

Current Science 2014 vol.107 N12, pages 2029-2035

Carbonate formation of the Lower Carboniferous in central part of Volga-Ural basin

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Abstract

Carbonate rocks of the Lower Carboniferous (Tournaisian stage) of the central Volga-Ural basin (the eastern portion of the East European platform) are of practical scientific interest to geologists, particularly because they contain large reserves of oil. Although such layers have been studied, various questions pertaining to development of sedimentation schemes for the rocks have not been answered. We have attempted to resolve these by studying a wealth of drill core materials. The study involved structural and genetic analysis of rocks and facies reconstructions. The rocks are mainly represented by different types of shallowwater limestone. The thickness of coeval layers and their lithological structures changes from well to well within an oilfield, primarily due to the different environments of sedimentation during the Tournaisian stage. Therefore, to identify the characteristics of carbonate sedimentation, we have studied the sequences of different types of limestone and analysed their thickness. As a result, we have developed principle schemes of sedimentation for shallow-water carbonate rocks of the Tournaisian stage. This may help in the predictive search for reservoir rocks in the region of study.

Keywords

Limestone, Oil prospects, Seabed topography, Sedimentation, Wave base level