

JOINT ANALYSIS OF HYDRO-OPTICAL PARAMETERS AND DISSOLVED METHANE IN WATER COLUMN OF THE BERING SEA AND THE EASTERN SECTOR OF THE ARCTIC

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The analysis of simultaneous measurements of the vertical profiles of the concentration of methane dissolved in seawater (CH₄), chlorophyll-a fluorescence, and colored dissolved organic matter (CDOM) in the Far Eastern seas and the Eastern sector of the Russian Arctic in August 2013 is presented. The work aims to search for indirect hydro-optical criteria that can indicate increased methane content in seawater. The task is relevant in connection with the importance of studying the Earth's climate system and developing remote methods for use in geophysical research. Analysis of the available data showed that in many cases, changes in the values of CH₄ and CDOM occur synchronously. At two stations where the CH₄ anomalies in the upper layer can be considered significant, an increase in the CDOM content was simultaneously observed. In the lower horizons of the water column, abnormal methane concentrations were found at individual stations, which most likely indicate the presence of geological sources of natural gases. At the same stations, an increase in the content of CDOM near the bottom was observed. A comparison of methane concentrations and chlorophyll-a maxima did not reveal a clear correlation between these parameters.

Keywords: Fluorescence, chlorophyll-a, colored dissolved organic matter, methane, East Siberian Sea, Chukchi Sea, Bering Sea

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