# Meritxell Colet

Dept. Earth & Environmental Sciences, Columbia University
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## 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

- Built and integrated algorithms for the Infrasound Station I59US as part of the International Monitoring System of the Comprehensive Nuclear-Test Ban Treaty
- Designed and developed data structures in Python for acoustic source processes, propagation, signal and array processing

2019 *Summer* **Undergrad Research Assistant**
National Science Foundation - Research Experience for Undergraduates (NSF-REU)
Department of Earth Science, University of Hawai'i

- Investigated relative timing of events from the Kīlauea volcano eruption in 2018
- Examined infrasound data collected at the Infrasound Laboratory (ISLA) of the University of Hawai'i for 50 of the most explosive events during the eruption
- Analyzed 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 *Summer* **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)

- Researched complex dynamics of semiconductor lasers with state-dependent delay
- Analyzed time series with permutation entropy, return maps and mutual information
- Correlated 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 *Geophysical Research Letters.* 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. *Tectonics, 44,* e2025TC008815. https://doi.org/10.1029/2025TC008815

[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

## Teaching & Mentoring Experience

2025 *Summer* **Co-mentor,** Earth Intern Program, Columbia University
PI: Folarin Kolawole, student: Mia Yiannias
Project: How do faults activate during the initiation of a 'baby' plate boundary?

2025 *Spring* **Teaching Assistant,** Dept. of Earth and Env. Sciences, Columbia University
EESC1010: Geological Excursion to Death Valley, California

2022 *Summer* **Co-mentor,** Earth Science on Volcanic Islands NSF-REU, University of Hawai'i
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)
2025 **CRESCENT Geoscience Professional Development Fellowship**, Columbia Uni. ($900)
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 – **Tectonophysics Executive Committee Student Representative**, American Geophysical Union
2025 – **Tectonophysics Early Career and OSPA Committee**, 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

## Conference Presentations

– 2024 –

**[7] Colet, M.** & Kolawole, F. (2024). Incipient Reactivation of 'Failed' Rifts in East Africa: Insights from Surface-Breaking Brittle Faulting. *Gordon's Rock Deformation Conference (poster) and at AGU Fall Meeting, Washington D.C., (AGU24 abstract #V51E-3116).*

[6] Kolawole, F., Foster-Baril, Z., Seeber, L., Tielke, J.A., Prakash, A., **Colet, M.**, Beaucé, E., Kim, W.Y., Ajala, R., McCarthy, C. and Waldhauser, F. (2024). The 2024 M4.8 New Jersey Earthquake: Reactivation of a Rough Immature Fault in Frictionally Unstable Basement Rocks. *(AGU24 abstract #T53B-3216).*

[5] Beaucé, E., Waldhauser, F., Schaff, D., Kim, W.Y., Wang, K., Kolawole, F., **Colet, M.**, Ajala, R., Bacon, C. A., Lloyd, A., & Powell, E. M. (2024). The 2024 Tewksbury, New Jersey seismic sequence revealed by machine-learning and cross-correlation detection techniques. *(AGU24 abstract #T43A-3289).*

– Before 2022 –

[4] Eckel, F., Garcés, M., & **Colet, M.** (2022). The 15 January 2022 Hunga Tonga event: using Open Source to observe a volcanic eruption on a global scale in near real time. *EGU (poster EGU22-13582).*

**[3] Colet, M**. & Butler, R. (2019). Analysing infrasound, geodetic, and seismic data from Kīlauea 2018 caldera collapse. *AGU (poster V43C-0202) (Undergraduate research).*

**[2] Colet, M.**, Fischer, I., & Soriano, M. C. (2018). Analysing the complex dynamics of semiconductor lasers with state-dependent delay. *Summer Research Symposium*, *Carleton College (poster) (Undergraduate research).*

**[1] Colet, M.** & Aragoneses, A. (2017). Forecasting Extreme Events in the Complex Dynamics of a Semiconductor Laser with Feedback. *Summer Research Symposium*, *Carleton College (poster) (Undergraduate research).*

## 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) around the Columbia University campus

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 Kahoʻolawe, Hawaiʻi** [1 week]
Geodetic mapping survey and dredging aboard the R/V Kilo Moana.
**San Andreas Fault, California, US** [1 week]
Structural mapping survey.