

Eric Beaucé | Curriculum Vitae

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Academic Qualifications

- **Massachusetts Institute of Technology** **Cambridge - USA**
Research assistant/Teaching assistant **2016 - 2021**
Topics of research: automated earthquake detection and location, collective properties of earthquakes, relationship between microseismicity and slow slip, deep learning for classification of seismic signals.
Study regions: Southwestern Alps, the North Anatolian Fault (between Izmit and Düzce).

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: estimates 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 Fast Matched Filter, high performance computing software for earthquake detection with template matching. Github: https://github.com/beridel/fast_matched_filter.
 - Strong experience in super-computer environments (slurm).

Peer-reviewed Papers

2021.....

- René Steinmann, Léonard Seydoux, **Eric Beaucé**, Michel Campillo. Hierarchical Exploration of Continuous Seismograms with Unsupervised Learning. Journal of Geophysical Research: Solid Earth. DOI coming soon.
- Hugo Sánchez-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.....

- **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>.
- 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.....

- **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>.

Papers in Preparation

- **Eric Beaucé**, Robert D. van der Hilst, Michel Campillo. Collective Properties of Microearthquakes Help Understand the State of the North Anatolian Fault Thirteen Years after the 1999 M7.4 Izmit Earthquake. *In prep.*
- **Eric Beaucé**, Robert D. van der Hilst, Michel Campillo. An Iterative Method with Variable Shear Stress for Estimating the Stress Tensor from Earthquake Focal Mechanism Data: Method and Examples. *In prep.*