ID: **P1.2-252** Type: **E-poster**

Aperture Seismic Array, Oman

Tuesday, 20 June 2023 11:12 (1 minute)

Seismic array was developed in 1960s mainly to enhance signal noise ratio. Since then many array have been deployed around the world with varying geometry and aperture length based on the purpose of study. Many seismic analyses techniques have been developed, such as beamforming and F-K analysis, in order to achieve the desired results from the data. Hoqain seismic array in Oman is one of the local small aperture array that was deployed in March 2015 with nine 3-C stations and a total aperture of around 2 km and set in complex geological setting of ophiolite and sequence of sedimentary rock in northern Oman. A python scripts is utilized to calculate beam power by scanning the data every one second around the frequency of interest. This study includes searching for slowness and back azimuthal values that can give the optimal beam out of the nine stations. STA/LTA detector is applied for an auto picking through a continuous data stream. The study is able to detect some minor earthquakes around Oman Mountains that our local network is not dense enough to detect. Some of these events can be correlated to known rock mining activity while others could be of tectonic origin.

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Promotional text

This study aims to apply well known seismic array processing techniques to locate any event form, both natural and artificial source, and correlate the result with well-known human-made explosions using data from small aperture array.

Oral preference format

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Session Classification: Lightning talks: P1.2-2

Track Classification: Theme 1. The Earth as a Complex System: T1.2 The Solid Earth and its Structure