Landscape changes and human activities in the Histrian region (southern Danube delta) in the first millennium BC

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Methods

The research methodology involved geomorphological and archaeological surveys, topographic profiles across the main sedimentary units and core drilling. The core database consists of: i) 14 cores of 4-8 m depth within the ancient city area and surrounding muddy flats; ii) 6 cores of 1-3 m depth in the Istria, Nuntasi and Sinem Lakes, and iii) 35 boreholes up to 3 m depth distributed across a transect on Sailo beach ridge plain. The profiles were described in the field for structure, texture, colour, macrofossil and archaeological remnants. In the laboratory mineralogical and grain size analysis were performed on two of the cores.

The chronology was achieved using optical stimulated luminescence (OSL) techniques and radiocarbon dating methods. The assembling of the data and the testing of the scenarios was made using a geographical information system (GIS).

Results

This study proposes a new model for the coastal evolution of the Histria region from the marine embayment to the present lagoon system answering the archaeologists’ main questions concerning the ancient landscape and bringing new perspective on the evolution of the most southern part of the Danube Delta.

The chronology, stratigraphy and sedimentology obtained together with the archaeological evidence shows the existence of a 'threshold' by the time of the Greek arrival. 2650 years ago, developed as a result of the sea-level stillstand and following deltaic expansion.

The OSL dates from the relatively stable beach ridge plains spanning the lifetime of the ancient city of Histria, suggest that the relative sea-level had a relative stable position around -4.7 m during 3-1 ka BP.

This landscape configuration offered good coastal conditions for navigation, which led to prosperous commercial activity in the Archaic period. It is the time when Histria has founded numerous settlements, especially with access to the sea. Some of them were situated in the interior area of South Danube Delta (Razelm-Sinoe lagoon system), others like Nikonion or Ostrogrado were more isolated from the coast, which led to a prosperous commercial activity.

Fig. 1. Archaic settlements near Histria

Fig. 2. Cross-section showing the wall succession and the archaic and post-archaic archeo-deposits.

Legend

- coarse sand
- medium sand
- fine sand
- gravel
- shelly sand
- sandy deposit
- clayey deposit
- shell fragment
- coral
- shell
- bone
- lithic debris
- solid clay
- silty clay
- fine silt
- very fine silt
- peat
- clay
- silt
- bright green
- purple
- red

Fig. 3. Cross-section showing the soil succession and the archaic and post-archaic archeo-deposits.

Fig. 4. Stratigraphy of the marshy flats and lakes (H - H3), acropolis (H4 – H7) and of the beach ridges (H8)

Fig. 5. Location of the coring sites

Fig. 6. Morphomeric evolution of the Histria subsoil.