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A multidisciplinary approach to understand landsliding at catchment scale: a case study for landsliding at Pinka flat, Western Pannonian Alpine Foothill, Hungary

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The northern scarp of the Pinka flat – situated in the western part of the Pannonian Basin – is largely characterized by landslides and gullies. This area is a transition zone between the uplifting Eastern Alps and the subsiding Little Hungarian Plain. The interaction of the juxtaposed units results in neotectonically induced features, such as unstable slopes, gullies and landslides. These mass movements represented economical and social hazard in the 20th century.
Earlier studies of this area (eg. Kecskés, 1968; Szilágyi, 1989) concentrated on regional scale, but the real nature of mass movements is still unclear. Therefore our goal was to study the landslides on smaller scales. This contribution presents an individual landslide (in the vicinity of Olad, outskirt of Szombathely) that has been examined in detail, using different geophysical and geomorphological methods.
Field surveys and geomorphological measurements have been achieved several times (from 2006) to have a better view on the role of geomorphology in the formation of the landslide. Fixed points were deployed inside the landslide as well as near to it to quantify movements of surface over time. The structure of the slope was studied using shallow boreholes and vertical electrical sounding (VES) measurements. Furthermore Electrical Resistivity Tomography (ERT) was used along several transverse and longitudinal profiles to complement these studies with two dimensional electrical resistivity sections.
Results from the last 6 years show that the evolution of the landslide seems to be triggered by the weather conditions of the Alpine foothills and the northern scarp of Pinka flat, though the origin of the landslide is neotectonic. Geophysical results show that the sliding mass is situated on a clayey layer. The main cause of mass movement seems to be the slope-parallel layering of the clayey and sandy sediment, though recent time human influence played an important role as well.
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KECSKÉS T. 1968. A szombathelyi dombcsúszás. Vasi Szemle 22. 4. pp. 557-566
SZILÁGYI E. 1980. Vas megye felszínmozgásainak katasztere. Földr. Ért. 38 1-2. pp. 33-54