



## **Studies of Balkan seismic-hydrogeological vulnerability**

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The Balkan Peninsula has numerous recent active structures. Lots of them participate in recent seismic movements. The seismic influence over the lithosphere, the biosphere, the hydrosphere and the atmosphere is considerable. The influence of the seismic movements over the lithosphere is of great significance for the evolution of the Earth surface, for the development of the population in the relatively densely populated Balkan countries. The earthquakes provoke seismic-hydrological phenomena. These phenomena include mainly seismically-induced liquefaction, land subsidence, landslide, debrisflows, also earthquake-triggered changes in the groundwater distribution, the water discharge and the water physical and chemical characteristics. The seismic-hydrogeological phenomena cause losses of the society, changes in the way of life, also considerable deformation of the Earth surface. They were related to the destructions of buildings, quarters and settlements or their replacements as a result of 1928 Southern Bulgarian and the 1977 Vrancea (Romania) earthquakes. They had disturbed the transport relations and provoked their renovation during the 1904 Kroupnik (SW Bulgaria) and the 1928 Southern Bulgarian earthquakes. They caused temporary or constant changes in mineral water sources during the 1928 Southern Bulgarian and the 1977 Velingrad (S Bulgaria) earthquakes. Frequently the seismic-hydrological phenomena have negative effects for the population and the geological environment. In rare cases these phenomena have positive consequences for the society. The recent UNESCO-BAS Project "Seismic-hydrogeological vulnerability of the geoenvironment and the population in the Balkan area" includes 7 Balkan countries. The Project has the tasks to accumulate data, to analyze the information and to make a preliminary preparation for the publication of the obtained knowledge. We hope to make several proposals for the mitigation of the negative influence of the seismic-hydrological phenomena in the Balkan areas.