

Diana Zamora-Reyes

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Research Interests & Expertise

Hydroclimatological extremes in Arizona and California; climate dynamics; natural hazard risks; flood frequency analysis; paleoclimatic proxies (tree rings); science policy; science communication

Education

Ph.D., Hydrology, University of Arizona **August 2022**

Dissertation: *Enhanced Hydroclimatic Variability in the Southwestern US*
Advisor: Valerie Trouet
Committee: Laura Condon, Christopher Castro, Bryan Black, Larry Winter

M.S., Hydrology, University of Arizona **December 2014**

Thesis: *Relevance of Heterogeneity for Flood Frequency Analysis in Arizona*
Advisor: Katherine Hirschboeck
Committee: Juan Valdes, Victor Baker, Nicholas Paretti

B.S., Environmental Geosciences, University of Texas at El Paso **May 2011**

Summa Cum Laude; Departmental Honors
Thesis: *The Role of Underflows and Climate on Sediment Distribution in Glacial-Fed Lake Linné, Svalbard, Norway*
Thesis Advisor: Vanessa Lougheed

Professional Experience

Research

Research Assistant, National Science Foundation Career Grant #1349942, University of Arizona

Project: *Tree-Ring Based Reconstruction of Northern Hemisphere Jetstream Variability*

Duties: Collected and analyzed precipitation and streamflow instrumental and reconstruction data with emphasis on variability and extremes; performed extensive literature review; wrote manuscript with results
Tenure: June 2018-July 2019

Research Assistant, Climate Assessment of the Southwest, University of Arizona

Project: *Climate and Weather Services for Disaster Management: A FEMA, NWS, and CLIMAS Collaboration*

Duties: Collected local and state agriculture/residential damage information as well as meteorological data for floods that were Presidential Disaster Declarations; wrote synthesis of these destructive events
Tenure: June 2015-August 2015

Research Assistant, Climate Assessment of the Southwest, University of Arizona

Project: *Integrating Climate Science for Decision-Support, Mitigating Risk, and Promoting Resilience*

Duties: Performed extensive literature review on current flood frequency methodology; summarized meteorological conditions for each major flood in Arizona
Tenure: August 2011-August 2012

Hydrologic Technician, Arizona Water Science Center, United States Geological Survey

Project: *Methods for Estimating Magnitude and Frequency of Floods in Arizona*

Duties: Collected peaks-over-threshold streamflow data for all stations available in Arizona from online and annual water reports; performed flood frequency analysis
Tenure: August 2011-August 2012

Teaching

Teaching Assistant, Bryant Bannister Laboratory of Tree-Ring Research, University of Arizona

Course: Introduction to Global Climate Change

Duties: Assisted during lecture, held office hours and midterm and final exam preparations, and graded/gave feedback on exams, quizzes, term papers and essays

Tenure: August 2014-May 2015, August 2015-December 2015, August 2017-May 2018, January 2020-December 2020, January 2022-present

Assistant Language Teacher, Japan Exchange and Teaching Program, Mizusawa Super Science High School

Course: Basic Science English

Duties: Developed, executed and graded activities, quizzes, and exams. Assisted senior students with their science projects and English competitions. Participated in English camps and local/prefectural Science Fairs.

Tenure: July 2016-July 2017

Publications

Zamora-Reyes, D., Black, B, and V. Trouet (2022). Enhanced winter, spring, and summer hydroclimate variability across California from 1940 to 2019. *Int J Climatol*, 1-13. <https://doi.org/10.1002/joc.7513>

Fellowships

<i>Marshall Foundation Dissertation Fellowship</i> , University of Arizona (\$10,846)	2021
<i>Arizona Space Grant Fellow</i> , University of Arizona (\$10,000)	2019-2020
<i>INTERN Supplemental Fellowship</i> , National Science Foundation (\$6,000)	2019
<i>Graduate Access Fellowship</i> , University of Arizona	2011-2012 (MS); 2014-2015 (PhD)

Scholarships

<i>Bridge to the Doctorate</i> , National Science Foundation, University of Arizona	2012-2014
<i>Pathways Program</i> , National Science Foundation, University of Texas at El Paso	2010-2011

Honors

<i>Galileo Circle Scholar</i> , College of Science, University of Arizona	2013
<i>Honorable Mention</i> , Graduate Research Fellowship Program, National Science Foundation	2013

Awards

<i>Service Award</i> , College of Science, University of Arizona	2020
<i>Teaching Award</i> , College of Science, University of Arizona	2015
<i>1st Place Oral Presentation</i> , Emerging Researchers National Conference	2014
<i>1st Place Hargis Award-Best Student Poster Presentation</i> , El Dia del Agua-Student Conference, University of Arizona	2013
<i>1st Place Poster Presentation</i> , Emerging Researchers National Conference	2013

Professional Development

Mitchell Hamline School of Law Expert Witness Training Academy	30 July-2 August, 2019
Alan Alda Science Communication Workshop	14-15 February, 2019
Studies of Precipitation, Flooding, and Rainfall Extremes Across Disciplines Workshop	16-21 June, 2013

Service and Leadership Positions

Lead Outreach Organizer for the Hydrology and Atmospheric Sciences Department

Duties: Recruit students/postdocs to help with spring semester outreach event in local middle schools; Lead for Monsoon group lecture

Tenure: January 2021-present

Committee Member for the Hydrology and Atmospheric Sciences Department Diversity, Equity, and Inclusion Committee

Duties: Attend weekly meetings to discuss DEI issues affecting student body

Tenure: May 2020-present

President of the *Hydrology and Atmospheric Sciences Student Association*

Duties: Led officers/general meetings; responsible for all financial and logistical aspects of the organization; lobbied for more social events within the department (i.e. we started a monthly Coffee + Donuts social hour for students and faculty/staff to interact); advocated for the incorporation of more mental and well-being activities for students; planned fundraising efforts throughout the year; organized social events with other departments

Tenure: May 2019-May 2020

Policy Track Fellow for the *American Geophysical Union's Voices for Science*

Duties: Made monthly calls with other Arizona and California fellows; co-founded Science & Policy Bites; held two seminars with microgrants (\$1,000) from AGU; created extensive network with public policy staff on campus as well as with students, professors, post-docs and staff

Tenure: April 2019-March 2020

Lead Organizing Rapporteur for the *Science, Health and Engineering Policy and Diplomacy Initiative 2019 Conference*

Duties: Recruited students to help with transcripts and note-taking during conference

Tenure: August 2019-October 2019

Co-convenor for the American Geophysical Union's 2019 Fall Meeting Town Hall on *Disaster Policies or Disastrous Policies? A Town Hall at the Junction of Natural Hazards, Society, Science Policy, and Communication*

Duties: Helped in planning of session (monthly meetings); will lead advertising efforts (i.e. social media campaign); will help with all the logistical/technical aspects

Tenure: August 2019-December 2019

Intern at the *Tucson National Weather Service Office*

Duties: Learned about all aspects of the office, including hydrologist position; started to work on the foundation for StoryMaps

Tenure: January 2019-May 2019

Committee Member for the *School of Earth and Environmental Science 2019 EarthWeek Symposium*

Duties: Attended bi-weekly meetings; helped to organize social events; served as lead mediator between the Tree-Ring Lab and the other departments

Tenure: November 2018-March 2019

Lead Organizer for *2019 Tree-Ring Day Symposium*

Duties: Led organization of all logistical efforts: presentations, food, advertisement

Tenure: November 2018-March 2019

Science Communication and Science Writing

Science communication for broad audiences

Creator of StoryMaps of Historical Flooding in Arizona (<https://bit.ly/31YV0Fv>)

Purpose: Variety of StoryMaps made to warn Arizona residents about upcoming flood risks (monsoon, tropical cyclone remnants, winter storms) written in both English and Spanish

Outreach: Used in Spring 2021 to teach 220 middle schoolers about monsoon dangers

Science writing for broad audiences

Zamora-Reyes, D., and C. Castro, "Monsoons make deserts bloom in the US Southwest, but climate change is making these summer rainfalls more extreme and erratic," published in *The Conversation*, 01 October 2021

Mentoring and Outreach

Guest Speaker for *Representative Kirkpatrick's staffers visit to the Laboratory of Tree-Ring Research*
Date: 8 November 2021

Guest Speaker for *UT El Paso's Pathways to the Geosciences Summer Program*
Purpose: Talk about my academic career in the geosciences to high school students
Date: 28 June 2021, 2 July 2021

Participant for *AGU's Virtual Advocacy Days*
Purpose: Talk about my research to staffers for Senator Sinema, Senator Kelly, Representative Kirkpatrick and Representative O'Halleran
Date: 23 June, 2021

Guest Speaker for Coffee with a Scientist

Guest Speaker for *UA's HWRS 195a: Careers in Hydrology and Atmospheric Sciences class*
Purpose: Talk about my experience with Research for Undergraduates programs
Date: April 12, 2021

Participant for *AGU's Voices for Science Congressional Visit*
Purpose: Talk about my research to staffers for Senator Harris, Senator Feinstein, Representative Kirkpatrick, Representative Chu and Representative Peters
Date: 10 April, 2019

Participant for *AGU's Voices for Science Congressional Visit*
Purpose: Talk about my research to staffers for Senator Sinema, Representative Grijalva and Representative Gallego
Date: 14 December, 2018

Press Coverage

Zamora-Reyes et al. 2019 (AGU presentation): "We're living in the future': rainfall variability". Article written by Kit Stolz for the Ojai Valley News: <https://achangeinthewind.com/2020/03/09/living-in-the-future-now-rainfall-variability/>

2011 Svalbard REU fieldwork: "Source to Sink: Undergrads Study Svalbard's Glacial Systems". Article written by Marcy Davis for Polar Field: <https://www.polarfield.com/blog/svalbards-glacial-systems>

Undergraduate Research Experience

Pathways Research Experience Program, University of Texas at El Paso

Duties: Analyzed data gathered during summer research experience using various statistical techniques. Created posters for two conferences and wrote undergraduate thesis. Participated in other activities such as mentoring various times GK-12 students to interest them in geological sciences as well as promoting Earth Week

Tenure: August 2010-May 2011

Supervisor: Tina Carrick

Svalbard Research Experience for Undergraduates

Duties: Spent five weeks in the Arctic gathering data for Senior Thesis from 60 temperature loggers located throughout Lake Linné as well as from weather stations located throughout the Linné Valley. Assisted other students to gather data from cameras, retrieve sediment traps and carry water samples from glacier; all work required adaptation to extreme climate and physical conditions

Tenure: July 2010- August 2010

Supervisors: Al Werner and Steve Roof

Louis Stokes Alliance for Minority Participation Research for Undergraduates, University of Texas at Austin

Duties: Spent time analyzing data previously gathered from caves in Guam using Excel. Manually gathered, filed and stored 70 years of weather data of Guam from the National Oceanic and Atmospheric Administration.

Tenure: May 2009-August 2009

Supervisor: Judson Partin

Scientific Presentations

National Conferences

Poster

Zamora-Reyes, D; Trouet, V; Black, B; Xu, G.. "Understanding the recent enhancement in precipitation variability over California." Abstract A43O-3040 presented at 2019 American Geophysical Union Meeting, San Francisco, CA, 12 December.

Zamora-Reyes, D; Trouet, V; Black, B. "Enhanced climatic variability over California post-1950: A synthesis of observed and reconstructed trends and possible explanations." Abstract A53L-2663 presented at 2018 American Geophysical Union Meeting, Washington, DC, 14 December.

Zamora-Reyes, D; Hirschboeck, K.K; Valdes, J.B. "Flood Heterogeneity as a Tool for Exploring Flood Frequency-Climate Linkages from a Watershed Perspective." Abstract H51Q-06 presented at 2013 American Geophysical Union Fall Meeting, San Francisco, CA, 13 Dec.

Zamora-Reyes, D; Hirschboeck, K.K; Paretti, N.V. "An Exploration of the Importance of Flood Heterogeneity for Regionalization in Arizona using the Expected Moments Algorithm." Abstract H41F-1245 presented at 2012 American Geophysical Union Fall Meeting, San Francisco, CA, 6 Dec.

Zamora-Reyes, D; Lougheed, V. "Sediment Distribution in Glacial-Fed Lake Linné, Svalbard, Norway Using Lake Temperature, Meteorological and Interval-O-Meter Data with Time-Lapse Pictures Recorded From 2009-2010" Presented at 2011 Arctic Workshop, Montreal, Canada, 3 March.

Oral

Zamora-Reyes, D and Hirschboeck, K.K. "Flood Heterogeneity as a Tool for Exploring Flood Frequency-Climate Linkages from a Watershed Perspective." Abstract GP #39 presented at 2014 Emerging Researchers National Conference in STEM, Washington, DC, 22 February.

Zamora-Reyes, D; Hirschboeck, K.K; Paretti, N.V. "Importance of Flood Heterogeneity for Regionalization in Arizona." Abstract GP #29 presented at 2013 Emerging Researchers National Conference in STEM, Washington, DC, 1 March.

University Conferences

Poster

Zamora-Reyes, D; Trouet, V.; Black, B.; van der Sleen, P. "Enhanced hydroclimatic variability over California post-1950: A synthesis of observed and reconstructed trends and possible explanations." Presented at 2019 El Dia del Agua y la Atmosfera, University of Arizona, Department of Hydrology and Atmospheric Sciences Student Conference, Tucson, AZ, 25 March.

Zamora-Reyes, D; Hirschboeck, K.K; Paretti, N.V. "The Importance of Flood Heterogeneity for Flood Frequency Analysis in Arizona." Presented at 2013 El Dia del Agua, University of Arizona, Department of Hydrology and Water Resources Conference, Tucson, AZ, 10 April.

Zamora-Reyes, D; Lougheed, V. "The Role of Underflows and Climate on Sediment Distribution in Glacial-Fed Lake Linné, Svalbard, Norway" Presented at 2011 UTEP College Office of Undergraduate Research Initiatives, El Paso, TX, 16 April.

Zamora-Reyes, D; Lougheed, V. "Sediment Distribution in Glacial-Fed Lake Linné, Svalbard, Norway Using Lake Temperature, Meteorological and Interval-O-Meter Data with Time-Lapse Pictures Recorded From 2009-2010" Presented at 2011 UTEP Geology Colloquium, El Paso, TX, 9 March.

Zamora-Reyes, D; Partin, J.; Banner, J. "Correlation Between Above-Ground and Cave Environmental Conditions in Guam" Presented at 2010 UT System LSAMP Student Research Conference, Austin, TX, 12 September.

Oral

Zamora-Reyes, D.; Hirschboeck, K.K. "Flood Heterogeneity as a Tool for Exploring Flood Frequency-Climate Linkage." Presented at 2014 El Dia del Agua, University of Arizona, Department of Hydrology and Water Resources Conference, Tucson, AZ, 9 April.

Professional Affiliations

American Geophysical Union (AGU)

American Meteorological Society (AMS)

Skills

Languages

Fluent in speaking and writing Spanish and English. Conversational Japanese and Korean.

Technical

Proficient in Microsoft Office, MATLAB, Adobe Illustrator, R, ArcGIS, GEMPAK, IDV, NCL, PeakFQ, and PeakFQSA.