



Geophysical studies in karst terrains

Stefan Shanov¹

¹ Bulgarian Geophysical Society, e-mail: s.shanov@abv.bg

Key words: karst, geophysical studies, caves, tectonics, earthquakes

Abstract: The karst terrains represent one of most vulnerable geological structures closely related to the human life in large worlds' areas. They control the underground ways of important water quantities, they have negative impact on important hydrological facilities (dams, artificial lakes), as well as on buildings, routes, tunnels, etc. The underground karst cavities are often difficult accessed or unknown before specialized geological and speleological studies. The geophysical investigations can help and increase the efficiency of these studies. The use of appropriated geophysical methods is discussed and case studies from several karst areas are represented. The karstic caves are also favorable sites for tectonic events detecting, representing a conservative medium of three-dimensional framework where the tectonic deformations are well preserved. They also provide an environment conducive to dating and determining some parameters of past seismotectonic events. The recently published book "Dynamic tectonics and karst (Shanov, Kostov, 2015, Springer Verlag) collects the current state of knowledge on the relationship between karst and dynamic tectonics and presents a new methodology to its study. It puts forward several approaches for studying of recent geodynamics in karst terrains, such as tectonic stress fields reconstructions using structural analysis of the fracturing, geophysical studies of the rock anisotropy and fault-plane solutions from earthquakes, analysis of the spatial orientation and absolute dating of deformed speleothems, instrumental and mechanical measurements, monitoring, and modeling – all supported with case studies from several karst areas worldwide.

Геофизични изследвания в карстови терени

Стефан Шанов¹

¹ Дружество на геофизиците в България, e-mail: s.shanov@abv.bg

Ключови думи: карст, геофизични изследвания, пещери, тектоника, земетресения