World Academy of Science, Engineering and Technology
International Journal of Educational and Pedagogical Sciences
Vol:9, No:08, 2015

A Neural Network Modelling Approach for Predicting Permeability from Well Logs Data

Authors : Chico Horacio Jose Sambo

Abstract : Recently neural network has gained popularity when come to solve complex nonlinear problems. Permeability is one of fundamental reservoir characteristics system that are anisotropic distributed and non-linear manner. For this reason, permeability prediction from well log data is well suited by using neural networks and other computer-based techniques. The main goal of this paper is to predict reservoir permeability from well logs data by using neural network approach. A multi-layered perceptron trained by back propagation algorithm was used to build the predictive model. The performance of the model on net results was measured by correlation coefficient. The correlation coefficient from testing, training, validation and all data sets was evaluated. The results show that neural network was capable of reproducing permeability with accuracy in all cases, so that the calculated correlation coefficients for training, testing and validation permeability were 0.96273, 0.89991 and 0.87858, respectively. The generalization of the results to other field can be made after examining new data, and a regional study might be possible to study reservoir properties with cheap and very fast constructed models.

Keywords : neural network, permeability, multilayer perceptron, well log
Conference Title : ICERI 2015 : International Conference on Education, Research and Innovation
Conference Location : Kuala Lumpur, Malaysia
Conference Dates : August 24-25, 2015