

Geological Hazards in the Aspect of Nonlinear Dynamics

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From the aspect of nonlinear dynamics the modern face of the Earth was formed by processes of selforganization of the substance during geologic progressing. Geologic objects are the complex systems capable to undergo huge number of bifurcations during the progressing. During formation of similar systems alongside with determinant aspect of progressing, the significant role is played by catastrophes, which are normal indication of evolution. The catastrophes are distinguished by their different ranks.

The monitoring continuous can reveal precatastrophic state of the system. The prediction of the moment and reasons, accountable for sudden transferring of the nonequilibrium system from one state in another, is principally impossible, because it can demands a infinite precise of knowledge of the system original state.

Statistical, the average characteristics of progressing are informative only for an equilibrium state of the system. Being far from equal balance, we can not predict a reason of the event, because it can be conditioned not only to exterior affecting, but also by internal fluctuations rendering the basic influence on evolution. Thus itself event gives new impulse for progressing of the all system. The symmetry (similarity) of the past stationary state of the system and his future state is broken; that indicates on irreversibility of the evolutionary process in time. It means, that the modern approach to problems of geological hazards allows proceed to theoretical stage of their study.