

on the paleo-landscape of Tell Basta/Bubastis
(eastern Nile delta): An integrated approach
combining GIS-Based spatial analysis,
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Preliminary results on the paleo-landscape of Tell Basta /Bubastis (eastern Nile delta): An integrated approach combining GIS-Based spatial analysis, geophysical and archaeological investigations

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Abstract

The city of Bubastis (Tell Basta) is situated in the south-eastern Nile delta and was of great importance in Ancient Egypt. While the remains of the city have been the subject of archaeological investigations for more than one hundred years, little research has been carried out on the characterization of the former landscape in general and on the localization of the Pelusiac and Tanitic branches in the area of Bubastis in particular. This contribution presents preliminary results from recent investigations that focused on the study of historic cartographic records in digital terrain analyses, archaeological records and written sources, and the gathering of onsite sedimentary archives. The GIS-analyses

used digital hydrographic modelling and relied on digital terrain data generated from the topographic maps of the Survey of Egypt (1930s). Additionally, drilling was conducted in Bubastis in spring 2016; six boreholes were made and preliminary macroscopy sediment analyses suggest a Pre-Holocene genesis of the underlying sediments. It is anticipated that Bubastis is situated on a Gezira of Pleistocene age. Gezira sediments were found in depths between $+3.3$ m and -0.68 (a.s.l.) and these were characterized by medium to coarse sand of yellowish and brownish colour. Results of the digital terrain analyses further suggest that the ridges and mounds in the west and south-west of the study area are remains of the Pleistocene deposits and that the tells in the foreland - like Bubastis - witness the erosion history. The results from digital hydrographic modelling indicated at least two major fluvial systems; one north and one south of Bubastis, which can be related with the Pelusiac and Tanitic systems. The model-driven approach suggests that the Pelusiac branch was running south of Bubastis, implying that Bietak's alternative "B/1 Bahr Abu El Akhdar" is the most likely route for the branch. However, a different interpretation of the results involves the formation of levees and this approach supports Bietak's model, e.g. the route of the Pelusiac branch fits the modelled major watershed boundary in the north of Bubastis.

Keywords

Nile delta; Tell Basta; Bubastis; GIS; Geophysics

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