



## **A LGM and a Pre-Boreal Danube paleo-Deltas evidenced on the Romanian Black Sea shelf**

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The Black Sea semi-enclosed basin is a unique laboratory for paleo-climatic studies as its water level fluctuations are directly linked to the climate variability without any hysteresis effect compared to the global ocean. The timing and processes which led to the last connection between the Black Sea and the Mediterranean Sea is still under keen debate.

During ASSEMBLAGE European Project (EVK3-CT-2002-00090) a seismic transect was shot from the Danube Delta down to the Deep Sea fan and four long piston cores (longer than 30 m) were recovered on specific targets. The seismic transect was analysed in term of sequence stratigraphy and a succession of depositional sequences and eroded phases were evidenced and the stacking pattern was made down to the Last Glacial Maximum (LGM). The results obtained from the four core analyses allowed to complete and date the stratigraphic sequences evolution, from the Danube Delta down to the continental shelf edge.

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-Alleröd

Black Sea high-stand;

(3) a second low-stand system tract between -80 m and -120 m associated to a second erosion surface on the shelf formed since the Younger Dryas and marked by a second proDelta.

(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.*