

Ber. Inst. Erdwiss. K.-F.-Univ. Graz	ISSN 1608-8166	Band 20/1	Graz 2014
PANGEO AUSTRIA 2014	Graz, 14. September 2014 – 19. September 2014		

## **GPR- and LiDAR-Data for Surveying and Visualisation of Archaeological Structures – a case example of an archaeological site in Strettweg, District of Murtal, Austria**

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The community Strettweg is seen as one of the most outstanding prehistoric archaeological sites in Austria. In 1851 the “Strettweger Opferwagen” was discovered and is considered one of the most important Hallstatt find. More than 160 years later LiDAR (Light Detection and Ranging) and geophysical methods like Ground Penetrating Radar (GPR) have made it possible to find burial mounds and map the largest prehistoric settlement in the southeastern Alps. These modern techniques have provided an auxiliary tool for a team of archaeologists.

GPR allows for a fast and non-invasive surveying of structures of the subsurface, by using electromagnetic radiation in the microwave range. The active remote sensing technique LiDAR, measures the runtime of discrete light pulses in order to map objects and structures on the surface of the earth.

In the course of an archaeological project GPR and terrestrial LiDAR were applied to collect data of a testing site with 2500m<sup>2</sup>. The existence of archaeological structures was crucial for choosing this area. The area is surrounded by fine sediments, which originated by fluvial transportation, making the remnants of archaeological structures easier to detect.

Unlike LiDAR, a standard GPR-processing-workflow does not allow for a 3-dimensional visualisation of the results and complicates the detection of archaeological structures. A combination of both techniques, by using Python scripts and different software packages, applies the advantages of LiDAR and GPR, and allows getting a high-resolution 3-dimensional pointcloud. This simplifies the identification of ancient man-made near-surface structures, which enables both in the field and lab quick post-processing.