

# Climate Change and Geoarchaeology in the Danube delta since 6000 yrs

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## Main aim

- Define the connexions between palaeo-environment and ancient societies (fluvial and coastal settlements) since 6000 BP in the Danube delta.

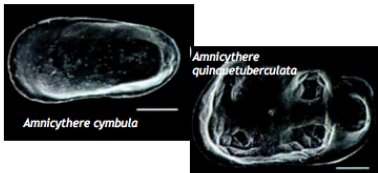


Danube delta: geomorphological map with the studied archaeological sites.

## Materials & methods

- Long continuous cores.

- Main proxies: **biological** (mollusks, ostracods, pollen) and **sedimentological** (granulometry and sediment texture).



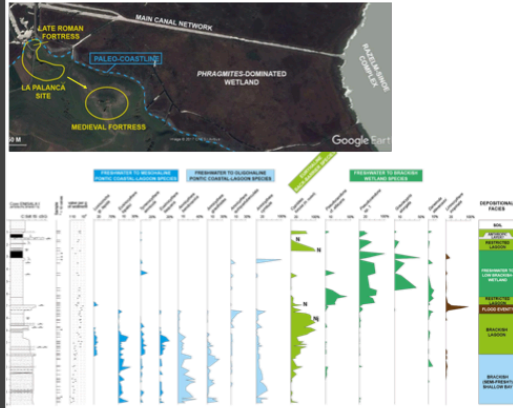
Ponto-caspian ostracod species

- Chronology:** radiocarbon dating.
- Multidisciplinary approach:** bio-sedimentological data cross checked with **geophysical** and **archaeological** investigations.

## Palaeo-environmental reconstruction

Enisala:

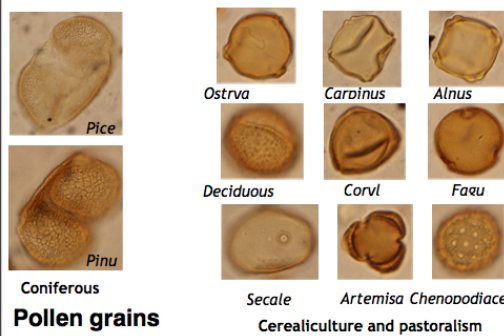
palaeo-landscape evolution using the ostracods



- Ostracod fauna and depositional facies show the enclosure of a shallow marine bay.
- A low energy environment characterised the area at least since Neolithic, excepting a high-energy episode which can translate a flood. A possible anthropic intervention can be observed and it might be related to dredging works during the Middle Ages.

Halmyris

vegetation cover dynamics



Pollen grains

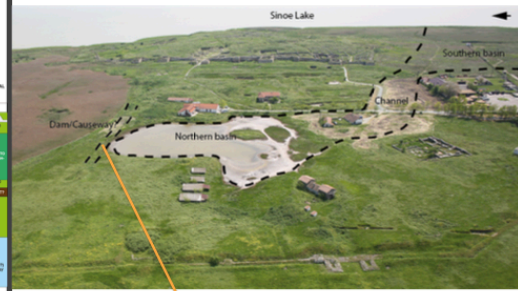
- Between Neolithic and Roman Period, the area was characterised by a domination of coniferous forest, mixed with oak grove and Ostrya species, the hop-hornbeam.
- These species are followed by riparian vegetation, as alder and the salicaceae. The assemblage shows a very woody landscape, with very few herbaceous plants and with few elements indicating agricultural practices.

## Landscape metamorphosis and the impact upon the human settlements

Proposition of reconstruction of ancient harbours location

Histria:

Proposition of reconstruction of ancient harbours location

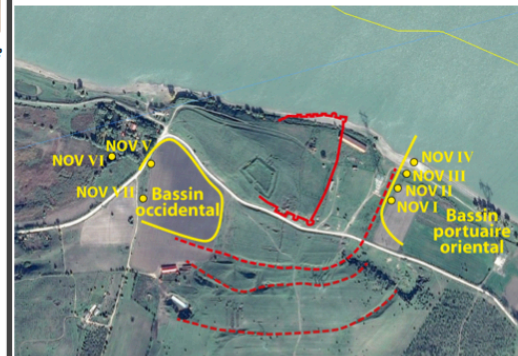


Geophysical investigations in the dam/causeway area

- The response of ancient societies to the rapid metamorphosis of coastal environment it is, in many instances, mirrored in the harbours sites.
- The study of ancient harbours constitutes a dual investigation: biostratigraphical studies of sediments, corroborated with GIS investigation of aerial photographs and satellite images, can be used to reconstruct coastal evolution and identify possible anchorage area

Noviodunum:

Proposition of reconstruction of ancient harbours location



## Acknowledgments

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