Geophysical Research Abstracts, Vol. 9, 01686, 2007
SRef-ID: 1607-7962/gra/EGU2007-A-01686

Global deformations of the Lithosphere and mutual relations to global seismic processes and global geodynamic of the Earth

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A hypothesis about global character as strongest earthquakes, and tectonic processes has been studied. The hypothesis is based on the scales of events. The length of destruction zones caused by strongest earthquakes can reach the order of 1000 km; the area of accumulation of the allocated energy can be several times more. The attributes of global deformation processes can be universality of distribution, synchronism and similarity of the form for different observation stations.

The deformation data from two space separated (2000 km) observation stations, equipped by geophysical laser interferometer (the Northern Caucasus) and quartz strainmeter (Moscow region), and the US NICE earthquake catalog have been used for the analysis. It has been studied also the relation between global deformations and global geodynamics of the Earth (variations of the speed of rotation), which can be a global mechanism governing the lithosphere state.

The existence of the deformations having a global character is proved at a statistically significant level. The existence of statistically significant mutual relations between local reflections of global deformation fields, global seismic processes and global geodynamics of the Earth is shown. Such statistical relations between global deformations fields and strongest earthquakes can display the general evolution low of the strain-stress state of the lithosphere.

This work is supported by the Russian Foundation for Basic Research under Grant No 07-05-00786.