

INTERRELATION OF EARTHQUAKES AND DISASTROUS GRAVITATIONAL PHENOMENA ON EXAMPLE OF THE CAUCASUS

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Disastrous results produced by violent earthquakes in mountain regions of Alpine orogenic system are of multispectrum character. Great material damage and tragic results caused by high energetic earthquakes are often connected with secondary gravitational phenomena generated on the ground surface. This is clearly proved by avalanches and landslides of tens of million cubic meter of earth detected in the Caucasus in historical periods and at present. Many settlements have been ruined, people perished, river beds permanently or temporarily blocked. In 1991 only in Racha-Imereti region (Georgia) the earthquakes of intensity 7-9 provoked about 20000 new landslides and avalanches, about 1500 settlements have been damaged or entirely ruined, the v.Khakhieti and 50 inhabitants were buried under 70 million cubic m earth, 332000 hectare area became unfit for living. In the Caucasus all large mass and deep location gravitational effects are connected with disturbance zones of active neotectonic and modern moving blocks. Large-scale gravitational effects are generated when epicentral as well as transit earthquakes are developed. It is proved that in the Caucasus and adjacent territories of Iran and Turkey there are observed some microplatforms that represent the newest geodynamic activity zones. At present seismic danger in the Caucasus is estimated within intensity 7-9. But the scarcity of real seismostatic information during historical period makes difficult to determine intensive earthquakes propagation line. Here, we are aided by morphodynamic research of large-scale gravitational phenomena. In the future, antiseismic construction will be possible in case the disastrous earthquakes are avoided. But the ruinous results of earthquakes often arising in the areas distanced from the epicentre or having different geotectonic structures are also very dangerous. The criteria of cosmogenic factors effect on rock strength indices, on residual gravitative deformation and slope stability variation are not yet fully understood and the methodology of mapping and research of great gravitative effects needs further perfection. The solution of these problems are of crucial moment.