Meritxell Colet

Hawai‘i Institute of Geophysics and Planetology, University of Hawai‘i
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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.) – Present **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 Jun. – Aug. **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 Jun. – Aug. **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

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.** & 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

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.** & 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 Experience

2022 Jun. – Aug. **Co-mentor,** Earth Science on Volcanic Islands 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

2020 **Sigma Xi**, Carleton College
2018 **NASA's MN Space Grant Consortium**, Carleton College
2017, 2018 **Townsley Endowment for the Sciences**, 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 1st – 4th Jul. Geodetic mapping survey of unsampled submarine volcanic rift zone west of Kaho‘olawe, Hawai‘i; R/V Kilo Moana. PI Jasper Konter

2019 8th – 11th Feb. Geodetic mapping survey exercise of San Andreas Fault, Southern California