

KARA BRUGMAN: CANDIDATE FOR COMMITTEE

Education:

- 2020** **Ph.D., Arizona State University (ASU)**
Geological Sciences, School of Earth & Space Exploration (SESE)
Dissertation: Timescales and Characteristics of Magma Generation in Earth and Exoplanets
- 2014** **B.A., University of Colorado, Boulder** – *summa cum laude and with distinction*
Geological Sciences, minor: Astrophysical & Planetary Sciences
Honors thesis: Understanding the History of Arabia Terra, Mars Through Crater-Based Tests

Career:

- 2026–curr. Assistant Professor, Department of Earth & Planetary Sciences, Institute of Meteoritics, University of New Mexico (UNM)
- 2023–2025 Associate Research Scientist, FORCE, Eyring Materials Center, ASU
- 2020–2022 Postdoctoral Fellow, Earth & Planets Laboratory, Carnegie Institution for Science
- 2014–2018 National Science Foundation Graduate Research Fellow

Research interests:

Petrological experiments & modeling to guide our search for habitable exoplanets, magma genesis & volatile solubility on exoplanets, Earth, & solar system bodies, diffusion chronometry, volcano science & hazards, high-silica magmatic systems, DEIA in science & academia

Publications (selected):

- Brugman, K.**, Dunning, S.G., Cody, G.D., Wang, J., Bullock, E., Steele, A., Badro, J., Shahar, A. (in prep for *PSJ*) Hydrogen solubility and speciation in primitive silicate melt.
- Brugman, K.**, & Till, C. B. (2026). Geochemical Habitability. In *HWO25 Proceedings Part I: Community Science Case Development Documents* (Vol. 542, p. 353). ASP Conference Series, <https://aspbooks.org/publications/542/SCDD-LW-9.pdf>.
- Piette, A.A.A., Gao, P., **Brugman, K.**, Shahar, A., Lichtenberg, T., Miozzi, F., Driscoll, P. (2023) Rocky planet or water world? Observability of low-density lava world atmospheres. *ApJ*, 954(29), 110.3847/1538-4357/acdef2.
- Brugman, K.**, Phillips, M.G., Till, C.B. (2021). Experimental Determination of Mantle Solidi and Melt Compositions for Two Likely Rocky Exoplanet Compositions. *JGR: Planets*, special issue *Exoplanets: The Nexus of Astronomy and Geoscience*, 126(7), 19, 10.1029/2020JE006731.
- Hynek, B.M., T.M. McCollum, E.C. Marcucci, **K. Brugman**, K.L. Rogers (2013). Assessment of environmental controls on acid-sulfate alteration at active volcanoes in Nicaragua: Applications to relic hydrothermal systems on Mars, *JGR: Planets*, Special Issue: *Early Mars*, 118, 2083–2104, 10.1002/jgre.20140.

Service (selected):

- 2026 Session chair, “The Exoplanetary Web”, AAS Division of Planetary Sciences
- 2026 Session chair, “From Protoplanetary Disks to Exoplanet Atmospheres and Climate”, Goldschmidt
- 2025 Session chair, “Chemistry and Climate of Exoplanets”, Goldschmidt
- 2024–curr. Co-convener, Exoplanets in Our Backyard IV
- 2024–curr. Mentor, Geoscience Education and Mentorship Support (GEMS)
- 2024, 2022 Participant, Advancing IDEA in Planetary Science Conference
- 2023–curr. Advisory Board member, STEAM Superheroes

2023, 2022	Co-chair, FORCE Winter Workshop on High Pressure Research
2022	Session chair, "Experimental petrology in planetary science: Insights into the diversity of both planets and the scientists who study them", Goldschmidt
2022	Participant, The Second National Conference: Justice in Geoscience
2021–2022	Member, Carnegie Institution Unlearning Racism in Geoscience (URGE) Pod
2019–curr.	Pen pal, Letters to a Pre-Scientist
2017	Member, AGU Student & Early Career Scientist Conference Planning Committee
2016–2020	Student representative, AGU Volcanology, Geochemistry, and Petrology section
2015–2018	Co-chair, ASU SESE Women in Science Program
2012–2013	Member, GSA 125th Annual Meeting Student Planning Committee

Statement:

I am honored to be nominated as a candidate for the DPS Committee. As an experimental petrologist (I make magma in the lab!), I am at the forefront of providing the empirical ground truthing data and calibration data needed in the next few decades to push our research beyond Earth and our solar system. As a geologist, I could have been relegated to the outskirts of the planetary and exoplanetary science communities. Instead, I have found exciting opportunities and kind, energetic colleagues. However, I cannot ignore the precarious time in which we find ourselves, as science faces existential crises including attacks on funding sources, a reckoning with AI and its place in research, and the threat of erasure of decades of work to improve access and equity in education and research. I could use this space to discuss my career and accomplishments, but instead I would like to take this opportunity to discuss those activities that are less easy to quantify, and I daresay are more relevant to the position for which I am nominated. Although I have had a net positive experience in science thus far, I am keenly aware that many other members of underrepresented groups have not been so lucky. I have watched as brilliant colleagues' careers effectively ended due to illness, cancelled funding, or frankly, bigotry. And unfortunately, many (if not all) of the recent attacks on science, if successful, will diminish our ability to include diverse minds in the pursuit of knowledge.

Throughout my career, I have volunteered my time and energy to activities designed to increase participation in science. I have chaired sessions that focus on diversity in science and scientists and I have organized conferences and workshops with students in mind, such as the FORCE Winter Workshop on High Pressure Research that provided students with cash awards and the opportunity to present their research to industry partners at Corning. For over a decade I have devoted time to mentoring students and peers, and for seven years I have been a pen pal in the Letters to a Pre-Scientist program, which seeks to show middle school students that science is an attainable career path. I have also found opportunities to educate myself about others' experiences through activities such as The Second National Conference: Justice in Geoscience, Unlearning Racism in Geoscience (URGE), the Advancing IDEA in Planetary Science Conferences, and the UNM Student Experience Project. These activities have laid the groundwork for me to effectively advocate for others.

It is clear to me that the most significant discoveries on the horizon will be rooted in science that is interdisciplinary and similarly will come from scientists with different backgrounds, perspectives, and approaches to their research. As I move forward, it is my goal to use my relative position of power as a faculty member, and hopefully as a DPS Committee Member, to continue to support the inclusion of many kinds of scientists, from many backgrounds, in our community. I will make every effort to guide future scientists, our early career colleagues, the public, and our legislators to opportunities that can further this goal. Thank you for your consideration.