Abstract

Artificial neural networks (ANNs) are weightily parallels, distributed processors, constituting of numerous simple processing units that are used to solve the complex problems. In this paper ANN was used to present complex relation between water-oil relative permeability key points and rock and fluid properties for multiphase flow in porous media. In this research 200 relative permeability curves from Iranian carbonate were used to reach the ultimate goal. 6 key points which contains end points and the crossover points, were considered for each curve. ANN was then used to predict these key points from different rock and fluid properties. ANN presents very high correlation coefficients in the range of 0.85 to 0.95 for Kr key points. The results proved that ANN is an appropriated tool to predict water-oil relative permeability in porous media with high accuracy when the needed core and fluid properties are available.

References


Index Terms

Computer Science
Artificial Intelligence
Keywords

Soft computing  Artificial Neural Network (ANN)  Water-oil relative permeability
Multiphase flow