



## EDUCATION

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### Stanford University - PhD Candidate in Geophysics, expected 2025

Stanford Leland Junior University (Stanford), Stanford, CA

- Researching lunar paleomagnetism in the lab of Dr. Sonia Tikoo.
- Coursework focused on planetary science, geophysical modeling, and applied mathematics.
- National Science Foundation Graduate Research Fellow, 2020-ongoing.
- Additional focus on outreach and education including high school and undergraduate mentoring.

### Caltech - B.S. Geology, Minor: Environmental Science and Engineering, received 2018

California Institute of Technology (Caltech), Pasadena, CA

- 3 years of geophysical lab research experience resulting in 1 journal paper and 2 conference presentations.

## RESEARCH AND WORK EXPERIENCE

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**PhD Candidate in the lab of Dr. Sonia Tikoo**, Stanford University, September 2020 – Present

- Thermal modeling of cooling lunar impact ejecta bodies.
- Magnetic field modeling in 3 dimensions in Python.
- Inverse modeling of satellite magnetic field data using MATLAB.
- Paleomagnetism laboratory techniques focused on analysis of extraterrestrial samples.
- Development and implementation of new cutting-edge paleomagnetism laboratory equipment.
- Lab Safety Coordinator responsible for oversight, safety training, and chemical management.

**Research Project in the lab of Dr. Laura Schaefer**, Stanford University, January 2022-Present.

- Thermochemical modeling of lunar magma ocean crystallization and trace element partitioning.

**Undergraduate Researcher in the lab of Dr. Joe Kirschvink, Professor of Geobiology**, Caltech, 2015 – 2017

Worked full-time during summer fellowships and continued work part-time while taking classes.

#### 2017: Extended Late-Cretaceous Magnetostratigraphy of the James Ross Basin Island

- Completed a paleomagnetic study of Antarctic sediment cores for high-precision biostratigraphic dating.

#### 2016: Investigating the Death of the Moyero River Superchron

- Concluded research project on Estonian paleostratigraphy, sample processing and data analysis.
- 2<sup>nd</sup> author on paper published in the journal Palaeogeography, Palaeoclimatology, Palaeoecology.

#### 2015: Investigating the Role of Magnetite in Cryopreservation

- Introductory project on paleomagnetic methods with industrial and medical applications.
- Presented at American Geophysical Union Fall Meeting 2015.

## PUBLICATIONS

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Grappone, J. M., T. Chaffee, Y. Isozaki, H. Bauert, and J. L. Kirschvink. "Investigating the duration and termination of the Early Paleozoic Moyero reversed polarity Superchron: Middle Ordovician paleomagnetism from Estonia." Palaeogeography, Palaeoclimatology, Palaeoecology 485 (2017): 673-686.

## PRESENTATIONS

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**Chaffee, Thom M.**, Sonia Tikoo, Sam G. Boeschen, Raisha Abubo, Benjamin P. Weiss. "No Evidence of Magnetization from Impact-Generated Fields in 2 Ma Lunar Impact Melt Glasses." GP24A-08 accepted to 2023 Fall Meeting, AGU, 11-15 Dec.

**Chaffee, Thom**, Sonia Tikoo, Rachel Elise Maxwell, and Ian Garrick-Bethell. "Testing the Robustness of Parker's Method Against Complexly Magnetized Sources and Implications for Lunar and Planetary Paleopole Determinations". Bay Area Planetary Science Conference, 19 September 2023

**Chaffee, Thom**, Sonia M. Tikoo, Raisha Abubo, Sam G. Boeschen, Benjamin P. Weiss. "Testing Whether Lunar Melt Glasses Preserve Records of Impact-Generated Magnetic Fields." Lunar and Planetary Science Conference, March 2023

**Chaffee, Thom M.**, Sonia Tikoo, Rachel Elise Maxwell, and Ian Garrick-Bethell "Testing the Robustness of Parker's Method Against Complexly Magnetized Sources and Implications for Lunar and Planetary Paleopole Determinations" GP32B-0350 presented at 2022 Fall Meeting, AGU, 12-16 Dec.

**Chaffee, Thom M.** and Laura Schaefer. "Oxygen Fugacity in the Lunar Magma Ocean" DI35B-0037 presented at 2022 Fall Meeting, AGU, 12-16 Dec.

**Chaffee, Thomas M.**, and Sonia M. Tikoo. "Size Thresholds for Unidirectional Remanence Within Lunar Magnetic Anomalies." In *52nd Lunar and Planetary Science Conference*, no. 2548, p. 1642. 2021.

**Chaffee, Thomas M.**, Ross Mitchell, Sarah P. Slotznick, Jennifer Buz, Joseph Biasi, Joseph O'Rourke, Frank Sousa, David Flannery, Roger R. Fu, and Joseph L. Kirschvink. "Extended Late-Cretaceous Magnetostratigraphy of the James Ross Basin Island, Antarctica." In *AGU Fall Meeting Abstracts*, vol. 2017, pp. GP43A-0972. 2017.

**Chaffee, Thom M.**, Joseph L. Kirschvink, and Atsuko K. Kobayashi. "Magnetic Dinner Salads: The Role of Biogenic Magnetite in Cryopreservation for Common Food Plants." In *AGU Fall Meeting Abstracts*, vol. 2015, pp. GP51A-1308. 2015.

## AWARDS, TEACHING, SERVICE, OUTREACH, AND DEI

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### Awards:

LPSC 2023 LPI Career Development Award

For outstanding first-author abstract submission to the 54th Lunar and Planetary Science Conference

LPSC 2023 Dwornik Award, Honorable Mention

Award for 2nd-best student presentation at the conference

NSF GRFP, 2020

### Students:

Raisha Abubo, Stanford undergraduate working in the Tikoo lab under my supervision, 2022-2023

Sam Boeschen, Stanford undergraduate working in the Tikoo lab under my supervision, 2022-ongoing

Vivian Bahn, high school intern via Stanford Earth Young Investigators program, Summer 2022

### Service:

Committee on Graduate Studies, Stanford, 2023-ongoing

Voting member of the committee charged with formulating policy on graduate education and reviewing interdisciplinary degree-granting programs, which reports to the Faculty Senate.

Stanford Wellness Program Co-Administrator, 2022-2023

Wellness role focused on the larger community for the entire Stanford Doerr School of Sustainability.

Stanford Geophysics Wellness Liaison, 2021-2023

Co-ran department student wellness program, organized student physical and mental health support, workshops for learning wellness skills, and social events.

**Teaching:**

Teaching Assistant, Stanford Geophysics, "Introduction to Planetary Science", Spring 2023.  
Gave lectures, graded problem sets, ran weekly office hours.

Volunteer, Stanford GeoKids, 2022-ongoing

Run weekly Earth science educational activities for classrooms of 2<sup>nd</sup>-4<sup>th</sup> graders.

Stanford Geophysics, graduate student mentor, 2021-ongoing

Provide mentorship and assistance to new graduate students their first year in the department.

Teaching Assistant, Caltech Geology, "Earth and the Environment", 2015, 2016, 2017.

Designed and supervised teaching labs, assisted students with questions, oversaw field expeditions.

**Diversity, Equity and Inclusion:**

Participant in student-run "Diversity in Geophysics" course, Stanford, 2020

Accessibility Aide, Caltech, 2017-2018

Selected by the Deans' Office as an assistant to interpret figures, scribe, and assist vision impaired graduate student Newton Nguyen.