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Geological and geomorphological investigations in the Early Pleistocene paleontological multi-site of Olteţ River Valley, Romania

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The Olteţ River Valley in southern Romania hosts a large number of fossiliferous sites, the richest of which is Valea Grăunceanului. Based on biochronological estimations, these sites were assigned to the Late Villafranchian (MN17/MNQ1), at ~2.0-1.8 Ma. As yet, no other dating methods were employed and our present study aims to provide the geological and geomorphological background for radiometric and trapped charge dating, as well as for the stratigraphic correlation of these sites. These deposits are represented by fluvial-lacustrine sediments belonging to the Dacian Basin, a part of the Eastern Paratethys domain.

Our approach is to create a regional stratigraphic column onto which to place the fossil sites. We first created a high-resolution 3D model of the surface using UAV technology. Further, we sampled sediments from several sections and determined their grain size and mineralogy. We also sampled pedogenic carbonates and fossil teeth for preliminary geochemical analysis, in preparation for uranium series dating.

Although no human fossils have been found so far in the Olteţ River Valley, the site is important for understanding the environment used by early humans to migrate out of Africa. These sites are close both in time and space to important anthropological sites such as Dmanisi, Khapry or Kozarnika, while being part of an area dominated by large water bodies that included the Pannonian, Dacian and Euxinic lakes.