Geophysical Research Abstracts, Vol. 9, 05432, 2007
SRef-ID: 1607-7962/gra/EGU2007-A-05432

Natural hazards risk assessment for South Caucasus

T. Chelidze (1), E. Tsereteli (2), N. Tsereteli (1), O. Varazanashvili (1), L. Kaldani (3), J. Dolidze (2), A. Karakhanyan (4), A. Shakhsuvarov (5)

(1) Institute of Geophysics, Tbilisi, Georgia, (2) Ministry of Environmental protection and Natural Resources, Tbilisi, Georgia, (3) Institute of Hydrometeorology, Tbilisi, Georgia, (4) "Georisk" Scientific Research Company, Yerevan, Armenia, (5) Institute of Geology, Baku, Azerbaijan (nino_ts@ig.acnet.ge / Fax: +995 32-336728 / Phone: +995 32-336728)

The sustainable development of Southern Caucasus (SC) region depends critically on the correct assessment of natural hazards that are characteristic for different areas of this mountainous region: earthquakes, landslides, debris flows, flash-floods and floods, avalanches. The destructions, caused in the last decades by strong seismic events (Spitak, Racha, Tbilisi, Baku) and other natural hazards seriously affected national economies of SC countries. The rate of risks associated with these hazards increases every year due to the appearance of new complicated technological objects: oil and gas pipelines, communication lines, large dams, power stations, chemical factories.

Using GIS-technology maps of scale 1:000 000 for 5 hazards: earthquakes, landslides, debris flows, avalanches and flash-floods as they cause the largest mortality and economic losses were compiled for South Caucasus. The practice shows that the mapping of hazards is a complicated problem due to absence of exact or even approximate data, which are necessary for developing sound models, especially lack of inventories of disasters and standard methods of hazard assessment (see van Westen et al, 2006). Another problem we encountered during compilation of regional maps of natural hazards. The mentioned lack of standard approach leads to large misfits of hazard classes at the national borders. At the same time, application of the standard technique to the whole region results in the well coordinated distribution of hazard assessments without any influence of national borders.

Using the method developed by the Columbia University group during compilation of the Map of Global Natural Disaster Risk Hotspots (Synthesis Report - Natural Disaster Hotspots: A Global Risk Analysis, 2005) Risk index related to total economic losses

was estimated only for Georgia. Two types of hazard (earthquake and landslide) were considered for the period 1980 - 2005.