



IODDP

INTERNATIONAL OCEAN
DISCOVERY PROGRAM

UNITED STATES IMPLEMENTING ORGANIZATION

FY14 Quarterly Report 3

1 April–30 June 2014

NSF Contract OCE-0352500

Submitted by the USIO

to

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Introduction

The organization of this quarterly report reflects activities and deliverables that are outlined in the International Ocean Discovery Program (IODP) U.S. Implementing Organization (USIO) FY14 Annual Program Plan to the National Science Foundation (NSF) 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). When appropriate, this quarterly also reports on contract activities conducted for IODP's predecessor, the Integrated Ocean Drilling Program.

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

FY14 Q2 IODP-USIO Quarterly Report

The USIO report for the second quarter of FY14 (January–March 2014) was submitted to NSF on 15 May 2014 (http://iodp.tamu.edu/publications/AR/FY14/FY14_Q2.pdf).

IODP-USIO Closeout Plan

The IODP-USIO Closeout Plan for Contract OCE-0352500 was submitted to NSF on 13 June 2014.

Reporting and liaison activities

The USIO reports to and liaises with funding agencies and IODP-related agencies (e.g., facility boards), advisory panels, Program Member Offices (PMOs), and other national organizations, and participates in facility board, advisory panel, and IODP Forum meetings.

Meetings

Standard facility board, advisory panel, 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 from the facility board meetings will be made available online (<http://www.iodp.org/facility-boards>).

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Conference and meeting schedule

Conference/Meeting*	Date	Location
JOIDES Resolution Facility Board (JRFB) Meeting	23 and 24 April 2014	Washington, DC
JOIDES Resolution Facility (JRF) Science Evaluation Panel (SEP) Meeting	24–27 June 2014	New Brunswick, NJ
JRF Environmental Protection and Safety Panel (EPSP) Meeting	5–7 May 2014	College Station, TX
IODP Forum Meeting #1	27 and 28 May 2014	Busan, Korea

*Implementing organization meetings, advisory 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 65: Updated the indirect rate chart, reduced the FY13 Annual Program Plan by \$1,294,889 to \$62,150,418, reduced the contract's estimated total value by \$1,294,889 to \$616,150,418, and shifted funding of \$1,294,889 from FY13 to incrementally fund the FY14 Annual Program Plan.
- Modification 66: Provided a directive regarding Government-owned property and equipment acquired under NSF contract number OCE-0432224 with IODP Management International, Inc. (IODP-MI), requiring such items to be transferred and held accountable under Ocean Leadership's prime NSF contract number OCE-0352500; reduced the FY14 Annual Program Plan by \$2,500,000 to \$64,299,800; and provided FY14 incremental funding in the amount of \$11,570,000.

Subcontract activity

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

Ocean Leadership Subcontract JSC 4-03 with LDEO

- Modification 69: Provided FY14 incremental funding in the amount \$1,232,018.
- Modification 70: Reduced the FY13 Annual Program Plan in the amount of \$385,065 (\$285,633 platform operating costs [POC] and \$99,432 SOC science operating costs [SOC]), shifted POC funding of \$285,633 from FY13 to incrementally fund the FY14 Annual Program Plan, reduced cumulative SOC funding by \$99,432, and reduced the total estimated value of the subcontract by \$385,065 to \$60,881,025.
- Modification 71: Provided a directive regarding Government-owned property and equipment acquired under NSF contract number OCE-0432224 with IODP-MI, requiring such items to be transferred and held accountable under Ocean Leadership's prime NSF contract number OCE-0352500, and provided FY14 incremental funding in the amount of \$1,175,214.

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Ocean Leadership Subcontract JSC 4-02 with TAMRF

- Modification 84: Provided FY14 incremental funding in the amount of \$11,265,041.
- Modification 85: Reduced the FY13 Annual Program Plan by \$875,550 (\$717,242 POC and \$158,308 SOC), shifted POC funding of \$717,242 from FY13 to incrementally fund the FY14 Annual Program Plan, reduced the cumulative SOC funding by \$158,308, and reduced the total estimated cost of the subcontract by \$875,550 to \$470,662,722.
- Modification 86: Provided a directive regarding Government-owned property and equipment acquired under NSF contract number OCE-0432224 with IODP-MI, requiring such items to be transferred and held accountable under Ocean Leadership's prime NSF contract number OCE-0352500; reduced the FY14 Annual Program Plan by \$2,500,000 to \$55,612,129; and provided FY14 incremental funding in the amount of \$10,165,434.

LDEO

Subcontract activity

LDEO issued the following subcontract modifications during the reporting period.

LDEO subcontract with Schlumberger

- Amendment 13: Provided FY14 incremental funding in the amount of \$833,660.41.

LDEO subcontract with LGL

- Amendment 4: Provided FY14 incremental funding in the amount of \$6,052.50.
- Amendment 5: Provided FY14 incremental funding in the amount of \$24,500.

TAMRF

Subcontract activity

TAMRF issued the following subcontract modifications during the reporting period.

TAMRF subcontract with Overseas Drilling Limited

- Amendment 27: Provided FY14 incremental funding in the amount of \$7,700,000.

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

- 27 June 2014: Purchased Tenite Butyrate core liner in the amount of \$163,363.06 from Anaheim Custom Extruders, Inc.
- 30 June 2014: Purchased fourteen (14) 9-7/8 inch rotary core bits in the amount of \$233,800 from Burintekh USA LLC.

Miscellaneous activity

- 1 April 2014: Submitted a Request for Approval to Ocean Leadership to donate an alternating field (AF) demagnetizer and thermal demagnetizer to the University of Houston.

Insurance related to Ocean Leadership subcontracts

The USIO procured insurance in the event of loss or damage to 189 joints of pipe valued at \$1,134,000 leased from Center for Deep Earth Exploration (CDEX) to be deployed during Expedition 351 next

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quarter. Insurance was also procured in the event of loss or damage to a mud motor valued at \$151,000 leased from Baker Hughes for use during an expedition this quarter.

Personnel status

Ocean Leadership

No positions were vacated, opened, advertised, or filled during the quarter.

LDEO

The following position was vacated during the quarter:

- Technical Analyst (Golam Sarkar): 1 April 2014

No positions were opened, advertised, or filled during the quarter.

TAMU

The following positions were vacated during the quarter:

- Marine Laboratory Specialist I (Nicole Bilsley): 21 April 2014
- Marine Laboratory Specialist IV (Heather Barnes): 29 May 2014

The following positions were opened and advertised during the quarter:

- Assistant Laboratory Officer: 10 April 2014
- Graphics Specialist II: 21 May 2014

The following positions were filled during the quarter:

- Assistant Laboratory Officer (Heather Barnes): 30 May 2014
- Senior Systems Support Specialist (James Gillette): 2 June 2014

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	FY14 Q3 page views*	FY14 Q3 site visits*
www.iodp-usio.org	17,845	11,768
iodp.ldeo.columbia.edu	17,775	4,878
iodp.tamu.edu	811,104	34,678
Total	846,724	51,324

*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 and the Integrated Ocean Drilling Program.

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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 the FY14 Q2 IODP-USIO quarterly report, the IODP-USIO Closeout Plan, and contract modifications.

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 the Integrated Ocean Drilling Program. 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	FY14 Q3 page views*	FY14 Q3 site visits*
www-odp.tamu.edu	1,005,172	96,731
www.odplegacy.org	6,806	2,698
www.deepseadrilling.org	93,436	16,621
Total	1,105,414	116,050

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

Other projects and activities

TAMU Project Portfolio Management program

TAMU initiated work on two category II projects this quarter: Laboratory Information Management System (LIMS) On-line Report Environment (LORE), and Stratigraphic Correlation Enhancements (see “Software development” in “Data Management”).

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 CDEX expeditions.

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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	
Dry Dock/Non-IODP [27 September 2013–26 January 2014]						TAMU: M. Malone	
South China Sea (CPP) ⁵	349	Hong Kong	26 January–30 March 2014	63 (3/60)	60 (6/54)	C.-F. Li J. Lin	TAMU: D. Kulhanek* LDEO: T. Williams^
Izu Bonin Mariana (IBM): Reararc	350	Keelung, Taiwan	30 March–30 May 2014	61 (5/56)	56 (4/52)	Y. Tamura C. Busby	TAMU: P. Blum* LDEO: G. Guerin^
IBM 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. Drab^
IBM Forearc	352	Yokohama, Japan	30 July–29 September 2014	61 (5/56)	56 (7/49)	J. Pearce M. Reagan	TAMU: K. Petronotis* LDEO: S. Morgan^
Dry Dock/Non-IODP [29 September–29 November 2014]						M. Malone	
Indian Monsoon	353	Singapore	29 Nov 2014–29 January 2015	61 (5/56)	56 (7/49)	S. Clemens W. Kuhnt	L. LeVay
Bengal Fan	354	Singapore	29 January–31 March 2015	61 (5/56)	56 (6/50)	C. France-Lanord T. Schwenk	A. Klaus
Arabian Sea Monsoon (CPP) ⁵	355	Colombo, Sri Lanka	31 March–31 May 2015	61 (5/56)	56 (5/51)	D. Pandey P. Clift	D. Kulhanek
Dry Dock/Non-IODP [31 May–31 July 2015]						M. Malone	
Indonesian Throughflow	356	Fremantle, Australia	31 July–15 September 2015	61 (5/56)	56 (4/52)	S. Gallagher C. Fulthorpe	K. Bogus

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 Complementary Project Proposal (CPP) dependent on substantial financial contribution outside of normal IODP funding.

USIO expeditions

Expedition 349: South China Sea

Postexpedition activities

The Expedition 349 *Preliminary Report* was completed and published in May 2014.

Expedition 350: Izu-Bonin-Mariana: Rear Arc

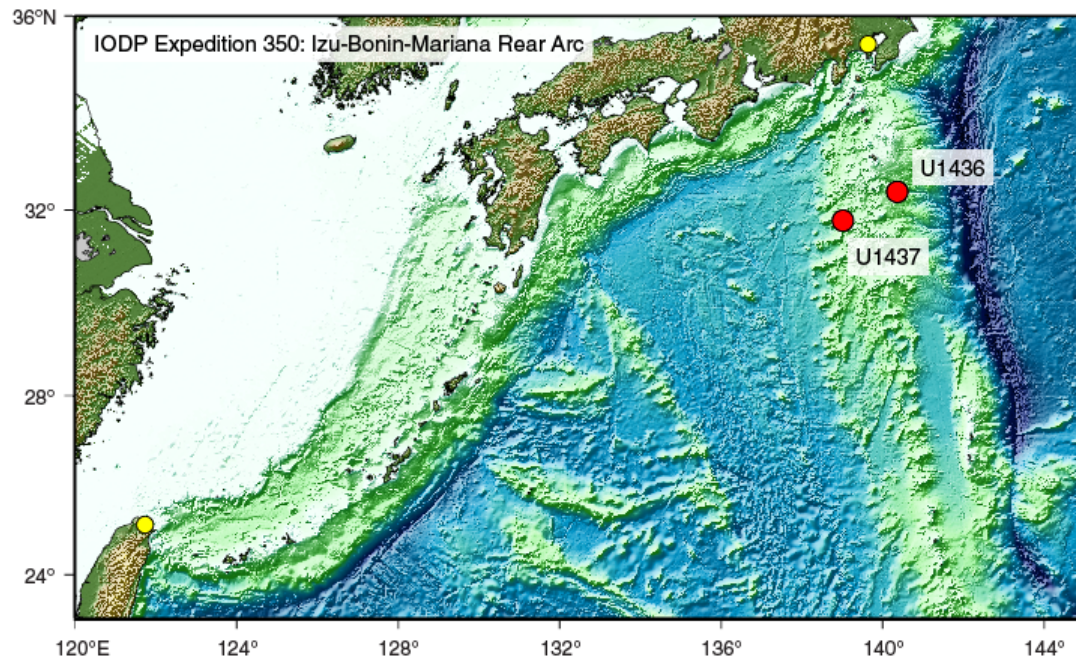
Staffing

Open calls were conducted this quarter to fill 4 specialties that were not in the original applicants pool.

Expedition 350 Science Party staffing breakdown		
Member country/consortium	Participants	Co-Chief Scientists
USA: United States Science Support Program (USSSP)	8	1
Japan: Japan Drilling Earth Science Consortium (J-DESC)	5	1
Europe and Canada: European Consortium for Ocean Research Drilling (ECORD) Science Support and Advisory Committee (ESSAC)	10	
Republic of Korea: Korea Integrated Ocean Drilling Program (K-IODP)	0	
People's Republic of China: IODP-China	1*	
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	

*One scientist withdrew in port call due to medical reasons.

Site map



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Coring summary

Site	Hole	Latitude	Longitude	Water depth (m)	Cores (n)	Interval cored (m)	Core recovered (m)	Recovery (%)
U1436	U1436A	32°23.8834'N	140°21.9284'E	1,775.0	21	150.0	71.64	48.0
	U1436B	32°23.8960'N	140°21.9293'E	1,773.9	14	61.8	61.79	100.0
	U1436C	32°23.8734'N	140°21.9298'E	1,774.5	18	70.4	70.38	100.0
	U1436D	32°23.8849'N	140°21.9419'E	1,774.5	8	22.0	22.07	100.0
Site U1436 totals:					61	304.2	225.88	81.0
U1437	U1437A	31°47.3900'N	139°01.5800'E	2,115.8	0	0.0	0.00	0.0
	U1437B	31°47.3911'N	139°01.5788'E	2,116.1	55	439.1	242.63	55.0
	U1437C	31°47.3814'N	139°01.5794'E	2,116.0	0	0.0	0.00	0.0
	U1437D	31°47.3872'N	139°01.5730'E	2,116.0	72	677.4	503.85	74.0
	U1437E	31°47.3879'N	139°01.5914'E	2,115.8	76	702.5	387.45	55.0
Site U1437 totals:					203	1,819.0	1,133.93	62.3
Expedition 350 totals:					264	2,123.2	1,359.81	64.0

Logging summary

Site U1437 was logged with three tool strings. The first tool string deployed in Hole U1437D consisted of the triple combination (triple combo) with the Magnetic Susceptibility Sonde (MSS). The triple combo-MSS string reached ~960 mbsf, only 20 m above the bottom of the hole. The data recorded from this first run show that the hole was in excellent condition, with a diameter barely exceeding the bit size for most of the hole. The second tool string deployed (Formation MicroScanner [FMS]-sonic) recorded high-quality sonic velocity data and electrical images to a maximum depth of 950 mbsf. The final logging run was a vertical seismic profile (VSP) that obtained data at 14 depths spaced every 50 m from a maximum depth of 875 mbsf. The electrical images collected in Hole U1437D will aid the interpretation of the tuffaceous mudstone sequence drilled at this site, and the sonic and VSP measurements will allow correlation of the site stratigraphy with reflection seismic data. Logging was also planned in Hole U1437E but could not be carried out because the camera cable failed, making it impossible to reenter the hole. Hole U1437E could be reentered and logged in one of the subsequent Izu-Bonin-Mariana (IBM) expeditions.

Science Summary

IODP Hole U1436A (proposed Site IBM-4GT) lies in the western part of the Izu fore-arc basin, ~60 km east of the arc-front volcano Aogashima, ~170 km west of the axis of the Izu-Bonin Trench, 1.5 km west of ODP Site 792, and at 1,776 meters below sea level (mbsl). It was first drilled as a 150 m deep geotechnical test hole for potential future deep drilling (5,500 meters below seafloor [mbsf]) at proposed Site IBM-4 using the D/V *Chikyu*. Core from Site U1436 yielded a rich record of Late Pleistocene explosive volcanism, including two distinctive black glassy mafic ash layers that may record large-volume eruptions on the Izu arc front. Because of the importance of this discovery, Site U1436 was drilled in three additional holes (U1436B, U1436C, and U1436D) as part of a contingency operation in an attempt to get better recovery on the black glassy mafic ash layers and enclosing sediments.

IODP Site U1437 is located in the Izu rear arc, ~330 km west of the axis of the Izu-Bonin Trench and ~90 km west of the arc-front volcanoes Myojinsho and Myojin Knoll, at 2117 mbsl. The primary scientific

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objective for Site U1437 was to characterize “the missing half of the subduction factory.” Numerous ODP/Integrated Ocean Drilling Program sites were previously drilled in the arc to fore-arc region, but this was the first site to be drilled in the rear part of the Izu arc. Site U1437 had excellent core recovery in Holes U1437B and U1437D, and we succeeded in hanging the longest casing ever deployed from the *JOIDES Resolution* (1,085.6 m) in Hole U1437E and drilled to 1,804 mbsf.

Site U1437 was divided into seven lithostratigraphic units (I–VII) distinguished from each other based on the proportion and characteristics of tuffaceous mud/mudstone and interbedded tuff, lapilli tuff, and tuff breccia. The transition from unconsolidated to lithified rocks occurred progressively; however, sediments were considered lithified from 427 mbsf (top of Hole U1437D) downward. Due to the alteration, the lowest biostratigraphic datum was at ~850 mbsf, and the lowest paleomagnetic datum was at ~1,300 mbsf. The Miocene–Oligocene hiatus (17–23 Ma) was inferred to lie at ~1,250 mbsf based on the seismic profiles, but strata at that depth (Unit V, 1,120–1,312 mbsf) are much younger (~9 Ma). The age of the lowest ~25% of the section (Units VI and VII, 1,320–1,800 mbsf), which is possibly Oligocene basement of the Izu rear arc, will not be known until shore-based radiometric dating of the volcanoclastic rocks is complete. Lithostratigraphic Units I–V are in general more fine grained than expected, and most of the record is relatively distal. Interestingly, however, a distal-to-proximal transition is inferred based on lithostratigraphic changes between Units V and VI at 1,320 mbsf. Rhyolite intrusion was first observed in Unit VI at ~1,390 mbsf. Unit VII suggests proximal in situ volcanism, with angular, jigsaw-fit hyaloclasts (formed of quenched glass) indicating in situ mixing of hot clasts and/or intrusions with the host hyaloclastic tuff breccia, all of the same andesitic composition.

Site U1437 appears to provide a complete tephra record, including (1) Miocene-to-present “hot fingers” magmatism, which produced the volcano-bounded basin drilled at Site U1437 and (2) Oligocene–Eocene(?) rear-arc magmatism, which is interpreted to have produced most of the Izu arc middle crust but has never been recovered in the Izu rear arc. The Oligocene–Eocene rear-arc record allows comparison with the previously drilled fore-arc magmatic record and determination of across-arc geochemical variation throughout the history of the arc system, which is fundamental to understanding subduction zone magmatism.

[Expedition 351: Izu-Bonin-Mariana: Arc Origins](#)

Planning

Planning for port call outreach activities continued and logistics were finalized prior to the shipping deadlines.

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Staffing

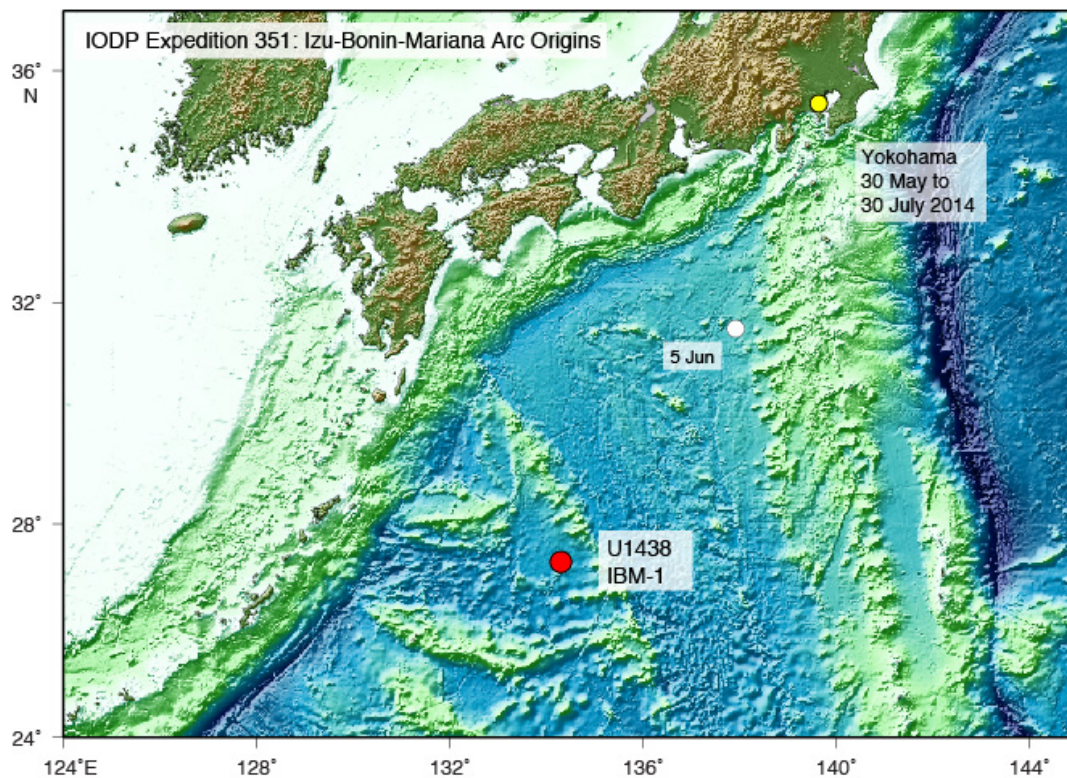
Expedition 351 Science Party staffing breakdown		
Member country/consortium	Participants	Co-Chief Scientists
USA: United States Science Support Program (USSSP)	8	
Japan: Japan Drilling Earth Science Consortium (J-DESC)	3	1
Europe and Canada: European Consortium for Ocean Research Drilling (ECORD) Science Support and Advisory Committee (ESSAC)	8	
Republic of Korea: Korea Integrated Ocean Drilling Program (K-IODP)	0	
People's Republic of China: IODP-China	3	
Australia and New Zealand: Australia/New Zealand IODP Consortium (ANZIC)	2	1
India: Ministry of Earth Science (MoES)	0	
Brazil: IODP-Coordenação de Aperfeiçoamento de Pessoal de Nível Superior (CAPES)/Brasil	1	

Two scientists had to withdraw late in the process, but it was only possible to replace one of them, so J-DESC sailed with only 3 scientists.

Clearance and permitting activities

New alternate Site IBM-1C was approved for drilling. An addendum was submitted to the US State Department on 3 June 2014 to add the contingency option of logging Hole U1437E, which could not be logged at the end of Expedition 350.

Site map



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Logging summary

The logging plan for Site U1438 included four tool string deployments: the triple combo (gamma ray, resistivity, porosity, and density) with MSS, the FMS-sonic (resistivity images and sonic velocity), the Göttingen borehole magnetometer, and the Versatile Seismic Imager (vertical seismic profile). The triple combo-MSS was deployed first in Hole U1438D, but could not pass a borehole restriction at ~300 mbsf, well above the total depth of the hole (898 mbsf). Log data were collected from 300 mbsf up to the base of the drill pipe (95 mbsf). The drill pipe was then lowered to 328 mbsf to help the logging tools pass the borehole obstruction. In a second deployment, however, the triple combo-MSS could not go below another borehole obstruction at ~360 mbsf. Because of poor hole conditions, it was decided to cease logging operations in Hole U1438D and to attempt to log Site U1438 in a subsequent hole.

Expedition 352: Izu-Bonin-Mariana: Forearc

Planning

Sample requests were reviewed by the SAC and released to the Science Party for review. Preparations for shipboard laboratory support requirements continued, including reviewing sample requests and laboratory support needs. Planning for final logistical requirements began.

Clearance and permitting activities

Authorization from Japan to conduct research was received on 2 June 2014. An addendum was submitted on 3 June 2014 to add the contingency option of logging Hole U1437E, which could not be logged at the end of Expedition 350.

The Environmental Protection and Safety Panel (EPSP) and the TAMU Safety Panel reviewed and recommended approval of all the Expedition 352 sites.

Expedition 353: Indian Monsoon

Planning

The *Scientific Prospectus* for Expedition 353 was published 4 June 2014.

Staffing

Science staffing was completed from a pool of 63 applicants. Brazil relinquished their berths and a special call was made to find calcareous and siliceous biostratigraphers.

Clearance and permitting activities

The application to conduct research in Indian waters was submitted on 8 May 2014. The EPSP and TAMU Safety Panel reviewed the sites at the May meeting and approved all sites, with some adjustments.

Expedition 354: Bengal Fan

Staffing

Applications were received on 15 April. A special call was initiated for paleomagnetism and foraminifer biostratigraphy specialists. By the end of the quarter, all positions were filled except one that was pending a response to an invitation. Communication with the Science Party was initiated.

Environmental assessment

An environmental evaluation to use seismic sources to conduct zero-offset VSPs will be required, which will be initiated closer to the expedition.

Expedition 355: Arabian Sea Monsoon CPP

Planning

The Expedition 355 precruise meeting was held at IODP-TAMU in College Station, TX, on 1 and 2 May 2014. The *Scientific Prospectus* was published 30 June 2014. It was discovered that a submarine cable was planned for deployment in May near one of the sites. An alternate was selected by the Co-Chief Scientists to present to the EPSP in case the cable's proximity makes the original site obsolete.

Clearance and permitting activities

The EPSP and TAMU Safety Panel reviewed sites at the May meeting and approved all sites, with one adjustment.

Environmental assessment

An environmental evaluation to use seismic sources to conduct zero-offset VSPs will be required, which will be initiated closer to the expedition.

Expedition 356: Indonesian Throughflow

Planning

The Expedition 356 precruise meeting was held at IODP-TAMU in College Station, TX, on 2 and 3 May 2014.

Clearance and permitting activities

The EPSP and TAMU Safety Panel reviewed sites at the May meeting and approved all but two sites, which were conditionally approved pending additional data.

Environmental assessment

An environmental evaluation to use seismic sources to conduct zero-offset VSPs will be required, which will be initiated closer to the expedition

Analytical systems

Analytical Systems acquisitions and updates

Two frequency-adjusted Bartington MS2C 90 mm magnetic susceptibility (MS) loops were purchased for use on the special task multisensor logger (STMSL) so that crosstalk between the whole-round multisensor logger (WRMSL) and the STMSL can be eliminated. This will allow for high-speed, high-resolution, simultaneous measurement of MS on high-recovery expeditions.

The detector for the Brüker AXS D4 ENDEAVOR X-ray diffractometer (XRD) failed immediately prior to Expedition 349 and was successfully repaired by Brüker AXS and returned to IODP; the detector was

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reinstalled by Brüker AXS-Japan in Yokohama, and a service call ensured the instrument was back in proper order for Expedition 351 and beyond.

The Thermo NITON XL3t GOLDD handheld X-ray fluorescence (XRF) instrument developed a cooling issue during Expedition 350. The Science Party was able to work around the cooling fault and still obtain results that satisfied their expectations, but the instrument needed to be returned to the manufacturer for repair. It is unknown if the repair and recalibration will be completed in time for Expedition 352.

A spare autotitrator was purchased for the chlorinity method and will be delivered to the ship in the Expedition 352 freight.

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.

Geology

The Geology LWG did not meet this quarter due to the sailing schedule of the leads and majority of members.

Geophysics

The Geophysics LWG discussed issues arising from Expedition 349 and various ongoing issues. The Expedition 349 cruise evaluations listed no technical problems in relation to this LWG, but the following issues were reported internally:

- WRMSL/natural gamma ray logger (NGRL): the use of a peristaltic water pump for *P*-wave velocity measurements requires wiping of the core sections prior to loading on the NGRL to avoid puddles in the sample holder.
- Velocity measurement gantry (GANTRY): an unrealistic negative time delay factor has been implemented in the graphical user interface for the z-axis (up/down core) velocity bayonet. Although repeated measurements of the water standard and evaluation of sample data show the velocity is being calculated properly, the use of the negative delay is likely to confuse science users and should be corrected.
- Section-half multisensor logger (SHMSL): intermittent failure of the halogen lights for the color reflectance measurement occurred—eventually traced to loose wiring, which was corrected.
- Superconducting rock magnetometer (SRM): users must take care to have a properly programmed barcode gun when switching between section and discrete samples in order to avoid the loss of the “tray length” value when performing discrete measurements. As the SRM is likely to be replaced in the near future, the program will not be changed at this time.
- FlexIt orientation tool: one unit (of three) has failed and the parent company no longer maintains the system; alternatives must be sought in the future to maintain the capability. Also, staff must be aware that the column headers must be correct in order to properly parse data.

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- Data filtering discussion: the Expedition 349 Science Party asked the developers to remove color reflectance data from the database, where the dividers caused unusually high L* values. It is recognized that bad data must sometimes be removed from the database when warranted, but the LWG recommended that post-download filtering is preferable to editing the database wherever practical.
- The LWG recommended that the responsibility for editing and archiving of vibration-isolated television (VIT) camera files be placed with the Operations Superintendents' group.

Geochemistry

The Geochemistry LWG met this quarter to discuss issues arising from Expedition 349, as well as ongoing upgrades to the alkalinity software and the use of the handheld XRF during Expeditions 350 and 352. The LWG also discussed replacements for various aging hardware (e.g., laboratory water maker). Expedition 349 issues and recommendations included the following:

- Challenges arose in performing microbiological contamination testing (e.g., high background of the perfluorocarbon tracer [PFT] compound in the laboratory), and differences of opinion existed between the members of the Science Party as to what protocols were best. The Geochemistry LWG recommended involvement of the microbiological community in conducting a comparison of shipboard microbial contamination techniques, including but not limited to the use of PFTs, fluorescent microspheres, and background drilling fluid cultures (or DNA/RNA analysis). The goal is to produce robust standard procedures that will be successful.
- Curatorial issues arose from the collection of fluid on the catwalk for microbiological contamination testing, and the Geochemistry LWG urged the Curation and Core Handling LWG to confer and determine proper procedures.
- The LWG recommended that a standard procedure comparable to the existing interstitial water (IW) and hard rock procedures be created for the Inductively Coupled Plasma (ICP) analysis of sediment, including sample preparation, measurement, and the selection of standard reference materials.
- As no technical position is assigned oversight for the microbiological (MBIO) laboratory, the LWG recommended that the Laboratory Officer and Assistant Laboratory Officers (LO/ALO) be given the responsibility to maintain all of the equipment in the MBIO lab area.
- The LWG further recommended that the ship laboratory website be changed to state that no assigned MBIO technician exists on the *JOIDES Resolution*.
- The LWG recommended that the handheld XRF be placed in the category of "available upon request" and careful consideration of the added workload given prior to use on the ship.

Curation and Core Handling

No curatorial issues arose from Expedition 349, so this quarter's Curation and Core Handling LWG meeting was primarily concerned with the Sample and Data Request (SaDR) phase-in plan with regard to Bremen Core Repository (BCR) and Kochi Core Center (KCC) use of the system in lieu of Janus and other tools. The LWG recommended that because the SaDR is now ready for use, IODP should discontinue use of the Sample Material Curation System (SMCS) except for Expedition 347 (still under moratorium). The

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LWG further recommended that sample data migration from Janus should be treated as a high priority so that sample requests for older material can be handled through the new software and the Janus software can be discontinued.

Projects and other activities

Geosciences Laboratory (ODASES)

The TAMU Ocean Drilling and Sustainable Earth Science (ODASES) Geoscience Laboratory hosted six scientists during this period for XRF scanning projects. The instrument has been working reliably since the replacement of the X-ray source and the upgrade of the instrument host computer. The XRF was utilized approximately 70% of available days during this period.

Engineering support

Engineering equipment acquisitions and updates

Vibration isolated television system

The replacement fiber optic cable was installed during the Expedition 351 port call; the replacement cable was manufactured by the same vendor that produced the cable that failed during Expedition 350. Syntactic foam was installed on the VITICP frame to lessen its weight in the water in an attempt to reduce strain on the cable in these deep-water deployments. At the end of the quarter, the first of the three fibers in the replacement cable had failed. Because there is a lack of confidence in the life of the cable from this vendor, back up reentry options for Expedition 352 were initiated.

Projects and other activities

Large-diameter pipe-handling infrastructure

The USIO continued to coordinate with Blohm & Voss (B&V) Germany on development of the mock-up elevator testing concept to model and evaluate the extension of the elevator ears with the 500-ton elevators installed in the 500-ton bails. Design drawings of mock-up elevator parts were reviewed, and continued discussions were held with B&V on the elevator handler modifications as related to original work tasks and possible new work tasks.

B&V Germany manufactured the mock-up elevator parts and installed and tested the mock-up parts on an elevator body in Hamburg, Germany, prior to shipment. Photographs of the mock-up elevator assembly were shared with LDEO, TAMU, and the *JOIDES Resolution* rig crew. One of the existing prototype elevators was machined in Willis, TX, and prepared for installation of the mock-up elevator ear extension components.

Legacy documentation

The USIO routinely archives electronic copies of documents and reports produced on behalf of IODP and the Integrated Ocean Drilling Program. 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.

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 *JOIDES Resolution* Facility Board.

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 US Systems Integration Contractor, with assistance from the USIO partners.

Project status

There were no UTP activities during the quarter.

Core Curation

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

Policy and procedures

The IODP Curators worked with the chairs of the three facility boards to fill the membership of the Curatorial Advisory Board (CAB). Members of the past IODP CAB all agreed to serve for 1- or 2-year periods to provide continuity into the new program. After 1 year, three members will rotate off of the CAB, and be replaced with new scientists. Two other members will rotate off after 2 more years of service.

Sample and Data Requests application

The SaDR is now in use for Expeditions 314–346 and 348–352. The SMCS form is still receiving requests for Expedition 347 (until the end of moratorium), and requests for samples from Expeditions 302 and 313 are using the mission-specific platform (MSP) sample request form. Janus is still being used for ODP Legs 1–210 and Integrated Ocean Drilling Program Expeditions 301 and 303–312. A project is being proposed to migrate the legacy data from Janus to LIMS. Assuming acceptance of the project, and after its completion, requests for ODP Legs 1–210 and Integrated Ocean Drilling Program Expeditions 301 and 303–312 will begin to use SaDR.

Curation strategies and expedition core sampling

The USIO planned sample and curation strategies this quarter for upcoming USIO Expeditions 352 and 353. A USIO Curatorial Specialist supervised shipboard core sampling during Expedition 351 and reviewed all shipboard and moratorium-related requests in coordination with the other members of the expedition Sample Allocation Committee (SAC).

Curating the GCR core collection

All IODP core sample requests are handled by the GCR, BCR, and KCC. 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 3,616 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 cores XRF scanned	Number of cores Imaged	Number of visitors
23066A, Laya, USA	0			8
23076A, Cook, USA	5			
23076B, Cook, USA	17			
2141IODP, Cook, USA	11			
23091A, Ninnemann, Norway	12			
22833B, Osborne, Germany	17			
23067A, Constandache, Switzerland	55			
23007B, Lawrence, USA	357			
22729B, Arazi, Argentina	15			
23086A, Bishop, Germany	16			
23083A, Berggren, USA	65			
23085A, Nishikiori, Japan	73			
23106A, Bova, USA	6			
22884B, Martindale, Canada	6			
21967C, Tripathi, USA	62			
21872B, Carter, New Zealand	320			
23058A, John, United Kingdom	0			56
23034A, Tait, Canada	5			
23069A, Kim, Korea	344			
23028A, Dubin, USA	16			
23110A, Vandeginste, United Kingdom	4			
22905B, Dickens, USA	152			
23039A, Misra, United Kingdom	44			
23114A, Rabinowitz, USA	2			
23119A, Gueguen, USA	14			
22589D, Hauptvogel, USA	3			
23114B, Rabinowitz, USA	3			
23118A, Acton, USA	6			1
16283IODP, Acton, USA	25			
23121A, Dunkley Jones, United Kingdom	233			

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Sample request number, name, country	Number of samples taken	Number of cores XRF scanned	Number of cores Imaged	Number of visitors
23128A, Tzanova, USA	67			
23086B, Bishop, Germany	41			
23124A, Seki, Japan	146			
23136A, Coogan, Canada	19			
23135A, Constandache, Switzerland	9			
23098B, Lee, USA	12			
23133A, McKay, New Zealand	52			
22934C, McKay, New Zealand	51			
22950D, Miller, USA	35			
16457IODP, Ravizza, USA	12			
23137A, Ravizza, USA	11			
2154IODP, Drury, Germany	1,117			1
22846B, Hughen, USA	15			
23140A, Webb, Australia	38			
23143A, Nielsen, USA	27			
23111A, Robinson, USA		93	93	1
23145A, Kelly, USA	30			
23152A, Kendrick, Australia	6			
22010B, Dowsett, USA	17			
23156A, Okawara, Japan	2			
21639B, Wade, United Kindom	21			
Tours/demonstrations (13)				211
Totals	3,616	93	93	278

GCR tours/visitors

Type of tour or visitor	Number of Visitors
Scientist visitors	67
School visit	17
Geology 312 class (4)	48
VIP visit (Texas legislature)	12
GEOX camp	20
Summer Science Camp (3)	45
Public relations tours (3)	69
Total	278

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, M. O’Quinn (TAMU Vice President for Governmental Relations) and 16 representatives of the Texas Legislature toured the repository this quarter.

Legacy documentation

The USIO routinely archives electronic copies of documents and reports produced on behalf of IODP, as well as Integrated Ocean Drilling Program, DSDP, and ODP legacy materials. Legacy preservation activities for Core Curation include the following projects.

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 was completed this quarter.

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.

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

Data from Expeditions 349 and 350 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 released from moratorium in this quarter.

Log database

Data from Expeditions 350 and 351 have been processed and included in the online database, including standard and FMS data for Expedition 350 Hole U1437D and Expedition 351 Hole U1438D.

Over the past few months repeated attempts have been made to log into the ship’s online database in order to check the status of current data. They have all failed due to the poor connection caused by

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limited available bandwidth, so it has not been possible to assess if there are any broken links in the ship's database. The limited available bandwidth may be caused by extra heavy bandwidth usage from an increase in video conferencing.

Following a user's request, Sonic Waveform (SWF) image data have been created and put online for all holes prior to Expedition 334. Also, the field log plots (also known as blueprints) produced onboard by the Schlumberger engineer, have been put online for all IODP-USIO holes.

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						
Rank	Janus database		LIMS database		Log database	
	Country	Visitor sessions	Country	Visitor sessions	Country	Visitor sessions
1	USA	1,093	USA	1,710	USA	875
2	Germany	399	China	637	United Kingdom	177
3	United Kingdom	344	United Kingdom	195	China	162
4	France	283	Germany	90	Italy	73
5	Japan	186	Japan	90	Japan	73
6	China	176	France	50	France	58
7	Norway	143	Russia	40	Iran	41
8	Unknown	90	Italy	39	Germany	32
9	Brazil	86	Unknown	34	Spain	26
10	Sweden	45	Spain	30	Canada	25
	Others	374	Others	200	Others	279
	Total	3,219	Total	3,115	Total	1,821

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Janus database web queries		
Rank	Query	Uploads
1	Images—core photos	1,772
2	Site summaries	1,227
3	Samples	1,007
4	Chemistry—interstitial water	876
5	Core summaries	836
6	Physical properties—RSC	545
7	Hole summaries	501
8	Physical properties—GRA	403
9	Paleo—Paleo investigations	401
10	Chemistry—carbonates	398
11	Hole trivia	361
12	Physical properties—MAD	302
13	Paleo—age model	301
14	Physical Properties—MSL	299
15	Chemistry—rock eval	286
16	Special holes	273
17	Images—prime data	264
18	Site details	232
19	Images—close-ups	207
20	Chemistry—gas	199
	Others	2,841
	Janus database total	13,531

LIMS database web queries	
Query type	Views
LIMS Reports	19,623
Web Tabular Reports data	201
Web Tabular Reports samples	133
Web Tabular Reports summaries	64
LIMS database total	20,021

Data requests submitted to the TAMU Data Librarian	
Requests	Total
How to	5
Photos	3
Chemistry—interstitial water	2
Magnetic susceptibility	2
Age	2
Drilling data	2
Gas	1
GRA	1
Location	1
Logging	1
Samples	1
XRD	1
Total	21

Countries submitting data requests to the TAMU Data Librarian	
Country	Total
USA	12
Germany	4
Australia	2
Iran	1
New Zealand	1
Norway	1
United Kingdom	1
Total	22

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Other USIO web statistics*			
	Janus database	LIMS database	Log database
Database query hits:			
Entire site (successful)	22,602	32,991	12,322
Average per day	248	363	135.41
Visitor sessions:			
Total number of visitor sessions	3,219	3,115	1,821
Average per day	35	34	20.01
Average length of visit	No data available		7:34
International visitor sessions	2,036	1,371	51.95%
Visitor sessions of unknown origin	90	34	0.00%
Visitor sessions from United States	1,093	1,710	48.05%
Visitors:			
Unique visitors	1,064	1,269	874
Visitors who only visited once	399	413	806
Visitors who visited more than once	665	856	68
Average visits per visitor	3.03	2.45	2.08

Software development

Shore Web Architecture Update

Project scope and deliverables

The goal of this project is to replace TAMU's current web infrastructure with a modern, less complex system that supports more responsive patch management to protect against the constantly growing list of security holes identified by the information technology industry. The system will provide support for future web content and services, and include migration of current services such as the Integrated Ocean Drilling Program, ODP, DSDP, and Publications websites. The new system must be

- Able to host the current web content and services, including Integrated Ocean Drilling Program, ODP, DSDP, and Publications websites;
- Accomplished with the least amount of downtime possible for current services;
- A secure system that conforms to the current best practice and security standards;
- Adaptable to the ship environment in order to keep the two locations as similar as possible;
- Able to provide for future web based projects and services, including content management systems;
- Able to provide software/hardware maintainability, and simplify patching and upgrades; and
- Reliable.

Project status

This project was completed this quarter. TAMU's new web infrastructure is ready to host new content beginning 1 October 2014.

LIMS On-line Report Environment (LORE)

Project scope and deliverables

The goal of this project is to implement a reporting framework that can incrementally handle very large data sets. The implementation will accommodate smooth transition from legacy systems to the new model. The implementation will ease the discovery and sharing of IODP content.

This effort focuses on the immediate need to be able to retrieve very large data sets (such as RGB) from current on-line systems without crashing end-user's browsers or intermediate systems participating in the transfer process. This effort does not address the needs and requirement for data publishing, which will be managed in a separate effort. Not only will this project solve the big data problems represented by RGB and other reports, but it will create a framework for the distribution of all kinds of reports going forward. It is viewed as the replacement for both Web Tabular Reports and the current LIMS Reports.

Project status

TAMU initiated this project on 5 June 2014 and intends to begin using LORE on Expedition 353.

Stratigraphic Correlation Enhancements

Project scope and deliverables

This project delivers an updated set of programs to provide spliced data sets, assembled using the affine table and splice interval table provided by the shipboard stratigraphic correlation specialist. The deliverables shall ensure accurate data, reliable process, and user-friendly interfaces and minimize the risk of spliced data sets that do not meet user intent and expectations. The scope includes the following components:

- Correlation table files. Content and format of user-generated files for affine table, splice interval table (SIT), and splice tie points table (STPT; if still needed) are defined in detail as part of this project. The SIT represents the correlation specialist's splice definition more explicitly and completely than the STPT used to do, and shall therefore be used as the key table in the correlation workflow. This change in workflow should eliminate confusion among correlation specialists, support personnel, and computer programs.
- Uploader for correlation files. The uploader program shall be updated to comply with the newly defined correlation files' content and format in bullet 1. This will also include the creation of new LIMS database tables for the correlation information.
- Spliced data reports. The ultimate goal is to provide spliced data sets based on the affine table and SIT and the LIMS-internal program to assemble the spliced data sets. The existing program needs to be replaced to comply with bullets 1 and 2.

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- The correlation files defined in bullet 1 and loaded in bullet 2 shall be reported similarly to the way they are currently reported, but using all the new definitions and database tables.
- Update (or replace) the program used to extract correlation data from the LIMS database for use in the Correlator application (LIMS2Correlator). The main requirement is to include export of RGB data files.
- A naming convention for alternate depth scales and splices shall be implemented to facilitate user's selection of items from the choice lists on the LIMS Reports interface.
- Legacy data conversion shall be included in this project if external users and expedition project representatives deem it worthwhile by assisting in the process.
- Processes and tools shall be documented.

Project status

TAMU initiated this project on 5 June 2014 and intends to begin using the new tool set during Expedition 353.

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.

Publications

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

IODP scientific publications

USIO publications

Scientific Prospectuses

- Clemens, S.C., Kuhnt, W., and LeVay, L.J., 2014. iMonsoon: Indian monsoon rainfall in the core convective region. *International Ocean Discovery Program Scientific Prospectus*, 353. <http://dx.doi.org/10.14379/iodp.sp.353.2014>
- Pandey, D.K., Clift, P.D., and Kulhanek, D.K., 2014. Arabian Sea Monsoon: deep sea drilling in the Arabian Sea: constraining tectonic-monsoon interactions in South Asia. *International Ocean Discovery Program Scientific Prospectus*, 355. <http://dx.doi.org/10.14379/iodp.sp.355.2014>

Preliminary Reports

- Expedition 341 Scientists, 2014. Southern Alaska Margin: interactions of tectonics, climate, and sedimentation. *IODP Prel. Rept.*, 341. doi:10.2204/iodp.pr.341.2014
- Expedition 349 Scientists, 2014. South China Sea tectonics: opening of the South China Sea and its implications for southeast Asian tectonics, climates, and deep mantle processes since the late Mesozoic. *International Ocean Discovery Program Preliminary Report*, 349. <http://dx.doi.org/10.14379/iodp.pr.349.2014>

Data Reports

- Carvallo, C., 2014. Data report: hysteresis measurements on basalts from Holes U1346A, U1347A, and U1350A on 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.324.205.2014
- Dubois, N., Mitchell, N.C., and Hall, I.R., 2014. Data report: particle size distribution for IODP Expedition 329 sites in the South Pacific Gyre. In D'Hondt, S., Inagaki, F., Alvarez Zarikian, C.A., and the Expedition 329 Scientists, *Proc. IODP*, 329: Tokyo (Integrated Ocean Drilling Program Management International, Inc.). doi:10.2204/iodp.proc.329.201.2014
- Dinarès-Turell, J., and Tinto, K., 2014. Data report: paleomagnetism and rock magnetism of sediments from offshore Canterbury Basin, IODP Expedition 317. In Fulthorpe, C.S., Hoyanagi, K., Blum, P., and the Expedition 317 Scientists, *Proc. IODP*, 317: Tokyo (Integrated Ocean Drilling Program Management International, Inc.). doi:10.2204/iodp.proc.317.206.2014
- Hoyanagi, K., Kawagata, S., Koto, S., Kamihashi, T., and Ikehara, M., 2014. Data report: Pleistocene benthic foraminiferal oxygen and stable carbon isotopes and their application for age models, Hole U1352, offshore New Zealand. In Fulthorpe, C.S., Hoyanagi, K., Blum, P., and the Expedition 317 Scientists, *Proc. IODP*, 317: Tokyo (Integrated Ocean Drilling Program Management International, Inc.). doi:10.2204/iodp.proc.317.208.2014
- Prebble, J.G., Crouch, E.M., and Cortese, G., 2014. Data report: Quaternary dinoflagellate cyst and pollen census counts from IODP Hole U1352B, Canterbury Basin, New Zealand. In Fulthorpe, C.S., Hoyanagi, K., Blum, P., and the Expedition 317 Scientists, *Proc. IODP*, 317: Tokyo (Integrated Ocean Drilling Program Management International, Inc.). doi:10.2204/iodp.proc.317.207.2014
- Türke, A., Bach, W., and Mehmood, M.S., 2014. Data report: X-ray fluorescence scanning of sediment cores from Holes U1382B, U1383D, U1384A, and 1074A from the North Pond area. In Edwards, K.J., Bach, W., Klaus, A., and the Expedition 336 Scientists, *Proc. IODP*, 336: Tokyo (Integrated Ocean Drilling Program Management International, Inc.). doi:10.2204/iodp.proc.336.202.2014
- Screatton, E., Gamage, K., and James, S., 2014. Data report: permeabilities of Expedition 320 and 321 sediments from the Pacific Equatorial Age Transect. 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.320321.217.2014

CDEX publications

Data Reports

- Daigle, H., and Dugan, B., 2014. Data report: permeability, consolidation, stress state, and pore system characteristics of sediments from Sites C0011, C0012, and C0018 of the Nankai Trough. *In* Henry, P., Kanamatsu, T., Moe, K., and the Expedition 333 Scientists, *Proc. IODP*, 333: Tokyo (Integrated Ocean Drilling Program Management International, Inc.).
[doi:10.2204/iodp.proc.333.201.2014](https://doi.org/10.2204/iodp.proc.333.201.2014)
- Saitoh, Y., 2014. Data report: grain size distribution of the late Cenozoic hemipelagic mud from Site C0011. *In* Henry, P., Kanamatsu, T., Moe, K., and the Expedition 333 Scientists, *Proc. IODP*, 333: Tokyo (Integrated Ocean Drilling Program Management International, Inc.).
[doi:10.2204/iodp.proc.333.203.2014](https://doi.org/10.2204/iodp.proc.333.203.2014)

ESO publications

Preliminary Report

- Expedition 347 Scientists, 2014. Baltic Sea Basin Paleoenvironment: paleoenvironmental evolution of the Baltic Sea Basin through the last glacial cycle. *IODP Prel. Rept.*, 347.
[doi:10.2204/iodp.pr.347.2014](https://doi.org/10.2204/iodp.pr.347.2014)

Data Report

- Ando, H., Oyama, M., and Nanayama, F., 2014. Data report: grain size distribution of Miocene successions, IODP Expedition 313 Sites M0027, M0028, and M0029, New Jersey shallow shelf. *In* Mountain, G., Proust, J.-N., McInroy, D., Cotterill, C., and the Expedition 313 Scientists, *Proc. IODP*, 313: Tokyo (Integrated Ocean Drilling Program Management International, Inc.).
[doi:10.2204/iodp.proc.313.201.2014](https://doi.org/10.2204/iodp.proc.313.201.2014)

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

The USIO submits 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, the Integrated Ocean Drilling Program, and IODP. During this quarter, the USIO submitted 322 citations to AGI.

Publications management

Integrated Ocean Drilling Program 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 Integrated Ocean Drilling Program 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 1 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 FY14 Q3	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	10
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	22
317	4 September 2012		11	5
318	2 March 2013		4	
319	30 April 2012		6	3
320/321	30 June 2012		26	25
322	10 June 2012		11	7
323	10 August 2012		6	5
324	4 July 2012		10	9
325	16 March 2013*		31	8
327	5 May 2013		2	1
330	11 October 2013		10	2
333	18 January 2014			
334	13 December 2013†		31	
335	3 February 2014		4	1
336	16 July 2014	1		

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

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

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Synthesis papers

Expedition	Submission deadline (26 months postmoratorium)	Deadline extensions approved in FY14 Q3	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			
327	5 November 2013			1
329	13 February 2014			
330	11 April 2014			
331	4 December 2013			
332	11 February 2014			

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

Publications website

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

Publications website	FY14 Q3 page views	FY14 Q3 site visits
www.iodp.org/scientific-publications	282,502	28,928

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 Integrated Ocean Drilling Program, 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.

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Reports and publications	DOI prefix	Number of resolutions			
		April 2014	May 2014	June 2014	FY14 Q3 total
IODP	10.14379	10	17	12	39
Integrated Ocean Drilling Program	10.2204	4,993	4,326	4,216	13,535
ODP/DSDP	10.2973	7,750	8,300	7,053	23,103

Publications support

The USIO hosted the postexpedition editorial meeting for ESO Expedition 347.

Legacy documentation

The USIO routinely archives electronic copies of documents, reports, and scientific publications produced on behalf of IODP and the Integrated Ocean Drilling Program. Documents archived this quarter included all scientific publications produced during the quarter, the IODP-USIO FY14 Q2 report, and planning documentation for reporting deliverables.

Education

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 US 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.

Professional development

2014 Schools of Rock

The first 2014 School of Rock was held 8–15 June 2014 at the Indiana University of Pennsylvania (IUP). This workshop included 17 participants, mainly undergraduates, from Pennsylvania and around the United States. Led by J. Lewis (IUP) and S. Hovan (IUP), the course was offered for credit and included laboratory and field trip components.

Onboard educator program

Expeditions 350 and 351 both sailed Education/Outreach teams of two. J. DeMarines (Denver Museum of Science) and L. Allen (Truro College, Cornwall, U.K.) sailed as Onboard Education Officers during Expedition 350, and M. Prosalik (Malvern Prep, PA) and A. Bogus (independent videographer) formed the Education/Outreach team for Expedition 351.

Educational outreach events

National Science Teachers Association National Conference

IODP was strongly represented at the 2014 National Science Teachers Association (NSTA) National Conference held 3–6 April in Boston, MA, with a booth, presentations at workshops and share-a-thons, and distribution of many educational materials to hundreds of teachers. A team of 12 USIO staff, program alumni, and IODP scientists volunteered at the conference.

USA Science and Engineering Festival

The third annual USA Science and Engineering Festival was held 25–27 April at the Walter E. Washington Convention Center in Washington, DC. A team of USIO staff and volunteer program alumni and IODP scientists hosted a booth at the fair that showcased *JOIDES Resolution* science-related activities for thousands of attendees.

Deep Blue Sea Weekend

The USIO partnered with the Carnegie Science Center in Pittsburgh, PA, to hold a day of *JOIDES Resolution*-related activities on 15 June 2014 as a part of their Deep Blue Sea Weekend. Volunteers included School of Rock and Education Officer alumni, USIO staff, and IODP scientists. The day included book readings, a live event broadcast with the *JOIDES Resolution* in the auditorium, and a series of staffed activity tables for museum visitors.

Intel International Science and Engineering Fair

USIO staff participated in Ocean Leadership's sponsoring of Special Awards at the 2014 Intel International Science and Engineering Fair (Intel ISEF), a high school-level science competition that was held on 15 May 2014 in Los Angeles, CA. Of the over \$7,000 in prizes distributed by Ocean Leadership, \$3,000 was funded by the USIO.

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.

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, joidesresolution.org featured content from Expeditions 350 and 351.

The *JOIDES Resolution* Facebook page (facebook.com/joidesresolution) had 4,706 “likes” at the end of FY14 Q3, which included 256 new “likes” during the quarter. The *JOIDES Resolution* Twitter page (<https://twitter.com/TheJR>) had 1,693 followers at the end of the quarter. In addition, USIO staff introduced the *JOIDES Resolution* Instagram page (http://instagram.com/joides_resolution), which had 48 followers at the end of the quarter.

USIO educational website statistics

USIO educational website*	FY14 Q3 page views	FY14 Q3 site visits
www.joidesresolution.org	54,015	12,850
www.oceanleadership.org/education/deep-earth-academy	5,798	4,429
Total	59,813	17,279

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

Videos and video broadcasts

During Expedition 350, the Education Officer team conducted more than 90 video broadcasts to classrooms and groups in the United States, the United Kingdom, and several other countries around the world, reaching more than 4,000 participants. During this quarter, the Expedition 351 Education/Outreach team produced a video titled *The Life of a Core* (http://youtu.be/5c8Bng0tmDw?list=UUomf_JKZQKV71PQBU3ODsQw). This is the first of a series of videos planned for Expedition 351.

Two new videos, *Educators on the JR* and *How Science Works*, were developed this quarter. *How Science Works* focuses on the real process of science, using Expedition 342 (Paleogene Newfoundland Sediment Drifts) as an example (http://youtu.be/JH0_xC7q9tU?list=UUomf_JKZQKV71PQBU3ODsQw). *Educators on the JR* describes the job of the Education Officer and experiences of School of Rock educators (http://youtu.be/PJTmfh7IWW0?list=UUomf_JKZQKV71PQBU3ODsQw). USIO staff also completed a series of five videos of Center for Dark Energy Biosphere Investigations (C-DEBI) scientists that will be available on the Ocean Leadership YouTube channel during the next quarter (see “C-DEBI grant” in “Outside funding and sponsorships”).

Educational materials development and distribution

New activities produced this quarter and available on joidesresolution.org include a teacher's guide to the video *IODP Expedition 342: Newfoundland—“Time Machine,”* an educator's guide for the *Tales of the Resolution* comic books, and a science process activity titled *How Do Scientists Conduct Research on Ancient Environments?* In addition, several new banners produced for use at conferences and events were debuted at the NSTA National Conference.

Materials were distributed this quarter at conferences and outreach activities and in response to requests received through the Deep Earth Academy website. The office no longer sends extensive materials through the mail but primarily distributes materials at events run by staff or volunteers.

Scientists as educators

The USIO provides regular opportunities for scientists to participate in educational programming. During this quarter, the USIO involved scientists in activity development (T. Quan [Oklahoma State University]) and at the NSTA National Conference (H. Mills [University of Houston] and A. Dunlea, [Boston University]) and the first 2014 School of Rock (J. Lewis and S. Hovan [IUP]). D. Pak (University of California, Santa Barbara [UCSB]) and J. Jaeger (University of Florida) participated in the USA Science and Engineering Festival.

Strategic partnerships

Center for Dark Energy Biosphere Investigations

The USIO continued to partner with C-DEBI to produce microbiology-related materials and projects. During this quarter, USIO staff worked on the Adopt-a-Microbe curriculum, which should be completed during the next quarter.

Outside funding and sponsorships

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

New grants

The Advancing Information STEM Learning (AISL) proposal submitted to NSF in January 2014 was not selected for award; however, USIO staff plan to revise and resubmit by the next deadline in November. Staff are also working on a number of other proposals.

Activities related to existing grants

C-DEBI grants

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. This partnership continued with the USIO leading education and outreach components of the R/V *Thompson* Expedition AT26-03, which returned to the same sites in July 2013. During this quarter, videographer L. Strong produced a series of short videos about C-DEBI scientists, which completed activities on this grant. In April, an article about the work of this grant was published in *Oceanography* (http://www.tos.org/oceanography/archive/27-1_nautilus.pdf).

The USIO received a new \$50,000 grant from C-DEBI to produce an e-book about subseafloor microbiology. This book will serve as a follow-up/sequel to *Uncovering Earth's Secrets*.

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

Final reports for this grant were submitted this quarter.

Diversity support initiatives

IODP-USIO Diversity Internship

The USIO selected R. Domeyko (Northern Virginia Community College) to be the 2014 IODP-USIO Diversity Intern. Domeyko is currently working with Drs. P. deMenocal and K. Allen at LDEO on a research project titled "How to end an ice age: a view from the North Atlantic." During his 10-week internship, Domeyko will analyze the trace element content of both benthic and planktic foraminifera in cores recovered from ODP Leg 172 Site 1063 to reconstruct changes in seawater carbonate chemistry

across a full glacial cycle. Additionally, records of deep water and surface water carbonate chemistry will allow him to test hypotheses for the ocean's role in ice age cycles.

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 the videos and activities outlined in "Educational materials development and distribution."

Other projects and activities

The 2014 J-aRt contest was launched this quarter and submissions of artwork on Styrofoam cups were evaluated. Winners will get a chance to see their cups shrink during an upcoming expedition.

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 hosted tours and a media conference at the 31 May–2 June *JOIDES Resolution* port call in Yokohama, Japan. In total, approximately 150 people toured the ship, including VIPs, journalists, industry representatives, scientists, and students from regional high schools and universities. The port call also featured a visit from Caroline Kennedy, US Ambassador to Japan, and several members of her staff.

Global outreach activities

The 31 May–2 June port call in Yokohama, Japan was facilitated with help from the Japan Agency for Marine-Earth Science and Technology (JAMSTEC) outreach staff. This collaborative effort enabled staff, scientists, and technicians from CDEX, JAMSTEC, and Japan's Ministry of Education, Culture, Sports, Science, and Technology (MEXT) to tour the ship—including several detailed tours conducted by USIO technical staff.

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 release:

- US Ambassador Caroline Kennedy visits the *JOIDES Resolution* [6 June 2014].
<http://oceanleadership.org/us-ambassador-caroline-kennedy-visits-joides-resolution/>

Communications tools

The USIO's outreach-focused Twitter account, @SeafloorSci, gained many followers by posting news from expeditions and links to related media. At the end of June, the account had more than 620 followers 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 bibliographies (iodp.tamu.edu/publications/citations.html).

- Chen, M.-H., Zhang, Q., Zhang, L.-L., **Alvarez Zarikian, C.**, and Wang, R.-J., 2014. Stratigraphic distribution of the radiolarian *Spongodiscus biconcavus* Haeckel at IODP Site U1340 in the Bering Sea and its paleoceanographic significance. *Palaeoworld*, 23(1):90–104.
[doi:10.1016/j.palwor.2013.11.001](https://doi.org/10.1016/j.palwor.2013.11.001)
- Cook, C.P., Hill, D.J., van de Flierdt, T., **Williams, T.**, Hemming, S.R., Dolan, A.M., Pierce, E.L., Escutia, C., Harwood, D., Cortese, G., and Gonzales, J.J., 2014. Sea surface temperature on the distribution of far-traveled Southern Ocean ice-rafted detritus during the Pliocene. *Paleoceanography*, 29(6):533–548. [doi:10.1002/2014PA002625](https://doi.org/10.1002/2014PA002625)
- Hernández-Molina, F.J., Stow, D.A.V., **Alvarez-Zarikian, C.A.**, Acton, G., Bahr, A., Balestra, B., Ducassou, E., Flood, R., Flores, J.-A., Furota, S., Grunert, P., Hodell, D., Jimenez-Espejo, F., Kim, J.K., Krissek, L., Kuroda, J., Li, B., Llave, E., Lofi, J., Lourens, L., Miller, M., Nanayama, F., Nishida, N., Richter, C., Roque, C., Pereira, H., Sanchez Goñi, M.F., Sierro, F.J., Singh, A.D., Sloss, C., Takashimizu, Y., Tzanova, A., Voelker, A., **Williams, T.**, and Xuan, C., 2014. Onset of Mediterranean outflow into the North Atlantic. *Science*, 344(6189):1244–1250.
[doi:10.1126/science.1251306](https://doi.org/10.1126/science.1251306)
- **Williams, T.**, 2014. Climate science: how Antarctic ice retreats. *Nature*, 510(7503):39–40.
[doi:10.1038/nature13345](https://doi.org/10.1038/nature13345)

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.

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- **Alvarez Zarikian, C.**, 2014. Gibraltar currents show proof of past climate change. *TAMUtimes*, 12 June 2014. <http://tamutimes.tamu.edu/2014/06/12/gibraltar-currents-show-proof-of-past-climate-changes/#.U6CUmrFnB8F>
- *Lincoln Public Schools News*, 2014. Pound students hear from UNL student, scientist working on ocean. *Lincoln Public Schools News*, 9 May 2014. <http://www.lps.org/post/detail.cfm?id=8670>
- *ScienceDaily*, 2014. Scientists discover link between climate change and ocean currents over 6 million years. *ScienceDaily*, 12 June 2014. <http://www.sciencedaily.com/releases/2014/06/140612142315.htm>

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 media advisories, press releases, port call plans, and outreach materials/documents

Appendix A: FY14 Q3 finance report

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

Appendix B: Travel

Purpose*	Category	Dates	Location	Institution: Personnel
National Science Teachers Association (NSTA) National Meeting	Education	3–6 April 2014	Boston, MA	LDEO: C. Brenner External: N. Kurtz, K. Kurtz, H. Mills, M. Prosalik, G. Schuster, B. Simons, K. Thomson
IODP Business Meeting	Meeting	5–9 April 2014	Kochi, Japan	TAMU: B. Clement
Bureau of Industry and Security Export Seminar	Conference	7–10 April 2014	Houston, TX	TAMU: L. Brune
Workshop on the Taxonomy of Pliocene to Modern <i>Spiniferites</i> and <i>Achomosphaera</i>	Conference	14–17 April 2014	Montreal, Canada	TAMU: K. Bogus
#ChefConf 2014	Conference	15–17 April 2014	San Francisco, CA	TAMU: J. Rosser
Adopt-a-Microbe Video Shoot	Education	22 and 23 April 2014	Los Angeles, CA	External: L. Strong
JOIDES Resolution Facility Board (JRFB) Meeting	Facility board meeting	23 and 24 April 2014	Washington, DC	TAMU: B. Clement, M. Malone
American Association of Petroleum Geologists (AAPG) Logging Short Course	Training	27 April–2 May 2014	Austin, TX	TAMU: K. Werts
International Association IT Asset Managers (IAITAM) Conference	Conference	29 April–1 May 2014	Las Vegas, NV	TAMU: D. Ponzio
Expeditions 355 and 356 Precruise Meetings	Meeting	29 April–8 May 2014	College Station, TX	TAMU: M. Storms
Council of Science Editors (CSE) Annual Meeting	Conference	2–5 May 2014	San Antonio, TX	TAMU: L. Peters
JOIDES Resolution Facility (JRF) Environmental Protection and Safety Panel (EPSP)/TAMU Safety Panel meetings	Panel meetings	4–7 May 2014	College Station, TX	IODP Safety Panel members: G. Claypool, N. De Silva, T. McHargue
Offshore Technology Conference (OTC) 2014	Conference	5–8 May 2014	Houston, TX	TAMU: R. Aduddell, L. Chen, H. Evans, M. Meiring, R. Mitchell
Intel International Science and Engineering Fair (Intel ISEF)	Education	11–16 May 2014	Los Angeles, CA	Ocean Leadership: D. Divins
2014 Magnetism Information Consortium (MagIC) Science & Database Workshop	Conference	12–14 May 2014	La Jolla, CA	TAMU: B. Clement
Expedition 351 Port Call	Port call activities	26 May–4 June 2014	Yokohama, Japan	Ocean Leadership: D. Divins, M. Wright TAMU: B. Clement, D. Houpt, B. Julson, J. Miller, R. Mitchell, D. Ponzio, J. Rosser TAMRF: B. Neyses
IODP Forum	Forum Meeting	27 and 28 May 2014	Busan, Korea	Ocean Leadership: D. Divins TAMU: B. Clement

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Purpose*	Category	Dates	Location	Institution: Personnel
Society for Scholarly Publishing (SSP) Annual Meeting	Conference	27–30 May 2014	Boston, MA	TAMU: A. Miller
Vibration-isolated television (VIT) cable installation	Maintenance	27 May–5 June 2014	Yokohama, Japan	TAMU: M. Meiring
Microscopes maintenance	Vendor travel	30 May–3 June 2014	Yokohama, Japan	Other: E. Meylan, L. Meylan
Expedition 351 education and outreach	Education	30 May–30 July 2014	Yokohama, Japan	Education Officers: A. Bogus, M. Prosalik
Expedition 339 2nd Postexpedition Meeting	Postexpedition Meeting	1–6 June 2014	Cadiz, Spain	LDEO: T. Williams
Java Web Applications Training	Training	3–7 June 2014	Reston, VA	TAMU: S. Nagarajan
School of Rock	Education	8–15 June 2014	Pittsburgh, PA	External: D. Grant, S. Hovan, J. Lewis
Texas Linux Fest 2014	Conference	13 and 14 June 2014	Austin, TX	TAMU: J. Rosser
Expedition 345 2nd Postexpedition Meeting	Postexpedition Meeting	13–17 June 2014	Pacific Grove, CA	TAMU: A. Klaus Education Officer: N. Kurtz
Carnegie Science Center Deep Blue Sea Weekend— <i>JOIDES Resolution</i> event	Education	15 June 2014	Pittsburgh, PA	TAMU: M. Malone External: B. Christensen, E. Cohen, D. Grant, K. Kortlan, K. Kurtz, D. Lavigne, K. Thompson
National Instruments (NI) Labview Core 1 Training	Training	15–18 June 2014	Austin, TX	TAMU: T. Gorgas, B. Novak
GeoData 2014	Conference	17–19 June 2014	Boulder, CO	TAMU: P. Foster
JRF Science Evaluation Panel (SEP) Meeting	Panel meeting	24–27 June 2014	Brunswick, NJ	LDEO: D. Goldberg, A. Slagle TAMU: A. Klaus, D. Kulhanek, L. LeVay, M. Malone
National Education Seminar 2014	Conference	23–26 June 2014	Anaheim, CA	TAMRF: M. Strickland
EarthCube All Hands Meeting 2014	Conference	24–26 June 2014	Washington, DC	TAMU: P. Foster
Check on progress of work being performed	Vendor visit	26–26 June 2014	Longview, CA	TAMU: R. Aduddell
The Association of Accountants and Financial Professionals in Business (IMA) 95th Annual Conference	Conference	21–25 June 2014	Minneapolis, MN	TAMRF: B. Neyses

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

Appendix C: USIO quarterly report distribution

J. Allan, NSF, jallan@nsf.gov
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K. Miller, TAMU, kcmiller@tamu.edu
B. Neyses, TAMRF, neyeses@iodp.tamu.edu