

MONIAULT Project

David's and Hugo's research topics



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ISTerre, Université Grenoble Alpes

David's PhD topic

Hugo's PostDoc topic

David's PhD topic

Hugo's PostDoc topic

Using a detected foreshock to analyze the seismic sequence

Earthquake with magnitude of **ML 2.5** on date 07-11-2019 and time 04:39:03 (Italy) in region **5 km SE Balsorano (AQ)**

Event data	Seismicity and Hazard	Impact	Locations and Magnitudes	Focal mechanism	Download
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A magnitude **ML 2.5** earthquake occurred in region: **5 km SE Balsorano (AQ)**, on

- 07-11-2019 03:39:03 (UTC) ~~20 days ago~~
- 07-11-2019 04:39:03 (UTC +01:00) **Italian time**

and geographic coordinates (lat, lon) **41.78, 13.61** at **14 km** depth.

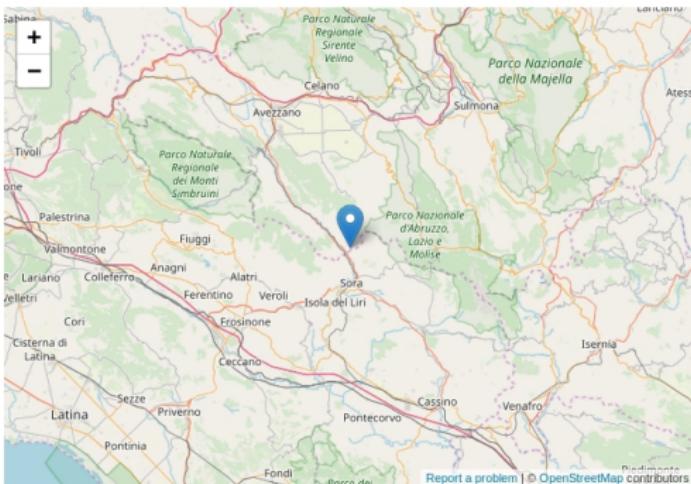
The earthquake was located by: **Sala Sismica INGV-Roma**.

Search earthquakes: [Any within 30 km radius](#)

The values of hypocentral coordinates and magnitude may be revised at a later time as more information becomes available.



Did you feel it? Fill in the questionnaire.



Display location by



GeoHack



GoogleMap

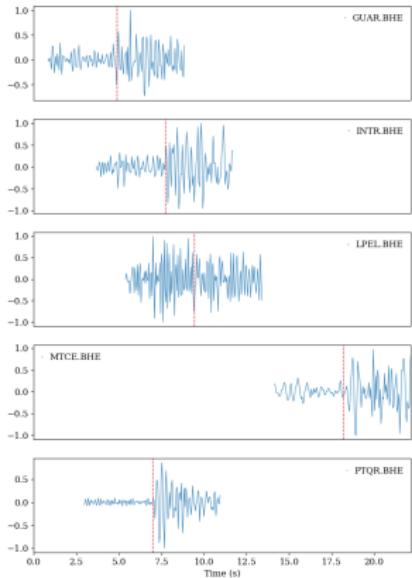


OpenStreetMap

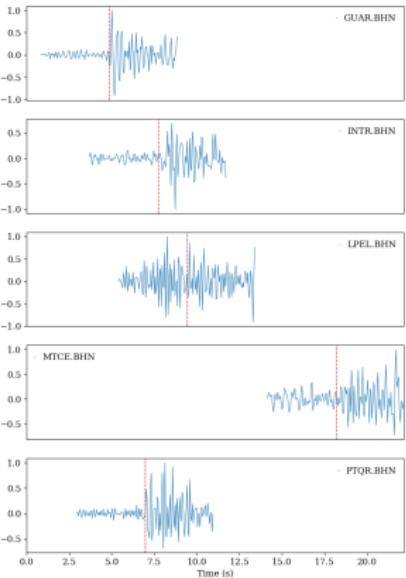
Analisis of foreshock and aftershock sequences using the FMF

1^{rst} Step – Building template

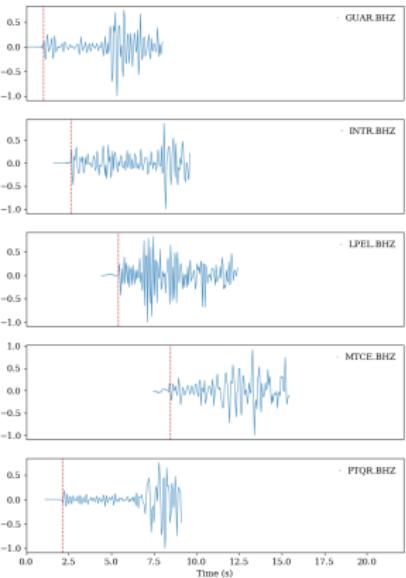
E-W



N-S

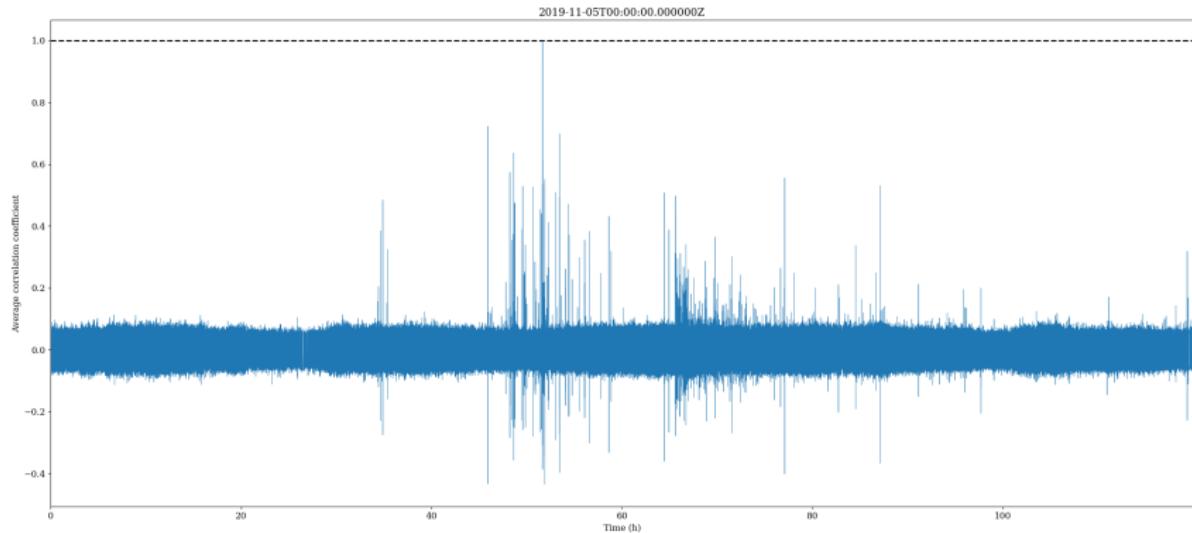


U-D

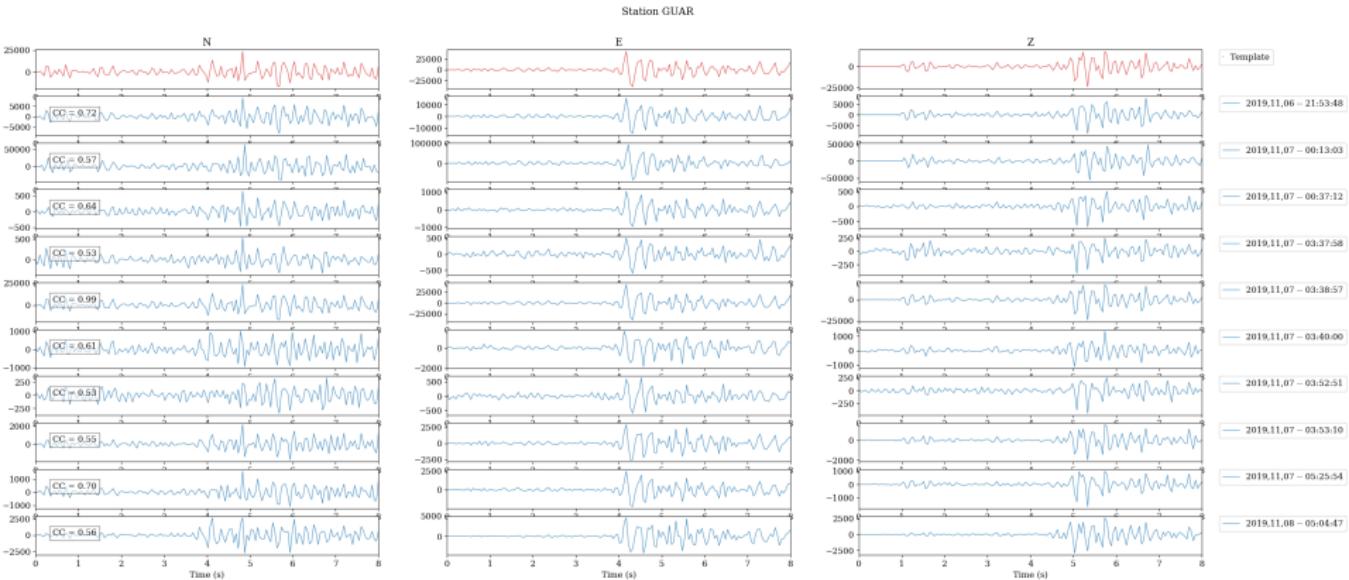


Analisis of foreshock and aftershock sequences using the FMF

2nd Step – Analisis of cross correlation coefficients using FMF
(Beaucé et al., 2017)

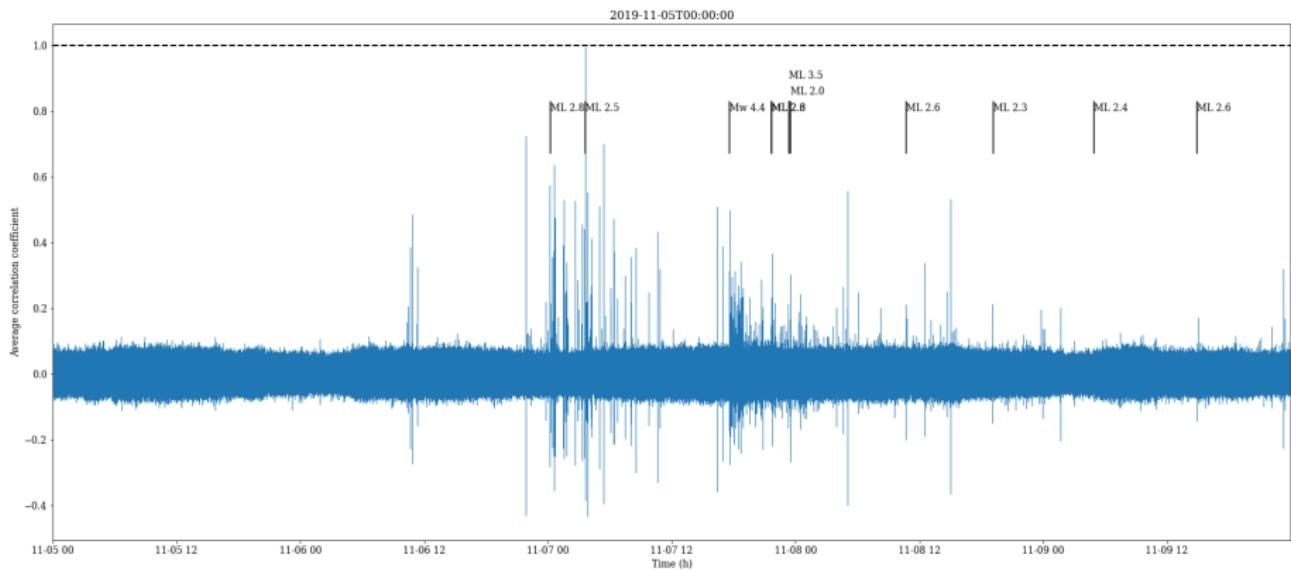


3th Step – Extraction of detected events based on CC coefficients



Analisis of foreshock and aftershock sequences using the FMF

4th Step – Identification of new detected events

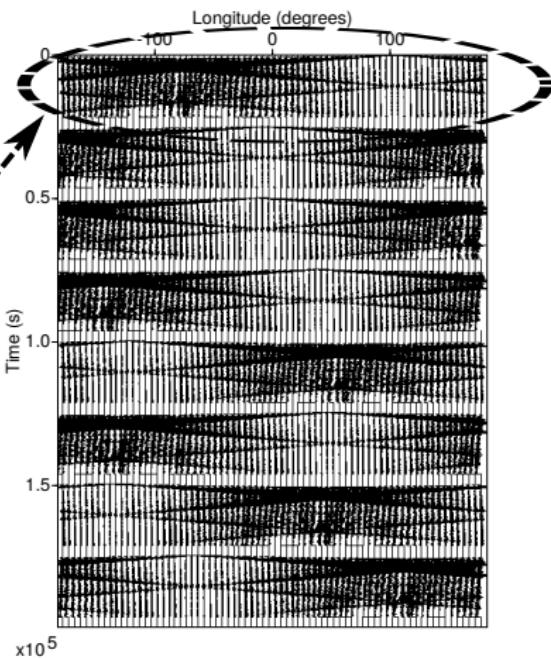
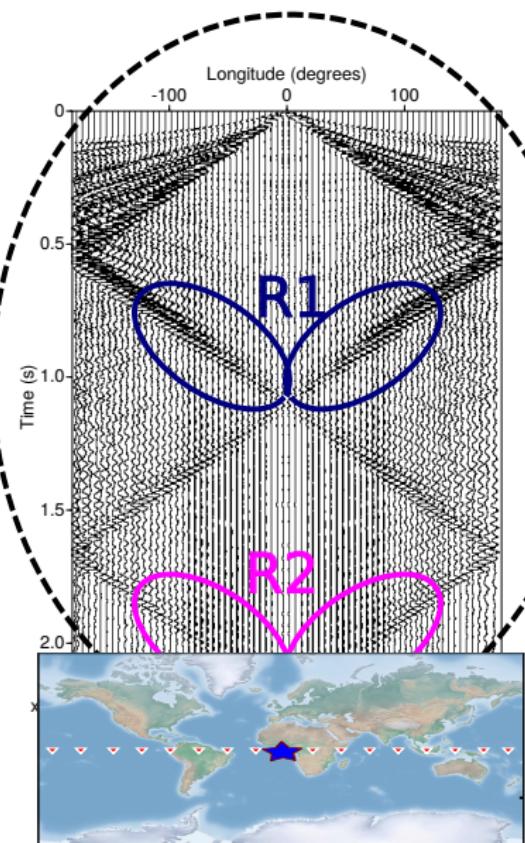


David's PhD topic

Hugo's PostDoc topic

Detection & understanding of global long-period events

Using the FMF technique we plan to detect hidden global long-period events



$\times 10^5$

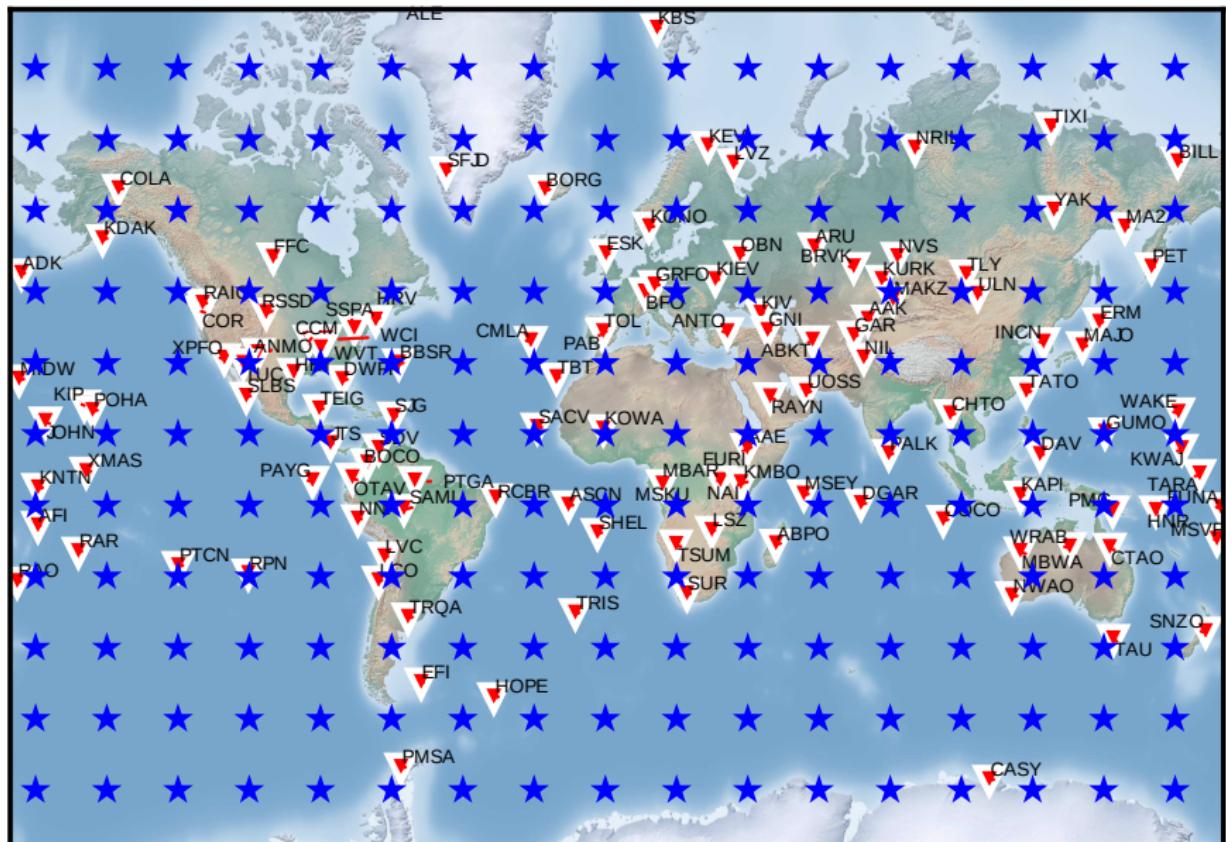
Detection & understanding of global events

Analyzing continuous data from all around the world

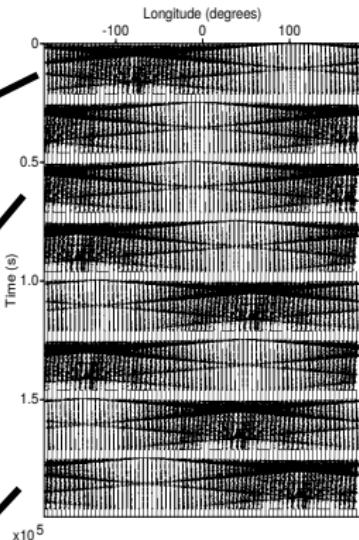


Detection & understanding of global events

Analyzing continuous data from all around the world



Detection & understanding of global events



- What are these events?
- What are the characteristics of these events?
- What is the role that they play in the seismic cycle?

- Beaucé, E., Frank, W. B., and Romanenko, A. (2017). Fast matched filter (fmf): An efficient seismic matched-filter search for both cpu and gpu architectures. *Seismological Research Letters*, 89(1):165–172.
- Frank, W. B. and Abercrombie, R. E. (2018). Adapting the matched-filter search to a wide-aperture network: An aftershock sequence and an earthquake swarm in connecticutshort note. *Bulletin of the Seismological Society of America*, 108(1):524–532.