

Archaeological prospection by LIDAR beyond simple hillshading

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For more than a decade, Lidar data has been used to detect and delimit archaeological sites by highlighting subtle altitude differences generated by the remains of these sites. In several European countries ordnance survey institutions nowadays provide Lidar data for archaeological purposes free of charge, and sometimes web map services are available that show hillshading views of this elevation data. Some researchers have pointed out the drawbacks of the ordnance survey Lidar data in their study area, favouring Lidar data acquisition commissioned by archaeologists. The latter procurement approach is the only option eligible in countries where official Lidar data is not accessible by archaeologists. In densely vegetated regions, filtering of the Lidar data is an issue. Additional issues include the accuracy of the measurements, irregular point density after filtering as well as combining data acquired in different campaigns or Lidar data with results of other prospection methods. Besides simple hillshading, several visualisation methods have been proposed that enhance detectability of specific archaeological features. Recently, pattern recognition and machine learning approaches have been used for the (semi-)automatic detection of sites in Lidar data, allowing to scan large regions with the aim of identifying sites of a predefined site type. The aim of this session was to show the potential of Lidar data beyond simple hillshading by papers focusing on:

- Best practice of Lidar data acquisition for archaeological purposes
- Data filtering in densely vegetated regions
- Comparison of Lidar with SfM approaches in areas with hardly any vegetation
- Potential and limits of different visualisation approaches
- Monitoring sites by comparing Lidar data acquired in different years
- Combining Lidar data with data derived from other prospection methods
- (Semi-)automatic detection of sites in Lidar data for instance by machine learning approaches.