

Sean I. Peters

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EDUCATION

2020 **Ph.D. in Geological Sciences, School of Earth and Space Exploration (SESE), Arizona State University (ASU), USA.**

Dissertation: The emplacement of lava flows: implications for volcanic hazards and planetary evolution

Advisor: Philip R. Christensen

Committee: Amanda Clarke, Jonathan Fink, Kelin Whipple, Thomas Sharp

2015 **M.S. in Geological Sciences, SESE, ASU, USA.**

Thesis: Investigating Late Amazonian Volcanotectonic Activity on Olympus Mons, Mars using Flank Vents and Arcuate Graben

Advisor: Philip R. Christensen

Committee: Amanda B Clarke, Kelin X Whipple

2013 **B.S. in Psychology, Mississippi State University (MSU), USA**

Minors: Geosciences

Graduated magna cum laude

Study abroad: Structure and Beauty (Italy; 1 month)

PUBLICATIONS

IN PREPARATION

Peters, S.I., A.B. Clarke, and E. L. Rader (antic. Spring 2023 submission), The effects of unsteady effusion rate patterns on lava flow emplacement: additional insights into complex flow morphologies from laboratory analogue experiments. To *Journal of Volcanology and Geothermal Research*.

Peters, S.I., A.B. Clarke, and E.L. Rader (antic. Fall 2023 submission), The impact of slope on flows erupted with variable eruption rates: results from laboratory analogue experiments. To *Journal of Volcanology and Geothermal Research*.

Peters, S.I., and E. L. Rader (antic. Summer/Fall 2023 submission), The application of morphology maps on PEG wax experiments to terrestrial and extraterrestrial lava flows.

Rader, E.L., **S.I. Peters**, A.B. Clarke, L. Vanderkluyzen (antic. Spring 2023 submission)

PUBLISHED

Peters, S.I., A.B. Clarke, and E. L. Rader (2022), The effects of unsteady effusion rates on lava flow morphology and emplacement: results from laboratory analogue experiments, *Journal of Volcanology and Geothermal Research*, 432, <https://doi.org/10.1016/j.volgeores.2022.107674>.

Peters, S.I., P.R. Christensen, and A.B. Clarke (2021), Lava flow eruption conditions in the Tharsis Volcanic Province on Mars, *Journal of Geophysical Research – Planets*, 126, Issue 7, <https://doi.org/10.1029/2020JE006791>.

Peters, S.I. and P.R. Christensen (2017), Flank Vents and Graben as Indicators of Late Amazonian Volcanotectonic Activity on Olympus Mons, *Journal of Geophysical Research – Planets*, 112, Issue 3, <https://doi.org/10.1002/2016JE005108>.

OTHER PUBLICATIONS

Peters, S.I. (2020), Investigating lava flow emplacement: implications for volcanic hazards and planetary evolution, *Arizona State University*, PhD thesis.

Peters, S.I. (2019) Volcanoes on Other Planets, *Ask an Earth and Space Scientist* (ASU).

Peters, S.I. (2015), Investigating Late Amazonian Volcanotectonic Activity on Olympus Mons, Mars using Flank Vents and Arcuate Graben, *Arizona State University*, MS thesis.

NON-SCIENCE PUBLICATIONS

Peters, S., A Museum of Personal Mystery, *Authors of Tomorrow*, 2008.

Peters, S., WE, *Anthology of Poetry by Young Americans*, vol. LXXXVII, 2002 Edition.

EMPLOYMENT / OPPORTUNITIES

- Jan. 2023 – present Postdoctoral Fellow of Geology, Middlebury College
- Aug. 2021 – 2022 Postdoctoral Fellow, University of Idaho
Supervisor: Dr. Erika L. Rader
- Jan – Aug. 2021 Assistant Language Teacher (ALT), Himeji Board of Education via Phoenix Sister Cities Teach Abroad Program
- 2020 Lucy Thermal Emission Spectrometer (LTES) thermal vacuum chamber (TVAC) Test Operator
Instrument operator and analyst for the EMIRS instrument during TVAC testing
- 8/2020 – 01/2021 Senior Research Specialist, Arizona State University
- 2016 – 2020 Graduate Research Associate, Arizona State University
- 2019 Emirates Mars Infrared Spectrometer (EMIRS) thermal vacuum chamber (TVAC) Test Operator
Instrument operator and analyst for the EMIRS instrument during TVAC testing
- 2015 – 2016 OSIRIS-Rex Thermal Emission Spectrometer (OTES) thermal vacuum chamber (TVAC) Test Operator
Instrument operator and analyst for OTES instrument during TVAC testing
- 2015 – 2016 Doctoral Research Fellow
- 2013 – 2015 Graduate Teaching Assistant, Arizona State University
- Summer 2012 Human-Environmental Research Observatory, Clark University, Worcester, MA

Advised by Drs. Verna DeLauer, Deborah Martin, & John Rogan
- 2010 – 2012 Undergraduate Lab Assistant, Mississippi State University

Advised by Dr. H. Colleen Sinclair

PRESENTATIONS

INVITED TALKS AND PANELS

- Ant. Feb 2023 **University of Maryland** Department of Geology Colloquium
The effects of unsteady eruption rates on lava flow morphology and propagation
- Dec. 2022 **AGU Fall Meeting**, Virtual
Early Career-Led DEI Initiatives: Actionable Insights Toward a More Just, Equitable, and Inclusive Scientific Environment Panel
- October 2022 **Sweet Science Seminar, USGS**, Virtual
Lava flow eruption conditions in the Tharsis Volcanic Province on Mars
- September 2022 **Planetary and Astrobiology Seminar**, Georgia Tech, Virtual
Lava flow eruption conditions in the Tharsis Volcanic Province on Mars
- August 2022 **Goddard Space Flight Center**, Virtual
Lava flow eruption conditions in the Tharsis Volcanic Province on Mars
- May 2022 **Carnegie Institute of Science Planetary Reading Group**, Virtual
Lava flow eruption conditions in the Tharsis Volcanic Province on Mars
- March 2022 **Middlebury College**, Virtual
Lava flow emplacement: implications for volcanic hazards and planetary evolution
- April 2020 **University of Texas Institute of Geophysics Brown Bag Seminar**, Virtual
The emplacement of lava flows: implications for hazards and planetary evolution.

POSTERS

- Ant. Mar. 2023 **LPSC**, The Woodlands, TX
Peters, S.I. (2023) A survey of volcanically emplaced rilles, *2023 Lunar and Planetary Science Conference*, Abstract, 1713.
- Jan/Feb 2023 **IAVCEI**, Rotorua, Aotearoa (NZ)
Peters, S.I., A.B. Clarke, and E.L. Rader (2023) The effects of unsteady vent conditions on lava flow propagation, morphology, and surface texture, *The International Association of Volcanology and Chemistry of the Earth's Interior Scientific Assembly 2023*, Abstract, 589.
- Mar. 2022 **LPSC**, Virtual

- Peters, S.I.**, and E. L. Rader (2022) Potential contributions of VNIR imaging and laboratory analogue experiments to inform modeling efforts, *2022 Lunar Planetary Science Conference*, Abstract, 1150.
- Mar. 2020 **LPSC**, The Woodlands, TX
Peters, S.I., and P.R. Christensen (2020) Constraining Martian lava flow eruption rates in the Tharsis Volcanic Province, *2020 Lunar Planetary Science Conference*, Abstract, accepted. Conference cancelled due to Covid-19.
- Dec. 2019 **AGU Fall Meeting**, San Francisco, CA
Peters, S.I., and A.B. Clarke (2019), The role of unsteady effusion rates on lava flow emplacement: results from laboratory analogue experiments, *2019 American Geophysical Union*, Abstract, V23F-0270.
- Sept. 2019 **GSA Fall Meeting**, Phoenix, AZ
Peters, S.I., and A.B. Clarke (2019), The effects of unsteady effusion rates on lava flow morphology and emplacement: results from laboratory analogue wax experiments, *2019 Geological Society of America fall meeting*, Abstract, 337812.
- Mar. 2018 **LPSC**, The Woodlands, TX
Peters, S.I., P.R. Christensen, and A.B. Clarke (2018) Constraining lava flow eruption rates on Mars using laboratory analogue wax experiments, *2018 Lunar Planetary Science Conference*, Abstract, 3002.
- Dec. 2017 **AGU Fall Meeting**, New Orleans, LA
Peters, S.I. and A.B. Clarke (2017), Controls on lava flow morphology and propagation: Using laboratory analogue experiments, *2017 American Geophysical Union*, Abstract, V43F-0586.
- Mar. 2017 **LPSC**, The Woodlands, TX
Schaefer, E.I., C.W. Hamilton, C.D. Neish, M.M. Sori, A.M. Bramson, S.P. Beard, **S.I. Peters**, T.A. Miller, and E.L. Rader (2017), Seeing Pahoehoe from Orbit (Without Squinting), *2017 Lunar Planetary Science Conference*, Abstract, 2343.
- Mar. 2016 **LPSC**, The Woodlands, TX
Peters, S.I. and P.R. Christensen (2016), Investigating the Volcanotectonic Evolution of Olympus Mons using Flank Vents and Arcuate Graben, *2016 Lunar Planetary Science Conference*, Abstract, 209-1634.
- Dec. 2015 **AGU Fall Meeting**, San Francisco, CA
Peters, S.I. and P.R. Christensen (2015), Investigating Late Amazonian Volcanotectonic Activity on Olympus Mons, Mars using Flank Vents and Arcuate Graben, *2015 American Geophysical Union*, Abstract, P33C-2139.

- Mar. 2015 **LPSC**, The Woodlands, TX
Peters, S.I. and P.R. Christensen (2015), The Characterization and Implications of Flank Vents on Olympus Mons, *2015 Lunar Planetary Science Conference*, Abstract, 141-2008.
- Dec. 2014 **AGU Fall Meeting**, San Francisco, CA
Peters, S.I. and P.R. Christensen (2014), The Implications of Flank Vents on Olympus Mons, *2014 American Geophysical Union*, Abstract, P41B-3898.

TEACHING AND MENTORSHIP

- Spring 2023 **Instructor**, Middlebury College
Natural Hazards
- Oct-Nov 2022 **Guest Lecturer**, University of Idaho, Moscow, ID
Introduction to Volcanology, led by Dr. Erika L. Rader
Exploring the Solar System
- Fall 2022 – present **Mentor**
Geosciences Education & Mentorship Support (GEMS) Mentor Match Program
- 2021 **Assistant Language Teacher (ALT)**, Himeji Board of Education, Himeji, Hyogo, Japan
- Himeji Shiritsu Hanada Junior High
 - Himeji Shiritsu Masui Junior High
 - Himeji Shiritsu Masui Elementary School
 - Himeji Shiritsu Mizukami Elementary School
 - Himeji Shiritsu Tohori Elementary School
 - Himeji Shiritsu Hanada Elementary School
- 2019 – 2020 **Graduate Mentor**, ASU
SESE Graduate Mentoring Program
- 2019 **Prison Teaching Internship**, ASU
Teaching Assistant, led by Dr. Cornelia Wells
Introduction to Geology / Astronomy
- 2015 – 2016 **Research Mentor**, ASU
Sundial Mentoring Program, led by Dr. Anna Zaniewski
- 2014 – 2017 **Guest Scientist**, ASU
Mars Student Imaging Project (MSIP), led by Sheri Klug-Boonstra

- 2013 – 2015 **Graduate Teaching Assistant, ASU**
Introduction to Physical Geology Lab, (J. Johnson), Spring 2014/2015
Fundamentals of Planetary Geology, (Dr. M. S. Robinson), Fall 2014
Physical Geology, (Dr. D. DeVacchio & T. Perkins), Fall 2013/2014
Historical Geology, (Dr. D. Burt), Fall 2013
- 2011 – 2012 **Undergraduate Teaching Assistant, MSU**
Introductory Psychology Statistics (lab section), (Drs. C. Williams, M. Giesen, & J. Keeley), Fall 2011/2012, Spring 2012
- 2010 – 2012 **Tutor, MSU**
Mississippi State University Peer Tutoring and Academic Mentoring Program

RESEARCH

- 2023 – present **Postdoctoral Fellow, Department of Earth and Climate Sciences, Middlebury College**
- 2021 – 2022 **Postdoctoral Fellow, Department of Geography and Geological Sciences, University of Idaho**
Supervisor: *Dr. Erika L. Rader*
- Determining contributions of VNIR and analogue experiments to efforts to model lava flow emplacement
 - Using analogue morphologies to ascertain lava flow emplacement conditions
- 2020 – 2021 **Senior Research Specialist, ASU Mars Space Flight Facility**
Supervisor: *Dr. Philip R. Christensen*
- 2016 – 2020 **Graduate Research Associate, ASU Experimental Volcanology Laboratory**
Advisor: *Dr. Amanda B. Clarke*
- Using analogue experiments to simulate lava flow emplacement
- 2014 – 2020 **Graduate Research Associate, ASU Mars Space Flight Facility**
Advisor: *Dr. Philip R. Christensen*
- Investigating lava flow emplacement conditions on Mars

2012 **Undergraduate Research Fellow, Human-Environment Regional Observatory (HERO), Clark University**
Advisors: Drs. Deborah Martin, John Rogan, and Verna DeLauer

Investigating the consequences of the Asian long-horned beetle infestation of central Massachusetts, specifically the socio-economic and ecological impacts on the urban forest of Worcester, MA and surrounding towns.

Policy Making Assessment group – Investigated socio-ecological variability, place making, policy and decision-making (e.g., archival research, transcription, interviews)

2010 – 2011 **Undergraduate Research Assistant, Advanced Social Psychology Lab, Mississippi State University**
Principal Investigator: Dr. H. Colleen Sinclair

Interpersonal Relationship Study – Investigating the effect of familial and peer influences on relationship decision making.

Political Psychology Project – Investigating the role of conformity and attitude change in a political discussion

Online Lecture Course – Presented a chapter on discrimination for online social psychology course

AWARDS, HONORS, AND FELLOWSHIPS

2023 Faculty Professional Development Fund – Middlebury College
\$2900

2022 Meet A Scientist, American Geophysical Union (AGU) Volcanology, Geochemistry, and Petrology (VGP) Committee

2018 – 2019 ASU College of Liberal Arts and Sciences (CLAS) Student Leader

2015 – 2016 Graduate Education Doctoral Enrichment Fellowship, ASU
\$17,000

2012 MSU Dean’s Scholar

2012 The National Honor Society of Phi Kappa Phi

2012 Nominated for membership in Golden Key International Honour Society

2011 – 2012	The International Honor Society of Psychology
2009 – 2012	MSU President's Scholar
2008 – 2013	Shackhous Honor College, MSU

SERVICE & PROFESSIONAL CONTRIBUTIONS

Workshops/Field Experience

2022	Krafla lava flow, Myvatn, Iceland <i>Led by Dr. Erika L. Rader</i>
2016	El Pinacate y Gran Desierto de Altar Biosphere Reserve, Mexico <i>Led by Dr. Amanda B. Clarke</i>
2016	SP Crater Lava Flow, San Francisco Volcanic Field, Flagstaff, AZ
2016	NASA Field Investigations to Enable Solar System Science and Exploration (FINESSE) team, NASA Solar System Exploration Research Virtual Institute (SSERVI) <i>Organized by Dr. Scott Hughes; on behalf of Ethan Schaefer</i>
2016	NASA Volcanology Workshop, NASA/Univ. of Hawai'i <i>Led by Drs. S. K. Rowland, S. Fagents, & P. Mouginis-Mark</i>

Leadership & Professional Membership

2022 – 2025	International Association of Volcanology and Chemistry of the Earth's Interior <i>Member</i>
2020	SESE Justice, Equity, Diversity, and Inclusion Task Force <i>Member</i>
2018 – 2019	SESE Graduate Council <i>President</i>
2016 – 2019	Volcano Listserv, collaborative venture among Arizona State University (ASU), Portland State University (PSU), the Global Volcanism Program (GVP) of the Smithsonian Institution's National Museum of Natural History, and the International Association for Volcanology and Chemistry of the Earth's Interior (IAVCEI). <i>Editor & Moderator</i>

2014 – <i>present</i>	American Geophysical Union <i>Member</i>
2011 – 2012	The International Honor Society in Psychology, MSU <i>Treasurer</i>
2009 – 2010	MSU Astronomy Club <i>Secretary</i>

Service/Outreach

*Reviewer assignments listed in alphabetical order not chronologically and may constitute multiple assignments.

	Icarus <i>Reviewer</i>
	Journal of Geophysical Research: Planets <i>Reviewer</i>
	Journal of Volcanology and Geothermal Research <i>Reviewer</i>
	Oxford University Press <i>Reviewer</i>
	NASA review panels <i>Executive Secretary, Panelist</i>
2022	Panelist at Phoenix Fan Fusion “ <i>Everything I Learned I Learned from Anime</i> ” “ <i>Vulcan’s Wrath</i> ”
2019	Graduate Professional Student Association (GPSA), ASU <i>Awards Reviewer</i>
2019	Intel International Science and Engineering Fair (ISEF) <i>Grand Awards Judge</i>
2018	49 th Lunar Planetary Science Conference <i>Session chair</i>
2018	Intel STEM Fair, South Mountain Community College “ <i>Walk on Mars</i> ” <i>exhibit</i>

- 2018 Earth and Space Exploration Day, ASU
“Walk on Mars” exhibit
- 2018 Panelist at Phoenix Comic Fest
“Black Panther and the Culture of the Unconquered”
“This Just in from Deep Space”
“Political Science for Teens”
- 2018 ASU Open Door
“Walk on Mars” exhibit
- 2017 Mountain Pointe High School
Guest speaker for Marilyn Raming’s Earth Science course
- 2017 Phoenix Comicon
Panelist for “How Misinformation Spreads”
Judge for the AZ Science Fair
- 2013 – 2014 SESE Open House, ASU
Mars Exhibit
- 2010 – 2011 Health & Wellness Service Program, MSU
Volunteer

Relevant Skills

Programming: *HTML, Matlab, Davinci*

Software: *JMARS, ESRI ArcGIS, MS Office Suite, Image J, Tracker*

Languages: *Japanese, Spoken – Conversational level*
Japanese, Written – Hiragana & Katakana, some Kanji
Japanese, Reading – Hiragana & Katakana, some Kanji

References

Dr. Philip R. Christensen Arizona State University | phil.christensen@asu.edu
Dr. Amanda B. Clarke Arizona State University | amanda.clarke@asu.edu
Julia Johnson Arizona State University | Julia.Johnson@asu.edu
Dr. Erika L. Rader University of Idaho | erader@uidaho.edu