

Sarah Aarons  
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Scripps Institution of Oceanography  
University of California San Diego  
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### **Education**

2016 University of Michigan, Ph.D., Geology  
2012. University of Michigan, M.S., Earth and Environmental Sciences  
2009 Stanford University, B.S., Geological and Environmental Sciences

### **Professional Positions**

2019-present Scripps Institution of Oceanography, University of California San Diego  
Assistant Professor  
2017-2019 Department of Geophysical Sciences, University of Chicago  
Postdoctoral Fellow  
2016-2017 Department of Earth System Science, University of California, Irvine  
Postdoctoral Fellow  
2010-2016 Department of Earth and Environmental Sciences, University of Michigan  
Graduate Student

### **Honors & Awards**

2022 Scripps Institution of Oceanography Graduate Teaching Award  
2021 Doris M. Curtis Outstanding Woman in Science Award, Geological Society of America  
2021 American Geophysical Union Editors' Citation for Excellence in Refereeing  
2019 Kavli Fellow, National Academy of Sciences  
2018 National Center for American Indian Enterprise Development 40 under 40 Award  
2017 Ford Foundation Postdoctoral Fellowship  
2016 UC Irvine Chancellor's ADVANCE Postdoctoral Fellowship  
2015 Rackham Predoctoral Fellowship, University of Michigan  
2010 Rackham Merit Fellowship, University of Michigan

### **Funded Grants**

2021 NSF OPP Award #2035580 (lead-PI in proposal "Collaborative Research: Peripheral East Antarctic ice as a unique recorder of climate variability during the Last Interglacial")  
2021 NSF STC Award #2019710 (funded collaborator in "STC: Center for OLDest Ice EXploration")  
2020 NSF EAR Award #1946856 (co-PI in proposal "Collaborative research: Controls of climate and dust on soil chemical erosion and nutrient supply")  
2020 UCSD, Office of Research Affairs, Office for Equity, Diversity & Inclusion, Office of the Chancellor (Innovation Grants for Inclusive Research Excellence)

### **Publications—In review**

20) Prissel, K.B., Krawczynski, M.J., Nie, N.X., Dauphas, N., Aarons, S.M., Heard, A.W., Hu, M.Y., Alp, E., Zhao, J., Iron, titanium, and magnesium isotopic evidence for diffusion-limited

reaction of lunar magma ocean cumulates in mare basalt source regions, *Earth and Planetary Science Letters*, in review.

19) **Aarons, S.M.**, Dauphas, N., Greber, N.D., Roskosz, M., Bouchez, J., Carley, T., Teng, F.-Z., Liu, X.-M., Rudnick, R.L., Gaillardet, J., Titanium transport and isotopic fractionation in the critical zone, *Geochimica et Cosmochimica Acta*, in review.

### **Publications—Peer Reviewed**

18) Maltz, M.R., Carey, C.J. Freund, H., Botthoff, J., Stajich, J.E., Hart, S.C., **Aarons, S.M.**, Aciego, S.M., Blakowski, M.A., Dove, N.C., Barnes, M., Pombubpa N., Aronson E.L., Landscape topography and regional drought alters dust microbiomes in the Sierra Nevada of California, *Frontiers in Microbiology*, In Press.

17) **Aarons, S.M.**, Johnson, A.C., Rader, S.T., Forming Earth's continental crust: A non-traditional stable isotope perspective, invited article for *Elements*, 17 (6), <https://doi.org/10.2138/gselements.17.6.413>, 2021.

16) **Aarons, S.M.**, Dauphas, N., Zeng, Z., Blanchard, M., Nie, N.X., Greber, N.D., Johnson, A.C., Clues from *ab initio* calculations on titanium isotopic fractionation in tholeiitic and calc-alkaline magma series, *ACS Earth and Space Chemistry*, <https://doi.org/10.1021/acsearthspacechem.1c00172>, 2021.

15) Nie, N.X., Dauphas, N., Alp, E.E., Zeng, H., Sio, C.K., Hu, J.Y., **Aarons, S.M.**, Zhang, Z., Tian, H.-C., Prissel, K.B., Greer, J., Bi, W., Hu, M.Y., Zhao, J. Shahaar, A., Roskosz, M., Teng, F.-Z., Krawczynski, M.J., Heck, P.R., Spear, F.S., Fe, Mg, and Ti isotopic fractionations between garnet, ilmenite, fayalite, biotite, and tourmaline: comparison between NRIXS, *ab initio*, and study of mineral separates from the Moosilauke metapelite, *Geochimica et Cosmochimica Acta*, 302, 18-45, 2021.

14) Heard, A.W., **Aarons, S.M.**, Hofmann, A., He, X., Ireland, T., Bekker, A., Qin, L., Dauphas, N. Anoxic continental surface weathering conditions in the Mesoarchean Pongola Supergroup, South Africa, *Geochimica et Cosmochimica Acta*, 295, 1-23, 2021.

13) **Aarons, S.M.**, Reimink, J.R., Greber, N.D., Heard, A.W., Zhang, Z., and Dauphas, N., Titanium isotopes constrain a magmatic transition at the Hadean-Archean boundary in the Acasta Gneiss Complex, *Science Advances*, 6, eabc9959, 2020.

12) **Aarons, S.M.**, Arvin, L., Aciego, S.M., Riebe, C.S., Johnson, K.R., Blakowski, M.A., Koornneef, J., Hart, S.C., Barnes, M., Dove, N., Maltz, M., Botthoff, J., and Aronson, E., Competing droughts affect dust delivery to Sierra Nevada, *Aeolian Research*, 41, 100545, 2019.

11) Johnson, A.C., **Aarons, S.M.**, Dauphas, N., Nie, N.X., Zeng, H., Helz, R.T., Romaniello, S.J., Anbar, A.D., Titanium Isotopic Fractionation in Kilauea Iki Lava Lake Driven by Oxide Crystallization, *Geochimica et Cosmochimica Acta*, 264, 180-190, 2019.

10) **Aarons, S.M.**, McConnell, J., Delmonte, B., Baccolo, G., Aciego, S.M., Dust transport to the Taylor Glacier, Antarctica during the last interglacial, *Geophysical Research Letters*, doi:10.1029/2018GL081887, 2019.

9) Arendt, C.A., Aciego, S.M., Sims, K.W.W., **Aarons, S.M.**, Seasonal Progression of Uranium Series Isotopes in Subglacial Meltwater: Implications for Subglacial Storage, *Chemical Geology*, 467, 42-52, 2017.

8) **Aarons, S.M.**, Blakowski, M.A., Aciego, S.M., Stevenson, E.I., Sims, K.W.W., Scott, S., Aarons, C., Geochemical characterization of critical dust source regions in the American West, *Geochimica et Cosmochimica Acta*, 215, 141-161, 2017.

7) Chellman, N., McConnell, J., Arienzo, M., Pederson, G., **Aarons, S.M.**, Csank, A., Reassessment of the chronology of the Upper Fremont Glacier ice cores by synchronizing ice core water isotopes and tree ring widths, *Environmental Science and Technology*, 51 (8), 4230-4238, 2017.

- 6) **Aarons, S.M.**, Aciego, S.M., Arendt, C.A., Steigmeyer, A., Gabrielli, P., Sierra-Hernandez, R., Delmonte, B., Baccolo, G., Pratt, K., May, N., Dust composition changes from Taylor Glacier (East Antarctica) during the last glacial-interglacial transition: A multi-proxy approach, *Quaternary Science Reviews*, 162, 60-71, 2017.
- 5) Aciego, S.M., Riebe, C.S., Hart, S.C., Blakowski, M.A., Carey, C., **Aarons, S.M.**, Dove, N., Aronson, E., Dust outpaces bedrock in nutrient supply to montane forest ecosystems, *Nature Communications*, 8, doi:10.1038/ncomms14800, 2017.
- 4) **Aarons, S.M.**, Aciego, S.M., Gabrielli, P., Delmonte, B., Koornneef, J.M., Uglietti, C., Wegner, A., Blakowski, M.A., Bouman, C., Ice core record of dust sources in the western United States over the last 300 years, *Chemical Geology*, 442, 160-173, 2016.
- 3) **Aarons, S.M.**, Aciego, S.M., Gabrielli, P., Delmonte, B., Koornneef, J., Wegner, A., Bouman, C., Addressing the impact of the Ross ice shelf retreat on local climate: characterization of mineral dust in the Taylor Dome ice core, East Antarctica, *Earth and Planetary Science Letters*, 444, 34-44, 2016.
- 2) Aciego, S.M., **Aarons, S.M.**, Sims, K.W.W., Short Communication: The Uranium-isotopic composition of Saharan dust collected over the central Atlantic Ocean, *Aeolian Research*, 17, 61-66, 2015.
- 1) **Aarons, S.M.**, Aciego, S.M., Gleason, J.D., Variable Hf-Sr-Nd radiogenic isotopic compositions in a Saharan dust storm over the Atlantic: Implications for dust flux to oceans, ice sheets and the terrestrial biosphere, *Chemical Geology*, 349, 18-26, 2013.

### Invited Talks

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|------|---|
| 2022 | University of New Mexico, Department of Earth and Planetary Sciences  |
| 2022 | DUST <sup>2</sup> Workshop (NSF Critical Zone Collaborative Network) keynote speaker  |
| 2022 | University of Texas, Austin, UTIG   |
| 2022 | California State University, Northridge, Department of Geological Science   |
| 2021 | University of Leeds, School of Earth and Environment  |
| 2021 | Rutgers University, Department of Earth and Planetary Science   |
| 2021 | Purdue University, Department of Earth Science  |
| 2021 | Speaker & panelist at Columbia Climate School “Climate forced displacement: Indigenous Frameworks for Observing & Responding to Climate Change in Alaska” |
| 2021 | Interagency Arctic Research Policy Committee Public Webinar Series: Climate Change Impacts on Indigenous Peoples – A Historical Perspective               |
| 2021 | University of Lausanne, Earth Science Institute   |
| 2021 | University of Michigan, Department of Earth and Environmental Science   |
| 2021 | Syracuse University, Earth and Environmental Sciences   |
| 2021 | Virtual Seminar for Precambrian Geology   |
| 2021 | Unlearning Racism in the Geosciences, Racism & Justice session  |
| 2021 | Princeton University, Solid Earth seminar   |
| 2021 | University of Alaska Fairbanks, Fisheries & Ocean Sciences  |
| 2021 | Tulane University, Earth and Environmental Science Seminar  |
| 2021 | Stanford University, Earth System Science Department Seminar  |
| 2021 | Alaska World Affairs Council, “Alaska Native Perspectives of an Evolving Arctic Environment”, <i>Invited Panel Discussion</i>                             |
| 2020 | American Geophysical Union Fall Meeting, <i>Invited talk</i>  |
| 2020 | Georgia Tech, Department of Earth and Atmospheric Sciences Seminar  |
| 2020 | Woods Hole Oceanographic Institution, Marine Chemistry & Geochemistry Seminar   |
| 2020 | Woods Hole Oceanographic Institution, Paleoclimate Seminar  |
| 2020 | University of California, Riverside, Department of Earth and Planetary Sciences, Department Seminar   |

2020	University of California, Santa Barbara, Department of Earth Science Seminar
2020	CU Boulder Institute for Arctic and Alpine Research (INSTAAR), Department Seminar
2020	Lamont-Doherty Earth Observatory, Division of Biology and the Paleo Environment Seminar
2020	University of Washington, Department of Earth and Space Sciences, Department Seminar
2020	University of Southern California, Department of Earth Sciences, Department Seminar
2020	Goldschmidt Conference, virtual, <i>Invited talk</i>
2020	Ice Core Planning Workshop, <i>Invited talk</i>
2020	University of California, Los Angeles, Department of Earth, Planetary and Space Sciences, Department Seminar
2019	San Diego State University, Department of Geological Sciences, Department Seminar
2019	Harvard University, Department of Earth and Planetary Sciences, BISEPPS seminar
2019	North Carolina State University, Department of Marine, Earth, and Atmospheric Sciences, Department Seminar
2018	Goldschmidt Conference, Boston, MA, <i>Invited talk</i>
2018	Northwestern University, Department of Earth and Planetary Sciences, Department Seminar
2018	University of California, Los Angeles, Department of Earth, Planetary and Space Sciences, Geochemistry Seminar
2018	Scripps Institution of Oceanography, University of California, San Diego, Department Seminar
2018	University of Arizona, Department of Geosciences, Department Seminar
2017	University of California, Riverside, Department of Earth Sciences, Alternative Earths Astrobiology Center Seminar
2017	Georgia Institute of Technology, School of Earth and Atmospheric Sciences, Department Seminar
2016	United States Geological Survey, Anchorage, Alaska

## **Trainees**

### **Postdoctoral Scholars**

1. Kiefer Forsch (NSF OCE Postdoctoral Fellow *2021-present*) *Topic*: Isotopic and microbial investigations of the iron geochemistry and bioavailability of glaciogenic particles

### **Graduate Students**

2. Linqing Huang (2019-2024 *expected*) *Topic*: Non-traditional stable isotope variability and Earth surface processes.

3. Emmet Norris (2020-2025 *expected*) *Topic*: Natural and anthropogenic influences on particulate matter composition.

4. Austin Carter (2020-2025 *expected*) *Topic*: Dust flux and compositional variations to Antarctica during the Last Interglacial and Mid-Pleistocene Transition.

5. Rain Blankenship (former REU student, *now BS/MS student*) *Topic*: Tracing sources of nutrient input to vegetation on San Jacinto Peak, California

### **Undergraduates Students**

6. Isis Guadalupe (summer 2021 REU student) *Topic*: Tracing sources of particulate matter to Southern California.

## **Courses**

*Winter 2021, 2022:* Environmental Systems 102, The Solid and Fluid Earth

*Spring 2021:* SIOG 249, Climate change impacts on Arctic Indigenous People

*Winter 2022:* SIOG 269, The Black Box of graduate school; Hidden curriculum

*Spring 2022:* SIOG 269, Biogeochemical applications of traditional and non-traditional stable isotopes to diverse problems in Earth Science

## **Academic Service**

### Peer review:

2014-present: Manuscript Reviewer for journals including *Journal of Geophysical Research-Atmospheres*, *Journal of Geophysical Research-Oceans*, *Geophysical Research Letters*, *Environmental Science and Pollution Research*, *Global and Planetary Change*, *Earth and Planetary Science Letters*, *Chemical Geology*, *Quaternary Science Reviews*, *Quaternary Research*, *Climate of the Past*, *Nature Communications*, *Atmospheric Environment*, *Science*, *Paleoceanography and Paleoclimatology*, *Nature Geoscience*, *Science Advances*, *ACS Earth and Space Chemistry*

2022: Panelist for National Science Foundation (Geobiology and Low-Temperature Geochemistry)

2020, 2021: Ad hoc proposal reviewer for National Science Foundation

2020, 2021: Panelist for National Science Foundation (Navigating the New Arctic program)

### National & International organizations:

2021-2022 Chapter Author for Climate Trends chapter of the Fifth National Climate Assessment (NCA5)

2021-2022 2022 Goldschmidt Theme Chair for Theme 10: Earth Surface Processes from Weathering to Climate Change

2021 Moderator for National Academy of Science organized “Identifying New Community-Driven Science Themes for NSF’s Support of Paleo Perspectives on Climate Change (P2C2)

2020 Panelist, Ford Foundation Conference

2020-present Interagency Arctic Research Policy Committee (IARPC) Diversity and Inclusion Leadership team

2020 Invited participant, Geological Society of America Executive Committee meeting on Equity, Diversity, & Inclusion

2018 Session Convener, Goldschmidt Conference, Boston, MA

### University Service:

2020-present Environmental Systems Program Advisory Committee, Scripps Institution of Oceanography

2019-present Ad hoc reviewer for faculty review

2019, 2020 Reviewer and panelist for University of California Presidential Postdoctoral Fellowship Program (PPFP)

2019-2020 Alternate for UCSD Representative Assembly Meetings (SIO representative)

2019-present Workshop facilitator at UC Presidential Postdoctoral Fellowship Program Fall & Spring meetings

### Departmental Service:

2020-present Diversity Advisory Committee, SIO

2021-present Diversity Admissions Committee, SIO

2021-present Graduate Student admissions co-chair for Geosciences curricular group, SIO

2021-present	Diversity Admissions Committee, SIO
2021-present	SIO Space Committee
2021	Geosciences First Year Exam Chair, Scripps Institution of Oceanography (SIO)
2020-2021	Graduate Student Open House coordinator for Geosciences curricular group, Scripps Institution of Oceanography
2020	Tectonics Faculty Search Committee