



ID: P3.5-178

Type: e-Poster

Classification of seismic events using a time-frequency based approach

Thursday, July 1, 2021 11:45 AM (15 minutes)

The automatic classification of seismic events is an absolute necessity when dealing with an important amount of data. Moreover, the classification needs to be achieved almost in real time. Due to the importance of an automatic task, various approaches have been proposed in the literature. Numerous approaches are based on features related to time domain, when others exploit the frequency characteristics of the signal.

In this study, we propose a novel approach combining both frequency and time features to construct a robust classifier of the seismic events. To do this, seismic signals are presented in the time-frequency domain. It is shown that in this domain, the seismic signals of the same event source class reveal a degree of similarity. A tool is then developed to quantify this similarity and differentiate among the different classes. The performance of this approach is demonstrated using real seismic data of four classes. The results achieved were promising.

Promotional text

Improve nuclear test monitoring and verification by exchanging of knowledge and ideas between the CTBTO and the broader scientific community.

Primary authors: Mr ATMANI, Abderrahman (Ibn Zohr University, Agadir, Morocco); Mr AIT LAASRI, El Hassan (Ibn Zohr University, Agadir, Morocco)

Co-authors: Mr AGLIZ, Driss (Ibn Zohr University, Agadir, Morocco); Mr AKHOUAYRI, Es-Said (Ibn Zohr University, Agadir, Morocco)

Presenter: Mr ATMANI, Abderrahman (Ibn Zohr University, Agadir, Morocco)

Session Classification: T3.5 e-poster session

Track Classification: Theme 3. Verification Technologies and Technique Application: T3.5 - Data Analysis Algorithms