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Anne de Vernal

Recent Activities and the Future of ECORD and IODP

IODP is now ready for its renewal as the *International Ocean Discovery Program* and is actively preparing the operations for *Exploring the Earth Under the Sea* in order to meet the challenging objectives of the science plan for 2013-2023.

The current year, which is a transition towards the new IODP, offers the promise of very successful endeavours. In 2012, the *JOIDES Resolution* is fully occupied by scientific drilling activities in the North Atlantic and planning is almost complete for expeditions to the North Pacific region in 2013 (*page 10*); the *Chikyu's* drilling operations will span eight consecutive months in the western Pacific (*page 10*); a mission-specific platform (MSP) expedition in the Baltic Sea is currently in preparation for drilling in 2013 (*page 3*). Hence, the scientific drilling community is very engaged in these ongoing expeditions. It is also very busy with the implementation of future activities, which notably should develop further scientific research in the Arctic. There is a real challenge in reaching this remote frontier in a part of the world that still remains in the shadows despite the tremendous progress that has been made in Earth exploration. Within the last 6 months, there have been workshops on Arctic drilling organised in Denmark (November 2011) and Canada (February 2012). Both were well attended and provided the opportunity to discuss the major scientific issues concerning the evolution of the Arctic realm from the geological, climatic and deep-biosphere perspectives; they also identified the technological challenges of drilling in ice-covered and gas-prone environments that still have poor coverage of seismic stratigraphy information (*see reports by M. O'Regan and by N. Mikkelsen and R. Stein pages 12-13*). Hopefully, the talent, willingness and resources of the IODP community will be successful in meeting the Arctic challenges.

In January, ECORD took part in the successful *JOIDES Resolution* port calls in Ponta Delgada and Lisbon (*pages 5 to*

7). We also anticipate providing guidance when the *JOIDES Resolution* ends the Paleogene Newfoundland Sediments Drifts IODP Expedition 342 in St John's, Canada, in early August 2012.

From an organisational point of view, the establishment of the new IODP programme will have consequences for ECORD (*page 9*). The new IODP will maintain an overarching programme for all partners with regard to scientific evaluation of proposals and drilling expeditions, but will give more independence to platform providers such as the ECORD Science Operator, which provides MSPs. As well as implementing MSP expeditions, ECORD is now examining the relevance and feasibility of co-ordinating drilling-related activities such as site surveys, and core recovery with seabed-coring/drilling devices that are currently available or in development, such as seabed drills (*page 3*). Moreover, ECORD is considering the possibility of developing flexible ways to fund specific drilling operations. At the turning point from the current to the new programme, and under the leadership of the new Director of the ECORD Managing Agency, Gilbert Camoin, new ways to operate are being explored. Hence, in the forthcoming months there will be important discussions regarding the future of ECORD and its role in strengthening the integration of resources to serve scientific drilling research in Europe and in partner countries.

Finally, among the news that deserves special mention, there is the enlargement of the ECORD community towards the East with Poland, which joined ECORD recently as new member.

Witamy w ECORD !

Anne de Vernal, ECORD Council Chair, from October 1, 2011 to September 30, 2012

<http://www.ecord.org/c/council.php>

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David McInroy



Robert Gatliff



Dave Smith



Alan Stevenson

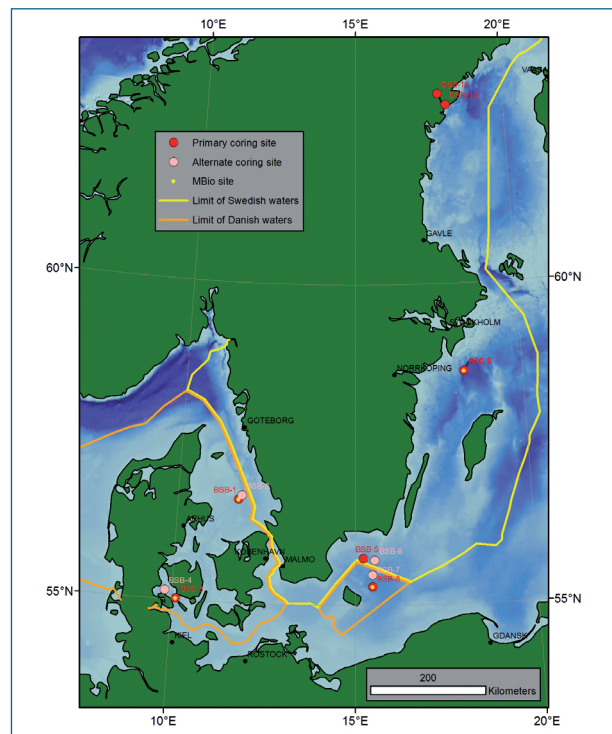
As we reported in the last ECORD Newsletter, the **Baltic Sea Paleoenvironment Expedition (IODP Expedition 347)** will be the next mission-specific platform expedition to be conducted by ESO in the spring/summer of 2013 (*see the location of the drillsites of the expedition on the map*). We have been working with the Co-chief Scientists Dr Thomas Andr en (School of Life Sciences at S dert rn University, Sweden) and Professor Bo Barker J rgensen (Department of Biogeochemistry at the Max-Planck Insititute for Marine Microbiology, Bremen, Germany) to scope the potential drilling methodologies and platforms for the expedition and a notice of interest for platform and coring services was issued in the OJEU at the beginning of March. The call for scientists to participate in the expedition was issued on March 9, 2012 and will be open until April 30. Further details are available on the ESSAC website (<http://www.essac.ecord.org/>).

Although the Baltic Sea Paleoenvironment Expedition will be the final MSP operation in the current drilling programme, we continue to look forward to the 2013-2023 phase of ocean drilling, the '*International Ocean Discovery Program*'. We are currently scoping the MSP proposals that have been highly ranked by the IODP Science Implementation and Policy Committee (SIPCOM), which will provide the options for MSP expeditions in the early years of the new programme. These include the Chicxulub K-T Impact Crater (548), Atlantis Massif Seafloor Processes (758), Hawaiian Drowned Reefs (716) and the Late Pleistocene Coralgall Banks (581) proposals.

Either the Atlantic Massif (Mid-Atlantic Ridge) or Chicxulub (Mexico) are the most likely expeditions to take place after our operations in the Baltic Sea. The **Atlantic Massif expedition** will be undertaken with a seabed rockdrill, either MeBo, RD2 or both. There are scientific requirements that go beyond the current capabilities of these drills, which are being clarified with the proponents and will likely require some engineering innovation. The **Chicxulub expedition** will likely be undertaken using a similar setup to the New Jersey Shallow Shelf Expedition, *i.e.* using a land-based drill on a stable platform.

ESO and Professor Andr  Droxler (Rice University, Houston, USA) the lead proponent of the **Coralgal Banks proposal**, have received an offer from Fugro to drill a test borehole for 24 hours on the drilling site using their modern site investigation vessel,

the *R/V Seaprobe*. ECORD has agreed to participate in this test as it provides an excellent opportunity to assess the technology and capability for coring shallow carbonates. The rock properties of these mounds are unknown in detail and the test will provide the evidence to proceed with a vessel such as the Fugro ship, or to utilise a seafloor drill for the full project.



Location of the drillsites of the Baltic Sea Paleoenvironment Exp 347.

Prof. Droxler has potential co-funding from the oil industry to support the completion of several more holes if the trial is successful. He envisages submitting a revised CPP (Complementary Project Proposal) to IODP to complete the full proposal in due course. The test demonstrates the kind of flexibility that is referred to in the new ECORD business plan '*The Future of ECORD 2013-2023*' (page 9) to increase value for money whilst completing excellent scientific proposals and could potentially lead to the first CPP MSP mission for ECORD. This project will be treated as a technical feasibility study as part of the scoping effort of IODP proposal 581, and not as an IODP

Information and reports of Mission-specific platform Expeditions can be found at:

Arctic Coring Exp. 302: <http://www.eso.ecord.org/expeditions/302/302.php>

Tahiti Sea-Level Exp. 310: <http://www.eso.ecord.org/expeditions/310/310.php>

New Jersey Shallow Shelf Exp.313: <http://www.eso.ecord.org/expeditions/313/313.php>

GBREC Exp. 325: <http://www.eso.ecord.org/expeditions/325/325.php>

Data from MSP expeditions are available at: <http://iodp.wdc-mare.org/>

expedition. Therefore ESO will not invite a Science Party, hold an Onshore Science Party or support the scientific analysis of any core material recovered beyond splitting and digital imaging. The core collected will be stored at the IODP Bremen Core Repository (BCR) and after a 12-month moratorium period, in line with IODP conditions, the cores will be available to the scientific community. Any scientific results from the test borehole cores will be written up in a peer-reviewed journal, and will acknowledge ECORD. The proponents will submit articles to both *Scientific Drilling* and the *ECORD Newsletter* within one year of the test drilling.

As part of ECORD's initiative to explore potential collaboration with industry in Arctic scientific drilling, ESO followed up their attendance at the 3P Arctic Conference in Halifax, Canada last August (*in Newsletter #17*) by attending two further Arctic-associated conferences. The 'Finding Petroleum: Exploring the Arctic' conference was held on October 11, 2011 at the Geological Society of London, where David McNroy gave a talk entitled 'The First Deep Coring in the Central Arctic Ocean: The Drilling of the Lomonosov Ridge by the IODP'. David gave a similar talk at the workshop 'Overcoming Barriers to Arctic Ocean Scientific Drilling: the Site Survey Challenge' in Copenhagen from November 1-3, 2011 (*page 13*). In January, David McNroy and Dave Smith also attended a meeting in Stockholm to discuss marine Arctic science and to investigate the potential for the new Ice Class oilfield drillship the *Stena DrillMAX ICE*, to be used as a platform for future Arctic drilling.

In February, Dave Smith attended the **IODP Beaufort Sea meeting** held in Kananaski, Canada (*see report page 12*). With funding from IODP, a group of Canadian scientists brought together research and industry scientists/engineers who are working or interested in working in the Arctic Beaufort Sea region. The meeting was an excellent example of bringing 70+ participants, scientists from different disciplines, (hydrate specialists, paleoceanographers, microbiologists etc.) different countries (8 in total), from Arctic land coring (ICDP), marine, industry (BP, Canadian oil companies etc.), each bringing their

own experience and requirements. ESO were asked to attend to provide input into working and running MSPs in the Arctic.

ESO staff participated at the **AGU Fall Meeting** in San Francisco from 5-9 December 2011 in a variety of capacities. Several staff supported our US and Japanese colleagues at the IODP booth; posters were presented by Ursula Röhl on 'Early Eocene cyclicity at the Wilkes Land Margin, Antarctica: Orbital forcing and environmental response'; Sally Morgan presented her poster 'Correlating chemical and physical signatures through the Mid-Miocene Global Cooling event in New Jersey Shallow Shelf cores (IODP Expedition 313)'; Louise Anderson presented 'The Volcanic Architecture of Rigil (Hole U1374A) and Burton Guyots (U1376A), IODP Expedition 330'; Frank Bosch presented his poster 'NMR study of porosity and permeability variations in artificial, unconsolidated sediment samples during thawing' and Annick Fehr presented 'Studies on thermophysical properties at New Jersey Shallow Shelf (IODP Expedition 313)'.

In January, a number of ESO operations and scientific staff visited the *JOIDES Resolution* during her port call in Lisbon (*pages 5 to 7*). This gave us the opportunity to discuss coring techniques and especially the *JR*'s approach to microbiological sampling, which will be a major feature of the Baltic Sea Paleoenvironment Expedition. The visit proved extremely worthwhile with an additional insight into how the *JR* operates and to see the ship's impressive set of laboratories.

In the last Newsletter we mentioned that Colin Graham was retiring from BGS. Dr Hans-Joachim Wallrabe-Adams at MARUM, Bremen University has now taken over Colin's role as ESO Data Manager, working with Mary Mowat at the British Geological Survey. Hans describes the IODP's Scientific Earth Drilling Information Service (SEDIS) in an article on *pages 18-19* of this Newsletter.

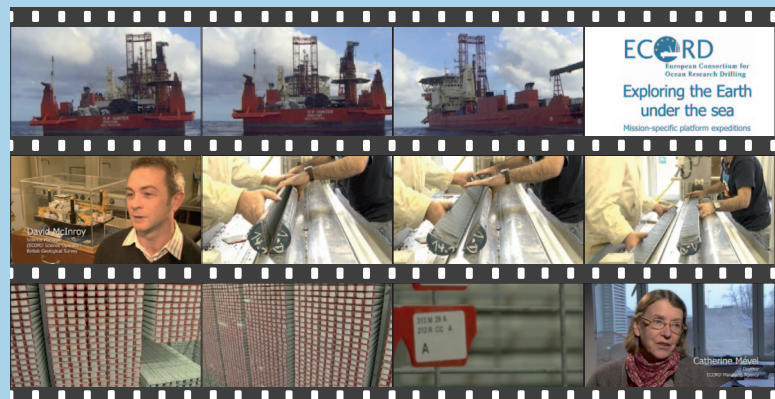
David McNroy, ESO Science Manager, Robert Gatliff, ESO Chair, Dave Smith, ESO Marine Operations Manager and Alan Stevenson, ESO Outreach Manager.
<http://www.eso.ecord.org>

ECORD video 'Exploring the Earth under the sea'

presents mission-specific platform expeditions operated by ECORD as part of IODP, including interviews with ECORD and ESO staff as well as Co-chief Scientists.

Co-produced in association with *cgvision*

Short and long versions are available at:
<http://www.ecord.org/pi/promo.html#video>





Albert Gerdes



Alan Stevenson

ECORD Outreach and Education Activities



Patricia Maruéjol



Julia Gutiérrez Pastor

News from the Outreach team

Since October 2011, the ECORD Outreach team has been busy supporting IODP activities at the AGU 2011 Fall meeting, taking part in the port-call activities in Lisbon (*below and pages 6-7*), releasing new brochures and flyers and opening education calls. The team met in Granada, Spain, on February 14-15, 2012, to plan and organise the ECORD outreach and education activities that will take place during spring and summer 2012.

AGU 2011, December 5-9, 2012

Albert Gerdes and Patricia Maruéjol worked in the IODP-MI booth organised by Miyuki Otomo, IODP-MI Communication Manager. The booth was a central point to meet the IODP science community and our Japanese and US colleagues. ECORD staff also took part in the well-attended IODP Townhall meeting and made contact with the journalists in the media room. Several informal meetings were held with Sarah Saunders and Matt Wright (Ocean Leadership) and Diane Hanano (IODP-Canada) to prepare port-call activities in Lisbon and the IODP-ECORD booth at the Goldschmidt Conference 2012 in Montréal respectively.

Upcoming Events and Activities

Members of the team will be involved in upcoming activities:

- Joint ICDP-IODP activities at **EGU 2012, Vienna, April 22-27, 2012** - <http://www.ecord.org/pilegu12.html>,
- ECORD/IODP booth at the **Goldschmidt 2012, Montréal, Canada, August 14-19, 2012**,
- Support provided to the IODP-Canada booth at GAC-MAC 2012, in St John's, Canada, May 25-27, to the IODP-ICDP booth at the International Geological Congress in Brisbane in August 2012, and to port-call activities to be organised in St John's, NF, Canada when the drillship returns from the Paleogene Newfoundland Expedition.

ECORD information brochures will be distributed in IODP booths at OTC in Houston, JPGU in Chiba-City, Tokyo and IGC in Brisbane (*see conferences page 12*).

ECORD Education

For the first time an ECORD teacher, Helder Pereira, sailed on a 2-month expedition as an Education Officer onboard the *JOIDES Resolution* (*page 8*).

15 ECORD scholarships have been awarded to students who will attend one of the three ECORD summer schools (*page 11*):

- Urbino Summer School in Paleoclimatology, Italy, July 11-31 - www.urbinosp.it
- Bremen ECORD Summer School on Submarine Landslides, Earthquakes and Tsunami, MARUM, Germany, September 3-14 - http://www.marum.de/en/ECORD_Summer_Schools.html
- ECORD summer school in Canada on Impacts of the Cryosphere Dynamics from Land to Ocean, Montréal, July 5-21 - <http://www.geotop.ca/en/37-studying-at-geotop/special-courses/590-summer-school-2012.html>.

ECORD has issued a new call to host ECORD-sponsored summer schools in 2013. The deadline for applications is **May 15, 2012**.

ECORD Outreach team: Albert Gerdes and Alan Stevenson, ESO, Patricia Maruéjol, EMA and Julia Gutiérrez-Pastor, ESSAC - <http://www.ecord.org/pi/promo.html>

Get connected with ECORD!



http://twitter.com/#!/ECORD_outreach



<http://www.ecord.org/RSS/ecord-rss.php>

Mediterranean Outflow Expedition port calls in Portugal

During the Mediterranean Outflow IODP Expedition (November 16, 2011-January 17, 2012), seven sites were drilled in the southern and southwestern Iberian margin, retrieving more than 5 km of contourite sediments for future studies. Before and after the expedition, the drillship *JOIDES Resolution* visited the Portuguese ports of Ponta Delgada (Los Azores) in November 2011 and Lisbon in January 2012. As these two port calls are likely to be the last at a European port before the end of the current programme, it was a great opportunity to open the ship to visitors and to promote the current and future programme in both locations.

ECORD provided support and guidance to the Consortium for Ocean Leadership/USIO teams and organised a media conference (Albert Gerdes, *page 7*) and VIP reception and session (Fernando Barriga, Catherine Mével and Olga Dias, *page 7*) in Lisbon. As reported on *page 6*, all of these events were very well attended, thanks to the efforts and the strong involvement of ECORD, Portuguese and Spanish representatives, and the scientists who worked relentlessly to assist the IODP-USIO teams. The participation of all was essential with such a large number of visitors and was crucial in making the events a success.



Mitch Malone (USIO) led a ship tour to ECORD representatives (photo J. Beck & IODP).

Visiting the *JOIDES Resolution* in Portugal - an offer taken up by many

The offer to visit the *JOIDES Resolution* (*JR*) in Ponta Delgada, Los Azores, and Lisbon was well received, with a total of 858 visitors to the ship (*below*). To accommodate such a high number of visitors in just 4 days (2 in each port) the usual 1.5 hour long tour for *JR* visits had to be changed. Leslie Peart from the Consortium for Ocean Leadership (USA) came up with a new four-stop tour - **Catwalk/ Core Lab/ Cabin/ Bridge** - allowing the visitors to see the most essential sections of the *JR* in about 45-50 minutes. The new tour plan was tested during the Ponta Delgada port call and used again in Lisbon.

	Ponta Delgada	Lisbon	Total
High-school students and teachers	190	114	304
University students, researchers and professors	37	206	243
Scientists from State Labs and other institutes		102	102
General public and Ciência Viva outreach centres	20	58	78
Media	6	25	31
Government and funding agencies reps	9	91	100

Statistics on visitors to JR during Mediterranean Outflow Exp. port calls

When Helder Pereira, the Portuguese Education Officer sailing on Exp. 339, mentioned the possibility to visit the *JR* to his fellow teachers in the Azores, the response was so overwhelming that not all requests could be accommodated. In the end 175 students and 15 teachers from high schools in Ponta Delgada, Lagoa and Ribeira Grande (all on São Miguel island) came to visit the ship. Besides the four-stop tour there was another "first" during this port call when the high-school teachers themselves gave the tours, with a scientist, Helder Pereira or Leslie Peart, "shadowing" and being available to help if needed. To help prepare the teachers, Helder Pereira translated the tour guide into Portuguese and in the evening of November 17 all the teachers visited the *JR* to learn the tour route, to ask questions and to be treated to dinner onboard the *JR* sponsored by the Consortium for Ocean Leadership. The school tours were a great success as shown by the many smiling faces seen in the respective group pictures taken by each class in front of the *JR* with their tour guides! The second day of visits was aimed towards students, researchers and professors from the Azores University, especially from the Center for Volcanology (*photo 1*), the general public, and officials from the local government.

During the Lisbon port call the focus was more on visitors from universities and research institutes in Portugal and Spain (*table*). The visitors from Spain (total of 83) came mostly from the Geological and Mining Institute (IGME) and the universities of Vigo, Salamanca and Granada and their tours were led by the Spanish scientists who sailed on Exp. 339 and by Carlota Escutia, the current ESSAC Chair (*photo 2*). On the Portuguese side, the possibility to visit the *JR* was announced on the webpage of the Faculty of Science at the University Lisbon (FCUL). University groups came from Lisbon, Aveiro and Faro involving geology,



Photo 1: Students from the University of the Azores visiting the Catwalk with Gary Acton (photo courtesy of Eduardo Pinto).

oceanography and biology students. High-school groups from the Lisbon area and the Algarve also visited the ship. Most school students came from the high school in Loulé where Helder Pereira is teaching. One high-school group from Albufeira, who had been involved in a ship-to-shore conference during Exp. 339, was so eager to see the ship in port that they did not mind boarding a bus at 6:30 am to start their trip to Lisbon! Scientific outreach activities in Portugal are largely managed by the Ciência Viva centres (*see ECORD Newsletter #16*). Personnel from the centres in Lousal and Estremoz came to visit and the centre in Lisbon incorporated the visit to *JR* in its current programme enabling 24 visitors from the general public to see the ship.

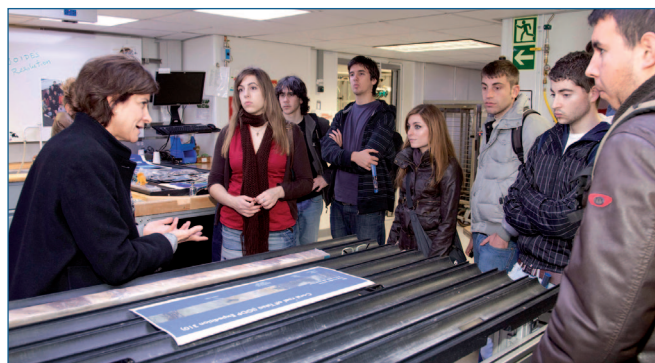


Photo 2: Carlota Escutia on tour with students from the University of Salamanca (photo John Beck & IODP).

Despite the high number of visitors everything went smoothly and the visits were well received by all. This would not have been possible without the help of Sarah Saunders and Leslie Peart from the Consortium for Ocean Leadership and the Deep Earth Academy who provided outreach material for both port calls, the scientists willing to lead or to shadow the tours, and the TAMU and SIEM personnel of Exp. 339 and Exp. 340T who had to work around the tours. IODP Portugal and IODP Spain greatly appreciate your support!

Antje Voelker, ESSAC Delegate Portugal, Helder Pereira, Exp. 339 Education Officer and Carlota Escutia, ESSAC Chair



Earthquakes, Climate Change & Rivers of Sand Media conference JOIDES Resolution in Lisbon

In the late morning of January 16 the US drillship the *JOIDES Resolution* entered the mouth of the Tejo River following 8 weeks at sea carrying out drilling operations for the IODP Mediterranean Outflow Expedition. Shortly after, the ship passed the historic Torre de Belem watchtower before berthing at the docks of Alcantara, a few hundred metres upriver of the famous Ponte 25 de Abril, which very much resembles the Golden Gate Bridge (*front cover*).

In the weeks leading up to this, many emails had been exchanged between the vessel, Ocean Leadership and ECORD colleagues who were busy organising the port-call activities, including a reception (*below and page 6*) and a media conference.

The intense and smoothly running cooperation yielded a lot of fruit. The media conference held in the Centro Científico e Cultural de Macau was very well attended. Four TV channels, including a Spanish station, all major Portuguese newspapers, the national Portuguese and Spanish news agency plus one radio journalist attended the media conference. The event was also attended by staff of the Portuguese Foundation for Science and Technology and the press attaché from the German Embassy.

The speakers were introduced by Albert Gerdes following which Patricia Maruéjol presented information about IODP and ECORD. Fernando Barriga from Lisbon University added insight on Portugal's role within ECORD and IODP, then Co-chief Scientists Dorrik Stow (Heriot Watt University Edinburgh) and

Javier Hernandez-Molina (University of Vigo) presented the first findings of the Mediterranean Outflow Expedition, which drilled both on the west Iberian margin and in the Gulf of Cadiz. During their lively presentations Dorrik and Javier touched on climate history issues, the closing and reopening of the Straits of Gibraltar, and the so-called contourite sands, which were deposited in that area.



After the media conference, Javier Hernandez-Molina, Co-chief Scientist, gave an interview onboard the *JOIDES Resolution* (photo J. Beck & IODP).

The presentations were followed by a Q&A session during which some journalists wanted to learn more about different aspects of the cruise. A number of individual interviews were held with the Co-chief Scientists (*photo*).

There was not much time left before the group had to board the bus and head to Alcantara docks and a tour of the *JR*. Ocean Leadership colleagues Jay Miller and Leslie Peart, expedition scientist Antje Voelker, and Education Officer Helder Pereira welcomed the journalists to the ship's conference room. After a brief introduction, the journalists were divided into two groups and enjoyed a tour of the vessel. Two hours later the last participant stepped off the gangway and checked out at the port security gate.

An interesting and successful day came to an end. As Sarah Saunders, the Director of Science Communication at Ocean Leadership put it: "I have rarely seen so many journalists on board during a *JR* port call!"

Albert Gerdes, ESO Press Relations

ECORD-IODP sessions and reception in Lisbon

ECORD Portugal, together with the ECORD Managing Agency worked with the US Implementing Organization (USIO) to take advantage of the *JOIDES Resolution* port call in Lisbon.

High-level representatives from ECORD member countries, as well as top senior politicians, members of the media and university colleagues from Portugal, were invited to a reception on January 18, 2012. The programme included a tour of the ship (*photo page 5*) and a special session dedicated to a presentation of IODP and the first results of Mediterranean Outflow Expedition. At the same time, ECORD Portugal, in consultation with the NSF (National Science Foundation-USA), decided to pay tribute to key individuals to whom ECORD and IODP are greatly indebted. Those chosen were Mário Ruivo (Portugal) for his lifelong dedication to marine science and technology, and for his key role in Portugal becoming a founding member of ECORD; Gerold Wefer (Germany), Catherine Mével (France) and John Ludden (UK), for their outstanding roles in establishing and managing ECORD; and Jamie Austin (USA) for his lifelong involvement in DSDP, ODP and IODP.

The reception and special sessions held at the Centro Científico e Cultural de Macau, were a great success, as they gathered about 150 people, including a former President of Portugal, 3 Parliament Members, 2 Secretaries of State, one advisor to the President, the former Minister of Higher Education and Science, several University Rectors, Presidents of learned societies and many others, especially scientists and decision makers from Portugal, Spain and other ECORD countries (Belgium, Denmark, France, Germany and Poland).

The success of these events speaks eloquently for the positive and extensive interest that exists at all levels in Portugal regarding ocean drilling affairs. We are sure that the participation of Portugal in ECORD was strengthened by Expedition 339 and the associated events in Portugal. Providing the opportunity to actually assess the remarkable facilities offered to scientists by the *JOIDES Resolution* came at the right time, as funding agencies in Europe are about to decide on the continuation of ECORD post-2013.

Fernando J.A.S. Barriga (Council Delegate), Olga Dias (Council Alternate), Luis Pinheiro (ESSAC Alternate) and Antje Voelker (ESSAC Delegate)



An educator aboard the *JOIDES Resolution* during Mediterranean Outflow Expedition

IODP Mediterranean Outflow Expedition drilled five sites in the Gulf of Cádiz and two sites off the west Iberian margin from November 2011 to January 2012. In total, nearly 5.5 km of core were recovered from a region never before drilled for scientific purposes. The Gulf of Cadiz was targeted for drilling as a key location for the investigation of Mediterranean Outflow Water (MOW) through the Gibraltar Gateway and its influence on global circulation and climate.

It was a privilege to participate as Education Officer and work side by side with the Science Party and crew of the *JOIDES Resolution (JR)* on this expedition. While the scientists and techs kept the labs running 24/7 and the crew and catering staff kept us afloat, operational, fed and clean, I had a special and challenging task. During the expedition I co-ordinated and facilitated the education and outreach activities so we could share the life aboard, and the exciting and cutting edge science done on the ship, with the outside world. Therefore, I was focused on promoting sea-going research and the science goals of the expedition through the *JR*'s education web portal (<http://www.joidesresolution.org/>). Almost 70 blog posts in English, Portuguese, French, Spanish, and Japanese were added to the site by five authors. I also took advantage of the social networking tools by posting daily on the ship's Twitter and Facebook pages. Subjects varied, but included shipboard life, expedition progress, drilling operations and sampling procedures. In addition, four outside blogs/websites were published by onboard scientists (e.g. Lucas Lourens's blog posted at <http://www.uu.nl/faculty/geosciences/NL/Actueel/dossiers/expeditiemediterraneanoutflow/Pages/default.aspx>).

During my shift time I had the opportunity to collaborate with and help the scientists in the lab, and learn from them several aspects of the science beyond the expedition. That scientific

background will allow me to develop classroom activities with my students and fellow teachers that relate to the expedition's scientific objectives and general science by using real data.

However, the most outstanding task I had while on board was the organisation of live video conferences from the ship to schools, universities and science museums from different countries (*photo 1*). With the assistance of scientific, technical and engineering staff, we conducted 31 live ship-to-shore video events, reaching more than 1200 participants (from Canada, Japan, France, Portugal, Spain, UK and USA) with ages ranging from 3 to 82 years old. The excitement of the participants during these events

can be assessed by comments such as "this was my first opportunity to learn through a video broadcast; it was really fun and interesting for us" and "when I heard the sound of the ship's rig-floor machines, I felt like being on the ship". This was made possible thanks to the Deep Earth Academy providing live video broadcasts with the educators and scientists on board the ship during every expedition.

Another important aspect of my participation in this expedition,

which contributed to the promotion of IODP Education and Outreach activities among students, teachers and the general public, were the tours of the ship during the *JR*'s port call in Ponta Delgada and Lisbon. During the two days after the end of the expedition about 600 people visited the ship and among them were my students, colleagues (*photo 2*), friends and family. It was great to see everyone's enthusiasm and specially the smiles and joy on the students' faces during the tours we prepared for them. I hope one day at least one of them will be inspired to sail on the *JOIDES Resolution*.

Helder Pereira, Science Teacher at Escola Secundária de Loulé, Algarve (Portugal)





Gilbert Camoin

ECORD Managing Agency: Working for the future



Milena Borissova

The ECORD Managing Agency (EMA) is now based at the CEREGE, Aix-en-Provence (France) with Gilbert Camoin as Director, Milena Borissova as Assistant Director and Martine Tiercelin as Secretary. Patricia Maruéjol, Science Officer for Education and Outreach, is based at the CRPG, Nancy (France).

During the last few months, most of EMA's activities have been focused on building the future of ECORD within the new *International Ocean Discovery Program (IODP) 'Exploring the Earth beneath the Sea'*. The new IODP is expected to be launched on October 1, 2013.

A new architecture

The New Framework of the International Ocean Discovery Program has been developed by the International Working Group+, with inputs from the Science Implementation and Policy Committee (SIPCom); it has been recently approved by all potential IODP partners.

The new programme architecture (*right*) will maintain an overarching international structure (IODP Forum and Support Office) and an international scientific evaluation system (Science Advisory Structure - SAS), but will be noticeably streamlined. This new architecture will lead to substantial changes in the ECORD structure and functioning (*See document 'The Future of*



ECORD: 2013-2023' at http://www.ecord.org/pub/Future_of_ECORD-2013-2023.pdf). These changes include the setting up of the ECORD Facility Implementation Board (FIB), which will be in charge of planning the mission-specific platform (MSP) operations, and a new Task Force dedicated to long-term vision and planning. The tasks of the ECORD committees will be redefined, partly based on

the recommendations of the ECORD Evaluation Committee (*See ECORD Evaluation Report at http://www.ecord.org/pub/ECORD_evaluation-report.pdf*).

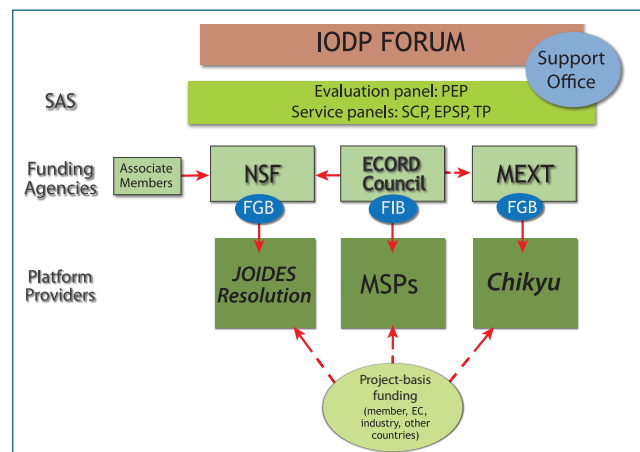
The greater independence of the platform providers will offer a unique opportunity for ECORD to raise its profile as the MSP operator within IODP, while the ECORD scientists will continue to have access to the *JOIDES Resolution* and the *Chikyū*.

The new programme's simplified and more flexible funding model will allow at least one MSP expedition to be implemented each year from 2013 to 2023. ECORD will also seek co-funding on a project-by-project basis from research funds (*e.g.* the European Commission), non-ECORD countries and industry, and will seek additional funds from ECORD countries for specific projects.

A new approach to the MSP concept

ECORD plans to expand the MSP concept to include other tools, such as seabed drills and long-piston coring. This would be done especially through the development of links with other coring programmes such as ICDP and IMAGES, or the use of the European research fleet as MSPs. Whilst sub-seafloor coring will remain a key aspect, the new programme will allow ECORD's work to broaden and include the development of sub-seafloor

observatories alongside new technologies. ECORD has started to work towards the establishment of a "Distributed European Drilling Infrastructure". These tasks include strengthening the co-operation between universities, institutes and SMEs that are developing/operating tools to investigate the sub-seafloor, helping facilitate engineering development and providing a better service to the science community.



General architecture of the International Ocean Discovery Program.

New scientific priorities

The IODP Science Plan for 2013-2023 '*Illuminating Earth's past, present and future*' (<http://www.iodp.org/Science-Plan-for-2013-2023>), has been developed by the international scientific community and will be the guiding document for IODP. Amongst the Science Plan's four major themes, Climate and Ocean Change, Biosphere Frontiers, Earth Connections and Earth in Motion, ECORD, as an MSP operator, plans to focus specifically on issues of particular societal relevance, such as climate change, resources and geohazards. The exploration of the Arctic is also seen as a priority.

The next steps

The next months will be crucial for the future of ECORD and IODP. The 18 ECORD member countries, with Poland as its most recent member (*back cover*), will have to decide on their level of participation within the new programme. EMA has contacted all ECORD funding agencies with a request to send expressions of interest by mid-April 2012. A new ECORD Memorandum of Understanding (MoU) will be developed later this year based on the new programme's funding plan provided by the funding agencies. MoUs between ECORD and other IODP partners (the National Science Foundation - NSF - and the Japanese Ministry of Education, Culture, Sports, Science and Technology -MEXT) should be signed in late 2012 or early 2013.

"The past is a source of knowledge, and the future is a source of hope. Love of the past implies faith in the future." (Stephen Ambrose)

Gilbert Camoin, EMA Director and Milena Borissova, EMA Assistant Director <http://www.ecord.org/ema.html>



Carlota Escutia Dotti

News from



Julia Gutiérrez Pastor

Since I took over as ESSAC Chair on October 1, 2011, with Julia Guterrez-Pastor as Science Co-ordinator, the ESSAC Office has been located at the Instituto Andaluz de Ciencias de la Tierra (CSIC-Univ. Granada), Granada, Spain. The relocation of the ESSAC Office from Bremerhaven to Granada had no negative impact on ESSAC activities.

IODP Expeditions

During the last month, we have issued a call for the mission-specific platform (MSP) **Baltic Sea Paleoenvironment Expedition** (IODP Expedition 347). The deadline for applications is April 30, 2012. It is anticipated that the offshore phase of Expedition 347 will take place during the spring-summer of 2013 (*page 3*). In addition, ESSAC has completed the selection of ECORD scientists for expeditions with the *JOIDES Resolution*: Newfoundland Paleogene and Cretaceous Sediment Drifts Expedition 342, Costa Rica Seismogenesis Project 2 (CRISP2) Expedition 344, and Hess Deep Plutonic Crust Expedition 345; and the *Chikyu*: Deep Coalbed Biosphere off Shimokita Expedition 337, NanTroSEIZE Plate Boundary Deep Riser 2 Expedition 338 and Japan Trench Fast Drilling Project Expedition 343 (*page 17*). For all these expeditions the staffing has been either completed or is in progress. More information about the scientific objectives and precise dates of the expeditions can be found in the *table below* and on the IODP website at <http://www.iodp.org/expeditions/>.

Science Advisory Structure (SAS)

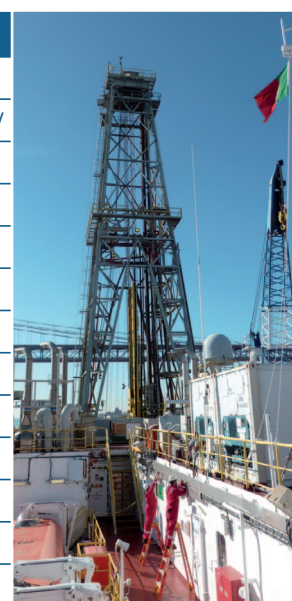
Within the Science Advisory Structure (SAS), Maryline Moulin and Adélie Delacour have been nominated as the new ECORD PEP members replacing Henk Brinkhuis and Julie Carlut respectively (*page 15*). The ECORD Council had previously approved this change. Seven members of the Proposal Evaluation Panel (PEP) and the Site Characterization Panel (SCP) will rotate off by the end of 2012. ESSAC has issued two calls for nominations for ECORD members in the PEP and the SCP. The deadline for nominations is May 15, 2012.

Education

The second phase of the **ECORD Distinguished Lecturer Programme (DLP)** is running very successfully with lectures by Kai-Uwe Hinrichs (MARUM, University of Bremen, Germany) on 'Benthic archaea - the unseen majority with importance to the global carbon cycle revealed by IODP drilling', Dominique Weis (PCIGR, University of British Columbia, Canada) on 'What do we know about mantle plumes and what more can we learn by IODP drilling?' and Helmut Weissert (ETH Zurich, Switzerland) on 'Carbon cycle, oceans and climate in the Cretaceous: lessons from Ocean Drilling (DSDP to IODP) and from records on continents'. This phase of the DLP will be active until June 2012. ESSAC has issued a call for lecturers for the next phase with a deadline for nominations/applications by May 21, 2012. The applicants will be evaluated during the ESSAC May 2012 meeting.

IODP Expedition Drilling Schedule

Expedition	Exp #	Drillship	Dates	Co-chief Scientists
Mid-Atlantic Ridge Microbiology	336	JR	Sept 16 - Nov 17, 2011	W. Bach - K. Edwards
Mediterranean Outflow	339	JR	Nov 17, 2011 - Jan 17, 2012	F. Hernandez-Molina - D. Stow
Atlantis Massif Oceanic Core Complex	340T	JR	Feb 15 - March 3, 2012	D. Blackman
Lesser Antilles Volcanism and Landslides	340	JR	March 3 - April 17, 2012	O. Ishizuka - A. Le Friant
Japan Trench Fast Drilling Project	343	Chikyu	April 1 - May 24, 2012	J.J. Mori - F.M. Chester
Paleogene Newfoundland Sediment Drifts	342	JR	June 2 - August 1, 2012	R. Norris - P. Wilson
Deep Coalbed Biosphere off Shimokita	337	Chikyu	July 6 - Sept 15, 2012	K. U. Hinrichs - F. Inagaki
NanTroSEIZE Plate Boundary Deep Riser 2	338	Chikyu	Sept 19, 2012 - Jan 31, 2013	<i>tba</i>
Costa Rica Seismogenesis Project 2 (CRISP)	344	JR	Oct 23 - Dec 11, 2012	R. Harris - <i>tba</i>
Hess Deep Plutonic Crust	345	JR	Dec 11, 2012 - Feb 10, 2013	K. Gillis - J. Snow
S Alaska Tectonics Climate and Sedimentation	341	JR	May 29 - July 29, 2013	J. Jaeger - S. Gulick
Asian Monsoon	346	JR	Aug 20 - Sept 28, 2013	<i>tba</i>
Baltic Sea Basin Paleoenvironment	<i>tbd</i>	MSP	Spring-Summer 2013	B.B. Jørgensen-T. Andrén



JR: *JOIDES Resolution*, MSP: *mission-specific platform*. Sailing dates may change slightly - <http://www.iodp.org/expeditions>. ECORD Co-chief Scientists are marked in blue. The derrick of the *JOIDES Resolution* when the drillship was docked at Lisbon harbour, January 2012 (photo P. Maruéjol © ECORD/IODP).

A call for ECORD scholarships has been issued to attend the three summer schools sponsored by ECORD. The deadline for applications is March 25, 2012. This year the three ECORD-sponsored summer schools are:

- The Urbino Summer School in Paleoclimatology and ECORD: Past Global Change Reconstruction and Modeling Techniques. University of Urbino, Italy, July 11-31 - <http://www.urbinosp.it/>,
- The ECORD Summer School on Submarine Landslides, Earthquakes and Tsunami, MARUM, University of Bremen, Germany, September 3-14, 2012 - http://www.marum.de/en/ECORD_Summer_Schools.html,
- Impacts of the Cryosphere dynamics from Land to Ocean. An ECORD summer school in Canada, Montréal, July 5-21, 2012 - <http://www.geotop.ca/en/37-studying-at-geotop/special-courses/590-summer-school-2012.html>.

During the next ESSAC meeting, 15 scholarships will be awarded to young scientists who will attend one of the ECORD summer schools.

Furthermore, the ESSAC Office has issued a new call to host **ECORD-sponsored summer schools in 2013**. The deadline for applications is May 15, 2012. Applications will be reviewed at the ESSAC May 2012 meeting.

We are pleased to announce that an ECORD teacher, Helder Pereira from Escola Secundária de Loulé, Algarve (Portugal), sailed on a 2-month expedition (Mediterranean Outflow Expedition 339) as Education Officer onboard the *JOIDES Resolution* (page 8).

A call for applications for **ECORD Research Grants** was issued with a deadline of April 15, 2012. These are merit-based awards for outstanding graduate students to conduct research related to the IODP. These consist of small and short-term grants, which should cover travel and lab expenses.

While preparing the next **ESSAC meeting** to be held on May 30 - June 1, 2012 in Aarhus (Denmark), Julia as Science Co-ordinator and myself as Chair, would like to thank all the ESSAC Delegates and the other IODP/ECORD bodies for their active co-operation during the recent months, which has helped the smooth transition of the ESSAC Office from Bremerhaven to Granada. We hope that this constructive and efficient co-operation between all of us will continue during the coming months, which are so important for the transition to the new post-2013 scientific drilling programme.

Carlota Escutia Dotti, ESSAC Chair and Julia Gutiérrez Pastor, ESSAC Science Co-ordinator - <http://www.essac.ecord.org/>

EuroFORUM 2012: Major achievements and perspectives in scientific ocean and continental drilling

The principal goals of this session are to summarise and review major scientific achievements in ocean and continental drilling with special emphasis on the European contributions to IODP and ICDP. Furthermore, perspectives and visions for drilling projects using a multi-platform approach will be tackled.

EGU 2012 CL5.11

Oral Programme / Tuesday, April 24, 13:30-17:00 / Room 16

Poster Programme / Attendance Tuesday, April 24, 17:30-19:00 / Hall Z

Convenor: Carlota Escutia Dotti | **Co-Convenors:** U. Harms, U. Röhl, T. Wiersberg and R. Stein

<http://meetingorganizer.copernicus.org/EGU2012/session/9056/>

Recent publications with ECORD authors

- McCaig, M.A. and Harris, M. (2012) Hydrothermal circulation and the dike-gabbro transition in the detachment mode of slow seafloor spreading; new results from IODP Site U1309. *Geology*, 40, 367-370, doi: 10.1130/G32789.1
- Deschamps, P., Durand, N., Bard, E., Hamelin, B., Camoin, G., Thomas, A., Henderson, G. Okuno, J., Yokoyama, Y. (2012) Ice sheet collapse and sea-level rise at the Bølling warming 14,600 yr ago. *Nature*, 483, 559-564, doi:10.1038/nature10902
- Minakov, A.N. and Podladchikov, Y.Y. (2012) Tectonic subsidence of the Lomonosov Ridge. *Geology*, 40, 2 99-102, doi: 10.1130/G32445.1
- Romero, O.E., Swann, G.E.A., Hodell, D.A., Helmke, P., Rey5, D. and Rubio, B. (2011) A highly productive Subarctic Atlantic during the LIG and the role of diatoms. *Geology*, 39, 11, 1015-1018, doi:10.1130/G32454.
- März, C., Vogt, C., Schnetger, B., Brumsack, H.J. (2011) Variable Eocene-Miocene sedimentation processes and bottom water redox conditions in the Central Arctic Ocean (IODP Expedition 302). *EPSL*, 310, 3-4, 526-37, doi:10.1016/j.epsl.2011.08.025
- Sakaguchi, A., Kimura, G., Strasser, M., Sreaton, E.J., Curewitz, D. and Murayama M. (2011) Episodic seafloor mud brecciation due to great subduction zone earthquakes. *Geology*, 39, 919-922, doi:10.1130/G32043.1
- Koepke, J., L. France, T. Müller, F. Faure, N. Goetze, W. Dziony, and B. Ildefonse (2011), Gabbros from IODP Site 1256, equatorial Pacific: Insight into axial magma chamber processes at fast spreading ocean ridges, *Geochem. Geophys. Geosyst.*, 12, Q09014, doi:10.1029/2011GC003655.
- Gilbert, L. A. and M. H. Salisbury (2011), Oceanic crustal velocities from laboratory and logging measurements of Integrated Ocean Drilling Program Hole 1256D, *Geochem. Geophys. Geosyst.*, 12, Q09001, doi:10.1029/2011GC003750.

Workshop and Conference Announcements

- ◆ Magellan+ Workshop Series <http://www.essac.ecord.org/index.php?mod=workshop&page=call-workshop>
- ◆ ECORD Distinguished Lecturer Programme 2010-2012
<http://www.essac.ecord.org/index.php?mod=education&page=dlp>
- ◆ EGU 2012, April 22-27, 2012, Vienna, Austria <http://www.egu2012.eu/>
- ◆ OTC 2012, April 30-May 3, 2012, Houston, USA <http://www.otcnet.org/2012/>
- ◆ JPGU 2012, May 20-25, 2012, Chiba-city, Japan http://www.jpgu.org/meeting_e/
- ◆ GAC-MAC 2012, May 27-29, 2012, StJohn's, NF, Canada <http://stjohns2012.ca/>
- ◆ Goldschmidt 2012, June 24-29, 2012, Montréal, Canada <http://www.goldschmidt2012.org/>
- ◆ 12th International Coral Reef Symposium (ICRS), July 9-13, 2012, Cairns, Australia <http://www.icrs2012.com/>
- ◆ 34th IGC, August 5-10, 2012, Brisbane, Australia <http://www.34igc.org/>
- ◆ Observatories in Scientific Ocean Drilling Workshp, September 10-11, Houston, TX, USA
<http://iodp-usssp.org/workshop/observatories/>
- ◆ AGU 2012 Fall Meeting, December 3-7, 2012, San Francisco, USA <http://fallmeeting.agu.org/2012/>

Report of IODP Workshp

IODP Workshp: Co-ordinated scientific drilling in the Beaufort Sea: Addressing past, present and future changes in Arctic terrestrial and marine systems, February 12-15, 2012, Kananaskis, Alberta, Canada (www.iodpcanada.ca/outreach/beaufort)

Convenors: Matt O'Regan (matt.oregan@geo.su.se), Scott Dallimore (scott.dallimore@nrca-nrcan.gc.ca), Anne de Vernal (devernal.anne@uqam.ca) and Pierre Francus (pierre.francus@ete.inrs.ca)

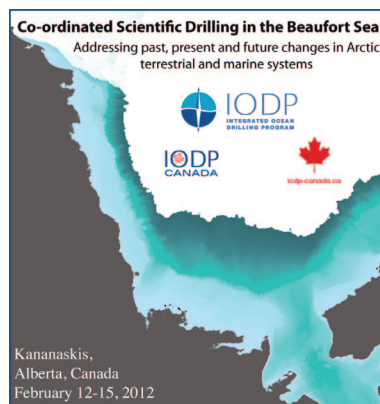
The aim of this workshop was to define and integrate the scientific questions and drilling strategies required to assess environmental change and geohazards in the Beaufort Sea. It was designed to build upon two existing IODP/ICDP pre-proposals for drilling in the Canadian Beaufort Sea and an emerging IODP pre-proposal for the Alaskan Shelf.

Scientific drilling in this sector of the Arctic Ocean is required to address a range of interrelated themes that include; the glacial history of the Laurentide ice sheet and its influence on sea level (currently large uncertainties exist concerning its northern extent and profile even during the Last Glacial Maximum); the global and regional significance of paleoclimatic, paleohydrologic and paleoceanographic conditions in the Western Arctic; the stability, microbiology and process linkages associated with the degradation of shelf permafrost and gas hydrates as well as deeper water marine gas hydrates; and the broad interrelationships of these issues to slope stability and marine geohazards.

Funding for the workshop was provided by IODP-MI, IODP-Canada, ICDP-Canada and Natural Resources Canada. Over 70 participants attended from 8 countries (Canada, France, Germany, Japan, South Korea, Sweden, United Kingdom and the United States) and included

representatives from academia, national research agencies, industry, government regulators, as well as managers from ESO (*page 4*), IODP-USIO and ICDP.

A synthesis of the key scientific questions and drilling strategies highlighted during workshop presentations and discussions will be compiled as a white paper. These included scientific questions and targets not currently addressed by existing pre-proposals that could either be incorporated during the development of full proposals, or form the basis of additional stand-alone proposals for future drilling in the Beaufort Sea.



Immediate outcomes of the workshop were to (1) Clarify how to collaboratively link IODP and ICDP in future drilling efforts in the Beaufort Sea, (2) Start co-ordinating site-survey and coring expeditions during upcoming field seasons in support of drilling plans, (3) Initiate discussions between industry, government and academia on joint interests in drilling and how collaborative efforts and data-sharing could expediate scientific drilling initiatives, (4) Review the logistical and operational challenges that need

to be overcome in order to advance field work and (5) Undertake a preliminary assessment of technological requirements in terms of special procedures for drilling, coring and monitoring this unique sub-seafloor environment.

Reports of Magellan Workshop Series

◆ Overcoming barriers to Arctic Ocean drilling: the site-survey challenge, November 1-3, 2011, Copenhagen (Denmark)

Convenors: Naja Mikkelsen (nm@geus.dk), Rüdiger Stein (ruediger.stein@awi.de), Bernard Coakley (bernard.coakley@gi.alaska.edu)

The workshop 'Overcoming barriers to Arctic Ocean Drilling: the site-survey challenge' was designed to define site-survey investigations for specific IODP-type campaigns in key areas of the Arctic Ocean based on existing proposals and



Active IODP proposals in the Arctic area.

680: The Bering Strait, global climate change and land bridge paleoecology; **708:** A paleoceanographic transect across the Central Arctic Ocean: towards a continuous Cainozoic record from a greenhouse to an icehouse world; **750:** Chukchi Shelf to Slope transect: linking Beringian and Arctic Ocean history; **753:** Late Quaternary paleoceanography and glacial dynamics in the Beaufort Sea; **756:** Morris Jessup Rise: drilling the Arctic Ocean exit gateway.

pre-proposals developed during the 2008 Magellan workshop at the Alfred Wegener Institute in Bremerhaven, Germany (see ECORD Newsletter #12 at <http://www.ecord.org/pub/nl.html>). A further goal of the workshop was to identify themes and areas for developing new and innovative science proposals and to

discuss opportunities, technical needs and limitations for future scientific drilling in the Arctic Ocean. As highlighted during the 2003 Joint European Ocean Drilling Initiative (JEODI) workshop in Copenhagen (<http://www.ecord.org/j/wp5-wkshp.pdf>), the lack of comprehensive high-resolution site-survey data restricts the planning of future Arctic Ocean drilling. It is also true that the lack of age control for existing seismic reflection data may require stratigraphic test legs to the Arctic Ocean to bootstrap drilling generally.

Technical requirements for future site-survey campaigns in the Arctic Ocean were also discussed, as were different site-survey campaigns aimed at using other types of drilling e.g. Mebo, the BGS Rockdrill 2 and long-piston coring. Information on the possibilities represented by 3D-seismic site surveys in seasonally ice-free Arctic Ocean regions was highlighted in this context, as was the potential of closer collaboration with industry.

New and alternative ships available for drilling and seismic surveys in the Arctic Ocean were debated. While ice-capable platforms are still needed, declining ice cover in parts of the Arctic Ocean may enable the IODP drillship *JOIDES Resolution* to operate unaided, particularly in the Beaufort Sea and western Arctic Ocean. The new ship, *Stena DrillMAX ICE*, designed to drill in ice-infested waters was presented as an alternative to the three-ship operations used during the 2004 IODP-ACEX campaign on the Lomonosov Ridge, and the use of hovercraft for undertaking seismic surveys was discussed as an alternative to larger seismic vessels. There was a general consensus that future seismic campaigns

and drilling operations could well be at a smaller scale compared to previous campaigns in the Arctic Ocean.

Major scientific themes and hypotheses related to active and planned Arctic Ocean proposals (left) were identified by breakout groups. For the Lomonosov Ridge, Beaufort Sea and Chukchi Plateau areas, concrete strategies for future drilling campaigns were developed and ideas for a gas-hydrate theme were developed into a new Pan-Arctic drilling proposal: 'Arctic methane in ocean and climate system'. Further proposals resulting from recent Arctic drilling workshops will be submitted to the coming IODP proposal deadlines.



Thirty-one scientists from Denmark, Germany, Norway, Israel, Italy, Korea, Russia, Sweden, the United Kingdom and the USA participated in the workshop in Rungstedgård, Copenhagen, Denmark.

The convenors gratefully acknowledge the generous support provided by the European Consortium for Ocean Research Drilling (ECORD), European Science Foundation (Magellan Workshop Series) and International Arctic Science Committee (Marine Working Group).

Full reports of the Magellan Workshop Series are posted on: <http://www.esf.org/magellan> (click on 'Science Meetings')

Welcome to MagellanPlus!

In order to realise the full potential of European involvement in pan-European scientific drilling, it is imperative that scientists continue to participate fully in the planning and execution of promising research. The **MagellanPlus (Magellan⁺) Workshop Series Programme** is designed to support European and Canadian scientists in developing new and innovative science proposals for submission to IODP and ICDP. The Magellan⁺ Workshop Series Programme will thus continue and expand the success of the terminating ESF Magellan Workshop Series Programme, through the integration of continental and marine drilling and coring to meet future challenges in Earth, Life and Environmental sciences.

The Magellan⁺ Workshop Series Programme supports workshops that are expected to lead to high-quality, new and innovative science. The programme has two calls annually; deadlines are **February 1** and **July 1**. Proposals are reviewed by the Magellan⁺ Steering Committee (MSC), with the advice of external reviewers where applicable. Proponents will be notified of the outcome within two months following the submission deadline.

Proposals should include complete and realistic scripts for the proposed workshop, and a funded workshop must be executed within nine months after notification of funding. A typical workshop is expected to take place over 2-4 days, and have 20-35 participants. The workshop should be located close to a convenient air and/or train hub and have relatively low-cost facilities. The participation of young scientists will be particularly

encouraged. International experts of the relevant disciplines are expected to be invited to the workshops to provide scientific input to the workshop themes and enable international collaboration. Priority is given to proponents from ECORD and ICDP member countries.

The first call for submission of proposals, which closed on February 1, resulted in two workshops that will be held in 2012: **(1)** Records of Geohazards and Monsoonal Changes in the Northern Bay of Bengal - Preparation of an IODP Drilling Proposal (by Volkhard Spiess, Tilmann Schwenk and Herrman-Rudolf Kudrass) with the aim of optimising an existing proposal for drilling the geohazard and paleoclimate history in the Gulf of Bengal.

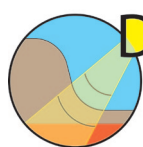
(2) Drilling an active hydrothermal system of a submarine intraoceanic arc volcano (by Wolfgang Bach and Cornel de Ronde) with the aim of preparing a proposal for IODP to drill into an active hydrothermal system hosted by a submarine intraoceanic arc volcano.

The next deadline for submission of workshop proposals is **July 1, 2012**.

The contribution of the Magellan⁺ Workshop Series will not exceed 15,000 Euros per workshop. The proponent is encouraged to seek co-funding from other sources.

For questions please contact magellan.plus@bgr.de.

Jochen Erbacher, Chair of the Magellan⁺ Workshop Series Programme



DS³F Deep-Sea and Sub-Seafloor Conference - March 11-14, 2012, Sitges (Spain)

The Deep-Sea and Sub-Seafloor Frontiers (DS³F) project, funded by the European Commission, is now in its third and final year. After successful workshops on individual work packages spanning biosciences, geosciences and technologies, a large international conference was held in Sitges, Spain from March 11-14, 2012. Approximately 250 experts from the majority of the European countries, Russia, Japan, USA and Canada (*photo*) gathered to discuss the most recent achievements in all areas of deep-sea research and combine them with the earlier workshop results. Nine keynote lectures, 41 oral presentations and 155 posters were presented, and the meeting was wrapped up with a presentation by EC-Project officer Ana-Teresa Caetano and a plenary discussion led by Co-ordinator Achim Kopf. The main objectives were future funding opportunities for the sub-seafloor community within the upcoming EU framework programme Horizon 2020 and how the key issues should be addressed by the DS³F community in their evolving 'White paper'.

For the remainder of the DS³F project, there are plans for further condensation of the workshop results and their dissemination as the 'White paper', outreach articles and representation at the EGU assembly 2012 in Vienna. Interested scientists from the drilling community and other disciplines are invited to visit the



DS³F booth (#22) at EGU 2012, or attend the Townhall meeting on Wednesday, April 25 (Room 6, 19-20h)

Please visit the conference website <http://www.ds3f2012.org> and the project website <http://www-deep-sea-frontier.eu> for more information.

Achim Kopf, DS³F Co-ordinator and Miquel Canals, DS³F Conference Organiser

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A Letter from Austria

Austrian activities in ocean drilling date back to the early days of DSDP, when Herbert Stradner (Geological Survey Vienna) sailed on the *Glomar Challenger* in 1970, 1979 and 1980 and Fred Rögl (Natural History Museum Vienna) sailed in 1974. After this early heyday of activities there was a long period of repose in Austrian ocean drilling, which ended in 2005 when Austria became a member of ECORD and started to become involved in IODP. Austria's membership of ECORD has been funded equally by the Austrian Science Fund (FWF) and the Austrian Academy of Sciences (ÖAW).

The crooked way for Austrians to sail

There are two important aspects to keep in mind concerning the ongoing Austrian activities in ocean drilling, (1) generally, the Earth Science community in Austria is very small, offering only limited human resources for ocean drilling, and (2) its research emphasis is very conservative. By the second point we mean that many Austrian earth scientists are extremely dedicated to their inherent landlocked province. However, in 2008 we had our first applicant selected by ESSAC to sail on Expedition 323 Bering Sea Paleooceanography, although unfortunately the expedition was postponed. By the time the expedition was re-scheduled later in 2009, the applicant was no longer available to take part. A second candidate applied to participate in Expedition 325 Great Barrier Reef Environmental Changes, was selected by ESSAC, but finally substituted by the Co-chief Scientists due to the need for different scientific expertise. The third Austrian applicant, to take part in Expedition 337 Deep Coalbed Biosphere off Shimokita, was positively ranked by ESSAC and successfully approved, however the expedition was postponed when the *Chikyu* was damaged during the 2011 tsunami.



IODP Expedition 339: Mediterranean Outflow: Members of the nightshift (photo Lucas Lourens & IODP).

The turning point and break through

The next Austrian candidate applied at the end of 2010 to sail on Expedition 339 Mediterranean Outflow, and was positively ranked by ESSAC and accepted for the expedition science party. Patrick Grunert (University of Graz), who was onboard the *JR* as micropaleontologist (benthic foraminifers) from November 16, 2011 to January 17, 2012, was therefore the

first Austrian scientist to participate in an IODP expedition. Having successfully integrated into the team both socially and scientifically, Patrick Grunert has been invited to participate in the 1st Post-cruise Meeting in College Station in April 2012 and he will also be a member of the sampling party in Bremen in June 2012. His dedication to the project and his scientific integration into the working group offers a promising perspective for the upcoming scientific results that will be produced from the expedition.



Micropaleontologist Patrick Grunert (Institut of Earth Sciences, Department of Geology and Paleontology, University of Graz, Austria) identifying benthic foraminifers (photo José-Abel Flores & IODP).

From an optimistic point of view, 2012 could see the continuation of Austria's successful activities within ECORD/IODP. Expedition 337 Deep Coalbed Biosphere off Shimokita has been re-scheduled for July - September 2012 and Doris Reischenbacher (University of Leoben) is still an invited and actively interested candidate to sail. In addition, Walter Kurz (University of Graz) has applied to take part in Expedition 344 Costa Rica Seismogenesis Project 2 (CRISP2) and has recently been selected by ESSAC. The CRISP2 Expedition is scheduled for October 23 - December 11, 2012 (*see table page 10*) and Walter will hopefully be the first Austrian scientist from the hard-rock community to participate in an IODP expedition.

In addition to these expedition activities, several students have participated in the ECORD-sponsored summer schools (Urbino, Bremen) demonstrating the interest of Austria's young earth science community in ocean drilling activities.

Our three expedition participants prove that Austria has scientists with a strong interest in ocean drilling and, with the different scientific expertise represented by the three participants, it shows that the scientific interest is broad. We therefore have a promising view of Austrian participation in future activities within this and - hopefully - the next ocean drilling programme.

Werner Piller (ESSAC Delegate), Reinhard Belocky, (ECORD Council Delegate) and Michael Wagreich (ESSAC Alternate).

Chikyu to Sail to the Japan Trench 2011 Tohoku Earthquake Rapid Response Drilling Project

Rapid Response Drilling

"The 2011 Tohoku earthquake shocked the people of Japan, as well as earthquake experts, because of the huge tsunami that caused so much damage and took so many lives," said Dr. James J. Mori, of the Disaster Prevention Research Institute of Kyoto University, who continued: "the seismological, geological, and ocean science communities have a clear obligation to learn and explain as much as possible about this event. The earthquake occurred in the sub-seafloor, which is the realm of IODP research, so its scientists should be leading these important investigations."



IODP Expedition 343, "Japan Trench Fast Drilling Project" (JFAST), at sea since April 1, required a significantly rapid mobilisation of IODP research facilities to prepare for measuring the residual heat signature of the earthquake fault zone, and other time-dependent properties. International science team members are now aboard the state-of-the-art scientific drilling vessel *Chikyu* (left) to meet the challenge of drilling to the fault zone of the Tohoku earthquake. Drs. Mori and Chester from

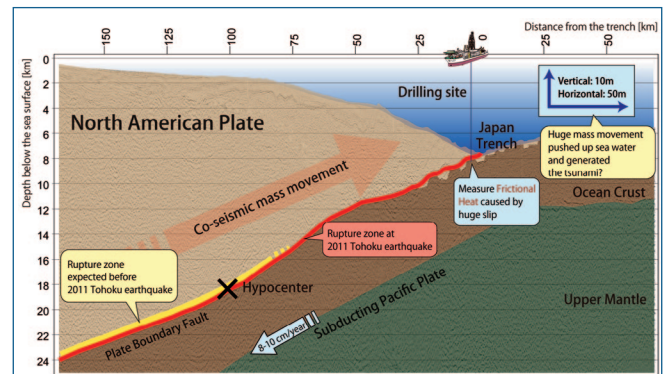
Texas A&M University are leading an international Science Party comprised of 28 scientists from 10 IODP member countries.

Previously, it was thought that the plate-boundary fault zone within the accretionary wedge near the trench was "weak", and would not accumulate large amounts of stress in the time leading up to an earthquake. Therefore, the large slip that occurred during the M9 2011 Tohoku earthquake was not expected, showing that scientists are still a long way from fully understanding the mechanisms of such large earthquakes.

The main goal of the JFAST project is to investigate the very large fault slip (up to 50 meters in places) that occurred on the shallow portion of the subduction zone near the trench during the 2011 Tohoku earthquake. This large slip was the main source of the devastating tsunami that caused much destruction and loss of lives along the northeast coast of Honshu, Japan. Understanding the Tohoku earthquake and related tsunami has obvious consequences for evaluating the hazards at other subduction zones around the world.

Time-Sensitive Measurements

This expedition has two main objectives. The first is to collect core samples from the fault zone in order to analyse its physical properties. The second is to collect temperature measurements to estimate the frictional stress during the earthquake (top right) This will be the first time scientists will have collected samples of a recent fault that has experienced such a large amount of displacement during an earthquake.



The main operations of the expedition include drilling two boreholes at a single site; the first hole to collect downhole geophysical data to determine in-situ stress and locate the fault zone, and the second hole to retrieve core samples from the fault zone. Each hole will be completed with an observatory deployment comprised of a suite of temperature and pressure sensors. Data will be retrieved later by ROV.

The key to understanding the dynamics of large ruptures is to know the level of dynamic friction on the fault, and one of the most direct ways to estimate fault friction during the earthquake is to measure the residual heat at the fault zone. Theoretical calculations show that measurements need to begin within two years following the earthquake in order to accurately resolve the diminishing temperature signal. Several important time-sensitive measurements are needed to reliably estimate friction, including the fault temperature, fault-zone permeability and chemical properties of the fluids and rock.

Ultra-Deep Water Challenge

In addition to the ambitious science objectives of JFAST, there is a great operational challenge in drilling in ultra-deep water. The drill site is located just west of the axis of the Japan Trench, in water 6,910 meters deep. *Chikyu* will drill as much as 1000 meters below the seafloor to reach the fault zone. Only one other expedition has successfully drilled in such deep water; in 1978, the *Glomar Challenger* drilled in 7,034 meters of water in the Mariana Trench, although the borehole was only 15 meters deep. In the current expedition to the Japan Trench, *Chikyu* will be facing great scientific, engineering, and record-setting challenges.

Mitigating Future Hazards

Dr. Chester expressed his resolution before departure that "As a scientist, I have an obligation and desire to help us learn as much as we can about the origin of great tsunami earthquakes in the hopes of minimising human suffering and property damage in future events around Japan and throughout the world."

Chikyu departed on JFAST, the drilling and observatory installation expedition, on April 1 and will return on May 24, 2012.

Updates on the expedition are now available at this website:

<http://www.jamstec.go.jp/chikyu/exp343/e/index.html>

James J. Mori and Frederick Chester (Expedition 343 Co-chief Scientists), Nobu Eguchi and Sean Toczko (Expedition 343 Project Managers)

Navigating the data: Scientific Earth Drilling Information Service - SEDIS

Michael Diepenbroek ¹, Hannes Grobe ², Robert Huber ¹, Uwe Schindler ¹, Stefanie Schumacher ², Hans-Joachim Wallrabe-Adams ¹ and Jamus Collier ³

The Integrated Ocean Drilling Program (IODP) has set up a web-based information service (Scientific Earth Drilling Information Service, SEDIS, <http://sedis.iodp.org>), which integrates the data of the three IODP implementing organizations from the United States (USIO), Japan (CDEX) and Europe with Canada (ECORD). The **SEDIS portal** provides information on ODP, DSDP and IODP expeditions, publications and data. Moreover, post-cruise data has been collected from geoscientific journals. Datasets can be downloaded as tab-delimited text files.

The **SEDIS concept** aligns with multinational data initiatives, such as the Global Earth Observation System of Systems (GEOSS) and the World Data System (WDS) of the International Council for Science (ICSU), which endorse federated system data services, including long-term preservation and publication of data as recommended by the Organisation for Economic Co-operation and Development (OECD). SEDIS provides a single point of access to expedition-generated core descriptions, core measurements, logging data, publications, and post-expedition data. Each of the three platform providers is responsible for its own data management activities through its own data system during the data collection and moratorium period. SEDIS harvests metadata from the platform providers' data systems to enable searching and browsing of the distributed datasets. SEDIS is built on open-source components and uses international standards and protocols for metadata and data. Datasets and publications are referenced by Digital Object Identifiers (DOI's).

ECORD Data Management

For IODP mission-specific platform (MSP) expeditions a working database - the Drilling Information System (DIS) - is used (Graham, 2008), a system that is mobile, flexible and that can be deployed quickly on small-

medium-sized drilling platforms of opportunity, and which can also be deployed onshore in laboratories where the bulk of the scientific work is conducted. The long-term archive for the European Consortium for Research Drilling MSP-Expedition data is PANGAEA® - Data Publisher for Earth & Environmental Science, which belongs to the ICSU World Data System (Conze et al. 2007, Wallrabe-Adams 2011). Beside a combined website for Bremen Core Repository (BCR) information and MSP data, all MSP data are available via SEDIS.

SEDIS portal functionalities Searching data

SEDIS is furnished with a full-text search engine. The search page provides various ways of data mining (Figure 1). Predefined text fields for search terms or keywords can be used in all combinations. Keywords can be chosen by opening the thesaurus (Figure 2). Hierarchically ordered geoscientific terms allow choosing proper search keywords without the danger of misspelling. A click on the lens button near a term will start the search using this term.

A geographical search can be initiated by clicking on the wind rose in the center of the latitude/longitude input fields. A map appears, which offers a tool to draw a bounding box to define the search area. The bounding box can also be defined by filling the latitude/longitude fields. A search for data collected within a certain time span is also available and, again, all combinations are possible.

Search results can be visualised on a Google map and single result points can be picked to select the related data set(s).

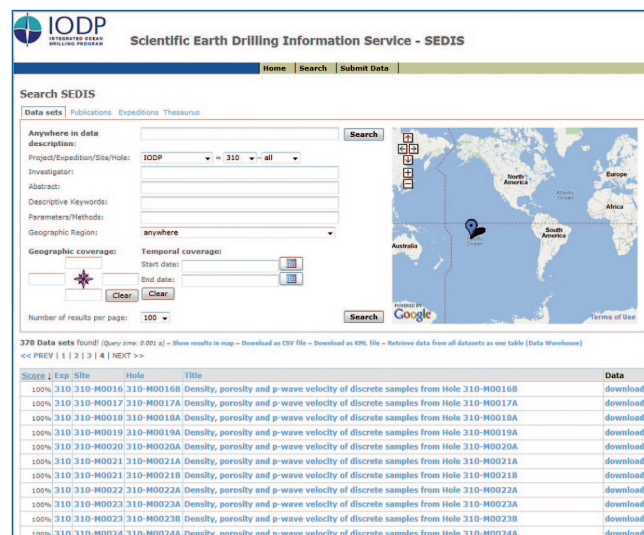


Figure 1: Screen shot of the SEDIS search form.

On the other hand, this map can be used to define a search area.

The search result set is listed at the lower part of the search page. Clicking the data set title opens a metadata sheet (Figure 3), which then allows opening the data set within the browser. Clicking the 'Download' button directly allows a tab-delimited text file containing the complete metadata and the data table to be downloaded.

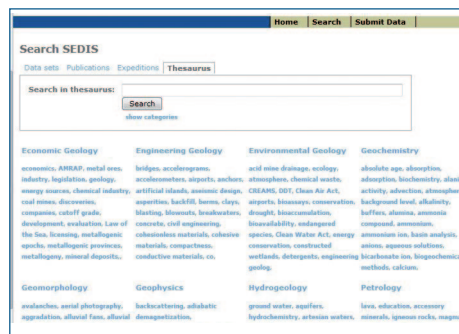


Figure 2: Screen shot of the Thesaurus.

The links located between the search form and the result list provides buttons to

- (1) download the result list including the DOIs to the datasets,
- (2) download a *.klm (Google Earth) file and
- (3) to filter the data result set for specific parameters (Data Warehouse).

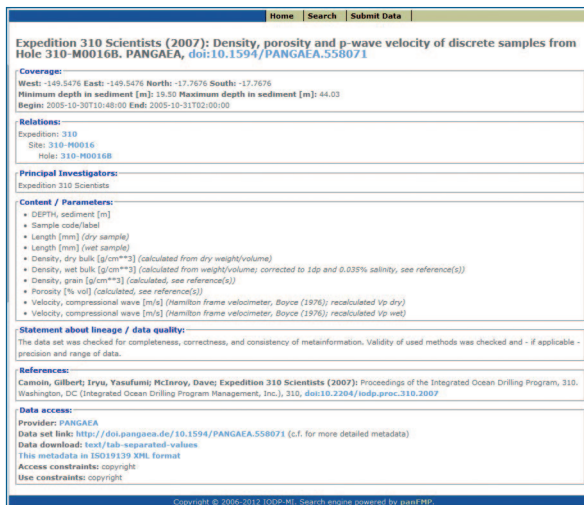


Figure 3: Example of metadata of a data set.

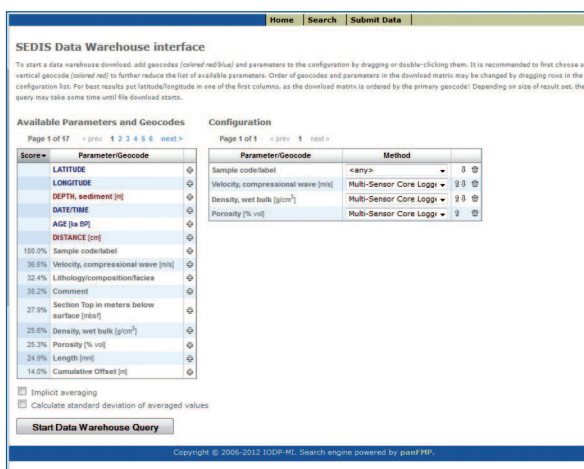


Figure 4: Screen shot of Data Warehouse.

A very special tool is the 'Data Warehouse' (Figure 4), which is available when a successful search lists the result set below the search form. The Data Warehouse can then be used to filter for selected parameters to get a compiled data file containing the extracted information from all result datasets in a single table.

Publications and Expeditions

The first ocean drilling expeditions started in 1968 and since then have generated a huge amount of datasets, shared in many national and international journals. The majority of publications (with related primary data) are produced after an expedition and sometimes published years later. These "post-cruise" publications are distributed in various journals related to marine geosciences, both major publishers and in smaller journals, e.g. of national societies. In almost all cases none of the related primary data are available in machine-readable form on the Internet

For scientists working in the field of marine geology, it is therefore almost impossible to get an overview of the availability of research data. In 2007, IODP initiated a project to store former post-cruise data that were printed in individual publications in an Open Access repository. The project started by screening previously published DSDP and ODP publications, extracting the data, reformatting the data according to international standards and making those data supplements available through a data system. In addition, each data table and each supplement had to be identified in the long-term by use of a persistent identifier. SEDIS includes a database for all related DSDP, ODP and IODP publications. Records were provided through the GeoRef/IODP portal operated by the American Geological Institute.

The SEDIS expedition catalog also contains all expeditions of the DSDP, ODP and IODP. Searching the catalog results in a metadata set which lists the expedition information and a link leading to all expedition related datasets.

Data submission

The third tab on the SEDIS page opens a data submission tool. Here it is possible to upload data (tables, documents, images, etc.) to the editorial system of PANGAEA. Data curators will choose these data and prepare them for import. The preparation process is communicated between the data provider and the curator via this system. Registration at PANGAEA is required before using this tool.

SEDIS in the future programme

The International Ocean Discovery Program will further develop the Scientific Information Service. It will be used as the common data and information portal.

SEDIS will therefore not only serve as the basis for the data and information infrastructure for the new International Ocean Discovery Program, but will also ensure the long-term preservation and availability of legacy data from the Deep Sea Drilling Project, Ocean Drilling Program, and the current Integrated Ocean Drilling Program. SEDIS will be further developed, adding web-based services for data retrieval and data display in support of broader, multidisciplinary use of programme findings. SEDIS also includes access to other data relevant to ocean-drilling from terrestrial or lake drilling programmes and will provide links to other networks such as WDS or GEOSS. The portal is designed to integrate available scientific data via metadata by employing international standards for metadata, data exchange and transfer.

The Integrated Ocean Drilling Program publishes its initial drilling results and core descriptions on the web. Short, peer-reviewed summaries of initial scientific results are presented in the journal *Scientific Drilling*, published jointly with the International Continental Scientific Drilling Program (ICDP). All post-drilling research is published in the open, peer-reviewed literature and is tracked by SEDIS. The International Ocean Discovery Program plans to use similar avenues to disseminate scientific results.

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³ IODP-MI, Tokyo, Japan

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Welcome to Poland
18th ECORD member



ECORD Representatives for Poland are:

Jerzy Nawrocki, delegate (*photo*) and Piotr Krzywiec, alternate, at **ECORD Council**,

Szymon Uscinowicz, delegate, and Piotr Przedziecki, alternate, at **ESSAC**.

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An electronic version is available for download at <http://www.ecord.org/pub/nl.html> - **Contact:** Patricia Maruéjol: ema@cerege.fr - *Printed by Vagner Graphic*

The cover photographs were taken (front cover) as the JOIDES Resolution enters Lisbon harbour at the end of the Mediterranean Outflow Expedition (photo Fernando Barriga) and (back cover), at the signature of the MoU between Poland and ECORD on December 14, 2011 (http://www.ecord.org/new_members.html).