Geophysical Research Abstracts
Vol. 14, EGU2012-7496, 2012
EGU General Assembly 2012

Development of a Large-Scale Laboratory Vessel for Methane Hydrate Production Tests

J. Nagao, H. Oyama, Y. Konno, and Y. Jin

National Institute of Advanced Industrial Science and Technology, Methane Hydrate Reseaech Center, Sapporo, Japan (jiro.nagao@aist.go.jp)

Natural gas hydrates, in which hydrocarbon molecules are encaged in water cage structural molecules, are valuable resources. To utilize these resources, the establishment of a gas production technology and investigation of suitable conditions for extraction of methane from methane hydrate reservoirs are important. On the one hand, core-scale dissociation experiments give us the reproducible results on quantitative parameters on the methane hydrate dissociation under various conditions. On the other hand, a production test at a real methane gas hydrate reservoir would provide information about the type of dissociation phenomena. The natural gas production behaviour is dependent upon the size and characteristics of reservoirs, such as temperature and permeability. In other words, while a core-scale dissociation experiment can demonstrate the heat transport process, dissociation in an actual geological reservoir is dominated by the material flow process. Thus, it is important to couple data obtained from core-scale tests with the results of field-scale tests by using a large-scale laboratory vessel which can provide dissociation experiments under the similar conditions of actual reservoir. On this presentation, the research objective and certification of a large-scale laboratory vessel for methane hydrate production tests at the Methane Hydrate Research Center of the National Institute of Advanced Industrial Science and Technology are presented. Comparison between the experimental result for depressurization and its numerical prediction are described.