

Meritxell Colet

Dept. Earth & Environmental Sciences, Columbia University
mcolet@ldeo.columbia.edu | www.meritxellcolet.com

Education

2025 – Exp. 2028	Columbia University , New York, NY Ph.D. in Geophysics Advisor: Dr. Folarin Kolawole
2023 – 2025	Columbia University , New York, NY M. A. in Structural Geology Advisor: Dr. Folarin Kolawole
2016 – 2020	Carleton College , Northfield, MN B.A. in Physics, minor in Art History Advisors: Drs. Marty Baylor and Cindy Blaha

Previous Research Experience

2020 – 2023	Field Systems Engineer and Analyst Infrasound Laboratory, Hawai‘i Institute of Geophysics and Planetology, University of Hawai‘i <ul style="list-style-type: none">Built and integrated algorithms for the Infrasound Station I59US as part of the International Monitoring System of the Comprehensive Nuclear-Test Ban TreatyDesigned and developed data structures in Python for acoustic source processes, propagation, signal and array processing
2019 <i>Summer</i>	Undergrad Research Assistant National Science Foundation - Research Experience for Undergraduates (NSF-REU) Department of Earth Science, University of Hawai‘i <ul style="list-style-type: none">Investigated relative timing of events from the Kīlauea volcano eruption in 2018Examined infrasound data collected at the Infrasound Laboratory (ISLA) of the University of Hawai‘i for 50 of the most explosive events during the eruptionAnalyzed displacement geodetic data and time series from seven GPS stations located around the crater provided by the USGS Hawai‘i Volcanoes Observatory (HVO)
2017, 2018 <i>Summer</i>	Undergrad Research Assistant Department of Physics and Astronomy, Carleton College (2017) Inst. of Cross-Disciplinary Physics & Complex Systems, Uni. de les Illes Balears, Spain (2018) <ul style="list-style-type: none">Researched complex dynamics of semiconductor lasers with state-dependent delayAnalyzed time series with permutation entropy, return maps and mutual informationCorrelated and interpreted ordinal patterns to forecast the occurrence of extreme events in dual dynamics in semiconductor lasers

Publications

Manuscript(s) in review

2025	Kolawole, F., Foster-Baril, Z., Seeber, L., Tielke, J. A., Prakash, A., Colet, M. , Beaucé, E., Kim, W., Ajala, R., McCarthy, C. & Waldhauser, F. The 2024 Mw4.8 New Jersey Intraplate Earthquake: Preferential Rupture of an Immature Rough Fault in Frictionally Unstable Basement Rocks. In review at <i>Geophysical Research Letters</i> . EES Open Archive Preprint DOI: 10.22541/au.173204170.01301789/v1
------	--

Journal Peer-Reviewed

- [3] 2025 **Colet, M.**, Kolawole, F., Ajala, R., Delvaux, D., & Nkodia, H. M. D-V. (2025) Active Crustal Deformation across a Nucleating Extensional Microplate, D. R. Congo, East Africa. Accepted in *Tectonics*
- [2] 2022 Garcés, M. A., Bowman, D., Zeiler, C., Christe, A., Yoshiyama, T., Williams, B., **Colet, M.**, Takazawa, S., & Popenhagen, S. (2022). Skyfall: Signal Fusion of a Smartphone Falling from the Stratosphere. *Signals*, 3(2), 209-234. <https://doi.org/10.3390/signals3020014>
- [1] 2018 **Colet, M.** & Aragoneses, A. (2018). Forecasting Extreme Events in the Complex Dynamics of a Semiconductor Laser with Feedback. *Scientific Reports*, 8, 10741. <https://doi.org/10.1038/s41598-018-29110-5>

Conference Presentations

- 2024 **Colet, M.** & Kolawole, F., 2024. Incipient Reactivation of ‘Failed’ Rifts in East Africa: Insights from Surface-Breaking Brittle Faulting. Presented at *Gordon’s Rock Deformation Conference* (poster) and at *AGU Fall Meeting*, Washington D.C., (poster V51E-3116).
- 2019 **Colet, M.** & Butler, R., 2019. Analysing infrasound, geodetic, and seismic data from Kīlauea 2018 caldera collapse. Abstract V43C-0202 presented at *AGU Fall Meeting*, San Francisco, CA (poster).
- 2018 **Colet, M.**, Fischer, I., & Soriano, M. C., 2018. Analysing the complex dynamics of semiconductor lasers with state-dependent delay. Presented at *Summer Research Symposium*, Carleton College (poster).
- 2017 **Colet, M.** & Aragoneses, A., 2017. Forecasting Extreme Events in the Complex Dynamics of a Semiconductor Laser with Feedback. Presented at *Summer Research Symposium*, Carleton College (poster).

Teaching & Mentoring Experience

- 2025 **Co-mentor**, Earth Intern Program, Columbia University
Summer PI: Folarin Kolawole, student: Mia Yiannias
Project: How do faults activate during the initiation of a ‘baby’ plate boundary?
- 2025 **Teaching Assistant**, Dept. of Earth and Env. Sciences, Columbia University
Spring EESC1010: Geological Excursion to Death Valley, California
- 2022 **Co-mentor**, Earth Science on Volcanic Islands NSF-REU, University of Hawai‘i
Summer PI: Milton Garcés, student: Nicholas Forcone
Project: Secondary Lamb Waves from the 2022 Tonga Eruption
- 2017 – 2020 **Teaching Assistant**, Spanish Department, Carleton College

Honors and Awards

- 2025 **NSF-GRFP Honorable Mention**, Columbia University
- 2025 **Lewis and Clark Fund for Exploration and Field Research**, Columbia University (\$5200)
- 2025 **GSA Graduate Student Research Grant**, Columbia University (\$2450)
- 2025 **AAPG Foundation Grants-in-Aid**, Columbia University (\$1000)
- 2020 **Sigma Xi**, Carleton College
- 2018 **NASA’s MN Space Grant Consortium**, Carleton College (\$1000)

2017, 2018 **Townsley Endowment for the Sciences**, Carleton College (\$5000 each year)
2017 – 2020 **FOCUS Cohort Class of 2020**, Carleton College

Academic Service

2025 – **AGU Tectonophysics Graduate Student Representative**, American Geophysical Union
2024 **First-Year Colloquium Organizer**, Dept. of Earth and Env. Sciences, Columbia University
2023 **Open House**, Lamont-Doherty Earth Observatory
2018 – 2020 **Women* in Physics Mentor**, Carleton College

Technical Skills

Coding: Python, MATLAB, LaTeX, Wolfram Mathematica

Software: ArcGIS, GitHub (inc. Actions), ENVI

Fieldwork Experience

- 2025 **125th Fault, New York, US [1 day]**
Testing Distributed Acoustic Sensing (DAS) along the Columbia University campus
- Tewksbury Fault, New Jersey, US [2 days]**
Collection of Electrical Resistivity Tomography profiles across the Tewksbury Fault (ruptured on April 5th, 2024)
- 2024 **Axial submarine volcano, offshore Oregon, US [1 week]**
Recovery of ocean-bottom seismometers aboard the R/V Sally Ride.
- Mtaka Rift, Tanzania [2 weeks]**
Structural mapping and rock sampling.
- 2019 **Submarine volcanic rift zone west of Kaho'olawe, Hawai'i [1 week]**
Geodetic mapping survey and dredging aboard the R/V Kilo Moana.
- San Andreas Fault, California, US [1 week]**
Structural mapping survey.