

New Experimental Field Study of the Effects of Explosive Detonation Products on Seismic Radiation

Understanding explosion source processes is of great importance for seismic event characterization and explosive yield estimate. Weston Geophysical conducted a series of chemical explosions using various explosives with different properties in order to investigate their effect on seismic signatures. Previous experimental data (NEDE, e.g. Martin et al, 2012) suggest that low-frequency P-wave amplitudes are affected by the explosive velocity of detonation (VOD) and by the thermodynamic characteristics of gaseous explosive products (Stroujkova, 2015). The new experiment conducted in New Hampshire in 2016 was designed to isolate the effects of the amount of the explosive gases by using aluminized and non-aluminized explosive pairs. Our new results confirm NEDE findings and indicate that seismic amplitudes and source signatures are affected not only by the explosive yield and VOD, but also by the volume of gaseous products and by the presence of fluids in the emplacement medium.

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