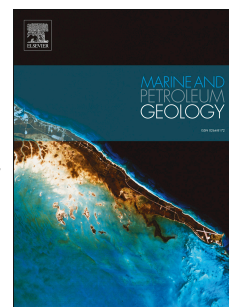


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Sources of quartz grains influencing quartz cementation and reservoir quality in ultra-deeply buried sandstones in Keshen-2 gas field, north-west China

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Abstract

Quartz cementation is a critical factor in the reservoir quality of ultra-deeply buried sandstones because of the high temperature and high-pressure at great depths. Therefore, determining the main influences retarding the growth of the quartz overgrowths is important for predicting the sweet spots of tight gas sandstones. The vast Keshen-2 gas field in Kuqa Depression is typical of such ultra-deep gas fields, despite the porosity and permeability of the target sandstones in the Lower Cretaceous Bashijiqike Formation being less than 10% and 0.5 md, respectively. The main gas reservoirs had been buried previously to a depth of 7000 m, with the maximum fluid temperature approaching 160 °C, in which authigenic quartz cements are extremely common. The heterogeneity of the physical properties and quartz cementation was

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