

GEOSCIENCES AND REMOTE SENSING

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Conceptual fracture model for bai hassan oil field using the qara chauq anticline as an analog

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The Bai Hassan field is folded structure in the foreland area of the Zagros Mountains of north-eastern Iraq. The structure has hydrocarbon accumulations in Tertiary and Cretaceous reservoir strata. Fractures are thought to provide the most important permeability in the field, and the lack of oriented fracture data hampers the ability to model fracture permeability within the reservoirs. To the west of Bai Hassan is the Qara Chauq structure. There are strong similarities between Qara Chauq and Bai Hassan, including (i) The exposed strata at Qara Chauq are thought to be the same as the reservoir units at Bai Hassan, and (ii) Both are elongate sigmoidal anticlines. The lack of available subsurface data to constrain the fracture patterns at Bai Hassan led to the idea that analysis of the surface exposure of reservoir analog strata at Qara Chauq might provide insight into the fractures present at reservoir depths in Bai Hassan field. The purpose of the project described here is to generate a conceptual fracture model applicable to the Bai Hassan field using the most appropriate available data. Having generated this model, the goal is to provide a protocol for applying numerical results from the analysis to reservoir simulations of Bai Hassan field. Fieldwork and aerial photo datasets that been used as an interpretation base for fractures exposed around Qara Chauq. Although time constraints precluded mapping the entire visible fracture population, representative structural positions were targeted to produce an interpretable data set in a timely fashion.

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