Structural Model Approach of the Chelif Basin, North Algeria

Rachida Ghazli
Sonatrach, Upstream Activity, Exploration Division, Avenue du 1er novembre, BP 68M Boumerdès 35000 Algérie

This paper is focused on the interpretation of the middle part of the Chelif basin of the seismic reflection profile.

The structural model is based on the geometry of the basin integrating various data sources. (Surface geology, well data, seismic cross-sections, gravity data). Available wells are the deepest ones of the region. The interval velocities used for the inversions of the principal profile were chosen from the seismic lines.

The Chelif basin is located in the western part of North Algeria. It corresponds to a tertiary basin with three sedimentary cycles, Lower Miocene, Upper Miocene and Pliocene. These deposits overlay on a basement undifferentiated, separated by the alpine unconformity. Many periods of deformation are recorded and such a structural model was involved.

It is defined as a piggy-back basin over a main basal detachment corresponding to the cretaceous marls and sometimes to the Triassic salt. I tried to propose a thick-skinned style involving the Palaeozoic deposits beneath Mostaganem plateau and thin-skinned through the south border of the basin.

The potential of this basin is enhanced by two important oilfields discovered in the thirteen's and named Ain Zeft and Tliouanet, situated respectively in the northern border and the southern one of the basin. The principal sandy reservoirs are tertiary, corresponding essentially to the basal terms of the Lower and Upper Miocene.

The geochemical modelling (Genex) took in account the different geological events and revealed positive results in terms of timing and source rocks especially the basement (Cretaceous, Palaeocene).

Key-words: Piggy-back, thin-skinned, thick-skinned, petroleum potential.