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Dated Landslide Events in the Pálava Hills

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The Pálava Hills represent a distinctive elevation near the Czech-Austrian border, which exceeds the neighboring landscape up to 350 m. The hills are mainly built up by the rootless, tectonically transported, sediments of the lowermost unit of the Outer Western Carpathian nappe stack. They consist of numerous imbricates, duplexes, and partial thrust sheets of the Upper Jurassic to lower Miocene strata. Tectonic klippen of Jurassic marls and carbonates and Upper Cretaceous (Turonian to Campanian) clastic rocks are tectonically incorporated into the thrust sheets of the younger, Paleogene to lower Miocene sequences.
Geological maps, geophysical investigation and LIDAR data were used in order to delineate the actual extent of landsliding in the Pálava Hills. They cover 12% of the area. Written records on landsliding were studied (chronicles, reports, archival evidence, etc.) in archives. The reports were primarily related to losses caused by landsliding. Approximately 10 farm buildings, 8 houses and 7 cellars were destroyed in total and many other buildings, gardens and yards were damaged by landsliding as documented in the written resources.
The oldest record of landsliding in the Palava Hills was determined by dating of archeological settlements on a landslide body. The settlement by Upper Paleolithic hunters and gatherers was originally deployed on a landslide and was consequently destroyed by the same landslide. The age of these events was dated to the Gravettian (30,000 BP). This landslide thus ranks among the oldest (dated) within the area of the Czech Republic.
The second oldest dated landslide took place in 1663 and consequent landsliding was recorded here in 1667, 1715, 1730, 1763, 1768 and 1774. Only two records on landsliding were determined in the nineteenth century. The major concentration of landslides occurred at the beginning of the twentieth century (1910–1915).
Newly identified and dated landslides will be added to the developing databases of the so-called landslide phases in the Outer Western Carpathians. The landslide phases, when completed, will be used as another proxy in climate-change research.

Related works:
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