Micki (E.M.) Recchuiti

Email: emrecchuiti@gmail.com | Phone: (717)-724-7242 | https://orcid.org/0009-0001-6400-8496

EDUCATION

Ph.D. Marine, Earth, and Atmospheric Sciences Expected May 2026

North Carolina State University

- Investigating the Rheology of Basaltic Lavas on Venus and Earth via Remote Sensing and Experimental Methods

M.Sc. Earth and Planetary Sciences May 2022

University of Tennessee, Knoxville

- Understanding Hydrogen Variations in Silicate Glasses as a Result of Degassing: Fire-Fountaining on the Moon and Earth

B.S. Geology May 2020

Western Carolina University, Honors College

- Senior thesis: Paleoecology of Fossil Communities in Pennsylvanian Shales of Texas

B.S. Anthropology; Archaeology May 2020

Western Carolina University, Honors College

- Minor in Japanese

PUBLICATIONS

Recchuiti, E. M., Höskuldsson, Á., & Soldati, A. (2025). Disequilibrium rheology of basaltic magma: Cooling deformation experiments with one-step and two-step cooling rates. Journal of Volcanology and Geothermal Research, 465, 108364. https://doi.org/10.1016/j.jvolgeores.2025.108364

CONFERENCE POSTERS AND PRESENTATIONS

E.M. Recchuiti, and A. Soldati. 2024. 12th Silicate Melt Workshop, “Towards the Rheological Mapping of Realistically Cooled Lava Flows”, Ludwig-Maximilians-Universität, Munich, Germany, poster.

E. M. Recchuiti, V. Haag, and A. Soldati. 2024. 55th Lunar and Planetary Science Conference, “Fractal Dimensions of Lava Flows on Earth and Venus as Flow Morphology Indicators,” #1115, Houston, Texas, oral presentation.

T. J. Barrett, A. Ariza Pardo, A. Balance, J. Davis, C. Diaz, F. Diotte, E. Etheridge, C. Hundal, B. Kathir, S. Perez-Lopez, **E. M. Recchuiti**, and D. A. Kring. 2024. 55th Lunar and Planetary Science Conference, “Physical Properties of Lunar Regolith Analogue at Cinder Lake Crater Field, Arizona,” #1352, Houston, Texas, poster.

Dyar, M. D., A. Lanzirotti, M. C. McCanta, **E. M. Recchuiti**, E. C. Sklute, and S. Sutton. 2022 Apollo 17-ANGSA Workshop, “Redox States, Oxygen Fugacity, and Hydrogen Distribution in Lunar Volcanic Glass Beads: Results from the Spectroscopy Consortium Addressing Redox Acquired by Beads (SCARAB) Team,” #2011, Houston Texas, oral presentation.

Recchuiti, E. M., M. C. McCanta, M. D. Dyar, E. Sklute, and A. Lanzirotti. 2022. 53rd Lunar and Planetary Science Conference, “Hydrogen Variations in Lunar Glass Beads: Eruptive Degassing in ANGSA Samples,” #2193, Houston, Texas, poster.

Fagan, A. L., M. Hall, **E. M. Recchuiti**, & C. Utterback. 2022. 53rd Lunar and Planetary Science Conference, “Preliminary Classification of Lithic Clasts in Lunar Regolith Breccia Meteorite Northwest Africa 8783,” #2889, Houston, Texas, poster.

Recchuiti, E. M., M. C. McCanta, M. D. Dyar, E. Sklute, E. Lanzirotti. 2021. 52nd Lunar and Planetary Science Conference, “Mapping Hydrogen Variations in Silicate Glasses: Eruptive Lunar Degassing,” #1299, online oral presentation.

Recchuiti, E. M., M. C. McCanta, M. D. Dyar, E. Sklute, and E. Lanzirotti. 2020. American Geophysical Union Fall Meeting, “Mapping Hydrogen Variations in Silicate Glasses: Record of Lunar Eruptive Degassing,” V013-0009, online poster.

Fagan, A. L., K. H. Joy, M. Hall, **E. M. Recchuiti**, C. Utterback, and S. E. Roberts. 2020. 51st Lunar and Planetary Science Conference, “Lunar Regolith Breccia Meteorite Northwest Africa 8783: Clast Diversity with Implications for Bombardment History and Crustal Evolution,” Online poster.

Lloyd, Austin, **Erin M. Recchuiti**, Frank Forcino, Emily Stafford. 2019. Southeastern Geological Society of America, “The Influence of Sample Size on the Perception of Fossil Community Differences Between In-Place and Surface Collected Samples,” Geological Society of America, Charleston, SC, poster.

Ingram, Kenya, **Erin M. Recchuiti**, Donovan Hier, Kayla LeDuc, John Morgan, Evan Skeen. 2018. Southeastern Geological Society of America, “Analyzing the Mineral Chemistry of the NWA 8632 Meteorite for Olivine Phenocrysts,” Geological Society of America, Knoxville Convention Center, Knoxville, TN, poster.

Recchuiti, Erin M., Kenya Ingram, Donovan Hier, Kayla LeDuc, John Morgan, Evan Skeen. 2018. Western Carolina University Undergraduate Research Exposition, “Analyzing the Mineral Chemistry of the NWA 8632 Meteorite for Olivine Phenocrysts,” Western Carolina University, Cullowhee, NC, poster.

RESEARCH EXPERIENCE

Graduate Research Assistant, Fall 2022-Present
Department of Marine Earth and Atmospheric Sciences
Supervisor: Dr. Arianna Soldati, Assistant Professor, North Carolina State University
Research: Volcanology, Planetary Science, Rheology

Research Associate, Summer 2023
Planetary Science Institute, Tucson, AZ
Supervisor: Dr. Darby Dyar, Senior Scientist at PSI and Kennedy-Schelkunoff Professor of Astronomy at Mount Holyoke
Research: Lunar Geochemistry, Spectroscopy, Hydrogen Degassing in Silicate Glasses

Graduate Research Assistant, Summer 2020-Summer 2022
Department of Earth and Planetary Science
Supervisor: Dr. Molly McCanta, Professor, University of Tennessee Knoxville
Research: Lunar Petrology, Spectroscopy, Planetary Science
Undergraduate Researcher and Senior Thesis, Fall 2018-Spring 2020
Department of Geosciences and Natural Resources
Supervisor: Dr. Frank Forcino, Professor of Geosciences, Western Carolina University
Research: Paleoecology of Late Pennsylvanian Marine Invertebrates from North Central Texas
Undergraduate Researcher, Fall 2017-Spring 2020
Department of Geosciences and Natural Resources
Supervisor: Dr. Amy Fagan, Professor of Geosciences, Western Carolina University
Research: Lunar Meteorite Identification and Geochemical Classification

INVITED LECTURES

Venusian Lava Fractal Dimensions in OVEN Early Career Invited Seminar Series May 2025
Graduate Applications in Professions in Marine, Earth, & Atmospheric Science at NCSU April 2023
Applying to Graduate School Careers in Geoscience at Western Carolina University December 2022

PUBLIC OUTREACH

Geoscience Expert for Savvas Learning Company K-12 Educational Video Series May 2025
State of the Sciences at NCSU: Volcanic Eruptions in VR April 2025
Rocks ‘n Minerals for the fourth graders at Parkside Elementary School March 2025
Letters to a Pre-Scientist Fall 2023-Spring 2024
Skype a Scientist Spring 2023-Present
State of the Sciences at NCSU: Volcanology Table April 2023
Rocktober at the North Carolina Museum of Natural Science October 2022
Hardin Valley Elementary School STEM Night: Space Sciences Table February 2022
Knoxville Gem and Mineral Show: Mars Exploration Table September 2021

PROFESSIONAL SERVICE

NASA Review Panel, Executive Secretary 2025
NASA Review Panel, External Reviewer 2024
NASA Review Panel, Executive Secretary 2024
Seminar Course Development Committee for NCSU MEAS Department, member 2023-2024
Social Committee for NCSU MEAS Department, member 2023-2024
Department Affairs Committee for NCSU MEAS Department, member 2023-2024
Education Teaching Fund Committee for NCSU MEAS Department, member 2023-2025
President of NCSU MEAS Graduate Student Association 2023-2024
NASA Review Panel, Executive Secretary 2023

HONORS, AWARDS, AND RECOGNITIONS

College of Science Student Leadership Award, Nominee (NCSU) Fall 2024
Honorable Mention 2024 Envisioning Research (NCSU Graduate School) Fall 2024
Professional Promise Ph.D. Student (NCSU MEAS) Spring 2024
Up and Coming Earth Scientist (NCSU MEAS) Spring 2024

GMAP Planetary Geologic Mapping Winter School Certification Spring 2023
Excellence in Teaching by GTA (UTK EPS) Spring 2022
NASA Space Grant Excellence in Outreach (UTK EPS) Spring 2022
Gene Tipton Graduate Award (Knoxville Gem and Mineral Society) Spring 2022
C.H. Gordon Award for Exceptional Professional Promise (UTK EPS) Spring 2021
Western Carolina University's Chancellor's List (> 3.8 GPA) Fall 2016-Spring 2020
Outstanding Senior in Anthropology (WCU) Spring 2019

TEACHING EXPERIENCE

Department of Marine Earth and Atmospheric Science, NCSU, Raleigh, NC
Graduate Teaching Assistant January 2023-Present

- GEOL 110 (Introduction to Physical Geology), GEOL 410 (Mineralogy), GEOL 440 (Igneous and Metamorphic Petrology)

Department of Earth and Planetary Sciences, UTK, Knoxville, TN
Graduate Teaching Assistant August 2020-May 2022

- GEOL 101 (The Dynamic Earth), GEOL 103 (Earth's Environments), GEOL 104 (Exploring the Planets), GEOL 310 (Mineralogy), & GEOL 330 (Igneous and Metamorphic Petrology)

Department of Geosciences and Natural Resource Management, WCU, Cullowhee, NC
Teaching Assistant August 2019-May 2020

- GEOL 250 (Mineralogy), GEOL 150 (Methods in Geology), and GEOL 155 (Historical Geology)

PROFESSIONAL DEVELOPMENT

- Professor Pathways Program through North Carolina State University's Graduate School, July 2025
    - A workshop on academic job market preparation, focusing on CVs, cover letters, and teaching philosophies.
- VICTOR Developers Workshop through Columbia University in the City of New York, August 2024
    - Collaborate with other scientists to upload volcanic models to the VICTOR Jupyter Hub for easier access for use by removing the barriers of building a model described in literature.
- Preparing the Professoriate through North Carolina State University's Graduate School, August 2024 - May 2025
    - Nationally recognized program that provides exceptional doctoral students with immersive mentoring and teaching experiences to prepare them to teach, culminating in a formal transcript notation.
- Geological Applications Short Course for X-ray CT Data of Geological Samples through University of Texas at Austin, July 2024
    - Acquisition and interpretation of XCT data, with hands-on training in 3D visualization and quantitative analysis of discrete geological features and fabrics, using Dragonfly, ImageJ, Blob3D, and Quant3D programs.
- Volcanology Infrastructure for Computational Tools and Resources (VICTOR) Course through Columbia University in the City of New York, Spring 2024
    - Modeling of volcanic eruptions and analysis of data using advanced cyberinfrastructure (VICTOR).

- San Francisco Volcanic Field Camp through the NASA Solar System Exploration Research Virtual Institute, September 2023
    - Experience in bimodal volcanic fields investigating physical volcanology and basaltic volcanism with the goal of understanding volcanic provinces in a wider planetary context (Earth, the Moon, Mars, etc.) in Flagstaff, AZ.
- Geology and Planetary Mapping Winter School through Europlanet-GMAP infrastructure, the University of Padova and Constructor University, Spring 2023
    - Planetary geologic mapping, machine learning, and modeling of impact craters, the Moon, Mars, and Venus.

SKILLS

- Curation: managed the rock and mineral collections at Western Carolina University, University of Tennessee Knoxville, and North Carolina State University (digitized and supervised the creation of a database for the NCSU collection)
- Applications, Data Management with R/R-Studio/Matlab/Python
- Familiarity with Oscillatory Viscometer, Parallel Plate Viscometer, SEM, FTIR, Electron Microprobe, Nano-CT
- Able to sort, identify, and count small samples (glass beads and shards, marine invertebrate fossils)

FIELD EXPERIENCE

Grindavik, Iceland Summer 2023

Field work in response to an active eruption

- Recorded imagery of the evolving morphology of the cone and flow over the course of 6 days
- Collected samples from fresh lava flows for viscosity and textural analyses

Hilo, Hawaii Summer 2019

Undergraduate Field School through the South Dakota School of Mines

- Studied hotspot volcanology and active faults in the field
- Interpreted data in the USGS Hawaii Volcano Observatory and Kilauea Military Camp lab
- Mapped basaltic lava flows and pyroclastic cones from the Kilauea volcanic complex

STUDY ABROAD

Cusco, Peru Summer 2018

Department of Anthropology and Sociology (WCU)

- Took 2 classes on archaeology and culture in Peru and visited and examined multiple archaeological sites in and surrounding Cusco, Peru

Japan Summer 2017

Department of World Languages (WCU)

- Visited major cities on Kyushu Island and taught English classes from elementary to high school level Japanese students

Description of Courses Taught

NC State University (Instructor of Record)

- **GEOL 110 (Introduction to Physical Geology)**: Scientific methodology applied to the study of common rock-forming minerals, common rocks, topographic maps, geologic structures and geological maps. Field trips.
- **GEOL 410 (Mineralogy)**: Introduction to the basics of Mineralogy (crystallography, morphology, crystallochemistry, optics, and systematics), with an emphasis on mineral identification both at the macro (hand sample) and micro (thin section) scale. Required field trip to the North Carolina Museum of Natural Sciences. Transportation is not provided.
- **GEOL 440 (Igneous and Metamorphic Petrology)**: The study of rocks formed by the crystallization of magmas (igneous) and by the recrystallization of existing rocks (metamorphic), with emphasis on whole-rock and mineral compositions, classification, petrography, hand-sample and thin-section identification, and the rock origins in terms of magma genesis and emplacement and tectonics.

University of Tennessee Knoxville (Teaching Assistant)

- **GEOL 101 (The Dynamic Earth)**: Physical processes within and upon the Earth's surface, including the formation of rocks, plate tectonics and earthquakes, and landscapes.
- **GEOL 103 (Earth's Environments)**: Contemporary problems and solutions related to nature and human disturbance of the environment. Topics include – natural hazards, global climate change, pollution, resource depletion.
- **GEOL 104 (Exploring the Planets)**: Spacecraft investigation of the geology and geological processes operating on and within planetary bodies, as well as satellites, asteroids, and comets. Topics include planetary formation processes, composition of the planets and their atmospheres, formation of moons and other small bodies, geologic processes (tectonics, volcanism, water- and wind-driven processes, climate evolution, impact cratering) that affect planetary surfaces, and the spacecraft missions that have provided data for geologic interpretation.
- **GEOL 310 (Mineralogy)**: Introduction to the concepts of crystal chemistry, x-ray diffraction, optical mineralogy, and geochemical analysis of the important rock-forming minerals. Laboratory includes hand-specimen, x-ray diffraction, and microscopic identification of minerals.
- **GEOL 330 (Igneous and Metamorphic Petrology)**: Study of the properties of crystalline rocks, the processes that produce them, and the tectonic environments in which they form. Topics include interpretation of rock textures, phase diagrams, geochemical and isotopic compositions, magma generation and differentiation, effects of temperature, pressure, and fluids on mineral equilibria and kinetics.

Western Carolina University (Teaching Assistant)

- **GEOL 150 (Methods in Geology)**: Topics related to earth materials and solid and surficial earth processes explored through field, analytical, and computing methods, developing investigation and communication skills.
- **GEOL 155 (Historical Geology)**: Major events and changes in life forms in North American geological history; fossils, ancient environments, and geologic interpretation.
- **GEOL 250 (Mineralogy)**: Descriptive mineralogy emphasizing hand specimen identification of common rock forming minerals, occurrences, crystallization, and classification; includes field trips, analytical labs, and microscope use.