ECORD
European Consortium for Ocean Research Drilling

Newsletter #6

IODP
INTEGRATED OCEAN DRILLING PROGRAM

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Message from the ECORD Council Chair

ECORD is proving that many nations with different but complementary interests in ocean drilling can work well together. The ECORD Science Operator successfully completed the offshore operation of the second MSP expedition, Tahiti Sea Level Expedition 310, October/November 2005, and the onshore science party is underway in Bremen during February/March 2006 as my term as Council Chair comes to a close. Council itself has approved a budget for the next MSP operation (New Jersey Shallow Shelf Expedition 313), scheduled to be drilled in 2006, and the contracting process for the platform is underway. The ECORD Science Support and Advisory Committee is busy scheduling workshops and the ECORD Managing Agency has received the IODP Program Plan from IODP Management International for US FY 06. My time as Chair seems to be going very quickly and smoothly!

Council met in Edinburgh, Scotland in November 2005 and discussed a number of important issues. In particular we instigated a review of the ECORD contribution to IODP. This will be carried out by a panel of internationally-renowned scientists who are not directly contributors to IODP. All ECORD funding organisations were asked to nominate panel members before Christmas and Hans Christian Larsen, the IODP-MI Vice President for Science Planning and Head of the Sapporo Office, Japan has agreed to select the panel composition. The panel will evaluate best practice within the ECORD organisation and more importantly assess the contribution made by ECORD to the science of IODP. It is hoped the panel will report to Council in November 2006 and that the outputs will help ECORD members to conduct their own mid-term reviews of participation in IODP.

My predecessor, Jonas Björck, had the honour to welcome new members to ECORD. I have a sad privilege to say goodbye to one of its participants. As UK member of ECORD Council I would like to take this opportunity to pay tribute to one of the great scientists to support IODP. Professor Sir Nicholas Shackleton of Cambridge University died on 24 January 2006. His work on orbital forcing of climate change was pioneering. In 1976, with colleagues Jim Hayes and John Imbrie, he published work on careful measurements of changing oxygen isotope values in tiny fossils from the deep sea floor, demonstrating that the Earth's climate is precisely controlled by regular variations in the planets orbit. This is regarded as one of the most important geological discoveries ever made. I hope that his example will inspire current and future scientists to great achievements through IODP.

Chris Franklin, ECORD Council Chair, March 2006

Expedition 310: Tahiti Sea Level - Offshore and Onshore Science Parties

***Mobilisation of the drillship**: 1- DP Hunter in Tampa (A. Skinner, BGS); **On-board the DP Hunter:** 2- Offshore science team, 3- DART seabed template in moonpool (D. Smith), 4- DP Hunter drillship on site (I. Pheasant), 5- Scientists at core description area (D. Smith); **Onshore Science Party in Bremen**: 6- Reefer store core laid out, 7- Core sampling , 8- Porites slabbing (all photos © IODP).*

Integrating Petrophysics in the IODP through the development of the European Petrophysics Consortium (EPC)

Tim Brewer

Background

In the Integrated Ocean Drilling Program (IODP), three drilling platforms will be operated; a riser, non-riser and mission specific. Mission-specific platforms (MSP) will be operated by the ECORD Science Operator (ESO) and provide opportunity to extend IODP operations into areas such as ice-covered waters and very shallow water environments. The ECORD Science Operator is a three-component consortium, involving operations (British Geological Survey), curation (University of Bremen) and petrophysics through the European Petrophysics Consortium (EPC). EPC was formed by the grouping of three European-based academic institutes that are involved in petrophysics research. All three institutions have a history of involvement with ocean drilling, and particularly in relation to downhole logging. This link has been forged through individual sub-contractors with the Lamont-Doherty Borehole Research Group as part of the ODP and subsequent IODP Logging Group.

Within ESO, EPC is responsible for the planning, management, acquisition, quality control/assurance, archiving and educational outreach relating to petrophysics. Petrophysics here is defined as: (a) measurements made downhole using a variety of logging tools (the suite will be specified in the Scientific Prospectus for each MSP expedition) and (b) standard core-based petrophysical measurements made on the core both during the offshore and onshore phases of an individual MSP expedition. As a consequence, one of the most important aspects of the EPC is to decide, for each particular MSP expedition, whether the petrophysical operations are to be undertaken fully by EPC members, or whether external resources are required, either from other European and non-European academic institutions, or from industry.

Table 1. Staff comprising the European Petrophysics Consortium

University of Leicester	
Dr Tim Brewer	EPC Chair, Chief Scientist
Dr Marc Reichow	Research Scientist
Ms Jenny Inwood	Research Scientist
Mrs Janette Thompson	Administrator
University of Montpellier	
Dr Philippe Pezard	Chief Scientist
Dr Hendrik Braaksma	Research Scientist
Dr Florence Einaudi	Research Scientist
Dr Gilles Henry	Logging Engineer
Mr Akram Belghoul	PhD Student
Mrs Joelle Gastambide	Administrator
RWTH Aachen University	
Dr. Christoph Clauser	Chief Scientist
Dr Renate Pechnig	Chief Scientist
Dr Norbert Klitzsch	Research Scientist
Ms Juliane Arnold	Research Scientist
Ms Margarete Linek	Research Scientist
Mr Lothar Ahrensmeier	Technician

Management Structure

The EPC central office is located at the University of Leicester and is responsible for the management of the EPC, negotiating and representing EPC within ESO and IODP and negotiating and dealing with external organisations as required. The staffing of the EPC is shown in Table 1.

The Petrophysics Staff Scientist

For each MSP expedition a Petrophysics Staff Scientist will sail on the offshore phase and will be present during the onshore phase of the expedition. The Petrophysics Staff Scientist will be drawn from the available pool of research scientists within the EPC. The role of the Petrophysics Staff Scientist is to act as the principal liaison between the EPC and the science party during the entire MSP expedition. This role begins with the development of the Science Prospectus, within which a petrophysics plan is developed through close liaison with the co-chief scientists and proponents. The petrophysics plan involves both offshore and onshore phases and includes both downhole logging and core based measurements. These measurements must conform to the IODP minimum measurement policy. During the offshore phase, space is often limited on MSP operations and all core-logging operations are carried out in a designated logging container (Figure 1), while logging acquisition is carried out either from a designated logging container (e.g. ACEX operations) or from close to the rig floor (e.g. Tahiti). Following the offshore expedition, the EPC will undertake the final depth shifting, correlation of runs within a hole and integration of logging and multi sensor core logger (MSCL) data sets. Where necessary the EPC together with the Petrophysics Staff Scientists will oversee all onshore subsequent environmental processing of downhole data.

The onshore phase of an MSP operation takes place at the Bremen IODP Core Repository some time following the offshore expedition. During this phase the EPC provides staff, both the Petrophysics Staff Scientist and others who are responsible for the implementation, acquisition and quality control of the shore-based petrophysics. The type and amount of data collected is defined in the expedition prospectus.

EPC Facilities

At each of its three nodes, the EPC provides a petrophysical expertise base, which is available to all scientists involved in the IODP. This expertise base can provide assistance in the development and revision of drilling proposals, in the development of the expedition prospectus (specifically the petrophysics plan) and in the evaluation and interpretation of petrophysics data gathered during both current IODP expeditions and for those scientists using legacy petrophysics data.

University of Leicester

At the University of Leicester a log interpretation centre has been developed over a number of years, which employs a number of different software packages enabling the user to optimise their evaluation and interpretation of both downhole logging data

and to facilitate core-log integration. The facility is supported by a number of discrete laboratories within the department, which enable a variety of high quality core-based measurements to aid the interpretation of the petrophysics data. Educational programmes are available for students who wish to consider registering for graduate studies linked to research in the field of petrophysics. Also available through the University is access to the CALLISTO facility. CALLISTO is a joint academic-industry venture for the calibration of porosity measurements, through the deployment of logging tools in 4 water-filled tanks containing 12 rock blocks. The rocks in each tank are extremely well characterised and provide a unique facility for the testing of logging tools.

University of Montpellier

The borehole geophysics group of CNRS at the University of Montpellier is called LGHF for "Laboratoire de Géophysique et d'Hydrodynamique en Forage". It is a group of 20, with 10 permanent scientists and engineers, plus an average of 10 post-doctoral researchers and PhD students.

Borehole research at LGHF is focussed both on geophysical and hydrodynamical developments of instruments, experimental methods and models. Created in 2001, LGHF has built a logistical site, assembled existing and new means of shallow subsurface investigation in boreholes (down to 1500m at the most), as well as developed a series of complementary experimental sites spanning a range of varying geological and hydrological contexts. Present research interests cover the study of hydro-dispersive properties in heterogeneous porous media, salt-water intrusion in shallow coastal reservoirs, geothermal systems both on land and in the deep oceans, and CO_2 sequestration in deep reservoirs.

The field operations of LGHF are deployed from the logistical and experimental site of Lavalette located in the outskirts of Montpellier, 3 km off-campus. The site is equipped with three nearby 100 m-deep boreholes, one of which has been fully cored. It serves as a base for instrument calibration, new tool development and testing, as well as controlled experiments in the fractured marly limestone of Valanginian age. It is also a teaching site for master's students from the universities of Montpellier, Strasbourg and Pau in France.

In terms of borehole geophysical investigation, the LGHF is equipped with a series of 200 to 1500 m long winches and cables, ALT and Robertson data acquisition systems, and more than 25 downhole sensors. Among these are mm-scale borehole wall imaging tools (either optical or acoustic), a series of geophysical tools (including a fully-digital, variable frequency, sonic device with 4 receivers; several electrical resistivity sensors, both galvanic and electromagnetic; a magnetic susceptibility tool; spectral natural gamma sensors yielding U, Th and K concentrations), and borehole size (callipers) and fluid characterization tools for measuring pressure, temperature, electrical conductivity, pH, and Eh. Most of these sensors were used in 2005 during the IODP 310 MSP expedition in Tahiti.

Newly developed tools include one called "MuSET" (for "Multi-Sensor Electrical Tool") to measure the spontaneous potential from a Pb/PbCl2 unpolarizable electrode, and "SHyFT" (for "Slimline Hydraulic Formation Tester") to perform small-scale production tests in order to derive permeability, and to take in-situ uncontaminated pore fluid samples. For in-situ hydrodynamic testing, "CoFIS" (for "Controlled Fluid Injection Sonde") allows for a complete hydrodynamic characterization of the formation in the near vicinity of the hole, from permeability to storativity and dispersivity with push-pull experiments. These tools have been developed in the context of the EC-funded ALIANCE project focussed on brine intrusion in coastal reservoirs. Present developments deal with that of permanent subsurface observatories for the shallow subsurface.

In the laboratory, software packages such as GeoFrame and WellCad are available for data analysis. In addition, a laboratory for cm to dm-scale characterization of rock petrophysical properties is available within the CNRS premises at the University of Montpellier.

Figure 1. Offshore Petrophysics during the IODP Expedition 310 Tahiti Sea Level. The Petrophysics container is the pale blue container at the rear of the ship. The GEOTEK Multi-Sensor Core Logger (MSCL) is located within the Petrophysics container with co-chief Gilbert Camoin and Klaas Verwer (scientist).

RWTH Aachen University

Log interpretation and the study of petrophysical properties is one major research topic of the RWTH Aachen University geophysics group, having a tradition of more than 15 years. Research emphasis is on the characterization of rocks for geological, geothermal and hydrogeological studies, and on the physical and thermal structure of the oceanic crust with its associated time-integrated heat and mass fluxes. These require the study of physical properties in the laboratory and the analysis and interpretation of in-situ measured borehole geophysical data.

Laboratory facilities of the working group comprise several core scanners (thermal conductivity, spectral gamma, gamma density, Vp and susceptibility) supplemented by petrophysical devices for measuring hydraulic, thermal and electrical properties on core plugs or mud samples. The Aachen working group is equipped with Antares slimhole logging equipment suitable for holes drilled down to 1500 m. A suite of petrophysical tools (spectral gamma, acoustic, electric, gamma density) is available as well as a high-resolution temperature, pressure and salinity tool. Several professional software packages exist for well-log interpretation and analysis of laboratory data. Educational programmes are available for students, comprising lectures for borehole geophysics, practical exercises in logging and the integration of graduate studies in research projects. The Aachen geophysics group contributes to a new international UDEA-League master's programme for Applied Geophysics (**www.idealeague.org/geophysics**) between Technical University Delft, ETH Zurich and RWTH Aachen University, providing courses in petrophysics, log interpretation, geothermics, small-scale NMR, electrical and spectral IP methods

In the field of log interpretation, a major research topic of the Aachen geophysics group is the development of log interpretation methods for magmatic and metamorphic rocks. A log response database and log interpretation charts exist for various igneous and metamorphic rock types of oceanic and continental crust. Studies also focus on image log interpretation techniques. The target is to develop algorithms for automatic rock classification and the identification and quantification of rock morphological features of oceanic rocks.

In the field of petrophysics, several studies address thermal and hydraulic properties of porous and fractured rocks. A fractal rock model approach was developed for porosity-permeability relationships and confirmed for rocks of sedimentary basins and some crystalline rocks. More recently, petrophysical investigation also focuses on Nuclear Magnetic Resonance (NMR) technologies. A new mobile NMR core scanner was developed and methods for predicting porosity, permeability and pore-size distribution from NMR signals are currently being tested and adapted to rock types commonly found during IODP expeditions. In several research projects, petrophysical data serve as input data for numerical modeling, targeted for example to quantify groundwater flow by thermal methods, to derive thermal properties from logging data and to study on the borehole scale, the influence of both palaeoclimate and groundwater flow. The need for improved inversion methods motivated the development of a new inverse algorithm, specifically designed to allow a more general description of the physical rock properties.

Tim S. Brewer, EPC Co-Ordinator, Philippe Pézard and Renate Pechnig, EPC Chief Scientists

Catherine Mével

News from the ECORD Managing Agency

The first phase of IODP ended last December, after eighteen months of continuous use of the *JOIDES Resolution*. It also provided ECORD the opportunity to demonstrate the feasability of using Mission Specific Platforms to address major scientific questions in areas previously not accessible to drilling. The ECORD Science Operator conducted two very successful expeditions, the first one in the Arctic (ACEX) and the second one in extinct coral reefs of the central Pacific (Tahiti Sea Level, *see photos on cover page*), showing its ability to adapt to very different environments and drilling conditions. ESO is now getting ready to drill the shallow shelf of the New Jersey Shallow Shelf, to fill the gap left between ODP holes on the lower slope and ICDP holes on land. It is the combination of all these holes that will allow scientists to reconstruct sea-level variations during the last thirty million years.

In the fall of 2007, the programme should reach its full speed. A completely refitted *JOIDES Resolution*, with enhanced capabilities, will start operating at the end of the summer. In parallel, the *Chikyu*, currently being tested, will first operate in a riserless mode, and will start riser operations in the spring of 2008. A major effort will be devoted to the Nankai Trough Seismogenic Zone, involving drilling, logging and monitoring a series of holes.

Meanwhile, this hiatus in drilling activities is a major opportunity for the science community to develop future plans, and a number of focussed workshops are being organised. At the European level, the Magellan Workshop series benefits from the support of a European Science Foundation scheme. We hope that the workshops will generate new ideas and drilling strategies and involve new communities in various areas such as the deep biosphere, slope stability & volcanic hazards *(see page 7)*. IODP sponsored workshops will also be organized at the international level, providing other opportunities.

The new phase of the program, with all platforms operating simultaneously, will correspond to a major increase in the cost. Discussion with the European Commission on future funding opportunities resulted in developing the Deep Sea Floor Frontier initiative. Its aim is to combine the efforts of existing programmes at the national and European level to accomplish a major step forward in the understanding of deep sea-floor processes. It will coordinate in key areas various approaches such as geophysical and geological mapping, observation and sampling of the sea-floor and the associated ecosystems, drilling and logging bore-holes, and long-term monitoring through the installation of seafloor observatories. The scientific scope and the strategy for this initiative will be discussed at a workshop planned on June, 1-2 in Naples. The Deep Sea Floor Frontier initiative will seek financial support from the EC as an Article 169 in Framework Programme 7, and/or through other EC funding programmes *(see page 12)*.

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

Alan Stevenson

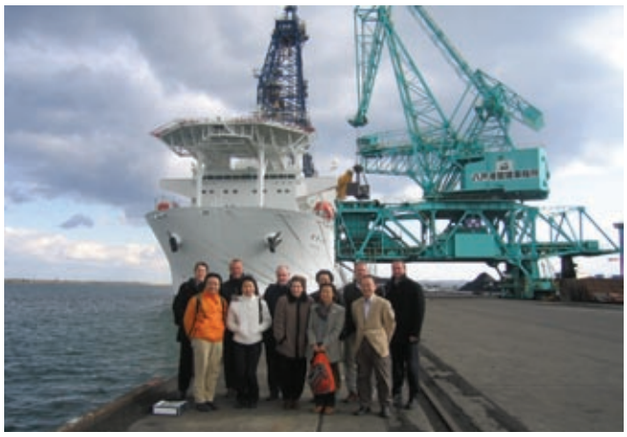
Education and Outreach Task Force meets in Hachinohe, Japan

Eleven Task Force participants and observers met in Hachinohe for a two-day meeting in November 2005 to discuss current and future education and outreach efforts for the IODP. Representing ECORD were Albert Gerdes (ESO), Eve Arnold (ESSAC) and Alan Stevenson, who recently replaced Andy Kingdon as the Outreach Manager for ESO. The group also included four representatives from JAMSTEC/CDEX, one representative from USIO and two representatives of IODP-MI.

Chairing the meeting, Nancy Light (IODP-MI Director of Communications) outlined the need to strengthen IODP's ability to convey clear, consistent messages to the media. Great emphasis was made of the importance of being aware of the role of an IODP spokesperson—to emphasize the program in its full context and then detail how the science or activity unfolded through a program partner. Placing IODP in an international context at the beginning of any outreach opportunity is an easy way to convey the global significance and structure of the program, the diverse research parties, and the scope and ambition of the program.

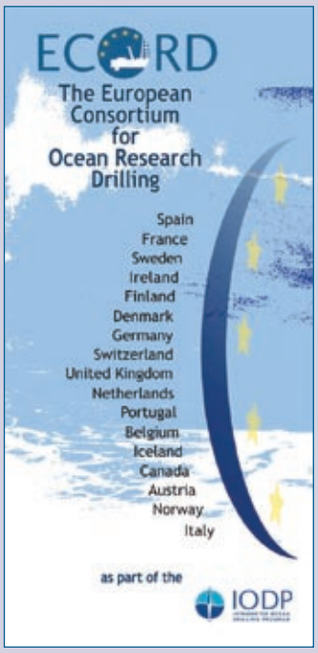
The group reviewed all aspects of news outreach, from implementing effective communications with co-chief scientists, the benefit of communications plans between the IOs and IODP-MI, and the need for co-ordinated news releases program-wide. Several new tools have been developed by IODP-MI over the past year to encourage more consistent outreach efforts globally. These include style guides, artwork files, templates for news releases and media kits, and "how-to" sheets that define procedures to bring consistency to the IODP outreach function. These resources are available through any member of the E & O Task Force.

The meeting included a tour of the *Chikyu*, where the group had the opportunity to see the drilldeck, laboratories and science party quarters and were invited by their Japanese hosts to take part in a traditional tea ceremony. Appropriately, the Task Force members learned that the central theme behind the tea ceremony is the creation of an environment conducive to effective communication.



Members of the E&O Task Force visit the Chikyu in Hachinohe, Japan. Left to right: Eve Arnold (ESSAC), Yoshihisa Kawamura (JAMSTEC), Albert Gerdes (ESO), Chieko Aizawa (JAMSTEC), Dan Evans (ESO Observer), Nancy Light (IODP-MI), Jun Fukutomi (JAMSTEC), Yukari Kido (JAMSTEC), Jon Corsiglia (USIO-JOI), Saneatsu Saito (IODP-MI Observer), Alan Stevenson (ESO)

Alan Stevenson, ESO Outreach Manager



ECORD Publications and Information

The ECORD publications are widely distributed at international conferences (such as EGU in Vienna or the AGU Fall meeting in San Francisco) and by each national IODP office. You may also request paper copies at: **ema@ipgp.jussieu.fr** or download electronic copies from the ECORD website at: **www.ecord.org/pub/publications .** Among those publications, the ECORD hand-out (*left*) has been updated with the new ECORD members and the recent Tahiti expedition, and a poster presenting the first outcomes of the IODP Expedition 310 (Tahiti Sea Level) has been released on the IODP booth at the 2005 AGU Fall Meeting.

The ECORD website - **http://www.ecord.org** - is the official ECORD web portal that keeps you informed about the different ECORD bodies (ESSAC, ESO, EPC and EMA), the program expeditions and the MSP publications & reports. Our website is closely related to the IODP website (**www.iodp.org**) and lists the linked national IODP offices from ECORD member countries.

ECORD has been warmly welcomed as part of the IODP booth at the 2005 AGU Fall meeting and organises a co-sponsored IODP-ECORD exhibition booth at the EGU 2006 meeting in Vienna (2-7 April).

Alan Stevenson

The role of Mission-Specific Platforms in the Integrated Ocean Drilling Program (IODP)

Dan Evans

Since the start of the IODP in 2003, the ambitious expansion of exploration beneath the oceans has been made possible by the increased drilling capability provided by the multi-platform operations that are available to the Program. The three implementing organisations in the USA, Japan and Europe, which serve as science operators of the various ships and platforms provide a range of approaches that allow scientists to conduct experiments and collect samples in environments and depths never before attempted.

In the USA, the *JOIDES Resolution* is currently undergoing a major refurbishment that will greatly increase the efficiency and scope of drillship scientific operations. The ship will be renamed before recommencing IODP work in mid-2007. The unique features of the Japanese drillship the *Chikyu* have expanded the IODP's capability to access new depths beneath the Earth's surface. The ECORD Science Operator (ESO) has undertaken two mission-specific platforms (MSPs) for the IODP in environments in which the other platforms are unable to work, such as the shallow waters around Tahiti, or the ice-covered waters of the Arctic; but what is a mission-specific platform and how does it differ to the operations that take place on the US and Japanese drillships?

What is a Mission-Specific Platform?

Whereas the *JOIDES Resolution* and *Chikyu* are dedicated drilling vessels, fitted out with permanent drilling, laboratory and offshore core repository facilities, MSPs, as the name suggests, are platforms chosen to fulfil the particular scientific objectives of IODP drilling expeditions. In most cases this requires modifications to the most appropriate platform (which may be a ship, drilling rig etc). For example, the Swedish vessel *Vidar Viking* used on the Arctic Drilling Expedition in 2004 was a converted icebreaker, whereas the *DP Hunter* used on the Tahiti Sea Level Expedition in 2005 normally operates as a diving support vessel *(photo 1, cover page).*

Due to the time required to identify, contract and modify the most suitable platform, scientists selected to participate in MSP expeditions are required to have a considerably more flexible approach to their work than would be required on the *JOIDES Resolution*. Whereas the US and Japanese drilling ships have expedition schedules agreed sometimes years in advance, the date that any MSP expedition may start can be difficult to define and is always likely to change at relatively short notice.

This may be due to unforeseen delays in the platforms commitments prior to coming on contract to undertake the MSP or other factors that can affect the schedule such as technical difficulties encountered while fitting out the platform or time to identify logging and specialist analytical activities that may also have to be contracted.

Delays can also occur while applying for permission to drill in any particular part of the world's oceans as applications can not be placed until the platform has been contracted and its details can be provided to the authorities who grant the drilling permits.

The end of the expedition may also vary by a few days, because of budget constraints. Each MSP expedition has a fixed budget allocated by the ECORD Council, allowing for a certain number of drilling days. However, it may happen that the money runs out earlier, for example if an expensive piece of equipment has to be replaced. Once the funds start to run out, the expedition will plan to end, regardless of any other factor.

On-board the Mission Specific Platform

Scientists arriving to take part in an MSP will also notice a difference in conditions on-board the platform, which is not permanently set up as a scientific drilling vessel. Unlike the 143-metre *JOIDES Resolution* or the 210-metre *Chikyu*, MSPs have taken place on much smaller ships, such as the *DP Hunter* used in Tahiti, which is 104 metres long *(photo 4, cover page)*. The space restrictions on-board the vessel have a number of implications. Firstly, the laboratory and core curation facilities are normally set up in mobile containers that have been equipped for the specific purpose *(see Figure 1, page 3)* and there may be no space for additional laboratories. Secondly, accommodation restrictions on the MSPs usually mean that not all of the scientists invited to be science party members can participate in the offshore phase. The smaller offshore team *(photo 2, cover page)* may find themselves having to help out on a scientific task that is not their specialisation, to ensure that the essential work of capturing ephemeral measurements (ie measurements that have to be taken shortly after the core is collected) is completed.

As a consequence of space restrictions on board the platform, a major difference between MSPs and other IODP expeditions is the need to have an onshore science party (OSP) following the drilling phase. The OSP is the real science party and is not merely a sampling party.

The Onshore Science Party

The onshore science party takes place after the offshore operations have been completed. Cores collected during the expedition are transferred to the Bremen Core Repository (BCR, *photo 6, cover page*) located at the University of Bremen in Germany, one of three IODP core repositories worldwide. The entire expedition science party are required to attend the OSP and, once again, the participants are asked to be flexible in their attitude to start and end dates. The start time may be influenced by changes in the timing of the offshore phase and the time taken to transfer the cores from the MSP to the core repository may vary depending on the location of the expedition. However, the OSP normally takes place within 3-4 months of the end of the offshore phase.

At the onshore science party, the cores are split and the scientists have their first opportunity to do more than just the ephemeral measurements, as they have access to the full laboratory facilities of the BCR. An essential requirement of this phase is that scientists consider the OSP as if they were attending a Science Party at sea. In other words, they must remain at the core repository until all sampling, measurements and reporting have been completed *(photo 7, cover page)*. On the *JOIDES Resolution*,

expedition scientists are naturally obliged to remain on the ship until all reporting is completed, for an MSP the end of the onshore science party is the equivalent of coming off the *JOIDES Resolution* with all reporting completed.

Applying to join an MSP Expedition

Scientists interested in participating in an MSP expedition should do so through their Program Member Office (ESSAC, USAC, JDESC or IODP-China) in response to calls posted on their websites or elsewhere. Applications are made to join the science party to attend the OSP and also to be part of the offshore team, although applicants may indicate if they do not wish to be considered as part of the offshore Team. The offshore team is a sub-set of the science party and affords no additional privileges or obligations under IODP policy. Prioritised nominations are then made by the PMOs to ESO, who after working with the co-chiefs to form a science party, issue invitations to those selected. Further information about MSP expeditions can be found at **www.ecord.org**

Alan Stevenson, ESO Outreach Manager & Dan Evans, ESO Science Manager

***ERRATUM**: Henriet et al. 2002 quoted in Newsletter #5 has to be read as follows: Henriet, J.-P., Guidard, S., and the ODP Proposal 573 Team, 2002. Carbonate mounds as a possible example for microbial activity in geological processes. In Wefer, G., Billet, D., Hebbeln, D., Joergensen, B., and van Weering, Tj. (Eds.), Ocean Margin Systems: Heidelberg (Springer-Verlag), 439˚455.*

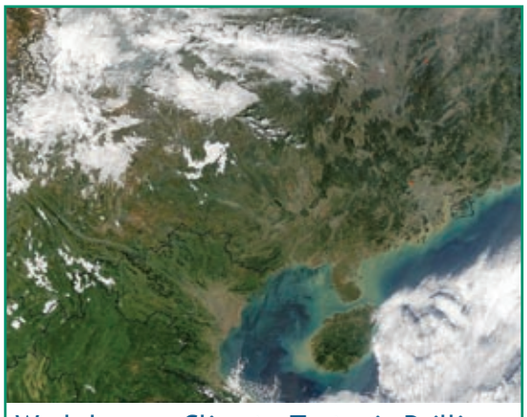
Workshops and Conferences Announcements

EuroForum and Magellan Workshops:

- EuroForum (Past Achievements, Future Opportunities and Proposal-writing Workshop): 8-9 May 2006, Cardiff, UK
- Seismic and Volcanic Hazards: 29-31 May 2006, Naples (Italy)
- Submarine Slides: TBA 2006, Barcelona (Spain)

Contact: essac@cardiff.ac.uk

SealAIX'06 - SEA LEVEL CHANGES: Records, Processes, and Modeling, 25-29 September, 2006, Aix-en-Provence and Giens, France
Contact : Gilbert Camoin - gcamoin@cerege.fr
see also: www.cerege.fr/news/congres_camoin/sea_level.htm



Workshop on Climate-Tectonic Drilling in SE Asia, 5-7 June, 2006, Kochi, Japan
Contact : Peter Clift - p.clift@abdn.ac.uk
see also: www.ecord.org/calendar.html

ECORD Science Support & Advisory Committee

Updates

Chris MacLeod *Julian Pearce*

IODP completed the final expedition of the first phase of its operations at the end of 2005 (Expedition 312, Superfast Spreading Rate Crust 3). The second phase, scheduled to begin in mid-2007 at the earliest, will be a bigger program utilizing three drilling platforms: the non-riser vessel (the refitted *JOIDES Resolution*) operated by the USA; the new riser drilling ship (the *Chikyu*) operated by the Japanese; and the mission-specific platforms (MSPs) for which ECORD is responsible. The MSP expedition to the New Jersey Shallow Shelf (Expedition 313), tentatively scheduled for 2006, will thus be the only IODP drilling activity for some time. This period of low drilling activity does, however, provide an excellent opportunity for planning and proposal writing for the subsequent period of enhanced activity.

Two European programmes have been set up to facilitate the development of new proposals. The ESF Marine Coring Programme, known as Euro-MARC, provides a route for European collaboration on site surveys. The Magellan Workshop series provide funding for workshops to improve existing drilling proposals and develop new proposals. The first workshop took place in Oxford in October, a follow-up to the successful conference in June 2005 on 'Climate Change: High Latitudes and Ocean Circulation'. The second workshop, focusing on the Deep Biosphere, was held in Switzerland in January 2006. Two further workshops are in advanced stages of preparation in 2006 on the theme of 'Geohazards' - volcanic and seismic hazards; submarine slides *(see page 7)*. ESF are about to put a call for further workshop proposals. At an international level, IODP will hold workshops that bring together European, Japanese and American scientists, though the number of European participants in these will necessarily be limited.

Participants of the 5th ESSAC meeting, 22-23 November in Edinburgh (ESSAC delegates, J. Behrmann, co-chief Exp. 308, and observers: D. Evans & H. Stewart - ESO, C. Franklin - Council Chair, C. Mével & P. Maruéjol - EMA).

Dates for your diary are the 8th and 9th of May 2006, when the EuroForum will be held in Cardiff at the National Museum of Wales *(see page 7)*. The EuroForum is run every two years, the previous one having been held in Bremen. The Cardiff meeting will be in two parts. The first will focus on achievements of the first phase of IODP drilling. The second will inform the community of the future capabilities of the three different types of drilling platform. It will also provide an opportunity for proposal writers to receive advice from specialists on how best to construct, and do the groundwork for, successful proposals.

Returning to the first phase of IODP, it is possible to reflect on, and evaluate, what has been achieved to date. 12 expeditions were carried out, 10 with the *JOIDES Resolution* and two (in the Arctic and around Tahiti) with mission-specific platforms. The MSP expeditions, with their technological challenges and implications for climate and sea-level change, have to stand out as major ECORD achievements. In total, some 96 Europeans participated in scientific parties, of whom 8 were co-chief scientists. Other Europeans contributed to shipboard logging and drilling operations. In general, there was a good match between the national balance and funding with the UK, France, Germany and the consortium of smaller contributors each supplying a quarter of the participants. ECORD has just initiated a full, independent review of the value of the science to date *(see cover page)*, so the IODP-linked publications and other output will help to provide the review panel with a portfolio of 'evidence'.

For the future, the next expedition, as noted above, is the New Jersey Shallow Shelf, with Stephen Hesselbo (University of Oxford) as one of the co-chief scientists. This is aimed at investigating the history of sea-level change and its relationship to sequence stratigraphy. A call for participants for a deadline of 8th February 2006, led to 24 European applications for its 8 places, good evidence of continued interest in the program. The dates of the expedition are not finalized as the processes of tendering for the platform and obtaining clearances is a complex and time-consuming one, but mid-late 2006 is the present target. Choosing the 'lucky 8' participants is a complex process designed to balance nationalities and expertise. It involves ESSAC delegates and their national offices in conjunction with the ESSAC Office, together with the co-chief scientists and the ECORD Science Operator (ESO). Those who do participate will find that an MSP expedition is not necessarily the same as a *JOIDES Resolution* expedition. Thus few scientific participants will spend time on the drilling platform: instead they will need to set aside a month of their time to attend one of the core repositories to carry out core descriptions, specialist studies of the core, sampling and report writing *(see also pages 6 and 7)*.

Beyond the New Jersey Shallow Shelf Expedition, the Science Planning Committee at its November 2005 meeting, made plans for Fiscal Years 2007 and 2008 *(see page 9)*. For the *Chikyu*, this is straightforward: she will remain in the Western Pacific carrying out tests and non-riser drilling before focusing on the riser drilling of the Nankai Trough Seismogenic Zone (NanTroSEIZE) – an expedition likely to last more than six months. The refitted *JOIDES Resolution* will drill the Equatorial

Pacific before crossing to the Western Pacific to contribute to the Seismogenic Zone project. She will then return to the Eastern Pacific to carry out two further expeditions before heading for the Southern Oceans and the Indian Ocean, reaching the Indian Ocean in 2009.

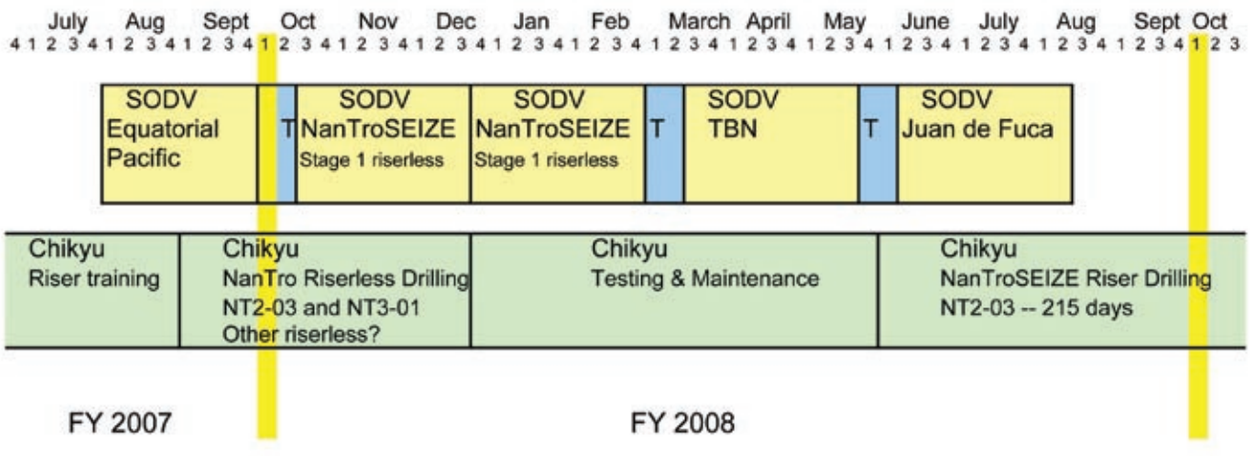
Informal get-together of the Japanese and ECORD participants at the SPC meeting, Kyoto, Japan, November 2005. You may be able to spot Catherine Mével (EMA Director), Dan Evans (ESO), Julian Pearce and Federica Lenci (ESSAC Office), Benoît Ildefonse, Hans Brumsack and Rolf Pedersen (ECORD SPC representatives), Rüdiger Stein (SSEP co-chair) and Roger Searle (SSP Chair).

There is plenty of European interest in the early expeditions of this second phase of IODP. Of the active proposals in the system, some 40 (36%) have European lead proponents. The first expedition of the second phase of drilling, to the Equatorial Pacific, has a European lead proponent in Heiko Pälike (Southampton). The NanTroSEIZE expeditions all have U.S. and Japanese lead proponents, but there are a significant number of European co-proponents likely to provide at least one co-chief scientist. When the non-riser ship heads for the Southern Oceans, highly-ranked proposals include Wilkes Land, led by Carlota Escutia (Granada), and the Indian Ocean has two highly ranked proposals, the Indus and Bengal Fans, headed by Peter Clift (Aberdeen) and Christian France-Lanord (Nancy) respectively. ESSAC will do all it can to assist these and other European scientists with active proposals in these areas to attain the high ranking necessary to include them in the drilling schedule. This effort begins with a Proposal Writing workshop at the upcoming EuroForum *(see page 7)*.
No plans have been made for drilling in Fiscal Year 2009 – that will depend on the highly-ranked proposals in the system. From the European perspective, however, we now have a number of proposals for drilling in the Mediterranean and European margins. If these are to be drilled, the science has to be first class and the site survey work has to be complete.

Closer to home, you should be aware that the Cardiff ESSAC Office has been busy enhancing the ESSAC website. It can be reached through the ESSAC hot-link on the ECORD website (**www.ecord.org**) and is meant to be the first port-of-call for anybody needing news or information on ESSAC activities. It contains, for example, full contact details for the Cardiff office, the ESSAC representatives and the national offices. It also contains forms, information and links to enable you to apply for expedition participation, to submit drilling proposals, to apply for samples, and to apply for EuroMARC or Magellan Workshop funding. Information on new developments, such as the concept of 'Missions' as outlined in the last Newsletter, will be posted on the website as soon as details become available. We thus recommend that you visit the ECORD and ESSAC websites regularly to keep yourself up-to-date with ECORD IODP news.

Finally, ESSAC would like to pay tribute to the huge contribution to ocean drilling science made by Professor Nick Shackleton, who sadly died, aged 68, in January 2006.

The ESSAC Office: Chris MacLeod and Julian Pearce, ESSAC Chairs and Federica Lenci, ESSAC Science Co-Ordinator



Provisional drilling schedule for the non-riser drilling vessel (SODV) and riser vessel (Chikyu) as approved by the Science Planning Committee in November 2005. In addition, one mission-specific platform expedition (313: New Jersey Shallow Shelf) is provisionally scheduled for 2006. Note that the intention is for the non-riser vessel to proceed to the Southern Oceans and then to the Indian Ocean after completing its 2008 activities in the Eastern Pacific.

Shipboard Scientific Participants from ECORD

Expedition 311: Cascadia Margin Gas Hydrates - 28 August -28 October, 2005		
Michael Riedel, co-chief	Canada	Geological Survey of Canada
Marie-Madeleine Blanc-Valleron	France	Muséum National d'Histoire Naturelle
Michelle Helen Ellis *	United Kingdom	University of Southampton - National Oceanography Center
Verena Heuer	Germany	Universität Bremen
Peter D. Jackson	United Kingdom	British Geological Survey
Barbara M.A. Teichert	Germany	Bundesanstalt fuer Geowissenschaften and Rohstoffe (BGR)
Uli Wortmann	Canada	University of Toronto
Expedition 312: Superfast Spreading Rate Crust 3 - 7 November - 29 December, 2005		
Julie Carlut	France	Laboratoire de Géologie - ENS
Rosalind Coggon	United Kingdom	University of Southampton - National Oceanography Center
Laura Galli**	Italy	Università degli Studi di Milano
Jurgen Koepke	Germany	Universität Hannover
Christine Laverne	France	University Paul Cézanne-Marseille III
John C. Mclennan	United Kingdom	University of Edinburgh
Sally Jane Morgan*	United Kingdom	University of Leeds
Birgit Gisela Scheibner	Germany	Universität Göttingen
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More information: www.essac.ecord.org/sasreps/php

ECORD-Net Updates

ERA-NET

ECORD-Net: European Research Area for scientific drilling

Project nº ERAC-CT-2003- 510218, European Consortium for Ocean Research Drilling Network
Project Co-Ordinator - John Ludden (john.ludden@cnrs-dir.fr)

The ECORD-net is evolving

- New partners, new challenges

We welcome the Danish Research Agency / Danish Natural Research Council (DRA/FNU) and the French Research Institute for Exploitation of the Sea (IFREMER), as two new partners of the ECORD-net, who together with 9 existing partners, will combine their efforts to integrate various science communities working on past records of Earth changes, ecosystem studies and present-day long-term observations, and to establish the Deep Sea Floor Frontier programme.

The Deep Sea Floor Frontier: An integrated approach to study the deep sea floor and its history

Mission Statement

A unified European Programme

The Deep Sea Floor Frontier initiative initiated by ECORD-net aims to develop a major coordinated European research and technology effort on deep sea floor science.

Three pillars of deep sea floor research

The initiative is born by three European geoscientific communities related to ocean drilling, ocean margin research and seafloor observation. These three pillars are presently represented by chief scientists of the research programmes IMAGES (International Marine Past Global Changes Study), ECORD (European Consortium for Ocean Research Drilling), HERMES (Hotspot Ecosystem Research on the Margins of European Seas), EuroMARGINS (ESF-EuroCORES), and ESO-Net (The European Seafloor Observation Network).

An integrated research approach

The goal of the Deep Sea Floor Frontier (Deep-SF) initiative is the development of a unified European programme on integrated investigations of the deep sea floor. The focal point is the identification of new aspects in deep sea floor science by combining different research philosophies and investigation methods of the participating communities. The development and common use of large infrastructures is intended to improve the working conditions and to promote international competitiveness. A joint funding and management structure will help to strengthen the European marine research community and to achieve better international visibility and impact.

Joint Scientific Road Map

The first priority of the initiative is the development of a scientific road map of integrative research on the deep sea floor for the next ten years. A workshop on deep sea floor science will be held in Naples, 1-2 June, 2006. The outcome will provide the basis for the creation of this scientific road map.

European Perspective

The Deep Sea Floor Frontier initiative is seeking funding by the European Commission as an Article 169 initiative in Framework Programme 7, and/or through other EC funding programmes.

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