

# of Seismic Events Using a Cross-Correlation Based Approach

Thursday, 22 June 2023 09:38 (1 minute)

Seismic events are produced by different types of sources (e.g. local earthquakes, distant earthquakes, quarry blasts, nuclear explosions, volcano activity, etc.). These events are detected by seismic network stations and stored. The first important task in seismic signal processing is to identify the source of each detected event. This task should be performed automatically due to the large amount of data recorded daily. In some cases, it needs to be achieved almost in real time in order to launch an alarm. Various approaches have been proposed in the literature. Most of these approaches necessitate extraction of the event signal features, like shape, length, frequency content, moments (covariance, skewness and kurtosis) etc. In this work, we propose an easy and straightforward classification method which does not require any feature extraction. This method is based on the cross-correlation function. The application of this method to a real seismic database of different classes shows that it can achieve good classification results.

## Promotional text

The main goal is to improve seismic classification algorithms and exchange knowledge and ideas with the broader scientific community, so that these algorithms can be extended to help the CTBTO in detecting nuclear explosions.

## E-mail

atmani\_abderrahman@hotmail.com

## Oral preference format

**Primary author:** Mr ATMANI, Abderrahman (Ibn Zohr University)

**Co-authors:** Mr AIT LAASRI, El Hassane (Ibn Zohr University); Mr AGLIZ, Driss (Ibn Zohr University); AKHOUAYRI, Es-Said (Ibn Zohr University)

**Presenter:** Mr ATMANI, Abderrahman (Ibn Zohr University)

**Session Classification:** Lightning talks: P3.5, P5.1

**Track Classification:** Theme 3. Monitoring and On-Site Inspection Technologies and Techniques: T3.5  
Analysis of Seismic, Hydroacoustic and Infrasound Monitoring Data