of directly imaged exoplanets within the habitable zone. American Astronomical Society, AAS Meeting #233, abstract id. 402.07

HabEx team, 200+ contributors including **Guimond, C. M.** (2019). The Habitable Exoplanet Observatory Final Report. Technical document prepared for NASA.

LUVOIR team, 200+ contributors including **Guimond, C. M.** (2018). The LUVOIR Mission Concept Study Interim Report. Technical document prepared for NASA.

Halevy, I., Wing, B. A., Wenk, C., & **Guimond, C. M.** (2015). Sedimentary environments and preservation biases limit sulfur isotope fractionation observed in pyrite, despite large microbial fractionations. American Geophysical Union, Fall Meeting 2015, abstract id. B24A-08

Awards

2019/2020

- **Harding Distinguished Postgraduate Research Scholarship**, Cambridge Trust
- **Alexander Graham Bell Canada Graduate Scholarship - Doctoral**, Natural Sciences and Engineering Research Council of Canada (NSERC), declined
- **Postgraduate Scholarship - Doctoral**, NSERC
- **EPSC 2020 Conference Bursary**, Europlanet Society

2017/2018

- **Carl Reinhardt Fellowship**, McGill University
- **Graduate Excellence Award**, McGill University
- **Graduate Mobility Award**, McGill University
- **Trainee Fellowship**, NSERC Technologies for Exoplanetary Sciences program
- **X-I2 Internship Award**, NSERC Technologies for Exoplanetary Sciences program

2016/2017

- **Robert Wares Fellowship**, McGill University
- **Carl Reinhardt Fellowship**, McGill University
- **Graduate Excellence Award**, McGill University

2015/2016

- **Canada Graduate Scholarship - Master's**, NSERC

Invited seminars

2019

- "Direct imaging of habitable zone planets," Max Planck Institute for Solar System Research, Göttingen, Germany
- "The origin of Earth's secondary atmosphere," Freie Universität Berlin, Berlin, Germany

Contributed talks (external)

2021

- "Islands in a black sky: Towards scaling relationships for dynamic topography and land propensity on rocky planets," UK Exoplanet Meeting, online
- "Volcanic outgassing rates for a stagnant lid Archean Earth: results from a coupled mantle convection, melt partitioning, and volatile speciation model," Goldschmidt, online (presented by Lena Noack)

2019

- "Determining orbits of directly imaged exoplanets within the habitable zone," 233rd Meeting of the American Astronomical Society, Seattle WA, USA
- "How well can we image Earth-sized planets?" Rencontres exobiologiques pour doctorants, Le Teich, France

2018
- "The Large UV-Optical-IR Surveyor," Future of Space Astronomy in Canada, Montreal QC, Canada
- "Finding Earth 2: Blue dot or red herring?" Astrophysical Frontiers in the Next Decade and Beyond, Portland OR, USA; Center for Research in Astrophysics of Quebec (CRAQ) annual meeting, Saint-Alexis QC, Canada

2017
- "Biases and planetary false positives in the search for Earth twins," Exoclipse conference, Boise ID, USA
- "Looking for Earth twins on the back of an envelope," CRAQ annual meeting, Saint-Alexis QC, Canada
- "Biases and planetary false positives in the search for Earth twins," Technologies for Exoplanetary Science symposium, Montreal QC, Canada

Contributed posters

2020
- "Does topography matter for rocky planets?" Europlanet Science Congress, online; Exoplanets III, online

2018
- "Biases and planetary false positives in the search for Earth twins," Canadian Astronomical Society Annual Meeting, Victoria BC, Canada
- "Exoplanet and solar system science with LUVOIR," Astrophysical Frontiers in the Next Decade and Beyond, Portland OR, USA

Public talks

2018
- “How to image Earth 2.0,” Astronomy on Tap, Montreal QC, Canada

Work experience: Research

TRR 170 Internship, Department of Geochemistry, Freie Universität Berlin, Germany (January–July 2019)
- Led and managed research project in planetary science, focusing on numerical modelling of the coupled thermo-chemical evolution of the early Earth’s mantle and atmosphere, with Dr. Lena Noack. In collaboration with Dr. Frank Sohl at the Deutsches Zentrum für Luft- und Raumfahrt (German Aerospace Centre).

Research Assistant, Department of Physics, McGill University, Montreal QC, Canada (September–December 2018)
- Led and managed research project in exoplanet science, focusing on numerical modelling of space telescope observations, under the advising of Dr. Nicolas Cowan. Co-advised honours undergraduate student.

Research Assistant, Department of Natural Resource Sciences, McGill University, Montreal QC, Canada (Summer 2015 field season)
- Member of research team headed by Dr. Ian Strachan. Obtained field samples in wetland sites, performed gas chromatography analysis in the lab. Engineered novel instrumentation for sample collection.

Research Student, Department of Cardiovascular Surgery, Hospital for Sick Children, Toronto ON, Canada (Summer 2013 & 2014)
- Member of clinical research team. Worked with Dr. Glen Van Arsdell (Chair

of the Division of Cardiac Surgery at the University of Toronto). Responsible for data collection in several clinical research studies, focusing on congenital heart disease surgical outcomes. Conducted reviews of the literature.

Work experience: Teaching

Private Tutor, U2 Tuition, London, UK (2021–)

- Teach general mathematics and science concepts to pupils, from high school to undergraduate.

Demonstrator, Department of Earth Sciences, University of Cambridge, Cambridge, UK (2019–)

- Lead laboratory sessions for undergraduate students, guide students through assignments.

Teaching Assistant, Department of Earth & Planetary Sciences, McGill University, Montreal QC, Canada (2016–2018)

- Main authority during practical laboratory units, conducted office drop-in help sessions, graded assignments and exams, provided general course support.

Outreach and faculty activities

Outreach volunteer, Sedgwick Museum of Earth Science, University of Cambridge, Cambridge UK (2019–)

- Assist museum staff in exhibit planning, demonstrate activities for the public at special events, museum collection care

Planet Lunch curator/coordinator, Department of Earth & Planetary Sciences, McGill University, Montreal QC, Canada (2018)

- Organized interdisciplinary weekly discussion group.