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Numerical Simulations for Short-Term Depressurization Production Test of Two Gas Hydrate Sections in the Danube Fan of the Black Sea

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Abstract

Gas hydrates are considered as a promising energy source and the Black Sea has a high potential of gas hydrates. The Danube Delta of the Black Sea is the most well-known prospect in the Black Sea after many geological and geophysical studies such as bottom-simulation reflectors (BSR) and electromagnetic surveys. In this study, gas production simulations from two gas hydrate layers (6m thick hydrate layer at 60 mbsf and 30 m-thick hydrate layer at 140 mbsf above BSR at 350 mbsf) at the same locations with approximately 50 % hydrate saturation in the Danube Fan of the Black Sea were run with depressurization method separately at 2 MPa, 3 MPa, 4 MPa, 5 MPa, and 6 MPa by using HydrateResSim numerical simulators. Moreover, different production tests strategies were suggested in this region.

Keywords: gas hydrate, Black Sea, Danube fan, depressurization, HydrateResSim, simulation

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