Expedition Log for IODP Expedition 313
New Jersey Shallow Shelf

Week 2 - 16th May 2009

Week 2 of our expedition has just ended, and we have made excellent progress with our coring. We are now over 500 metres below the sea bed, and have pulled over 180 cores of sediment back to the surface. A big thank you to our drillers!

Microbiologist and geochemist Susanne Stadler is preserving samples taken from the cores to look for signs of life deep below the sea floor.

Deep underground, there is more than just rock. There is life, and lots of it. Deeply-buried sediments, like the kind we are currently coring, are home to masses of poorly understood microbial communities. The extent of this 'deep biosphere' is suspected to be huge – perhaps half of all prokaryotic cells on Earth live in sediments below the sea floor. The microbial communities below the sea floor are fed by organic carbon produced by more familiar life forms living, and dying, in the oceans above. Even though only a small fraction of this organic carbon reaches the sea floor, it may be enough to feed the microbial communities as they become buried through time. Surprisingly, living prokaryotic cells have been found in sediments up to 16 million years old, buried more than 400 m below the sea floor. Just how deep life can be found below the sea floor is one question this Expedition may help to answer. Samples taken from the cores collected during this Expedition (Photo 1) will be analysed during the next few months to detect and measure the microbial communities living in the deeply buried sediments.

Photo 1. Susanne Stadler takes samples for microbiology analyses, taking care to avoid contaminating the samples before they are safely preserved (*David McInroy©ECORD/IODP*).

A selection of this week's photos

The drill rig, which hangs over the bow of the *L/B Kayd*, lowers the drill string into the sea bed (*Dave Smith©ECORD/IODP*).

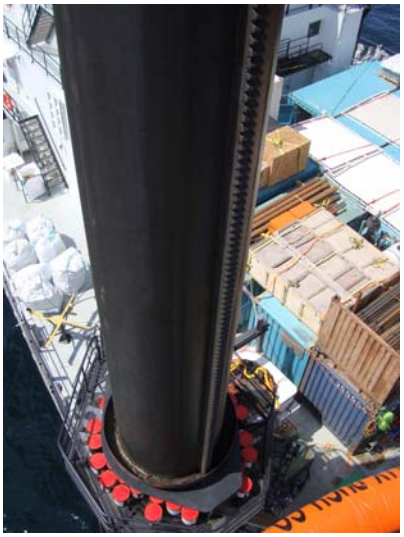
The 'Billy Pugh' transfer basket takes some volunteers for a unique photo opportunity. From left to right: Susanne Stadler (Microbiologist), Graham Tulloch (Drilling Coordinator), Hans-Joachim Wallrabe-Adams (Database Manager) (*Dave Smith©ECORD/IODP*).

Two members of the team take a well earned break. From left to right: Carl Peters (ESO curator), Martin Kölling (ESO Geochemist and part time rock star) (*Jenny Inwood©ECORD/IODP*).

A selection of coring tools. From left to right: extended nose corer, full-face insert bit, ALN rotary corer (x2), outer drill bit. The 4 coring tools on the left fit into the outer drill bit to form the bottom hole assembly, which drills out the sediment and cuts the core (*Carl Peters©ECORD/IODP*).

1st Mate and crane operator Linton Charpentier operates the *L/B Kayd's* main crane to load supplies.

Cook Allen Prestenbach ('Bones') gets the barbeque going on the rear deck of the *L/B Kayd*.



Looking down one of the *L/B Kayd's* legs from the 'Billy Pugh' basket.

Under the *L/B Kayd*, looking from the bow to the rear leg. The thin pipe in the foreground is the drill string lowered from the drill rig.