



- Monitoring of Structure and State of geological Medium, Research of Self Organization

O. Hachay

Institute of Geophysics UD RAS, Russian Federation (olga.hachay@r66.ru / Fax: +7 343-2678872
+7 343-2679560)

It is elaborated a system of monitoring using complex geophysical and geo mechanical approaches. In the first time it had been received results of stability estimation of rock massive in natural conditions in a frame of the theory of open dynamical systems with hierarchic structure. We had suggested for analysis a parameter of interval intensity of decomposition zones, by which we had established a quantitative classification of the state in a frame of three gradations: stable, unstable and intermediate. It is searched the dynamics of the distribution of that parameter in time. It is showed that using electromagnetic monitoring we can search the conditions of self organization of decomposition zones. It is showed that it is necessary to achieve the geo mechanical search according to shifting from the contour deeper into the massive. The natural data had been achieved by space-time electromagnetic induction active monitoring on two rock-shock mines. The received results have fundamental and applied significance. Firstly we had received the information about the nonlinear behavior of the geological medium under high man-caused stresses. It is a first step to search the nonlinear processes in natural controlled conditions. The applied significance is to use the results of monitoring for prevention of high energetic man-caused explosions.