



Geomorphological change detection of fluvial processes of lower Siret channel using LIDAR data

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Geomorphological change detection is a relatively new method risen from the availability of high resolution multitemporal DEMs (James et. al., 2011; Brodu & Lague, 2012; Barnhart & Crosby, 2013). The main issue in regard with this method is the identification of real change, given by geomorphologic processes, and not by the noise, method artefacts, vegetation or various other errors (Wheaton et. al., 2009). We present the results of geomorphological change detection applied to a part of the lower Siret river channel (from 60 to 140 km above the Siret-Dunăre confluence, between Adjud and Namoloasa). The data sources used were LIDAR DEMs provided by the Siret and Prut-Barlad Water Administrations, one version for 2008, at 2 m resolution, and the other at 0.5 m resolution for 2012. The geomorphological change detection was performed at a resolution of 2 m using the methodology of Wheaton et. al., 2009, on 4 sites with a cumulated length of 47 km, with 41.6 km covering meandering channels and 5.4 km Movileni anthropic lake shore. In the studied period (2008-2012), two major flood events were registered, one in 2008 and the other in 2010 (Olariu et. al., 2009, Serbu et. al., 2009, Nedelcu et. al., 2011). The geomorphological change detection approach managed to outline the presence and the rate of process (expressed as volumetric change) for: channel erosion, channel aggradation, lateral migration of river bank, meander migration, lake bank erosion, alluvial fan deposition and anthropic excavation of channel and river bank.

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