

## **Mechanisms of Interaction of Electromagnetic Field with Rocks under Critical Stressed Conditions On the Way of Electromagnetic Earthquake Control**

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The presented project being implemented by cooperation of institutes of Russian Academy of Sciences is directed to analysis of possible physical mechanisms of impact of electromagnetic and seismic field variations on a mode of deformation of stressed rocks with a purpose of development of efficient methods of artificial influence on local areas of the Earth crust for risk reduction of geo-catastrophes (earthquakes, landslides, and rock bursts). The carried out interdisciplinary research incorporates theoretical analysis of possible mechanisms of weak electromagnetic and mechanical impacts on deformation processes, acquisition and systematization of data on properties of fault zones, physical simulation of behavior of simulators of rocks and fault zones under critical stressed-deformed conditions, as well as field experiments on response of geoacoustic emission and fluid level in wells to weak external disturbances. Data on structure and properties of fault zones were acquired and systematized, which are a basis for development of models for description of mechanisms of interaction of physical fields with rock massif areas under critical stressed-deformed condition. Both specialized models of mechanisms of stimulation of seismic and acoustic-emission events by electric actions due to generation of additional stresses by recharging of double electric layers in rocks, as well as due to excitation of vibrations, and models considering variation of properties of fault zone due to fluid inflow by electro-kinetic effect during electric current flow in the Earth crust are considered and discussed.

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