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# Hydrate Dissociation in Porous Media

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## ABSTRACT

Methane hydrate is viewed as a new resource of energy in the 21st century and attracts recent attentions due to its large amount on the earth. This paper describes a one dimensional mathematical modeling of methane hydrate dissociation in porous media through the combination of thermal stimulation method and depressurization method. A moving front which separates the total simulation into two zones is included in this modeling. A coordinate transformation method is used to fix the location of the moving front. The partial differential equations are discretized into ordinary differential equations using the method of lines. Comparison with analytical solution shows quantitatively agreement between the numerical method and the analytical solution. Parameter study shows that increase of well temperature (at constant well pressure), decrease of well pressure (at constant well temperature) and increase of initial temperature can result in faster hydrate dissociation and higher gas flowrate at the well.