

THE SIMILARITY BETWEEN ELECTRIC AND SEISMIC SIGNALS

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The seismic and electric records made in one point (Corinth gulf, Greece) and representing sets of discrete signals are considered. Often a seismic recording is similar to electric, especially in intervals of longitudinal waves for weak earthquakes. The problem consists to find of transfer function between these two records. The Lagrange interpolation allows obtaining analytical representation for a discrete signal. In work the formal analytical dependence between electric and seismic records is constructed. The formula (transfer function) represents the sum of the entire functions of exponential type. It is very complicated. However it is possible to extract from it the simple principal part

$$E(t) = k S(t - a), \quad (1)$$

$E(t), S(t)$ - Lagrange series for electric and seismic signals, t - current coordinate (record time). Parameters a and k give the minimum deviation of the real and reconstructed records in L_2 . They have been obtained as averages on the basis of several «enough good» records of electric and seismic signals. Advantage of such approach consists that for the analysis of signals it is possible to use the theory of the entire functions.

Let's notice, when the parameter is small enough, it is possible to use series expansion

$$E(x) = k(S(x) - aS'(x) + \frac{a^2}{2}S''(x) + \dots). \quad (2)$$

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