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Paleosalinity of the Black Sea (Yelta Region)

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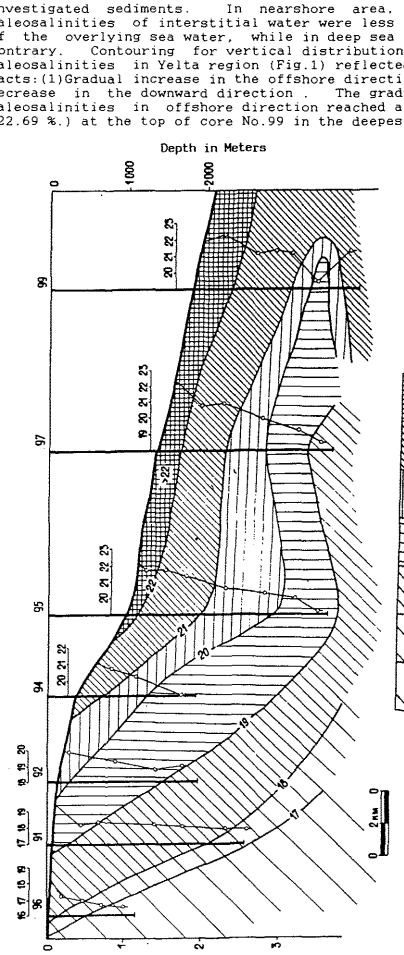
The aim of this study was to construct a distribution map for paleosalinities in Yelta region to highlight the environmental conditions and geological evolution of the Black Sea during the Late Quaternary time. Seven successive core samples were collected along a profile extending for about 40 Km offshore. According to a previous stratigraphic study (Nasr,1983), the age of core sediments No.96, 91 and 92 is Holocene (New Black Sea + Old Black Sea), while cores No. 94, 95, 97 and 99 is Holocene + Upper Pleistocene (New Euxinian). Values of paleosalinities of interstitial water varied from 16.38 to 22.69 %. in the investigated sediments. In nearshore area, the values of paleosalinities of interstitial water were less than salinities of the overlying sea water, while in deep sea , it was the contrary. Contouring for vertical distribution of interstitial paleosalinities in Yelta region (Fig.1) reflected two important facts:(1)Gradual increase in the offshore direction,and(2)Gradual decrease in the downward direction . The gradual increase of paleosalinities in offshore direction reached a maximum value (22.69 %.) at the top of core No.99 in the deepest part of the



(Fig.1) Distribution of Paleosalinities in Yelta Region, Black Sea.

investigated area (1820m)., while a minimum value (16.38 %.) was recorded at the lower part of core No. 96 in nearshore area (36m depth). The values of paleosalinities observed in nearshore area could be attributed to inland fresh water dicharege into the Black Sea. This is in agreement with Manheim and Chan (1974), who suggested the presence of subsea discharge of relatively fresh water in the Black Sea basin, especially from west of Crimea. Gradual decrease of paleosalinities in downward direction in sediment succession i.e. from Holocene to Upper Pleistocene (New Euxinian) is due to environmental conditions and geological evolution prevailed during this time. In glacial stage of New Euxinian time, the sea level was lower than present, and the Black Sea had less salinity. It virtually became brakish water- or even fresh water lake when the sea level stayed low long enough (Emery and Hunt,1974). Irregular disribution of paloesalinity is evident in the tongue shaped pattern in the lower part of core No. 99 . This could be attributed to the reaccumulation of deposits from the continental margin to the deep sea sites.

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