Apport of the Modelling to Reconstitution of Oil Histiry of the Qasbat-Tadla Basin (Central Morocco)

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The presence of seismic anomalies and the identification of an important petroleum source rocks in the Qasbat Tadla basin, mature incites to a modelling which roving to the reconstitution of oil history of the basin. This modelling is based on a simulation of the organic matter evolution during its burial, which is governed by the chemical mechanisms of depolymerisation. The burial simulation integrates the main geological and geochimical concepts. The reconstitution of the basin thermal burial history consists in determining amounts geothermal gradient which takes into account the evolution of lower Silurian source rocks and all thermal phenomena which took place in the basin during the geological time. This flux can be simulated at the transformation rate of the organic matter that can be deduct from the evolution curve of the IH versus to the depth. The geodynamic evolution of the basin can be simulated to pale burial curve of source rocks.

The simulation permitted to determine the main periods of formation and the extrusion of hydrocarbons The generation of hydrocarbons occurs in two phases. The first phase (Tournaisian – Visean) is generalized for all the basin. The generation continues until the upper Visean and Namirian in the gutter piggy-back and gutter synclinal respectively. The second phase which corresponds to the uplifed anticline and last from the Permian until the end of the Jurassic. The extrusion of hydrocarbons takes place also in two phases. The first phase (Tournaisian -upper Visean) is generalized for all the basin and the second phase (Permian-Jurassic) is peculiar to the central sector. Their mature character having produced the considerable quantities of hydrocarbons of which a great part (until 50%) migrated toward the potential traps.

Key words : simulation - Genex model - organic matter generation - extrusion - hydrocarbons.