

**Rock Typing: Reservoir Determination from rock - fluid interaction and dynamic behavior : Case Study from an Algerian Oil Field Reservoir**

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**Abstract**

Rock typing is a process of rock classification based on mineralogical composition, grain shape pore size distribution (PSD) and communication. In addition to rock-fluid interaction, dynamic behavior and the capillary effect are also considered. In that purpose data need process involve: integrating, analyzing and synthesizing data brought out from different source: Petrophysics, cores analysis, well tests, MDT tool and production profiles. Achievement of rock typing reservoir based on fluid - solid behavior and their relation constitute an important issue not only for making distinguished different rock types but also for fluid gas contacts.

For the case study, our investigation is concerned with the determination of the rock type dynamism resulting in reservoir rocks having similar dynamic behavior. Outcome from this process is to establish a representative petrophysical model able to predict any effect own to the change of the rock properties or fluid characteristics. Establishment of numerical model in that context, and its relative changes can be ascribed to rapid petrophysical variation characteristics: related to pore size, geometry, grain size distribution, fluid behavior and circulation with essential reference to permeability. This latter can affect the simulation time and consequently, the accuracy in the calculation process.

In this conducted investigation, application of linear regression method is involving permeability and porosity core measurement, stressing on their coefficient of correlation. Results have led to different clusts classification according to the linearity regarding permeability-porosity changes. Extrapolation can be made for the non cored reservoir sections or non cored boreholes associated to the considered field. In that principle geological models can be set.

Application of these listed method for TAGI (Trias Argilo-Greseux Inferieur: Lower detrital – Clayer Triassic Formation) in Hassi Berkin Basin (Algeria) has revealed the presence of three main rock types: sand type 1, sand Type 2 and sand type 3.