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## Tahiti Sea Level Expedition completed Onshore Science Party held in the new IODP Bremen Core Repository

The Tahiti Sea Level Expedition (IODP Expedition 310) to the reef terraces around Tahiti, French Polynesia, was the second mission-specific platform (MSP) project organised and carried out by the European Consortium for Ocean Research Drilling (ECORD) under the auspices of the Integrated Ocean Drilling Program ([www.iodp.org](http://www.iodp.org)). A total of 37 boreholes across 22 sites were cored in water depths ranging from 41.65 to 117.54 m. During Expedition 310 three primary scientific activities were conducted offshore: ephemeral properties (pore-water chemistry, microbiology, physical properties) were measured and/or selected samples were preserved; core logging was carried out; and near real-time core description was performed on cores through the liners and on core-catcher samples. The 632 m of recovered cores, covering the period 20–10 ka of earth history, were then sealed and stored in temperature-controlled containers.

Due to the nature of MSPs, e.g. due to space and time restrictions cores usually are not split at sea and the main part of the science has to be conducted onshore. Therefore, for the first time, the IODP mission-specific platform Onshore Science Party (OSP) was held from February 13 to March 4, 2006, in the new IODP Bremen Core Repository (BCR), which is located in the Centre of Marine Environmental Sciences (Marum) building opened in early 2005 on the campus of Bremen University (*Figure 3, cover page*).

The scientists were welcomed at an icebreaker party in the hotel on the evening before the start of the OSP. On the first day, a science meeting was held in a seminar room. While the main lab of the BCR is usually the site of standard IODP/ODP sampling parties during its past 12 years of operation, it was an extended experience to split cores and also acquire all the data for the IODP minimum measurements. About 50 people (scientists and operator personnel) worked in two shifts processing the IODP Expedition 310 cores. All participants worked hard, helped each other, and came up with solutions as difficulties arose. This was a critical aspect in making this onshore science party successful and faster than originally planned, as was the enthusiasm of everybody involved.

The facilities used different labs in the building, some of which were devoted to office space and specific laboratories (e.g., report writing, microscopy, and physical properties measurements on discrete samples). The main labs were used for initial but

extensive core description of the freshly split cores, digital imaging, color reflectance measurements, split-core logging, petrophysical analyses (volume determinations (pycnometer), thermal conductivity), photography, and detailed core sampling (*Figures 1 & 2, below, Figures 2 & 4, cover page*). Further analytical laboratories were available through the Department of Geosciences (specifically the geochemistry lab), the DFG Research Center for Ocean Margins (RCOM), and the Centre for Marine Environmental Research (MARUM) of Bremen University on the campus of Bremen University.

Overall it was a very well functioning system, and the work flow was much faster and smoother than might have been expected. One Sunday off was a nice break to ease the stress of the regular shift work, some people did visit museums, others explored the area or even drove to Berlin.

Numerous national and international media representatives from television, radio, and newspapers attended a media conference, interviewed the scientific co-chiefs, and benefited from being able to talk to scientists while they were working in their labs (*Figure 4, page 4*). The onshore science party was also attended by Nancy Light, director of communication at IODP-MI, who together with a TV crew shot some scenes for the recently released IODP image DVD ([www.iodp.org/audiovisual](http://www.iodp.org/audiovisual)).

The scientists stayed in a hotel in the city center, which, in contrast to a ship environment, allowed them to spend their off-shift time enjoying a variety of social and cultural events as well as excellent Bremen restaurants, all of which offer very good German beer and wine. The scientists received their samples soon after returning home, and are busy now working on their individual analyses. New key results regarding the long-term climate history of the planet will soon be available.

The Bremen Core Repository (BCR), [www.rcom.marum.de/English/IODP\\_Core\\_Repository](http://www.rcom.marum.de/English/IODP_Core_Repository), has been operating for the Ocean Drilling Program (ODP) for ten years, and on October 1, 2004, was carried over into the new Integrated Ocean Drilling Program (IODP). In addition to the collection of presently 85 km of deep-sea sediment and hard-rock cores from 36 legs in over 126,000 d-tubes in a refrigerated storage hall, most of the core collection stored at the Lamont Doherty Earth Observatory of Columbia University, located in Palisades, New York - namely



All photos IODP

those cores drilled in the Atlantic Ocean - will be moved to Bremen by the summer of 2007. After completion of the redistribution the Bremen Core Repository will comprise 135 kilometres of deep sea cores and will be the largest of the IODP core repositories. In the new building on the campus the BCR has an 1100 sqm refrigerated storage area and racks with a height of 5.5 metres, most of them are movable (*Figure 3, page 3*). The total capacity will be about triple that of the former refrigerated hall at the Bremen docks. An additional refrigerated storage area is planned to be finalised within the next two years.

About two thousand scientists have visited the repository since it was established in 1994, often cooperating in week-long sampling meetings of the shipboard investigators. So far more than 400,000 samples have been taken by the visitors and BCR staff and distributed world-wide.

As a partner within the ECORD Science Operator (ESO) Consortium for IODP, the University of Bremen undertakes the curation, database operations, and archiving of collected cores, as well as providing offshore (mobile laboratory containers) and



onshore laboratory facilities for systematic sampling and further data gathering according to IODP minimum measurements.

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*Catherine Mével*

## News from the ECORD Managing Agency

2006 has been a quiet year for the program, as no operation will have taken place. The *Chikyu* is under testing and the *JOIDES Resolution* is about to go through a major refit. There will be no mission-specific platform (MSP) operation either. Although the budget to implement the New Jersey Shallow Shelf Expedition was secured, the ECORD Science Operator (ESO), in concertation with the ECORD Managing Agency (EMA), decided to delay the implementation to the summer 2007. This decision was made because the schedule was too tight to ensure a good service to the scientific community. ESO is presently negotiating a platform, and hopefully the operation will start next May. This emphasizes the challenges to run MSPs. By essence, each project is different and likely requires a different platform. But this means that for each expedition, ESO has to start again from the beginning, locating and contracting a platform suitable for the scientific objectives. In these days of increased oil prices and high demand for drilling platforms, this task is becoming more and more difficult. However, for the scientists, having access to MSPs is a major opportunity, as demonstrated by the first two, very successful operations, the Arctic Coring Expedition and the Tahiti Sea Level Expedition.

The scientific community has taken advantage of this hiatus in operations to discuss and plan the future. A number of workshops have been held, both at the European and international level (*See Recent and Forthcoming Workshops, page 7*). Hopefully, new ideas will emerge and the scientific community interested in ocean drilling will expand. We are all looking forward to seeing the reports of these meetings.

The major concern now for ECORD is the increase in the cost of the program starting in October 2007, when all three platforms will operate simultaneously. It will be a major opportunity for the science community, but it will be a challenge for the funding. An evaluation of the efficiency of ECORD and its performance within IODP is currently being conducted by an independent committee. Hopefully, the result of this evaluation will help the 17 ECORD member countries to increase their contribution at the national level. The other avenue that the ECORD Council is pursuing, is to get some help from the European Commission. The Deep Sea Frontier Initiative is part of the strategy developed by the Council in association with other EC-funded programs investigating the deep seafloor, to become more visible to the Commission. This initiative has progressed significantly since last April, and hopefully will have an impact at the European level (*See page 12*). However, at the individual level, scientists also have an important role to play, to convince their funding agencies that being part of this unique international program is essential for the future of cutting edge research in ocean environments.

*Catherine Mével, EMA director*

*ECORD member countries: Austria, Belgium, Canada, Denmark, Finland, France, Germany, Iceland, Ireland, Italy, The Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom*