



## **A PreBoreal Danube paleo-delta at -100 m evidenced on the Romanian Black Sea shelf**

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The Danube delta situated between continental and marine environments, present a building way which can be attributed to two main forcing factors: first, the eustatic variations controlling the accommodation space and the base level position, and on the other hand, the sediment production linked to the climatic variability and to the transfer capacities of river channels. Sequence stratigraphy studies demonstrated that delta lithostratigraphy is always characterised by the succession of retrograding, aggrading, and then prograding sequences. Seaward of the delta is the pro-delta largely below sea-level. This body is sensitive to sea level change and alterations to its basin and provides information of the Black Sea level fluctuations which knowledge is still under discussion.

Here, we present a seismic transect shot during ASSEMBLAGE European Project (EVK3-CT-2002-00090), from the Danube delta down to the deep sea fan and four long piston cores (longer than 30 m) recovered on this transect. A succession of depositional sequences and eroded phases were evidenced and the stacking pattern supported by age dating of the cores reaches down to the Last Glacial Maximum (LGM).

From this transect analysis it comes that since the LGM, the Black Sea evolution was

induced by several important paleo-environmental changes underlined by a succession of systems tracts:

- (1) A lowstand system tract at -160 m with a first erosion surface on the shelf associated with a proDelta extension formed during the LGM.
- (2) Then a high-stand system tract at -40 m can be associated with the Bölling-Allerod Black Sea high-stand;
- (3) A second low-stand system tract between -120 m and -80 m associated to a second shelf erosional surface formed since the Younger Dryas and marked by a second pro-delta.
- (4) The preservation of coastal barriers and paleo-river channels cutting across the continental shelf can be related to a rapid transgression.

**Key words** : *Black Sea, continental shelf, Danube delta, highstand, lowstand, sequence stratigraphy, rapid transgression*