

**Expedition Log for IODP Expedition 325
Week 7
Great Barrier Reef Environmental Changes**

30th March 2010

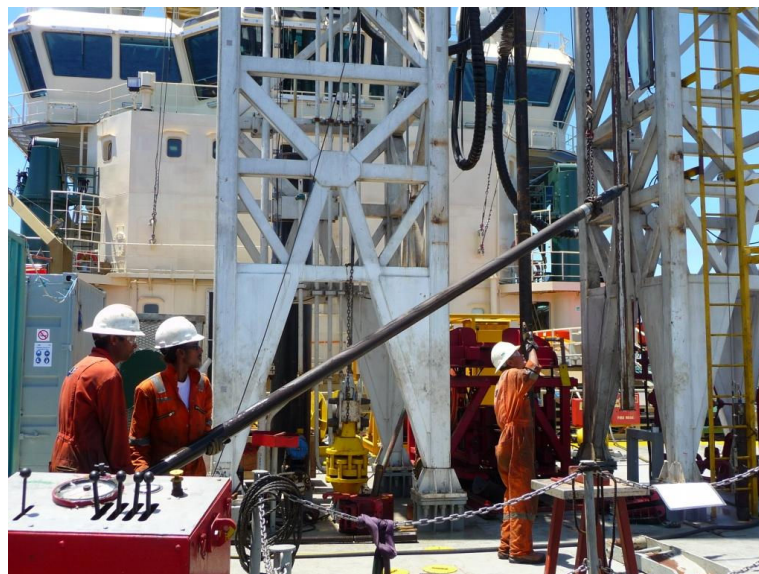
Weather and Wildlife

Core Flow by Sophie Green and Carol Cotterill

All of what we are doing here centres around the recovery of cored fossil coral reef from below the sea bed. So what actually happens to the cores once they arrive on deck.....

The Drilling Co-ordinators, Lee and Graham, work closely with the Bluestone drilling crew to optimise recovery, modifying drilling procedures to ensure the best possible record is retrieved. This involves ongoing conversations with the Co-chief Scientists as it is important to have an idea of the lithological properties of the material we are drilling before we get to it! With their background knowledge of the sites, acquired through interpretation of seismic (Sub-seafloor) and multibeam images, they can help guide and try to anticipate what the formations might be doing.

The Drilling Co-ordinators and drilling crew remove the core (in a plastic liner) from the barrel on the drilling deck. As the core comes up on deck it is usually greeted by a row of expectant faces at the safety barrier, wondering what to expect. Good recovery is met with applause, high fives and smiling faces whilst more limited recovery stimulates discussion on possible explanations why. This could be due to a variety of reasons, including technical drilling issues, weather related issue and unexpected geology!



C_Cotterill@ECORD_IODP; Core barrel comes back up onto deck after a “run”



C_Cotterill@ECORD_IODP; Lee and Vladimir (Bluestone driller) taking the liner out of the core barrel



M_Mowat@ECORD_IODP: Awaiting the arrival of the next core.

The Drilling Co-ordinators pass the core to the curators, Alex or Christian, and the core is placed onto the core bench situated just on the drill floor. Here, the curators measure the core and cut the liners to the length of their contents. The liners are capped and taken to the curation container. At this stage the scientists get their first look at the material. If the core looks interesting it can be a battle for the curators to get in to finish their job!



M_Mowat@ECORD_IODP; Alex curating the core on the outside core bench



M_Mowat@ECORD_IODP; Core curation on deck.



A_Suzuki@ECORD_IODP; Co-chief Yusuke Yokoyama examines a core in the curation container

Once in the container the curators are responsible for ensuring that the liners are correctly labelled and marked and all the relevant information is entered into the offshore database or DIS (Drilling Information System). The curators, geochemists and microbiologists are responsible for shipboard sampling, which can include extracting porewater fluid from sediments, as well as deep freezing microbiology whole round at -80 degrees!



Y_Yokoyama@ECORD_IODP; Hongchen (microbiologist) gazes whistfully at Atsushi's (geochemist) sample!

The sedimentologists and coral specialists on board are then able to look at the material in the core catchers and describe the cores through the clear plastic liners. These preliminary descriptions identify the major lithology types, whether or not material is consolidated and what coral and coralgal species are present, along with any other identifiers such as forams, molluscs and the presence of microbialite. The descriptions are entered into the DIS and the scientists complete core description sheets. The sheets are scanned by the data managers and can be used as the basis for further work at the onshore phase of the Expedition in Bremen, where a more detailed analysis of the split cores takes place.

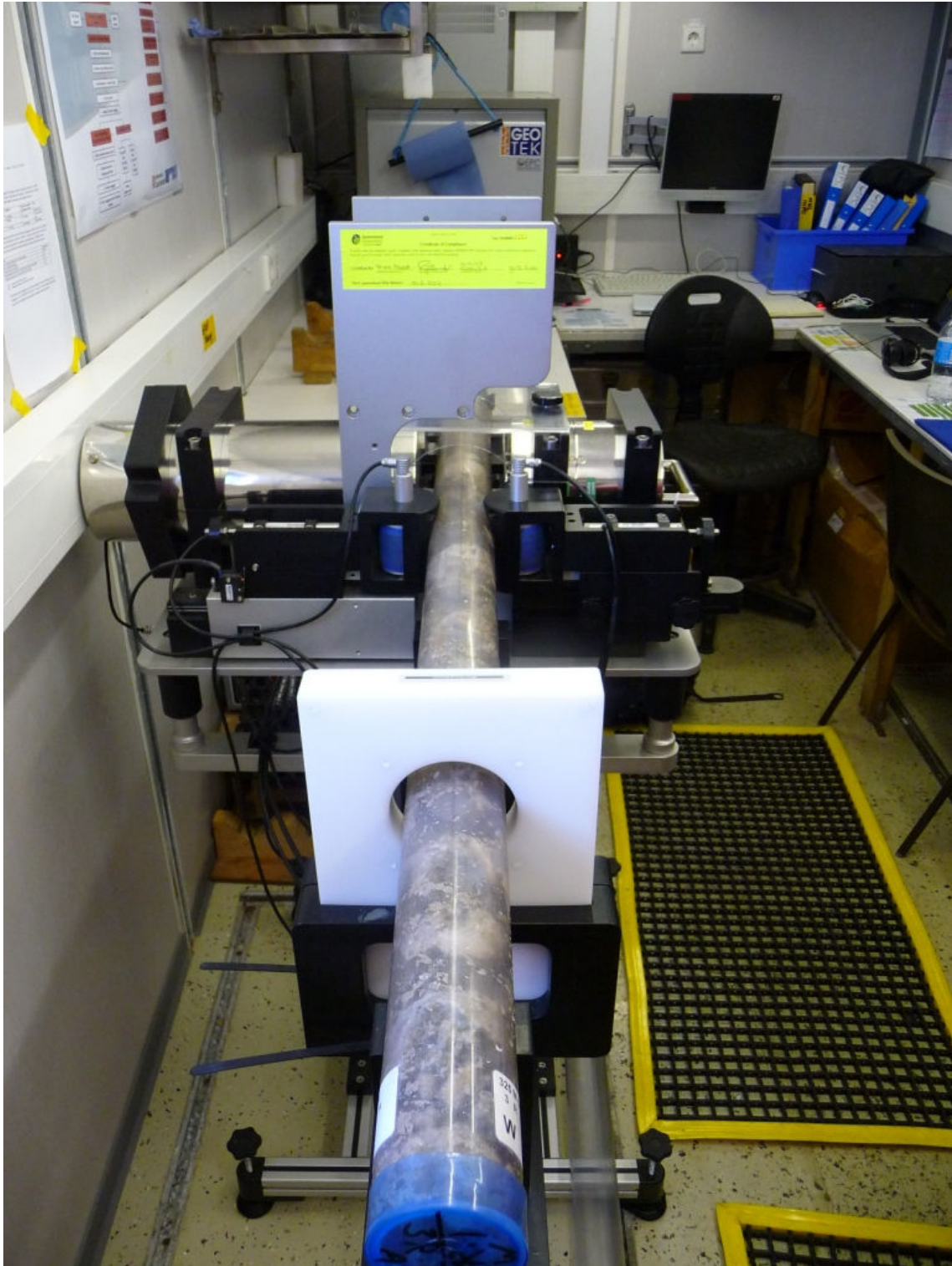


Y_Yokoyama@ECORD_IODP; Hard at work in the science container



M_Mowat@ECORD_IODP; Coralline algae specialist Juan Carlos examines material under the microscope.

Next, the cores visit the Petrophysics container, where the MSCL (multi sensor core logger) is housed. Here the Petrophysics team of Sally, Luigi and Louise use the MSCL scanner to measure the petrophysical properties of the cores. This includes gamma density, p-wave velocity, electrical resistivity and magnetic susceptibility.



C_Cotterill@ECORD_IODP; Core going through the MSCL

The MSCL marks the end of the journey for the cores offshore. They are stored in the refrigerated container in readiness for shipping back to Bremen at the end of the offshore phase. At Bremen, the cores are split into an archive half and a working half. The working sections are available for more detailed analyses whilst the archive half is preserved intact as legacy data.



C_Cotterill@ECORD_IODP; Inside the reefer



C_Cotterill@ECORD_IODP; Cores lie in racking inside the reefer.