



Soft Computing on Reservoir Characterization & Production Forecasting

By Chithra Chakra N C

LAP Lambert Academic Publishing Mrz 2017, 2017. Taschenbuch. Condition: Neu. Neuware - Production forecasting and reservoir modeling play vital roles in optimal field development plan and management of petroleum reservoirs. This motivates engineers to develop computationally efficient and fast numerical methods capable of constructing history matched reservoir models producing reliable production forecasts. Relatively two new soft computing techniques successfully applied for automatic history matching and production forecasting. The first approach is artificial neural networks (ANN) based modeling, and the 2nd is genetic algorithm (GA) based optimization. A higher-order neural network (HONN) with higher-order synaptic operation (HOSO) architecture that embeds linear (conventional), quadratic (QSO) and cubic synaptic operations (CSO) used for forecasting real field oil production. For automatic history matching problem through reservoir characterization, a global optimization method called adaptive genetic algorithm (AGA) was employed. Adaptive genetic operators of AGA dynamically adjusts control parameters during evolution. The performance of both soft computing methods in achieving fast convergence rate and reduced computational efforts are presented in this book. 256 pp. Englisch.



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