

3.3-P30. Regional seismic monitoring using 3-C array

An array consisting of seven 3-C sensors was tested for the purposes of regional seismotectonic monitoring. The aperture of several hundred meters is suitable for detection and identification of regional phases. This portable array was installed within the Russian platform which is an aseismic zone where regional sources with magnitudes 1.0 to 3.5 are chiefly associated with mining. We use seven quarries to compare detections obtained by vertical (V) and horizontal (N-S, E-W, T, and R) sub-arrays. The V-array demonstrates a superior detection capability for the P-wave arrivals, but misses many S-waves well measured by the H-arrays. In many cases shear waves are most prominent at horizontal channels and are below the level of microseismic noise at vertical channels even after stacking. In a few cases, the S-waves at H-arrays are the only detected phases. Therefore, the relevant events would be missed without the horizontal components. The 3-C array demonstrates a higher detection and phase identification capability than the vertical sub-array and provides a significant improvement in regional monitoring.

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