

Meritxell Colet

Hawai'i Institute of Geophysics and Planetology, University of Hawai'i
mcolet@hawaii.com | <https://meritxellc.github.io/>

Education

2016 – 2020 **Carleton College**, Northfield, MN
Bachelor of Arts in Physics, minor in Art History
Advisors: Drs. Marty Baylor and Cindy Blaha

Research Experience

- 2020 (Oct.) **Field Systems Engineer and Analyst**
– Present 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 **Undergrad Research Assistant**
Jun. – Aug. 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 **Undergrad Research Assistant**
Jun. – Aug. 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

- 2022 Garcés, M. A., Williams, B. & **Colet, M.**, 2022. Near-field effects of the Tonga Lamb wave. *Submitted for review.*
- 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>
- 2018 **Colet, M.** & Aragonese, 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

- 2022 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. Abstract EGU22-13582 presented at *EGU*, Vienna, Austria.

- 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.** & Aragonese, A., 2017. Forecasting Extreme Events in the Complex Dynamics of a Semiconductor Laser with Feedback. Presented at *Summer Research Symposium*, Carleton College (poster).

Teaching Experience

- 2022 **Co-mentor**, Earth Science on Volcanic Islands REU, University of Hawai‘i
 Jun. – Aug. 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

- 2020 **Sigma Xi**, Carleton College
- 2018 **NASA’s MN Space Grant Consortium**, Carleton College
- 2017, 2018 **Townsend Endowment for the Sciences**, Carleton College
- 2017 – 2020 **FOCUS Cohort Class of 2020**, Carleton College

Technical Skills

Coding: Python (inc. *ObsPy*, *NumPy*, *pandas*, *PyGMT*, *Cartopy*), MATLAB, LaTeX, Wolfram Mathematica
Software: ArcGIS, GitHub (inc. Actions), macOS, Linux, Windows

Fieldwork

- 2019 Geodetic mapping survey of unsampled submarine volcanic rift zone west of Kaho‘olawe,
 1st – 4th Jul. Hawai‘i; R/V Kilo Moana. PI Jasper Konter
- 2019 Geodetic mapping survey exercise of San Andreas Fault, Southern California
 8th – 11th Feb.