

Anthropogenic deposits in Vienna

Maria Meszar¹, Kira Lappé¹, Katrin Hornek², Michael Wagreich¹

¹ University of Vienna, Dept. for Geodynamics and Sedimentology, Vienna, Austria; e-mail: maria.meszar@univie.ac.at

² University of Applied Arts, Vienna, Austria

The rising anthropogenic influence on the Earth System and its geological processes is strongly related to the Anthropocene concept. Potential Anthropocene geological units are thin, but distinct and globally widespread, connected changes are long-lived or irreversible. Caused by a combination of human and geological forces, the deposits under cities such as Vienna are stretched from pre-historic and historic to recent times. Financed by the WWTF (Vienna Science and Technology Fund), a new project is researching the growth of the Anthropocene signal in the urban environments of Vienna. As a unique interdisciplinary project “The Anthropocene Surge” (ESR17-040) combines natural sciences, humanities and art, and is regarded as an outstanding chance for a holistic view on the Anthropocene, its stratigraphy and perception.

The Anthropocene surge is the key hypothesis of the project. This term describes the accelerating and propagating wave of human influence on the environments and urban geology. The research will mainly focus on the evolution of the Anthropocene deposits in the urban environments of Vienna and identifying potential anthropogenic markers.

Firstly, the project aims to make a genetic classification of anthropogenic sediments to develop the stratigraphy of Vienna’s Anthropocene growth. Geochemical methods such as X-ray fluorescence will be used to detect a trace metal contamination, to investigate the record of the Anthropocene surge in the sedimentary archive.

Secondly, the geometry and topography of anthropogenic units and horizons will be incorporated into a GIS and will build the basis for a 3D model of the anthropogenic units, showing not only their present form but also their evolution in time. Historical maps, as *e.g.*, published in 1862 by Eduard Suess, will be added to the model to implement and review the mid-19th century growth of Vienna.

Thirdly, an essay, a film will be created accompanying the research and reflecting on the trajectories of the Anthropocene within different fields and methods. By recording the flow of scientific samples from humanly modified ground to a 3D modelled landscape, the points of contact between analogue and digital stratifications and their potential interactions will be traced.