



## **Deformation processes in the Lithosphere and global geodynamics of the Earth**

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A hypothesis about global character of strongest earthquakes and tectonic processes has been studied. Both of them are the manifestation of the dynamic of lithosphere plates on short time scale. It has been studied also the relation between global deformations and variations of rotation rate of the Earth (Length of Day, LOD). These variations, caused stresses (tensions – compressions) in all spheres of the Earth, can be a global mechanism governing the lithosphere state.

The deformation data from two space separated (2000 km) observation stations, equipped by geophysical laser interferometer (the Northern Caucasus) and quartz strainmeter (Moscow region), the US NICE earthquake catalogue and IERS catalogue have been used for the analysis. The analysis showed very high value (up to 0.9) of correlation function for the strain fields of geodynamically different regions of Russia. The analysis showed also very high correlations between strain data and LOD. The maximum values are about 0.9, the mean value is 0.7. The existence of global component in strain field of the lithosphere is proved at a statistically significant level. The characteristic period of changing is order of a month. As a whole, the statistical analysis has shown the existing the mutual links between local developments of strain fields, global tectonic processes and global geodynamic of the Earth.

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