Microseismicity in the Eastern Alps: Preliminary Results From the Swath-D Network

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The AlpArray seismological experiment is an international and interdisciplinary project to advance our understanding of geophysical processes in the greater Alpine region. The heart of the project consists of a large seismological array that covers the mountain range and its surrounding areas. To understand how the Alps and their neighbouring mountain belts evolved through time, we can only study its current structure and processes. The Eastern Alps are of prime interest since they currently demonstrate the highest crustal deformation rates. A key question is how these surface processes are linked to deeper structures. The Swath-D network is an array of temporary seismological stations complementary to the AlpArray network located in the Eastern Alps. This creates a unique opportunity to investigate high resolution seismicity on a local scale.

In this study, a combination of waveform-based detection methods was used to find small earthquakes in the large data volume of the Swath-D network. Methods were developed to locate the seismic events using semi-automatic picks, and estimate event magnitudes. We present an overview of the methods and workflow, as well as a preliminary overview of the seismicity in the Eastern Alps.