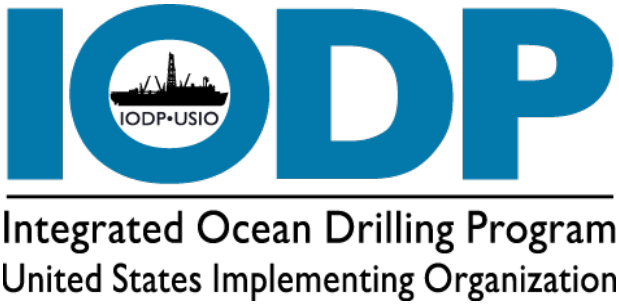
INTEGRATED OCEAN DRILLING PROGRAM

United States Implementing Organization



FY13 Quarterly Report 1

1 October–31 December 2012

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 February 2013

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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

FY12 Q4 IODP-USIO Quarterly Report

The USIO report for the fourth quarter of FY12 (July–September 2012) was submitted to NSF and the IODP central management office (IODP-MI) on 30 November 2012 (http://iodp.tamu.edu/publications/AR/FY12/FY12_Q4.pdf).

FY12 IODP-USIO Annual Report

Production of the IODP-USIO FY12 Annual Report continued, and the final version of the report was submitted to the USIO Systems Management Team for review.

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 (http://www.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
USIO Technical Panel (UTP) Meeting	4 and 5 October 2012	Palisades, NY
Southwest Pacific Ocean IODP Workshop	9–12 October 2012	Sydney, Australia
IODP Short Courses at the American Geophysical Union (AGU) Fall Meeting 2012	2 December 2012	San Francisco, CA
IODP Town Hall at the AGU Fall Meeting 2012	4 December 2012	San Francisco, CA
Proposal Evaluation Panel (PEP) Meeting	11 and 12 December 2012	Kyoto, Japan

*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 58: Provided FY13 incremental funding in the amount of $30,000,000.

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

- Modification 42: Approved the FY13 Annual Program Plan budget for $2,996,719 and provided incremental FY13 funding in the amount of $800,000.
- Modification 43: Provided FY13 funding in the amount of $615,000.

Subcontract activity

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

Ocean Leadership Subcontract JSC 4-03 with LDEO

- Modification 60: Approved the FY13 Annual Program Plan dated 3 July 2012 in the amount of $7,184,932 and provided FY13 incremental funding in the amount of $1,347,977 ($1,271,072 platform operating costs [POC] and $76,905 science operating costs [SOC]).

Ocean Leadership Subcontract JSC 4-02 with TAMRF

- Modification 73: Reduced the original level of institutional commitment contained in the 10 September 2003 Best and Final Offer (BAFO).
- Modification 74: Approved the FY13 Annual Program Plan dated 3 July 2012 in the amount of $61,625,683, less $565,000 to account for alternate use of the *JOIDES Resolution* during 1–7 October 2012, totaling $61,060,683; provided incremental FY13 funding of $11,455,556 ($10,802,457 POC and $653,099 SOC).
- Modification 75: Provided incremental FY13 funding in the amount of $26,029,832 (POC).

LDEO

No contractual activities were reported for this period.

TAMRF

Subcontract activity

TAMRF issued the following subcontract modifications during the reporting period.

TAMRF subcontract with Overseas Drilling Limited

- Amendment 20: Provided incremental FY13 funding in the amount of $8,135,000.

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

- 1 November 2012: Purchased 1,338 tenite butyrate core liners in the amount of $160,673 from Anaheim Custom Extruders Inc.
- 13 December 2012: Issued an amendment to Purchase Order H00421 to Rignet Inc. to provide incremental funding in the amount of $368,900 for shipboard communication services.

Miscellaneous activity

- 18 October 2012: Submitted the Federal Automotive Statistical Tool (FAST) for fleet data (vehicle mileage, maintenance, and fuel costs) for FY12 to Ocean Leadership.
- 31 October 2012: Submitted the Individual Subcontracting Reports for the period of 1 April 2012–30 September 2012 to Ocean Leadership.
- 2 November 2012: Submitted the FY12 Annual Property Inventory Results and Federal Supply Number Summary and Detail Reports to Ocean Leadership.

PERSONNEL STATUS

Ocean Leadership

The following positions were vacated during the quarter:

- Administrative Assistant (Jessie Swanseen): 16 November 2012

The following positions were opened and advertised during the quarter:

- Administrative Assistant

The following positions were filled during the quarter:

- Director of Contracts and Compliance (Catherine McLean): 29 November 2012

LDEO

No personnel updates were reported for this period.

TAMU

The following positions were vacated during the quarter:

- Assistant Laboratory Officer (Steve Prinz): 1 October 2012
- Manager of Business Services (Bill Wasson): 15 October 2012
- Administrative Assistant (Diane Bertinetti): 8 December 2012

The following positions were opened and advertised during the quarter:

- Research Specialist I
- Applications Developer I
- Administrative Assistant

The following positions were filled during the quarter:

- Laboratory Specialist I (Ty Cobb): 1 October 2012
- Applications Developer I (Jon Howell): 8 October 2012

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 Q1 page views*	FY13 Q1 site visits*
www.iodp-usio.org	15,760	10,133
iodp.ldeo.columbia.edu	14,625	3,746
iodp.tamu.edu	751,158	72,558
Total	**781,543**	**86,437**

*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 and the FY12 Q4 IODP-USIO Quarterly Report 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 Q1 page views*	FY13 Q1 site visits*
www-odp.tamu.edu	1,431,333	383,059
www.odplegacy.org	8,003	3,562
www.deepseadrilling.org	313,406	71,331
Total	**1,752,742**	**457,952**

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

OTHER PROJECTS AND ACTIVITIES

TAMU Project Portfolio Management

The TAMU management team examined the Laboratory Information Management System (LIMS) Data Review and Editing Tool project management plan and approved the project for execution beginning in January 2013.

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]
Non-IODP [1 August–23 October 2012]							
Costa Rica Seismogenesis Project (CRISP) 2	344	Balboa, Panama	23 October–11 December 2012	49 (2/47)	47 (3/44)	R. Harris A. Sakaguchi	TAMU: K. Petronotis* LDEO: A. Malinverno^
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)		

Expedition		Port (Origin)	Dates[1, 2]	Total Days (Port/ Sea)	Days at Sea (Transit[3]/ Ops)	Co-Chief Scientists	USIO Contacts[4]
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^

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 http://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 *Preliminary Report* was finalized and published this quarter. Planning for a sampling party began, including a significant effort to scan cores under X-ray fluorescence (XRF) prior to the sampling party.

Expedition 344: Costa Rica Seismogenesis Project 2

Planning

All final supplies and pre-expedition logistics were completed this quarter. Shipments arrived in St. John's, Newfoundland, and were loaded on the *JOIDES Resolution* prior to transiting to Panama to pick up scientists and fuel the vessel.

Staffing

Expedition 344 Science Party staffing breakdown	
Member country/consortium	**Participants**
USA: United States Science Support Program (USSSP)	10
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)	7
Republic of Korea: Korea Integrated Ocean Drilling Program (K-IODP)	1
People's Republic of China: IODP-China	2
Australia and New Zealand: Australia/New Zealand IODP Consortium (ANZIC)	1
India: Ministry of Earth Science (MoES)	0
Brazil: IODP-Coordenação de Aperfeiçoamento de Pessoal de Nível Superior (CAPES)/Brasil	2

The organic geochemist withdrew on 11 October and was replaced on 13 October. One structural geologist (ESSAC) withdrew on 15 October and could not be replaced. The first two scientists from new member country Brazil sailed during this expedition.

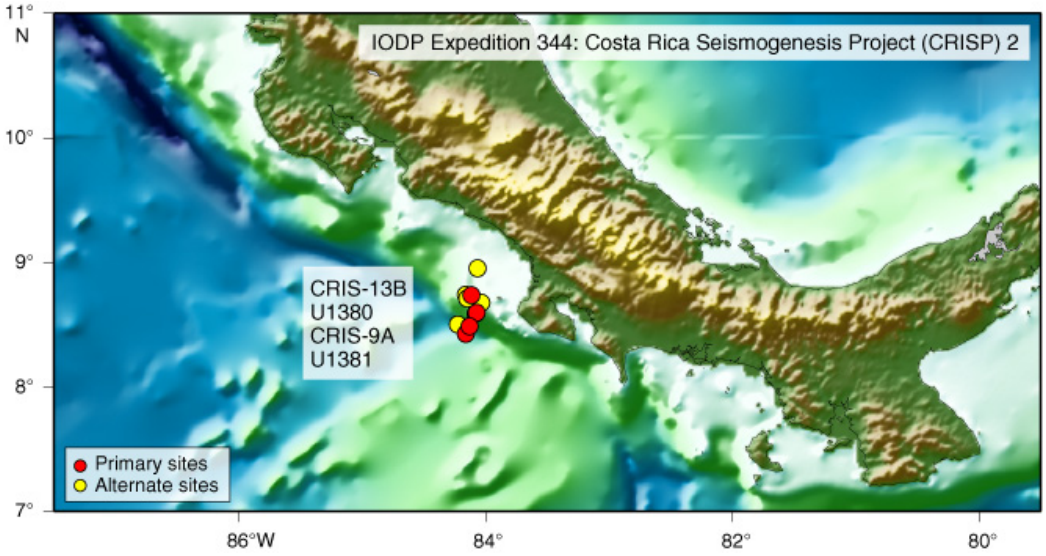
Clearance and permitting activities

Notification granting research clearance was received 9 October 2012.

Environmental assessment

Approval to conduct acoustic activity in support of the check shot survey was received on 3 October.

Site map



Coring summary

Site	Hole	Latitude	Longitude	Water depth (m)	Cores (n)	Interval cored (m)	Core recovered (m)	Recovery (%)
U1381	U1381C	8°25.7027'N	84°9.4800'W	2075.4	13	103.8	109.03	105.4
				Site U1381 totals:	**13**	**103.8**	**109.03**	**105.4**
U1380	U1380B	8°35.9952'N	84°4.3908'W	513.6	0	0.0	0.00	0.0
	U1380C	8°35.9879'N	84°4.3918'W	513.6	51	362.0	202.35	55.9
				Site U1380 totals:	**51**	**362.0**	**202.35**	**55.9**
U1412	U1412A	8°29.3294'N	84°7.6686'W	1931.6	25	200.3	170.03	84.9
	U1412B	8°29.1599'N	84°7.7512'W	1975.9	19	155.2	28.26	18.2
	U1412C	8°29.1700'N	84°7.7467'W	1975.9	9	87.0	36.57	42.0
	U1412D	8°29.1402'N	84°7.7793'W	0.0	2	18.8	12.25	65.2
				Site U1412 totals:	**55**	**461.3**	**247.11**	**53.6**
U1413	U1413A	8°44.4593'N	84°6.8095'W	550.9	26	189.1	187.28	99.0
	U1413B	8°44.4593'N	84°6.7992'W	551.4	3	25.6	27.44	107.2
	U1413C	8°44.4482'N	84°6.7993'W	551.4	42	404.2	313.94	77.7
				Site U1413 totals:	**71**	**618.9**	**528.66**	**85.4**
U1414	U1414A	8°30.2304'N	84°13.5298'W	2469.1	63	471.6	383.95	81.4
				Site U1414 totals:	**63**	**471.6**	**383.95**	**81.4**
Expedition 344 totals:					**253**	**2017.6**	**1471.10**	**72.9**

Logging summary

Wireline logging was attempted in Holes U1380C and U1412B, but the tool strings could not be lowered in the open hole interval because of collapsing boreholes. Wireline logging tools were successfully deployed in Hole U1413C, where data were acquired above a borehole obstruction at ~185 meters below seafloor (mbsf). Imaging logs acquired with the Ultrasonic Borehole Imager (UBI) and the Formation MicroScanner (FMS) detected an interval with well-defined borehole breakouts, which mark the principal horizontal stress directions. These unique measurements will be integrated with core information to determine the present state of stress of the upper plate in the Costa Rica Seismogenesis Project (CRISP) study area. Wireline logs were also acquired down to 410 mbsf in Hole U1414A, which was drilled in the subducting plate. Two logging runs measured spectral gamma ray, bulk density, electrical resistivity, *P*- and *S*-wave velocity, and ultrasonic and resistivity images of the borehole wall. The logging measurements will supplement partial core recovery in a lithified sediment interval below ~290 mbsf and in the top of the volcanic basement.

Science Summary

CRISP is designed to elucidate the processes that control nucleation and seismic rupture of large earthquakes at erosional subduction zones. The CRISP study area is located offshore the Osa Peninsula where the incoming Cocos Ridge has lifted the seismogenic zone to within reach of scientific drilling. This area is characterized by low sediment supply, a fast convergence rate, abundant plate interface seismicity, and a change in subducting plate relief along strike. In addition to elucidating processes at erosional convergent margins, this project is complementary to other deep fault drilling projects (e.g., The Nankai Trough Seismogenic Zone Experiment [NanTroSEIZE] and the Japan Trench Fast Drilling Project [J-FAST]).

Expedition 344 is the second expedition of CRISP Program A (IODP Proposal 537A-Full5), a first step toward deep riser drilling through the seismogenic zone. The focus of CRISP Program A is on the shallow lithologic, hydrologic, stress, and thermal conditions that lead to unstable slip in the seismogenic zone. Expedition 344 was superlative, and with the exception of not reaching the décollement and the underthrust sediment at the toe site (Site U1412), exceeded expectations. Material was recovered from the incoming Cocos plate (Sites U1381 and U1414), the toe of the margin (Site U1412), the midslope region (Site U1380), and the upper slope region (Site U1413). Recovery was very good at the incoming plate sites, good at the midslope and upper slope sites, and poor at the toe site. We collected 76 cores at Sites U1381 and U1414 with a recovery of 86%, 122 cores at Sites U1380 and U1413 with a recovery of 75%, and 55 cores at Site U1412 with a recovery of 54%.

The overarching goal of Expedition 344 was a better understanding of seismogenesis at erosive convergent margins through shallow drilling, and a second objective was to better understand erosive convergent margins. Expedition 344 has given us an increased understanding of

subduction erosion that has led to important new insights. Most of the science objectives were achieved.

Expedition 345: Hess Deep Plutonic Crust

Planning

Science and technical preparations continued during the quarter, and logistical arrangements were completed for inclusion of a third-party 3.5 kHz profiler to be deployed on the camera system to determine sediment thickness. All hardware and supplies were completed/procured, packed, crated, and shipped to Puntarenas, Costa Rica. The USIO was notified by port authority that the *JOIDES Resolution* could be required to vacate the pier in Puntarenas on 13 December to make room for a cruise ship; therefore, contingency options were developed to handle planned activities at anchorage for that time period.

Staffing

One U.S. scientist withdrew and was replaced by a Brazilian scientist, completing the staffing for this expedition.

Expedition 341S: SCIMPI/ReCORK Hole 858G

Planning

The Expedition 341S pre-expedition meeting was held 29 October in College Station, Texas. The *Scientific Prospectus* was completed, but publication was put on hold when the Proposal Evaluation Panel (PEP) recommended Ancillary Project Letter (APL) 816 (Re-CORK 858G) in December.

Staffing

Staffing discussions were initiated with the Simple Cabled Instrument for Measuring In-Situ Parameters (SCIMPI) proponent group. Invitations were put on hold with the potential addition of the APL 816 operations.

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

Planning

Initiation of research and sample planning submissions began at the end of the quarter. The PEP approved an APL to core in Port Valdez, Alaska. Planning was initiated to explore options for processing ~250 m of core <3 nautical miles (nmi) from port.

Staffing

A request was sent to the PMOs to replace three scientists that withdrew. Applications from Brazil are pending.

Clearance and permitting activities

Investigation of permitting requirements was initiated; this expedition will require a land use permit from Alaska.

Environmental assessment

The USIO began exploring the requirements to conduct a check shot survey in Port Valdez, which may not be possible to achieve with the short lead time before the expedition.

Expedition 346: Asian Monsoon

Planning

Galley review of the draft *Scientific Prospectus* was completed.

Staffing

The first round of invitations was issued with 19 acceptances. Two specialties were not available in the initial applicant pool, so the PMOs issued a special call to attract applicants.

Clearance and permitting activities

The USIO began populating the clearance application for this expedition and discussing issues with the U.S. State Department.

MAINTENANCE PERIOD ACTIVITIES

Planning for the upcoming maintenance period (~5 March–20 May) continued throughout the quarter, and a coordinator was assigned for USIO-TAMU activities. Requests were sent to all USIO-TAMU Laboratory Working Groups (LWGs), the LDEO Borehole Research Group (BRG), and Ocean Leadership for potential projects that might be undertaken during the maintenance period. Projects submitted by TAMU staff will be reviewed by functional departments (if Project Portfolio Management [PPM] Category 1) and the Issues Management Team (for higher level projects). Two School of Rock projects were scheduled for 1–9 April and 20–29 May 2013, and release of a schedule for staffing and tentative project work is expected in mid-January.

ANALYTICAL SYSTEMS

Analytical Systems acquisitions and updates

Equipment and components purchased during the fourth quarter of FY12 were received and USIO staff began preparing them for deployment on the *JOIDES Resolution,* with completion targeted by the end of the tie-up period (29 May 2013).

Laboratory working groups

Geology

There were no new Geology LWG issues arising from recent cruise evaluations this quarter; progress was made on some of the LWG issues reported in previous quarters (e.g., automated brightening of the "consumer" JPG image on the section-half imaging logger).

Geophysics

The Geophysics LWG met this quarter to evaluate comments from Expedition 344S (work for others conducted during FY12 Q4) and the status of geophysics laboratory issues. The LWG identified the following top five issues for the USIO to address:

- Natural gamma radiation logger (NGR)—Edge correction should be improved by developing a means of determining the position of the bottom of section as well as whether the detectors have a bias along the instrument's long axis. In addition, work on the elemental data composition (K, U, Th) should be tabled until higher-priority issues are resolved.
- Whole-Round Multisensor Logger (WRMSL)—Isolation of the electrical noise from the WRMSL motor, either by shielding or by replacing the motors, is a high priority. This noise influences both the NGR and *P*-wave (PWL) measurements.
- WRMSL—The whole-round "top of core" error is very inconvenient to the scientists and should be a high priority to be addressed as soon as possible.
- *P*-wave caliper (PWC)—Additional testing is needed to ensure that proper *P*-wave velocity measurements are being performed on the strength/velocity measurement gantry. If time permits, this will be investigated during Expedition 345.
- Superconducting Rock Magnetometer (SRM)—Replacement of the existing SRM software should be made a high priority for a formal project.

Geochemistry

The Geochemistry LWG met this quarter to discuss issues from Expedition 344S as well as ongoing issues. Although the Expedition 344S cruise evaluations did not discuss chemistry specifically, the expedition technicians made two comments regarding work in the chemistry laboratory:

- The availability of additional manpower (temporary technicians) to help grind shales for carbonate analysis was very helpful, since the shales required using the mixer mill in order to be powdered.
- The hydrofluoric acid (HF) exclusion zone in the chemistry laboratory (between the second and third benches) worked well to ensure safe use of HF.

The LWG also discussed laboratory safety in regard to what chemical stores are on board and recommended that more effort be expended to have chemical procurement (from the Science Parties) go through the Assistant Laboratory Officers and the Logistics Section.

The LWG discussed possible layout changes to the chemistry laboratory to alleviate traffic issues, such as moving the squeezers to an alternate location and rearranging some of the instrument layout. Plans were made for LWG members to further consider the consequences of the proposed rearrangement and reach a consensus during the next meeting.

Curation and Core Handling

The Curation and Core Handling LWG met this quarter to discuss Expedition 344S issues and ongoing LWG issues, including the following:

- The newer-style labels on the sections halves adhere quite well, so the use of tape to "double stick" them will be discontinued. This will make laser engraving easier, and may reduce "sticking" during use of the 80 mm magnetic susceptibility (MS) loop.
- The new type of 3M vinyl tape sent to the ship for evaluation as a possible replacement for the current D-tube tape was not acceptable.
- The new rulers produced for the core trays were too thick, so a local machinist was hired to trim them down to the appropriate thickness to work in the trays.
- The USIO will test Federal Express liquid nitrogen shipping containers that could be used to return frozen shipments to IODP in lieu of World Courier dry ice shipments. Arrangements were made for a test shipment to take place during the tie-up period for evaluation of the condition of the container, time to arrive and return, cost, and so on.
- The microscope laboratory layout will be changed to accommodate the scanning electron microscope (SEM) and move the close-up photographic stand into that area; this reorganization will be carried out during the tie-up period.

Projects and other activities

Geosciences Laboratory (ODASES)

The TAMU Ocean Drilling and Sustainable Earth Science (ODASES) Geosciences Laboratory hosted three groups of scientists for XRF scanning projects during the quarter. One group included Expedition 342 Science Party members, and was a longer-than-normal request. Because of this, XRF usage increased to approximately 80% of available time during the quarter. The shore-based imaging logger (SHIL) continues to be used heavily by the XRF customers as well as the Gulf Coast Repository (GCR) staff.

ENGINEERING SUPPORT

Engineering equipment acquisitions and updates

Vibration-isolated television system

The USIO worked on vibration-isolated television (VIT) system installation plan details with the ship subcontractor this quarter and began to receive end products and testing and writing integration software.

Projects and other activities

Large diameter pipe-handling infrastructure

The Siem drilling crew began reviewing detailed engineering drawings for the 350- and 500-ton elevators, the handler, and stool, which are part of the infrastructure being designed for this project. Manufacturing of the different components will begin once final comments from Siem personnel are received and drawings are finalized. The USIO will explore potential targets for at-sea testing once the manufacturing process is completed.

Multifunction telemetry module projects

Plans were made for the multifunction telemetry module (MFTM) to be used in May 2013 during Expedition 341S as part of the SCIMPI deployment; the MFTM, electronic release system (ERS), and SCIMPI will be tested at the LDEO facilities in early 2013 in preparation for Expedition 341S.

Wireline heave compensating system

Plans were made for routine maintenance of the wireline heave compensating system during the tie-up period in Victoria, British Columbia (Canada).

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 existing VIT camera system surveys and reentry digital files were converted to a common format and archived. Conversion of older VHS tapes to digital format began and will continue on a time-available basis until 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

The UTP fall meeting held at LDEO on 3 and 4 October 2012 was attended by industry and academic technical experts who aided the USIO with engineering, drilling, and downhole measurement technical needs. Minutes of the first two UTP meetings were made available online this quarter (http://iodp.tamu.edu/travel/).

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.

Project status

Complete systems integration testing and firmware optimization began this quarter. Changes in personnel within the LDEO engineering group have resulted in a delay in the completion of the project, and a new timeline for systems integration and completion is still pending.

CORE CURATION

The USIO provides services in support of IODP core sampling and curation of the core collection archived at the GCR.

POLICY AND PROCEDURES

IODP Curators from the USIO, ESO, and CDEX met with the Chair of the Curatorial Advisory Board (C. Neal) during the American Geophysical Union (AGU) Fall Meeting 2012 to discuss policy and procedural issues associated with the end of the current Program and transition into the new International Ocean Discovery Program. Results from this meeting will be distributed

to each implementing organization (IO) along with recommendations and questions with the aim of ensuring smooth continuation of curatorial services into the new Program and that services from each repository are as similar as possible for our customers.

SAMPLE MATERIALS CURATION SYSTEM

Plans were made to deploy the new sample request management software to the production server at TAMU, with a recommendation that the software be referred to as "IODP Sample and Data Request" to avoid confusion with previous software developments.

CURATION STRATEGIES AND EXPEDITION CORE SAMPLING

The USIO planned sample and curation strategies for Expeditions 345 and 341. USIO Curatorial Specialists supervised shipboard core sampling during Expeditions 344 and 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 19,271 samples were taken during Expedition 344, including shipboard and personal samples. There were 52 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 5,050 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	Number of Visitors
20725I, Badger, United Kingdom	27	
22699A, Quan, USA	125	1
22041D, Caballero-Gill, USA	93	
21818B, Straub, Switzerland	5	
21450C, Ford, USA	12	
22567B, Raimbourg, France	136	
22702A, Robinson, United Kingdom	45	
22712A, Kaneko, Japan	2	
22682A, Olszewski, USA	0	103
22700A, Firth, USA	4	1
22718A, Yusuri, USA	0	7

Sample request number, name, country	Number of samples	Number of Visitors
1787IODP, Kordesch, United Kingdom	245	
22705A, Rumford, USA	7	
1794IODP, Rumford, USA	0	
21450D, Ford, USA	2	
22695A, Kaster, USA	4	
22723A, Markovic, Canada	19	
22729A, Marti, Argentina	14	
22707A, Liu, China	49	
22703A, Aljahdali, USA	104	
22709A, Elsworth, Canada	193	
22728A, Thomas, USA	0	32
22717A, Penfield, USA	0	2
1785IODP, Shackford, USA	122	1
1822IODP, Yan, China	7	
1823IODP, Manga, USA	5	
22721A, Thierens, USA	1,046	
22591A, Imai, Japan	613	
22740A, Grossman, USA	0	8
22701A, Weyer, Germany	30	
22731A, Orsi, USA	9	
22735A, Kwiaktowski, USA	54	
21766B, Bhaumik, India	295	
22747A, Kristall, USA	67	
22748A, Hsieh, USA	36	3
22725A, Noble, Australia	12	
22770A, Denne, USA	197	2
1824IODP, Kerz, Austria	24	
22753A, Pekar, USA	155	
22764A, Pons, France	16	
22757A. Tolotti, Italy	166	
22749A, Beltran, France	75	
22768A, Bornemann, Germany	175	
22400C, O'Connell, USA	90	
22685A, Mahoney, United Kingdom	1	2
22685B, Mahoney, United Kingdom	9	
22755A, Olivetti, Italy	12	
21450E, Ford, USA	1	
22769A, Johnson, USA	384	
22773A, Hathorne, Germany	5	
277IODP, Hathorne, Germany	5	
22765A, Mattioli, France	50	
22763A, Chalk, United Kingdom	303	
Tours/demonstrations (5)	0	66
Totals	**5,050**	**228**

GCR tours/visitors

Type of tour or visitor	Number of Visitors
Scientist visitors	19
Texas A&M Oceanography Class (2 classes)	32
Texas A&M Historical Geology Class (5 classes)	103
Texas A&M Core Description Group (1 class)	8
Chevron Tour	4
University of Houston Student Tour	24
Onboard Education Officer Training Tour	5
Texas A&M Introduction to Oceanography Class Tour	15
USSSP Shipboard Sedimentology Course	18
Total	**228**

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. During this quarter, eight TAMU classes were held in the GCR using IODP cores. Tours were given to visiting scientists from Chevron, TAMU students, and University of Houston students. In addition, a weeklong Shipboard Sedimentology course given by J. Johnson (University of New Hampshire) at USIO-TAMU relied heavily on the GCR core collection, facilities, and support staff to give 18 scientists (scheduled to sail on upcoming IODP cruises) detailed instruction on how to describe sediment cores on the ship.

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. Legacy preservation activities for Core Curation 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. The project is now 50% complete. This project is worked on as time is available; plans were made to resume work on this activity in January 2013.

Thin section archive sample scanning

The USIO continued high-resolution digital imaging of all GCR thin section archive samples from DSDP through ODP to make them publicly available online. This project began in October 2010 with the oldest thin sections (DSDP Leg 1) and has progressed to ODP Leg 165. This project is

worked on as time is available; plans were made to resume work on this activity in January 2013.

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 (http://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.

Inventory of returned sample residues

Inventory of the collection of returned DSDP, ODP, and IODP sample residues from scientists continued. This collection is larger (tens of thousands of samples) than the returned residues from the ship, for which the inventory is up to date. More than 65% of the returned sample residues from scientists are now sorted by expedition into labeled boxes. After all of the residues are sorted by expedition, the inventory of individual samples within each box will begin. This project is worked on as time is available; plans were made to resume work on this activity in January 2013.

OTHER PROJECTS AND ACTIVITIES

Core wrapping equipment

New core wrapping equipment was purchased at the end of FY12 that will help to increase overall efficiency, reduce operating costs, and improve the quality of our product. The equipment was delivered in late December 2012, and plans were made to test and install the equipment in January 2013.

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

Expedition 344 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. Expedition 336 data were placed out-of-moratorium during this quarter.

Log database

Standard and image data for Expedition 344 Holes U1413C and U1414A were processed and put online this quarter.

General maintenance was performed on all five logging programs (on shore and on board the *JOIDES Resolution*) throughout the quarter, including implementation of the e-mail ReCAPTCHA feature. Maintenance of the ship's database was frequently hampered by the limited bandwidth and discontinuities in the satellite connection.

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	USA	1,305	USA	760	USA	432
2	United Kingdom	602	United Kingdom	123	United Kingdom	169
3	Germany	430	Germany	78	China	133
4	Japan	258	Japan	62	Algeria	121
5	China	133	Unknown	34	Japan	79
6	France	119	China	29	Russia	71
7	Australia	95	France	28	France	66
8	Sweden	80	Spain	23	Italy	50
9	The Netherlands	73	The Netherlands	14	Portugal	42
10	Canada	51	Belgium	12	Germany	40
	Others	431	Others	105	Others	284
	Total	**3,577**	**Total**	**1,268**	**Total**	**1,487**

Janus database web queries		
Rank	**Query**	**Uploads**
1	Images–photos	1,237
2	Point calc	702
3	Site summaries	620
4	Samples	607
5	Chemistry–interstitial water	334
6	Hole trivia	313
7	Core summaries	304
8	Chemistry–carbonates	260
9	Paleo–age models	228
10	Physical properties–MAD	216
11	Physical properties–GRA	216
12	Physical properties–MSL	213
13	Images–closeups	184
14	Requests	162
15	Hole summaries	154
16	Chemistry–gas	141
17	Images–prime data images	122
18	Leg summaries	116
19	Physical properties–NGR	99
20	Physical properties–color	97
	Others	1,155
	Janus database total	**7,480**

LIMS database web queries	
Query type	**Views**
LIMS Reports	22,894
Web Tabular Reports	329
LIMS database total	**23,223**

Data requests submitted to the TAMU Data Librarian	
Requests	**Total**
How to access	7
Temperature	3
Photos	2
Samples	2
Depth	1
Gas	1
Lab information	1
Lithology	1
Paleo (pollen)	1
VCD	1
Total	**20**

Countries submitting data requests to the TAMU Data Librarian	
Country	**Total**
USA	10
China	4
Canada	1
Germany	1
Italy	1
Norway	1
United Kingdom	1
Unknown	1
Total	**20**

Other USIO web statistics*			
	Janus database	LIMS database	Log database
Database query hits:			
Entire site (successful)	87,973	22,894	4,850
Average per day	956	248	52.71
Visitor sessions:			
Total number of visitor sessions	3,577	1,267	2,259
Average per day	38	14	24.55
Average length of visit	0:12:48	0:15:30	0:02:22
International visitor sessions	63.41%	37.34%	72.29%
Visitor sessions of unknown origin	0.11%	2.68%	0.00%
Visitor sessions from United States	36.48%	59.98%	27.71%
Visitors:			
Unique visitors	1,891	830	1,844
Visitors who only visited once	1,344	633	1,797
Visitors who visited more than once	547	197	47
Average visits per visitor	1.89	1.53	1.23

SOFTWARE DEVELOPMENT

LIMS Data Review and 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

Plans were made to kick off this project in January 2013.

LEGACY DOCUMENTATION

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

IODP inventory update

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

OTHER PROJECTS AND ACTIVITIES

Disaster recovery exercise

TAMU conducted a disaster recovery (DR) tabletop exercise from 24 October through 2 November, which satisfied requirements prescribed in TAMU SOP 29.01.99M1.32 (Information Resources—Disaster Recovery Planning). Exercise objectives included the following:

- Step through and validate TAMU's updated Crisis Management Plan (CMP);
- Examine recovery time objectives and dependencies;
- Identify potential issues;
- Record action items; and
- Adjust the CMP as required following the exercise.

The exercise included realistic informational weather updates and warnings using notional text, charts, and National Weather Service video announcements throughout the week leading up to the final meeting on 2 November. Reviewing the CMP for this year's DR tabletop exercise proved extremely valuable, as it uncovered several action items that should be pursued during FY13.

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

Preliminary Report

Expedition 342 Scientists, 2012. Paleogene Newfoundland sediment drifts. *IODP Prel. Rept.,* 342. doi:10.2204/iodp.pr.342.2012

IODP Proceedings

Edwards, K.J., Bach, W., Klaus, A., and the Expedition 336 Scientists, 2012. *Proc. IODP,* 336: Tokyo (Integrated Ocean Drilling Program Management International, Inc.). doi:10.2204/iodp.proc.336.2012

CDEX publications

Preliminary Report

Chester, F.M., Mori, J.J., Toczko, S., Eguchi, N., and the Expedition 343/343T Scientists, 2012. Japan Trench Fast Drilling Project (JFAST). *IODP Prel. Rept.,* 343/343T. doi:10.2204/iodp.pr.343343T.2012

Inagaki, F., Hinrichs, K.-U., Kubo, Y., and the Expedition 337 Scientists, 2012. Deep coalbed biosphere off Shimokita: microbial processes and hydrocarbon system associated with deeply buried coalbed in the ocean. *IODP Prel. Rept.,* 337. doi:10.2204/iodp.pr.337.2012

Data Reports

Hüpers, A., and Kopf, A.J., 2012. Data report: consolidation properties of silty claystones and sandstones sampled seaward of the Nankai Trough subduction zone, IODP Sites C0011 and C0012. *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.322.203.2012

ESO publications

Scientific Prospectus

Andrén, T., Jørgensen, B.B., and Cotterill, C., 2012. Baltic Sea Basin Paleoenvironment: paleoenvironmental evolution of the Baltic Sea Basin through the last glacial cycle. *IODP Sci. Prosp.,* 347. doi:10.2204/iodp.sp.347.2012

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 143 citations to AGI this quarter.

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 Q1	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	3
311	27 June 2008		12	8
309/312	28 August 2008		9	9
310	4 November 2008		16	13
313	4 August 2012		4	
314/315/316	4 October 2010		27	19
317	4 September 2012		11	4
318	2 March 2013			
319	30 April 2012		6	3
320/321	30 June 2012		26	15
322	10 June 2012		11	6
323	10 August 2012		6	4
324	4 July 2012		10	6
325	16 March 2013			

Synthesis papers

Expedition	Submission deadline (26 months postmoratorium)	Deadline extensions approved in FY13 Q1	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

Expedition	Submission deadline (26 months postmoratorium)	Deadline extensions approved in FY13 Q1	Overall extension status	
			Number approved	Number fulfilled
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	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. The USIO publishes its scientific publications online (www.iodp.org/scientific-publications) and provides additional print or electronic copies of legacy publications upon request. Publications requested and distributed during the quarter included two *Proceedings of the Ocean Drilling Program* DVDs.

IODP publications website

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

Publications website	FY13 Q1 page views	FY13 Q1 site visits
www.iodp.org/scientific-publications	477,130	84,522

IODP digital object identifiers

IODP is a member of CrossRef, the official digital object identifiers (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			
		October 2012	November 2012	December 2012	FY13 Q1 total
IODP	10.2204	4,358	4,196	4,316	**12,878**
ODP/DSDP	10.2973	10,078	10,583	6,173	**26,834**

PUBLICATIONS SUPPORT

The USIO provided Publications Specialist services during USIO Expeditions 344 and 345, provided a Publications Assistant to sail on the *Chikyu* during CDEX Expedition 343/343T, and hosted a postexpedition editorial meeting for CDEX Expedition 343/343T.

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 first quarter of FY13 are shown in the table below.

Technical documentation	FY13 Q1 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 FY12 Q4 report, and planning documentation for reporting deliverables.

OTHER PROJECTS AND ACTIVITIES

IODP scientific publications survey

The IODP scientific publications survey launched during the last quarter closed in October 2012. The survey was designed to gain feedback from the international scientific community about currently offered publication features and functionality, as well as suggestions for

improvement. The survey respondents (338 in number) provided valuable feedback for designing scientific publications for the International Ocean Discovery Program.

Cited-by linking project

As a member of CrossRef, IODP is eligible to participate in CrossRef's free "Cited-by Linking" service, which functions through shared metadata listing the works that are cited in members' publications. Participating members submit metadata listing the works cited in their publications (e.g., reference lists); then, when readers run the "cited-by" query in Science Direct or on other articles, they will see a list of works citing that publication. The USIO deposited reference lists from all IODP scientific publications and made this step a part of the routine process for future publications.

Last quarter, the USIO began a web-based cited-by linking project that, once implemented, would enable users to learn which journals or books have cited IODP publications. This project would parse information from an automated query from Cross-Ref and make that information available to readers through a link from IODP publications table of contents pages. During this quarter, the prototype cited-by linking project was converted to a Java code base compatible for deployment to IODP Publications servers. This code base uses languages and packages in line with current IODP Publications production processes to facilitate both deployment and maintenance of the cited-by linking effort in the future.

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 U.S. 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

2013 Schools of Rock

Planning continued for the two 2013 School of Rock workshops. The first workshop, titled "Exploring Ocean Cores and the Geology of the Pacific Northwest," will be held 1–9 April 2013 on board the *JOIDES Resolution* during the tie-up period in Victoria, British Columbia (Canada). The second workshop, titled "Investigating Earth's History and the Deep Biosphere Using Samples from below the Seafloor aboard the *JOIDES Resolution*," will be held 16–30 May 2013 on board the *JOIDES Resolution* during Expedition 341S. This workshop will focus on an audience of cyber educators and the kinds of resources and connections that will be most useful to them. During this quarter, the USIO selected participants and instructors and began development of the agendas for each workshop.

Onboard educator program

Shipboard educators this quarter included Expedition 344 Onboard Education Officer D. Rosenberger, a chemistry and environmental science teacher at El Capitan High School in Lakeside, California, and Expedition 345 Onboard Education Officer/Artist N. Kurtz, an illustrator who specializes in creating curricula, activities, and lesson plans that integrate art and science themes. In addition, the USIO assisted in placing and training two Expedition 345 Onboard Education Officers from ECORD countries: J.-L. Berenguer (Centre International de Valbonne Université de Nice Sophia Antipolis, France), and S. Gebbels (Newcastle University, United Kingdom). This collaboration with European partners allowed the USIO to create a team with the capacity for extensive outreach to both American and European audiences.

Group training was held for the FY13 Onboard Education Officers at the USIO-TAMU offices in October 2012. This cohort training initiative, suggested by feedback from advisors and alumni of the program, allowed all four U.S. Onboard Education Officers to meet each other and exchange ideas prior to writing the education plans for their individual expeditions. They also met their Staff Scientists, curators, IT staff, laboratory officers, and other USIO staff involved in their upcoming expeditions; learned about their tasks; began using the joidesresolution.org website; and practiced for video broadcasts with iPads. The USIO plans to continue similar group training sessions in future years.

During the quarter, a review report about the past four years of Onboard Education Officer experiences on the *JOIDES Resolution* was completed. This report compiled data and surveys from all of the Onboard Education Officers since 2009, and included both quantitative and anecdotal information. The report was presented at the AGU Fall Meeting and will be available soon on the *JOIDES Resolution* and Deep Earth Academy websites.

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, 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 and classroom activities.

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 Expeditions 344 and 345 and launched a new interactive ship tour (http://joidesresolution.org/node/2825). Plans were initiated to migrate some of the deepearthacademy.org content onto joidesresolution.org and improve the connections between these two sites.

The USIO started a new initiative this quarter to offer webinars for educators prior to each USIO expedition. During each expedition webinar, one of the Co-Chief Scientists will present an overview of the expedition, the Onboard Education Officer will present their education plan and opportunities for educators to get involved in the expedition, and USIO staff will present the ship's online presence, including the website and social media. These webinars will be offered free of charge several weeks prior to each expedition and promoted through list-serves and web sites.

USIO educational website statistics

USIO educational website*	FY13 Q1 page views	FY13 Q1 site visits
www.joidesresolution.org	61,791	12,218
www.oceanleadership.org/education/deep-earth-academy	15,474	11,369
Total	**77,265**	**23,587**

*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 344, which held 28 video broadcasts to classrooms across the globe.

Educational materials development and distribution

Materials developed this quarter included a new video animation featuring Expedition 345 and two new videos produced by Expedition 344 shipboard videographer T. Fatouros. Several in-depth videos (8–10 minutes) and several very brief (1 minute or less) short explanatory videos produced by Fatouros were made available on the Ocean Leadership YouTube site (http://www.youtube.com/user/OceanLeadership) this quarter. Fatouros also worked partially with the Expedition 344 Onboard Education Officer to produce several video products that will be completed during the next quarter.

Materials were distributed this quarter at conferences and outreach activities and in response to requests received through the Deep Earth Academy website. The USIO filled 200 orders for approximately 8,000 *JOIDES Resolution* bookmarks, posters, and core replica pencils. The USIO began planning an effort to scale back significantly on mailing printed materials and switch to online and on-demand order fulfillment only.

SCIENTISTS AS EDUCATORS

The USIO provides regular opportunities for scientists to participate in educational programming. During this quarter, J. Lewis (Indiana University of Pennsylvania [IUP]) participated in a half-day program for sixth-grade girls at the Yeshiva Schools of Pittsburgh, during which a live broadcast from Expedition 345 was conducted. In addition, Lewis, B. Reese, (University of Southern California), L. Krissek (Ohio State University), and D. Pax (University of California, Santa Barbara) were involved in the 2013 Schools of Rock planning stages and will serve as instructors for those workshops.

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 attended the annual C-DEBI All-Hands meeting in Monterey Bay, California, on 22 and 23 October to learn what others are doing and discuss ongoing projects with collaborators, including the upcoming *Atlantis* expedition described below (see “Activities related to existing grants”) and the Adopt-a-Microbe 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* 29 July–11 August. This expedition was postponed when the *Thompson* was damaged last summer. During this quarter, planning began for the rescheduled expedition, which will take place 11–26 July 2013 on the R/V *Atlantis*.

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

The four funded pilot projects continued to move forward during this quarter, with key staff reporting progress through all-hands conference calls held regularly to update all project managers on activities.

Opportunities for Enhancing Diversity in the Geosciences grant

The project team for this grant prepared its findings for a final report to be submitted during the next 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 Expedition 344 videos and one Expedition 345 video animation.

OTHER PROJECTS AND ACTIVITIES

2013 J-aRt contest: Art under Pressure

The USIO launched the 2013 J-aRt Contest in December 2012. This year's contest continues the Art under Pressure theme with Styrofoam sculptures, but invites entrants to use standard Styrofoam shapes from which to create their sculptures, and to interact with the Expedition 345 Onboard Education Officer/Artist to test out ideas. The contest deadline is 28 February 2013.

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

The USIO, in partnership with the Observatorio Vulcanológico y Sismológico de Costa Rica (Universidad Nacional), organized outreach activities this quarter during the Expedition 344 port call in Puntarenas, Costa Rica, including a press conference for local media that welcomed reporters from three major Costa Rican television stations, the national newspaper *La Nación*, and Radio Pacifico. USIO staff gave tours of the *JOIDES Resolution* for journalists, students and faculty from Universidad de Costa Rica and Universidad Nacional, members of the public, and representatives from Consejo Nacional de Investigaciones Científicas y Técnicas (CONICET), the Costa Rican equivalent of NSF.

Global outreach activities

The USIO helped support global outreach this quarter by hosting informational materials from Japan Agency for Marine-Earth Science and Technology (JAMSTEC), CDEX, ECORD, and IODP-MI at the joint U.S. IODP exhibit booth at the 2012 AGU Fall Meeting (See "IODP representation at meetings/conferences" for more details.)

IODP representation at meetings/conferences

Exhibit booths were organized for two major meetings last quarter: the 2012 Geological Society of America (GSA) Annual Meeting and the 2012 AGU Fall Meeting. At the AGU meeting, the USIO hosted informational materials from our international partners to bridge the communications gap left when IODP-MI cancelled their exhibit booth. A 20-minute documentary film produced by videographer D. Brinkhuis during Expedition 342 (Paleogene Newfoundland Sediment Drifts) also debuted at the AGU Fall Meeting.

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):

- Ocean drilling expedition retrieves "Greatest Hits of Paleoclimate" from the North Atlantic. (2 December 2012) http://www.oceanleadership.org/2012/ocean-drilling-expedition-retrieves-greatest-hits-of-paleoclimate-from-the-north-atlantic/
- Scientific expedition studies geology of Costa Rican earthquake fault. (12 December 2012) http://www.oceanleadership.org/2012/scientific-expedition-studies-geology-of-costa-rican-earthquake-fault/

Communications tools

The Fall 2012 issue of the *Core Discoveries* newsletter was published this quarter (http://www.oceanleadership.org/programs-and-partnerships/scientific-ocean-drilling/core-discoveries-newsletter/). This issue features FY13 expedition updates, subduction zone research highlights, and an update on Program architecture for the new International Ocean Discovery Program, including opportunities for U.S. scientists.

The USIO's outreach-focused Twitter account, @SeafloorSci, continued to gain followers this quarter by posting news from expeditions and links to related media. At the end of December, the account had approximately 300 followers.

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).

- **Firth, J.V.,** Eldrett, J.S., Harding, I.C., Coxall, H.K., and Wade, B.S., 2012. Integrated biomagnetochronology for the Palaeogene of ODP Hole 647A: implications for correlating palaeoceanographic events from high to low latitudes. *In* Jovane, L., Herrero-Bervera, E., Hinnov, L.A., and Housen, B.A. (Eds.), *Magnetic Methods and the Timing of Geological Processes.* Geol. Soc. Spec. Publ., 373. doi:10.1144/SP373.9
- Manga, M., Hornbach, M.J., Le Friant, A., Ishizuka, O., Stroncik, N., Adachi, T., Aljahdali, M., Boudon, G., Breitkreuz, C., Fraass, A., Fujinawa, A., Hatfield, R., Jutzeler, M., Kataoka, K., Lafuerza, S., Maeno, F., Martinez-Colon, M., McCanta, M., Morgan, S., Palmer, M.R., Saito, T., **Slagle, A.,** Stinton, A.J., Subramanyam, K.S.V., Tamura, Y., Talling, P.J., Villemant, B., Wall-Palmer, D., and Wang, F., 2012. Heat flow in the Lesser Antilles island arc and adjacent back arc Grenada basin. *Geochem., Geophys., Geosyst.,* 13(8):Q08007. doi:10.1029/2012GC004260

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.

- Floyd, M., 2012. New study finds major differences in deep earth motions of volcanic 'hotspots.' *Salem News*, 25 November 2012. http://salem-news.com/articles/november252012/volcanic-hotspots-mf.php
- Floyd, M., 2012. The Earth is a unique planet. KATU.com, 30 November 2012. http://www.katu.com/news/local/New-study-finds-major-differences-in-deep-Earth-motions-of-volcanic-hotspots-180918841.html
- Gammon, C., 2012. There's not as much life deep under sea as we thought. MSNBC.com, 30 November 2012. http://www.msnbc.msn.com/id/50029660/ns/technology_and_science-science/#.UP8bT0pxdAN
- Monastersky, R., 2012. Ancient fungi found in deep-sea mud. *Nature (London, U. K.)*, 492(7428):163. doi:10.1038/492163a
- Soto, M., 2012. Científicos perforaron fondo del oceáno para conocer de sismos. *La Nación* (Costa Rica), 13 December 2012. http://www.nacion.com/2012-12-13/AldeaGlobal/cientificos-perforaron-fondo-del--oceano-para-conocer--de-sismos--.aspx

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 releases and the Fall 2012 issue of *Core Discoveries.*

APPENDIX A: FINANCE REPORT

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

APPENDIX B: TRAVEL

Purpose*	Category	Dates	Location	Institution: Personnel
Expedition 344 port call	Port call activities	6–11 October 2012	St. John's, Newfoundland (Canada)	Ocean Leadership: G. Myers LDEO: M. Reagan TAMU: B. Julson, M. Malone, J. Miller, R. Mitchell
USIO Technical Panel (UTP) Meeting	USIO panel meeting	4 and 5 October 2012	Palisades, NY	Ocean Leadership: G. Myers TAMU: K. Grigar, M. Malone, S. Midgley External Participants/Panel Members: B. Edwards, M. Fukuhara, S. Howard, J. Thorogood
LDEO IT systems upgrade	Port call activities	5–9 October 2012	St. John's, Newfoundland (Canada)	LDEO: W. Masterson
Southwest Pacific Ocean IODP Workshop	IODP workshop	9–12 October 2012	Sydney, Australia	Ocean Leadership: D. Divins
Onboard Education Officer Training	Education/ Outreach	10–12 October 2012	College Station, TX	Ocean Leadership: S. Cooper, L. Peart, M. Wright Onboard Education Officers: N. Kurtz, A. Mote, D. Rosenberger, V. Westbrook
FY12 Q4 and FY12 Annual Report prep and publications meetings	Reporting	10–31 October 2012	College Station, TX	TAMU: G. Lowe
2012 Gulf Coast Conference	Conference	15 and 16 October 2012	Galveston, TX	TAMU: D. Houpt, B. Julson
USIO Meeting	IODP meeting	16 and 17 October 2012	Palisades, NY	Ocean Leadership: D. Divins
International Association of Information Technology Asset Managers (IAITAM) 2012 Meeting	Conference	16–20 October 2012	Rancho Mirage, CA	TAMU: D. Ponzio
Technical and Analytical Services (TAS) port call activities	Port call activities	21–25 October 2012	Balboa, Panama	TAMU: J. Miller
Supervisor Bootcamp 1: Mastering the Fundamentals	Training	22–25 October 2012	Vancouver, WA	TAMU: D. Partain
American Management Association (AMA) Training: Responding to Conflict	Training	23–27 October 2012	Atlanta, GA	TAMU: C. Alvarez-Zarikian
Expedition 344 Onboard Education Program	Education/ Outreach	23 October–11 December 2012	Balboa, Panama	Onboard Education Officers: T. Fatouros, D. Rosenberger

Purpose*	Category	Dates	Location	Institution: Personnel
National Instruments LabView Class Core 1 & Core 2	Training	28 October– 3 November 2012	Bellevue, WA	TAMU: R. Gjesvold
Publications Assistant support on the *Chikyu*	Expedition support	4 November– 19 December 2012	Tokyo, Japan	TAMU: J. Wulfson
AMA Training: 7 Habits Highly Effective People	Training	6–9 November 2012	Houston, TX	TAMU: L. Schneider
OilComm Conference 2012	Conference	7 November 2012	Houston, TX	TAMU: C. Flores
European Consortium for Ocean Research Drilling (ECORD) Science Operator (ESO) Meeting	IODP Meeting	7–9 November 2012	Edinburgh, United Kingdom	Ocean Leadership: G. Myers
Expedition 329 Second Postexpedition Meeting	Postexpedition meeting	10–18 November 2012	Kona, HI	TAMU: C. Alvarez-Zarikian
National Instruments LabView Class Core 1 & Core 2	Training	11–16 November 2012	Hunstville, AL	TAMU: G. Van Rensburg
Expedition 336 Second Postexpedition Meeting	Postexpedition meeting	28 November– 2 December 2012	Catalina, CA	TAMU: A. Klaus
Antenna Systems Training	Training	2–7 December 2012	Concord, CA	TAMU: M. Hodge
American Geophysical Union (AGU) Fall 2012 Meeting	Conference	3–7 December 2012	San Francisco, CA	Ocean Leadership: S. Cooper, D. Divins, D. Fils, R. Gagosian, G. Myers, L. Peart, M. Wright LDEO: A. Slagle TAMU: B. Clement, J. Firth, M. Malone, J. Miller, L. Schneider
Review EOX and DBA Tasks	Consultant Services	6–9 December 2012	College Station, TX	Consultant: R. Elumalai
Expedition 345 Port Call	Port call activities	11–17 December 2012	Puntarenas, Costa Rica	Ocean Leadership: M. Wright TAMU: B. Clement, B. Julson, J. Miller, R. Mitchell, J. Rosser, L. Schneider
IODP Proposal Evaluation Panel (PEP) Meeting	SAS panel meeting	11 and 12 December 2012	Kyoto, Japan	Ocean Leadership: D. Divins, G. Myers LDEO: A. Slagle TAMU: C. Alvarez-Zarikian, M. Malone, P. Blum
Expedition 345 Onboard Education Program	Education/ Outreach	11 December 2012– 12 February 2013	San Jose, Costa Rica	Onboard Education Officer: N. Kurtz
Review of VIT Drum fabrication status	Vendor visit	18 December 2012	Longview, TX	TAMU: B. Aduddell, M. Meiring

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

APPENDIX C: USIO QUARTERLY REPORT DISTRIBUTION

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