

Graham Harper Edwards

Earth Sciences
Dartmouth College
19 Fayerweather Hill Rd
Hanover, NH, 03755, U.S.A.

Email: graham.h.edwards@dartmouth.edu

Phone: 1.920.559.2279

Website: grahamedwards.github.io

CURRENT APPOINTMENT

Dartmouth College

2021 – Present

NSF Postdoctoral Scholar (Astronomy & Astrophysics)

Award # 2102591

“Planetesimal formation, giant planet migration, and stellar accretion in our solar system and beyond”

Advisors: Profs. C. Brenhin Keller (Earth Sciences) & Elisabeth R. Newton (Physics & Astronomy)

EDUCATION

University of California Santa Cruz

2021

PhD: Earth Sciences

Dissertation Title: Applications of the uranium decay systems in deep time and the Quaternary: chronologic insights within planetary interiors and beneath glaciers

Committee: Profs. Terrence Blackburn (Chair), Slawek Tulaczyk, Myriam Telus.

Bowdoin College Brunswick, ME

2014

Bachelor of Arts: Earth and Oceanographic Science with Honors, Classics (minor)

Summa cum Laude, ΦBK Society

PUBLICATIONS

5. G.H. Edwards, T. Blackburn, G. Piccione, S. Tulaczyk, G.H. Miller, C. Sikes. (*in review*). Terrestrial evidence for ocean forcing of Heinrich events and subglacial hydrologic connectivity of the Laurentide Ice Sheet. *Science Advances*.
4. T. Blackburn, G.H. Edwards, S. Tulaczyk, M. Scudder, G. Piccione, B. Hallet, J.C. Zachos, B. Cheney, N. McLean, J.T. Babbe. 2020. Ice retreat in Wilkes Basin of East Antarctica during a warm interglacial. *Nature* (583), 554-559. doi: [10.1038/s41586-020-2484-5](https://doi.org/10.1038/s41586-020-2484-5). **Press:** National Geographic.
3. G.H. Edwards, T. Blackburn. 2020. Accretion of a large LL parent planetesimal from a recently formed chondrule population. *Science Advances* (6), eaay8641. doi: [10.1126/sciadv.aay8641](https://doi.org/10.1126/sciadv.aay8641)
2. G.H. Edwards, T. Blackburn. 2018. Detecting the extent of ca. 1.1 Ga Midcontinent Rift plume heating using U-Pb thermochronology of the lower crust. *Geology* (46), 911–914. doi: [10.1130/G45150.1](https://doi.org/10.1130/G45150.1)
1. G.H. Edwards. 2014. Geochemical and stratigraphic analysis of the Linnévatnet sediment record: a study of Late Holocene cirque glacier activity in Spitsbergen, Svalbard. [*Honor's Thesis*] Bowdoin College: Brunswick, ME, U.S.A. 73 pp. [[Undergraduate Research Commons](#)]

TEACHING

University of California Santa Cruz

Graduate Teaching Assistant

Spring 2021 *Radiogenic and Stable Isotopes*

Fall 2020 *Evolution of Earth*

Fall 2019 *Elements of Field Geology*
 Spring 2018 *Geochemistry of the Solar System*
 Winter 2018 *Geologic Principles*

Bozeman & Livingston Public Schools MT, U.S.A. 2015

Substitute Teacher

- Instructor and paraprofessional in K-12 classrooms.
- Taught students with various educational needs in diverse subjects.

Bowdoin College Brunswick, ME, U.S.A. 2012 – 2013

Laboratory Teaching Assistant

- Assisted instruction of field and laboratory activities for an introductory geoscience course.

OUTREACH & PUBLIC SERVICE

Montshire Museum of Science 2022

Guest Scientist

- Lead and assist in educational activities within the museum.
- Explain Earth and planetary science concepts to pre-K through adult audiences.
- Develop programming focused on planetary science topics.

Santa Cruz Museum of Natural History 2018 – 2022

Volunteer Scientist

- Created educational content and hosted activities at monthly museum events.
- Co-hosted monthly educational video streams covering geoscience topics.
- Link: [Rockin' Pop-Up Archives](#).

Skype a Scientist 2019 – Present

Volunteer Scientist

- Prepare educational content and host video calls with elementary and secondary school classrooms.
- Teach geoscience concepts and share stories about experiences as a scientist.

Geoscientists Encouraging Openness and Diversity in the Earth Sciences 2019 – 2020

Graduate Student Leader

- (abbreviated **GEODES**) a student-run group in the UCSC Earth & Planetary Sciences Department.
- Organized and implemented outreach events centered on promoting underrepresented groups in the geosciences and cultivating a culture of inclusivity within the department.
- One of six graduate student leaders responsible for the operation and development of GEODES.

Peary-MacMillan Arctic Museum Brunswick, ME, U.S.A. 2015 – 2016

Curatorial Intern

- Developed outreach programming and exhibit content.
- Supplemented undergraduate courses with lectures and discussions drawing on museum collections.
- Mentored and trained undergraduate student interns and employees.

Museum of the Rockies Bozeman, MT, U.S.A. 2015

Security Volunteer

- Answered visitors' questions and facilitated interpretive discussions about natural history exhibits.

INVITED TALKS

2. **Massachusetts Institute of Technology** | Planetary Lunch Seminar, 3 May 2022.

Title: *The early history of the LL chondrite parent planetesimal*

1. **Princeton University** | Environmental Geology and Geochemistry Seminar, 31 March 2022.

Title: *Peering beneath the northern Laurentide ice sheet during the last glacial maximum*

ACADEMIC SERVICE & EXPERIENCE

Mentored Undergraduates

Dartmouth College

- Cameron Stewart (2022)

University of California Santa Cruz

- Cosmo Varah-Sikes (2019-2021), thesis (2021)
- Linh Phan (2020)
- Michael Scudder (2018-2020), thesis (2020)
- Alexander Levinson (2018)
- Frances O'Byrne (2018)
- Paul Colosi (2017-2018)

Departmental Service

Department of Earth Sciences, Dartmouth

Earth & Planetary History Journal Club — Organizer

Spring 2022

- Scheduled, coordinated, and oversaw reading group spanning multi-disciplinary topics.

Department of Earth & Planetary Sciences, UCSC

Whole Earth Seminar — Organizer

Spring 2019

- One of two graduate student organizers that coordinated a departmental seminar series.
- Contacted and scheduled speakers from diverse disciplines in Earth and planetary sciences.

Laboratory Research & Management

Analytical Experience:

Expert: TIMS

Proficient: MC-ICP-MS, ICP-MS, SEM-EDS

Limited: ICP-OES, XRF, XRD

W.M. Keck Isotope Facility, UCSC

2016 – 2021

Under the advisorship of lab director Prof. Terry Blackburn, I was partially responsible for the operation and maintenance of this multi-user clean lab facility, including:

- Maintenance and operation of mass spectrometers and wet chemistry labs.
- Training and supporting researchers in chemical and mass spectrometric methods.
- Preparation, measurement, and reporting of isotopic analyses of geologic and biomineral material for external contracts.
- Procurement and preparation of lab consumables.

Conference Sessions

- 2017 AGU Fall Meeting | Co-Chair/Co-Convener: *Applications of Thermochronology to Understand Crustal Systems*

Reviewer for: *Geochronology, Geology*

Society Affiliations: Meteoritical Society, American Astronomical Society, Geochemical Society, National Association of Geoscience Teachers, Geological Society of America, American Geophysical Union.

FUNDING

Current / Active

National Science Foundation — Astronomy & Astrophysics Postdoctoral Fellowship
Award [#2102591](#)

2021 – 2024

Prior / Inactive

ARCS Foundation — Scholar Award (Fellowship)

2020 – 2021

University of California Santa Cruz — Regent’s Fellowship	2016 – 2017
Bowdoin College — Grua/O’Connell Research Award	2013
Bowdoin College — Freedman Summer Research Fellowship in Coastal/Environmental Studies	2012

AWARDS & HONORS

UCSC Earth & Planetary Sciences Outstanding TA Award (Honorable Mention)	2020
Aaron and Elizabeth Waters Award <i>Issued annually for the most outstanding proposal for PhD research in the UCSC Department of Earth & Planetary Sciences</i>	2019
National Association of Geoscience Teachers Outstanding TA Award	2014

SELECTED CONFERENCE ABSTRACTS

A more comprehensive list of abstracts is available on [Google Scholar](#).

8. G.H. Edwards, T. Blackburn, G. Piccione, S. Tulaczyk, G.H. Miller, C. Sikes. 2020. [Talk]: Baffin Island subglacial precipitates record subglacial melting beneath the northern Laurentide Ice Sheet concurrent with Heinrich events. *American Geophysical Union Fall Meeting*, New Orleans, LA, U.S.A.
7. C.T. Varah-Sikes, G.H. Edwards, T. Blackburn. 2020. [Poster]: Thermal histories in Type 7 ordinary chondrites: interpreting residence in parent body using petrologic observation and Pb-Pb phosphate thermochronology. *Geological Society of America Annual Scientific Meeting*, Virtual.
6. G.H. Edwards, T. Blackburn, S. Tulaczyk, G.G. Piccione. 2019. [Poster]: U-series isotopics of silts from Taylor Valley, Antarctica: Applying comminution dating methods on polar desert tills and implications for the timeframe of valley incision. *American Geophysical Union Fall Meeting*, San Francisco, CA, U.S.A.
5. G.H. Edwards, T. Blackburn, S. Tulaczyk, G.G. Piccione. 2019. [Poster]: U-Series isotopics constrain timescale of bedrock comminution and glacial incision in Taylor Valley, Antarctica. *Goldschmidt Annual Meeting*, Barcelona, ES.
4. G.H. Edwards, T. Blackburn, G.G. Piccione. 2018. [Talk]: Cooling and disruption of the LL chondrite parent body. *Lunar and Small Bodies Graduate Forum (LunGradCon)*, Mountain View, CA, U.S.A.
3. G.H. Edwards, T. Blackburn, C.M.O’D. Alexander. 2017. [Talk]: Accretion and disruption histories of the ordinary chondrite parent bodies. *Meteoritical Society Annual Meeting*, Santa Fe, NM, U.S.A.
2. G.H. Edwards, T. Blackburn, K.V. Smit. 2017. [Poster]: Timescales of crustal cooling of the Superior Craton near Attawapiskat, Ontario, Canada, and implications for extent of Keweenawan plume heating. *American Geophysical Union Fall Meeting*, New Orleans, LA, U.S.A.
1. G.H. Edwards. 2014. [Poster]: Geochemical and stratigraphic analysis of the Linnévatnet sediment record: a provenance study of Late Holocene cirque glacier activity in Linnédalen, Spitsbergen, Svalbard. *44th International Arctic Workshop*, Boulder, CO, U.S.A.

Additional Work Experience

Server and Bartender — Trio Restaurant, Fish Creek, WI, U.S.A. — 2014.
 Wildland Firefighter (Type 2) — U.S. Forest Service, Winthrop, WA, U.S.A. — 2015.

Non-Academic Interests

Rock climbing, cross-country skiing, birdwatching, breadmaking, classical history and literature.