

Sarah M. Aarons
Ford Foundation Postdoctoral Fellow
Department of Geophysical Sciences
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EDUCATION

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

CURRENT RESEARCH INTERESTS

- Novel isotope systems as tracers of weathering and geologic history
- Geochemical techniques to determine paleo dust provenance and transport pathways
- Tracing modern dust sources and nutrient composition

PROFESSIONAL POSITIONS

2017-present 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

AWARDS

2017-2018 Ford Foundation Postdoctoral Fellowship
2016-2017 UC Irvine Chancellor's ADVANCE Postdoctoral Fellowship
2015-2016 Rackham Predoctoral Fellowship (University of Michigan)
2010-2016 Rackham Merit Fellowship (University of Michigan)
2014 Ford Foundation Dissertation Fellowship (*Honorable Mention*)
2012 NSF Graduate Research Fellowship (*Honorable Mention*)
2012 Ford Foundation Predoctoral Fellowship (*Honorable Mention*)

GRANTS

2017 National Science Foundation RAPID Award #1744089 (*collaborator in proposal "RAPID: Sources and ecosystem significance of dust inputs during extremely wet and dry years in the Sierra Nevada, California"*)
2016 Lighting the Pathway to Faculty Careers for Natives in STEM
2011-2016 Scott Turner Award in Earth Science
2014 National Science Foundation EAR Award #1422473 (*co-wrote "Dust transport and deposition in the American West: a record of climate and*

- land-use change from the Upper Fremont Glacier, Wind River Range, Wyoming”)*
- 2014, 2012 Rackham Conference Travel Grant
- 2014 Geological Society of America On To the Future Travel Scholarship
- 2014, 2011 Rackham Graduate Student Research Grant
- 2012 American Indian Science and Engineering Society (AISES) Travel Scholarship
- 2012 Geological Society of America Graduate Student Research Grant
- 2012 Rackham International Research Award

ACADEMIC SERVICE

- 2014-present Reviewer for *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*

PEER-REVIEWED PUBLICATIONS

10) Aarons, S.M., McConnell, J., Aciego, S.M., Reassessing the penultimate interglacial analog for current climate change, evidence from Antarctic dust, *In Review*.

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.

PUBLICATIONS IN PREPARATION

3) **Aarons, S.M.**, Aciego, S.M., Delmonte, B. Evidence of the Dust Bowl in the Upper Fremont Glacier, WY ice core record, *In Preparation*.

2) **Aarons, S.M.**, Grieman, M.M., Kreutz, K.J., Saltzman, E.S., A record of biomass burning from a Western North American Ice core: insights into the relationship between regional climate and forest fires, *In Preparation*.

3) **Aarons, S.M.**, Arvin, L., Aciego, S.M., Riebe, C.S., Hart, S.C., and Aronson, E., Competing droughts affect dust delivery to Sierra Nevada, *In Preparation*.

CONFERENCE ABSTRACTS

Aarons, S.M., Aciego, S.M., McConnell, J., Reassessing the penultimate interglacial analog for current climate change, evidence from Antarctic dust, 2017, oral presentation, AGU Fall Meeting, New Orleans, LA.

Aarons, S.M., Aciego, S.M., Blakowski, M.A., and Delmonte, B., The Dust Bowl in the American West: A geochemical record of dust provenance and deposition in the Upper Fremont Glacier ice core, 2016, oral presentation, AGU Fall Meeting, San Francisco, CA.

Aarons, S.M., Aciego, S.M., Gabrielli, P., Delmonte, B., Arendt, C.A., Blakowski, M.A., Sierra Hernandez, R., Beaudon, E., Baccolo, G., Pratt, K., May, N., and Steigmeyer, A., Addressing the impact of ice shelf retreat on local climate: A case study of the effect of the Ross ice shelf retreat upon the surrounding coastal area, 2016, International Partnerships in Ice Core Sciences, Hobart, Tasmania.

Aarons, S.M., Aciego, S., Gabrielli, P., Delmonte, B., Koornneef, J., Bouman, C., and Wegner, A., Mineral dust archive in Taylor Dome ice core as evidence for shifting

coastal east Antarctic climate during the LGM-Holocene transition, 2014, oral presentation, AGU Fall Meeting, San Francisco, CA.

Aarons, S.M., Aciego, S.M., Gabrielli, P., Delmonte, B., and Wegner, A., Investigation of 18th-20th century dust flux in the American West: Insights from the Upper Fremont Glacier Ice Core, WY, USA, 2014, Geological Society of America Annual Meeting, Vancouver, Canada.

Blakowski, M., Aciego, S., **Aarons, S.**, Delmonte, B., Baroni, C., Gabrielli, P., and Wegner, A., Expanding Potential Source Area Studies of Dust in East Antarctica by Integrating Trace Element Chemistry and Radiogenic Isotopes, 2013, Goldschmidt Conference, Florence.

Aarons, S., and Aciego, S., A record of dustiness in the American West: Evidence from the Upper Fremont Glacier ice core, 2012, International Partnerships in Ice Core Sciences, Presqu'île de Giens, Côte d'Azur, France.

Aarons, S., Aciego, S., and Gleason, J., Variable radiogenic isotopic compositions in Saharan dust across the Atlantic, 2011, 21st Annual VM Goldschmidt Conference, Prague, Czech Republic.

Arendt, C.A., S.M. Aciego, K.W Sims, and **Aarons, S.M.**, Radiogenic and Radioactive Isotopic Evidence for a Dynamic Residence Time of the Athabasca Glacier Subglacial Water, 2011, AGU Fall Meeting, San Francisco, CA.

TEACHING

2012, 2014 *GSI for Earth 442: Earth Surface Processes and Soils (Fall 2012, 2014):* Upper-level undergraduate/graduate writing requirement class and lab with aim of providing insight and tools to interpret landscape using graphical, computer, field and communication techniques.

2012-2016 *GSI for American Indian Summer Institute in Earth System Science (Summer 2012/2013/2014/2015/2016):* A two-week residential summer program for Native high school students currently in grades 8-11. Program aims to address critical need for Earth and Environmental Science professionals within tribal communities.

2013 *Graduate Student Mentor for University of Michigan Undergraduate Research Opportunity Program (UROP)*

FIELD EXPERIENCE

2015 Taylor Glacier, Antarctica (1 week)

2014 Wind River Range, Wyoming (1 week)

2014 Southwest United States (3 weeks)

2013 Taylor Glacier, Antarctica (1 month)

2011 Athabasca Glacier, Jasper National Park, Canada (2.5 months)

- 2009 Kilbuck Mountains, Alaska (1 month)
2007 Brooks Range, Alaska (1 week)

PROFESSIONAL AFFILIATIONS

American Geophysical Union
Geological Society of America
American Indian Science and Engineering Society
Geochemical Society

MEETING AND WORKSHOP ATTENDANCE

- 2017 NextProf Science 2017 Workshop, Ann Arbor, Michigan
2016 American Geophysical Union (AGU) Annual Meeting, San Francisco, California (oral presentation)
2016 American Indian Science and Engineering Society (AISES) National Conference, Minneapolis, Minnesota
2016 International Partnerships in Ice Core Sciences, Hobart, Tasmania
2015 2015 Society for Advancement of Chicanos/Hispanics and Native Americans in Science (SACNAS) National Conference, Washington DC
2015 Preparing for an Academic Career in the Geosciences Workshop 2015 (SERC), Madison, Wisconsin
2014 American Geophysical Union (AGU) Annual Meeting, San Francisco, California (oral presentation)
2014 Professional Skills Development Workshop for Women and underrepresented minorities at 2014 AGU Meeting
2014 Geological Society of America (GSA) Annual Meeting, Vancouver, Canada
2013 American Indian Science and Engineering Society (AISES) National Conference, Denver, Colorado
2012 American Indian Science and Engineering Society (AISES) National Conference, Anchorage, Alaska
2012 International Partnerships in Ice Core Sciences, Presqu'île de Giens, Côte d'Azur, France
2011 Goldschmidt Geochemical Conference, Prague, Czech Republic

INVITED TALKS

- 2017 Georgia Institute of Technology, School of Earth and Atmospheric Sciences
2016 United States Geological Survey, Anchorage, AK: "Regional and Global Climate Change Reflected in the Dust Record from Ice Cores throughout the Anthropocene and Pleistocene"