



Natural hazards and disappeared settlements: lessons from NE Romania

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Natural hazards affect people, their assets and settlements. Unfortunately, sometimes the magnitude of the hazards can grow so much that they can reach certain thresholds that exceed the resilience level of the local communities. Structural and functional damages are so big that they force the inhabitants to leave their settlements definitively. This reality is closely linked with obvious changes of ground topography at local scale, due to landslides, floods or other natural hazards. In many other cases, only certain parts of the settlements are affected, and consequently are abandoned by inhabitants.

During the last centuries, in north-eastern Romania, there were registered dozens of such cases. They are registered in historic written archives, can be shown on old maps, and nowadays can be investigated through the physical evidences imprinted on high resolution DEMs. Remote Sensing imagery and geomorphometric tools allow us to investigate the evolution of landforms and to assess the magnitude and spatial extension of the past geomorphological events.

The Eastern Carpathian lowland is a region with a high susceptibility to landslides and floods, hazards which have generated landform evolution and affected human lives in the past.

In this paper we analyzed and carried out an inventory of the villages between the Prut and Siret Rivers which have disappeared or have been displaced due to frequent landslides, floods or river migration. It is also described a physical habitat typology which involves areas where hillslopes are inhabited, although they were affected constantly by mass movement processes. We overlapped old and recent topographic maps (Moldavian Topographic Map, 1:50,000, 1894-1896 ed.; Road Atlas 1:200,000 1897 ed., Shooting Directory Plans 1:20,000 1915-1940 ed.) and mapped the Moldavian villages that have disappeared. The majority of them have disappeared in relation to natural hazards, and only a few by resettlements or rebuilding due to economic/social reasons. A detailed analysis of the landforms depicted on a high resolution DEM helped us to build a better connection between changes and damages caused by earth processes and settlement disappearance.