NARI V. MILLER

(805) 252-7080 ⋄ nari.v.miller@gmail.com

Education

2024 Ph.D. in Geological Sciences
Arizona State University, Tempe, AZ
Advisor: Arjun Heimsath
Committee Members: Michael Barton, Duane DeVecchio, Heather Throop, Kelin Whipple

2012 B.A. in Geosciences (with Honors) and Chemistry
Williams College, Williamstown, MA
Advisor: Mea Cook

Teaching Experience

S20 & S22 **Geochemistry**, as instructor of record.
California State University, Stanislaus, Turlock, CA
This upper-level course for undergraduate Geology Majors uses case studies of geochemistry research to connect classroom geochemistry topics with real issues. Students wrote and presented a research review paper, which required them to use campus library resources, create their own conceptual diagram and map.

F21 **Earthquakes & Volcanoes**, as instructor of record.
California State University, Stanislaus, Turlock, CA
A general-education science course. Engaged students in learning and understanding these earth hazards from cultural, scientific, and historic perspectives.

F21 **Geophysical Exploration**, as instructor of record.
California State University, Stanislaus, Turlock, CA
This junior/senior-level course for Geology Majors introduces students to common geophysical techniques of assessing subsurface composition. Students experienced the process of designing a sampling plan and collecting shallow seismic surveys near campus.

S21 **Water Planet**, as teaching assistant. Arizona State University, Tempe, AZ. I recorded lab tutorials. Primary instructor: Kelin Whipple
This general-education science course teaches quantitative thinking in the context of the energy budget of Earth.

2016 - 2019 **Field Geology II** in Tonto National Forest, AZ, and San Juan National Forest, CO, as teaching assistant during the 3-week summer course. Arizona State University, Tempe, AZ.
Primary instructors: Tom Sharp and Arjun Heimsath
Taught field observation and hypothesis testing, digital mapping, and note-taking to students in the field. Tutored students on interpreting and synthesizing their observations into reports.
Organized logistics for the 22-student, three-week course: food, vehicles, office materials.

F17 **Earth's Critical Zone**, as teaching assistant. Arizona State University, Tempe, AZ. Held office hours and graded homework.

F14 - S16 **Historical, Physical, and Introductory Geology**, as teaching assistant. Arizona State University, Tempe, AZ. As the TA, I taught the lab sections. *Taught introductory hands-on geology labs for non-majors. Included short campus field trips to see local unconformities and fossils.*
Coordinated introductory geology graduate TA's as Head TA (F15 - S16)

Field Research Experience

2018 Collaborated with University of Washington archaeology group (PI: Marcos Llobera) and produced a geomorphic map of the Son Servera valley in Mallorca, Spain.

2015 - 2017 Conducted fieldwork near Valencia, SP, for dissertation: collected soil and bedrock samples for erosion measurement using cosmogenic ^{36}Chlorine and *meteoric* ^{10}Beryllium.

2012 Albion College Field Camp, Wyoming and South Dakota
Interpreted and mapped the geology of structures, and units in: Elk Basin, Dead Indian Monocline, Snake River Valley, Seminoe National Forest, and the Black Hills.

Lab Research Experience

2016 - 2019 Soil and rock processing & pulverization for major, trace, and cosmogenic radionuclide element analysis in AZ.

2018 Processed carbonate rocks (^{36}Cl) at the University of Köln, Germany.

2017 Extracted meteoric ^{10}Be from soils in University of Vermont's CosmoLab.

2014 - 2016 Cosmogenic Nuclide Labwork in AZ (e.g. pack Be oxides for shipment).

2013 National Association of Geoscience Teachers Intern, with Water, Energy, and Biogeochemical Budgets Project, USGS, Boulder, CO.
Measured water quality (dissolved oxygen, turbidity, ions) from long-term monitored sites and lake sediment gas emissions. Collected water samples from streams in Nome Creek Watershed, AK.

Professional Development

2021 CIENCIA Summer Institute, Summer semester, CSU Stanislaus
The Collaboration for Inclusive and Engaging Curriculum, Instruction, and Achievement brings STEM faculty together to learn and discuss best practices for teaching students from diverse backgrounds.

2020 & 2021 Quality Learning and Teaching Program, Summer semesters, CSU Stanislaus. Learned best practices for clear and effective online teaching.

2017 Participated in the Summer Institute on Earth-Surface Dynamics (SIESD), at the St. Anthony Falls Laboratory at the University of Minnesota, Aug 10-19.

F16 - S17 Graduate Partners in Science Education, Arizona State University
As a participant, I designed K-12 curriculum for after-school programs, incorporating science standards.

Dissertation and Thesis

2024 Dissertation Title: *Linking Process and Form in Carbonate Rock through Cosmogenic 36-Chlorine Erosion Rates, Regolith Mass Balance and Fluvial and Hillslope Topography.*

2011 - 2012 Paleoclimatology Honors Thesis Research. Thesis title: *Evidence for Methane Release from Laminated Bering Sea Sediments during the Penultimate Glacial Period* .

Publications

Present **Miller**, N, Heimsath, A., Bierman, P., Corbett, L. and Barton, M. "Quantifying chemical erosion, dust accumulation, and sediment flux in carbonate landscapes." In prep.

2016 Cook, M, Ravelo, A, Mix, A, Nesbitt, I and **Miller**, N,"Tracing subarctic Pacific water masses with benthic foraminiferal stable isotopes during the LGM and late Pleistocene," Deep Sea Research Part II: Topical Studies in Oceanography, March, Vol 125, pp 84-95. DOI: 10.1016/j.dsr2.2016.02.006.

Conference Posters and Presentations

2024 **Miller**, N., Heimsath, A., Bierman, P., Corbett, L., and Barton, M. Dust input to regolith and chemical erosion of carbonate hillslopes: a mass balance approach. Abstract 104-5. In Session "T39. What's the Cosmognosis? Recent Advances in Understanding Earth and Planetary Processes with Cosmogenic Nuclides (Posters)." Anaheim, CA, 23 September.

2019 **Miller**, N., *Spatial variations in hillslope morphology relate to lithology and base level*, Abstract No. 341241. Oral presentation at Geological Society of America, Phoenix, AZ, 25 September.

2018 **Miller**, N., *Quantifying bedrock erosion and coarse sediment transport in the tectonically quiescent, limestone landscape of Southeastern Spain*, Abstract No. 325110. Oral presentation at Geological Society of America, Indianapolis, IN, 6 November.

2018 *Millennial-scale geomorphic evolution of rocky semi-arid limestone hillslopes.* Geochemistry Guest Lecture Series, Stanislaus State University, Turlock, CA, Lecture presented 8 March.

2017 **Miller**, N., *Soil residence times of uncultivated hillslopes in Navarres, SP, and Arizona, US, using meteoric 10-Beryllium*, Abstract No. 359-7. Poster presented at Geological Society of America, Seattle, WA, 22-25 October.

2014 Cook, M., Ravelo, A., Mix, A., Nesbitt, I., **Miller**, N., *Tracing Bering Sea Circulation With Benthic Foraminiferal Stable Isotopes During the Pleistocene*, Abstract PP23D-08 presented at AGU Fall Meeting, San Francisco, CA, 15-19 December.

2012 **Miller**, N. and Cook, M., *Evidence for elevated methane flux in laminated Bering Sea sediments from the penultimate glaciation*, Abstract PP13B-2105 presented at AGU Fall Meeting, San Francisco, CA, 3-7 December.

Grants and Awards

2018 Free Seed Sample Analyses at PRIME Lab, Purdue University
Awarded free (about $11,700 value) of cosmogenic ^{36}Chlorine sample preparation and AMS measurements for a study of lithologic control of the landscape evolution of post-tectonic topography in Arizona and Spain.

2017 Graduate & Professional Student's Association Travel Grant
Received $950 to attend and present my work at the annual Geological Society of America Conference in Seattle, WA.

2016	Woodside Grant Recipient Project Coordinator, $1,500. Initiated and mentored an undergrad in a research project analyzing soil heavy metals in local community gardens.
2012	The David Major Prize for Excellence in Geosciences, Williams College.

Mentoring Experience

S18 - F19	I trained two undergraduate geology students (Luana Paredes Sanchez and Deanna Brodbeck) in scientific methods of soil preparation and division, and rock pulverization at Arizona State University.
S16	Introduced an undergraduate student to methods in soil quality research in the context of community gardens.

Professional Service

2024	Quaternary Geology and Geomorphology Division of Geological Society of America conference volunteer
2015 - 2018	School of Earth and Space Exploration Colloquium Search Committee, Arizona State University. Elicit student recommendations of speakers and select diverse, excellent speakers for our weekly colloquium series. Implemented a ranking system weighting student nominations and diverse candidates.
2008 - 2012	Williams College Annual Winter Blitz Event Organizer and Co-President Involved over 150 students and community members in weatherizing 40 homes for low-income families each year. In addition to organizing publicity events, planning group transportation and lunches, I also created an inventory to efficiently track of unused supplies.

Technical Expertise

Software	LaTeX, Excel, Inkscape, ImageJ and ArcGIS
Data Analysis	Python: Pandas, Matplotlib, GeoPandas, Streamlit Landscape Evolution: Landlab Cosmogenic radionuclide production: CRONUScalc (in MATLAB)
Web App	Interactive Mass Balance Model: An addition to the soil mass balance presented in the GSA Poster 2024. `https://carbonate-regolith.streamlit.app/`

References

Professor Arjun Heimsath	aheimsat@asu.edu	(480)965-5585
Professor Kelin Whipple	kxw@asu.edu	(480)965-9508
Professor Tom Sharp	tom.sharp@asu.edu	(480)965-3071
Professor Rob Rogers	rrogers1@csustan.edu	(209)664-6691