

Oil & Natural Gas Technology

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Quarterly Progress Report (July – September 2007)

Gas Hydrate Instability in the Southeastern Bering Sea

Submitted by:
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National Energy Technology Laboratory

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Office of Fossil Energy

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Date: 31 October 2007
Period: July to September, 2007
NETL Manager: Robert Vagnetti
Principal Investigator: **Lloyd Keigwin**

Progress

Task # 7.0
Task AMS ¹⁴C Dating

We are awaiting results for the last ¹⁴C dates for this project.

Task # 9.0
Task Data Analysis and Hypothesis Testing

In the last quarter, we concluded that the organic and inorganic geochemical data we collected were consistent with the authigenic carbonate layers being deposited in a sulfate-methane transition zone during a time with high vertical flux of methane. We hypothesized that if methane was escaping from the sediment, the SMTZ would be at the seafloor and would affect the benthic foraminifer community. This quarter, we completed the counts of the relative and absolute abundance of benthic foraminifera across the authigenic carbonate layers in both 51JPC and 57JPC. We find significant shifts in the species distribution in most of the authigenic carbonate layers, with an increase in *Nonionella sp.* and a decrease in *Uvigerina peregrina*. That we find a change in the benthic foraminifer community in synch with the geochemical signatures of anaerobic methane oxidation implies that the SMTZ was at the seafloor and methane could have been escaping from the sediment.

Task # 10.0
Task Final Report

We are currently preparing a manuscript for publication, which will also be the basis for the final report.

Schedule

In the next quarter, we will complete the final report and submit the manuscript for publication.

Other Activities

Mea Cook presented a poster on this project at the 9th International Conference on Paleoceanography in Shanghai, China, in the first week of September. Dr. Cook was also invited to give a talk to undergraduate Environmental Sciences majors at Mills College in Oakland, CA, where she presented the results of this project.

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