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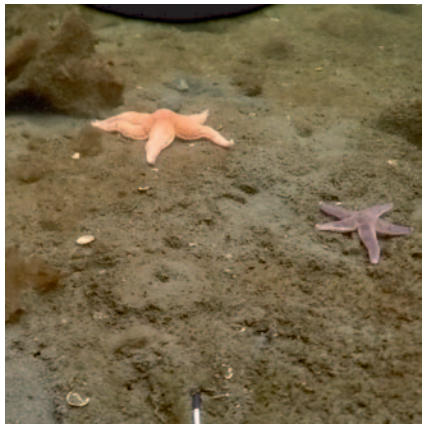

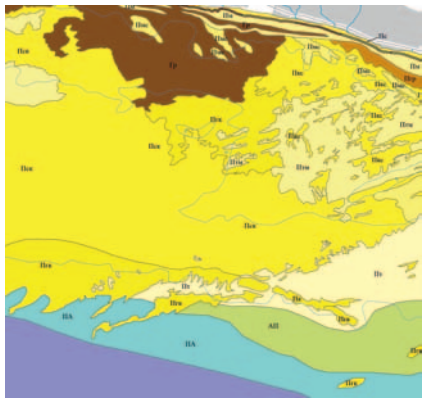

ABSTRACTS

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S4P1. Crystallization of the ikaite ($CaCO_3$*$6H_2O$) in the recent sediments of the Russian Arctic shelf

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The sediments of the Arctic shelf virtually do not contain authigenic carbonates due to the specific geochemical composition of pore waters and low temperatures, which increases the solubility of carbon dioxide. Their rare occurrences are related to various biogeochemical processes, e. g. methane oxidation [2, 3], or organic matter destruction [4]. In this line, ikaite ($CaCO_3$*$6H_2O$) holds a special place. This phase of calcium carbonate can nowadays crystallize in the marine/lacustrine environment only at temperatures close to the freezing point of water, but high content of dissolved phosphorus increases its stability conditions [1, etc]. At the temperatures above 4–6°C ikaite decomposes into water and calcite [1, 5], resulting in the formation of glendonites pseudomorphs. We report results of study the mechanisms of formation of the ikaite found in bottom sediments of the Kara, Laptev and Chukchi Sea. Detailed mineralogical, geochemical and isotopic studies were conducted. The increase in alkalinity is mainly due to the decomposition of organic matter, however, anaerobic oxidation of methane is almost always present as an additional source of bicarbonate-ion.

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