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The Dunaszekcső landslide and post-event movements: possible southward spread?

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After more and more significant deformations and accelerating displacements, rapid movements took place on the right bank of the Danube at Dunaszekcső (Hungary) in February, 2008 as the main phase of an enormous slope failure. It had a dimension of 220×20×60 m (length×width×depth) and the sliding mass was estimated at 0.3 million m3. Moving blocks of the bank failure thought to be reached metastable equilibrium and a peninsula came into being in the bed of the Danube at the landslide's toe. Our geodetic datasets, observations of rainfall and water level changes of the Danube suggested that changing hydrological properties were primarily responsible for initiation of the studied slump [1].
Subsequent geodetic deformation measurements showed that slow post-event movements (mainly subsidence) have been occurring for the last two years. Meanwhile the tiltmeter recorded small oscillatory movements on the stable part of the high bank (Vár Hill). Measurements on our geodetic network, which has been extended to the south in 2009, and data of a new tiltmeter have indicated tilting on the southern flank of Vár Hill accompanied by subsidence, although GPS data are within the error range at this time. According to field observations and geodetic results a possible southward spread of sliding and further movements of previously displaced blocks might be expected after melting and subsequent flooding of the Danube during the spring of 2010.

References

[1] Újvári, G., Mentes, Gy., Bányai, L., Kraft, J., Gyimóthy, A., Kovács, J., 2009. Evolution of a bank failure along the River Danube at Dunaszekcső, Hungary. Geomorphology 109, 197-209.