



The 2006 Danube flood inundation patterns and the 1864 topographic map of South Romania: How the present hydrological processes are determined by the original landscape?

Gábor Timár (1), Zsombor Bartos (2), Zoltán Imecs (2), Zsolt Magyari-Sáska (3), Vasile Crăciunescu (4), and Cristian Fluerau (4)

(1) Eötvös University of Budapest, Dept. of Geophysics and Space Science, Budapest, Hungary (timar@ludens.elte.hu), (2) Department of Geography in Hungarian, Babeş-Bolyai University, Cluj-Napoca, Romania (bezombor@gmail.com), (3) Department of Geography for extensions (Gheorgheni), Babeş-Bolyai University, Cluj-Napoca, Romania, (4) National Meteorological Administration, Bucharest, Romania

The satellite-based inundation maps of the 2006 Danube floods in Romania were fit geometrically to the 1864 topographic map sheets covering the Romanian regions of Oltenia and Muntenia. The old maps were systematically geo-referenced using the data of the original geodetic control and cartographic details; their Cassini-Soldner projection was properly parametrized and completed by the data of the original geodetic datum. The sheets were geo-referred using ground control points only at their four corners, knowing their coordinates in their own projection. The coupled satellite data was provided by the Landsat and MODIS data, all transformed to the modern grid system of Romania.

The inundation patterns in the Danube embayments of Ghidici, Bechet and Calaraşi were analyzed on the historical map content layer. The comparison was made in two aspects: (1) how the low floodplain, inundated by the recent big flood was marked in the historical sheets, reflecting its old, almost original environmental setting, and (2) how the historical settlement outlines were changed during the passed 150 years, mostly because of the flood events. The comparison provide interesting examples about the inundation 'islands' during the flood and their original state as well as 'settlement moving' from the low and middle-level floodplain to the flood-free terraces.

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