Estimation of the delay–fired explosion's duration based on the wavelet analysis results of its seismogram

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Received February 3, 2022

Abstract The article considers the problem of observing delay-fired industrial explosions using their single seismic receiver seismogram. It is shown that the seismogram's spectral image of a delay-fired explosion carries information about both the delay between individual explosion steps and its total duration. Assumption is made that the results of the continuous wavelet transform for the total duration of the blasting process can provide more accurate and reliable information. Technique for estimating the value of this parameter based on several transformations of the primary waveletogram is described. Sequential calculation of the energogram, correlogram and haarogram makes it possible to visualize and measure pseudocycles of the energy distribution of seismic signals from a delay-fired explosion.

Keywords Explosion, delay-fired explosion, explosion duration, quarry, mine, wavelet analysis.

For citation Silkin, K.Yu. (2022). [Estimation of the delay-fired explosion's duration based on the wavelet analysis results of its seismogram]. *Rossiiskii seismologicheskii zhurnal* [Russian Journal of Seismology], *4*(1), 53-62. (In Russ.). DOI: https://doi.org/10.35540/2686-7907.2022.1.04

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