THE ANALYSIS OF THE RELATIONSHIP OF ORGANIC CARBON CONCENTRATIONS IN THE BAZHENOV FORMATION OF THE WESTERN SIBERIAN PLATE AND ROCK-FORMING AND TRACE ELEMENT CONTENT

[1]EDER, V.G., [2]ZAMIRAILOVA, A.G., [2]KRASAVCHIKOV, V.O. and [2]ZANIN, Y. N.
[1]Novosibirsk State University; [2]Institute of Petroleum Geology, Siberian Branch of RAS, Novosibirsk, Russia

Revealing and authentic mathematical description of the connection between the organic carbon content in the rocks and their chemical composition are the important aspects of the hydrocarbon source rocks analysis. This question was solved by authors for the carbonaceous rocks of the Upper Jurassic-Lower Cretaceous Bazhenov Formation of the West Siberian Plate. There were detected some groups of rock-forming (main) and trace elements from the content of which organic carbon concentrations in the rocks could be predicted with the help of regression analysis method. Two groups of wells were the objects of the investigation, the distances between which are 100-250km. Regression models were constructed for each of these groups by the combination of elements, provided the least standard error of the estimation. These are the combinations of 6 trace elements (Cu, Zn, Ni, Mo, V, U) and 11 rock-forming elements (SiO_2, TiO_2, Al_2O_3, Fe_2O_3, CaO, MgO, MnO, Na_2O, K_2O, P_2O_5, Ba) for the first wells group and the 7 former of the above-mentioned rock-forming (main) elements - for the second. Independent test wells were chosen, observed and predicted total organic carbon (TOC) contents of which are given below.Cluster of wells Cluster of elements Standard error of the estimation TOC content in test wells Real PredictedFirst Main 1,9 11,79 13,92 Trace 2,04 11,79 12,97 Second Main 1,17 9,68 10,21