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# Multimethod geophysical study of anomalous light-grey stripes in Quaternary sediments revealed by archive aerial photography

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The Somogy Hills, south of Lake Balaton, Hungary form a peculiar topographic setting: a quasi meridional valley pattern. The formation of the valley system is widely debated; the researchers assume tectonic or eolian origin. Undoubtedly the underlying strata are of Pannonian (Miocene) siliciclastics, overlain by fluvial, and, later, eolian Quaternary sediments, forming a major unconformity. The topmost layer is frequently of mixed origin, mainly of recent eolian derivatives.

Archive B/W aerial photography from the 1950s reveal light-shaded elongated pattern in the soil in a wide area of 50 km width. The appearance of the stripes is slightly depending on the actual land use and the slope angle. The orientation of this features are often aligned with that of the topography, therefore it could represent geological features.

A multi-method geophysical study has been carried out to reveal the actual characteristics of these features and whether they have geological origin.

Multi-electrode geoelectric measurements, VLF measurements and magnetic survey were carried out perpendicular to the typical direction of the features.

The results can be classified into two groups. At places there is good correlation in the various signals provided by the methods, so one can conclude that the features are

of geological origin. However, in the other sites there are no observable effects in the geophysical data. We attribute this behavior to the small thickness of the strata and we assume that the appearance on aerial photographs is caused by the spreading effect of soil creep. The change in the land use since mid-1900s has also modified the visibility of this pattern; presumably it is an effect of deeper ploughing which would support the mixing of the topmost layer of the soil.

Further sites are to be selected for more detailed measurements to reveal if the small thickness plays a role in the geophysical response.