

Landslide-river interactions during Quaternary in the Moldavian Plateau (Romania)

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Bahluieș Valley at Costești village, Northeastern Romania, is a site with geomorphological importance for the Quaternary of Eastern Europe. Here, the interactions between landslides and rivers [1], in the context of a monoclinic geologic setting [2], have shaped a morphology (Figure 1) that was considered by [3,4] to have geoheritage value. The Late Pleistocene age of the landslide was inferred for the fossil landslide [5, 6], being later confirmed [7,8]: the organic matter from the terrace deposits that cover the Costești fossil landslide returned 45 920-43 985 cal BP (Beta Analytics ID 518575), while the OSL dating of the same deposit in the area of Costești-Cier archaeological site returned 15.59 and 21.55 ky. These results imply that fossil landslide was triggered before MIS3. The age of the 3.5-4 m thick floodplain deposits that sit over the landslide deposits is Late Pleniglacial, the other landslide reactivations having Holocene age.

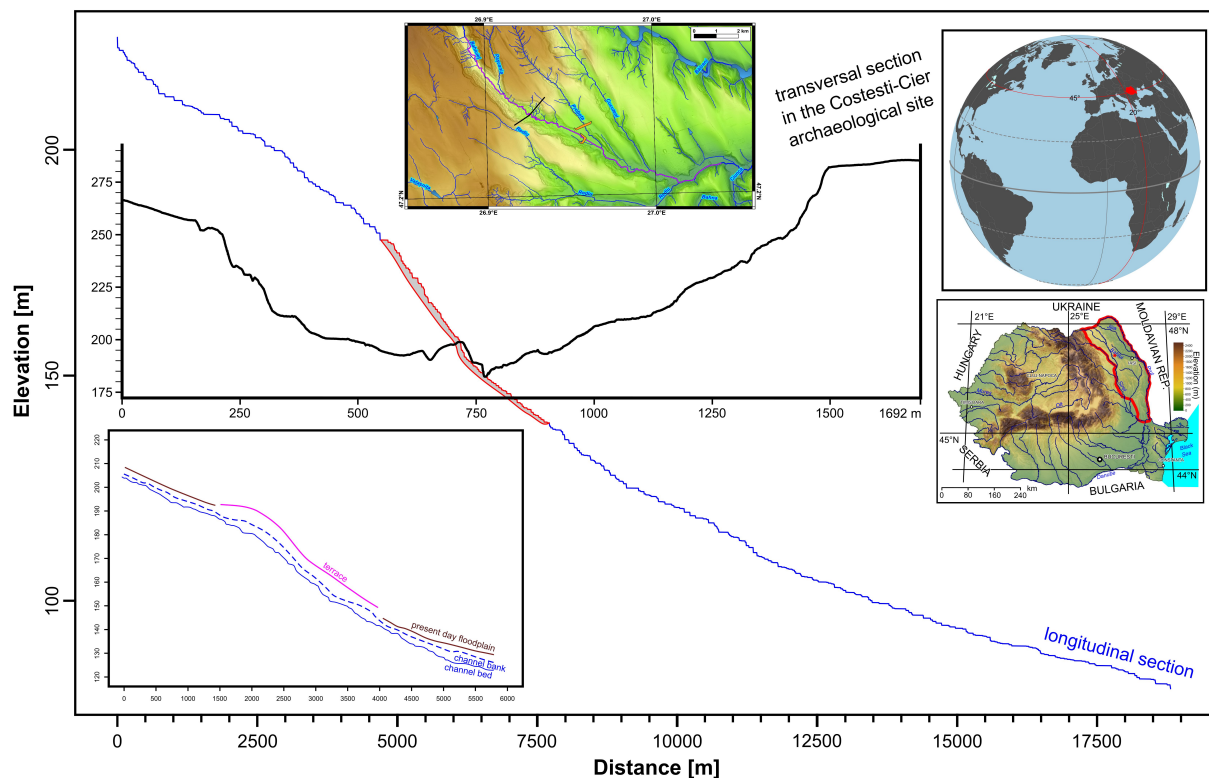


Figure 1 The topographic setting of the Bahluieț Valley at Costești village.

At the current geomorphologic research stage, the Late Pleistocene age of the fossil landslide is it well constrained, without the possibility to say the precise timing of the triggering, but only upper bounds [8]. These bounds imply that multiple events generated the fossil landslide deposit [8]. The landslide retrogressional reactivation continued during the Holocene, generating a complex landslide that affects the entire hillslope [9].

The river incision in the floodplain and fossil landslide deposit is Holocene, with an increased rate in the last centuries [8]. Supplementary OSL dating of the terrace deposits (Figure 3) indicates a major incision period after the Neolithic period [7], Cucuteni-Trypillia culture ceramics being found in the deposits.

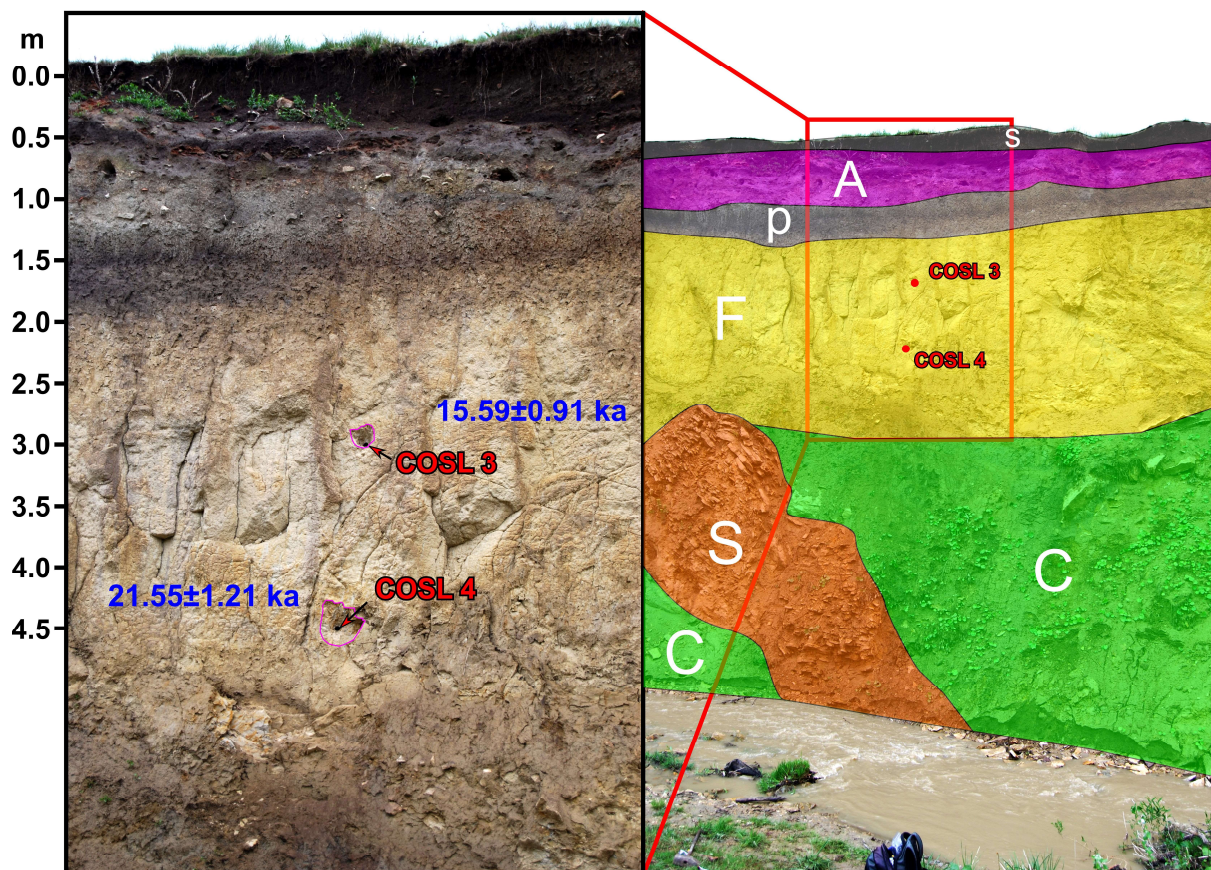


Figure 2 The OSL dating results in the Costeti-Cier archaeological site section: s – soil, A – archaeological deposit, p – paleosol, F – terrace deposit, C+S – slided landslide body of geological deposits with sandstones (S) and mudstone (C).

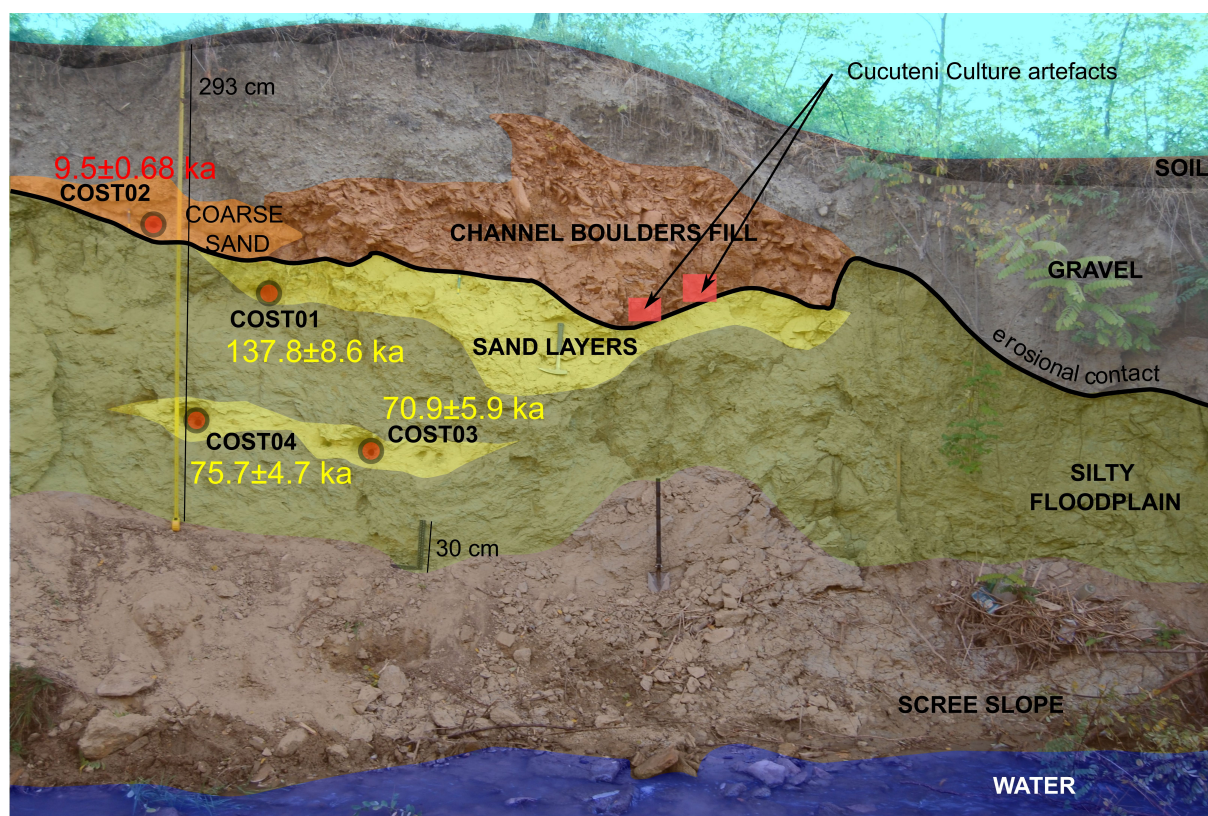


Figure 3 The supplementary dating of an erosional contact of the terrace deposits.

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