Ph.D. THESIS DEFENSE ANNOUNCEMENT

*****REVISED DATE*****

HYDATE-BEARING SEDIMENTS: FORMATION, PROPERTIES, and DISSOCIATION

By
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Location: SEB 122

Abstract:

Hydrate-bearing sediments may contribute to the availability of energy resources, affect climate change, or cause seafloor instability. The comprehensive study of hydrate-bearing sediments documented in this manuscript includes physicochemical aspects of hydrate nucleation near mineral surfaces, the validity of THF as a substitute guest molecule for the study of hydrate-bearing sediments, and the effects of hydrate formation on the electromagnetic and the mechanical properties of various soils with a wide range of specific surface. Natural marine sediments are included as part of this investigation to explore the effects of inherent fabric, salts, organic matter, and stress history on the geophysical properties of hydrate-bearing sediments. Experiments are designed to reproduce the state of effective stress in the field at the time of hydrate formation. A comprehensive set of instruments is deployed in this study, and the unprecedented development of electrical resistivity tomography for the study of hydrate formation and dissociation is also documented in detail. Results from this research have important implications for geophysical field characterization and monitoring processes such as production.