

# Graham Harper Edwards

— he, him —

## Assistant Professor

Earth & Environmental Geosciences  
Trinity University  
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## APPOINTMENTS

### Trinity University

2024 →

*Assistant Professor*

Earth & Environmental Geosciences  
Museum Studies

### Dartmouth College

2021 – 2024

*NSF Astronomy & Astrophysics Postdoctoral Fellow*

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

*Lecturer* 2023–24

Department of Physics & Astronomy

## EDUCATION

### University of California Santa Cruz

2021

*PhD in Earth Sciences*

Applications of the uranium decay systems in deep time and the Quaternary: chronologic insights within planetary interiors and beneath glaciers [PDF]

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

### Bowdoin College Brunswick, ME, U.S.A.

2014

*Bachelor of Arts*

Earth and Oceanographic Science with Honors, minor in Classics (*Summa cum Laude*, ΦBK Society)

## PUBLICATIONS

\* mentored student author

- ... A. Abuawad, M. Griffiths, **G.H. Edwards**, A. Eftekhari, M. El-Ebweini, H. Al-Najar, A. Butmeh, R. Abu Dayyeh, M. Al-Shewy, A. Aker. From ecocide to genocide: a call to action for scientists globally to address the destruction in Gaza. *Environmental Health Perspectives* [in review]. Preprint: [doi:10.2139/ssrn.5021472](https://doi.org/10.2139/ssrn.5021472)
10. **G.H. Edwards**, G.G. Piccione, T. Blackburn, S. Tulaczyk. 2025. Uranium-series isotopes as tracers of physical and chemical weathering in glacial sediments from Taylor Valley, Antarctica. *Chemical Geology*, 671. [doi:10.1016/j.chemgeo.2024.122463](https://doi.org/10.1016/j.chemgeo.2024.122463)
9. **G.H. Edwards**, C.B. Keller, E.R. Newton, C.W. Stewart\*. 2024. An early giant planet instability recorded in asteroidal meteorites. *Nature Astronomy*, 1–13. [doi:10.1038/s41550-024-02340-6](https://doi.org/10.1038/s41550-024-02340-6). [arXiv:2309.10906](https://arxiv.org/abs/2309.10906). Press: [Astrobites](#).

8. **G.H. Edwards**. 2024. Giant planets migrated shortly after the Solar System's protoplanetary disk dispersed. *Nature Astronomy*, Research Briefing. doi:10.1038/s41550-024-02341-5
7. R. Rampalli\*, M.K. Ness, **G.H. Edwards**, E.R. Newton, M. Bedell. 2024. The Sun remains relatively refractory depleted: elemental abundances for 17,412 Gaia RVS solar analogs and 50 planet hosts. *The Astrophysical Journal*, 965. doi:10.3847/1538-4357/ad303e. arXiv:2402.16954.
6. M.A. Thompson, M. Telus, **G.H. Edwards**, et al. 2023. Outgassing composition of the Murchison meteorite: implications for volatile depletion of planetesimals and interior-atmosphere connections for terrestrial exoplanets. *Planetary Science Journal*, 4. doi:10.3847/PSJ/acf760. arXiv:2310.02028.
5. **G.H. Edwards**, T. Blackburn, G. Piccione, S. Tulaczyk, G.H. Miller, C. Sikes\*. 2022. Terrestrial evidence for ocean forcing of Heinrich events and subglacial hydrologic connectivity of the Laurentide Ice Sheet. *Science Advances*, 8. doi:10.1126/sciadv.abp9329.
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. doi: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. doi: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. doi: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 & MENTORING

### Trinity University

#### *Courses Taught*

Fall 2024	Global Climate Change
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### Dartmouth College

#### *Courses Taught*

Spring 2024	Exploration of the Solar System
Fall 2023	Exploring the Universe
Fall 2023	“The Stretch” (Field Camp) — Glacial and climate history section ( <i>Co-Instructor</i> )

#### *Guest Lectures*

Winter 2024	Astrobiology
Spring 2022–24	Igneous and Metamorphic Petrology

#### *Research Group Leader*      2022 – 2023

Acting leader of a research group (4 graduate, 2 undergraduate students) in the Department of Physics & Astronomy while the Primary Investigator was on leave. Responsibilities included:

- Coordinate and facilitate group meetings.
- Provide non-specialist research guidance.
- Evaluate progress and assign grades.
- Organize/present mini-workshops on research tools and skills.

### *Mentored Graduate Researchers*

2022 →	Rayna Rampalli (PhD Candidate)	2021–23	Noemi Ortega Dominguez, MSc
2023 →	Jannitta Yao (PhD Candidate)	2021–23	Debbie Sulca, MSc

### *Mentored Undergraduate Researchers*

2023	Jack Duranceau (thesis 2023)	2022	Cameron Stewart
2023	Chase Alvarado-Anderson (thesis 2023)		

## **University of California Santa Cruz**

### *Graduate Teaching Assistant*

Spring 2021	<i>Measuring Earth's 4.5 Billion-Year History</i> (radiogenic and stable isotope geochemistry)
Fall 2020	<i>Evolution of Earth</i> (Earth history overview)
Fall 2019	<i>Elements of Field Geology</i>
Spring 2018	<i>Geochemistry of the Solar System</i>
Winter 2018	<i>Geologic Principles</i> (introductory Earth science)

### *Mentored Undergraduate Researchers*

2019–21	Cosmo Varah-Sikes (thesis 2021)	2018	Frances O'Byrne
2020	Linh Phan	2018	Alexander Levinson
2018–20	Michael Scudder (thesis 2020)	2017–18	Paul Colosi

## **Bowdoin College** Brunswick, ME, U.S.A.

### *Laboratory Teaching Assistant*

Fall 2012, 2013	<i>Investigating Earth</i>	Fall 2013	<i>Marine Biogeochemistry</i>
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## **Bozeman & Livingston Public Schools** MT, U.S.A.

2015

### *Substitute Teacher*

- Instructor and paraprofessional in K-12 classrooms.

## **DEPARTMENTAL SERVICE**

### **Trinity University**

#### *Department of Earth & Environmental Geosciences*

Committee member: Tenure-track assistant professor of environmental geoscience search 2024

### **Dartmouth College**

#### *Department of Earth Sciences*

Postdoc Representative for Faculty Search Committee (2 searches) 2023, 2024  
Earth & Planetary History Journal Club — Organizer Spring 2022

#### *Department of Earth & Planetary Sciences, UCSC*

Whole Earth Seminar — Organizer Spring 2019

## INSTITUTIONAL SERVICE

### Trinity University

*Early Career Research Commission*

2024 →

Developing/implementing career-support and community-building resources for early-career scholars.

## ACADEMIC SERVICE

### Interdisciplinary Earth Data Alliance 2 (IEDA<sup>2</sup>)

2023 →

*Community Advisory Board, Chair*

- Co-chair of primary community advising body for the NSF-funded [IEDA<sup>2</sup>](#) data facility.
- Guide approaches to promote and ensure access, preservation, and re-usability of Earth system data.
- Write annual recommendation reports based on advisory board discussions.

### Academic Meetings

*American Astronomical Society*

2023 Chambliss Award Judge (best student poster presentation)

*Meteoritical Society Annual Meeting*

2022 McKay Award Judge (best student oral presentation)

*AGU Fall Meeting*

2017 Co-Chair/Co-Convenor: Applications of Thermochronology to Understand Crustal Systems

### Peer-review Referee

*Geochronology, Geology, Nature Communications*

### Society Affiliations

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

## PUBLIC SERVICE & OUTREACH

### Montshire Museum of Science

2022 – 2024

*Guest Scientist*

- Lead and assist educational activities within the museum.
- Explain Earth and space 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

2019–2023

*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 (GEODES)

2019 – 2020

### Graduate Student Leader

- Student-run group in the UCSC Earth & Planetary Sciences Department.
- Organized and implemented inclusivity-centered outreach and community-building events.

## Peary-MacMillan Arctic Museum Brunswick, ME, U.S.A.

2015 – 2016

### Curatorial Intern 2015 – 2016

- Developed outreach programming and exhibit content.
- Supplemented undergraduate courses with museum collections and expertise.
- Mentored and trained undergraduate student interns and employees.

### Student Tour Guide 2012 – 2014

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

2015

### Security Volunteer

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

## LABORATORY & RESEARCH EXPERTISE

### Instrumentation

<i>Expert</i>	TIMS
<i>Proficient</i>	MC-ICP-MS, ICP-MS, SEM-EDS
<i>Limited</i>	IRMS, ICP-OES, XRF, XRD

### Programming Languages

<i>Expert</i>	Julia
<i>Proficient</i>	MATLAB, Python, R
<i>Limited</i>	HTML, CSS

### Laboratory Management

*Geochemistry & Radioisotope Analysis & Computation Laboartory (GRACkLe), Trinity University* 2024 →  
Primary Investigator — wet chemistry and computational laboratories currently under development

*W.M. Keck Isotope Facility, UC Santa Cruz* 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 spectrometry 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.
- Procurement and preparation of lab consumables.

## INVITED ACADEMIC TALKS

11. **The University of Akron** | Invited Research Talk, 6 February 2024  
Title: *Reconstructing and deconstructing ice sheets from the ground up*

10. **Trinity University** | Invited Research Talk, 29 January 2024  
Title: *Reconstructing and deconstructing ice sheets from the ground up*
9. **Colby College** | Invited Research Talk, 1 December 2023  
Title: *Reconstructing and deconstructing ice sheets from the ground up*
8. **Center for Astrophysics | Harvard & Smithsonian** | Astrophysics Data System, 25 October 2023  
Title: *Reconstructing and deconstructing ice sheets from the ground up*
7. **Goldschmidt Conference (Lyon)** | Invited Keynote, 12 July 2023      [\[abstract\]](#)  
Title: *Data & computational science for Earth & planetary history: lessons from the terrestrial archive*
6. **Center for Astrophysics | Harvard & Smithsonian** | Astrophysics Data System, 13 June 2023  
Title: *Transcribing the cosmochemical codex*
5. **Colby College** | Geology Seminar, 17 Mar 2023  
Title: *In the light of a newborn sun: transcribing the first chapters of our solar system from meteorites*
4. **Thayer School of Engineering, Dartmouth College** | Ice+Climate Seminar Series, 10 Feb 2023  
Title: *A terrestrial record of Heinrich events*
3. **Carnegie Institution for Science** | Astronomy Seminar Series, 28 Oct 2022  
Title: *Reconstructing asteroid assembly from the thermal records of chondrites*
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 Mar 2022  
Title: *Peering beneath the northern Laurentide ice sheet during the last glacial maximum*

## INVITED OUTREACH & COMMUNITY TALKS

6. **Dartmouth College** | 8 April, 2024  
*Featured scientist for eclipse-viewing in Hanover, NH. ([Photo from event](#))*
5. **Montshire Museum of Science** | 7 April, 2024  
*Guest scientist presentation on the science of eclipses.*
4. **Woodstock Union Middle School** | 29 February, 2024  
*Guest scientist presentation and discussion with grade 8 science students.*
3. **Moosilauke Ravine Lodge** | 11 August, 2023  
*Guest scientist & speaker for Perseid meteor shower. Public talk for families.*
2. **Richmond Middle School** | 5 April, 2023 (Hanover, NH)  
*Guest scientist presentation for all grade 6 students.*
1. **Montshire Museum of Science** | 21 January, 2023  
*Public talk on meteorites at “Astronomy Day” event (middle to high school learning level).*

## FUNDING

2025	\$9 000	Trinity University	Summer Research Stipend
2021–24	\$310 000	National Science Foundation	<a href="#">Award #2102591</a>
2020–21	\$10 000	ARCS Foundation	Scholar Award
2016–17		University of California Santa Cruz	Regent’s (Graduate) Fellowship
2013	\$2 000	Bowdoin College	Grua/O’Connell Research Award
2012	\$3 700	Bowdoin College	Freedman Research Fellowship

## AWARDS & HONORS

2024	A. Lincoln Washburn Award for Outstanding Mentoring, Dartmouth Earth Sciences
2020	UCSC Earth & Planetary Sciences Outstanding TA Award (Honorable Mention)
2019	Aaron and Elizabeth Waters Award — <i>Issued annually for the most outstanding proposal for PhD research in the UCSC Department of Earth &amp; Planetary Sciences</i>
2014	National Association of Geoscience Teachers Outstanding TA Award
2011–13	Sarah and James Bowdoin Scholar (Dean’s List)

## POPULAR MEDIA

2024	Sky & Telescope	<a href="#">Meteorites tighten timeline for giant planets’ movement...</a>
2024	Science Magazine	<a href="#">Giant planets ran amok soon after solar system’s birth</a>
2020	National Geographic	<a href="#">Biggest ice sheet on Earth more vulnerable to melting than thought</a>

## SELECTED CONFERENCE ABSTRACTS

More comprehensive lists of abstracts are available on the [Astrophysical Data System](#) and [Google Scholar](#).

10. **G.H. Edwards**, C.B. Keller, E.R. Newton, C. Stewart. 2023. [Talk]: Disk-driven migration of Jupiter: support from meteorite thermochronology. *Goldschmidt Conference*, Lyon, FR. [doi:10.7185/gold2023.18450](#)
9. **G.H. Edwards**, C.B. Keller, E.R. Newton, C. Stewart. 2023. [iPoster]: Constraining the timescales of giant planet migration from the meteorite record. *241<sup>st</sup> American Astronomical Society Meeting*, Seattle, WA, U.S.A.
8. **G.H. Edwards**, G. Piccione, M. Gomez. 2022. [Poster]: Comparing in-person and virtual modes of a 4-year museum-based geoscience outreach program. *Earth Educators’ Rendezvous 2022*, Minneapolis, MN, U.S.A.
7. **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.
6. 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.
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*

*Conference*, 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. *80<sup>th</sup> Annual Meeting of the Meteoritical Society*, 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. *44<sup>th</sup> International Arctic Workshop*, Boulder, CO, U.S.A.



### **Additional Work Experience**

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

### **Non-Academic Interests**

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