FRACTAL ANALYSIS OF SIGNALS OF THE SEISMIC ACOUSTIC EMISSION AND THEORETICAL BASISES OF THE CORRESPONDING SENSORS

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One of the important tasks of the modem atmosphere and environment physics is carrying out**,** consistent mathematical models for adequate description of the key physical and chemical processes and creating a new class of the sensors. Present paper is devoted to detailed analysis and estimating the fractal properties of signals of the seismic acoustic emission in periods between earthquakes and carrying out the corresponding sensing methodic. Earlier it has been carried out an analysis of natural data on distribution of the earthquake hyper centers (Mukhamedov, 1992; Salimi et al, 1993) [1,2]. To reveal the fractal properties for signals of the seismic acoustic emission the joint wavelet analysis is carried out by using the non-decimated wavelet transform (Glushkov et al, 2004-2006) [3-6]. The advantage of using wavelet decomposition is to isolate short- and long-term components while retaining the flexibility for variability in the cycle length. Also, in addition to the revealed periodicities, this technique allows to observe the dynamic relationships. We present the fractal processing data for envelopes of signal of the seismic acoustic emission in different ranges of frequencies. There are presented the dependences of the Herst indicator and fractal dimension curve on the lengths of considered intervals. It has been shown that it takes a place crossover upon a behavior with the Herst indicator H=0,4-0,6. It has given the physical interpretation of the seismic acoustic emission sources and new approach to creation of the corresponding sensing methodic for distribution of the earthquake hyper centers and search the active centers based. on the PC complex 'Geomath" data processing.

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