

# Dr. Hannah Inés Shamloo

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## RESEARCH INTERESTS

Eruption Initiation; Magmatic Timescales, Storage, and Processes; High-Silica Magmatic Systems; Experimental Petrology; Diffusion Chronometry; Volcano Science and Hazards; Igneous Petrology

## EDUCATION

- 2020 Ph.D., Geological Sciences, Arizona State University  
Advisor: Christy B. Till, Committee: R. Hervig, M. Barboni, E. Shock, D. Shim
- 2015 B.S., Geophysics, Minor in Physics, California State University, Northridge  
*Cum Laude*, Advisor: Joshua. J. Schwartz

## PROFESSIONAL EXPERIENCE

- 2021–Present Assistant Professor, Department of Geological Sciences, Central Washington University
- 2020–2021 NSF EAR Postdoctoral Fellow, Oregon State University
- 2015–2020 Research Assistant, School of Earth and Space Exploration, Arizona State University
- 2015–2020 Teaching Assistant, School of Earth and Space Exploration, Arizona State University
- 2014–2015 Undergraduate Research Assistant, Dept. Geological Sciences, Cal. State, Northridge
- 2013 Research Intern, Southern California Earthquake Center

## FUNDING & AWARDS

### Grants

Title	Agency	Total Funds	Duration	Roles/Collab.
Collaborative Research: Phenocryst or Not? Using a Stratovolcano's Crystal Cargo to Explore Crustal-scale Magmatic Systems, Koma Kulshan (Mt. Baker), Northern Cascade Arc	NSF EAR CH	\$277,473	36 mo. Start: 2022	PI (CWU): <b>H. Shamloo</b> PI's (WWU): S. DeBari & K. Walowski
Unleashing the Petrogenetic Potential of Sanidine Using a Combined Compositional, Experimental, and 3D Textural Approach	NSF EAR Postdoctoral Fellowship	\$174,000	24 mo. Start: 2020	PI (OSU): <b>H. Shamloo</b>

### Other Awards

- 2018 GSA MGPV Student Research Grant Award, \$2,500
- 2018 Graduate College Research Fellowship, \$10,000
- 2019 Graduate Excellence Award, \$100
- 2018 Goldschmidt Graduate Travel Award, \$450
- 2017 Graduate College Travel Award, \$500
- 2013–2015 Louis Stokes Alliance for Minority Participation Awards, \$1,500

2013–2014	Frank M. Hanna Award Geological Science Department
2014	AfricaArray Training and Research Opportunity Support, \$1,500
2014	GSA On to the Future Program Award, \$ 500
2012–2013	CSUN Scholarship for leadership in Society of Physics Students for Women \$2,500
2012	Presidential Service Award bestowed by President Barack Obama

## **WRITINGS**

### **Peer-Reviewed Publications**

**Shamloo, H. I.** and Kent, A. J.R., (*in prep*, 2023) An appraisal of the observed crystallinities of volcanic materials.

**Shamloo, H. I.** and Grunder, A., (*in review*, 2023) Magma mingling and ascent in the minutes to hours before an explosive eruption as recorded by banded pumice.

**Shamloo, H. I.**, Till C. B., Hervig, R. L., (2021) Multi-Mode Magnesium Diffusion in Sanidine: Applications for Geospeedometry in Magmatic Systems. *Geochimica et Cosmochimica Acta*.  
<https://doi.org/10.1016/j.gca.2021.01.044>

Till C.B., Vazquez J.A., Stelten M., **Shamloo H. I.**, Shaffer J., (2019) Co-existing Discrete Bodies of Rhyolite and Punctuated Volcanism Characterize Yellowstone's Post-Lava Creek Tuff Caldera Evolution. *Geochemistry, Geophysics, Geosystems*. <https://doi.org/10.1029/2019GC008321>

**Shamloo, H.** and Till C.B., (2019) Decadal transition from quiescence to supereruption: petrologic investigation of the Lava Creek Tuff, Yellowstone Caldera, WY. *Contributions to Mineralogy and Petrology*, 174(4), 32.

### **Other Writings**

**Shamloo, H.** and Zaniewski, A. (2016) Mentoring workbook: Designing a near-peer mentoring program for science majors.

**Shamloo, H. I.** (2020). Quantifying the Timing and Controls of Magmatic Processes Associated with Volcanic Eruptions (Doctoral Dissertation, Arizona State University).

## **PUBLISHED PRESENTATION ABSTRACTS**

Key: \*Primary advisement to student; † Invited talk

16. Josten K\*, and **Shamloo, H.** (2023) Using gray scale image analysis to determine the timing of the Swift Creek eruption, Koma Kulshan (Mt. Baker), WA, SOURCE Conference, Central Washington University, WA.
15. **Shamloo, H.**† and Grunder, A (2023) Magma Mingling and Ascent in the Minutes Before an Explosive Eruption as Recorded by Banded Pumice. IAVCEI Scientific Assembly, Abstract 212, Rotorua, New Zealand
14. **Shamloo, H.** and Kent, A.J.R. (2023) A Reappraisal of the Crystallinity of Volcanic Rocks: Implications for Eruptibility. IAVCEI Scientific Assembly, Abstract 221, Rotorua, New Zealand
13. **Shamloo, H.**, Grunder A., Pendergast, K. (2021) Ignimbrite Magma Ascent Rate in the Conduit Determined by Diffusion in Banded Pumice. AGU Fall Meeting Abstract V22B-08, New Orleans, LA.

12. **Shamloo, H.**, Kent, A.J.R., Watkins, J., Befus, K. (2021) An Experimental Reexamination on Ba Zoning in Sanidine: What Magmatic Processes Is It Actually Recording? Geological Society of America Abstract 95-3, Portland, OR.
11. **Shamloo, H.**, C.B. Till, A.J.R. Kent (2021) Statistical Analysis of the Effects of Sampling Bias on the Distribution of Historic Eruptions at Six High-Threat Cascade Volcanoes. GSA Cordilleran Section Meeting Abstract 14-11.
10. **Shamloo, H.**† and C.B. Till, (2020) Supersized and Speedy: The Timing and Initiation of the Lava Creek Tuff Supereruption, Yellowstone Caldera. AGU Fall Meeting Abstract 672837, San Francisco, CA.
9. **Shamloo, H.**, Till, C.B., Kent, J. R., Cooper, K. (2019) Constraining first-order controls on volcanic repose time by examining cumulative distribution functions. AGU Fall Meeting Abstract V034, San Francisco, CA.
8. Till C. B., Vazquez J. A., **Shamloo H. I.**, Stelten M. E., (2019) Records of Magma Evolution & Eruption during Yellowstone's Last Caldera Cycle from Geospeedometry and Zircon Petrochronology. AGU Fall Meeting Abstract V24B-04, San Francisco, CA.
7. Muller, J.K., Kemmerlin M.S., Gonzalez Santana, J.M., **Shamloo, H. I.**, Tan Y.J., Zhan, Y., Smith, C.A., Myers, M., Gregg, P.A., Abers, G.A., Plank, T.A., Wallace, P.J., Andrews, B.J., Roman, D.C., Bergantz, G., and Cooper, K.M., (2019) Tectonic and compositional controls on magma storage depths globally: Results from CIDER 2019. AGU Fall Meeting Abstract V23D-0256, San Francisco, CA.
6. **Shamloo, H.** and C.B. Till, (2019) Mg Diffusion in Alkali Feldspar; Applications for Diffusion Chronometry in Magmatic Systems. Geological Society of America Abstract T35-338595, Phoenix, AZ.
5. **Shamloo, H.** and C.B. Till, (2018) Mg Diffusion in Alkali Feldspar; Applications for Diffusion Chronometry in Magmatic Systems. Goldschmidt Abstract 2306, Boston, MA.
4. **Shamloo, H.** and C.B. Till, (2017) Petrologic Insights into the Timing and Triggering Mechanism for the Lava Creek Tuff Super-eruption, Yellowstone Caldera, WY. IAVCEI 2017 Scientific Assembly Abstract PE43B-097, Portland, OR.
3. **Shamloo H.** and C.B. Till, (2016) Petrologic Insights into the Triggering Mechanism for the Lava Creek Tuff Super-eruption, Yellowstone Caldera, WY. AGU Fall Meeting Abstract V23B-2979, San Francisco, CA.
2. **Shamloo H.**, Schwartz J.J., Klepeis K., Stowell H.H., Sadorski, J.F., Coble, M.A., (2014) Timescales of Intra-arc Contraction and Extensional Collapse in the Lower and Middle Crust of Cretaceous Convergent-margin Magmatic Arc, Central Fiordland, New Zealand. GSA Annual Conference Abstract 58-3, Vancouver, B.C.
1. Arvin L., Novoa K., **Shamloo H.**, Philo D., Yuan J., Jordan T., de Groot R., Rousseau N., Smith D., Milner K., (2013) SCEC Undergraduate Studies in Earthquake Information Technology Program: Implementing GIS, UCERF3, and OpenSHA data in SCEC-VDO. SCEC Annual Meeting Abstract, Palm Springs, CA.

## **INVITED TALKS & COLLOQUIA**

2023 Jan.	11.	Central Washington University, Geology Department Seminar Series
2022 Nov.	10.	Association for Women Geoscientists, U. Nevada, Las Vegas chapter
2022 Jan.	09.	Western Washington University, Geology Department Seminar Series
2021 Sep.	08.	Diffusion Chronometry Seminar Series, Ruhr-Universität Bochum
2021 Mar.	07.	University of Maryland, Geology Seminar Series
2021 Feb.	06.	California Institute of Technology, Geology Seminar
2021 Jan.	05.	University of California, Davis, Earth & Planetary Department Seminar Series
2020 Oct.	04.	Central Washington University, Seminar Series, "Mentee/Mentor Relationships"
2020 Sep.	03.	Oregon State University, Geology & Geophysics Seminar
2019 Nov.	02.	California State University, Northridge, Geology Colloquium
2015 Oct.	01.	California State University, Northridge, ROCS Group, "Applying to Grad School"

## **TEACHING**

### **Courses Taught**

Key: \*Courses developed; † Courses team-taught

*Courses taught at Central Washington University unless otherwise noted.*

*Courses are taught on repeat with succeeding academic years.*

2023 Spring	Isotope Geochemistry†	GEOL 483/583
2023 Winter	Volcanoes of the USA*: PADstone	GEOL 184
2022 Fall	Living with Volcanoes: Indigenous Voices in Volcanism*	GEOL 498/598
2022 Fall	Rocks & Minerals†	GEOL 320
2022 Spring	Volcanology*	GEOL 478/578
2022 Spring	Earth History†	GEOL 203
2022 Winter	Undergraduate Seminar Series	GEOL 304
2022 Winter	Graduate Seminar Series	GEOL 504
2022 Winter	Research Methods†	GEOL 503
2020 Fall	Igneous Petrology†, Oregon State University	GEO 412/512

### **Invited Lecturer**

2020 Fall	Integrated Science, Milpitas High School, CA,	9 <sup>th</sup> -10 <sup>th</sup> Grade
2019 Fall	Advanced Petrology, Cal. St. Northridge,	GEOL 536
2017 Spring	Physics Leadership & Mentoring, Arizona State University	PHY 194/494

### **Teaching Assistant**

2018	Historical Geology, Arizona State University	GLG 104
2017	Introduction to Geology, Arizona State University	GLG 101
2015	Petrology, Arizona State University	GLG 424/424Lab

## **SELECT FIELD EXPERIENCE**

2022	Mt. Baker (Kulshan), Northern Washington, sample collection
2017, 2020	Medicine Lake (2x), CA, Sample collection
2019	Katmai, Alaska, Advanced Volcanology Field Class, University of Alaska, Fairbanks
2017	Mt. Shasta, CA, Sample collection
2015	Yellowstone National Park, Dissertation research and sample collection

## **STUDENT RESEARCH SUPERVISION**

Key: \*Expected graduation date

F: Fall quarter; S: Spring quarter; Su: Summer quarter; W: Winter quarter

### **Graduate Primary Advisement**

Spring 2024\*            Desiree` Cunningham, MS,  
Spring 2024\*            Emily Yoder, MS

### **Graduate Thesis Committee Membership**

Spring 2023            Tim Miller, MS  
Spring 2023            Zack Stevens, MS  
Summer 2023\*        Catherine Jones, MS  
Spring 2024\*        Robin Gaudette, MS  
Spring 2024\*        David Miller, MS

### **External Graduate Thesis Committee Membership**

Spring 2024\*        Jessie Bersson, PhD, Arizona State University  
Spring 2024\*        Amanda Florea, MS, Western Washington University  
Spring 2024\*        Erin Kaplan, MS, Western Washington University  
Spring 2022        Brendan Garvey, MS, Western Washington University

### **Undergraduate Primary Advisement in Geology**

S23, F22            James IV Genero  
S23                  Yusei O'Leary  
S23                  Nathan Pickett  
W23, F22            Marcus Ashton  
S23, W23, Su22    Kathryn Josten

## **PROFESSIONAL SERVICE**

### **Service to Central Washington University**

2023                  Committee Chair & Reviewer, Summer Undergraduate Research Experience (SURE)  
2022–Pres.        Geology Department Seminar Co-organizer  
2022–Pres.        Scholarship Committee, Dept. of Geological Sciences  
2022–2023        Construction of CHIVES lab, Dept. Geological Sciences, *Experimental petrology lab for student research and learning*  
2022                  Panelist for Graduate class: *How to Publish in Geoscience*  
2022                  Outreach and recruitment for Dept. Geological Sciences, *Redesign display case*

### **Editorial Service**

2021–2023        Proposal Reviewer, National Science Foundation EAR-Petrology & Geochemistry (3x)  
2019–Pres.        Manuscript Peer Reviewer: LITHOS • Geology • Journal of Petrology • G-Cubed • Journal of Volcanology and Geothermal Research

### **Press Coverage & Media**

2023                  *Central Today* feature on CHIVES group

2021 *Atlas Obscura* interviewee, “At Pizza Pacaya, the Oven Is an Active Volcano”  
 2020 *National Geographic*, “X-Ray Earth” Docuseries, Episode 3, Available on Disney+  
 2020 Consultant, Science Vs, Gimlet Media  
 2018 *New York Times*, Coverage on Yellowstone research  
 2018-2019 Secondary Coverage on NYT Article: Snopes.com, National Geographic, PBS Nova, National Public Radio, Channel 12 News, TIME, USAToday, CBS, Fox, + more  
 2018 Oct. *transverse RANGES Magazine*, Featured scientist  
 2016 May AGU *EOS Magazine*, Coverage on Yellowstone research  
 2016 Dec. Generación STEM on Vme Television, Featured LatinX scientist

**Educational Activities and Products**

2022 Apr. Conceptual Academy collaboration on volcanoes lesson plan, virtual learning platform for High School science programs  
 2022 Feb. Interviewee for student project in Science Writing Class on Yellowstone  
 2021 Jul. GeoClick published activity, SERC Carleton  
 2021 Jun. Discovery Education Originals, “Volcano Scientist”, 4<sup>th</sup> Grade Curriculum  
 2018 Jan. The Science of Magma, ASU CLASroom Video Series Ep. 3, Wrote and co-produced  
 2018 Jan. Scholastic’s Science World Magazine, Coverage on Yellowstone research  
 2018 Jan. K-12 Edu. Books: What Does a Scientist Look Like? & Who Thinks About Scale?

**Conference Convening and Conference Proposal Submissions**

2023 Jan. IAVCEI Scientific Assembly, “Unmasking the lithosphere: mantle-to-surface perspectives on magma heterogeneity”, Rotorua, New Zealand  
 2021 Dec. AGU Annual Conference, “The Cascadia Margin: Linking Geophysical Characteristics with Subduction Zone Structure and Evolution”, New Orleans, LA  
 2021 Oct. GSA Annual Conference, “Rhyolites, Take a Bow! Examining the Production of Rhyolite Magma in Continental Arc Settings”, Portland, OR  
 2017 Dec. Access Network Conference, “Best Mentoring Practice,” Tempe, AZ

**Contribution to Improving Diversity, Equity, and Inclusion**

2022 Association for Women Geoscientists Panelist  
 2022 Undocu Ally Training, Washington State University  
 2021 University of Maryland Diverse Career Paths Interviewee  
 2019, 2020 Scientist Spotlight Initiative, Featured Scientist  
 2020 Oct. Social Justice Education Initiative, Tier One Training  
 2019 Bystander Intervention Workshop, One Orb, Tempe, AZ  
 2017–2019 Mentor, ASU Sundial Program, For students from marginalized groups in STEM  
 2017–2018 Program Facilitator, Organized Sundial mentors/mentees, co-wrote mentoring workbook

**Participant in Scientific Community Workshops**

2021 National Association of Geoscience Teachers Traveling Workshop  
 2021 Earth Educators Rendezvous  
 2021 Early Career Geoscience Faculty Workshop  
 2020 Melts, Glasses, Magmas  
 2019 Community Network for Volcanic Eruption Response, GSA Workshop, Phoenix, AZ  
 2019 Cooperative Institute for Dynamic Earth Research, “Volcanoes”, Berkeley, CA  
 2018 Mineralogical Society of America’s Diffusion Short-course, Bochum, Germany

2018 Hot Life in the Desert, Integrating Geologic, Geochemical, Microbial Research, AZ  
2017 Enabling Knowledge Integration Data-thon, Tempe, AZ  
2017 NSF Secondary Ion Mass Spectrometry Workshop, ASU, Tempe, AZ

**Professional Societies**

Since 2020 National Association of Geoscience Teachers  
Since 2016 Mineralogical Society of America  
Since 2015 American Geophysical Union  
Since 2013 Geological Society of America

**COMMUNITY ENGAGEMENT AND OUTREACH**

2022 Yakima Rock & Mineral Show, Trashcano Demonstrations  
2017-2019 Student Advocate, ASU School of Earth, and Space Exploration Graduate Council  
2016-2019 Tour Guide, ASU Sundial Summer Program, lab tours of EPIC lab  
2018 Event Supervisor, Arizona Science Olympiad State Tournament  
2015-2019 Earth and Space Exploration Day and ASU Open Door, K-12+ Science Demos  
2013-2015 The Great California ShakeOut, Promote earthquake hazard awareness to Los Angeles