

# RACHEL HOLSTEEN-BRUYÈRE

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## CONTACT

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## EDUCATION

### PH.D. CANDIDATE

Geological Sciences  
Arizona State University

Advisors:

Amanda Clarke  
Kurt Roggensack  
Expected 2023

### B.S. GEOLOGY

Baylor University  
Advisor:  
Kenneth Befus  
2018

### A.A.S. INTERIOR DESIGN

Pikes Peak Comm. College  
2006

## RESEARCH INTERESTS

Experimental petrology, physical volcanology, geothermobarometry, volcano hazard mitigation, geoheritage, planetary volcanology, science communication and outreach

## CURRENT PROJECT

### HIGHLY EXPLOSIVE MAFIC VOLCANOES: A NEW MODEL FOR VOLATILE SOLUBILITY

2018-Present

- + Non-end loaded piston cylinder experiments to evaluate mixed-volatile solubility in low-water alkali basalt magmas
- + Olivine-hosted melt inclusions and distributed mafic volcanism
- + FTIR, EPMA, Raman spectrometry, and vacuum manometry analyses
- + Mixed-volatile solubility of C-O-H species across a range of redox conditions and pressures for planetary mafic magmas

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## CONFERENCE PRESENTATIONS

*Upcoming:* **Holsteen-Bruyere, Rachel**, Kurt Roggensack, Amanda Clarke (2022). “Quiescent to Explosive Basaltic Eruptions in Distributed Volcanic Fields: Mixed Fluid (H<sub>2</sub>O-CO<sub>2</sub>) Solubility Experiments to Constrain Eruption Processes.” AGU Chapman Conference, Flagstaff, AZ.

**Holsteen-Bruyere, Rachel**, Kurt Roggensack, Amanda Clarke (2019). “Mixed fluid (H<sub>2</sub>O-CO<sub>2</sub>) Solubility of Basalts at Mid-Crustal Pressures: Understanding the Role of Alkalis.” AGU Fall Meeting Abstract, San Francisco, CA.

**Holsteen-Bruyere, Rachel**, Kenneth Befus (2017). “Were the Volatile Contents of Yellowstone Caldera’s Lava Creek Tuff the Same?” Geological Society of America South Central section meeting, Little Rock, AR.

## INVITED LECTURES

Arizona State University, Intro. to Geology—Volcanoes: Who, What, Where, When, Why, and How? (2021)

## TEACHING EXPERIENCE

2022	Historical Geology, Teaching Assistant Introduction to Geology, Teaching Assistant Earth, Solar System, and Universe, Teaching Assistant
2020	Dangerous World, Teaching/Laboratory Assistant

2019 Introduction to Geology, Teaching/Laboratory Assistant  
Dangerous World, Teaching/Laboratory Assistant  
2018 Introduction to Geology, Laboratory Assistant

## RESEARCH EXPERIENCE

2018-Present Graduate researcher, ASU VolcanoLab/High Pressure Facility  
(non-end loaded piston cylinder, FTIR, Raman, EPMA, vacuum manometry)  
2017-2018 Undergraduate researcher, Baylor Volcano, Gems, Petrology  
(cold-seal pressure vessel, FTIR, Raman)

## FIELD EXPERIENCE

2017 Sample collection, Yellowstone National Park, WY  
2022 Field assistant, Pinacate Volcanic Field, Sonora, Mexico

## SERVICE AND CONTRIBUTIONS TO DIVERSITY

### MENTORING

2020 ASU Sundial mentoring program  
2019-2020 Pen Pal with Letters to a Pre-Scientist

### SERVICE

2019-Present Editor, Volcano Listserv  
2022-2025 Student Representative, AGU VGP Executive Committee  
2021-2022 ASU School of Earth and Space Exploration Graduate Council

### OUTREACH

2022 Invited speaker, Highland Park Middle School (Highland Park, TX)  
2019-Present Skype-A-Scientist  
2019 Invited speaker, North Valley Christian Academy (Phoenix, AZ)

### WORKSHOP PARTICIPATION

2020 Melts, Glasses, and Magmas seminar (LMU-Munich)  
2019 CONVERSE Volcanic Sampling and Hazards Workshop (GSA Annual Meeting)

## SELECTED EMPLOYMENT

2018-Present Research Assistant  
School of Earth and Space Exploration (SESE) ASU  
2018-Present Teaching Assistant  
School of Earth and Space Exploration (SESE) ASU  
2017-2018 Research Assistant  
Baylor Volcanoes, Gems, and Petrology Baylor

## PROFESSIONAL AFFILIATIONS

2018-Present Int'l Assoc. of Volcanology & Chemistry of the Earth's Interior (IAVCEI)  
2017-Present American Geophysical Union (AGU)  
2016-Present Geological Society of America (GSA)