عنوان مقاله:

Wellbore Instability Prediction by Geomechanical Behavioral Modeling in Zilaie Oil Field

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خلاصه مقاله:

Wellbore instability is a critical problem during oil and gas reservoirs' drilling and production phase, for which analytical, numerical, experimental, and field methods have been widely discussed. Because of the limitations of the mentioned techniques for predicting the different types of wellbore failures, the problem is still open. Although well logs provide a great source of big data for instability prediction, data-mining techniques have not matured in this domain. This paper explains how an AI-based method can be applied to instability detection/prediction. Unlike other data mining studies in this field, we proposed a systematic approach that can be traceable by the readers. We used several classification algorithms (e.g., Bayesian network, SVM) and found that the C5 decision tree algorithm has the best precision. We show the effectiveness of the method by applying the method to a dataset with about ۳۰,۰۰۰ records of wellbore logs, getting an accuracy of ۹۱.۵%.

کلمات کلیدی:
Wellbore Stability, Well Log, Data mining, AI prediction