

Pleistocene landslides in the Moldavian Plateau, Eastern Romania

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The Moldavian Plateau is a landslide prone region located in North-Eastern and Eastern Romania, the general morphostructural setting of this area consisting of a monocline with cuesta landforms. In the study area, the landslides are characterized by a strong temporal and spatial clustering, being influenced by the morphostructural setting and by the stratified layered rocks. The majority of the hillslopes affected by landslides are characterized by the presence of large old, relict landslides whose morphological signature is degraded by erosion and by younger landslides, the majority of them generating the retreat of the scarps in a retrogressive manner. In this paper we study the topological relations between several large landslides and archaeological sites for three selected settlements in the Moldavian Plateau, situated on ridges and hillslopes. Landslides and archaeological sites were mapped using high resolution LiDAR DEMs and extensive field validation activities were performed for stratigraphic and morphologic recognition of the landslides, deposits, and its relation with archaeological sites.

Costești - Cier site is located in the Bahluiet floodplain on a relict landslide deposit that comes from failures of both sides of the valley, which possibly blocked the Bahluiet River. Nowadays is eroded by river, the morphology being of a terrace remnant. The oldest levels of population of the site is Cucuteni A. The landslide deposit is covered by a loamy deposit, which is a floodplain deposit, overlaid by a paleosol, and the archaeological remains. Such a sequence not only is evidence that the landslide is older than the settlement, but older than the loam deposition event, which in turn occurred before the formation of a ~30 cm thick soil.

Cucuteni - Cetățuia site is located at the edge of the Laiu plateau, on a promontory cut by a gully, and is bounded on north, east and south sides by deep-seated landslide scarps. The main inhabitation of the settlement is attributed to Cucuteni A. This settlement is related to the Băiceni - Dâmbul Morii settlement, located downstream, at the base of the hillslope, on the relict landslide deposits, between Recea and Morii rivers. The site was populated in the Cucuteni A and AB phases.

The Trușești - Țugueta is located on a plateau on top of a hill, on a loess layer of ~10 m thickness overlying the Bessarabian clays. The main very old landslide scarps appeared and evolved through retrogressive before 6550 BP (pre-settlement), but after the loess deposition (LGM to Lateglacial).

Using the relations between archaeological sites, landslides and site stratigraphy we argue the Pleistocene age of these landslides located in the lowland of Eastern Carpathians.