

Meritxell Colet

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

Education

- 2023 –
Exp. 2028 **Columbia University**, New York, NY
 Ph.D. in Geophysics
 M.A. in Structural Geology
- 2016 – 2020 **Carleton College**, Northfield, MN
 B.A. in Physics, minor in Art History

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
2025 –	Student Talk Series Organizer , Dept. of Earth and Env. Sciences, Columbia University
2024	First-Year Colloquium Organizer , Dept. of Earth and Env. Sciences, Columbia University
2023	Open House , Lamont-Doherty Earth Observatory
2017 – 2020	Women* in Physics , 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.** & Aragonese, 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

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| 2025 | <p>125th Fault, New York, US [1 day]
Testing Distributed Acoustic Sensing (DAS) around the Columbia University campus</p> |
| 2024 | <p>Axial submarine volcano, offshore Oregon, US [1 week]
Recovery of ocean-bottom seismometers aboard the R/V Sally Ride.</p> <p>Mtaka Rift, Tanzania [2 weeks]
Structural mapping and rock sampling.</p> |
| 2019 | <p>Submarine volcanic rift zone west of Kaho‘olawe, Hawai‘i [1 week]
Geodetic mapping survey and dredging aboard the R/V Kilo Moana.</p> <p>San Andreas Fault, California, US [1 week]
Structural mapping survey.</p> |