

Meritxell Colet

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Education

2023 – Exp. 2028	Columbia University , New York, NY Ph.D. in Geophysics (2025 -) M.A. in Structural Geology (2023 - 2025)
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 <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., Ohnenhen, L., Colet, M. , Yiannias, M., Le, H. d., Ajala, R., Ramarolahy, A., Kornfeld, L., Mitchell, A. S., Tobe, J. T. Geomorphic and Geophysical Evidence for Late Quaternary Surface-Rupturing Earthquakes in Northeastern United States. In review at <i>Seismological Research Letters</i> .
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. *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> (*Undergraduate research*)

Teaching & Mentoring Experience

- 2026 **Teaching Assistant**, Dept. of Earth and Env. Sciences, Columbia University
Spring EESC2300: Earth's Environmental Systems: The Solid Earth
- 2025 **Co-mentor**, Earth Intern Program, Columbia University
Summer PI: Folarin Kolawole, student: Mia Yiannis
 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)
- 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

– 2025 –

- [10] **Colet, M.**, Kolawole, F., Ajala, R., Waldhauser, F., & Wang, K. (2025). Spatiotemporal Seismicity Patterns and Strain Release in Active Magma-Poor Rifts, Resolved with a Machine-Learning-Enhanced Earthquake Catalog. (*2025 SCEC Anual Meeting poster #30, GSA25 postert #179, AGU25 poster #S43D-0284*)
- [9] **Colet, M.**, Wang, K., Waldhauser, F., Wilcock, W. SD., Tolstoy, M., Tan, Y. J., & Schaff, D. P. (2025). Insights into caldera-ridge interactions and eruption preparation at Axial Seamount from machine-learning analysis of cable and temporary OBS data (*AGU25 poster #T31C-0176*)
- [8] Yiannias, M., Kolawole, F., & **Colet, M.** (2025). Investigation of Active Crustal Deformation Across the Incipient Mweru-Wantipa Rift, NM Zambia, East Africa (*GSA25 poster #181*)

– 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), AGU24 poster #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., & Waldhauser, F. (2024). The 2024 M4.8 New Jersey Earthquake: Reactivation of a Rough Immature Fault in Frictionally Unstable Basement Rocks. (*AGU24 poster #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 poster #T43A-3289*).

– Before 2023 –

- [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. (*AGU19 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
- Electrical Resistivity Tomography, New Jersey, US** [2 days]
Deployment of ERT on paleoseismic fault scarps

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.