Eric Beaucé | Curriculum Vitae

61 Route 9W, 201J Seismology, Palisades, NY 10964 USA

✉ ebeauce@ldeo.columbia.edu ● 🌐 ebeauce.github.io/

Academic Positions

Lamont-Doherty Earth Observatory, Columbia University   **New York - USA**
Postdoctoral Research Scientist (Brinson Fellow)   *2022 - present*

Massachusetts Institute of Technology   **Cambridge - USA**
Postdoctoral Researcher   *2021 - 2022*

Massachusetts Institute of Technology   **Cambridge - USA**
Research assistant/Teaching assistant   *2016 - 2021*

Ph.D. Thesis: Analyzing the Collective Behavior of Earthquakes to Understand Fault Mechanisms Better. Available here.

Education

Massachusetts Institute of Technology   **Cambridge - USA**
Ph.D. in Geophysics   *2021*

Massachusetts Institute of Technology   **Cambridge - USA**
Master of Science, Geophysics   *2018*

Ecole Normale Supérieure de Lyon   **Lyon - France**
Master of Science, Physics   *2016*

Ecole Normale Supérieure de Lyon   **Lyon - France**
Bachelor of Science, Physics   *2014*

Pre-Ph.D. Research Experience

Institut des Sciences de la Terre   **Grenoble - France**
6-month internship supervised by Michel Campillo.   *2016*

Development of automated methods for earthquake detection, based on template matching. Application to the Southwestern Alps.

Departemento de Geofísica   **Santiago - Chile**
3-month internship co-supervised by Benoit Derode and Jaime Campos.   *2015*

Source characterization of intermediate-depth earthquakes: estimation of static stress drops and seismic moments from earthquake spectra.

Laboratoire de Géologie, Terre, Planète, Environnement   **Lyon - France**
2-month internship supervised by Vincent Langlois   *2014*

Development of a discrete element numerical model to simulate landslides.

Teaching Experience

Massachusetts Institute of Technology   **Cambridge - USA**
Robert D. van der Hilst's teaching assistant for Essentials of Geophysics.   *2019*

Massachusetts Institute of Technology   **Cambridge - USA**
Brent Minchew's teaching assistant for Remote Sensing.   *2018*

Field Experience

San Jacinto Fault   **California - USA**
Preliminary passive seismic experiment (FaultProbe project)   *July 2018*

Deployment of 400 one-component geophones on two sites apart from the San Jacinto Fault, in order to monitor the fault with seismic interferometry.

Roseau Valley   **Saint Lucia**
Groundwater flow imaging.   *January 2018*

Mixed SP/resistance and gravity survey to map groundwater flow and identify relevant locations for fresh water wells.

New England   **New England - USA**
Diverse subsurface exploration geophysical methods   *2016 - 2020*

Educational field trips with the SEG Student Chapter of MIT. Training to active source seismic acquisition (2x24 geophones and one sledge hammer), gravity measurements, SP/resistance and magnetometry.
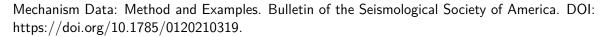
Technical and Personal skills

- **Programming Languages:** Proficient in: C, C++, CUDA, Python, Pytorch, TeX. Familiar with: Matlab, Fortran, Shell.
- **Languages:** French (native), English, Spanish.
- **Other:**
  - Developer of open-source software for geophysical analysis: https://github.com/ebeauce.
  - High performance computing, GPU-accelerated (CUDA-C) software for earthquake detection: Fast Matched Filter (link), BeamNetResponse (link).
  - Strong experience in super-computer environments (slurm).

Peer-reviewed Papers

2022 ....

- **Eric Beaucé**, Robert D. van der Hilst, Michel Campillo. An Iterative Linear Method with Variable Shear Stress Magnitudes for Estimating the Stress Tensor from Earthquake Focal

Mechanism Data: Method and Examples. Bulletin of the Seismological Society of America. DOI: https://doi.org/10.1785/0120210319.

2021

o René Steinmann, Léonard Seydoux, **Eric Beaucé**, Michel Campillo. Hierarchical Exploration of Continuous Seismograms with Unsupervised Learning. Journal of Geophysical Research: Solid Earth. DOI: https://doi.org/10.1029/2021JB022455.

o Hugo Sanchéz-Reyes, David Essing, **Eric Beaucé**, Piero Poli. The Imbricated Foreshock and Aftershock Activities of the Balsorano (Italy) Mw 4.4 Normal Fault Earthquake and Implications for Earthquake Initiation. Seismological Research Letters. DOI: https://doi.org/10.1785/0220200253

2019

o **Eric Beaucé**, William B. Frank, Anne Paul, Michel Campillo and Robert D. van der Hilst. Systematic Detection of Clustered Seismicity beneath the Southwestern Alps. Journal of Geophysical Research: Solid Earth. DOI: http://dx.doi.org/10.1029/2019JB018110.

o Florent Brenguier, Pierre Boué, Yehuda Ben-Zion, F. Vernon, C.W. Johnson, A. Mordret, O. Coutant, P-E. Share, **Eric Beaucé**, D. Hollis, T. Lecocq. Train Traffic as a Powerful Noise Source for Monitoring Active Faults with Seismic Interferometry. Geophysical Research Letters. DOI: http://dx.doi.org/10.1029/2019GL083438.

2017

o **Eric Beaucé**, William B. Frank and Alexey Romanenko. Fast Matched Filter (FMF): An Efficient Seismic Matched-Filter Search for Both CPU and GPU Architectures. Seismological Research Letter. DOI: https://doi.org/10.1785/0220170181.