

Sarah Aarons

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Department of Geophysical Sciences
University of Chicago
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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

- Isotope systems as tracers of past climate, 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)

Grants

2017 NSF 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
2014 NSF 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 Geological Society of America On To the Future Travel Scholarship
2014, 2011 Rackham Graduate Student Research Grant
2012 American Indian Science and Engineering Society Travel Scholarship
2012 Geological Society of America Graduate Student Research Grant
2012 Rackham International Research Award

Academic Service

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*, *Climate of the Past*, *Nature Communications*, *Atmospheric Environment*

Peer-Reviewed Publications

10) Aarons, S.M., McConnell, J., Delmonte, B., Baccolo, G., Aciego, S.M., A tale of two transitions: Geochemical evidence for WAIS collapse during the last interglacial from the Taylor Glacier, Antarctica, *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*.

1) **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.

Riebe, C., Arvin, L., Carey, C., Aciego, S., **Aarons, S.**, Blakowski, M., Hart, S., Aronson, E., Reevaluating the Role of Dust in Mountain Ecosystems: Insights from Tracer Isotopes, Microbial Genomics, and Global Databases, 2017, invited talk, Goldschmidt Conference.

Aarons, S.M., Aciego, S.M., Blakowski, M.A., 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., 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., 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., 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., 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., 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., 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, **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):*
2012-2016 *GSI for American Indian Summer Institute in Earth System Science (Summer 2012/2013/2014/2015/2016)*

Field Experience

2015: *Taylor Glacier, Antarctica*; 2014: *Wind River Range, Wyoming*; 2014: *Southwest United States*; 2013: *Taylor Glacier, Antarctica*; 2011: *Athabasca Glacier, Canada*; 2009: *Kilbuck Mountains, Alaska*; 2007: *Brooks Range, Alaska*

Professional Affiliations

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

Invited Talks

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
2018 University of Arizona, Department of Geosciences
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
2016 United States Geological Survey, Anchorage, Alaska