

Determination of Reservoir Rock Types Based on Wire Line Logs by Using Fuzzy Logic Method in a Mixed Siliciclastic and Carbonate Reservoir in Southwest Iran

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Finding and developing oil and gas resources requires an exact analysis and knowledge of the reservoir's behavior and its fluids. The first step in prediction of reservoir's behavior during production is identification of reservoir rock types. Distinction of reservoir rock types is necessary to distinguish of flow units and their vertical and horizontal connection.

Determination of reservoir rock types in traditional method is based on three main parameters including lithology, pore geometry and range of porosity and permeability. This approach is not only time consuming but also very expensive (because of preparation of cores, as the main source data). Therefore, in the present study, Fuzzy Logic and Fuzzy Possibility applied as an artificial intellect for identifying reservoir rock types on the basis of wire line logs. Wire line logs data were used in this study are belonged to six wells in a giant field in southwest of Iran.

Results of this research show that the Fuzzy Logic method has been proved to be successful in determining of reservoir rock types. By using the method, not only all the reservoir rock types were recognized but also accuracy of the results in some reservoir rock types is more than 80% in comparison to the traditional method.