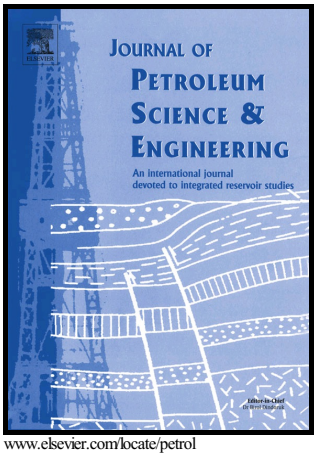

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Abstract

This paper applies graph centrality measures to suggest a competitive placement of perforation zones in oil reservoirs. Datasets available in an online repository are used to build a synthetic field model in which porosity and permeability are known everywhere. From this field, a reservoir associated to a central oil well chosen randomly is extracted so as to form a volume containing distinct groups of petrophysical regions. Combined with the well-known FZI/DRT (flow zone indicator/discrete rock type) techniques, which identifies hydraulic flow units by means of linear regression best-fit lines and conversion formulae, high-performance clusters, as well as their respective target zones, are identified in the reservoir. Each cluster is modelled as an irregular set of face-connected cells and additionally mapped onto undirected graphs. Individual numerical simulations of production wellbores placed at testing and target zones are performed for several clusters. We find that when the wellbores are placed exactly at those vertices whose closeness cen-

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