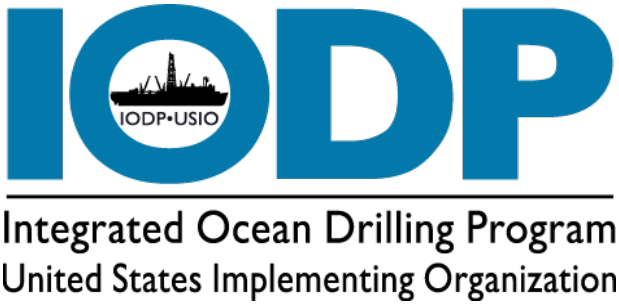
INTEGRATED OCEAN DRILLING PROGRAM

United States Implementing Organization



FY13 Quarterly Report 2

1 January–31 March 2013

NSF Contract OCE-0352500

IODP-MI Contract IODP-MI-05-03

Submitted by the USIO

to

The National Science Foundation

and

IODP Management International, Inc.

14 May 2013

TABLE OF CONTENTS

INTRODUCTION

The organization of this quarterly report reflects activities and deliverables that are outlined in the Integrated Ocean Drilling Program (IODP) U.S. Implementing Organization (USIO) FY13 Annual Program Plans to the National Science Foundation (NSF) and IODP Management International, Inc. (IODP-MI) as implemented by the USIO, which comprises the Consortium for Ocean Leadership, Inc. (Ocean Leadership), and its partners, Texas A&M University (TAMU) and Lamont-Doherty Earth Observatory (LDEO) of Columbia University. In this document, references to TAMU include Texas A&M Research Foundation (TAMRF).

MANAGEMENT AND ADMINISTRATION

The USIO provides integrated management that is led by Ocean Leadership in coordination with LDEO and TAMU. Management and Administration functions include planning, coordinating (with other IODP-related entities), overseeing, reviewing, and reporting on IODP activities.

USIO REPORTS

FY13 Q1 IODP-USIO Quarterly Report

The USIO report for the first quarter of FY13 (January–March 2013) was submitted to NSF and the IODP central management office (IODP-MI) on 14 February 2013 (iodp.tamu.edu/publications/AR/FY13/FY13_Q1.pdf).

FY12 IODP-USIO Annual Report

A digital copy of the IODP-USIO FY12 Annual Report was submitted to IODP-MI on 8 January 2013. Hard copies of this report accompanied by a digital copy on CD were submitted to NSF and IODP-MI on 23 January 2013 (iodp.tamu.edu/publications/AR/FY12AR.pdf).

REPORTING AND LIAISON ACTIVITIES

The USIO reports to and liaises with funding agencies and IODP-related agencies (e.g., the Science Advisory Structure [SAS]), Program Member Offices (PMOs), and other national organizations, and participates in SAS panels, IODP-MI task forces, working groups, and so on.

Meetings

Standard SAS committee and panel, IODP working group, task force, and other special meetings are listed in the Conference and Meeting Schedule below. USIO attendees to all meetings are listed in "Appendix B: Travel." Minutes for meetings of standing committees and task forces are available online (iodp.org/meeting-reports). Other special meetings for which minutes will not be available online are described in this section.

Conference and meeting schedule

Conference/Meeting*	Date	Location
Science Implementation and Policy Committee (SIPCOM) Meeting	22 and 23 January 2013	Edinburgh, Scotland (United Kingdom)
European Consortium for Ocean Research (ECORD) Facility Board Meeting	7 and 8 March 2013	Edinburgh, Scotland (United Kingdom)
JR Facility Board Meeting	18–20 March 2013	Arlington, Virginia

*Implementing organization meetings, IODP-MI task force meetings, Science Advisory Structure (SAS) panel meetings, and Program-sponsored conferences.

CONTRACT SERVICES

Ocean Leadership

Contract activity

Ocean Leadership received the following modifications during the reporting period.

NSF Contract OCE-0352500 with Ocean Leadership

- Modification 59: Reduced the FY12 Annual Program Plan by $1,612,116, incrementally funded the FY13 Annual Program Plan by $1,612,116, and decreased the total value of the contract by $1,612,116 to $619,835,439.

IODP-MI Subcontract IODP-MI-05-03 with Ocean Leadership

- Modification 44: Reduced the FY12 Annual Program Plan by $331,331 and incrementally funded the FY13 Annual Program Plan by $331,331.

Subcontract activity

Ocean Leadership issued the following subcontract modifications during the reporting period.

Ocean Leadership Subcontract JSC 4-03 with LDEO

- Modification 61: Incrementally funded the FY13 Annual Program Plan in the amount of $3,121,924.
- Modification 62: Extended the period of performance through 30 September 2014.

Ocean Leadership Subcontract JSC 4-02 with TAMRF

- Modification 76: Incrementally funded the FY13 Annual Program Plan in the amount of $502,070.
- Modification 77: Extended the period of performance through 30 September 2014 and increased the total value of the subcontract by $55,000,000 to $473,283,449.

LDEO

Subcontract activity

LDEO issued the following subcontract modifications during the reporting period.

LDEO subcontract with Schlumberger

- Amendment 5: Provided the first FY13 funding increment of $400,000.
- Amendment 6: Provided the second FY13 funding increment of $1,413,192.

LDEO subcontract with Leicester University

- Amendment 19: Provided the first FY13 funding increment of $150,000.

TAMRF

Subcontract activity

TAMRF issued no subcontract modifications during the reporting period.

Contracts/procurement activity ($100,000 or greater)

- 20 March 2013: Purchased twenty 8¼ inch outer core barrels in the amount of $182,040 from Houston Downhole Drilling Tools, Inc.

Miscellaneous activity

- 4 March 2013: Updated/reviewed the applicable vehicle data sections in the Federal Automotive Statistical Data Tool (FAST) system for the annual Vehicle Allocation Methodology (VAM) Report for submission to the U.S. General Services Administration (GSA) and the Office of Management and Budget (OMB) by NSF.

PERSONNEL STATUS

Ocean Leadership

The following positions were vacated during the quarter:

- Director of Education (Leslie Peart): 29 January 2013
- Director of Contracts and Compliance (Catherine McLean): 11 March 2013

The following positions were opened and advertised during the quarter:

- Assistant Director, Contracts and Grants
- Team Leader, Contracts and Grants

The following position was filled during the quarter:

- Assistant Director, Contracts and Grants (Monique Foxx): 4 March 2013

LDEO

No positions were filled during the quarter.

The following position was vacated during the quarter:

- Logging Staff Scientist (Helen Evans): 31 January 2013

The following positions were opened and advertised during the quarter:

- Logging Staff Scientist (2 positions)

TAMU

The following positions were vacated during the quarter:

- Administrative Assistant (Robin See): 7 March 2013
- System Support Specialist (Tiffany Bloxom): 14 February 2013

The following positions were opened and advertised during the quarter:

- Administrative Assistant
- System Support Specialist
- Assistant Laboratory Officer I

The following positions were filled during the quarter:

- Administrative Assistant (Robin See): 14 January 2013
- Marine Laboratory Specialist (Matt Knight): 11 February 2013
- Marine Laboratory Specialist (Gabriel Matson): 11 February 2013
- Staff Scientist (Denise Kulhanek): 15 February 2013
- Research Specialist I (Helen Evans): 25 February 2013
- Staff Scientist (Kara Bogus): 1 March 2013

USIO WEB SERVICES

The USIO websites are hosted at TAMU, LDEO, and Ocean Leadership. In addition to internal USIO web page updates and additions, new content is regularly added to IODP expedition web pages at iodp.tamu.edu/scienceops/expeditions.html.

USIO website statistics

USIO website	FY13 Q2 page views*	FY13 Q2 site visits*
www.iodp-usio.org	17,311	11,286
iodp.ldeo.columbia.edu	13,364	3,364
iodp.tamu.edu	562,198	77,778
Total	**592,873**	**92,428**

*Where possible, visits by USIO employees and search engine spiders were filtered out.

LEGACY DOCUMENTATION

The USIO routinely archives electronic copies of documents and reports produced on behalf of IODP.

Legacy digital archive

Legacy preservation activities include storing electronic copies of relevant management and administration–related documents and reports produced by the USIO. Documents and publications archived this quarter in a dedicated Content Management System (CMS) included

contract modifications, the FY12 IODP-USIO Annual Report, and the FY13 Q1 IODP-USIO reports to NSF and IODP-MI.

Legacy web services

Key data, documents, and publications produced during the Deep Sea Drilling Project (DSDP) and Ocean Drilling Program (ODP) are preserved in the legacy websites, which highlight the scientific and technical accomplishments of these ground-breaking precursors to IODP. The legacy websites contain downloadable documents that cover a wide spectrum of Program information, from laboratory and instrument manuals to all of the Program's scientific publications, journals, and educational materials.

The ODP Science Operator website and the DSDP Publications website are hosted at TAMU. The ODP legacy website is hosted at Ocean Leadership.

Legacy website statistics

Legacy website	FY13 Q2 page views*	FY13 Q2 site visits*
www-odp.tamu.edu	1,532,554	310,900
www.odplegacy.org	6,821	3,022
www.deepseadrilling.org	302,680	68,119
Total	**1,842,055**	**382,041**

*Where possible, visits by USIO employees and search engine spiders were filtered out.

OTHER PROJECTS AND ACTIVITIES

TAMU Project Portfolio Management program

The Laboratory Information Management System (LIMS) Data Review and Editing Tool project started on 28 January 2013 and is expected to be completed by 30 November (see "Software Development" in the Data Management section for project information).

TECHNICAL, ENGINEERING, AND SCIENCE SUPPORT

The USIO is responsible for planning, managing, coordinating, and performing activities and providing services, materials, platforms, and ship- and shore-based laboratories for USIO expeditions; long-range operational planning for out-year USIO expeditions; and technical advice and assistance for European Consortium for Ocean Research Drilling (ECORD) Science Operator (ESO) and Center for Deep Earth Exploration (CDEX) expeditions.

USIO EXPEDITION SCHEDULE

Expedition		Port (Origin)	Dates[1, 2]	Total Days (Port/ Sea)	Days at Sea (Transit[3]/ Ops)	Co-Chief Scientists	USIO Contacts[4]
Hess Deep Plutonic Crust	345	Puntarenas, Costa Rica	11 December 2012–12 February 2013	63 (7/56)	56 (11/45)	K. Gillis, J. Snow	TAMU: A. Klaus* LDEO: G. Guerin^
Non-IODP [12 February–20 May 2013]							
SCIMPI/ 858G ReCORK	341S	Victoria, British Columbia (Canada)	20–29 May 2013	9 (0/9)	9 (3/6)		
Southern Alaska Margin Tectonics, Climate & Sedimentation[5]	341	Victoria, British Columbia (Canada)	29 May–29 July 2013	61 (3/58)	58 (5/53)	J. Jaeger, S. Gulick	TAMU: L. Schneider* LDEO: A. Slagle^
Asian Monsoon[5]	346	Valdez, Alaska	29 July–28 September 2013	60 (5/55)	55 (14/41)	R. Tada, R. Murray	TAMU: C. Alvarez Zarikian* LDEO: J. Lofi^
Dry Dock/Non-IODP [28 September 2013–28 January 2014]							
South China Sea	349	Manila, Philippines	28 January–30 March 2014	61 (3/58)	58 (5/53)	C. Li, J. Lin	TAMU: D. Kulhanek* LDEO: T. Williams^
Izu Bonin Mariana: Rear Arc	350	Okinawa, Japan	30 March–30 May 2014	61 (5/56)	56 (4/52)	Y. Tamura, C. Busby	TAMU: P. Blum* LDEO: G. Guerin^
Izu Bonin Mariana: Arc Origins	351	Yokohama, Japan	30 May–30 July 2014	61 (5/56)	56 (5/51)	R. Arculus, O. Ishizuka	TAMU: K. Bogus* LDEO: L. Anderson^
Izu Bonin Mariana: Forearc	352	Yokohama, Japan	30 July–29 September 2014	61 (5/56)	56 (6/50)	J. Pearce, M. Reagan	TAMU: K. Petronotis* LDEO: S. Morgan^

Notes: TBD = to be determined.
[1] Dates for expeditions may be adjusted pending non-IODP activities.
[2] The start date reflects the initial port call day. The vessel will sail when ready.
[3] Transit total is the transit to and from port call and does not include transit between sites.
[4] The USIO contact list includes both the Expedition Project Manager (*), who is the primary contact for the expedition, and the Logging Staff Scientist (^). In addition, further expedition information can be obtained at iodp.tamu.edu/scienceops/expeditions.html.
[5] Expedition crosses dateline resulting in 60 operational days, 61 calendar days.

USIO EXPEDITIONS

Expedition 342: Newfoundland Sediment Drifts

Postexpedition activities

The Expedition 342 postexpedition editorial meeting was held 21–25 January 2013 in College Station, TX.

Expedition 344: Costa Rica Seismogenesis Project (CRISP) 2

Postexpedition activities

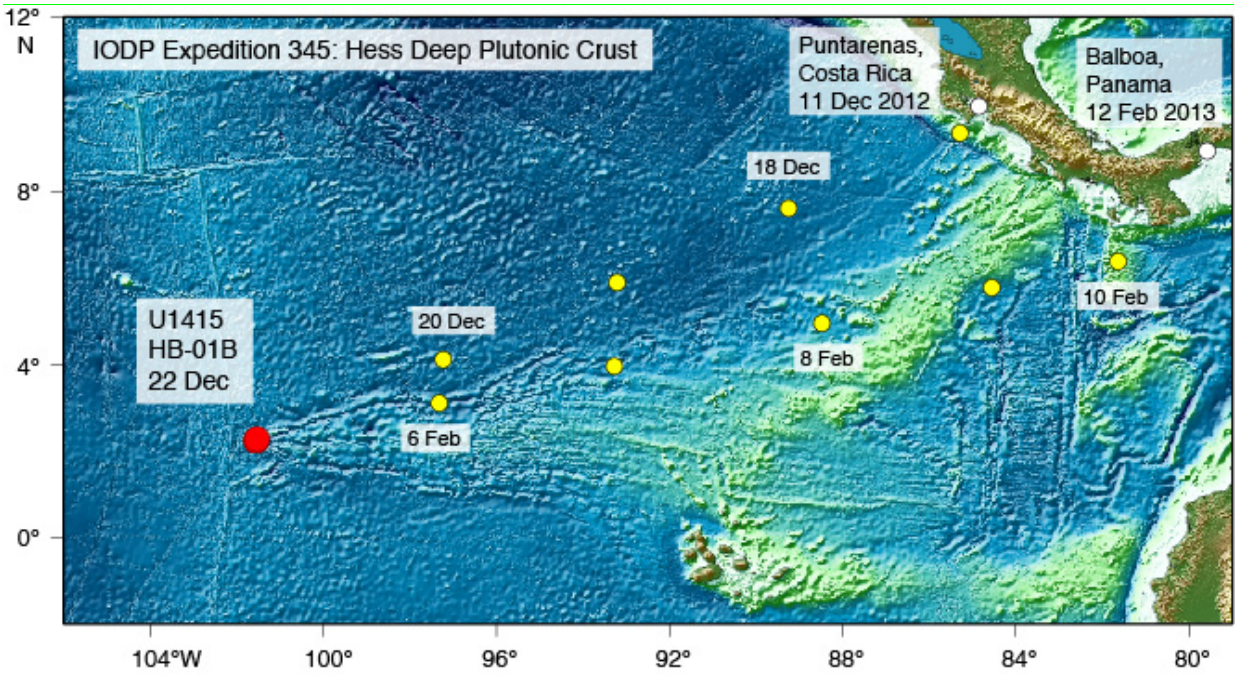
The Expedition 344 *Preliminary Report* was finalized and published this quarter.

Expedition 345: Hess Deep Plutonic Crust

Staffing

Expedition 345 Science Party staffing breakdown	
Member country/consortium	**Participants**
USA: United States Science Support Program (USSSP)	8
Japan: Japan Drilling Earth Science Consortium (J-DESC)	8
Europe and Canada: European Consortium for Ocean Research Drilling (ECORD) Science Support and Advisory Committee (ESSAC)	9
Republic of Korea: Korea Integrated Ocean Drilling Program (K-IODP)	0
People's Republic of China: IODP-China	0
Australia and New Zealand: Australia/New Zealand IODP Consortium (ANZIC)	1
India: Ministry of Earth Science (MoES)	1
Brazil: IODP-Coordenação de Aperfeiçoamento de Pessoal de Nível Superior (CAPES)/Brasil	1

Site map



Coring summary

Site	Hole	Latitude	Longitude	Water depth (m)	Cores (n)	Interval cored (m)	Core recovered (m)	Recovery (%)
U1415	U1415A	2°15.1757'N	101°32.5695'W	4837.3	0	0.0	0.00	0.0
	U1415B	2°15.1355'N	101°32.8671'W	4845.1	0	0.0	0.00	0.0
	U1415C	2°15.1349'N	101°32.8669'W	4845.1	0	0.0	0.00	0.0
	U1415D	2°15.1437'N	101°32.7441'W	4839.6	0	0.0	0.00	0.0
	U1415E	2°15.1461'N	101°32.7424'W	4839.6	2	15.3	0.84	5.5
	U1415F	2°15.1394'N	101°32.6261'W	4845.8	0	0.0	0.00	0.0
	U1415G	2°15.1390'N	101°32.6263'W	4845.8	1	12.9	0.29	2.2
	U1415H	2°15.1317'N	101°32.6370'W	4846.4	1	12.9	0.44	3.4
	U1415I	2°15.1547'N	101°32.6622'W	4841.8	4	35.2	7.12	20.2
	U1415J	2°15.1604'N	101°32.6622'W	4838.8	15	91.8	14.35	15.6
	U1415K	2°15.3307'N	101°32.8527'W	4687.1	0	0.0	0.00	0.0
	U1415L	2°15.3300'N	101°32.8041'W	4674.7	0	0.0	0.00	0.0
	U1415M	2°15.3304'N	101°32.8040'W	4674.7	0	0.0	0.00	0.0
	U1415N	2°15.3304'N	101°32.8121'W	4675.2	4	37.0	1.56	4.2
	U1415O	2°15.1516'N	101°32.5848'W	4849.7	0	0.0	0.00	0.0
	U1415P	2°15.1486'N	101°32.6102'W	4852.7	18	95.4	30.57	32.0
				Site U1381 totals:	**45**	**300.5**	**55.17**	**18.4**
Expedition 345 totals:					**45**	**300.5**	**55.17**	**18.4**

Logging summary

Wireline logging was attempted in Hole U1415P with a slick tool string that included a caliper (no radioactive source) and an induction resistivity sonde. Because of drilling problems, the hole was expected to be problematic and the goal of this run was to check the hole condition and get some useful data before attempting additional runs. Unfortunately, the tool string encountered an obstruction just below the base of the drill pipe and could not be lowered into the open hole. An attempt to clear the obstruction within the drill pipe (the bit had been dropped) was not successful, and no logging measurements were obtained in Hole U1415P.

Science Summary

Expedition 345 was designed to sample lower crustal primitive gabbroic rocks that formed at the fast-spreading East Pacific Rise to test models of magmatic accretion and the intensity of hydrothermal cooling at depth. The primary goal was to acquire the observations required to test end-member crustal accretion models that were in large part based on relationships from ophiolites, in combination with mid-ocean-ridge geophysical studies. This goal was achieved with the recovery of primitive layered olivine gabbros and troctolites with many unexpected mineralogical and textural relationships, such as the abundance of orthopyroxene and the preservation of delicate skeletal olivine textures.

Specific hole locations at Site U1415 were selected using a combination of geomorphology, seafloor observations, and shallow subsurface seismic data. A total of 16 holes were drilled. The primary science results were obtained from coring of two ~110 m deep reentry holes (U1415J and U1415P) and five single-bit holes (U1415E and U1415G–U1415I). Despite deep water depths and challenging drilling conditions, reasonable recovery for hard rock expeditions

(15%–30%) was achieved at three 35–110 m deep holes (U1415I, U1415J, and U1415P). The other holes occupied during this expedition included two failed attempts to establish reentry capability and six jet-in tests to assess sediment thickness.

The dominant plutonic rock types recovered at Site U1415 were olivine gabbro and troctolite, with minor gabbro, clinopyroxene oikocryst-bearing troctolite, clinopyroxene oikocryst-bearing gabbro, and gabbronorite. These rocks exhibit cumulate textures similar to those found in layered basic intrusions and some ophiolite complexes. All lithologies are primitive, with Mg# between 0.76 and 0.89, falling within the global range of primitive oceanic gabbros. Spectacular modal and/or grain size layering was prevalent in >50% of the core, displaying either simple or diffuse boundaries. Magmatic foliation largely defined by the shape-preferred orientation of plagioclase and olivine is moderate to strong in intervals with simple modal layering but weak to absent in the troctolite series and largely absent in the multitextured layered series.

The abundance of orthopyroxene in these primitive rocks was unexpected and deviates from the standard model for mid-ocean-ridge basalt crystallization. Preservation of delicate skeletal olivine grains suggests that at least part of the recovered section of the lower crust was not subjected to significant hypersolidus or subsolidus strain. The metamorphic mineral assemblages record the cooling of primitive gabbroic lithologies from EPR magmatic conditions (>1000°C) to zeolite facies conditions (<200°C) associated with Cocos-Nazca rifting and exposure onto the seafloor. Greenschist to subgreenschist facies alteration dominates and is most pervasive in olivine-rich lithologies and within zones of brittle fracturing and cataclasis. Amphibolite facies metamorphism is not abundant in comparison to the upper gabbros at the Hess Deep Rift.

Core recovered at Site U1415 originated at >2 km beneath the sheeted dike–plutonic transition and thus represents the lower half to a third of the EPR plutonic crust. The orientation of the magmatic fabrics and magnetic inclinations of the core suggest that Site U1415 comprises a series of decimeter-scale blocks that likely formed by mass wasting. Sampling three or four blocks of relatively fresh rocks proved advantageous, as it facilitated observations of two distinct types of layering and troctolite units with varying grain size, lithologic associations, and textures.

The mineralogical and textural relationships show that in several respects the Oman ophiolite is not the ideal model for fast-spreading ocean crust and call into question some aspects of both of the end-member accretion models that were to be tested. Expedition 345 results provide a reference section for primitive fast-spreading lower crust that did not exist before. This highlights the necessity of ocean drilling to address questions related to the origin and evolution of the lower ocean crust.

Expedition 341S: SCIMPI/ReCORK Hole 858G

Planning

The *Scientific Prospectus* incorporating the Ancillary Project Letter (APL) 816 (CORK Hole 858G) was finalized and published this quarter. Planning efforts focused on assuring that USIO-supplied components and hardware were identified and shipped to the *JOIDES Resolution*. The USIO also tested third-party equipment (i.e., electronic release system [ERS]) required for release of the Simple Cabled Instrument for Measuring In-Situ Parameters (SCIMPI) tool string. Since initial testing results were not positive, the tool will revert to the configuration used during the Expedition 342 Motion Decoupled Hydraulic Delivery System (MDHDS) sea trials and the ERS will be retested at the beginning of the next quarter.

Staffing

Staffing was completed for the required personnel for the SCIMPI test and CORK APL. Staffing for ancillary activities during the expedition neared completion.

Expedition 341: Southern Alaska Margin Tectonics, Climate, and Sedimentation

Planning

Major efforts focused on the review of research plans and science and technical support. Port call logistical planning and travel, especially for Port Valdez, was also well under way during the quarter.

Staffing

Science staffing was completed this quarter.

Clearance and permitting activities

The USIO submitted a land use permit to occupy the Port Valdez site for APL 809 to the Alaska Department of Natural Resources in January 2013.

Environmental assessment

It was determined that a vertical seismic profile (VSP) in Port Valdez will not be possible. The environmental evaluation for VSP operations at the rest of the Expedition 341 sites was submitted to NSF.

Expedition 346: Asian Monsoon

Planning

The *Scientific Prospectus* was completed and published this quarter. Review of sample and research plans will begin in the next quarter. In preparation for Expedition 346 logging operations, the Logging Staff Scientist began working on logging data from previous expeditions in the area.

Staffing

Science staffing was completed this quarter except for new country member Brazil, which has until 31 March to submit applications.

Clearance and permitting activities

Clearance applications were submitted to the U.S. State Department for sites in Japanese and Korean waters, and the USIO responded to follow-on queries from Korea and Japan.

Expedition 349: South China Sea

Planning

The USIO initiated an initial review of the draft operations plan with Co-Chief Scientists to review priorities and focus the expedition plan. The pre-expedition meeting was scheduled for the beginning of the next quarter.

Staffing

Two scientists accepted the invitation to sail as Co-Chief Scientists.

Expedition 350: Izu-Bonin-Mariana: Rear Arc

Planning

The USIO initiated communications with the Co-Chief Scientists and worked toward scheduling the expedition pre-expedition meeting.

Staffing

Two scientists accepted the invitation to sail as Co-Chief Scientists.

Expedition 351: Izu-Bonin-Mariana: Arc Origins

Planning

The USIO initiated communications with the Co-Chief Scientists and worked toward scheduling the expedition pre-expedition meeting.

Staffing

Two scientists accepted the invitation to sail as Co-Chief Scientists.

Expedition 352: Izu-Bonin-Mariana: Forearc

Planning

The USIO initiated communications with the Co-Chief Scientists and worked toward scheduling the expedition pre-expedition meeting.

Staffing

Two scientists accepted the invitation to sail as Co-Chief Scientists.

MAINTENANCE PERIOD ACTIVITIES

A number of activities were ongoing during this quarter; other items will be completed by the end of the maintenance period. The following activities were completed:

- Damaged floor tiles in the underway geophysics laboratory were replaced, new cabinets were installed, and supplies were reorganized throughout both the core and underway geophysics laboratories.
- A modified imaging logger frame with a significantly smaller footprint was installed, which will create more space in the core description area.
- Gimballed tables in the chemistry laboratory were removed to accommodate new Mettler-Toledo microbalances, and a tabletop was installed in that corner of the laboratory.
- Preventive maintenance was conducted on the nitrogen generator after an inspection revealed that oil had dripped out of the trap in the generator and the system was shut down. The precise source of the oil in the compressed air line is unknown, so additional coalescing oil traps were purchased and installed prior to the air filter assembly.
- Instrument host computers were replaced with new HP Z420 units, and instrument hosts were converted to Windows 7 64-bit where possible. A few instruments that use third-party software had to be configured to Windows 7 32-bit or left under Windows/XP (and the older HP 4400 computers). This project required significant effort and some software updates, as many device drivers operate differently under Windows 7.
- The safety shower inside the paleontology preparation laboratory was relocated outside of the laboratory entrance.
- Core refrigerator fan coil valves were replaced to correct a condensation “rain” issue in the core reefer hold.
- Air flow in the paleontology preparation laboratory vent hoods was balanced to the proper flow rate (the former flow rate was too high).
- Acoustic ceiling tiles were replaced where needed.
- Covers for the fantail winch and crane were fabricated and installed to help protect the equipment from saltwater.
- Thermo-Fisher/Dionex Canada made a service call to correct ongoing precision issues with the ion chromatograph; initial testing indicated significant improvement in the precision of the results.
- A low-energy noise problem in detector #3 of the Natural Gamma Radiation Logger (NGRL) was corrected. The problem was traced to a faulty photomultiplier tube (PMT) base, which was replaced, and the faulty unit was sent to shore for repair. The service technician also held training sessions for shipboard staff to become more familiar with the NGRL’s electronics.

ANALYTICAL SYSTEMS

Analytical Systems acquisitions and updates

New CM5015 coulometers and Mettler-Toledo XP56 microbalances were installed on the *JOIDES Resolution* as part of the replacement cycle for obsolete equipment. Plans were made to install and test the Hitachi TM3000 scanning electron microscope (SEM) and Zeiss V8 DISCOVERY stereo microscopes by the end of Expedition 341S.

Laboratory working groups

The laboratory working groups (LWGs) provide oversight, research direction, and quality assurance for the methods, procedures, and analytical systems both on the *JOIDES Resolution* and on shore. The groups meet regularly to review cruise evaluations, expedition technical reports, and issues management communications to provide advice on corrective actions and potential developments for laboratories. All four LWGs met this quarter to discuss action items and recent cruise evaluations.

Geology

The Geology LWG discussed the decision to hold an internal descriptive products workshop to revisit descriptive processes and procedures. The group also discussed recommendations for:

- Implementing a LIMS Report for 360-degree whole-round images;
- Implementing the ability to denote which section-half image is the "primary" and thus should be displayed by reporting programs when multiple images are taken on the imaging logger; and
- Deploying X-ray diffraction (XRD) analysis software on more shipboard locations (this task was completed during this quarter; eight copies of Bruker AXS Eva software are now deployed).

Geophysics

The Geophysics LWG asked the programming group to implement the upload of TeKa TK-04 thermal conductivity raw data whether the software finds solutions or not (this task was completed during the quarter). In addition, the group discussed recommendations for:

- Replacing the Whole-Round Multisensor Logger (WRMSL) laser positioning sensor with an alternative that will be more reliable, and revision of the manual for minimum core section length;
- Replacing rubber transducer caps with hard caps (Gantry and WRMSL) and making the moistening system permanent and automated (WRMSL), a change that will result in much better contact and will resolve the issue of compression of the rubber caps, which causes larger data errors (this task was completed on Gantry and is pending on WRMSL);
- Conducting a service call on the NGRL to deal with a noise problem in detector #3 (see description of completed task in "Maintenance period activities");

- Rearranging the Gantry computer host and, if possible, implementing touchscreen or direct controls for the Exlar actuators to make it more ergonomic for loading and unloading the transducers. (Examination of the Exlar control wiring showed that we can implement a direct electrical switch to control the actuators. This is being fully investigated for a long-term solution.); and
- Hiring an electrical engineer to investigate and attempt to correct noise issues with the regulated power on the *JOIDES Resolution* that have been observed with the TeKa TK-04, the gas chromatographs, and other instruments.

Geochemistry

In response to requests to relocate the Carver Presses and open up the entryway area just aft of the door, the Geochemistry LWG recommended against large-scale changes. Instead, the group proposed an alternate solution of moving some of the instruments to create more logical working areas, specifically moving the gas safety gas chromatographs (GCs) to the forward side of that bench and the ion chromatograph (IC) and Agilent CARY spectrophotometer to the aft side, thus creating a logical division of space between interstitial water (IW) work and the inorganic and organic chemistry work. The move was completed during the quarter.

Additional discussion items included potential problem points that might exist with the instrument computer host replacements and resolution of pipettor inventory issues. The pipettor inventory was expanded, certain pipettors were allocated to specific uses, and arrangements were made for the inventory to be maintained at a specific level to ensure enough of the devices are available.

Curation and Core Handling

The Curation and Core Handling LWG received announcements that new heavy-duty rulers were delivered and are ready for deployment and that the new Sample and Data Requests (SADR) software is now live and will be used for the first time for Expedition 346 (Asian Monsoon) with close monitoring by the Expedition 346 Project Manager. Other discussion items included the following:

- Notification that different gloves must be used when handling acetone (butyrate gloves were purchased for this purpose and nitrile gloves will be used for other purposes until the stock is expended);
- Recommendation that the SEM specimens be curated as residues (like thin sections and many smear slides) and that “SEM” be added to the Sample Master test list;
- Discussion of the issue of condensation “rain” in the core reefer. Valves in the core reefer units were changed out to correct this problem; and
- Discussion of ghost cores to fully educate LWG members about why they exist and what they mean and to provide further definition for the developers to ensure that ghost cores are handled properly.

Projects and other activities

Geosciences Laboratory (ODASES)

The TAMU Ocean Drilling and Sustainable Earth Science (ODASES) Geoscience Laboratory hosted two scientists during this period for X-ray fluorescence (XRF) scanning projects. Because of an instrument fault, the XRF Core Scanner was down for approximately two months during the quarter and a backlog of user requests is now being cleared. The shore-based Section Half Imaging Logger (SHIL) saw significant usage by XRF users and curatorial staff. The WRMSL, equipped with gamma ray attenuation densitometer and magnetic susceptibility meter, was also used by visiting scientists.

ENGINEERING SUPPORT

Engineering equipment acquisitions and updates

Vibration-isolated television system

End products were test mounted on the vibration-isolated television (VIT) frame. Training sessions on end products and software were conducted with one Siem crew, and final software changes were initiated based on the crew's input. A second training session with the other Siem crew will occur during installation of equipment. The primary fiber cable was tested at the cable vendor, spooled on the drum, and then shipped to the *JOIDES Resolution* for installation.

Projects and other activities

Large diameter pipe-handling infrastructure

Howard & Associates, Blohm & Voss, and USIO personnel visited the *JOIDES Resolution* in March 2013 and interacted with the Siem drilling crew to review detailed engineering drawings for the 350- and 500-ton elevators, handler, and stool, which are part of the infrastructure currently being designed for this project. Potential interferences were identified, solutions were proposed, and a report was generated that included recommendations for the design of the handler. A timeline was discussed for activities that will take place after potential interferences with the existing infrastructure are satisfactorily addressed, including plans for fabrication (May–September 2013), land testing (September 2013), and subsequent at-sea testing (September–December 2013).

Multifunction telemetry module projects

Preliminary tests at LDEO revealed that the modified ERS was not performing adequately. The two ERS tools were sent back to Stress Engineering for troubleshooting, and the USIO arranged further tests at the Schlumberger (SLB) Webster facilities using the ERS and SLB wireline. A test of all the components for the SCIMPI deployment (Expedition 341S) was scheduled for April 2013 at the LDEO facilities.

Wireline heave compensating system

Routine maintenance of the wireline heave compensating system was scheduled for the Victoria, British Columbia (Canada), maintenance period. Technical manuscripts detailing the operations, results, and evaluation of the wireline heave compensator have recently been published in *Geo-Marine Letters* and the *Scientific Drilling* journal (see "Program-related publications").

LEGACY DOCUMENTATION

The USIO routinely archives electronic copies of documents and reports produced on behalf of IODP. Legacy preservation activities for Technical, Engineering, and Science Support include storing electronic copies of expedition daily, weekly, and site summary reports; appropriate operations and engineering reports; and other technical documentation.

OTHER PROJECTS AND ACTIVITIES

Survey and reentry archive

All available historical reentry tapes were converted from VHS to digital files, and the project was completed.

ENGINEERING DEVELOPMENT

The USIO is responsible for utilizing IODP resources to oversee and/or provide engineering development projects in accordance with the long-term engineering needs of IODP as prioritized by the SAS.

USIO TECHNICAL PANEL

The USIO Technical Panel (UTP) includes external members from industry and academia who will participate in bi-annual meetings to review engineering and operations issues within the USIO with the purpose of providing third-party advice to aid the USIO. The UTP is administered and operated by Ocean Leadership, the U.S. Systems Integration Contractor, with assistance from the USIO partners.

Project status

There were no UTP activities during the quarter.

FY12 MULTISENSOR MAGNETOMETER MODULE PROJECT

The multisensor magnetometer module (MMM) is a new magnetometer tool under development at LDEO. The MMM will provide the capability to work in both strongly magnetized hard rock formations and in sediments with weaker magnetizations and will produce continuous records of the magnetic field in the borehole, from which magnetization

and polarity of the rocks surrounding the borehole can be calculated. The tool will also provide borehole and tool orientation data and will measure the borehole field on three axes, allowing calculation of the full formation magnetization vector: inclination, declination, and total field intensity. This downhole magnetic information will complement core sample magnetic measurements and significantly enhance IODP's ability to magnetostratigraphically date sediment sequences.

FY12 deliverables for this multi-year project included tool delivery, modifications to extend LDEO and Schlumberger telemetry systems and surface panel software, completion of third-party tool certification requirements, bench and field tests at the test well at LDEO, and at-sea deployment. All deliverables except complete systems integration testing and at-sea deployment were accomplished during FY12. Personnel changes within the USIO-LDEO engineering group in FY12 resulted in a reevaluation of the timeline for completing this tool.

Project status

The MMM tool was assembled, and all sensors were found to be operational. Complete systems integration testing and firmware optimization began during the quarter. The USIO engaged campus-wide LDEO electronics personnel for finalizing necessary firmware modifications. This work is tentatively scheduled to resume in May 2013.

CORE CURATION

The USIO provides services in support of IODP core sampling and curation of the core collection archived at the Gulf Coast Repository (GCR).

SAMPLE MATERIALS CURATION SYSTEM

A new application, now known as Sample and Data Requests, was deployed to the production server and is accepting sample requests for Expedition 346. The Curators are in the process of deciding when to announce its full release. Expeditions currently under moratorium that have requests entered in the Sample Materials Curation System (SMCS) will continue to receive requests in SMCS until the end of the moratorium period.

CURATION STRATEGIES AND EXPEDITION CORE SAMPLING

The USIO planned sample and curation strategies for Expeditions 341 and 346. A USIO Curatorial Specialist supervised shipboard core sampling during Expedition 345 and reviewed all shipboard and moratorium-related requests in coordination with the other members of the expedition Sample Allocation Committee (SAC). A total of 1,439 samples were taken during Expedition 345 from Expedition 345 cores, including shipboard and personal samples. An additional 323 samples were taken from Leg 147 cores that had been sent to the *JOIDES Resolution.* There were 62 personal sample requests.

CURATING THE GCR CORE COLLECTION

All IODP core sample requests are handled by the GCR, Bremen Core Repository, and Kochi Core Center. The USIO conducts all responsibilities associated with curation of the GCR core collection and provides services in support of core sampling, analysis, and education.

Repository activity

The following "Sample requests" table provides a summary of the 5,968 samples that were taken at the GCR during the quarter. Sample requests that show zero samples taken may represent cores that were viewed by visitors during the quarter, used for educational purposes, or requested for XRF analysis. Public relations tours and educational visits to the repository are shown in the "GCR tours/visitors" table.

Sample requests

Sample request number, name, country	Number of samples taken	Number of visitors
22548C, Sosdian, United Kingdom	4	
1940IODP, Sosdian, United Kingdom	15	
22789A, Betts, USA	4	1
22766A, Norris, USA	321	
22583B, Naafs, United Kingdom	8	
22779A, Fraas, USA	212	
22627B, Woodard, USA	91	
22794A, Kleiven, Norway	310	
22259C, Kaiho, Japan	24	
22801A, Neal, USA	256	
22792A, Halverson, Canada	41	
22800A, Hu, United Kingdom	17	
22776A, Prieto, USA	0	6
003784IODP, Firth, USA	0	1
22806A, Pogge von Stradmann, United Kingdom	16	
22807A, Brens, Australia	5	
1960IODP, Richaud, USA	98	
22796A, Fredrich, Germany	242	
22817A, Schneider, USA	48	
1967IODP, Zarikian, USA	6	1
22808A, Harrison, USA	6	
1804IODP, Wall-Palmer, United Kingdom	557	
21450F, Ford, USA	1	
1965IODP, Takata, Korea	39	
22836A, Higgins, USA	15	
22828A, Ildefonse, France	1	
22809A, Prieto, USA	32	
22837A, Subt, USA	30	1
1979IODP, Thomas, USA	23	1
1983IODP, Reinardy, United Kingdom	12	
22553B, Cesare, USA	107	
22829A, Dickens, USA	310	
22804A, Kuppusamy, India	426	

Sample request number, name, country	Number of samples taken	Number of visitors
1371IODP, Stroncik, Germany	737	1
22843A, Wouters, United Kingdom	39	
22945B, Kutterolf, Germany	709	2
22799B, Stepanova, USA	110	
1980IODP, Backman, Sweden	517	
1999IODP, Fox, United Kingdom	0	1
22846A, Hughen, USA	34	
22849A, Johnson, USA	10	
1951IODP, Norris, USA	67	
22812A, Johnson, USA	228	
22822A, Dove, USA	18	
22827A, Denne, USA	0	1
341IODP, Herrle, Germany	66	
22851A, Rumford, USA	5	
22852A, Rumford, USA	38	
2000IODP, Rumford, USA	2	
22834A, Kaneko, Japan	15	
22853A, Lu, USA	56	
22765B, Mattioli, France	7	
1973IODP, Firth, USA	30	1
1932IODP, Tauxe, USA	3	
Tours/demonstrations	3	36
Totals	**5,971**	**53**

GCR tours/visitors

Type of tour or visitor	Number of Visitors
Scientist visitors	17
NAMS SEPM Microfossils III Conference tour	25
Bush Library group tour	4
TAMU Oceanography class tour	7
Total	**53**

USE OF CORE COLLECTION

The USIO promotes outreach use of the GCR core collection by conducting tours of the repository (see “GCR tours/visitors” table above) and providing materials for display at meetings and museums. The repository and core collection are also used for classroom exercises. In addition, 32 core sections from DSDP Leg 96 were loaned to Dr. M.I. Prieto for display/education at a core workshop held by the Bureau of Economic Geology Houston Research Center in Houston, TX. The GCR also hosted a field trip from the North American Micropaleontology Section of the Society for Sedimentary Geology (NAMS SEPM) Microfossils III Conference to view cores from DSDP Holes 536 and 540.

LEGACY DOCUMENTATION

The USIO routinely archives electronic copies of documents and reports produced on behalf of IODP, as well as DSDP and ODP legacy materials. Core Curation legacy preservation activities undertaken during the quarter include the following projects.

Sample request file scanning

In October 2010, the USIO began scanning ODP and DSDP paper sample request files, which contain some information that is not included in the database. The portable document format (PDF) file formats will reduce the physical storage space of these documents and will make content more accessible when there is a need to research extra information on old use of the cores. Work on this project continued during the quarter and the project is now 90% complete.

Core working half imaging

The USIO conducted digital imaging of working half sections that were pulled for sampling or other scientific requests during the quarter. High-resolution images of core working halves are posted on the web for public viewing to show how much the working halves have been sampled to date (iodp.tamu.edu/curation/samples.html).

This routine procedure focuses on imaging only those sections that get sampled; therefore, the section list for imaging correlates with all sections that are pulled for sample requests (see the "Sample requests" table above). Resampling of previously imaged working halves also results in an updated image.

OTHER PROJECTS AND ACTIVITIES

Core wrapping equipment

New core wrapping equipment was installed and tested at the GCR and is now in regular daily use.

DATA MANAGEMENT

The USIO manages data supporting IODP activities, including expedition and postexpedition data, provides long-term archival access to data, and supports USIO Information Technology (IT) services. The USIO also provides database services for postmoratorium ESO and CDEX log data. Daily activities include operating and maintaining shipboard and shore-based computer and network systems and monitoring and protecting USIO network and server resources to ensure safe, reliable operations and security for IODP data and IT resources.

EXPEDITION DATA

LIMS database

USIO Expedition 345 data were added to the LIMS database on shore. These data are currently under moratorium and available only to the scientists who sailed on this expedition. No new data were placed out-of-moratorium during this quarter.

Log database

The following data from ESO Expedition 325 were processed at Leicester University (United Kingdom) and made available online:

- Holes M0031A and M0036A: standard data
- Holes M0042A and M0054B: standard and image data

Sixty log summary plots of both standard and image data were generated for all logged holes from Expeditions 301–336 using a program created in-house.

EXPEDITION DATA REQUESTS

The following tables provide information on USIO web data requests from the scientific community. Where possible, visits by USIO employees were filtered out.

Top 10 countries accessing USIO web databases						
	Janus database		LIMS database		Log database	
Rank	Country	Visitor sessions	Country	Visitor sessions	Country	Visitor sessions
1	United States	1,437	United States	1,471	United States	434
2	United Kingdom	418	Germany	162	United Kingdom	156
3	Germany	333	United Kingdom	159	China	74
4	Japan	211	Unknown	143	Germany	61
5	The Netherlands	118	Japan	120	Brazil	49
6	France	109	South Korea	59	Japan	47
7	China	100	France	50	France	42
8	Spain	63	China	41	Norway	40
9	Australia	61	Australia	40	Russia	40
10	Western Europe	60	Spain	28	Canada	36
	Others	542	Others	200	Others	393
	Total	**3,452**	**Total**	**2,473**	**Total**	**1,372**

Janus database web queries		
Rank	**Query**	**Uploads**
1	Site summaries	1,624
2	Imaging—core photos	844
3	Sample	809
4	Paleo—age model	440
5	Hole trivia	384
6	Physical properties—MAD	313
7	Site summaries—trivia	274
8	Core summaries	235
9	Chemistry—IW	223
10	Physical properties—GRA	189
11	Requests	186
12	Site details	185
13	Chemistry—carbonates	184
14	Physical properties—PWS	180
15	Paleo—range charts	163
16	Chemistry—rock eval	152
17	Leg summaries	149
18	Paleo—paleo investigations	146
19	Physical properties—MSL	138
20	Hole summaries	125
	Others	1,523
	Janus database total	**8,466**

LIMS database web queries	
Query type	**Views**
LIMS Reports	1,460
Web Tabular Reports	1,015
LIMS database total	**2,475**

Data requests submitted to the TAMU Data Librarian	
Requests	**Total**
How to access	9
Photo	7
Depths	3
Chemistry	1
Physical properties	2
Samples	1
Underway	1
Drilling information	1
Total	**25**

Countries submitting data requests to the TAMU Data Librarian	
Country	**Total**
United States	13
United Kingdom	4
Australia	2
China	1
France	1
Germany	1
India	1
New Zealand	1
South Korea	1
Total	**25**

Other USIO web statistics*			
	Janus database	LIMS database	Log database
Database query hits:			
Entire site (successful)	21,167	26,390	9,492
Average per day	235	293	105
Visitor sessions:			
Total number of visitor sessions	3,452	2,475	1,323
Average per day	38	28	15
Average length of visit	00:11:09	00:05:16	00:06:00
International visitor sessions	56.75%	34.79%	67.20%
Visitor sessions of unknown origin	1.62%	5.78%	0.00%
Visitor sessions from United States	41.63%	59.43%	32.80%
Visitors:			
Unique visitors	1,887	1,352	795
Visitors who only visited once	1,359	1,100	720
Visitors who visited more than once	528	252	75
Average visits per visitor	1.83	1.84	1.66

OPERATION, MAINTENANCE, AND SECURITY

LDEO upgrades and maintenance

A border firewall was installed to protect the Borehole Research Group (BRG) VLAN in all buildings on the LDEO campus. The firewall was placed in the Geoscience Building upstream of the entire VLAN to force all traffic bound for BRG addresses to undergo deep packet inspection and malware and intrusion prevention monitoring. A new Power Over Ethernet (POE) blade was installed in the Borehole Building main Cisco switch in order to drive the new Aerohive wifi base stations.

General maintenance was performed on all five logging programs (on shore and on board the *JOIDES Resolution*) throughout March 2013. Preparations continued for upgrades and maintenance to logging computing systems on the *JOIDES Resolution* to be done in April 2013 in Victoria, British Columbia (Canada).

TAMU upgrades and maintenance

The USIO completed hardware and software upgrades to 19 shipboard instrument hosts before and during the tie-up period in Victoria, British Columbia (Canada).

System management tools including DELL Kace, Casper suite, and Zenworks were examined for use in automatically updating Mac and PC computer software, group policies, and configurations. Two software asset management (SAM) applications, Sassafras K2 and Flexera's Flexnet Manager, were also examined for use in tracking licensing compliance. The new SAM application will replace Dell eSmart, which is no longer offered.

Regional Testing and Integration Facility relocation

The USIO successfully moved the Regional Test and Integration Facility (RTIF) to an offsite location in February 2013. In addition to test and integration capability, the RTIF now offers better options for responding to a catastrophic event should IODP-TAMU lose services in the main building in College Station, TX.

SOFTWARE DEVELOPMENT

LIMS Editing Tool

Project scope and deliverables

The goal of this project is to design, develop, test, and deploy a software package to give data review and editing capabilities to the technical user while maintaining the associations and relationships within the LIMS data structure. The technical user will be able to cancel samples, tests, and results (and any daughter samples, tests, and results) and will be able to reinstate them as well. The user should be able to shift parentage of a sample and force the re-creation of label IDs for the sample and its daughters. The user should be able to create new tests and results (and fill them in, if necessary), but not new samples (Sample Master already provides this capability). The user will be able to call up a set of samples, tests, and results and edit one or many of them in a single session. The following are not included in the scope of the project:

- Reporting capabilities for edited samples beyond cut/paste from the screen (note that a report will be created for the audit trail as defined in the detailed scope),
- Creation of new samples (retained by Sample Master),
- Editing of certain sample types (HOLE, CORE, SECT, SHLF, PC; retained by Sample Master), and
- Creation of new tests and results (retained by MegaUploadaTron [MUT] and/or spreadsheet uploader).

Project status

The test plan team developed testing procedures for each of the version 1 release modules and the development team created the LIMS editing (LIME) program framework, which includes various search modules, log-in and information panels, navigation, and the application mainframe. The developers also began work on various modules. This project is on track for a 30 November completion date.

LEGACY DOCUMENTATION

Legacy preservation activities for Data Management this quarter included storing electronic copies of materials documenting all information technology architecture and corresponding services configurations.

IODP inventory update

The data inventory includes data from IODP Expedition 301 to 344 including ESO Expeditions 302, 310, 313, and 325 and CDEX Expeditions 314, 319, 322, and 332.

PUBLICATIONS

IODP Publication Services provides publication support services for IODP riserless and riser drilling expeditions; editing, production, and graphics services for all required reports, technical documentation, and scientific publications as defined in the USIO contract with IODP-MI; and warehousing and distribution of IODP, ODP, and DSDP publications.

IODP SCIENTIFIC PUBLICATIONS

USIO publications

Scientific Prospectuses

- Kulin, I., Riedel, M., and Klaus, A., 2013. Simple Cabled Instrument for Measuring Parameters In situ (SCIMPI) and Hole 858G CORK replacement. *IODP Sci. Prosp.,* 341S. doi:10.2204/iodp.sp.341S.2013
- Tada, R., Murray, R.W., and Alvarez Zarikian, C.A., 2013. Asian Monsoon: onset and evolution of millennial-scale variability of Asian Monsoon and its possible relation with Himalaya and Tibetan plateau uplift. *IODP Sci. Prosp.,* 346. doi:10.2204/iodp.sp.346.2013

Preliminary Report

- Expedition 344 Scientists, 2013. Costa Rica Seismogenesis Project, Program A Stage 2 (CRISP-A2): sampling and quantifying lithologic inputs and fluid inputs and outputs of the seismogenic zone. *IODP Prel. Rept.,* 344. doi:10.2204/iodp.pr.344.2013

Data Reports

- Carvallo, C., and Camps, P., 2013. Data report: magnetic properties of basalts from Shatsky Rise. *In* Sager, W.W., Sano, T., Geldmacher, J., and the Expedition 324 Scientists, *Proc. IODP,* 324: Tokyo (Integrated Ocean Drilling Program Management International, Inc.). doi:10.2204/iodp.proc.324.201.2013
- Kuroda, J., and Westerhold, T., 2013. Data report: volcanic glass shards from the Eocene–Oligocene transition interval at Site U1333. *In* Pälike, H., Lyle, M., Nishi, H., Raffi, I., Gamage, K., Klaus, A., and the Expedition 320/321 Scientists, *Proc. IODP,* 320/321: Tokyo (Integrated Ocean Drilling Program Management International, Inc.). doi:10.2204/iodp.proc.320321.211.2013
- Malinverno, A., 2013. Data report: Monte Carlo correlation of sediment records from core and downhole log measurements at Sites U1337 and U1338 (IODP Expedition 321). *In* Pälike, H., Lyle, M., Nishi, H., Raffi, I., Gamage, K., Klaus, A., and the Expedition

320/321 Scientists, *Proc. IODP,* 320/321: Tokyo (Integrated Ocean Drilling Program Management International, Inc.). doi:10.2204/iodp.proc.320321.207.2013

- Romero, O.E., 2013. Data report: biogenic silica deposition in the eastern equatorial Pacific. *In* Pälike, H., Lyle, M., Nishi, H., Raffi, I., Gamage, K., Klaus, A., and the Expedition 320/321 Scientists, *Proc. IODP,* 320/321: Tokyo (Integrated Ocean Drilling Program Management International, Inc.). doi:10.2204/iodp.proc.320321.206.2013
- Wilkens, R.H., Dickens, G.R., Tian, J., Backman, J., and the Expedition 320/321 Scientists, 2013. Data report: revised composite depth scales for Sites U1336, U1337, and U1338. *In* Pälike, H., Lyle, M., Nishi, H., Raffi, I., Gamage, K., Klaus, A., and the Expedition 320/321 Scientists, *Proc. IODP,* 320/321: Tokyo (Integrated Ocean Drilling Program Management International, Inc.). doi:10.2204/iodp.proc.320321.209.2013
- Yamamoto, Y., 2013. Data report: temporal variation in natural remanent magnetization observed for Pacific plate basement rocks: compilation from legacy data and new paleomagnetism and rock magnetism data from seafloor basalts cored during Expedition 320/321. *In* Pälike, H., Lyle, M., Nishi, H., Raffi, I., Gamage, K., Klaus, A., and the Expedition 320/321 Scientists, *Proc. IODP,* 320/321: Tokyo (Integrated Ocean Drilling Program Management International, Inc.). doi:10.2204/iodp.proc.320321.213.2013

CDEX publications

Preliminary Report

- Moore, G., Kanagawa, K., Strasser, M., Dugan, B., Maeda, L., Toczko, S., and the Expedition 338 Scientists, 2013. NanTroSEIZE Stage 3: NanTroSEIZE plate boundary deep riser 2. *IODP Prel. Rept.,* 338. doi:10.2204/iodp.pr.338.2013

Data Reports

- Reece, J.S., Flemings, P.B., and Germaine, J.T., 2013. Data report: permeability, compressibility, and microstructure of resedimented mudstone from IODP Expedition 322, Site C0011. *In* Saito, S., Underwood, M.B., Kubo, Y., and the Expedition 322 Scientists, *Proc. IODP,* 322: Tokyo (Integrated Ocean Drilling Program Management International, Inc.). doi:10.2204/iodp.proc.322.205.2013
- Spinelli, G.A., and Hutton, A., 2013. Data report: amorphous silica content of sediment from Sites C0011 and C0012 in the Shikoku Basin on the NanTroSEIZE transect. *In* Saito, S., Underwood, M.B., Kubo, Y., and the Expedition 322 Scientists, *Proc. IODP,* 322: Tokyo (Integrated Ocean Drilling Program Management International, Inc.). doi:10.2204/iodp.proc.322.204.2013

USIO REPORTS

IODP Publication Services produces the USIO quarterly reports, annual reports, Annual Program Plans, and other reports as requested (see “USIO Reports” in “Management and Administration” for details on these documents).

PROGRAM-RELATED CITATION STATISTICS

Citations submitted to AGI

In November 2008, the USIO began submitting Program-related ocean drilling citations to the American Geological Institute (AGI) for inclusion in the GeoRef database and the subset Ocean Drilling Citation Database, which includes publication records related to DSDP, ODP, and IODP. The USIO submitted 110 new citations to AGI this quarter and requested 136 corrections to existing AGI citation records.

IODP PUBLICATIONS MANAGEMENT

IODP scientific publication deadline extension requests

The requirement of all Science Party members to conduct research and publish the results of their work is detailed in the IODP Sample, Data, and Obligations Policy (www.iodp.org/program-policies/). To fulfill this obligation, scientists publish their papers in a peer-reviewed scientific journal or book that publishes in English, or as a peer-reviewed data report in the *Proceedings of the Integrated Ocean Drilling Program*. Manuscripts must be submitted within 20 months postmoratorium (26 months for synthesis papers). Science Party members may request a deadline extension of up to one year. The Platform Curator reviews and approves these extension requests, and IODP Publication Services monitors fulfillment of the publishing obligation. The tables below show extensions requested during the quarter and the status of all deadline extensions approved during the life of each volume.

Initial papers/data reports

Expedition	Submission deadline (20 months postmoratorium)	Deadline extensions approved in FY13 Q2	Overall extension status	
			Number approved	Number fulfilled
301	20 April 2007			
302	23 July 2007			
304/305	4 February 2008		14	12
308	7 March 2008		8	7
303/306	9 May 2008		13	9
307	13 June 2008		4	2
311	27 June 2008		12	8
309/312	28 August 2008		9	9
310	4 November 2008		16	13
313	4 August 2012		4	2
314/315/316	4 October 2010		27	20
317	4 September 2012		11	4
318	2 March 2013		4	
319	30 April 2012		6	3
320/321	30 June 2012		26	18
322	10 June 2012		11	6

Expedition	Submission deadline (20 months postmoratorium)	Deadline extensions approved in FY13 Q2	Overall extension status	
			Number approved	Number fulfilled
323	10 August 2012		6	4
324	4 July 2012		10	6
325	16 March 2013*	31	31	
334	13 December 2013†	31	31	

*A 6 month extension was granted to the entire Science Party.
†A 1 year extension was granted to the entire Science Party.

Synthesis papers

Expedition	Submission deadline (26 months postmoratorium)	Deadline extensions approved in FY13 Q2	Overall extension status	
			Number approved	Number fulfilled
301	22 October 2007		1	1
302	21 January 2008		1	1
304/305	4 August 2008		1	1
308	8 September 2008		1	1
303/306	10 November 2008		1	1
307	15 December 2008		1*	1
311	29 December 2008		1	1
309/312	27 February 2009		1*	
310	4 May 2009		1*	
313	4 February 2013			
314/315/316	5 April 2011		1*	
317	4 March 2013			
318	2 September 2013			
319	30 October 2012			
320/321	30 December 2012			
322	10 December 2012			
323	10 February 2013			
324	4 January 2013		1	
325	16 September 2013			

*Requests for submission deadline extensions beyond 38 months postmoratorium were received and referred to the respective Platform Curator.

Scientific publication distribution

IODP scientific publications are the primary method of disseminating IODP research to the scientific community and the public. Initial distribution of IODP scientific publications includes more than 800 program member offices, universities, libraries, and geological organizations worldwide, and the USIO provides additional print or electronic copies of legacy publications upon request.

IODP publications website

The IODP Publications website is hosted at TAMU. Traffic accessing USIO publications is monitored through publications.iodp.org.

Publications website	FY13 Q2 page views	FY13 Q2 site visits
www.iodp.org/scientific-publications	447,120	79,608

IODP digital object identifiers

IODP is a member of CrossRef, the official digital object identifier (DOI) registration agency for scholarly and professional publications. All IODP scientific reports and publications are registered with CrossRef and assigned a unique DOI that facilitates online access. DOIs have also been assigned to ODP and DSDP scientific reports and publications. CrossRef tracks the number of times a publication is accessed, or resolved, through the CrossRef DOI resolver tool. Statistics for the reporting quarter are shown in the table below.

Reports and publications	DOI prefix	Number of resolutions			
		January 2013	February 2013	March 2013	FY13 Q2 total
IODP	10.2204	4,966	3,155	4,909	**13,030**
ODP/DSDP	10.2973	13,065	2,866	5,416	**21,347**

PUBLICATIONS SUPPORT

The USIO provided Publications Specialist services during USIO Expedition 345 and hosted postexpedition editorial meetings for USIO Expedition 342 and CDEX Expedition 337.

TECHNICAL DOCUMENTATION

Technical documents produced by the USIO are available to users via the Cumulus web client (iodp.tamu.edu/tasapps/) once they reach the technical draft stage. Technical documents in production during the second quarter of FY13 are shown in the table below.

Technical documentation	FY13 Q2 status
Quick start guides	
Section-Half Imaging Logger (SHIL)	Under technical review
Section-Half Multisensor Logger	Under technical review
Whole-Round Multisensor Logger	Under technical review
Discrete Analyzer	Under final review
Ion Chromatograph	Under final review
User guides	
Moisture and Density (MAD)	Under technical review
Natural Gamma Radiation Logger	Under technical review
SHIL	Under technical review
Source Rock Analyzer	Under technical review
Advanced User Guides	
MAD	Under technical review
Source Rock Analyzer	Under technical review

LEGACY DOCUMENTATION

The USIO routinely archives electronic copies of documents, reports, and scientific publications produced on behalf of IODP. Documents archived this quarter included all scientific publications produced during the quarter, the IODP-USIO FY12 Annual Report, the FY13 Q1 report, and planning documentation for reporting deliverables.

OTHER PROJECTS AND ACTIVITIES

Cited-by linking project

Work continued this quarter on converting a prototype "cited-by linking" project to a Java code base compatible for deployment to an IODP-TAMU server. Cited-by linking is a free service offered by CrossRef. Through the service, which utilizes publisher-provided metadata, users will be able to initiate a web query to learn which journals or books have cited IODP publications. The project code base was ready for testing by the IODP Publications group by the end of the quarter.

EDUCATION

USIO education activities are supported by NSF through other Program integration costs (OPIC). The USIO is responsible for developing and disseminating expedition-specific and thematic education activities and materials for elementary through post-secondary and free choice–learning audiences, promoting diversity programs and partnerships, and supporting legacy resources.

The USIO facilitates education activities through Deep Earth Academy (funded jointly by the USIO and the United States Science Support Program [USSSP]) in cooperation with other U.S. education and outreach groups, conducting teacher education activities; developing, testing, and disseminating educational curriculum that highlights IODP science programs; and implementing live and near-real-time programs that highlight and use the *JOIDES Resolution* as a platform for education. The USIO also conducts diversity outreach initiatives to allow minority students to pursue studies in earth systems sciences or to explore careers in scientific ocean drilling and large-scale science program management.

PROFESSIONAL DEVELOPMENT

National Science Teachers Association International Science Institute

A delegation of 17 middle school and high school teachers from across the Republic of Korea joined USIO education staff at the National Science Teachers Association (NSTA) International Science Institute for three weeks of professional development training at the University of Maryland, Baltimore County. The teachers were immersed in hands-on activities focused on IODP science to learn about climate, plate tectonics, careers in science, and the *JOIDES*

Resolution. The activities included a live broadcast with the director of IODP Korea and a USIO staff member.

2013 Schools of Rock

Plans continued during the quarter for two 2013 School of Rock workshops, both of which will take place on board the *JOIDES Resolution.* The first workshop is scheduled for 1–9 April while the ship is in port in Victoria, British Columbia (Canada), and the second workshop is scheduled for 20–29 May during the Expedition 341S SCIMPI operation.

Onboard educator program

The USIO sailed N. Kurtz, a freelance artist, as Onboard Education Officer during Expedition 345. Kurtz collaborated with two ECORD-supported educators (J.L. Berenguer, International School, Valbonne Sophia Antipolis [France], and S. Gebbels, Newcastle University School of Marine Science and Technology [United Kingdom]), completing 93 video broadcasts to classrooms, museums, and teacher groups worldwide. The team also developed numerous educational resources—games, video animations, activities, and models—for use by students and educators, and ambitious postexpedition plans.

Plans were under way this quarter for A. Mote, a middle school teacher from Austin, TX, and IODP New Zealand educator C. Larson (an informal educator with the National Aquarium in New Zealand) to sail during Expedition 341.

Educational outreach events

International Teacher-Scientist Partnership Conference

USIO staff attended the first International Teacher-Scientist Partnership Conference held in association with the American Association for the Advancement of Science (AAAS) Annual Meeting on 13 and 14 February in Boston, MA. USIO representatives shared both the School of Rock and Onboard Education Officer programs and learned about other related programs worldwide.

EXPEDITION-BASED LEARNING ACTIVITIES AND MATERIALS

The USIO links school and public audiences to activities on board the *JOIDES Resolution* via advanced web technologies, the *JOIDES Resolution* website (joidesresolution.org), video broadcasting, and/or podcasting. The USIO also produces new expedition-specific and thematic video and learning materials based on legacy material and science and life at sea during USIO expeditions.

Deep Earth Academy website

The Deep Earth Academy website (deepearthacademy.org) continued to serve as the hub for information on professional development, classroom activities, and materials ordering.

Planning continued for moving a large portion of the content from deepearthacademy.org to joidesresolution.org to streamline education offerings and make them more user friendly.

JOIDES Resolution website and social networking

The joidesresolution.org website promotes each expedition with expedition pages, blogs, videos, images, and more and serves as the hub for Program social networking on Facebook, Twitter, and YouTube sites. During this quarter, the site promoted Expedition 345. The three Onboard Education Officers added regular blogs to the site during the expedition, featuring challenges, math problems, artistic interpretations, and lots of images.

Additionally, the USIO education staff worked with a web contractor to overhaul and improve the Educator page of the site for easy access to all educational materials and opportunities.

USIO educational website statistics

USIO educational website*	FY13 Q2 page views	FY13 Q2 site visits
www.joidesresolution.org	43,195	16,921
www.oceanleadership.org/education/deep-earth-academy	16,832	12,499
Total	**60,027**	**29,420**

*Ocean Leadership's educational websites are funded jointly by the USIO and USSSP.

Videos and video broadcasts

Each Onboard Education Officer connects with numerous classrooms, museums, professional development programs, and special events to provide live ship-to-shore video broadcasts lasting 30–45 minutes each. This quarter featured Expedition 345, which held 93 video broadcasts to classroom around the world. The three Onboard Education Officers made full use of props, models, maps, and graphics during their broadcasts, and used new iPads for all of their events. The events were highly regarded, and scientists were eager to participate.

Educational materials development and distribution

Materials developed this quarter included several new activities and an animation created by the Expedition 345 Onboard Education Officers (joidesresolution.org/node/2738). The USIO also released a series of six "JR in a Minute" animations on youtube (youtube.com/playlist?list=PLogsCXymTkBnjZfb6zUuaknFrzSg14rN5).

Materials were distributed this quarter at conferences and outreach activities and in response to requests received through the Deep Earth Academy website. The USIO has cut back on printed materials that are offered; however, the Teaching Kits and Models lending program remained quite active and cores have been out on loan continuously during this quarter (oceanleadership.org/education/deep-%20earth-academy/i-dea-resources/teaching-kits-and-models/).

SCIENTISTS AS EDUCATORS

The USIO provides regular opportunities for scientists to participate in educational programming. During this quarter, L. Krissek (The Ohio State University) and D. Pak (University of California, Santa Barbara) participated in planning for the April 2013 School of Rock, while J. Lewis (Indiana University of Pennsylvania) and B. Reese (University of Southern California) participated in planning for the May School of Rock program. L. Sautter (College of Charleston) and T. Williams (USIO-LDEO) participated in the Ship-to-Shore Science grant Girl Scouts pilot project through Skype and in person.

STRATEGIC PARTNERSHIPS

Center for Dark Energy Biosphere Investigations

The USIO continued to partner with the Center for Dark Energy Biosphere Investigations (C-DEBI) to produce microbiology-related materials and projects. During this quarter, USIO staff worked with B. Orcutt (Bigelow Laboratory for Ocean Sciences) on adapting her Adopt-a-Microbe module as a stand-alone curriculum.

OUTSIDE FUNDING AND SPONSORSHIPS

This section describes grant proposal submissions, awarded grants, and subsequent grant-supported activities that complement USIO science and education activities.

Activities related to existing grants

C-DEBI grant

The USIO partnered with C-DEBI during FY11 on the education and outreach components of the R/V *Atlantis* Expedition AT18-07, which collected samples and data from subseafloor observatories (CORKS) installed during IODP Expedition 327: Juan de Fuca Ridge-Flank Hydrogeology. A continuation was awarded that supports USIO-managed education and outreach programs during the second phase of this project, including an expedition to the same sites on the R/V *Thompson* scheduled for 11–26 July 2013. The USIO continued planning for this expedition during the quarter, including initiation of a partnership with Ocean Exploration Trust to provide high bandwidth for telepresence events during the cruise.

Ship-to-Shore Science grant (NSF Informal Science Education Pathways)

Pilot project teams were extremely active during the quarter, moving forward with their individual projects. The e-book was completed, plans were well under way for a number of regional *JOIDES Resolution* events to take place during the third quarter, the Girl Scouts project completed most of its work and evaluation, and the museum interactive project moved forward with storylines.

Opportunities for Enhancing Diversity in the Geosciences grant

A final report for this grant was submitted during this quarter.

LEGACY DOCUMENTATION

The USIO routinely archives electronic copies of documents, reports, and materials produced on behalf of IODP.

Legacy digital archive

Legacy preservation activities include storing electronic copies of relevant educational products and materials produced by the USIO each quarter in a dedicated CMS. Products and materials archived this quarter include two activities produced during Expedition 345 and six new *JOIDES Resolution* "JR in a Minute" animations.

OTHER PROJECTS AND ACTIVITIES

2013 J-aRt contest: Art under Pressure

The 2013 J-aRt Contest launched in December 2012 continues the Art under Pressure theme with Styrofoam sculptures, but invites entrants to create their sculptures from standard Styrofoam shapes and to interact with the Expedition 345 Onboard Education Officer/Artist to test out ideas. The contest deadline was 28 February 2013, and more than 40 entries were received. Winners will be announced during the third quarter and sculptures will be lowered to the seafloor during the May 2013 School of Rock program.

OUTREACH

USIO Outreach activities are designed to build an easily accessible foundation of knowledge about IODP, to raise the visibility of the connection between the emerging scientific knowledge and its positive contribution to society worldwide, and to encourage interest in the Program. To accomplish these goals, the USIO targets informational outreach to the general public, science and general-interest media, legislators, scientists and engineers from within the IODP community and beyond, and decision makers at the national level.

COMMUNICATIONS ACTIVITIES: MEDIA AND PUBLIC OUTREACH

Port call outreach

While not an official outreach port call, the USIO helped facilitate the arrangement of several small-scale tours of the *JOIDES Resolution* during the non-IODP period in Victoria, British Columbia (Canada). This included visits by members of the media.

Global outreach activities

The USIO facilitated global outreach this quarter by supporting a session on IODP science at the AAAS Annual Meeting in February 2013 and sending informational materials to be distributed at the European Geophysical Union (EGU) 2013 General Assembly.

IODP representation at meetings/conferences

USIO representatives attended the AAAS Annual Meeting in February and helped promote a session on IODP science, as mentioned above. In addition, USIO communications staff met and discussed Program science and future expedition plans with several journalists, agency staff, and other valuable stakeholders.

Public relations materials

USIO media advisories and news releases

During this quarter, the USIO either developed and published or played a role in developing the following press releases and media advisories (all items below are press releases unless noted otherwise):

- *JOIDES Resolution* retrieves young crustal rocks from Hess Deep Rift [21 March 2013]. www.iodp.org/joides-resolution-retrieves-young-crustal-rocks-from-hess-deep-rift

Communications tools

The USIO's outreach-focused Twitter account, @SeafloorSci, gained many followers this quarter by posting news from expeditions and links to related media. The account had approximately 375 followers at the end of March and more are being added regularly.

Program-related publications

Articles authored by USIO staff

Program-related science and other articles authored by USIO staff published during this quarter include the following. Bold type indicates USIO staff. Other Program-related science articles are available online through the ocean drilling citation database (iodp.tamu.edu/publications/citations/database.html) and the IODP Expedition-related bibliography (iodp.tamu.edu/publications/citations.html).

- **Liu, T., Iturrino, G., Goldberg, D., Meissner, E.,** Swain, K., Furman, C., Fitzgerald, P., Frisbee, N., Chlimoun, J., Van Hyfte, J., and Beyer, R., 2013. Performance evaluation of active wireline heave compensation systems in marine well logging environments. *Geo-Mar. Lett.,* 33(1):83–93. doi:10.1007/s00367-012-0309-8
- Iturrino, G., Liu, T., Goldberg, D., Anderson, L., Evans, H., Fehr, A., Guerin, G., Inwood, J., Lofi, J., Malinverno, A., Morgan, S., Mrozewski, S., Slagle, A., and Williams, T., 2013. Performance of the wireline heave compensation system onboard D/V *JOIDES Resolution. Sci. Drill.,* 15:46–50. doi:10.2204/iodp.sd.15.08.2013

News articles, news programs, media citations, or public commentary

The following citations comprise examples of news articles, news programs, media citations, or public commentary related to USIO expeditions and/or science. See the "IODP in the news" web page (www.iodp-usio.org/Newsroom/news.html) for other articles that raise the profile of the Program.

- Carvallo, C., Camps, P., Ooga, M., Fanjat, G., and Sager, W.W., 2013. Palaeointensity determinations and rock magnetic properties on basalts from Shatsky Rise: new evidence for a Mesozoic dipole low. *Geophys. J. Int.,* 192(3):986–999. doi:10.1093/gji/ggs100
- Lever, M.A., Rouxel, O., Alt, J.C., Shimizu, N., Ono, S., Coggon, R.M., Shanks, W.C., III, Lapham, L., Elvert, M., Prieto-Mollar, X., Hinrichs, K.-U., Inagaki, F., and Teske, A., 2013. Evidence for microbial carbon and sulfur cycling in deeply buried ridge flank basalt. *Science*, 339(6125):1305–1308. doi:10.1126/science.1229240
- Prytulak, J., Nielsen, S.G., Ionov, D.A., Halliday, A.N., Harvey, J., Kelley, K.A., Niu, Y.L., Peate, D.W., Shimizu, K., and Sims, K.W.W., 2013. The stable vanadium isotope composition of the mantle and mafic lavas. *Earth Planet. Sci. Lett.,* 365:177–189. doi:10.1016/j.epsl.2013.01.010
- Rousselle, G., Beltran, C., Sicre, M.-A., Raffi, I., and De Rafélis, M., 2013. Changes in sea-surface conditions in the equatorial Pacific during the middle Miocene–Pliocene as inferred from coccolith geochemistry. *Earth Planet. Sci. Lett.,* 361:412–421. doi:10.1016/j.epsl.2012.11.003
- Sicking, J., 2013. Opportunity knocks: doctoral student conducts research with international scientists. *ISU Newsroom,* 21 March 2013. indstate.edu/news/news.php?newsid=3479
- *tamuTimes,* 2013. Ancient life forms from seafloor raise new questions. *tamuTimes,* 23 January 2013. tamutimes.tamu.edu/2013/01/23/ancient-life-forms-from-seafloor-raise-new-questions/
- Yin, Q., Fu, B., Li, B., Shi, X., Inagaki, F., and Zhang, X.-H., 2013. Spatial variations in microbial community composition in surface seawater from the ultra-oligotrophic center to rim of the South Pacific Gyre. *PLoS One,* 8(2):E55148. doi:10.1371/journal.pone.0055148
- Zeliadt, N., 2013. Drilling for microbes. *Proc. Nat. Acad. Sci., U. S. A.,* 110(7):2434. pnas.org/content/early/2013/02/05/1300190110.full.pdf

LEGACY DOCUMENTATION

The USIO routinely archives electronic copies of documents, reports, and materials produced on behalf of IODP.

Legacy digital archive

Legacy preservation activities include storing electronic copies of relevant outreach products and publications produced by the USIO each quarter in a dedicated CMS. Products and publications archived this quarter include the aforementioned press release.

APPENDIX A: FINANCE REPORT

Please contact info@oceanleadership.org for hard copies of financial pages.

APPENDIX B: TRAVEL

Purpose*	Category	Dates	Location	Institution: Personnel
Progress review of Scholars, Training for the Advancement of Research (STAR) grant research	Education	4–8 January 2013	Washington, DC	LDEO: D. Goldberg
Visit to Umbilicals International	Vendor Visit	10 January 2013	Stafford, TX	TAMU: B. Aduddell, D. Ferrell
UnderWater Intervention Conference 2013	Conference	14–17 January 2013	New Orleans, LA	TAMU: M. Meiring
Science Implementation and Policy Committee (SIPCOM) Meeting	SAS	22 and 23 January 2013	Edinburgh, Scotland (United Kingdom)	Ocean Leadership: D. Divins TAMU: B. Clement
Hazardous Materials (HazMat) Training	Training	27 January–2 February 2013	Chicago, IL	TAMU: S. Dillard
New Employee Relocation	Relocation	29 January–11 February 2013	College Station, TX	TAMU: R. Gray
TAMU Trans-Texas Videoconference Network (TTVN) Conference	Conference	4–8 February 2013	Galveston, TX	TAMU: J. Rosser
New Employee Relocation	Relocation	10 February 2013	College Station, TX	TAMU: D. Kulhanek
Expedition 345 Port Call	Port Call	11–14 February 2013	Panama City, Panama	Ocean Leadership: D. Divins
Simple Cabled Instrument for Measuring In-Situ Parameters (SCIMPI) test	Engineering	12 February 2013	Palisades, NY	Ocean Leadership: G. Myers
American Association for the Advancement of Science (AAAS) Annual Meeting	Conference	12–14 February 2013	Boston, MA	Ocean Leadership: S. Cooper
Hazmat Training	Hazmat Training	13–16 February 2013	Las Vegas, NV	TAMU: S. Dillard
N.I. Labview training	Training	17–22 February 2013	Austin, TX	TAMU: J. Howell
Meeting with the Energy and Geoscience Institute (EGI)	Meeting	18–21 February 2013	London, England (United Kingdom)	TAMU: B. Clement
Visit to Umbilicals International to check cable progress	Vendor Visit	19 February 2013	Stafford, TX	TAMU: B. Aduddell, D. Ferrell, M. Meiring
Expedition 342 Sampling Party	Expedition Meeting	20 February–4 March 2013	Bremen, Germany	TAMU: P. Blum
New Employee Relocation	Relocation	22–26 February 2013	College Station, TX	TAMU: K. Bogus

Purpose*	Category	Dates	Location	Institution: Personnel
Logitech thin-section equipment training class	Training	22 February–4 March 2013	Glasgow, Scotland (United Kingdom)	TAMU: T. Bronk, E. Fisher
Oracle monitoring and performance issues and process set up	Maintenance	28 February–1 March 2013	College Station, TX	Vendor: M. Manickam
Network training class	Training	3–8 March 2013	Dallas, TX	TAMU: D. Ponzio
Visit to Umbilicals International to observe final cable testing	Vendor Visit	4 March 2013	Houston, TX	TAMU: D. Ferrell
New Employee Relocation	Relocation	4 March 2013	College Station, TX	TAMU: H. Evans
ECORD Facility Board Meeting	Facility Board Meeting	7 and 8 March 2013	Edinburgh, Scotland (United Kingdom)	Ocean Leadership: D. Divins TAMU: M. Malone
Wireline tools testing	Maintenance	6–8 March 2013	Houston, TX	LDEO: G. Iturrino, W. Masterson
Ocean Leadership Meeting	Meeting	6–8 March 2013	Washington, DC	TAMU: B. Clement
North American Micropaleontology Section of the Society for Sedimentary Geology (NAMS SEPM) Microfossils III Conference	Conference	9–13 March 2013	Houston, TX	TAMU: J. Firth
Expedition 344 Second Postexpedition Meeting	Expedition Meeting	10–16 March 2013	San Jose, Costa Rica	TAMU: K. Petronotis
Expedition 340 research collaboration: postexpedition review	Expedition Meeting	13–27 March 2013	Palisades, NY	LDEO: S. Morgan
Borehole Logging Working Group Meeting	Meeting	15–17 March 2013	Victoria, British Columbia (Canada)	LDEO: G. Iturrino
JR Facility Board Meeting	Facility Board Meeting	18–20 March 2013	Arlington, VA	LDEO: D. Goldberg TAMU: B. Clement, M. Malone
Vibration-Isolated Television (VIT) Training	Training	22–27 March 2013	Victoria, British Columbia (Canada)	TAMU: D. Ferrell, M. Meiring

*Travel associated with meetings, conferences, port call work, and nonroutine sailing activities.

APPENDIX C: USIO QUARTERLY REPORT DISTRIBUTION

J. Allan, NSF, jallan@nsf.gov
R. Batiza, NSF, rbatiza@nsf.gov
M. Rouse, NSF, mrouse@nsf.gov
J. Emmitte, IODP-MI, jemmitte@iodp.org
K. Suyehiro, IODP-MI, ksuyehiro@iodp.org
D. Divins, Ocean Leadership, ddivins@oceanleadership.org
M. Foxx, Ocean Leadership, mfoxx@oceanleadership.org
R. Gagosian, Ocean Leadership, rgagosian@oceanleadership.org
M. Morell, Ocean Leadership, mmorell@oceanleadership.org
G. Myers, Ocean Leadership, gmyers@oceanleadership.org
Y. Xing, Ocean Leadership, yxing@oceanleadership.org
D. Goldberg, LDEO, goldberg@ldeo.columbia.edu
D. Grames, LDEO, grames@ldeo.columbia.edu
A. Lerner-Lam, LDEO, lerner@ldeo.columbia.edu
M. Reagan, LDEO, reagan@ldeo.columbia.edu
M. Respo, LDEO, mrespo@admin.ldeo.columbia.edu
B. Clement, TAMU, clement@iodp.tamu.edu
S. Garrett, TAMRF, srg@rf-mail.tamu.edu
B. Lancaster, TAMRF, lancaster@iodp.tamu.edu
M. Malone, TAMU, malone@iodp.tamu.edu
K. Miller, TAMU, kcmiller@tamu.edu
B. Neyses, TAMRF, neyses@iodp.tamu.edu