Digital {Classical} Archaeology

Since the field of 'Digital Archaeology' — as well as the whole topic of implementation of digital data into archaeology — is a constantly growing factor in the whole contemporary archaeological research landscape, the proposed lecture will focus on state-of-the-art data gathering-, analyzing-, interpreting- and distribution-processes in archaeology as they are undertaken and taught by the authors within the framework of recently finished and currently running international third-party research projects as well as fieldwork and courses funded by the authors' affiliation. Within these projects, a newly generated stock of digital data was generated and will allow tracing new evidence on human behavior and material culture of rural landscapes in different parts of the Imperium Romanum.

The data sets were collected mainly by non- or micro-invasive methods and stratigraphic excavations, intensively using CAD and GIS programs in field and during post processing. Orthophotos and DSM/DEM data were obtained through Open Governmental Data and regional authorities as well as imagery gathered by UAVs. For a (nearly) entire digital documentation process, aside from Totalstations and Real-Time-Kinematic as well as Differential GNSS devices, image-based-modeling methods were used to create 3D models of small scale landscapes and the archaeological record by standard DSLR cameras and/or UAVs. All fieldwork was also recorded selectively using enhanced time-lapse and video documentation to capture the meta level of the single working processes digitally and therefore enabling further analysis as well as public relations.

All digital data was stored temporarily in an in house designed cloud service and online storage space, following highest privacy standards. Long term data archiving and distribution as well as permanent citability will be realized using an own online long term archiving service, which follows the Open Archival Information System reference model. The data sets get persistent addresses (currently HTTP and Handle, soon also DOI), structured metadata (i.a. Dublin Core and the Learning Object Metadata scheme) and will be indexed for search engines. Open access will be guaranteed by Creative Commons licenses (or similar free license models) for all archived data sets. Additionally, the system also serves as a spatial data infrastructure. All raw and all processed data shall be published as soon as possible but at the latest at the end of the actual projects, following archaeological best practices guidelines for data standards. Within this framework the project will actively contribute to guidelines for archaeological data standards. An user-friendly dissemination through interactive Web Mapping Applications will be provided, using commercial, freeware and open source solutions for comparison reasons.