

# **SOME PHYSICAL REGULARITIES OF THE LITHOSPHERE DESTRUCTION FROM QUANTITATIVE STUDIES OF FAULTS AND BLOCKS**

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The long-term state of stresses in the lithosphere causes its destruction and leads to the formation of fractures, faults and blocks varying in the hierarchic levels.

The considerable data base has been compiled from measurements obtained by detailed mapping of fractures and faults in rock outcrops, geological and special structural maps of different scales, physical modeling under the conditions of similarity and varying in the state of stresses in models. By computer processing, general regularities of the lithosphere destruction are revealed.

For regions differing in geodynamic regimes, we analyze data on fracture and fault patterns,  $N_f$  of length  $L_f$  and those on a set of blocks,  $N_{bl}$ , of average geometrical size  $L_{bl} = \sqrt{S_{bl}}$ , where  $S_{bl}$  is the square area of the block.

For all hierarchic levels of faults and blocks, a general regularity is established,  $L = A/N^c$  where  $L$  is length of faults or average geometrical size of block,  $N$  is number of faults or blocks,  $c$  – coefficient ( $\sim 0.4$  for faults,  $\sim 0.2$  for blocks),  $A$  is a free member given by measured sizes of faults or blocks.

The established equation shows general physical regularities of the lithosphere destruction, explains the known relationship between the fault parameters as well as the recently revealed fractality of fault and block tectonics in different regions of the continental lithosphere.

The lithosphere destruction follows the regularities of deformation of a visco-elastic body; it is regular and predictable.