

Mara Karageozian, Ph.D.

DOCTORATE - GEOLOGICAL SCIENCES

PRESIDENTIAL MANAGEMENT FELLOWSHIP FINALIST – CLASS OF 2024

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EDUCATION

Ph.D. Geological Sciences Arizona State University – Conferred May 6, 2024	2018 – May, 2024 Tempe, AZ
RISES (Responsible Innovation in Science, Engineering, & Society) Graduate Certificate Arizona State University– Conferred May 6, 2024	2021 – May, 2024 Tempe, AZ
BS in Geology (Honors) Cum Laude Wayne State University	2013 - 2017 Detroit, MI

RESEARCH

Anomalous $^{40}\text{Ar}/^{39}\text{Ar}$ Shock ages in Mbale - Arizona State University

- I use primitive meteorites and shock mineralogy to constrain the timing of the earliest impact history within our solar system. Utilized skills – qualitative data processing and analysis, results distillation with oral and written communication, project and collaborator management across disciplines.

Interpreting the $^{40}\text{Ar}/^{39}\text{Ar}$ Ages of Ancient Ordinary Chondrites: A Cautionary Tale with Implications for $^{40}\text{Ar}/^{39}\text{Ar}$ Dating of All Shocked Meteorites - Arizona State University

- I use impacted meteorites and shock mineralogy to examine the migration of K and Ar and their effect on ^{40}Ar - ^{39}Ar isotopic dating techniques. Utilized skills – qualitative data processing and analysis, results distillation with oral and written communication, project design and testing using innovative techniques.

Modeled Crystallization Of Exoplanet Bulk Silicate Mantles: Implications For Magma Ocean Solidification And Early Crust Formation & Observability - Arizona State University

- I use model-driven petrologic techniques and stellar chemical abundance data outputs to analyze the effect of compositional variation on likely exoplanet mantle crystallization. Skills – qualitative data processing and analysis of large data sets, results distillation with oral and written communication, inter-institution interdisciplinary team management.

Reimagining the Participatory Technology Assessment for NASA Decadal Surveys - Arizona State University

- I develop methods for incorporating participatory technology assessments (pTAs) into NASA Decadal Survey planning and reviews. Utilized skills – government program design, policy and literature review, civic engagement methodologies, program analysis, budget management, responsible research & innovation.

MANAGEMENT AND SERVICE

Improving NASA's Decadal Survey, Civic Engagement in Space Futures Decision-Making 2022 - 2024
Arizona State University, School of Earth and Space Exploration

- Lead the design, planning, and literature review to propose a future NASA program and strategic plan to engage the public with NASA mission goals and mission scientists
- Designed a policy brief for NASA personnel and leadership
- Worked independently and collaboratively with an interdisciplinary team, quickly mastered knowledge in a new field, and gained a comprehensive understanding of Participatory Technology Assessments

Science Outside the Lab: Policy Engagement Program

2022 & 2023

Arizona State University & the National Nanotechnology Coordinated Infrastructure

- Facilitated group discussion with policy leaders, managed a diverse and interdisciplinary group, participated in engagement planning, organized participation and travel management, and fostered open and inclusive peer-to-peer and peer-to-guest speaker dialogue
- Held the role of graduate student coordinator for a 1-week policy engagement program in D.C. focused on boundary spanning between scientists, science policy workers, and science communicators to provide scientists with a toolbox for engaging in policy and outreach advocacy

Equity in Qualifying Exams Task Force

Summer 2023

Arizona State University, School of Earth and Space Exploration, P.I. Dr. Christy Till – AGU Landings Fellow

- Facilitated graduate discussion participation, participated in interdisciplinary collaboration, resolved conflict with diplomacy and intervention techniques, participated in group advocacy for graduate students, managed group compromises, facilitated listening sessions, and designed program dissemination
- Graduate Student member of a group tasked with creating a graduate student qualifying exam rubric and an inclusive set of PhD learning outcomes

Solutions to Foster Equity in Academia

2020

Arizona State University, School of Earth and Space Exploration

- Conducted independent research on tools for fostering equity and inclusion in academia
- Published a publicly available white paper analyzing the efficacy of bottom-up and top-down approaches to fostering equity in academia and distilled a list of implementable interventions at the department level [[paper link](#)]

LEADERSHIP

Inclusive Community Committee

2021 - present

Graduate Representative

Arizona State University, School of Earth and Space Exploration

- Lead a departmental program review to determine strategic goals for change and progress over next 5 years
- Designed, implemented, and measured metrics for success in department structural programs and DEI efforts to achieve strategic department goals
- Built and implemented a department code of conduct, mentorship agreements, and community surveys
- Authored department and government program proposals
- Member of an interdisciplinary team, implementing programs and assessing long-range department goals

Graduate Bill of Rights Task Force

May 2023 - present

Team Leader

Arizona State University, School of Earth and Space Exploration

- Built a team of dedicated and motivated community members to design a graduate Bill of Rights
- Worked closely with graduate team members and department leadership to address graduate concerns
- Compiled and summarized data from >15 outside university bills of rights
- Lead team organization, writing strategies, data management, and timeline management
- Held community engagement opportunities at every milestone step of the project [[final Bill of Rights available here](#)]

Graduate Council

2020 - 2022

Vice President & Diversity, Equity, and Inclusion Advocate

Arizona State University, School of Earth and Space Exploration

- Facilitated challenging and constructive discourse between the graduate student body and faculty members
- Planned, directed, and held community panels for graduate student admissions, qualifying exam reviews, grant proposal writing, peer mentorship, and community listening sessions
- Fostered an environment of support, mentoring, and positivity by opening communication channels, building support networks, designing and conducting department climate surveys, holding listening sessions, and advocating for bias and intervention training

The College Leaders Award Recipient

2022-2023

Arizona State University, College of Liberal Arts and Sciences

SCIENCE COMMUNICATION

Science Communication and Engagement Consultant

2024

Arizona Astrobio Symposium, 2024

Science Communication Graduate TA

2023

Arizona State University, School of Earth and Space Exploration

Educational Mineralogy Content Creator, YouTube [\[Channel page\]](#)

2021 - present

Graduate Social Media & Event Coordinator

2019 - 2021

Arizona State University, School of Earth and Space Exploration

Invited Seminar

April, 2023

Buseck Center for Meteorite Studies, Arizona State University

Guest Lecture

2020 - 2023

Meteorites and Cosmochemistry, Wayne State University – GEL 326

PUBLICATIONS

Manuscripts in review

- Anomalous $^{40}\text{Ar}/^{39}\text{Ar}$ Shock ages in Mbale. M.E. Karageozian, T. Sharp, C. McDonald, M. Van Soest. [Geochimica et Cosmochimica Acta]
- Modeled Crystallization Of Exoplanet Bulk Silicate Mantles: Implications For Magma Ocean Solidification And Early Crust Formation & Observability S. Jacob & . M.E. Karageozian, C.B. Till, C. Unterborn, W. Panero, S. Hull [Journal of Geophysical Research – Planets]

Manuscripts in prep

- Interpreting the $^{40}\text{Ar}/^{39}\text{Ar}$ Ages of Ancient Ordinary Chondrites: A Cautionary Tale with Implications for $^{40}\text{Ar}/^{39}\text{Ar}$ Dating of All Shocked Meteorites M. E. Karageozian, T. Sharp, C. McDonald

Conference Abstracts

"Interpreting the $^{40}\text{Ar}/^{39}\text{Ar}$ Ages of Ancient Ordinary Chondrites: A Cautionary Tale with Implications for $^{40}\text{Ar}/^{39}\text{Ar}$ Dating of All Shocked Meteorites". LPSC, 2023. M. E. Karageozian, T. Sharp, C. McDonald

"Constraining Shock Effects on the K-Ar System in Meteorites: Anomalous Ages and Implications for Shock Age Interpretation." MetSoc, Summer 2022. M. E. Karageozian, T. Sharp, C. McDonald, M. Van Soest.

"When is anisotropy of magnetic susceptibility (AMS) a useful proxy for seismic anisotropy?". AGU, Fall 2021. SJ Brownlee, ME Karageozian.

“Anomalous $^{40}\text{Ar}/^{39}\text{Ar}$ shock ages in Mbale: nonintuitive K and Ar behavior, implications for the interpretations of shock ages in shocked meteorites.” LPSC, Spring 2021. M. E. Karageozian, T. Sharp, M. Van Soest, C. McDonald

“Anomalous $^{40}\text{Ar}/^{39}\text{Ar}$ ages in Mbale: Implications for the interpretations of shock ages in shocked meteorites.” LPSC, Spring 2020. M. E. Karageozian, T. Sharp, M. Van Soest, C. McDonald.

“Crescent-shaped feature in Eucrite NWA 12282: Implications for the impact history of Vesta.”. LPSC, Winter 2019. Karageozian ME, Dillon SM, Fitch RT, Sedler MA, Teichert ZG.

“Modeling the geophysical signatures of gneiss dome exhumation in the northeast United States.” AGU, Fall 2018. SJ Brownlee, S Saif, ME Karageozian.

TEACHING EXPERIENCE

Science Communication Graduate TA 2023
Supervisor: Dr. Christy Till, Arizona State University

Introductory Geology Graduate TA 2018 & 2022 - 2023
Supervisor: Dr. Julia Johnson, Arizona State University

Mineralogy Graduate TA 2019 - 2021
Supervisor: Dr. Thomas Sharp, Arizona State University

Mineralogy Undergraduate TA 2016 - 2017
Supervisors: Dr. Sarah Brownlee and Prof. David Dougherty, Wayne State University

Petrology Undergraduate TA 2017 - 2018
Supervisors: Dr. Valentina Taranovic and Prof. David Dougherty, Wayne State University

GRANTS AND PROPOSALS

Research

2024 ASU College of Liberal Arts and Sciences Graduate Completion Fellowship 2024

2022 Vivian Ford Graduate Fellowship 2022

“Meteorite Shock Effects on the $^{40}\text{Ar}/^{39}\text{Ar}$ Isotopic System: Implications for Impact Age Interpretations”. Accepted, fully funded.

NASA FINESST 2022

“Meteorite Shock Effects on the $^{40}\text{Ar}/^{39}\text{Ar}$ Isotopic System: Implications for Impact Age Interpretations.” Declined.

NASA FINESST 2021

“Connecting $^{40}\text{Ar}/^{39}\text{Ar}$ geochronology with specific shock effects in S6 meteorites: An investigation of non-intuitive behavior of K and Ar and anomalous ages”. Declined.

School of Earth and Space Exploration JEDI Seed Grant 2021
“Building Resources and Aid for SESE’s TAs.” Accepted, fully funded.

Travel

Nininger Student Travel Award, Arizona State University 2022

NASA Planetary Sciences Division Travel Grant 2022