Geophysical Research Abstracts
Vol. 12, EGU2010-7341, 2010
EGU General Assembly 2010

Preliminary results of P-wave velocity reference curve for glacigenic and highly compacted sediments and velocity analysis for the estimation of gas hydrate along the profiles in the Knipovich ridge, Offshore SW-Svalbard

Anupama Rajan (1,,), Jurgen Mienert (2,,), Stefan Buenz (3,,), Shyam Chand (,)

(1) University of Tromso, Tromso, Norway (anupama.rajan@uit.no), (2) University of Tromso, Tromso, Norway (jurgen.mienert@uit.no), (3) University of Tromso, Tromso, Norway (stefan.buenz@uit.no), () NGU, Trondheim, Norway(shyam.chand@ngu.no)

Preliminary results of P-wave velocity reference curve for glacigenic and highly compacted sediments and velocity analysis for the estimation of gas hydrate along the profiles in the Knipovich ridge, Offshore SW-Svalbard

The study is mainly based on two multi channel reflection seismic profiles acquired along an assumed magmatic segment of the ultra slow spreading Knipovich ridge. Prominent Bright spots were observed in the preliminary results, separating anomalously high P-wave velocities in the GHSZ from a remarkable underlying low velocity zone, indicating the presence of gas hydrate. Based on this data preliminary p-wave models were modelled for the line. Three reflectors are interpreted within the sedimentary sections on the seismic section dividing the sediments into the pre-glacial sequence G0 and the glacial sequences GI, GII and GIII. From velocity modelling, the velocities in these sequences from the seafloor to the top of the oceanic crust are observed to vary from 1.6 to 3.2 km/s. The high velocity in the seafloor is interpreted due to the presence of debris flow. Based on this preliminary p-wave velocity data a model for gas hydrate concentration was obtained using the differential effective medium theory. The model predicts saturations approximately up to 15% in the hydrate reservoir. From the analysis of the data the oceanic crust in the study area is suspected to be serpentized. The possible serpentinization of the oceanic crust will be investigated further to gather detailed information of the serpentized oceanic crust.