

The International Ocean Discovery Program—Preparing for Launch

The Integrated Ocean Drilling Program (IODP) international Working Group+ (IWG+) has released a New IODP Framework, establishing the business model for scientific ocean drilling to apply from October 2013 (www.iodp.org/doc_download/3485-new-iodp-framework-17-august-2012). Planning for the transition to the new IODP by the IWG+ (www.iodp.org/international-working-group-plus) has been underway since 2010. The New IODP Framework and a new Science Plan (<http://www.iodp.org/science-plan-for-2013-2023>) will serve as a foundation for the next decade of international collaboration in scientific ocean drilling.

The U.S. National Science Foundation (NSF) has received approval from the National Science Board for operation of the US operated drilling vessel *JOIDES Resolution (JR)* under the new program framework for one year starting October 2013. Based on experiences gained the NSF will then prepare and submit a proposal covering another ten years of internationally co-funded *JR* operations within IODP. Meanwhile, Japan's Ministry of Education, Culture, Sports, Science, and Technology (MEXT) will develop long-term funding models for the

riser-drilling vessel *Chikyu*, and the European Consortium for Ocean Research Drilling (ECOR) will seek approval from its eighteen members for continued funding of its fiscal contribution to program platforms including its own operations of Mission Specific Platforms (MSPs).

Among the significant changes from the current IODP outlined in the Framework document is the replacement of central program management and platform scheduling by IODP Management International with three Facility Governing Boards (FGBs)—one for each platform—to manage and schedule platform operations. NSF will establish an IODP Support Office to coordinate a single scientific advisory structure (SAS) that will advise all three FGBs and support other central program activities. MEXT and *Chikyu* owner JAMSTEC (Japan Agency for Marine-Earth Science and Technology) will establish a Project Partnership Office to develop funding and facilitate large-scale collaborations, and to support SAS processes for the riser drilling projects. A non-executive IODP Forum consisting of community scientists, and to include representatives from funding agencies, platform operators and others, will be the custodian of the Science Plan and a venue for exchanging views on the scientific progress of the Program provided by the three drilling platforms. The Australia-New Zealand IODP consortium (ANZIC), IODP China, IODP India, IODP Korea, and the most recent IODP member, Brazil, are all preparing for their membership in the new IODP under this new program structure.



Lake Ohrid Drilling Postponed

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Coring operations at Lake Ohrid, Macedonia were planned to be conducted from September to November this year. However, during the mobilization from the United States to Europe the container vessel *MSC Flaminia* caught fire and was evacuated almost in the middle of the Atlantic Ocean. The vessel is currently manned by a salvage crew and the fire is extinguished, but the status of the cargo is still unclear. Due to this delay and potential damage or loss of coring equipment, a start of the drilling operation at Lake Ohrid this year is highly unlikely and has been postponed.

CHIKYU+10 International IODP Workshop

21–23 April 2013, Tokyo, Japan

For more information: Chikyu10@iodp.org



D/V *Chikyu*, owned and operated by the Japan Agency for Marine-Earth Science and Technology (JAMSTEC), is one of the three scientific drilling platforms that will continue to operate in the next phase of the International Ocean Discovery Program (IODP). Its deep riser drilling capability offers unique opportunities to address a number of key challenges described in the IODP New Science Plan.

The workshop aims to identify science priorities to be addressed using the *Chikyu* over the next decade. The outcome of the workshop will influence JAMSTEC's decisions as it prepares *Chikyu's* next Five-Year Plan under the auspices of the Ministry of Education, Culture, Sports, Science, and Technology (MEXT), as well as *Chikyu's* long-range plan for the next ten years.

An international steering committee of approximately fifteen carefully chosen members will design and organize the workshop facilitated by IODP Management International (IODP-MI). Truly deep targets such as the ongoing NanTroSEIZE require long-term commitment, careful planning and project management. In the present financial outlook, there can likely be a few riser projects of the

NanTroSEIZE-scale in the coming ten years, thus the need for international prioritization based on realistic projections.

The workshop will discuss all the active riser drilling proposals as well as new ideas with technical feasibility and scientific excellence and will map onto decadal roadmaps. Details will be announced on the IODP website.

UK Joins the International Continental Scientific Drilling Program

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The UK has become a full member of the (International

Continental Scientific Drilling Program (ICDP) in effect from April 2012. A launch meeting attended by seventy scientists was held at British Geological Survey, Nottingham, in July 2012. The UK is an active member of the (IODP) but has never before participated as a formal member of the ICDP, despite involvement of scientists in a number of programs. It is important that UK scientists are able to participate fully in ICDP to initiate programs and to allow them to collaborate with existing international science programs involving ICDP. The British Geological Survey (BGS) agreed to invest in membership of the ICDP on behalf of the UK's Earth Science Sector to build national capability for the geoscience community. The membership allows UK scientists to now

fully participate within ICDP projects via access to key geological sections in order to gain information on processes that cause global change, to understand the controls on resource development, to help monitor and model natural hazards (through borehole monitoring), and to investigate fluid-related biological processes in the sub-surface. UK geoscientists will now be fully engaged in both IODP and ICDP and can help develop synergies between these programs. At the same time the BGS will work with European countries through ECORD-IODP (<http://www.ecord.org/>) and the European members of ICDP to create a European infrastructure for scientific research drilling.

More information can be found on the ICDP-UK web site: <http://www.bgs.ac.uk/icdp>.

A small group of UK scientists have been nominated to act as ICDP-UK convenors for the first phase of UK membership. UK geoscientists can contact members from this group for further information: <http://www.bgs.ac.uk/icdp/ukconvenors.html>.

First Generation of MeBo-CORKs Extend Capabilities



IODP
INTEGRATED OCEAN
DRILLING PROGRAM

The sea-floor drill rig MeBo,

developed at MARUM, University of Bremen, Germany, is capable of drilling 75 mbsf in water depths exceeding 2000 meters

(http://www.marum.de/en/Sea_floor_drill_rig_MeBo.html). Recently, the first long-term observatories for MeBo boreholes were developed and deployed on active mud volcanoes in the Nankai Trough subduction zone, Japan. After hole completion with MeBo, the drill pipe is left in the ground as casing, and an instrument of the same geometry is added to "CORK" the hole (i.e. obviate communication between hole and overlying seafloor). The self-contained instrument comprises pressure and temperature transducers, a data logger, and an acoustic modem so that data download from ships of opportunity is feasible. In the lower portion of the instrumented rod, a needle-shaped drop weight connected to hydraulic tubes is released acoustically and penetrates the sediment at the bottom of the hole. The tubes primarily serve to monitor pressure but can also be utilized to extract fluid samples if the simple MeBo-CORK instrument is disconnected at its hot stab and gets replaced by a seafloor unit with an osmo-sampler. The hot stab connection ensures that instruments can be replaced easily by remotely operated underwater vehicle (ROV) and allows holes to be used repeatedly. Given that seafloor drills are envisaged as an affordable mission-specific tool in IODP from 2013 onwards, these first generation MeBo-CORKs offer many opportunities for the scientific community.

CDEX Successfully Completes Japan Trench Fast Drilling Project (J-FAST)



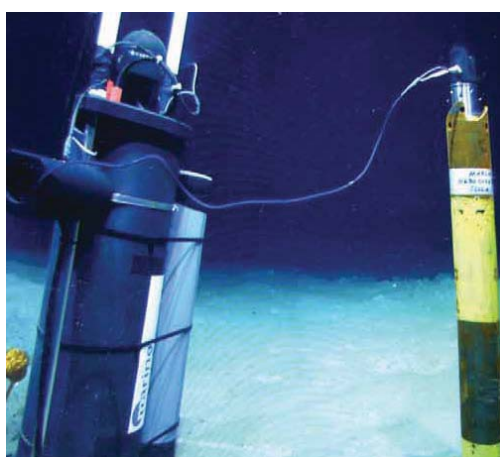
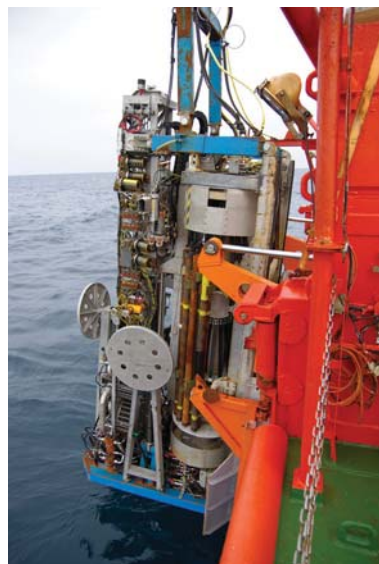
IODP
EXPEDITIONS
343
AND 343T



CDEX
CENTER FOR DEEP EARTH EXPLORATION

IODP Expeditions 343 and 343T were successfully completed

by Center for Deep Earth Exploration (CDEX), with the Expedition Science Party overcoming technical and weather challenges to enable D/V *Chikyu* to set a new record drilling depth in scientific ocean drilling with a total of 7768.5 m measured from the



Left: MeBo seafloor drill rig; Right: MeBo-CORK seafloor unit after ROV visit. Plastic tube right of pressure housing hosts osmo-sampler.

rig floor (7740 m below sea level). Most importantly, the science party was able to obtain core samples from the fault zone and install borehole observatories to monitor conditions at the fault.

The J-FAST Expedition demonstrated IODP's ability to respond quickly to learn more about the devastating Great East Japan Earthquake of 11 March 2011. Planning for J-FAST started soon after the earthquake and after repairs to *Chikyu* from damage caused by the tsunami, the Expedition began at the port of Shimizu on 1 April 2012. Expedition 343T, J-FAST II, was an extension of the project approved by IODP SAS and funded by MEXT/JAMSTEC to give the Science Party time to install the borehole observatories after earlier delays prevented their deployment during the initial Expedition.

The J-FAST expedition represents the first time that frictional heat produced by the fault slip of a great subduction zone earthquake could be measured at the fault zone. The instal-

led borehole observatories will enable scientist to monitor the temperature of the fault zone and study the physics of the earthquake at the fault.

DEBI RCN Meeting at Bremen



On 7–9 June 2012, sixty researchers from five countries gathered at MARUM, University of Bremen, Germany (www.marum.de), for this year's Dark Energy Biosphere Institute (DEBI) Research Coordination Network (RCN) Meeting. Lectures and training workshops including IODP cores focused on ocean crust processes and consequences for sub-seafloor life. The science conference part of the Bremen meeting provided a forum for presenting and discussing the most recent results in ocean crust processes and identifying the most

pressing challenges that lie ahead. Specific focus was on (1) crustal heterogeneity and fluid flow, (2) ocean-crust interactions, and (3) role of microbes in rock alteration.

The 3-day meeting had equal time for a science conference and a training workshop. Both parts were focused on recent developments in understanding ocean crust formation and evolution, ocean-crust exchange, and detection of sub-basement life and microbe-rock interactions. The conference portion provided a forum to present research activities and findings to a broadly trained but scientifically focused audience. The training workshop served as a means to further educate scientists and students. The aim was to present key research techniques and methods commonly employed, to discuss the advantages and drawbacks for specific applications, to produce consensus recommendations, and to make available detailed lab and field protocols. A visit to the IODP Bremen Core Repository (BCR) (http://www.marum.de/en/IODP_Bremen_Core_

Southwest Pacific Ocean IODP Workshop

8–11 October 2012, Sydney, Australia

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This workshop, to be held at Sydney University, will address global

geoscience problems in the Southwest Pacific Ocean by building on existing and new geophysical and geological information including earlier scientific drilling. This news item reports on progress since the announcement of the workshop in the April 2012 edition of *Scientific Drilling*. The workshop themes are largely those in the new science plan:

1) Climate and Ocean Change: Reading the Past, Informing the Future

Co-chairs: Tim Naish (NZ) and Jim Kennett (USA)

2) Biosphere Frontiers: Deep Life, Biodiversity, and Environmental Forcing of Ecosystems

Co-chairs: Steven D'Hondt (USA) and Ken Takai (Japan)

3) Earth Connections: Deep Processes and Their Impact on Earth's Surface Environment

Co-chairs: Richard Arculus (Australia) and Mike Gurnis (USA)

4) Earth in Motion: Processes and Hazards on Human Time Scales

Co-chairs: Laura Wallace (USA) and Jim Mori (Japan)

5) Marine Resources: Opportunities and Responsibilities

Co-Chairs: Alex Malahoff (New Zealand) and Clinton Foster (Australia)

Funding has been made available by IODP-MI, U.S. Science Support Program (USSSP), ANZIC and Japan Drilling Earth Science Consortium (J-DESC). The event was advertised in *EoS* in May, and on the IODP (www.iodp.org) and ANZIC (www.iodp.org.au) web sites, and it has generated considerable interest. As of early August, we expected more than eighty participants, with a large proportion being from outside Australia and New Zealand.

The workshop will provide a forum to review the latest work in the region, briefly outline possible future IODP expeditions, coordinate activities associated with scheduled and proposed geoscience research cruises in the area, and set up working groups to develop proposals for post-2013 IODP expeditions. It will also explore co-investment opportunities between IODP partners and other parties, including industry. There is no doubt that the Workshop will succeed in its main aim of starting to build coherent and well-integrated proposals for the International Ocean Discovery Program starting in late 2013.

Repository.html) was also included to show first-hand the rock samples currently available for study. Workshop participants learned details of ship-board core recovery, sampling, and other techniques pertinent to subsea-floor biosphere expeditions.

Further information: <http://www.darkenergybiosphere.org/RCN/meetings/2012.html>

ECORD Summer School 2012 in Canada



The joint ECORD/ICDP/IODP-Canada Summer School on cryosphere dynamics took place from 5–21 July in Montréal, Québec. Nineteen participants gathered from universities in Belgium, Canada, Denmark, Greece, Sweden, the Netherlands, and the UK.

The first week consisted of classes and workshops presented by invited lecturers at GEOTOP (University of Québec in Montréal), focused on reconstructing the cryosphere and climate change in the Cenozoic from different perspectives and time scales, using modeling, geomorphology, palaeomagnetism, and terrestrial and marine core records. During the second week, the summer school travelled to the north shore of the St. Lawrence River for a 5-day field excursion. At Lac Walker, an ancient fjord now the deepest known lake in Québec, participants carried out surveys using

CTD profiles, took underwater gravity cores and explored the nearshore surface sediments with a remotely operated submarine. Students also conducted sub-bottom acoustic profiling and high-resolution multibeam bathymetry; and they were guided through numerous outcrops of Quaternary sediments. Upon returning from the field, students participated in interactive exercises and classes on microfossil analysis, sedimentary analysis, seismic interpretation, time series analysis, radiogenic and stable isotope methods.

The Canadian summer school offered an excellent opportunity for students of diverse nationalities and academic backgrounds to collaborate and learn about the current understanding of cryosphere dynamics and methods used to reconstruct past climate change.

IODP/ICDP at the International Geological Congress (IGC) in Brisbane



The International Geological Congress in Brisbane (6–10 August 2012) attracted more than 6000 participants and over 200 exhibitors, including a joint IODP-ICDP exhibition booth. It was a successful conference, and many international scientists turned out for IODP- and ICDP-related events.

There were thirty-six major themes covered in the symposia and some excellent plenary talks. The IODP Symposium was part of the Marine Geoscience and Paleoceanography Theme, and attracted thirteen oral presentations and several poster presentations. The audience size varied from forty to seventy, and the talks generated favorable comments. Keynote addresses were by Neville Exon on general aspects of IODP and its



Miyuki Otomo, Neville Exon, Catherine Beasley and Carol Cotterill at the IODP booth at IGC.

future, Dorrik Stow on the Mediterranean Outflow Expedition 339, and Mike Mottl on porewater chemistry in ocean drilling. The audience was particularly large when Jody Webster spoke on aspects of the Great Barrier Reef Expedition 325. A number of other IODP-based talks were given in various other symposia, thus getting the word about IODP out to a wider audience. ICDP held an evening ICDP Primer that was well attended.

The IODP/ICDP booth was staffed by Catherine Beasley of ANZIC, Thomas Wiersberg and Uli Harms of ICDP, and Miyuki Otomo and Jamus Collier of IODP-MI. Many people were deeply interested, and many scientists with ocean drilling experience came by and enlivened the discussions. Carol Cotterill of ECORD deserves particular thanks for her generous help. Many visitors asked about the planning for a Mohole in the next phase of IODP. Visitors helped themselves to all of the available information and scientific material, a sign of widespread interest.



Section of Holocene deposits along the north coast of the St. Lawrence estuary.