

عنوان مقاله:

Applying deep learning method to develop a fracture modeling for a fractured carbonate reservoir using geologic, seismic and petrophysical data

محل انتشار:

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نویسندگان:

.Fateme Heydarpour - School of Mining Engineering, College of Engineering, University of Tehran, Tehran, Iran

.Abbas Bahroudi - School of Mining Engineering, College of Engineering, University of Tehran, Tehran, Iran

خلاصه مقاله:

Fractures are one of the most important geological features that affect production from most carbonate reservoirs. A large amount of the world's hydrocarbon resources are located in fractured reservoirs and the identification of fractures is one of the important steps in reservoir development. Due to the high cost of tools that are used in the petroleum industry to identify fractures such as image logs, and their inaccessibility in most of the studied areas, it is often tried to use other available data to identify fractures. Due to the ever-increasing progress of data-driven methods such as neural networks and machine learning, this study has tried to apply a 1D-Convolutional Neural Network (1D-CNN) which is one of the deep learning algorithms on well-logging data and seismic attributes in a carbonate reservoir to identify the existing fractures in the investigating area. The approach used in this research is a binary classification which is applied first in the well location. To validate the method, results are compared with the reports obtained from image logs. Finally, the fracture density map is drawn in the entire reservoir area.

کلمات کلیدی:

carbonate reservoirs, Deep learning, Fracture detection, Machine learning, seismic attributes, well logging data

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