

Cyclostratigraphic, lithological-geochemical and paleoecological characteristics of the sedimentation within Mountainous Crimea in Maastrichtian age

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Conditions of sedimentation on the Southern edge of the Tethys Ocean based on a complex comprehensive study of Maastrichtian deposits in four sections in Bahchisaray area (Staroselye, Besh-Kosh, Chakh-Makhly and Tokma) and two sections in the Sevastopol area (Maloye Sadovoye, Tankovoye) were detailed. The model of variations of temperature, salinity and depth to the peripheral part of the Tethys Ocean in Maastrichtian age was proposed. A detailed study of the nature of bedding cyclicity for part of the section, containing sponge and non-sponge beds showed that, as a rule, the beginning (base) of sponge horizons coincide to relative warming, deepening and / or possible weakening of terrigenous input and salinity increase of the Tethyan waters, and their end (top) corresponds to relative cooling, relative shallowing and/or increase of the terrigenous input and decrease of salinity at the Tethys Ocean. In general, during the Maastrichtian Age the temperature of ocean water increases from 14,6°C at the beginning of the Age to 37,5°C at the end. Transgression was accompanied by an increase in salinity ocean waters (up to 30 ‰), and regression – decreasing salinity (up to 12–24 ‰). Mineral composition and salinity change could affect sufficiently above $\delta^{18}\text{O}$ distribution that resulted in the anomaly high temperature (37,5°C) calculated for the end of the Maastrichtian Age. On the basis of available data on Staroselye, Besh-Kosh and Maloye Sadovoye sections the composite regional curves of $\delta^{18}\text{O}$ and $\delta^{13}\text{C}$ variations were compiled. Comparing these curves with curves of $\delta^{18}\text{O}$ and $\delta^{13}\text{C}$ fluctuations for section of Mullinex-1 site (Texas, USA [Keller et al., 2009]) we obtained a good chronostratigraphic correlation, which allows to determine the stratigraphic position of the level of Chicxulub impact and Deccan traps events at the end of the Maastrichtian in the sections of the Mountain Crimea, as well as conduct chronostratigraphic correlation of sections of the Crimean Mountains with ones from other regions.

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