

## **Seismic Interferometry – Retrieval of the Earth’s Reflection Response Using Cross-Correlation**

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Seismic interferometry (SI) is the process of creating new seismic records from the crosscorrelation of existing records (modelled or measured). Reflection seismology measures the Earth’s response to active seismic sources, like dynamite or vibrators, at the Earth’s surface using seismic recorders also at the surface. One of the applications of SI is to obtain such reflection surveys without making use of the active sources. This can be achieved by recording at the surface the seismic background noise (which is the part of the seismic record that is normally thrown away). This background noise is cross-correlated and the result represents the retrieved reflection response of the Earth. The sources of the background noise can be natural, like microseisms and local low-magnitude earthquakes, or men-made, like the traffic in a tunnel. We show an example of a retrieved reflection response from cross-correlated background noise recorded in the Middle East. The field setup consisted of a linear array of 17 seismic recorders. The recorders were active during the night hours and recorded about 10 hours of background noise. The results, retrieved from SI, are compared with data from an active seismic reflection survey, which ran along the same line.