Sedimentary Characteristics and Chronostratigraphy of Upper Miocene to Pliocene in Offshore Rakhine Basin, Bay of Bengal

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Abstract

As an active continental margin basin, Rakhine Basin can be divided into the submarine plain in the west and the Rakhine fold belt in the east. It experienced three evolution stages: the embryonic stage (Late Cretaceous-Paleocene), collision stage (Eocene-Oligocene) and quick collision stage (Miocene-Pliocene). Drilled wells show that the strata are mainly Miocene-Pliocene. Currently the stratigraphic correlation is still in dispute, which is fatal to the next petroleum exploration directions.

The sedimentary facies distribution of the study area was accomplished in this study. The reservoir rocks are mainly developed in the littoral-shallow sea, delta and turbidite fan sedimentary systems. The small-sized trench-slope basins may be host to the medium- or small-sized block oil-gas pools dominated by natural gas. More than 300 samples from 6 wells were used to analyze the microfossils in order to study the chronostratigraphy and the paleoenvironments. 26 foraminifers genera (55 species), 23 calcareous nannofossils genera (43 species), and 6 dinoflagellates genera (10 species) were identified to correlate from Miocene to Pleistocene. The paleoclimate in Miocene-Pleistocene and the change of sedimentary environment were confirmed. Systematic geological study shows that there is great potential of huge gas reserves in the deep area of the Miocene in offshore Rakhine Basin, where there is a nice regional assemblage of rock, reservoir and caprock.