SPRING 2013

CORE DISCOVERIES

The Newsletter for US Scientific Ocean Drilling

INSIDE THIS ISSUE

On the cover: The re-entry cone, a device that helps guide the drill string back into an existing hole, splashes down into the moon pool on the JOIDES Resolution *during Expedition 345 (Hess Deep Plutonic Crust).*

The Integrated Ocean Drilling Program (IODP) is an international research program dedicated to advancing scientific understanding of the Earth through drilling, coring, and monitoring the subseafloor. The U.S. Science Support Program (USSSP) supports the involvement of the U.S. scientific community in IODP and is funded by the National Science Foundation (NSF). The *JOIDES Resolution* is a scientific research vessel managed by the U.S. Implementing Organization of IODP (USIO). Together, Texas A&M University, Lamont-Doherty Earth Observatory of Columbia University, and the Consortium for Ocean Leadership comprise the USIO. IODP is supported by two lead agencies: the U.S. NSF and Japan's Ministry of Education, Culture, Sports, Science, and Technology (MEXT). Additional program support comes from the European Consortium for Ocean Research Drilling (ECORD), the Australia-New Zealand IODP Consortium (ANZIC), India's Ministry of Earth Sciences, the People's Republic of China (Ministry of Science and Technology), and the Korea Institute of Geoscience and Mineral Resources.

To contact the editor or subscribe to *Core Discoveries*, contact: *mwright@oceanleadership.org*; 202-448-1254

For more information about IODP, visit: *www.iodp.org*

For more information about USIO and USSSP, visit: *www.oceanleadership.org/programs-and-partnerships/*

UPCOMING EVENTS/ MEETINGS/WORKSHOPS

AGU Meeting of the Americas
May 14-17, 2013
Cancun, Mexico
http://sites.agu.org/meetings/

U.S. Advisory Committee for Scientific Ocean Drilling Meeting
June 25-27, 2013
Washington, DC
http://iodp-usssp.org/committees/usac/

Site Characterization Panel
June 17-19, 2013
Santa Cruz, California

Proposal Evaluation Panel
June 19-22, 2013
Santa Cruz, California

***Chikyu* IODP Board Meeting**
July 23-24, 2013
Yokohama, Japan

IODP Deep Biosphere Research Workshop
August 25, 2013
Florence, Italy
Info: email Beth Orcutt (borcutt@bigelow.org)

***JOIDES Resolution* Facility Board Meeting**
August 26-28, 2013
Washington, DC

IODP Drilling Proposal Deadline
October 1, 2013
http://www.iodp.org/submitting-proposals

Geological Society of American Annual Meeting
October 27-30, 2013
Denver, Colorado
http://community.geosociety.org /2013AnnualMeeting

EXPEDITION UPDATES

The *JOIDES Resolution* Heads to the Gulf of Alaska to Investigate Climate Change and Earth Systems

The *JOIDES Resolution's* next adventure, Expedition 341 (Southern Alaska Margin Tectonics, Climate and Sedimentation), will be underway May 29-July 29. Led by co-chiefs John Jaeger (U. of Florida) and Sean Gulick (U. of Texas), the international team of 34 scientists will travel to the Gulf of Alaska to collect and study sediments from five different locations along the continental margin. To better understand the relationship between the Earth's dynamic geologic processes and climate history, the team will investigate the interactions between long-term global climate change (particularly the growth of larger erosive glaciers), and the growth of mountain belts, including the flux of eroded sediments from the mountains to the deep sea. Other goals include gaining a better understanding of the timing of the advance and retreat of the Northern Cordilleran Ice Sheet relative to other global ice sheets, obtaining a record of magnetic field reversals in the Gulf of Alaska, and a taking a look at ocean circulation dynamics and their effect on the carbon cycle during transitions into and out of ice ages.

Photo by John Jaeger

NanTroSEIZE Project To Resume Riser Drilling Later This Year

The Nankai Trough Seismogenic Zone (NanTroSEIZE) project has drilled the most comprehensive transect of a subduction zone forearc and its plate boundary fault systems. The principal objective – deep riser drilling, sampling, and instrumentation of a plate boundary fault – remains to be completed. Nonetheless, some major milestones have recently been met. For example, a sophisticated long-term borehole observatory, installed in Hole C0002G during Expedition 332, came online in early 2013. Real-time seismic, pore pressure, strain, and tilt data from this key location are now streaming to mainland Japan. For more information, see *www.jamstec.go.jp/donet/e/index.html*

On Expedition 338 (Sept. 2012 – Jan. 2013), riser drilling of the main target at Hole C0002F began successfully, despite currents of more than four knots – something that was long feared to be technically infeasible. Unfortunately, a strong and sudden winter storm front forced the *Chikyu* off site, requiring an emergency disconnect of the riser, which was damaged in the process. This event ended riser drilling for Expedition 338. The team drilled alternative riserless sites in the remaining expedition time, including an effort to characterize the properties and alteration of the incoming plate's basaltic basement. Later this year, Expedition 348 will return and deepen riser Hole C0002F. This should set the stage for the final phase of riser drilling to the mega-splay fault target in 2015.

EDUCATION & DIVERSITY NEWS

Farewell to Leslie Peart

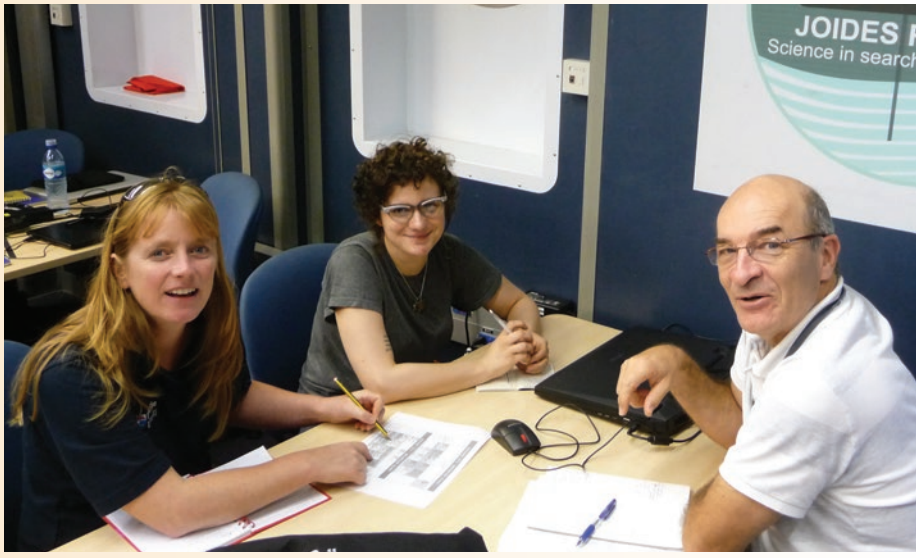
In January, Deep Earth Academy bid farewell to Leslie Peart, director of the program since its inception in 2004. During her tenure, Peart initiated School of Rock – a hands-on professional development program that affords educators the opportunity to live and work on board the *JOIDES Resolution* during transits or in port, or at the Gulf Coast Repository when the ship is unavailable. Peart also oversaw the creation of the *JOIDES Resolution* web site, the redesign of the Education Officer program, and a number of successful external grant programs. She left the drilling program to take a position at the Texas State Aquarium in Corpus Christi, TX, where her family lives.

"The decision to leave IODP was nearly impossible – many tears were involved. I loved the science, the ship, and the people, and hope I will always be involved," Peart said. "Directing Deep Earth Academy was the most fun, the greatest joy, and the hardest work I had ever known, which is saying a lot, given my background as a classroom teacher. I am extremely proud of what we accomplished."

International Team Tells the Story of Hess Deep

Deep Earth Academy had the rare opportunity to sail three Education Officers on Expedition 345 (Hess Deep Plutonic Crust). With help from ECORD on the selection of international candidates, the program sailed Nicole Kurtz, an artist and illustrator from Cleveland, Susan Gebbels from Newcastle University in the U.K. and Jean-Luc Berenguer, a high school teacher at the International School in Valbonne, Sophia Antipolis, France. Berenguer had previously sailed on a School of Rock expedition in 2009.

On Hess Deep, the team hosted a record-setting 93 live video broadcasts to classrooms in 16 countries, often using purpose-built interactive props and puppets. They also developed seven new curriculum pieces focused on a variety of ocean-related topics. Several of these are available at http://joidesresolution.org/node/2738 and the rest will be posted soon. Kurtz worked with expedition scientists on a wide variety of art and science projects. She created two video animations about the expedition, a set of Expedition 345 Trading Cards, an "Introduction to IODP" poster, graphics for on-board events, and a series of conceptual illustrations using thin sections and photomicrographs.



L-R, Susan Gebbels, Nicole Kurtz and Jean-Luc Berenguer discuss Hess Deep outreach plans on board the JOIDES Resolution

RESEARCH HIGHLIGHT

Deep Biosphere Research Hits Its Stride

Heath Mills, Texas A&M University and Beth Orcutt, Bigelow Laboratory for Ocean Sciences

Deep biosphere research has grown so quickly over the last several decades, it's enough to make a fast-growing microbe jealous. Biological characterization of the diversity and function of life in the ocean crust first moved into a prominent role in the drilling program with ODP Leg 201. Recently, however, it has been the main focus of several expeditions, including 329 (South Pacific Gyre Subseafloor Life) and 336 (Mid-Atlantic Ridge Microbiology) on board the *JOIDES Resolution*, and 337 (Deep Coalbed Biosphere off Shimokita) on board the *Chikyu*. With these, and through microbiological work on other expeditions, the deep biosphere research community is finding its stride. Moreover, new deep biosphere-focused research programs such as the Center for Dark Energy Biosphere Investigations (C-DEBI) are enabling new colleagues to get involved in this fast moving field.

Why are we, as a community, so excited to do the research that we do? Consider several recent advances in our understanding of life in the subsurface. Challenging conventional estimates of the size of the deep biosphere, Kallmeyer et al. (2012) published new calculations that significantly revised the estimated biomass within the subsurface, prompting a flurry of discussion from the community. Orsi et al. (2013) provided more evidence for the presence of fungi in the subsurface, firmly establishing a third domain of life in this biome, in addition to bacteria and archaea. Lever et al. (2013) presented evidence for microbial life within crustal basalt, which may prove to be the largest habitat on the planet. If this has piqued your interest, check out the C-DEBI website for more: www.darkenergybiosphere.org/resources/publications.html

The deep biosphere community is looking forward to the next round of samples, expeditions and workshops to provide more chances to reveal secrets about subsurface life. Expedition 347 (Baltic Sea Paleoenvironment), a Mission-Specific Platform expedition scheduled for this summer, is poised to yield an in-depth analysis of microbial diversity and activity in the Baltic Sea basin. There will also be a subsurface biosphere meeting and sessions at the Goldschmidt 2013 conference in August and a C-DEBI All-Hands meeting in October. These events will provide an opportunity for members of our community to share ideas, success stories and conclusions to better guide where the field is going. With a new wave of deep biosphere researchers emerging, we look forward to the future of deep biosphere research in the next phase of IODP.

References:

Orsi, W. et al. 2013. PLoS One 8(2).

Kallmeyer, J. et al. 2012. Proceedings of the National Academy of Sciences 109 (40), 16213-16216.

Lever, M. et al. 2013. Science 339 (6125) 1305-1308.

From the rig floors of the drilling platforms to the desks of member offices worldwide, IODP is a dynamic yet complicated program. This section is designed to explain the "ins and outs" of different aspects of IODP. In each issue, we will select one or two topics to highlight – we invite you to test your IODP knowledge and to learn something new about the program.

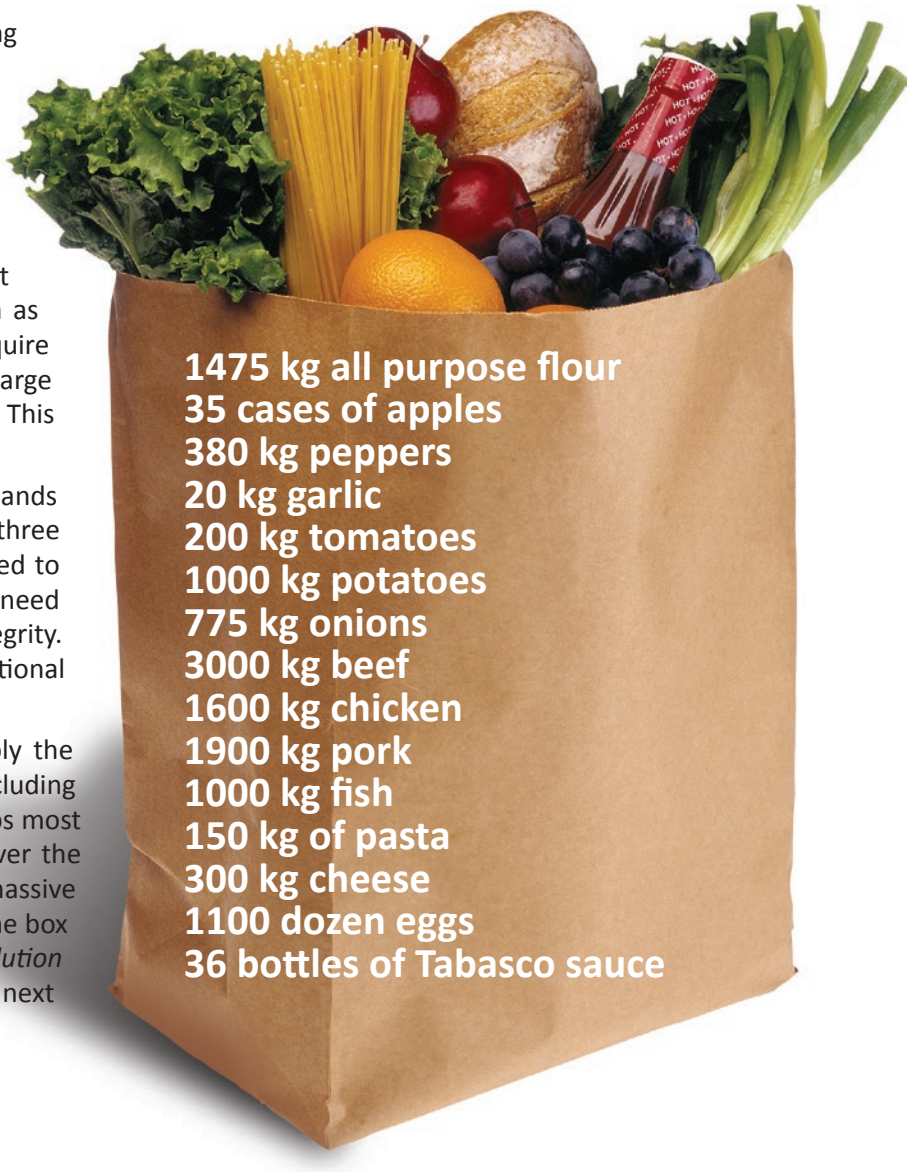
How It Works: Outfitting the *JOIDES Resolution*

Every expedition of the *JOIDES Resolution* requires an impressive amount of specific hardware and supplies – as well as food – that must be shipped to and from ports around the world. To acquire, receive, pack and ship all of this, and then load and unload it all in the course of a typical 5-day port call, a group of dedicated staff work behind the scenes for months in advance. By the time the ship sets sail, the crew and science party have everything they need to achieve each expedition's objectives.

The USIO supplies all of the coring and drilling equipment that is not permanently mounted on the rig itself. This includes large items such as the drill string, all the way down to the nuts and bolts that hold everything together. Supplies such as bits, drilling mud, cement and core liners must be accounted for as well. The USIO also supplies all of the laboratory equipment and technical support hardware. A hardware-intensive expedition, such as one that involves casing and observatories, can require as many as 45 separate shipping units, from large 40-foot containers down to small boxes and crates. This can total more than 250 tons of freight.

After the expedition, the USIO sends thousands of meters of core from the port to one of three repositories around the world. Some samples need to go directly to scientists' labs, including a few that need to be kept cool or frozen to ensure sample integrity. Each shipment must comply with myriad international shipping standards and import-export rules.

The ship owner and their subcontractors supply the many other items needed for an expedition, including things like toilet paper, laundry soap and – perhaps most importantly – food. Feeding up to 129 people over the course of a two-month expedition requires a massive amount of food, spices, and other supplies. See the box for a small excerpt from a typical *JOIDES Resolution* shopping list. Something to think about on your next trip to the grocery store!



LETTER FROM THE NSF

Dear Colleagues,

The past few months have been busy for the NSF-ODP Team as we near the start of the new International Ocean Discovery Program on October 1, 2013.

An external panel convened February 29 - March 1, 2013 to consider proposals submitted in response to NSF solicitations for the Operations and Management of the *JOIDES Resolution*, the U.S. facility contribution to this new program, and for the Science Support Office. All organizations that submitted Letters of Intent last fall delivered robust proposals. The NSF-ODP team is currently assessing the panel's summaries and preparing recommendations to the GEO/OCE management. Subject to the availability of funds within the GEO/OCE budget and a long-term plan that preserves a healthy balance between science and facilities with the Ocean Sciences Division, NSF may seek approval from the National Science Board this coming November for award of the *JOIDES Resolution* Operations Cooperative Agreement. Negotiations for awarding the Support Office Cooperative Agreement, which does not require National Science Board approval, are underway with an anticipated start date of July 2013 for this office.

The scientific membership for the newly established *JOIDES Resolution* Facility Board (JRFB), the entity providing operational and scientific oversight for the *JOIDES Resolution*, was selected this past winter. The U.S. Advisory Committee for Scientific Ocean Drilling reviewed applications from 22 well-respected international scientists and recommended five representatives to serve on the JRFB. These scientists and their terms of service are:

Heiko Pälike
University of Bremen
3 year term

Rick Murray
Boston University
3 year term

Susan Humphris
Woods Hole Oceanographic Institution
2 year term

Akira Ishiwatari
Tohoku University
1 year term

Gabe Filippelli
Indiana University – Purdue University Indianapolis
1 year term

Susan Humphris will serve a two-year term as Chair. The varied terms of service for this initial lineup will enable a staggered rotation as new members are selected to serve full 3-year terms.

The first JRFB meeting convened at NSF Headquarters March 18-20. Major outcomes include a tentative schedule for FY2015 operations and agreement on a long-term regional track for the *JOIDES Resolution*, provided approval from the National Science Board and the availability of funds in the GEO/OCE budgets. If approved, the ship will conduct four expeditions in the Indian Ocean during FY2015. Operations will likely continue in the Indian Ocean/Southwest Pacific region through FY2016-2017, with the ship moving towards the South Atlantic in FY2018-2019.

Sincerely,

The NSF-ODP Team

Rodey Batiza, James Allan, Jim Beard,
Tom Janecek, and Leonard Pace

NEW VIDEO CONTENT FROM RECENT *JOIDES RESOLUTION* EXPEDITIONS

Video coverage has been a big part of the outreach plan for the past three expeditions on board the *JOIDES Resolution*. Check out the Ocean Leadership YouTube channel for a bumper crop of new video content: *www.youtube.com/user/OceanLeadership*

Dan Brinkhuis sailed on Expedition 342 (Paleogene Newfoundland Sediment Drifts) last summer. He shot, edited and produced a series of short online videos on the science goals and technical challenges of the expedition. An in-depth 20-minute documentary made its debut at the 2012 AGU Fall Meeting in San Francisco. The film was part of the "AGU Cinema" session, and screened continuously at the Ocean Leadership exhibit booth. In the fall, Thanos Fatouros sailed on Expedition 344 (Costa Rica Seismogenesis Project 2). With a strong background in computer animation, his videos provide new perspectives on crustal and tectonic processes as well as the mechanics of drilling and coring. A series of short explanatory videos called "JR in a Minute" focus on specific parts of the ship, from the bridge to the derrick and everything in between. Most recently, Nicole Kurtz, the USIO Education Officer on Expedition 345 (Hess Deep Plutonic Crust), tapped into her skills as a professional illustrator and made creative use of video equipment provided to her and her two international colleagues. (See page 4 for more on this dynamic team.) The result is a series of time-lapse hand-drawn animations that both educate and entertain viewers.

IODP-USIO FY12 ANNUAL REPORT PUBLISHED

The IODP-USIO Annual Report for fiscal year 2012 is available for download at *http://iodp.tamu.edu/publications/AR/FY12AR.pdf.* This report details the IODP-USIO's accomplishments and activities undertaken between October 1, 2011 and September 30, 2012, including five successful, cutting-edge expeditions on board the *JOIDES Resolution* that will advance global understanding of Earth systems.

COMMUNITY SPOTLIGHT

CARL BRENNER

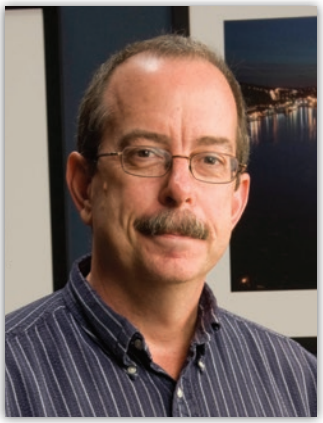
When Carl Brenner came to the Lamont-Doherty Earth Observatory in 1978 as a temporary Research Assistant at the Site Survey Data Bank (SSDB), he thought it would be little more than "an interesting way station." He was waiting to hear back on a grant award from the American Academy and Institute of Arts and Letters for a music composition scholarship. Although Brenner received that award in early 1979, he decided to postpone it; he was having too much fun working in seafloor mapping and geophysics studies. A few years later, Brenner returned as manager of the SSDB.

"I recognized quickly how critical the program was in addressing fundamental questions about tectonics, continental margin evolution, climate history and other issues," Brenner said. "Plus, it was beyond cool to collaborate with so many warm, interesting and public-spirited people from around the world."

As manager of the SSDB, Brenner helped plan countless Ocean Drilling Program (ODP) legs and participated in Site Survey Panel and Safety Panel meetings around the world. He also co-authored several articles in the ODP *Initial Reports* and *Scientific Proceedings* volumes. For the past seven years, he has worked on education and outreach activities and products for the Integrated Ocean Drilling Program (IODP). He has combined his long history in scientific ocean drilling with his graphics and publishing software skills to create the popular IODP graphic novel *Tales of the Resolution*, as well as video loops for display at science conferences and museum exhibitions.

Brenner is just one of many people with a non-science background who have carved out a rewarding career in scientific ocean drilling. "Of course the science is first and foremost, but you also need engineers, managers, logistical experts, drillers, IT and publications people, educators, and on and on," Brenner explained. "One of the keys to IODP's overall excellence is that the program recognizes – and knows how to make use of – such a variety of skills, and welcomes new initiatives on both the scientific and outreach front."

LETTER FROM THE USIO



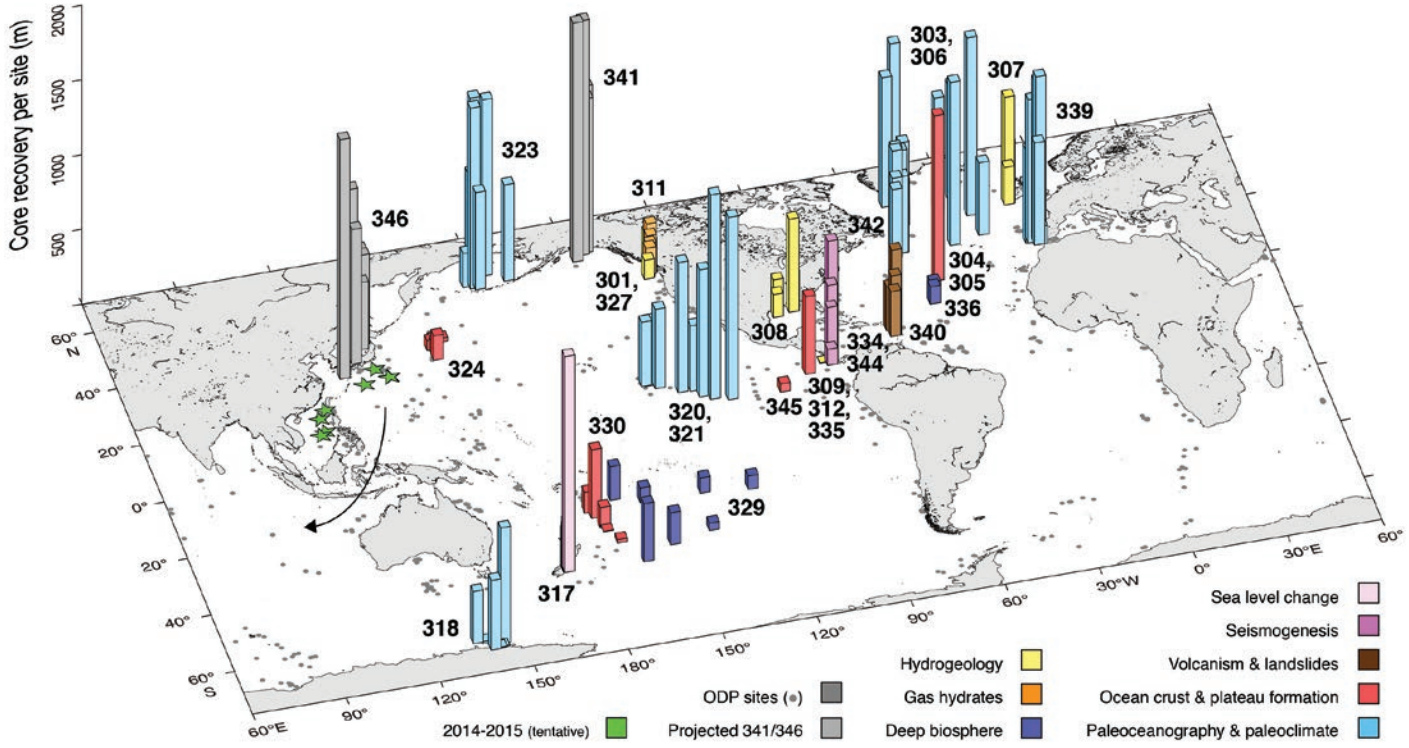
Dear Colleagues,

The *JOIDES Resolution* will embark on its last two expeditions of the Integrated Ocean Drilling Program this summer. Expedition 341 (Southern Alaska Margin Tectonics, Climate and Sedimentation) will take the ship to the Gulf of Alaska May 29 through July 29. After a port call in Valdez, Alaska, the ship will set off for the Sea of Japan and Expedition 346 (Asian Monsoon) July 29 through September 28. In the figure below, you can see the proposed drill sites and potential core recovery for these two expeditions, represented by the gray bars. Other colors – grouped together by science theme – illustrate the sites and actual core recovery for all previous Integrated Ocean Drilling Program *JOIDES Resolution* expeditions. As you can see, the *JOIDES Resolution* has covered a lot of ground – both geographically and scientifically.

The green stars in the figure denote the first areas of *JOIDES Resolution* operations for the new International Ocean Discovery Program, which begins October 1, 2013. Contingent upon available funding, including international contributions, NSF will provide the *JOIDES Resolution* as a facility for FY2014. Expedition 349 (South China Sea) will begin in late January 2014, followed by three successive expeditions in the Izu-Bonin-Marianas region. (See *http://iodp.tamu.edu/scienceops/* for the full expedition schedule). Following these expeditions, and contingent upon National Science Board authorization, funding availability and other factors (see the NSF report on page 7), the *JOIDES Resolution* will move into the Indian Ocean. At their first meeting this March, the *JOIDES Resolution* Facility Board assessed current proposal pressure and the desire to set a long-term ship track for the vessel. They noted that the ship is "likely to remain in the eastern Indian and western and south western Pacific oceans through 2016 and 2017, followed by a likely track across the southern Pacific Ocean, with an opportunity for drilling in the southern and central Atlantic Ocean in 2018 and 2019."

Sincerely,

Brad Clement
Director of Science Services,
USIO/Texas A&M University



LETTER FROM THE USAC CHAIR

Dear Colleagues,

The contours of the International Ocean Discovery Program, which begins October 1, 2013, are clearly taking shape. The *JOIDES Resolution* is the US facility for this program, and although the National Science Board has authorized funding for its operation through September 30, 2014, the FY2014 federal budget – and hence NSF's budget for that year – is still unknown. Operations beyond FY2014 are contingent upon another authorization by the National Science Board, funding availability from the NSF and its international partners, and a long-term plan that balances funding for both science and facilities within the Ocean Sciences Division. For more details, see the NSF report on page 7.

Despite these budgetary uncertainties, planning for future IODP research and operations is going forward, and a tentative expedition track has been announced for the next five years (see pages 7 and 9). It will be crucial to keep up proposal pressure along this long-term track, which begins in the Indian Ocean and will likely proceed through the south and southwestern Pacific and into the southern Atlantic by 2018 or 2019. The expedition schedule is only set through FY2015 and thereafter it will depend on the availability of proposals ready for scheduling. I strongly encourage you to discuss new ideas for research with your colleagues and consider organizing workshops around regions or objectives of scientific interest. The U.S. Science Support Program receives workshop proposals all year, with nominal deadlines of April 1 and October 1. (*http://iodp-usssp.org/funding/workshops/*)

When considering new targets, your plans do not need to fit traditional two-month expedition lengths. You may submit ancillary project letters (APLs) to drill for only a few days along a transect, or proposals for operational time on the order of several weeks. However, given the trend toward long-term regional tracks and flexible operation times, proponents will need to think strategically about how many drilling days they need to achieve their goals. I therefore encourage you to submit a preliminary IODP proposal first. This allows you to present your basic ideas and, through the review process, receive expert advice on how to proceed. Preliminary proposals also provide a sense of geographic and scientific priorities within the community, which can inform long-term operations planning for IODP. The next IODP proposal deadline is October 1, 2013 (*www.iodp.org/drilling-proposals*). In the meantime, I am pleased to discuss workshop and proposal planning with you.

All the best,

Anthony Koppers
Chair, U.S. Advisory Committee
for Scientific Ocean Drilling

USAC MEMBERS

Anthony Koppers (Chair)
Oregon State University

Ivano Aiello
Moss Landing Marine Laboratories

Gail Christeson
University of Texas at Austin

John Jaeger
University of Florida

Heath Mills
Texas A&M University

J. Casey Moore
University of California, Santa Cruz

Richard Norris
University of California, San Diego

Beth Orcutt
Bigelow Laboratory for Ocean Sciences

Yair Rosenthal
Rutgers University

Peter Sak
Dickinson College

Anja Schleicher
University of Michigan

DRILL BITS

Keir Becker Selected as IODP Forum Chair

Keir Becker (U. of Miami) has been selected as the first Chair of the IODP Forum, an international venue for exchanging ideas and views on the new International Ocean Discovery Program. Becker is a veteran of nineteen scientific ocean drilling expeditions (including four as a chief scientist) and has co-authored nearly 100 related publications. For thirty years, he has served almost continuously on the panels and committees of the science advisory structure, including chairmanship of the primary science planning committees during ODP and IODP. As Chair, Becker will promote the scientific accomplishments of IODP, preside over meetings of the IODP Forum, and develop liaisons with other program entities, potential new partners, and related science groups.

The Chukchi Sea: Linking North Pacific and Arctic Ocean History

Researchers interested in the Chukchi Sea region gathered for a workshop in Columbus, Ohio in mid-March. The Chukchi Sea is highly sensitive to both climate variability and sea level fluctuations, making it a high-priority target for research. Convened by Leonid Polyak (Ohio State U.), Julie Brigham-Grette (UMass Amherst), and Bernard Coakley (U. of Alaska Fairbanks), the workshop covered paleoceanographic and tectonic questions, including the potential for addressing the sedimentary history of the region as well as the microbiological, chemical, and physical processes in the Arctic environment. The participants also considered boundary conditions and process linkages for permafrost and gas hydrates on the Arctic margins. When complete, a workshop report will be posted at *http://iodp-usssp.org/workshop/chukchi_sea/*.

JFAST Project Yields First Results

Planned in response to the immense Tohoku earthquake and tsunami that struck Japan in March 2011, IODP Expedition 343 (Japan Trench Fast Drilling Project) drilled through the slip zone, collected samples and data and installed an observatory. The first fruits of these efforts have begun surfacing, with a publication by Weiren Lin (JAMSTEC) and colleagues in the February 8 issue of *Science*. The paper describes evidence that the fault released almost all of its accumulated stress during the earthquake, marking the first direct measurement of such a phenomenon. Later in February, Emily Brodsky (U. of California, Santa Cruz), Fred Chester (Texas A&M U.), and Shuichi Kodaira (JAMSTEC) discussed these and other preliminary results at the Annual Meeting of the American Association for the Advancement of Science (AAAS) in Boston. In late April, the team retrieved the string of 55 sensors that had recorded nearly eight months of temperature and pressure data.

Image courtesy of JAMSTEC.

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INDICIA

FSC INFO

IODP Expedition Schedule

Expedition	#	Port of Origin	Dates
JOIDES Resolution			
Costa Rica Seismogenesis Project A Stage 2 (CRISP-A2)	344	Balboa, Panama	23 Oct. – 11 Dec. 2012
Hess Deep Plutonic Crust	345	Puntarenas, Costa Rica	11 Dec. 2012 – 12 Feb. 2013
Tie-Up			12 Feb. – 25 May 2013
SCIMPI	341S	Victoria, Canada	25 – 29 May 2013
Southern Alaska Margin Tectonics, Climate & Sedimentation	341	Victoria, Canada	29 May – 29 July 2013
Asian Monsoon	346	Valdez, Alaska	29 July – 28 Sept. 2013
Chikyu			
NanTroSEIZE Plate Boundary Deep Riser - 2	338	Shingu, Japan	1 Oct. 2012 – 13 Jan. 2013
Mission-Specific Platforms			
Baltic Sea Paleoenvironment	347	TBD	TBD (Spring/Summer 2013)

Expedition dates, ports of origin, etc. are subject to change.

Please see http://iodp.tamu.edu/scienceops/ and www.iodp.org/expeditions/ for the most up-to-date ship operations schedules.