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 (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 Volcanos Observatory (HVO)

2018 Jun. – Aug. **Undergrad Research Assistant**
Institute of Cross-Disciplinary Physics and Complex Systems, Uni. de les Illes Balears, Spain

- Researched complex dynamics of semiconductor lasers with state-dependent delay
- Analyzed time series with permutation entropy, return maps and mutual information

2017 Jun. – Aug. **Undergrad Research Assistant**
Department of Physics and Astronomy, Carleton College

- Correlated and interpreted ordinal patterns to forecast the occurrence of extreme events in dual dynamics in semiconductor lasers
- Continued project as an Independent Study through Jan. – Mar. 2018

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

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).

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 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.