World Academy of Science, Engineering and Technology
International Journal of Computer and Information Engineering
Vol:14, No:06, 2020

Research on Reservoir Lithology Prediction Based on Residual Neural Network and Squeeze-and- Excitation Neural Network

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Abstract : Conventional reservoir prediction methods ar not sufficient to explore the implicit relation between seismic attributes, and thus data utilization is low. In order to improve the predictive classification accuracy of reservoir lithology, this paper proposes a deep learning lithology prediction method based on ResNet (Residual Neural Network) and SENet (Squeeze-and-Excitation Neural Network). The neural network model is built and trained by using seismic attribute data and lithology data of Shengli oilfield, and the nonlinear mapping relationship between seismic attribute and lithology marker is established. The experimental results show that this method can significantly improve the classification effect of reservoir lithology, and the classification accuracy is close to 70%. This study can effectively predict the lithology of undrilled area and provide support for exploration and development.

Keywords : convolutional neural network, lithology, prediction of reservoir, seismic attributes
Conference Title : ICUIC 2020 : International Conference on Ubiquitous Intelligence and Computing
Conference Location : New York, United States
Conference Dates : June 04-05, 2020