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**EVALUATION OF THE HYDROCARBON SYSTEM OF THE SBAA
BASIN (WESTERN ALGERIA) BY BASIN MODELING**

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In this paper the results of the evaluation of the hydrocarbon system of the Sbaa basin in Western Algeria through basin modeling studies are presented. Indeed, the Sbaa basin, a structural entity linked to the Ougartian ranges is the only known sector in the Western Sahara "Gas Province" where liquid hydrocarbons have been found in addition to gas.

The evaluation was based on a geological synthesis of seismic data and wells available allowing to decipher the stratigraphy of the Palaeozoic and the structural history of the basin mainly related to the Hercynian orogeny during Late Carboniferous.

The synthesis of geochemical data included new compositional analyses of the "radioactive" Silurian source rock, still immature in some parts of the basin, allowing to define precisely the ability for cracking with respect to burial and AFA data.

In addition to the "radioactive" Silurian source rock, the Silurian Carbonate and the basal Frasnian source rocks were taken in account. The main reservoirs considered are the Cambrio-Ordovician sandstones, the early Devonian sandstones and the Strunian-Tournaisian sandstones with in particular the Sbaa sandstone of excellent reservoir quality.

Multi-1D modeling was performed on the whole basin for defining maturity of the source rocks and the volume and type of expelled hydrocarbons through time, as well as 2D modeling for understanding the dynamics of hydrocarbon migration.