PECULIARITIES OF AE SIGNALS FLOW OF LOADED ROCKS SPECIMENS UNDER PHYSICAL FIELDS ACTIONS AND APPROACH TO EXPLANATION OF TRIGGERED EFFECTS DURING DESTRUCTION OF GEOLOGICAL MEDIUM ON DIFFERENT SCALES OF LENGTH

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The presentation includes two parts: experimental review and theoretical modeling.

Principal results on induced responses of AE of loaded rocks specimens have been reviewed in the first part**.** Previously, works on the effect of physical fields over terrestrial materials fracture (in particular those presented at 1-3 st Bishkek Symposia on Geodynamics and geoenvironmental problems of high mountain regions) allowed to derive on the base of data on responses of acoustic emission (AE) activity that vibrations and electromagnetic impacts are able to stimulate elastic energy release. It has been noted repeatedly that AE activity is the most informative parameter; and one can draw the analogy between variations of AE activity and that of weak seismicity. Recently some aspects of geoacoustic measurements with high sensitive geophone installed in a deep borehole appeared to be relevant to this topic.

New results of experiments on rocks speciments have been presented. They have concerned the data on changes in AE signals spectra and in such parameters as mean amplitude, duration and energy of the AEs during stimulating influence of external physical field. It has been demonstrated also that the spectral maximum of AE signals is shifted towards lower frequencies while stimulated activation. The comparison of spontaneous fluctuations (AE bursts on loads 0,5 - 0,9 from fracturing) with the responses of AE to external actions has been performed.

The second part is devoted to general laws of triggering effects, the manifestations of which have been recorded at various scales (from laboratory tested specimens of size of some centimeters to seismogenerating structures of Earth Crust with length of some kilometers) under action of vibrations or pulsed electromagnetic fields. The phenomenological model for seismic emission responses has been proposed on the base of simple equations. Within the framework of the model one can consider the reaction of material to unsteady impact involving the relaxation which is to show interrelation with Omori law in the simplest particular case. Beside phenomenological description, physical models, which are relevant to particular scales of length (for relatively narrow interval of sizes of specimens or terrestrial medium zone), have been discussed as well to verify their potential to explain electromagnetic fields and vibrations influence.