MONICA M. ARIENZO

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APPOINTMENTS

Assistant Research Professor, 2016 – current
Desert Research Institute, Division of Hydrologic Sciences, Nevada System of Higher Education

Graduate Faculty, 2018 – current
University of Nevada, Graduate Program of Hydrology, Nevada System of Higher Education

Post-Doctoral Fellow, 2014 – 2016
Desert Research Institute, Division of Hydrologic Sciences, Nevada System of Higher Education

EDUCATION

University of Miami, Miami, FL, 2008- 2014
Department: Marine Geology and Geophysics
Dissertation *Subtropical Atlantic Climate Variability Recorded in Speleothems from the Bahamas*
Advisor: Dr. Peter Swart
GPA: 3.6

Franklin & Marshall College, Lancaster, PA, 2004-2008
B.A. Geology with Departmental Honors
Cum Laude

RESEARCH EXPERIENCE

Post-Doctoral Research: Trace Element Ice Core Lab, Desert Research Institute, 2014-2016
Analyzed the trace element chemistry of Arctic and Antarctic ice cores for trace elements, black carbon, and water isotopes. Including the maintenance of two Thermo Element 2 ICP-MS instruments, Tiamo Titrator, and the analysis of external samples.

Doctoral Research: Stable Isotope Laboratory, University of Miami, 2008- 2014
Analyzed the geochemistry of stalagmite samples from the Bahamas to understand the paleoclimate of the region. This project required the application of various geochemical tools, extensive laboratory and field work.

Visiting Doctoral Researcher: Stable Isotope, Vrije Universiteit, Amsterdam, NL, July 2011
Advisor: Dr. Hubert Vonhof
Analyzed stalagmite samples to determine the isotopic composition of fluid inclusions.

Undergraduate Honors Research: Department of Geology, Franklin & Marshall College, 2008
Thesis: *Dedolomitization of the Cambrian Ledger and Kinzer Formations York County, PA*
Advisor: Dr. Carol deWet
Geochemical study (isotopes and trace elements) of dolomitized and dedolomitized carbonates.

PUBLICATIONS (PEER REVIEWED)

Arienzo, M. M., Legrand, M., Preunkert, S., Stohl, A., Chellman, N. J., Eckhardt, S., Gleason, K., McConnell, J. R., 2021. Alpine Ice-Core Evidence of a Large Increase in Vanadium and Molybdenum Pollution in Western Europe During the 20th Century, *Journal of Geophysical Research: Atmospheres,* 126 (4), e2020JD033211, https://doi.org/10.1029/2020JD033211

Arienzo, M. M., Collins, M. J., Jennings, K., 2021. Enhancing Engagement of Citizen Scientists to Monitor Precipitation Phase*, Frontiers in Earth Science*, 9, 68.

Legrand, M., McConnell, J. R., Preunkert, S., Chellman, N. J., **Arienzo, M. M.,** 2021. Causes of Enhanced Bromine Levels in Alpine Ice Cores During the 20th Century: Implications for Bromine in the Free European Troposphere, *Journal of Geophysical Research: Atmospheres,* 126 (8), e2020JD034246, https://doi.org/10.1029/2020JD03424

hellman, N., Csank, A., Gustin, M.S., **Arienzo, M.M.,** Estrada, M.V. and McConnell, J.R., 2020. Comparison of co-located ice-core and tree-ring mercury records indicates potential radial translocation of mercury in whitebark pine. *Science of The Total Environment,* 743, p.140695.

Legrand, M., McConnell, J.R., Lestel, L., Preunkert, S., **Arienzo, M.,** Chellman, N.J., Stohl, A. and Eckhardt, S., 2020. Cadmium pollution from zinc-smelters up to fourfold higher than expected in western Europe in the 1980s as revealed by alpine ice. Geophysical Research Letters, 47(10), p.e2020GL087537.

Arienzo, M. M., Mehterian, S., Swart, P.K., Broad, K., 2019. Constraining the drivers of calcite geochemistry in a monitored Bahamas cave, *Geochemistry, Geophysics, Geosystems.*

McConnell, J.R., Chellman, N. J., Wilson, A.I., Stohl, A., **Arienzo, M. M**., Eckhardt, S., Fritzsche, D., Kipfstuhl, S., Opel, T., Place, P., Steffensen, J. P. 2019. Pervasive Arctic lead pollution suggests Middle Age growth in European metal production modulated by plague, climate and conflict, *PNAS.* Chellman, N.C.

Arienzo, M. M., Maezumi, S. Y., Chellman, N. J., Iriarte, J. 2019. Evidence of anthropogenic modification of the landscape through biomass burning from an Amazon lake sediment core, *Fire,* https://doi.org/10.3390/fire2020031.

Preunkert, S., McConnell, J. R., Hoffmann, H., Legrand, M., Wilson, A., Eckhardt, S., Stohl, A., Chellman, N., **Arienzo, M. M.**, Friedrich, R. 2019. Lead and antimony in basal ice from Col du Dome (French Alps) dated with radiocarbon: A record of pollution during Antiquity, *Geophysical Research Letters,* https://doi.org/10.1029/2019GL082641 .

Arienzo, M. M., McConnell, J. R., Chellman, N., Kipfstuhl. S. 2019. Method for correcting continuous ice-core elemental measurements for under-recovery, *Environmental Science and Technology,* https://doi.org/10.1021/acs.est.9b00199.

Gleason, K. E., McConnell, J. R., **Arienzo, M. M.,** Chellman, N., Calvin, W. 2019. Four-fold increase in forest-fire-related solar forcing on western U.S. snow since 1998, *Nature Communication* https://doi.org/10.1038/s41467-019-09935-y.

Comas-Bru et al. 2019. Evaluating model outputs using integrated global speleothem records of climate change since the last glacial, *Climate of the Past*, 15, 1557-1579.

Oster, J., Warken, S. F., Sekhon, N., **Arienzo, M.,** Lachniet, M. 2019. Speleothem paleoclimatology for the Caribbean, Central America, and North America, *Quaternary,* DOI: 10.3390/quat2010005.

Atsawawaranunt, K., Comas-Bru, L., Amirnezhad Mozhdehi, S., Deininger, M., Harrison, S. P., Baker, A., Boyd, M., Kaushal, N., Ahmad, S. M., Ait Brahim, Y., **Arienzo, M.,** Bajo, P., Braun, K., Burstyn, Y., Chawchai, S., Duan, W., Hatvani, I. G., Hu, J., Kern, Z., Labuhn, I., Lachniet, M., Lechleitner, F. A., Lorrey, A., Pérez-Mejías, C., Pickering, R., Scroxton, N., and SISAL Working Group Members. 2018. The SISAL database: a global resource to document oxygen and carbon isotope records from speleothems, *Earth Syst. Sci. Data*, 10, 1687-1713, https://doi.org/10.5194/essd-10-1687-2018, 2018.

Legrand, M., McConnell, J.R., Preunkert, S., **Arienzo, M.,** Chellman, N., Gleason, K., Sherwen, T., Evans, M. J., Carpenter, L.J. 2018, Alpine ice evidence of a three-fold increase in atmospheric iodine deposition since 1950 in Europe due to increasing oceanic emissions, *PNAS*.

McConnell, J.R., Wilson, A. I., Stohl, A., **Arienzo, M. M.,** Chellman, N. J., Eckhardt, S., Thompson, E. A., Pollard, M. A., Steffensen, J. P. 2018. Lead pollution recorded in Greenland ice indicates European emissions tracked plagues, wars, and imperial expansion during antiquity, *PNAS*, 10.1073/pnas.1721818115

Chellman, N., McConnell, J. R, Heyvaert, A., Vanniere, B., **Arienzo, M. M**., Wennrich, V. 2018. Incandescence based single particle method for black carbon quantification in lake sediment cores, *Limnology and Oceanography: Methods*, 16(11), 711-721.

Arienzo, M. M., McConnell, J. R., Murphy, L. N., Chellman, N., Kipfstuhl, S., Das. S., Mulvaney, R. 2017. Holocene black carbon in Antarctica paralleled South American climate, *Journal of Geophysical Research: Atmospheres,* 122, 10.1002/2017JD026599

Arienzo, M. M., Swart, P.K., Broad, K., Clement, A. C., Pourmand, A., Kakuk, B. 2017. Multi-proxy evidence of millennial scale climate variability from multiple Bahamian speleothems, *Quaternary Science Reviews,* DOI:10.1016/j.quascirev.2017.02.004.

McConnell, J.R., Burke, A., Dunbar, N. B., Köhler, P., Thomas, J. L., **Arienzo, M. M.,** Chellman, N. J., Maselli, O. J., Sigl, M., Adkins, J. F., Baggenstos, D., Burkhart, J. F., Brook, E. J., Buizert, C., Cole-Dai, J., Fudge, T.J., Knorr, G., Graf, H. F., Grieman, M. M., Iverson, N., McGwire, K. C., Mulvaney, R., Paris, G., Rhodes, R. H., Saltzman, E. S., Severinghaus, J. P., Steffensen, J. P., Taylor, K. C., Winckler, G. 2017. Synchronous volcanic eruptions and abrupt climate change ~ 17.7 ka plausibly linked by stratospheric ozone depletion, *PNAS*, 114(38), 10.1073/pnas.1705595114.

Mekhaldi, F., McConnell, J. R., Adolphi,R., **Arienzo, M. M.,** Chellman, N. J., Maselli, O. J., Moy, A. D., Plummer, C. T., Sigl, M., Muscheler, R. 2017. No coincident nitrate enhancement events in polar ice cores following the largest known solar storms, *Journal of Geophysical Research: Atmospheres*, 122, https://doi.org/10.1002/2017JD027325

De Wet, C., **Arienzo, M. M.,** Dinterman, P., Hopkins, D. 2017. Depositional facies influence on shallow burial dolomitization, and Triassic dedolomitization in the Middle Cambrian Ledger Formation, York, Pennsylvania, USA, *Advances in Characterization and Modeling of Complex Carobate Reservoirs—In Memory of Eric Mountjoy*, SEPM Special Publication No. 109.

Chellman, N., McConnell, J. R, **Arienzo, M. M.,** Pederson, G., Aarons, S., Csank, A. 2017. Reassessment of the Upper Fremont Glacier ice core chronologies by synchronizing ice core water isotopes to a nearby tree-ring chronology, *Environmental Science & Technology* 51(8), 4230-4238, DOI: 10.1021/acs.est.6b06574.

Arienzo, M. M., McConnell, J. R., Chellman, N., Criscitiello, A. S., Curran, M., Fritzsche, D., Kipfstuhl, S., Mulvaney, R., Nolan, M, Opel, T., Sigl, M., Steffensen, J. P. 2016. A method for continuous ^{239}Pu determinations in Arctic and Antarctic ice cores, *Environmental Science and Technology,* 50 (13), 7066–7073, DOI**:** 10.1021/acs.est.6b01108.

Legrand, M., McConnell, J., Fischer, H., Wolff, E. W., Preunkert, S., **Arienzo, M.,** Chellman, N., Leuenberger, D., Maselli, O., Place, P., Sigl, M., Schüpbach, S., Flannigan, M. 2016. Boreal fire records in Northern Hemisphere ice cores: a review, *Climate of the Past,* 12(10), 2033-2059.
Swart, P. K., Cantrell, D., **Arienzo M. M.,** Murray S. T. 2016. Evidence for high temperature and ^{18}O-enriched fluids in the Arab-D of the Ghawar Field, Saudi Arabia, *Sedimentology,* doi: 10.1111/sed.12286.

Murray S. T., **Arienzo M. M.,** Swart, P. K. 2016. Determining the Δ47 acid fractionation in dolomites, *Geochimica et Cosmochimica Acta,* vol 174, 42-53.

Arienzo, M. M., Swart, P. K., Pourmand, A., Broad, K., Clement, A. C., Murphy, L. N., Kakuk, B. 2015. Bahamian speleothem reveals temperature decrease associated with Heinrich stadials, *Earth and Planetary Science Letter,* vol 430, 377–386, doi:10.1016/j.epsl.2015.08.035.

Pourmand, A., Tissot, F. H., **Arienzo M. M.,** Sharifi, A. 2014. Introducing a comprehensive data reduction and uncertainty propagation algorithm for U-Th geochronometry with extraction chromatography and isotope dilution MC-ICP-MS, *Geostandards and Geoanalytical Research,* vol. 38, 129-148, doi: 10.1111/j.1751-908X.2013.00266.x.

Murphy, L. N., Clement, A., Albani, S., Mahowald, N. M., Otto-Bliesner, B. L., Swart, P. K., **Arienzo, M. M.** 2014. Simulated changes in atmospheric dust in response to Heinrich Events, *Paleoceanography,* vol. 29, 1-14, doi:10.1002/2013PA002550.

Arienzo, M. M., Swart, P. K., Vonhof, H. B. 2013. Measurement of $\delta^{18}O$ and $\delta^{2}H$ of fluid inclusion water in speleothems using cavity ring-down spectroscopy compared with isotope ratio mass spectrometry, *Rapid Communications in Mass Spectrometry,* vol 27, 2616–2624, DOI: 10.1002/rcm.6723.

Arienzo, M. M., Gleason, K. E., Sexstone, G., Eckhardt, S., Stohl, A. *In Preparation,* Evidence of Rocky Mountain snow contamination from local and regional pollution sources, *Water Resource Research.*

Arienzo, M. M., and Noble, P. *In Preparation,* Recent wildfire trends from two northern Sierra Mountains lakes, *Limnology and Oceanography.*

INVITED PRESENTATIONS

Invited Presentation: From Peak to Pipe: Microplastics in the Sierra Nevada, Science for Sustainability Symposia: ThermoFisher Scientific, April 13, 2021-April 15, 2021.

Invited Presentation: Plastic Pollution in the Environment, Mid-Atlantic Undergraduate Research Conference, March 25, 2021-March 27, 2021.

Anthropogenic impacts to the Western US: toxic metals, microplastics. 2020. Caltech, Pasadena, CA.

Environmental History in Ice. 2018. Science Distilled public outreach event, Patagonia Outlet, Reno, NV.

Ice Core Archives of Anthropogenic Pollution from the Roman Era to Today. 2018. University of California, Davis.

Ice Core Archives of Anthropogenic Pollution from the Roman Era to Today. 2018. Geology Seminar, University of Miami, RSMAS.

Application of Elemental Analysis to Ice Core Samples. 2015. Thermo Scientific user group meeting, Reno, NV.

GRANTS & SCHOLARSHIPS

External Awards

2021 "CAREER: Microplastics in snow-dominated environments - sources, transport, and fate", NSF-Hydrology, PI, ($550,787 – awarded).

2021 “Monitoring the Rain-Snow Transition in the Western United States with Citizens Science Observation”, NASA-ROSES, co-I ($174,790.00 – awarded).

2021 “Occurrence and transport of poly- and perfluoroalkyl substances (PFAS) in snow dominated watershed” NSF-Hydrology, co-PI, ($397,616 – in review).

2021 “Collaborative Research: Using [Hg], Hg and C isotopic ratios and other proxies to investigate the use of tree rings as an archive for atmospheric Hg concentrations and sources”, NSF, co-I, ($77,089.00 – in review).

2020: “MRI: Acquisition of an Infrared Microscope for Research Expansion and Training in the Earth Sciences” NSF-MRI, PI, ($136,000 – awarded)

2019 “Are dryers a source of Microplastics?”, REI Foundation, Co-PI, ($10,000- awarded).

2019 “Tahoe Rain or Snow? Leveraging Citizen Science Data to Improve Satellite Measurements of Precipitation Phase” Nevada NASA EPSCoR RID, PI. ($50,000-awarded)

2018 “Microplastics in Lake Tahoe” DRI Foundation Innovative Research Proposal, Co-PI. ($34,944 - awarded)

2018 “Influence of germline mutations on susceptibility to environmental carcinogens” NIH RFA-ES-18-007: Virtual Consortium for Translational/Transdisciplinary Environmental Research (ViCTER), Co-I. ($1,927,500 – awarded)

2018 “A 1.4 million year record of black carbon and biomass burning in the eastern Arctic from the Lake El'gygytgyn and other sediment cores” NSF EAR – Global Change, co-PI. ($468,274 – awarded)

Internal Awards

2019 “Using Armored Catfish as an Indicator of Microplastic Pollution in the Las Vegas Wash” DRI Maki Project Proposal, co-PI ($79,000- awarded).

TEACHING EXPERIENCE

Isotope Hydrology (GEOL-780), University of Nevada Reno.
Fall 2016, 2018, 2020.
Introduction to Environmental Science, Truckee Meadows Community College.
ENV101 (20 students), Fall 2019
Introduction to Geology, University of Nevada Reno.
GEOL 101 (28 students), Fall 2016
Teaching Assistant: Introduction to Oceanography, University of Miami
Spring 2011, Fall 2010, Spring 2010, Spring 2009
Resident Scientists: Carol City Middle School, Miami, FL
NSF Graduate STEM Fellowship in K-12 Education (GK-12) Program
Fall 2011- Spring 2012

PRESENTATIONS (* indicates student presentation)

*Minatre, K. L., **Arienzo, M. M**., Maezumi, S., Watts, A. C., 2021. Reconstructing Fire Intensity Leveraging Infrared Imaging Microscopy Of Charcoal Materials And NASA Remote Sensing Products, NV NASA Programs Statewide Virtual Meeting: Virtual, April 30, 2021.

Arienzo, M. M., Collins, M. J., Jennings, K., 2021: Tahoe Rain or Snow: Monitoring Precipitation Phase through Citizen Science, NV NASA Programs Statewide Virtual Meeting: Virtual, April 30, 2021.

*Davidson, J. M., West, C., Senft, K., Harrold, Z., Robtoy, E., Minatre, K. L., **Arienzo, M. M**., 2020: Identification of Macroplastics Subject to Degradation in Lake Tahoe, Nevada, AGU Fall Meeting.

Jennings, K., **Arienzo, M. M.**, Collins, M. J., 2020: Comparing Satellite Estimates of Precipitation Phase to Citizen Science Observations, AGU Fall Meeting: Online.

Bruegger, S., Chellman, N. J., **Arienzo, M. M.**, Stohl, A., Eckhardt, S., McConnell, J. R., 2020: Human-environmental interactions in the Arctic inferred from microfossils in Central Greenland ice, Eos Trans. AGU, Fall Meet. Suppl.,, Presented, doi: Abstract B080-0018

Arienzo, M. M., Collins, M. J., Davidson, J. M., Frey, E., Movius, M., 2020: Are clothes dryers a source of microplastics to the atmosphere?, AGU Fall Meeting: Online.

Collins, M. J., **Arienzo, M. M**., Jennings, K., 2020: Strategies employed for successful participant engagement in 'Tahoe Rain or Snow' citizen science to improve rain-snow partitioning, AGU Fall Meeting.

Arienzo, M. M., Noble, P., Minatre, K. 2019. Anthropogenic and wildfire influences on black carbon deposition in a montane California lake sediment record, AGU Fall Meeting, San Francisco, CA.

*Davidson, J., **Arienzo, M. M.,** Harrold, Z. 2019. Microplastic presence in seasonal snow from the Sierra Nevada, AGU Fall Meeting, San Francisco, CA.

Greenwald, A., Nolin, A. W., Jennings, K. S., Drake, S. A., **Arienzo, M. M.** 2019. Forest cover controls variability in snow albedo and the snowpack energy balance in a mountain watershed, AGU Fall Meeting, San Francisco, CA.

Harrold, Z., **Arienzo, M. M.,** Collin, M., Bai, X., Davidson, J. M. 2019. Introduction to High Volume Sampling: A novel method for sampling microplastics in diverse aqueous systems, AGU Fall Meeting, San Francisco, CA.

Collins, M., Arienzo, M. M., Harrold, Z., Bradford, Z., Frey, E. 2019. Case Study on Developing a Citizen Science Protocol for Microplastics in Lake Tahoe, AGU Fall Meeting, San Francisco, CA.

Gleason, K., McConnell, J. R., Arienzo, M. M., Chellman, N., Calvin, W. M. 2019. Four-fold Increase in Solar Forcing on Snow in Western U.S. Burned Forests since 1999, AGU Fall Meeting, San Francisco, CA.

Jennings, K. S., Arienzo, M. M., Nolin, A. W. 2019. Widespread Declines in Snowfall Fraction over Major US Mountain Ranges, AGU Fall Meeting, San Francisco, CA.

Arienzo, M. M., Maezumi, S. Y., Chellman, N. J., Iriarte, J. 2019. Evidence of anthropogenic modification of the landscape through biomass burning from an Amazon lake sediment core, INQUA, Dublin, Ireland.

*Davidson, J., Arienzo, M. M., Cordero, R., Fernandoy, F. 2019. The effects of dust and pollution on trace element concentrations in Chilean Snowpacks, Nevada Teach presentation, Reno, NV.

Collins, M. J., McDonough, F., Juchtzer, J. W., **Arienzo, M. M.,** Dean, J., 2019. Stories in the Snow: Crowd-Sourced Snow Crystal Images to Identify Tahoe Winter Cloud Structures, Annual Western Snow Conference: Reno, NV, April 16, 2019-April 18, 2019.

Gleason, K., **Arienzo, M. M**., McConnell, J. R., Harpold, A. 2019. Forest Canopies Effect the Deposition and Concentration of Impurities in Sierra Nevada Snowpack, Annual Western Snow Conference: Reno, NV, April 16, 2019-April 18, 2019.

Arienzo, M. M., Gleason, K., McConnell, J. R., Sexstone, G. 2019. Trace elements in snow samples from the Rocky Mountains, Annual Western Snow Conference, Reno, NV, April 16, 2019-April 18, 2019.

Arienzo, M. M., Preunkert, S., McConnell, J. R., Chellman, N., Legrand, M., Stohl, A., Eckhardt, S. 2018*,* Assessment of pollution from two ice cores from Col du Dome, French Alps, POLAR 2018, Davos, Switzerland.

Arienzo, M. M., McConnell, J. R., Chellman, N., Gleson, K. E., Stohl, A., Eckhardt, S. 2018*,* Black carbon deposition to Antarctica: Low latitude hydroclimate teleconnections, POLAR 2018, Davos, Switzerland.

Arienzo, M. M., Swart, P.K., Broad, K., Clement, A. C., Pourmand, A., Kakuk, B. 2017. Multi-proxy evidence of millennial scale climate variability from multiple Bahamian speleothems, GSA Annual Meeting, Seattle, WA.

Chellman, N., McConnell, J. R, **Arienzo, M. M.,** Pederson, G., Aarons, S., Csank, A. 2017. An updated chronology for the Uper Fremont Glacier ice cores: Climate and environmental implications, GSA Annual Meeting, Seattle, WA.

Arienzo, M. M., Chellman, N., Gleason, K., Hayvaert, A., McConnell, J. R. 2017. Black Carbon Measurements in Fremont Glacier Ice Core and North Lake Sediment Cores: Application and Assessment in the Colorado River Basin, Department of Hydrologic Sciences Colloquium, DRI.

Arienzo, M. M., McConnell, J. R., Murphy Goes, L., Criscitiello, A. S., Das, S., Kipfstuhl, S. 2016. Antarctic black carbon parallels insolation and millennial scale climate variation, *American Geophysical Union*, Annual Meeting, San Francisco, CA

Massam, A., Mulvaney, R., McConnell, J., Abram, N., **Arienzo, M. M.,** Whitehouse, P. L. 2016. Insights into accumulation variability over the last 2000 years at James Ross Island, Antarctic Peninsula, *American Geophysical Union*, Annual Meeting, San Francisco, CA

Mehterian, S, **Arienzo, M. M.,** Pourmand, A., Broad, K., Swart, P. K. 2016. Millennial Scale Rapid Climate Change Events of the last 60kya as Observed in Multiple Stalagmites from The Bahamas, *American Geophysical Union*, Annual Meeting, San Francisco, CA.

Arienzo, M. M. McConnell, J. R., 2016. Antarctic black carbon tracks Southern Hemisphere climate throughout the Holocene**,** *IPICS meeting,* Hobart, TAS, Australia.

McConnell, J. R., **Arienzo, M. M.,**, Chellman, N., Fritzsche, D., Kreutz, K., Kipfstuhl, S., Maselli, O., Nolan, M., Pasteris, D., Sigl, M., Steffensen, J. P. 2015. Dust in the Arctic during the past Millennium from a developing array of ice cores: Linkages to climate and land use, *American Geophysical Union*, Annual Meeting, San Francisco, CA.

Arienzo, M. M., Mehterian, S., Swart, P. K., Broad, K. 2014. Determining the drivers of oxygen and carbon isotope fractionation in a monitored Bahamas cave, *American Geophysical Union*, Annual Meeting, San Francisco, CA.

Murray, S., Swart, P. K., **Arienzo, M. M.** 2014. Clumped isotopes in Bahamian dolomites: A Rosetta stone? *American Geophysical Union*, Annual Meeting, San Francisco, CA.

Arienzo, M. M., Swart, P. K., Murray, S. M. 2014. Determining the drivers of clumped isotope fractionation in modern and ancient Bahamian speleothems, *Workshop on Clumped Isotopes*, ETH Zurich, Switzerland.

Arienzo, M. M., Swart, P. K., Pourmand, A., Broad, K., Clement, A. C., Murphy, L. N., Kakuk, B. 2013. Evidence of abrupt climate variability across Heinrich events from multiple Bahamian stalagmites, *American Geophysical Union*, Annual Meeting, San Francisco, CA.

Arienzo, M. M., Swart, P. K., Murray, S., Vonhof, H. 2013. Temperature determination from speleothems through fluid inclusion and clumped isotope techniques, *Goldschmidt Conference*, Florence, Italy.

Arienzo, M. M., Swart, P. K., Schroeder, C., Hsiao, G., Vonhof, H. B. 2013. Analysis of $\delta^{18}O$ and $\delta^{2}H$ of fluid inclusion water in speleothems using cavity ring-down spectroscopy, *American Geophysical Union*, Annual Meeting, San Francisco, CA.

AWARDS

2019 DRI's Rising Researcher Award, Nevada System of Higher Education Board of Regents.
2016 F. G. Walton Smith Prize for Outstanding Ph.D. Dissertation, University of Miami
2009 AGU Fall Meeting Paleoceanography and Paleoclimatology Outstanding Student Paper Award
2008 Rosenstiel Fellowship

SERVICE

DRI Faculty Senator: Representative of the Desert Research Institute 2019-2020
DRI Inclusion, Diversity, Equity, Accessibility (IDEA): Faculty representative, 2020-2021
UNR Women's Ultimate Frisbee Faculty Advisor: 2017- Current
IPA Committee: Internal grant reviewer 2017-2019
Regional Coordinator: PAGES Speleothem Isotopes Synthesis and Analysis (SISAL) working group (2018-current)
Conducted peer reviews for scientific publications and funding agencies: 2014-present
Co-Convener AGU Fall Meeting 2019, 2020: Microplastics in the Geosphere
Co-Convener GSA Annual Meeting 2017: Paleoclimatology, Sedimentology, and Historical Studies in Caves and Karst Features.
Co-Convener AGU Fall Meeting 2016: Dust, Black Carbon, and other Aerosols in the Cryosphere
Co-Convener AGU Fall Meeting 2014: Clumped Isotope Geochemistry: From Advances in Methodology to Applications in the Geosciences
Lab Safety Committee Member: Jan 2014 - Current
Co-Organizer PAGES Workshop: Cast, Cut, Sample and Analyze: A practical approach to processing speleothems for paleoclimate reconstruction, April 2014.

OUTREACH

Laboratory tours: January 2015 to present
Conducted numerous laboratory tours for over 100 students, teachers, scientists, journalists

DRI Open House: May 2019
Table focused on hands on experiments on microplastics.
Women in Science: February 2010, March 2012, September 2013
Introduced students to geochemistry/climate change science.
Miami Heights Elementary School: February 2013
Lecture/activities with children about geology and geologic time.

PROFESSIONAL MEMBERSHIPS

American Geophysical Union: 2008-present
Geological Society of America: 2011 – present

PROFESSIONAL SKILLS

Geochemical analytical tools: ThermoNicolet iN10MX FTIR, Thermo Element 2, DMT SP2, Picarro L2130-I, Thermo ATR-FTIR, New Wave Research Computerized Micromill, Thermo-Finnigan Delta Plus IRMS with Keil III, Thermo Scientific MAT 253 IRMS with Keil IV, Varian ICP-OES, Thermo Scientific Neptune MC-ICP-MS, Delta Plus XP.
Analytical Methods: Microplastic separation method, clumped isotope method, extraction chromatography for U-Th, sample preparation for stable isotope and trace element analysis.
Geographical Information System (GIS)
MATLAB
PADI SCUBA certification: 2000-current