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Comparative Analysis of the Computer Methods' Usage for Calculation of Hydrocarbon Reserves in the Baltic Sea

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Abstract : Nowadays, the depletion of hydrocarbon deposits on the land of the Kaliningrad region leads to active geological exploration and development of oil and natural gas reserves in the southeastern part of the Baltic Sea. LLC 'Lukoil-Kaliningradmorneft' implements a comprehensive program for the development of the region's shelf in 2014-2023. Due to heterogeneity of reservoir rocks in various open fields, as well as with ambiguous conclusions on the contours of deposits, additional geological prospecting and refinement of the recoverable oil reserves are carried out. The key element is use of an effective technique of computer stock modeling at the first stage of processing of the received data. The following step uses information for the cluster analysis, which makes it possible to optimize the field development approaches. The article analyzes the effectiveness of various methods for reserves' calculation and computer modelling methods of the offshore hydrocarbon fields. Cluster analysis allows to measure influence of the obtained data on the development of a technical and economic model for mining deposits. The relationship between the accuracy of the calculation of recoverable reserves and the need of modernization of existing mining infrastructure, as well as the optimization of the scheme of opening and development of oil deposits, is observed.

Keywords : cluster analysis, computer modelling of deposits, correction of the feasibility study, offshore hydrocarbon fields
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