



Watershed reorganization in Külső-Somogy, Hungary: insights from Surface Processes Modelling

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Külső-Somogy, the gentle hilly landscape, south to the Lake Balaton, Hungary is characterized by quasi-parallel valley structure perpendicular to the WSW-ENE trending elongated lake. The lake itself is thought to be a young feature, it was formed in the latest Pleistocene. Most of the authors consider aeolian formation at dry and cold Pleistocene conditions. Researchers assume that the present form of the lake is due to the coalescence of smaller basins by subsequent wave abrasion of the originating smaller lakes.

As a consequence of the formation of this depression the drainage system of the area should have been rearranged. Watercourses previously heading to south have been truncated, partly deflected. Catchments and, consequently, discharge values should have changed considerably.

A further factor should also be taken into account: the area is considered to be neotectonically active, basically in strike-slip mode, with some vertical displacement.

In our approach we tried to model this change by Surface Processes Modelling. We have used a modified version of CASCADE (written by J. Braun and P. van der Beek). The aforementioned vertical component was modeled as a slight vertical tilt. The lake formation is modeled as a base level drop.

The result of the calculation is some replacement of the E-W divide and the WNW-ESE valleys are deepening accordingly. Debris fans are building in the lake, which is not realistic because of the long-wave motions destroying such structures. Further modeling is needed to include this effect in the calculation.

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