

Gravity prospecting in petroleum geology

Slepak Z.

Kazan Federal University, 420008, Kremlevskaya 18, Kazan, Russia

Abstract

The paper reviews the results of the rock density studies based on laboratory, logging and gravimetry data. It has been shown that major anomalous changes in the gravity field are due to lateral density variations adequately reflected in the block structure of the consolidated crust and in local structures of the sedimentary cover. The paper describes the gravity modelling technique that uses the density variations detected in the Earth's crust and permits the density modelling of geological environments and structures by Bouguer anomalies. It gives examples of successful gravity inversion solutions for the central portions of the Russian Plate and other regions of significant importance in oil and gas exploration. The paper also shows the high geological efficiency of gravity modelling used for studying the block structure of the consolidated crust and for exploring the local structures containing oil and gas fields.
