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A simplified approach to hydraulic units' prediction with the aid of wireline logs

Richardson Abraham-Adejumo University of Sao Paulo, Brazil

Tireline logs data are quite handy and can be preserved over a longer period when compared with core samples, as such; they are readily available for researchers. Nonetheless, the choice of the values of the factor of tortuosity (a) and cementation factor (m) when using wireline logs alone for evaluation could vary, depending on the discretion of one researcher to the other. Hence, with the same data for any evaluation by different researchers, there are possibilities of seeing slightlynotable-to-notable differences in the results. This work tries to review the uses of the values of a and m over time, and suggest modified equations that are not dependent on the direct computation of formation factor (F) and irreducible water saturation (Swiir). For details studies, F, Swiir, free fluid index (FFI) and porosity (Φ) are usually evaluated at some intervals of depths. This study is intended to reduce the variation in the results that may come with the choice of the values of these factors (a and m) within the same formation and minimize drudgery. The direct relationship between porosity and other parameters, such as permeability (K), reservoir quality index (RQI) and flow zone indicator (FZI) was helpful to simplify the equation for each of them. FFI is a measure of the moveable hydrocarbon, and RQI and FZI are used to predict the reservoirs flow units. A simplified approach involving the suggestion of handier equations for FFI, K, RQI, and FZI, with quick-look models for the prediction of flow units, was presented.

Biography

Richardson Abraham-Adejumo has completed his MTech (Exploration Geophysics) and currently completing his PhD under the supervision of Prof Fabio Taioli at the Institute of Energy and Environment (IEE), University of Sao Paulo (USP), Brazil. He has published 4 papers in reputed journals. While he is working on the sixth paper, the fifth is under review for publication in the Journal of Marine and Petroleum Geology (JMPG) in Elsevier. His main area of interest is petroleum geology/geophysics with the bias for petrophysics and seismic methods for hydrocarbon exploration. He is well informed in environmental/engineering geophysics and groundwater geophysics.

abrahamrichardson@usp.br

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