Sedimentation processes during the last glacial-interglacial transition in the Black Sea

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Abstract: *The Black Sea is a semi-enclosed basin connected to the global ocean by a series of straits and intermediate seas. During the Last Glaciation, when global sea level dropped below the elevation of the Black Sea's outlet, the basin became isolated and was controlled by the regional hydrology. It is assumed that during this time the Black Sea level dropped more than 100 m, gradually transforming into a lake. When deglaciation raised the sea level, the Black Sea lacustrine phase terminated and was replaced by the establishment of a marine anoxic regime. Due to the very complex sedimentary environments, paleoceanographic reconstructions of the Black Sea have been extremely complicated. Most studies were conducted in the NW sector of the Black Sea, and little attention has been paid to the eastern part of the basin. We conducted a multi-proxy study on a 386 cm gravity core (S4 Geo) retrieved from the Eastern Black Sea continental slope (1045 m water depth), in front of Georgia. Our study includes sedimentology, micropaleontology (ostracods, foraminifers and calcareous nannoplankton) and geochemistry, providing detailed reconstructions of past surface and bottom water conditions. The studied core displays a continuous sedimentation, with fine grey clays and black organic matter intercalations in the lower part corresponding to the lacustrine stage, followed by brown-blackish muds with fine laminations (the Sapropel Mud) and light grey muds rich in coccolith laminae in the upper part. In the coccolith laminae of these muds, Emiliania huxleyi and Braarudosphaera bigelowii gradually occur, indicating that the salinity was above 17‰. In the lower part of the core the ostracod assemblages are dominated by Ponto-Caspian species. The main goal of this study is to present the lithological and sedimentological aspects of the Late Pleistocene to Late Holocene deposits, as well as the biotic and geochemical fluctuations related to this interval. A paleoenvironmental interpretation is also presented, along with a correlation between the western and eastern Black Sea Basin.*

Key words: *glacial lowstand, ostracods, calcareous nannoplankton.*