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SUBCROP MAPPING "ANTE-MESOZOIQUE" USING SEISMIC ATTRIBUTE ANALYSIS, Application on the block 423

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The 'Triassic province' is characterized by one of the most important plays of the Algerian Mining Domain. This play is part of the petroleum system which is generally structurally controlled. The traps are fault related. The reservoir is represented by sandstones of continental deposits type, they are charged by the Silurian source rock.

The absence of the Silurian source rock immediately under reservoirs units represents one of the major risks of this play.

The assessment of the presence of the source rock (clay shales of the Silurian) under The Hercynian Unconformity, either by conventional techniques of interpretation or by drillings, remain very difficult. Nevertheless, a detailed analysis of seismic amplitudes may help to solve this conflict. The technique allows the identification of the different underlying formations and in particular units of the Silurian. The approach can be subdivided in four (4) stages:

- **1st stage**: Modeling of reflection coefficients according to the different lithologies.
- **2nd stage**: Characterization of the seismic signature bounded to the presence of the Silurian under The Hercynian Unconformity.
- **3rd stage**: Assessment of the "Tuning effect" on the seismic signature.
- **4th stage**: Removal of the shallow layers effect on the seismic signature (absorption, heterogeneity…) by normalizing of amplitudes at the "Hercynian Unconformity" relatively to the amplitude effect bound to "S3" and construction of a map of the amplitude ratio:

Ratio map (Hercynian Unconformity / S3).

This technique allows the mapping in "Pseudo-subcrop map" at the level of Hercynian Unconformity, characterizing the distribution of the source rock in the absence of wells.