



Quaternary neotectonics of the southern part of Lake Balaton, Hungary

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Somogy is a gentle hilly area elevated at 200-300 metres above sea level. It is located immediately south of Lake Balaton, Hungary. 90% of it is covered by Quaternary formations, but outcrops are relatively scarce, in spite of the well developed, dissected morphology. It has two well defined valley systems. 1, few tens of kilometres long and nearly parallel „transversal” valleys with N-S to NNW-SSE direction. 2: „longitudinal” valleys of NE-SW – E-W strike.

In 2004 a new 20 km long section of the „M-7” highway was constructed close to the southern coastline of Lake Balaton. The ENE–WSW striking highway trace crossed the „transversal” N-S – NNW-SSE valley system perpendicularly. It provided excellent opportunity to complete the field observations which were carried out during the last years.

The road cuts expose Quaternary and directly underlying Late Miocene (Pannonian) sediments. We analysed them by structural, tectono-morphologic and sedimentologic methods to describe the main fault directions, to separate mass movements from faulting and folding and to separate earthquake-induced sediment deformations from other (e.g. periglacial) effects.

The outcrops showed several consistent directions of faulting and co-depositional seismic activity (seismites) and folds. Three different Mohr-sets of faults/joints could be differentiated in Quaternary sediments. The three sets are considered Late Quaternary

since all cut young loess sections and have morphological expressions.

On the basis of the microtectonic measurements and morphotectonic investigations the following sequence of Quaternary events can be separated:

1. ENE-WSW Late Pleistocene compression with NNW-SSE striking folds. Morphologically this corresponds to anti-and synclines parallel to the transversal valley system.
2. NNW-SSE Late Pleistocene compression. Morphologically this corresponds to thrusts outcropping in the longitudinal valley system.
3. NW-SE Late Pleistocene – Holocene compression. In the transversal valleys NNE-SSW striking en echelon folds, normal and Riedel faults can be detected. Both affected the present day surface. These movements refer to a marked left lateral transpression along the transversal valleys which led to the (re)formation of the transversal valley systems.

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