



Neotectonic interpretation of geophysical measurements in the Balatonfő region

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Geophysical measurements were carried out on Balatonfő region, east of Lake Balaton, West Hungary to find the footprint of very young tectonics.

The Balatonfő region is a small scale model of the Pannonian Basin: Paleozoic basement is covered by shallow and young Neogene (Pannonian) sediments. Since the region is the northern edge of the Mid-Hungarian Shear Zone (MHSZ) i.e. a NE-SW strike-slip structure of the basement, consequently, the actual topographic surface is affected by the present day tectonics.

In the center of the study area, a topographic depression (basin of Cinca creek) with Pannonian and Quaternary sediments has a shallow but surprisingly very flat, almost horizontal basement (according to the electrical and seismic measurements).

On the western part of the research area a NS direction elongated, elevated hill (the so called Kenese Ridge) built up by Quaternary and Pannonian sediments. According to the geoelectric measurements, here the basement is in deeper position than below the depression. The vertical displacement in the basement occurs along the Berhida tectonic line, the source of an earthquake of M 4.9, in 1985. The exact position of this line was determined by electrical measurements in the basement. The recent activity of this structure is demonstrated on the relief of the Cinca creek depression as a topographic difference of 2 meters. On the northern slope of the Cinca creek depression, the present day topography is not in direct correlation with the basement relief.

The elevated position of the basement was suggested by the electrical and magnetic

results, but it was not confirmed by the seismic measurements. We could not recognize the basement reflections on the seismic profiles probably, because the surface of the fractured basement is a poor reflector.

There is an outcrop of the basement (Balatonfőkajár Quartz Phyllite Formation) on the eastern part of the research area. The fractured structure of the outcrop and the surrounding area covered by debris and Neogene sediments was revealed by electric profiles and a 3D model of the outcrop is presented.