

mapping of the seismo-acoustic background noise at IMS array stations for improving event detection

Seismic and acoustic sensors record background noise that is a superposition of different wavefields that originate from sources distributed in space and that arrive at such sensors simultaneously (e.g.: ocean noise and anthropogenic noise). Event detection can be improved through mapping these sources and their spatio-temporal evolution with historical data that includes effects of persistent sources (microseisms and microbaroms), and then including this information in detection algorithms. We are currently processing available IMS array data with algorithms that can resolve and extract multiple simultaneous signals present in the data and creating enhanced noise maps. We propose to include such maps within our detection framework as prior information, thereby reducing detection thresholds and improving overall detection capability. This effort is particularly important for detecting small events masked by background noise out to great distances.

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