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# Kiersten Hottendorf

University of Iowa

Earth and Environmental Sciences Department

Planetary Geology Exploration Group

(925) 518-0786

khottendorf@uiowa.edu

## Research Interests

Analyzing the volcanic evolution of basaltic terrains through experimental igneous petrology and spectroscopy.

## Education

### **University of Iowa - *Ph. D in Geoscience***

Current

- Ph. D student working with Dr. Valerie Payré in the Planetary Exploration Group on experimental igneous petrology, spectroscopy, and the magmatic history of Mars

### **State University of New York at Buffalo, Buffalo, NY - *M.S. in Geological Sciences***

- “Inflated Lava Flows at Rock Corral Butte, Eastern Snake River Plain, Idaho, USA” - Dr. Tracy Gregg (thesis advisor)

### **The New Mexico Institute of Mining and Technology, Socorro, NM - *B.S. in Earth Science***

- “Pre-eruptive conditions for rhyolitic Miocene volcanism in the Socorro-Magdalena, New Mexico Area and its connection to la Jencia basin sediments” - Dr. Laura Waters (thesis advisor)

## Professional Experience

### **Graduate Research Assistant - ‘*Exploration of Igneous Rocks at the Surface of Mars Combining Experimental Petrology and Remote Sensing***

Current

- NASA/Solar System Working Grant
  - Advisor: Valerie Payre
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- Technical Skills: Deltech gas mixing furnace, JEOL8530F electron microprobe, ImageJ, Excel Solver, ThermoFisher Nicolet iN10  $\mu$ FTIR spectrometer
  - Summary: Evaluate the efficacy of remote sensing on igneous terrains at the surface of Mars for petrologic interpretations through crystallization experiments and spectral measurements.

**Teaching Assistant, EES 1050: Introduction to Geology Lab - Earth and Environmental Sciences Department, University of Iowa**

August 2023 - December 2023

- Introduced undergraduate students to rock and mineral identification, thin section microscopy, geological maps, cross-sections, structural geology, and hydrogeology.
- Graded weekly assignments, exams, and final project
- Mentored undergraduates in finding research opportunities and conducting research for the first time.

**Teaching Assistant, GLY 303: Geologic Communication - Geology Department, State University of New York at Buffalo**

January 2023 - May 2023

- Introduced undergraduate students to geological maps, topographic maps, cross-sections, and other associated work products
- Lead lectures on how to construct and read geological maps and other map products

**Teaching Assistant, GLY 105: Natural Hazards & Climate Change - Geology Department, State University of New York at Buffalo**

January 2022 - December 2022

- Instructor of record for three lab sections of introductory Earth Science to 72 undergraduate students for two semesters
- Improved pedagogy through lab review and revision
- Mentored undergraduate students in their college careers

**Receptionist - Tennyson Court Assisted Living and Memory Care, Williamsville, NY**

October 2021 - December 2022

- Assisted Administrative Assistant in completing administrative tasks to improve the efficiency of the organization
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- Acted as a liaison between others and the administration and was proficient at communicating a message in a meaningful way to multiple audiences (residents, nurses, families, administration, etc.)

**Field Camp Sous Chef** - *Sous Chef* State University of New York at Buffalo

May 2022 - June 2022

- Managed financial records for money being spent to provide meals to 50+ people every day
- Collaborated with chefs to create a nutritious and delicious culinary experience in a moving field camp in four different remote locations in the American Southwest
- Oversaw the use of limited resources (electricity, water, food, etc.) in remote environments where civilization could be over a two hour drive away

**GIS Technician** - *New Mexico Bureau of Geology and Mineral Resources*

August 2020 - May 2021

- Digitized legacy geologic maps in a GIS format
- Organized digital files for a multi-user environment
- Worked with shared geographic and geologic network resources
- Communicated with geologists to ensure accuracy of the maps

**Writing and Communication Lab Student Director** - *Communication, Liberal arts, and Social Sciences Department at the New Mexico Institute of Mining and Technology*

May 2020 - May 2021

- Worked with the Writing and Communication Lab Directors and the Communication, Liberal Arts, and Social Sciences department administration to hire new tutors, promote lab activities, and help the college's student and staff population with their communication needs
- Directed writing tutors on how to best help students of all backgrounds, experiences, and end goals

**Writing Tutor** - *Writing and Communication Lab; Communication, Liberal arts, and Social Sciences Department at the New Mexico Institute of Mining and Technology*

September 2018 - May 2021

- Helped students compile their thoughts, analyses, and conclusions in a multitude of formats
  - Mentored upcoming scientists and engineers in confidently presenting their research to different audiences
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**Grader, SS 122: Creation of the Universe - Fact/Fiction/Myth - Grader, SS 122:**  
*Creation of the Universe - Fact/Fiction/Myth; Communication, Liberal arts, and Social Sciences Department at the New Mexico Institute of Mining and Technology*

September 2018 - December 2019

- Gave personalized comments and suggestions to students on how to improve their written communication skills in a short essay form
- Graded 40 short essays a week for two semesters

**Sales Associate - Kohls, Vancouver, WA**

May 2018 - August 2018

- Communicated with the general public in order to answer questions and misunderstandings they may have.
- Multitasked with a team of sale associates and managers in order to deliver an optimized shopping experience for customers

**Grants Received**

**Reginald H. Pegrum Professional Development Award (Kiersten Hottendorf)**

March 2022 and December 2022

- Funding awarded by the State University of New York at Buffalo Department of Geology to attend and present at the Spring Geological Society of America's Northeastern Section - 57th Annual Meeting 2022, Geological Society of America Connects 2022, and the 54th Lunar and Planetary Science Conference
- Awarded a total of \$1100

**2022 Natural Hazards Student Research Grant (Kiersten Hottendorf)**

March 2022

- Funding awarded by the State University of New York at Buffalo Center for GeoHazards Studies to conduct research at Rock Corral Butte, Idaho in the Eastern Snake River Plain
  - Awarded \$2477
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## 2022 Geological Society of America Graduate Student Research Grant (Kiersten Hottendorf) #13496-22

June 2022

- Funding awarded by the Geological Society of America and National Science Foundation to conduct research at Rock Corral Butte, Idaho in the Eastern Snake River Plain
- Awarded \$2500 for research and \$500 for travel costs to present work at a conference, total of \$3000

### Abstracts and Conference Presentations

**Hottendorf, K. A.,** Sakimoto, S. E. H., Gregg, T. K. P, Paredes, M. S., March 2023, Rock Corral Butte, Eastern Snake River Plain, Idaho: A Low Shield Volcano Emplaced by Pressurized, Insulated Flow, was presented at the 54th Lunar and Planetary Science Conference 2023, LIV LPSC Abstract ID# 2644; poster presentation, <https://www.hou.usra.edu/meetings/lpsc2023/pdf/2644.pdf>

**Hottendorf, K.,** Gregg, T., Sakimoto, S., Paredes, M., October 2022, Rock Corral Butte, Idaho: An example of shield emplacement by primarily confined flow with implications for plains-style volcanism, Abstract ID# 381099 presented at GSA Connects 2022, Volume 54, number 5, <https://doi.org/10.1130/abs/2022AM-381099>; oral presentation

**Hottendorf, K.,** Gregg, T., March 2021, Rock Corral Butte, Idaho: An Inflated Flow Field in the Eastern Snake River Plain, Abstract ID #: 374961 presented at Spring GSA Northeastern Section - 57th Annual Meeting 2022, <https://doi.org/10.1130/abs/2022NE-374961>; oral presentation

**Hottendorf, K.,** Waters, L., Leary, R., April 2021, Pre-eruptive conditions for rhyolitic Miocene volcanism in the Socorro-Magdalena area and its connection to la Jencia Basin sediments, NMT Student Research Symposium, SRS 2020-171; poster presentation, [https://www.nmt.edu/srs/docs/2021/program/2021\\_SRS\\_Program.pdf](https://www.nmt.edu/srs/docs/2021/program/2021_SRS_Program.pdf)

### Skills

- Thin Section Preparation and Analysis
    - Leica and Olympus Microscopes
    - Infinity Lumenera Cameras
    - Cutting samples and creating thin sections
  - Carl Zeiss AURIGA CrossBeam Focused Ion Beam Electron Microscope
  - Deltech Gas Mixing Furnace
  - JEOL8530F Electron Microprobe
  - ThermoFisher Nicolet iN10  $\mu$ FTIR Spectrometer
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- ESRI GIS Software Packages
  - ENVI Software
  - Python
  - Adobe
  - ImageJ
  - pMELTS
  - JMARS
  - Google Earth Pro
  - Geophysical field methods
    - Seismic Refraction Surveying
    - Resistivity Surveying
    - Electromagnetic Conductivity Surveying
    - Ground Penetrating Radar Surveying

### Relevant Field Work

#### **Master's Thesis Field Work - Rock Corral Butte, Idaho**

July 2022

- Collaborated with Dr. Tracy Gregg, Dr. Susan Sakimoto, and Mareli Paredes
- Conducted 3 days of field work on a remote small shield volcano in the Eastern Snake River Plain, Idaho
- Collected samples of basaltic lava from all cardinal directions of flow field
- Measured morphology of inflation features
- Collected vesiculation data with a Schmidt Hammer
- Collected topography data

#### **Volcanic Rocks (GLY 431) - Traveling Volcanology Field Course from the State**

*University of New York at Buffalo*

May 2022

- In this course I was taken to 2 field sites unknown to me and had to deduce their geological history through observations I made while there
  - Engaged in volcanic field work at Zuni Salt Lake in New Mexico, a maar volcano, and in Peach Spring Tuff deposits in Kingman, Arizona
  - Took detailed geological notes and observations about deposits
  - Created 2 detailed stratigraphic columns at each site in order to construct a depositional timeline and a geological report on the study area.
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**Field Methods in Earth Sciences (ERTH 480) - *Traveling New Mexico Institute of Mining and Technology Field Camp***

May 2021 - June 2021

- Made geological maps of 6 locations
  - Minas del Chupadero, New Mexico
  - Joyita Hills, New Mexico
  - Socorro Canyon, New Mexico
  - Western Sevilleta, New Mexico
  - Arroyo del Tajo West, New Mexico
  - Arroyo del Tajo East, New Mexico
- For each mapping location also wrote a detailed report of geologically significant information and description of all the geological units encountered
- Created stratigraphic columns, stereonet, and other products along with reports to convey each areas unique geological history

**Undergraduate Senior Thesis Field Work - *La Jencia Basin, New Mexico***

March 2021

- Collaborated with Dr. Laura Waters and Dr. Ryan Leary
- Collected samples of volcanoclastic sediments and airfall
- Collected stratigraphic information to make a stratigraphic column for multiple field sites
- Mapped out airfall beds that were continuous over long distances

**Workshops Led**

**3 Minute Speech Workshop - *Student Research Symposium Workshop***

March 2019 and 2020

- Was host of an a 2 hour workshop
  - Guided students through the basics of giving a speech
  - Helped break down others' research into its more pertinent components
  - Taught participants how to confidently present research to those outside their field
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## Awards and Honors

### **Estwing Rock Hammer Award - *Most Outstanding Senior***

May 2021

- Graduating senior with the highest GPA and most recommendations from professors

## Professional Positions

### **Newsletter Coordinator - *Organization for Venus Early-Career Networking (OVEN)***

Current

- Created a newsletter to disperse to the wider Venusian community in order to keep those new and old to the community apprised of current events and research.

### **Secretary - *Geology Graduate Student Association, State University of New York at Buffalo***

January 2023 - May 2023

- Took notes during meetings and sent them to the Graduate Student Association of the State University of New York at Buffalo.
- Alerted members to the ongoings of the GGSA between meetings

## Professional Memberships

### **Geological Society of America**

December 2021 - Current

### **American Geophysical Union**

December 2022 - Current

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