

14<sup>th</sup> Oct 00:00 – 14<sup>th</sup> Oct 24:00 GMT

### 1. Location

18° 15.260 E 58° 37.350' N

BSB-9 Landsort Deep

### 2. Activity Summary

Complete coring operations at BSB-9, Hole C and commence coring at Hole D.

### 3. Science Report

Coring of Hole M0063C had reached 40 mbsf and we continued piston coring down through highly methane enriched bluish-gray clay. Core expansion was less visible through the core liner than further up in the hole but apparent core recovery was still exceedingly high, about 150% in average, which clearly showed a strong expansion by bubbles trapped and growing inside the clay. It was noted that the relative expansion was sometimes greater at this depth than further up in the hole, probably because of a more firm texture of the sediment that kept the bubbles trapped inside the core rather than allowing them to escape to the outside as had happened in the more fluid sediment above. Only at a depth of 52 mbsf could the depth increment be increased to 2.5 m and from 55 mbsf the expansion ceased. Core recovery was close to 100% and depth increments were increased to the normal 3.3 m run. This was also the depth where the methane concentrations measured in Hole M0063A dropped from very high, supersaturated values to a few mM. At a concentration of about 1.5 mM the partial pressure of methane is one bar and methane is therefore no longer degassing in the retrieved cores.

From 57 mbsf a varved glacial clay was recorded at some levels containing small portions of sand and silt. The varve thicknesses varied between some millimeters in the upper part of the sequence up to several centimeters in the lower part where the color also changed from grayish clay into a reddish gray. At 93 mbsf a sandy clayey diamicton was encountered overlying well sorted gravel. It was decided to end Hole M0063C at this level to avoid the risk of having the drill string stuck in the gravel.

The *Greatship Manisha* moved c. 20 meters to the NNW and Hole M0063D was established. The first piston corer was released 1.8 masf and the sediment penetration was 1.5 meters. Recovery was more than 200% at this level due to heavy expansion of the sediment as a result of the high methane content already near the sediment surface. The sediment itself consisted of a dark greenish-black gyttja-clay displaying rare benthic foraminifera, abundant pollen, diatoms and lots of organic material. From a depth of 5 mbsf the sediment became darker, almost black in color, and the expansion resulted in a recovery of almost 185%. Fossil content was more or less similar to the first core, displaying benthic foraminifera, diatoms, pollen and lots of organic material.

### 4. Core Recovery Details

Hole	M0063C	M0063D
Cores recovered	19	5
Drilled length (Coring)	51.4m	9.5m
Drilled length (Open hole)	3m	0
Recovered length	54.96m	14.63m
Recovery	111.26%	154%
Depth at Midnight	96.4m	9.5m

### 5. Weather

Overcast, wave heights of 0.4 – 1.1 m; winds swinging between E - W, 7 - 10 kts, gusting to 15 kts; 14°C. Next 24 hrs: Fair, wave heights of 0.5 – 0.7 m, winds from W to NNW, 13 –15 kts, gusting to 19 kts. 16°C. Moderate winds will decrease by Wednesday as a weak ridge builds over the area, but will build again later in the week as a low pressure system moves in from the west.

**6. Planned Activity for the next 24 hours**

Continue coring operations at BSB-9, Hole D

**7. Photo of the day**



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Expanding 2m piston coring run in a 3.3m liner, BSB-9