

Dr. Hannah Inés Shamloo

Email: shamlooh@cwu.edu

Web: hannahshamloo.com

RESEARCH INTERESTS

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

PROFESSIONAL EXPERIENCE

2022–Present Assistant Professor, Department of Geological Sciences, Central Washington University
2020–2022 National Science Foundation Earth Sciences Postdoctoral Fellow
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 (NSF funded REU)

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

I. SCHOLARSHIP

FUNDED PROPOSALS

<i>External</i>				
Title	Agency	Total	Duration/ Date	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): H. Shamloo 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): H. Shamloo
<i>Internal</i>				
M. Meghan Miller Endowment Fund Award for Faculty Cultivating Student Research	CWU	\$3,300	June 2024	PI (CWU): H. Shamloo

PEER-REVIEWED PUBLICATIONS

Shamloo, H. I., & Kent, A. (2024). An appraisal of the observed crystallinities of volcanic materials. *Volcanica*, 7(1), 105-115. <https://doi.org/10.30909/vol.07.01.105115>

Shamloo, H. I. and Grunder, A., (2023) Magma mingling and ascent in the minutes to hours before an explosive eruption as recorded by banded pumice. *Geology*. doi: <https://doi.org/10.1130/G51318.1>

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. I. 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. <https://doi.org/10.1007/s00410-019-1570-x>

PUBLISHED PRESENTATION ABSTRACTS

Key: * *Student abstract*

** *Primary advisement to student*

† *Invited talk*

Italic blue text indicates award-receiving presentation

29. Wall, K., Genero, J., O'leary, Y., **Shamloo, H.**, Grunder, A., Weis, D., (2024) From the beginning to the final countdown: Modeling mantle sources and eruption initiation timescales for mafic volcanoes in the Goat Rocks area, WA. *Cascades24*, University of Oregon, Eugene, WA.
28. Weiher, M.**, **Shamloo, H.**, Yoder, E., (2024) Dobbs Cleaver Mt. Baker: Clinopyroxene Mg-Fe Diffusion & Eruptive Timescales. Central Washington University, ID 291, "SOURCE 2023 Program" (2023). *Symposium Of University Research and Creative Expression (SOURCE)*. 1. <https://digitalcommons.cwu.edu/source/2024/Program/1/>
27. Taylor, L**., **Shamloo, H.**, (2024) Analyzing Eruption Initiation Timescales of the Lava Creek Tuff Eruption at the Yellowstone Caldera Using Diffusion Chronometry. Central Washington University, ID 237, "SOURCE 2023 Program" (2023). *Symposium Of University Research and Creative Expression (SOURCE)*. 1. <https://digitalcommons.cwu.edu/source/2024/Program/1/>
Recipient of SOURCE Session Award for Research Excellence 2023
26. **Shamloo, H.**, Kent., A., (2024) Is the Critical Crystallinity What We Think It Is? An Appraisal of the Observed Crystallinities of Volcanic Materials. GSA Joint Cordilleran and Rocky Mountain Meeting 9-7, Spokane, WA.
25. Aughenbaugh, K.*, DeBari, S., Machel, S., Yaude, S., Walowski, K., **Shamloo, H.**, (2024). Constraints on the Pre-Eruptive Storage Conditions and Eruption Initiation Mechanisms of Mount Baker's Most Recent Explosive Magmatic Eruption, Washington, U.S. GSA Joint Cordilleran and Rocky Mountain Meeting 9-2, Spokane, WA.

24. Genero, J.** , O'Leary, Y.** , **Shamloo, H.**, Wall, K., (2024) Pre-Eruptive Timescales of Devils Washbasin Basalt and Hogback Mountain Basaltic-Andesite Deposits in the Goat Rocks Area, Cascade Arc, WA. GSA Joint Cordilleran and Rocky Mountain Meeting 9-3, Spokane, WA.
23. Yoder, E.** , **Shamloo, H.**, DeBari, S., Walowski, K., (2024) Eruption Initiation Timescales at a Very High Threat Washington Volcano: Clues from Crystal Cargo in Lavas from Koma Kulshan (Mt. Baker). GSA Joint Cordilleran and Rocky Mountain Meeting 34-2, Spokane, WA.
22. Cunningham, D.** , **Shamloo, H.**, DeBari, S., Walowski, K., (2024) Timescales of Magma Storage and Eruption Initiation of the Most Recent Lava Flow at Koma Kulshan (Mt. Baker, WA). GSA Joint Cordilleran and Rocky Mountain Meeting, 34-1, Spokane, WA.
21. Florea, A.* , Walowski, K., DeBari, S., **Shamloo, H.**, Ruth, D., Johnson, E., Using Olivine-Hosted Melt Inclusions to Better Understand the Transcrustal Architecture Beneath Koma Kulshan. AGU Fall Meeting Abstract V21C-0131, San Francisco, CA.
20. Kaplan, E.* , DeBari, S., Andrews, J., Yaude, S., Walowski, K., **Shamloo, H.**, Ruth, D., What role do silicic dacitic magmas play in the construction of the dominantly intermediate andesitic Koma Kulshan volcano (Mount Baker)? : testing the hypothesis for dacite mush remobilization. AGU Fall Meeting Abstract V21C-0143, San Francisco, CA.
19. Machel, S.* , DeBari, S., Tucker, D., Yaude, S., Walowski, K., **Shamloo, H.**, Ruth, D., (2023) Using trace element concentrations in volcanic ash to elucidate magma sources for Koma Kulshan's (Mount Baker) most recent explosive eruption - the 6.7 ka Black Ash (BA) tephra. AGU Fall Meeting Abstract V21C-0136, San Francisco, CA.
18. Yoder, E.** , **Shamloo, H.**, DeBari, S., Walowski, K., (2023) Eruption Initiation Timescales at a Very High Threat Washington Volcano: Clues from Crystal Cargo in Lavas from Koma Kulshan (Mt. Baker). AGU Fall Meeting Abstract V21C-0136, San Francisco, CA.
17. Cunningham, D.** , **Shamloo, H.**, DeBari, S., Walowski, K., (2023) Timescales of Magma Storage and Eruption Initiation of the Most Recent Lava Flow at Koma Kulshan (Mt. Baker, WA). AGU Fall Meeting Abstract V31G-06, San Francisco, CA.
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, Central Washington University, "SOURCE 2023 Program" (2023). *Symposium Of University Research and Creative Expression (SOURCE)*. 1. <https://digitalcommons.cwu.edu/source/2023/2023/1>
Recipient of Outstanding Undergraduate Research Award 2023
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

- | | |
|-----------|---|
| 2024 Feb. | 13. South Dakota School of Mines, Geology, Geography, Paleontology Seminar Series |
| 2023 Nov. | 12. Washington State University, Earth Sciences Seminar Series |
| 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"

SELECT FIELD EXPERIENCE & FIELD TRIP PARTICIPATION

2023	Goat Rocks Wilderness, Central Washington
2023	Saddle Mountains, Friends of the Pleistocene, Central Washington
2023	Taupo Volcanic Zone, New Zealand, Reconnaissance and sample collection
2022	Mt. Baker (Kulshan), Northern Washington, Research and sample collection
2021	Volcanism in Central Oregon Cascades Arc, Deschutes Formation, GSA Field Trip #14
2017, 2020	Medicine Lake, CA, Research and sample collection
2019	Katmai, Alaska, Advanced Volcanology Field Trip Class, U. of Alaska, Fairbanks
2017	Mt. Shasta, CA, Research and sample collection
2017	Long Valley Caldera, CA, IAVCEI Scientific Assembly Field Trip
2015	Yellowstone National Park, Research and sample collection

II. TEACHING & STUDENT MENTORSHIP

COURSES TAUGHT

Key: † Courses team-taught

Courses taught at Central Washington University unless otherwise noted.

Courses are taught on annual and/or bi-annual basis.

GEOL 184	Volcanoes of the USA
GEOL 203	Earth History†
GEOL 304	Undergraduate Seminar Series
GEOL 320	Rocks & Minerals†
GEOL 388	Field Trip to Hawaii†
GEO 412/512	Igneous Petrology†, <i>Oregon State University</i>
GEOL 478/578	Volcanology
GEOL 483/583	Isotope Geochemistry†
GEOL 495	Undergraduate Independent Studies
GEOL 498/598	Living with Volcanoes: Indigenous Voices in Volcanism
GEOL 502	Regional Geology†
GEOL 504	Graduate Seminar Series
GEOL 503	Research Methods†

STUDENT RESEARCH SUPERVISION

Graduate Students

Primary Advisees

2024 Spring	Desiree` Cunningham, MS, <i>Distinguished Thesis Award, College of the Sciences Timescales of Magma Storage and the Pre-eruptive History for the Most Recent Lava Flow at Mount Baker (Koma Kulshan), WA</i>
2024 Spring	Emily Yoder, MS <i>Eruption Initiation Mechanisms and Timescales at a Very High Threat Cascade Volcano: Clues from Crystal Cargo in Lavas from Mount Baker (Koma Kulshan), WA</i>

Thesis Committee Membership

Central Washington University

Active	William Hays, MS
Active	Karla Ortega, MS
2024 Spring	Robin Gaudette, MS
2024 Spring	David Miller, MS
2023 Fall	Catherine Mast, MS
2023 Spring	Tim Miller, MS
2023 Spring	Zack Stevens, MS

External Institutions

Active	Kayla Aughenbaugh, Western Washington University, MS
Active	Jessie Bersson, Arizona State University, PhD
Active	Erin Kaplan, Western Washington University, MS
2024 Spring	Amanda Florea, Western Washington University, MS
2022 Spring	Brendan Garvey, Western Washington University, MS

Undergraduate Students

Active	Laura (Taylor) Taylor (<i>Since Fall 2023</i>), <i>SOURCE Session Award for Research</i>
Active	Yusei O’leary (<i>Since Spring 2023</i>)
Active	James Genero IV (<i>Since Fall 2022</i>)
2024 Spring	Mikyla Weiher
2023 Spring	Kathryn Josten, <i>Outstanding Undergraduate Research Award</i>
2023 Spring	Nathan Pickett
2023 Winter	Marcus Ashton

III. PROFESSIONAL SERVICE

SERVICE TO SCIENTIFIC COMMUNITY

Editorial Service

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

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

Participant in Scientific Community Workshops

- 2023 Magmatic Drivers of Eruptions AGU workshop: ‘Next steps for pursuing activities in Cascadia and the Aleutians’, San Francisco, CA, SZ4D Workshop
- 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

SERVICE TO CENTRAL WASHINGTON UNIVERSITY

- 2023-Pres. Wildcat Preview Day, Academic Fair Faculty
- 2022–Pres. Geology Department Seminar Co-organizer
- 2022–Pres. Scholarship Committee Chair, Dept. of Geological Sciences
- 2023 Spring Committee Chair & Reviewer, Summer Undergraduate Research Experience (SURE)
- 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*

COMMUNITY ENGAGEMENT AND PUBLIC OUTREACH

- 2022 Yakima Rock & Mineral Show, Trashcano Demonstrations
- 2022 Interviewee for Oregon State University student project in Science Writing Class on Yellowstone
- 2020 Guest Speaker, Integrated Science (9th-10th Grade), Milpitas High School, CA

Educational Activities and Products

- 2022 Apr. Conceptual Academy collaboration on volcanoes lesson plan, virtual learning platform for High School science programs
- 2021 Jul. GeoClick published activity, SERC Carleton
- 2021 Jun. Discovery Education Originals, “Volcano Scientist”, 4th 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?

Press Coverage & Media

2023 *Central Today* feature and interview 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

CONTRIBUTION TO IMPROVING DEIA (Diversity, Equity, Inclusion, Accessibility)

2023, 2024 Kulshan Summer Institute, *Volcanology & Different Ways of Knowing*, Co-PI, Co-Organizer, Western Washington University
 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