



## **The evolution of the fluvial environments and the history of human settlements during the Late Holocene on the Piano di Magadino (Cantone Ticino, Switzerland): new sedimentological and geoarchaeological data**

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In recent times many sedimentological, geomorphological and geoarchaeological studies were carried out at many locations on the Piano di Magadino, trying to reconstruct the evolution of the paleoenvironmental conditions of the area during the late Holocene (Scapozza & Oppizzi, 2013). The age and stratigraphy of the deposits were determined using the radiocarbon dating method on organic matter debris and charcoals. This, combined with an accurate sedimentological characterization of the deposit, archaeological observations and dating, allowed interpreting the depositional context for the sedimentary and archaeological sequences found on the Piano di Magadino.

This contribution focuses on new dating and stratigraphy determined in two archeological sites in Progero (Gudo, RFD 1078; 2°715'900/1°114'530, CH1903+/LV95) and in Gudo (RFD 80; 2°716'720/1°114'800, CH1903+/LV95).

In Progero two main phases of hydrosedimentary activity shown by alluvial deposits could be observed. During the first alluvial phase many events with coarse material deposit succeeded and crosscut each other. These deposits are attributed to lateral alluvial fans or debris flows from the valley slope. After this phase, the first records of human settlement in the area are observed, which consist of backfillings of anthropic origin containing some debris of ceramic of early Bronze Age. Afterwards two events of finer deposits of fluvial origin are present; both are intercalated by remnants of human construction of middle Bronze Age. These deposits are probably attributed to a temporary palaeomeander of the Ticino river, which allowed the sudden deposition of fine material by rapid decantation. The presence of anthropic pavements at that time confirms the unpredictability of the events and the proximal position to the river of the human settlements.

The site of Gudo is located northeast compared to the first site, closer to the valley slope and in a higher stratigraphical position. For this site four layers with coarser grain size deposits were observed suggesting four events of major hydrosedimentary activity in the area, which were constrained by radiocarbon dating: 400–370 BC (early Iron Age), 200–170 BC (middle Iron Age), 10–340 AD (Roman Age), 540–1000 AD (late Middle Ages). A wall of Iron Age found between the two first events confirms the dating and suggests a stable human settlement in the area during the Iron Age, as well as the need to build a dam for containing the floods, coming from the valley slope or from the river. The late Middle Ages increase in hydrosedimentary activity was also documented by historical informations (Scapozza, 2013) and by new radiocarbon dating in the Ticino river alluvial plain (Scapozza et al., 2017).

The six hydrosedimentary activity phases highlighted in Progero and in Gudo by this study can be completed by more recent information from historical sources, highlighting two others phases of hydrosedimentary activity in 1178 AD and between 1690 and 1868 AD (Scapozza, 2013). Therefore, the integration of archaeological information in classical geomorphological and historical studies on the evolution of fluvial environments on the Ticino river catchment allowed the definition of eight phases of hydrosedimentary activity since the early Bronze Age.