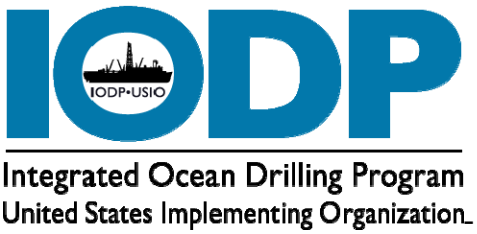
IODP
INTEGRATED OCEAN
DRILLING PROGRAM



INTEGRATED OCEAN DRILLING PROGRAM
United States Implementing Organization

FY10 Quarterly Report 4

1 July–30 September 2010

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.

29 November 2010

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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) FY10 Annual Program Plan 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.[1]

MANAGEMENT AND ADMINISTRATION

Contractual Activities

Ocean Leadership

Contract Activity

Ocean Leadership received the following modifications during the reporting period.

NSF Contract OCE-0352500 with Ocean Leadership:

- Modification 46: Provided $5,163,461 in incremental funding, thereby fully funding the FY10 Annual Program Plan.
- Modification 47: Approved the FY11 Annual Program Plan budget of $64,322,723 and provided $20,633,000 in incremental funding.

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

- Modification 28: Provided $1,093,208 in incremental funding, thereby fully funding the FY10 Annual Program Plan science operating costs (SOC) budget.

Subcontract Activity

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

Ocean Leadership Subcontract JSC 4-03 with LDEO:

- Modification 40: Provided $304,654 in incremental funding toward FY10 SOC Nonoperations activities.
- Modification 41: Provided $802,444 in incremental funding toward FY10 platform operating costs (POC) activities, thereby fully funding the FY10 Annual Program Plan budget.
- Modification 42: Updated the small business subcontracting plan requirements.

Ocean Leadership Subcontract JSC 4-02 with TAMRF:

- Modification 51: Revised the key personnel sections, adjusted the fixed administrative fee schedule, and updated the small business subcontracting plan requirements.
- Modification 52: Provided $714,696 in incremental funding toward FY10 SOC Nonoperations activities.
- Modification 53: Provided $4,763,369 in incremental funding toward FY10 POC activities, thereby fully funding the FY10 Annual Program Plan budget.

[1] In this document, references to TAMU include Texas A&M Research Foundation (TAMRF).

LDEO

Subcontract Activity

No subcontract modifications were issued during the reporting period.

Contracts/Procurement Activity ($100,000 or Greater)

No contract or procurement activity of $100,000 or greater took place during the reporting period.

TAMRF

Subcontract Activity

TAMRF issued the following subcontract modifications during the reporting period.

TAMRF Subcontract with Overseas Drilling Limited:

- Amendment 11: Provided incremental operational funding in the amount of $3,460,000.

Contracts/Procurement Activity ($100,000 or Greater)

- 30 June 2010: Issued a purchase order in the amount of $133,700 for managed Satellite Communication Services for the *JOIDES Resolution* through 30 October 2010.
- 5 August 2010: Issued a purchase order in the amount of $123,000 for 8-1/4 inch × 4-1/8 inch Outer Core Barrels (quantity 15).
- 10 September 2010: Issued a purchase order in the amount of $385,370 for 9-7/8 inch medium chisel insert core bits (quantity 20) and 9-7/8 inch short spherical insert core bits (quantity 10).

Miscellaneous Activity

- 30 July 2010: Submitted a request for procurement approval for the purchase of Managed Satellite Communication Services for the *JOIDES Resolution.*
- 11 August 2010: Submitted a request for technical approval for the purchase of a marine magnetometer.
- 12 August 2010: Submitted a request for technical approval for the purchase of a handheld X-ray fluorescence (XRF) spectrometer analyzer.
- 15 September 2010: Submitted a request for procurement approval to purchase 9-7/8 inch medium chisel insert core bits (quantity 20) and 9-7/8 inch short spherical insert core bits (quantity 10).
- 22 September 2010: Submitted a request for technical approval to purchase a semi-automated 3-axis CO_2 laser marking/engraving system.
- 22 September 2010: Submitted a request for technical approval to purchase a 2011 Chevrolet 3500HD Silverado chassis cab pickup truck.
- 27 September 2010: Submitted a request for technical approval to purchase a Sun SPARC Enterprise T544 server and associated system support agreement.
- 27 September 2010: Submitted a request for technical approval to purchase an EVA4400 Starter Array System and associated hardware support agreement.

- 18 August 2010: Submitted the Federal Automotive Statistical Tool, FY10 Motor Vehicle Report, and Office of Management and Budget A-11 Agency Motor Vehicle Fleet Report to Ocean Leadership.
- 30 September 2010: Completed the annual shore inventory of all National Science Foundation (NSF)-owned property, with results to be submitted in October 2010.

Personnel Status

Ocean Leadership

No positions were vacated or filled during the quarter.

The following positions were opened and advertised during the quarter:

- Special Assistant to the President

LDEO

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

TAMU

The following positions were vacated during the quarter:

- Graphics Specialist II (Kelly VonDrehle): 8 August 2010
- Marine Laboratory Specialist (Kazushi Kuroki): 10 August 2010
- Temporary Research Assistant (John Dorsey): 11 August 2010
- Graphics Specialist II (Jamie Smidt): 7 September 2010

The following positions were opened and advertised during the quarter:

- Senior Software Applications Developer
- Graphics Specialist II

The following positions were filled during the quarter:

- IODP Materials Technician (Tyrone Brashear): 16 August 2010
- Marine Computer Specialist (Michael Cannon): 30 August 2010
- Graphics Specialist II (Alyssa Stephens): 20 September 2010
- Graphics Specialist II (Paul Pleasant): 22 September 2010

USIO Web Services

Web Site Statistics

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

USIO Web Site

The USIO Web site is 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 http://iodp.tamu.edu/scienceops/expeditions.html.

FY10 Q4 USIO Web Site				
Parameter	**www.iodp-usio.org**	**iodp.ldeo.columbia.edu**	**iodp.tamu.edu**	**Total**
Page views	18,416	5,876	284,148	308,440
Site visits	11,903	1,036	54,155	67,094

IODP Publications Web Site

The IODP Publications Web site is hosted at TAMU. New online publications are shown in the "Publications" section of this report.

FY10 Q4 IODP Publications Web Site	
Parameter	**publications.iodp.org**
Page views	140,432
Site visits	28,554

USIO Educational Web Sites

FY10 Q4 Deep Earth Academy Web Sites*		
Web domain	**www.joidesresolution.org**	**www.oceanleadership.org/education/ deep-earth-academy**
Page views	67,968	12,384
Site visits	16,141	7,923

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

Legacy Web Sites

The Ocean Drilling Program (ODP) Science Operator Web site and the Deep Sea Drilling Project (DSDP) Publications Web site are hosted at TAMU. The ODP Legacy Web site is hosted at Ocean Leadership.

	FY10 Q4 ODP Web Site			FY10 Q4 DSDP Web Site
Parameter	**www-odp.tamu.edu**	**www.odplegacy.org**	**Total ODP**	**www.deepseadrilling.org**
Page views	966,479	8,902	975,381	223,335
Site visits	211,678	4,047	215,725	24,513

Stakeholder Web Sites

New and updated Web pages	Release date	URL
JOIDES Resolution Transocean	ongoing	http://deepwater.com/fw/main/JOIDES-Resolution-128.html
JOIDES Resolution TAMU College of Geosciences	ongoing	http://geosciences.tamu.edu/communications/geosciences-highlights/ocean-drilling

Other Activities

Laboratory System Review Team

At the end of FY10 Q3 and beginning of FY10 Q4, a Laboratory System Review Team of external experts from the scientific ocean drilling community conducted an evaluation of the *JOIDES Resolution*'s science laboratory systems and data handling capabilities after completion of a full year of operations. This review fulfilled the NSF Contract OCE-0352500 requirements regarding evaluation of USIO operations every three years. The final draft of the team's report was provided to the USIO on 12 August 2010.

National Research Council Committee on Scientific Ocean Drilling

The National Research Council (NRC) ad hoc Committee on Scientific Ocean Drilling held its second open meeting, the NRC Scientific Ocean Drilling Workshop, on 25 and 26 July 2010 in College Station, Texas, where the committee heard from multiple scientists engaged in IODP research about the accomplishments of the Program. Following the workshop, the NRC committee met in closed session at TAMU and toured the Gulf Coast Repository (GCR). NSF officials and members of the NRC committee also visited the *JOIDES Resolution* during the IODP Expedition 328 (Cascadia ACORK) September port call in Victoria, British Columbia (Canada).

The USIO supported NRC Committee on Scientific Ocean Drilling meetings by creating presentations, documents, and fact sheets and attending NRC meetings to answer questions about IODP. USIO staff worked with NRC staff to prepare for the committee's September 2010 meeting in Victoria, British Columbia (Canada), and composed a report titled "Integrated Ocean Drilling Program Overview of Education and Outreach Activities" at the request of the NRC committee. This report provides a summary of all Education and Outreach efforts conducted by IODP, ODP, and DSDP, focusing on education and outreach programs coordinated by the USIO and the United States Science Support Program (USSSP) for all audiences.

Information about the NRC project titled "Review of the Scientific Accomplishments and Assessment of the Potential for Future Transformative Discoveries with U.S.-Supported Scientific Ocean Drilling" is available at http://www8.nationalacademies.org/cp/projectview.aspx?key=49222.

TECHNICAL, ENGINEERING, AND SCIENCE SUPPORT

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]
Juan de Fuca Ridge-Flank Hydrogeology	327	Victoria, British Columbia (Canada)	5 July–5 September 2010	62 (5/57)	57 (2/55)	A. Fisher, T. Tsuji	TAMU: K. Petronotis* LDEO: S. Mrozewski^
Cascadia ACORK	328	Victoria, British Columbia (Canada)	5 September–19 September 2010	14 (5/9)	9 (2/7)	E. Davis	TAMU: M. Malone*
Transit	N/A	Victoria, British Columbia (Canada)	19 September–9 October 2010	20 (2/18)			
South Pacific Gyre Microbiology	329	Papeete, Tahiti	9 October–13 December 2010	65 (4/61)	61 (9/52)	S. D'Hondt, F. Inagaki	TAMU: C. Alvarez-Zarikian* LDEO: H. Evans^
Louisville Seamount Trail	330	Auckland, New Zealand	13 December 2010–12 February 2011	61 (5/56)	56 (8/48)	A. Koppers, T. Yamazaki	TAMU: J. Geldmacher* LDEO: J. Inwood^
Transit		Auckland, New Zealand	12 February–16 March 2011	31 (5/26)			
Costa Rica Seismogenesis Project	334	Puntarenas, Costa Rica	15 March–14 April 2011	30 (2/28)	28 (3/25)	P. Vannucchi, K. Ujiie	TAMU: TBD* LDEO: A. Malinverno^
Superfast Spreading Rate Crust 4[5]	335	Balboa, Panama	14 April–4 June 2011	51 (4/47)	47 (8/39)	D. Teagle, B. Ildefonse	TAMU: P. Blum* LDEO: G. Guerin^
Non-IODP							
Mid-Atlantic Ridge Microbiology	336	Bridgetown, Barbados	17 September–20 November 2011	64 (4/60)	60 (10/50)	K. Edwards, W. Bach	TAMU: A. Klaus* LDEO: L. Anderson^

Notes: TBD = to be determined; N/A = not applicable.
[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 www.iodp-usio.org.
[5] End port is Colon, Panama.

Expedition Planning and Implementation Activities

USIO Canterbury Basin Sea Level Expedition

Postexpedition Activities

USIO staff prepared for and hosted the first Expedition 317: Canterbury Basin Sea Level postexpedition meeting held 2–6 August 2010 in College Station, Texas.

USIO Juan de Fuca Hydrogeology Expedition

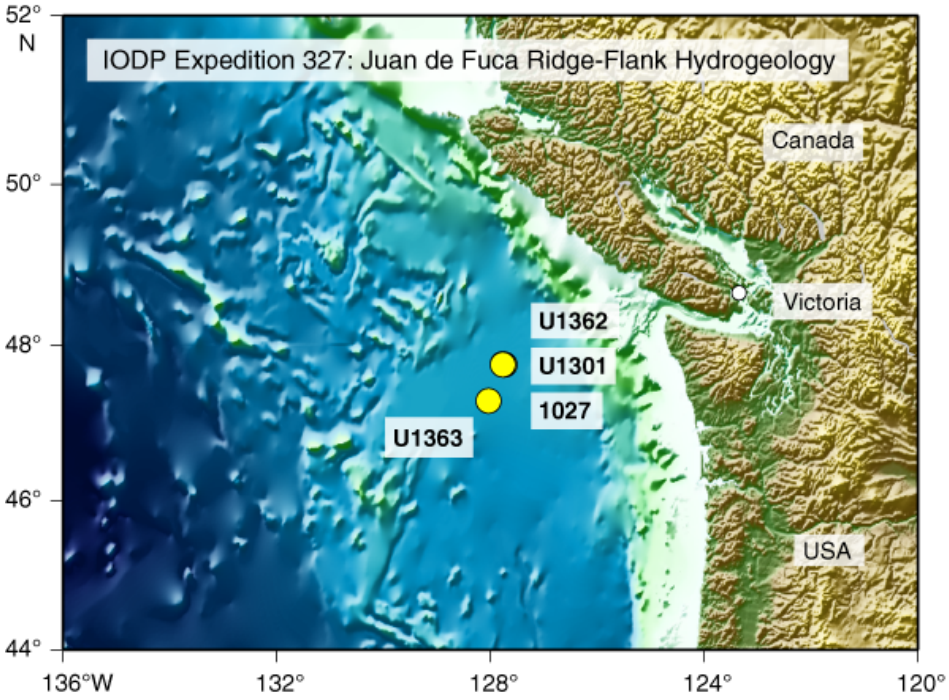
Expedition Staffing

Expedition Science Party Staffing Breakdown	
Member Country/Consortium	**Juan de Fuca Hydrogeology**
USA: United States Science Support Program (USSSP)	8
Japan: Japan Drilling Earth Science Consortium (J-DESC)	3
Europe and Canada: European Consortium for Ocean Research Drilling (ECORD) Science Support and Advisory Committee (ESSAC)	6
South 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)	0
India: Ministry of Earth Science (MoES)	0

Expedition Operations

The delayed circulation obviation retrofit kit (CORK) packers were received well in advance of their planned use. Expedition staff successfully installed two CORKs at Site U1362 to 470 and 311 meters below seafloor (mbsf). At Hole U1362A, 150 m of basalt was cored with 30% recovery. Expedition plans included replacing the CORK in Hole 1027C; however, staff were unable to recover the CORK. Approximately 375 m of instrument string from Hole U1301B that previously could not be extracted by submersible was recovered and a new instrument string was installed. At Site U1363, 126 m of sediment was recovered from five holes and ten good temperature measurements were obtained.

Expedition 327: Juan de Fuca Ridge-Flank Hydrogeology Site Map.



Expedition 327: Juan de Fuca Ridge-Flank Hydrogeology Coring Summary.

Site	Hole	Latitude	Longitude	Water depth (m)	Cores (n)	Interval cored (m)	Core recovered (m)	Recovery (%)
U1362	U1362A	47°45.6628'N	127°45.6720'W	2661.0	20	150.0	44.40	30
	U1362B	47°45.4997'N	127°45.7312'W	2661.0	NA	NA	NA	NA
Site U1362 Totals:					**20**	**150.0**	**44.40**	**30**
U1363	U1363A	47°17.3555'N	128°2.1107'W	2678.0	NA	NA	NA	NA
	U1363B	47°17.3518'N	128°2.1060'W	2679.0	10	61.0	49.70	82
	U1363C	47°17.5759'N	128°1.7641'W	2678.0	4	32.4	7.00	22
	U1363D	47°17.5724'N	128°1.7599'W	2678.0	4	33.8	15.00	44
	U1363E	47°17.3310'N	128°2.1447'W	2678.0	NA	NA	NA	NA
	U1363F	47°17.3261'N	128°2.1374'W	2678.0	4	35.0	31.20	89
	U1363G	47°17.3118'N	128°2.1698'W	2677.0	3	24.9	22.90	92
Site U1363 Totals:					**25**	**187.1**	**125.80**	**67**
U1301	U1301B	47°45.228'N	127°45.827'W	2671.0	NA	NA	NA	NA
Site U1301 Totals:					**NA**	**NA**	**NA**	**NA**
1027C	1027C	47°45.387'N	127°43.867'W	2667.0	NA	NA	NA	NA
Site 1027C Totals:					**NA**	**NA**	**NA**	**NA**
Expedition 327 Totals:					**45**	**337.1**	**170.20**	**50**

Science Results

Expedition 327: Juan de Fuca Ridge-Flank Hydrogeology and related experiments focused on understanding fluid–rock interactions in young, upper ocean crust on the eastern flank of the Juan de Fuca Ridge, delineating the magnitude and distribution of hydrologic properties; the extent to which crustal compartments are connected or isolated (laterally and with depth); the rates and spatial extent of ridge-flank fluid circulation; and links between ridge-flank circulation, crustal alteration, and geomicrobial processes.

Expedition 327 built on the achievements of IODP Expedition 301 and subsequent submersible and remotely operated vehicle (ROV) expeditions. Subseafloor borehole observatories (CORKs) were installed in basement holes in order to

- allow borehole conditions to recover to a more natural state after the dissipation of disturbances caused by drilling, casing, and other operations;
- provide a long-term monitoring and sampling presence for determining fluid pressure, temperature, composition, and microbiology; and
- facilitate the completion of active experiments to resolve crustal hydrogeologic conditions and processes.

Two basement holes were cored and drilled at Site U1362. Hole U1362A was cored and drilled to 528 mbsf (292 meters subbasement [msb]), subjected to geophysical logging and hydrologic testing, and instrumented with a multilevel CORK observatory. Hole U1362B was drilled to 359 mbsf (117 msb), subjected to a 24 hour pumping and tracer injection experiment, and instrumented with a single-level CORK observatory. Both CORK observatories include pressure and temperature monitoring and downhole fluid and microbiology sampling. Wellhead samplers will be added and a long-term cross-hole test initiated during a postdrilling ROV expedition scheduled for summer 2011. In addition, part of an instrument string deployed in Hole U1301B during Expedition 301 was recovered and a replacement string of thermal sensors was installed. Finally, a program of shallow sediment coring was completed adjacent to Grizzly Bare outcrop, a suspected site of regional hydrothermal recharge. Thermal measurements and analyses of pore fluid and microbiological samples from a series of holes aligned radially from the outcrop edge will elucidate rates of fluid transport and evolution during the initial stages of ridge-flank hydrothermal circulation.

Logging Summary: A single wireline logging string was deployed in Hole U1362A to identify suitable intervals for packer placement and to determine physical and hydrological properties. Sensors in the logging string measured spontaneous potential, natural spectral gamma ray, bulk density, borehole fluid temperature, ultrasonic borehole images, and hole diameter. Two passes were run over the entire open hole section and a third pass was run over two intervals of particular interest. Both the mechanical and ultrasonic calipers revealed a borehole that was highly enlarged over most of the open hole section, but also identified three near-gauge, nearly circular intervals suitable for placing a packer. In the sections where the borehole was nearly in gauge, ultrasonic images showed fractures and other features and the logged density compared favorably with density measurements on core samples. Borehole fluid temperature measurements showed a steep increase of the temperature gradient at the top of the main near-gauge interval, suggesting that ocean water was not flowing in the borehole below that point.

USIO Cascadia ACORK Expedition

Expedition Planning

Final fabrication of advanced CORK (ACORK) parts and equipment was completed and all materials required for Expedition 328: Cascadia ACORK were shipped to Victoria, British Columbia (Canada).

Expedition Staffing

Because this was solely an operational and engineering deployment, no science party as defined in the Memorandums of Understanding was staffed. Instead, three scientific proponents sailed to oversee and participate in implementation and deployment of scientific equipment on the

ACORK. The 2010 School of Rock workshop was held during Expedition 328, with 22 educators and instructors participating.

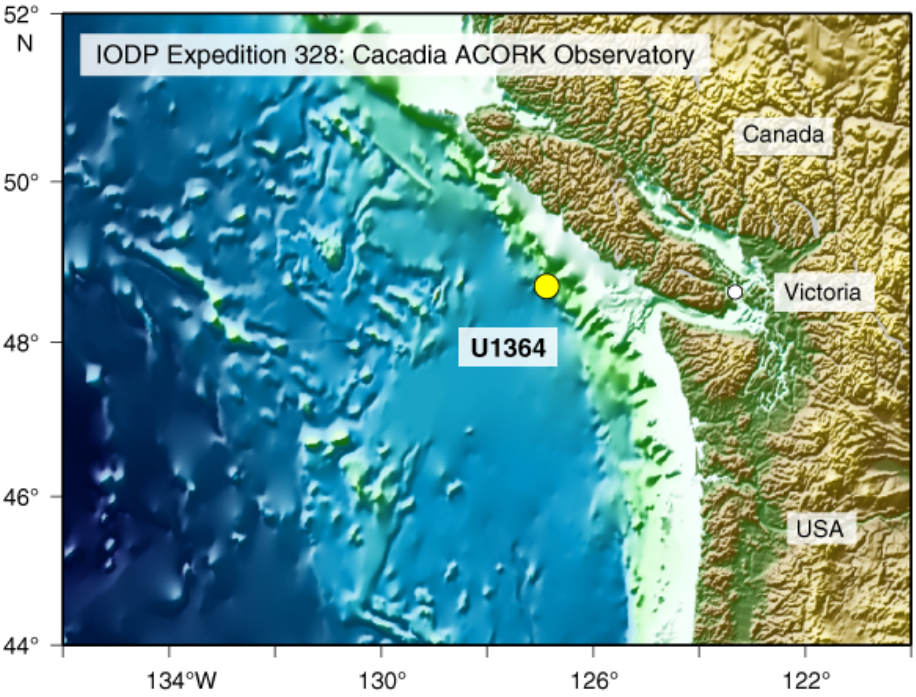
Clearance and Permitting Activities

Canada granted clearance for Expedition 328 on 31 August 2010.

Expedition Operations

The operational objective of Expedition 328 was the installation of a new permanent hydrologic borehole observatory near ODP Site 889. The new installation format followed the ACORK design, which will facilitate pressure monitoring at multiple formation levels on the outside of a 10-¾ inch casing string. The observatory was successfully installed and will allow documentation of the average state of pressure in the frontal part of the Cascadia accretionary prism, pressure gradients driving flow from the consolidating sediments, mode of formation of gas hydrates, influence of gas hydrates and free gas on the mechanical properties of their host lithology, response of the material to seismic ground motion, and magnitude of deformation at the site caused by secular strain and episodic seismic and aseismic slip in this subduction setting. The casing was sealed at the bottom, leaving the inside available for future installation of additional monitoring instruments. At a later date, the observatory will be connected to the NEPTUNE Canada fiber-optic cable for power and real-time communications from land.

Expedition 328: Cascadia ACORK Site Map.



USIO South Pacific Gyre Expedition

Expedition Planning

Expedition 329: South Pacific Gyre planning efforts focused on finalizing nontraditional and third-party analytical and laboratory supply requirements. Most shipping for Expedition 329 was planned for Victoria, British Columbia (Canada), in order to save on shipping costs and to avoid recognized challenges with shipping hazardous materials to Tahiti. With a few exceptions caused

by delayed access and a customs issue, almost all supplies were received in Victoria. The few remaining supplies were shipped to Papeete, Tahiti.

Expedition Staffing

One scientist withdrew from the expedition during this quarter and a replacement scientist accepted the invitation to sail. Two temporary technicians were hired to provide additional support in chemistry and microbiology.

Clearance and Permitting Activities

Approval for the *JOIDES Resolution* to use New Zealand as a port of call was granted on 5 August 2010.

USIO Louisville Seamount Trail Expedition

Expedition Planning

The third-party Goettingen tri-axial borehole magnetometer (GBM) system configuration was bench tested at Schlumberger in Houston, Texas, during the first week of August 2010. Results showed magnetic influences derived from the sinker bar and centralizer on the GBM measurements; however, these influences are much smaller than those from previous GBM runs in basaltic environments on seamounts. Co-Chief Scientists decided that improvements to the tool are not required before the expedition, although they might improve the data sets considerably if implemented in time. The proponents began exploring several ways in which the influence of the sinker bar and the centralizer could be reduced and are pursuing funding to improve performance by replacing the existing sinker bar with an aluminum nonmagnetic sinker bar. Efforts during the quarter also focused on finalizing supply requirements and research planning.

Clearance and Permitting Activities

Approval for the *JOIDES Resolution* to use New Zealand as a port of call was granted on 5 August 2010.

USIO Costa Rica Seismogenesis Project Expedition

Expedition Planning

The Expedition 334: Costa Rica Seismogenesis Project (CRISP) *Scientific Prospectus* was published on 12 August 2010. Funding for logging while drilling (LWD) is likely and final costs and logistics are being obtained from Schlumberger. A monitoring plan is being developed for Environmental Protection and Safety Panel (EPSP) review based on a similar use implemented during Expedition 311.

Expedition Staffing

The first round of staffing invitations was issued and all 15 invitees accepted. A call to solicit specific specialties was issued in late September 2010, and additional staffing calls will be made after the Program Member Offices provide nominations.

Clearance and Permitting Activities

The Expedition 334 clearance application was submitted to the U.S. State Department on 23 September 2010.

USIO Superfast Spreading Rate Crust 4 Expedition

Expedition Planning

Based on instructions from the Science Advisory Structure (SAS), the Expedition 335: Superfast Spreading Rate Crust 4 operations time was extended two weeks.

The Expedition 335 pre-expedition meeting was held 11 and 12 August 2010 in College Station, Texas.

Expedition Staffing

The first round of staffing invitations was issued to 20 scientists, with 17 accepting, 2 declining, and 1 invitation still pending.

Clearance and Permitting Activities

Because the contingency option for Expedition 335 includes coring at CRISP, planning began for submission of a separate clearance application to Costa Rica next quarter.

USIO Mid-Atlantic Ridge Microbiology Expedition

Expedition Planning

Planning began for the next engineering design meeting scheduled for 4 October 2010 and for substantial third-party funding expenditures (e.g., packers, umbilicals) scheduled for early next quarter. Development of a third-party logging tool began. The USIO is tracking progress of this tool development.

Expedition Staffing

The first round of staffing invitations was issued, with 9 scientists accepting. The second round of invitations will be issued in the next quarter after other expedition support requirements are assessed.

Operational Hiatus/Maintenance Period

The Adelie Drift shipboard sampling and measurement party was concluded during the first 4 days of July, and maintenance period activities were closed out with final adjustments to laboratory spaces and modification of the fiber-optic cable that provides network services to the offshore modular HELP Cab (OMHC).

The OMHC fiber-optic cable was disconnected while raising the logging winch control cab and a technician from Spectrum Networks/Novocom Communications was hired to properly reinstall the fiber after all welding work was completed. The fiber cable was terminated in a watertight box on the outside of the cab and a fiber patch was run to the equipment in the cab, a modification which will allow the patch cable to be pulled rather than cutting the main cable if future work requires disconnecting the fiber to the cab. Spectrum/Novocom provided spare patch cables in case of any accidental breaks or future work on the cab.

Projects and Other Activities

Analytical systems acquisitions and updates

The USIO built or acquired a number of new analytical systems this quarter, representing new capabilities and replacing damaged or obsolete equipment. These include

Chloride autotitrator

The USIO purchased a Metrohm Model/785 Titrino with ion-selective electrodes for chloride determination. This system was purchased in order to automate chloride determination on board the *JOIDES Resolution* and will supercede the existing manual titration.

Handheld X-ray fluorescence spectrophotometer

The USIO purchased a Niton XL3t 950S energy-dispersive (ED) XRF spectrophotometer to address the Expedition 330 operational need to identify the number of basalt flows penetrated by drilling in a timely enough manner to influence drilling decisions. This system will also provide shipboard elemental analysis capabilities to supplement and enhance the existing inductively coupled plasma–atomic emission spectrophotometer (ICP-AES).

Petrographic image capture and archiving tool

USIO staff constructed a system to facilitate easy and efficient capture of thin section images in transmitted light, polarized light, and cross-polarized light. Using the petrographic image capture and archiving tool (PICAT), a user can see the live image on the screen before it is captured and then easily upload it to the database along with key metadata. One PICAT was deployed on the *JOIDES Resolution* and one was installed in the GCR for imaging the archive of thin sections and making those images available.

Total organic carbon analyzer

The USIO purchased an OI Analytical Model 1030D Aurora total organic (wet and combustion oxidation methods) carbon analyzer to replace the damaged Shimadzu TOC5000 total organic carbon (TOC) analyzer. The new system is capable of both combustion and wet persulfate oxidation and is equipped with a nitrogen detector, providing additional analytical capabilities (total nitrogen) in addition to the usual TOC (organic and inorganic carbon).

Geosciences Laboratory (ODASES)

Five different projects were conducted during the quarter using the IODP XRF core scanner in the TAMU Ocean Drilling and Sustainable Earth Science (ODASES) Geosciences Laboratory. In addition, a shore-based Section-Half Imaging Logger was installed in the laboratory to provide an applications testing facility as well as service to the GCR and visiting scientists.

Large Diameter Pipe Handling Infrastructure

Responses were received to the request for quotations (RFQ) for the design and fabrication of the infrastructure for safely and efficiently handling large diameter (6-5/8 inch) pipe on board the *JOIDES Resolution.* Blohm & Voss (B&V) were selected for performing preliminary engineering work on 350- and 500-ton dual side elevators, bushings, and base plates; providing drawings of the elevators including overall dimensions, weight, and center of gravity location; and providing all dimensions required for determining if the new B&V dual side elevator design, base plates, and stool can be used with the existing Overseas Drilling Limited (ODL) pipe-handling system. The USIO and Howard and Associates Inc. (HAI) will review the drawings and determine if the proposed design will work with existing systems onboard the *JOIDES Resolution* and, if so, the USIO will contract with B&V for manufacturing the necessary infrastructure. LDEO-BRG will have responsibility of the overall project oversight on behalf of the USIO and will retain HAI's services through a subcontract for interaction with the main contractor, review of engineering drawings, testing procedures oversight, and provision of status

reports and recommendations throughout the project. A development plan is being finalized for assessing the time and resources needed for completion of this project.

Magnetic Susceptibility Sonde Rebuild

Efforts this quarter toward developing the new magnetic susceptibility sonde (MSS)-B tools focused on completing the low-resolution sensor. A new coil configuration was modeled and specifications and engineering drawings will be sent to a local vendor for spinning the coils. In this new modular design, each coil is wound onto separate bobbins that are inserted into spacers that can be threaded together. The coils will be integrated with the sensor's electronic board. The high-resolution board was purchased and successfully tested during the quarter. Investigation began of pressure housings and internal wiring in conjunction with multisensor magnetometer module (MMM) development for optimizing flexibility with both tools.

Multifunction Telemetry Module Project

USIO staff worked on isolating minor ground loop noise issues with the multifunction telemetry module (MFTM) system. The MFTM will be used in final bench testing with the entire motion decoupled hydraulic delivery system (MDHDS) and the University of Texas (Austin) penetrometer (temperature-to-pressure [T2P]) assembly during the second quarter of FY11.

The subcontract LDEO received from Stress Engineering to build an MFTM for use in Simple Cabled Instruments for Measuring Parameters In-situ (SCIMPI) deployment did not work out because Stress Engineering had to reallocate their resources. LDEO prepared to submit a proposal for building an MFTM for SCIMPI deployment through Ocean Leadership and IODP-MI.

The USIO expects to receive a contract in October 2010 from the Center for Dark Energy Biosphere Investigations (C-DEBI) for building a third MFTM. The proposed MFTM will be used for deploying a combination of LDEO and Schlumberger tools with a deep exploration biosphere investigative tool (DEBI-t) that is being developed by scientists and engineers from USC, the National Aeronautic and Space Administration (NASA) Jet Propulsion Laboratory at the California Institute of Technology, and Photon Systems, Inc.

Multisensor Magnetometer Module

All sensors for the MMM tool were purchased, including a three-axis fluxgate magnetometer, Overhauser magnetometer, three-axis optical rate sensor/gyroscope, and three-axis accelerometer. Work continued on the designs and specifications of the nonmagnetic pressure housings for both the MMM and the MSS-B and methods for integrating both instruments into a single tool string. Work on the design and construction of power supply and communications boards began with completion expected in early 2011.

Wireline Heave Compensating System

The USIO and Schlumberger continued data collection under different conditions (i.e., water depth, heave, and so on) prior to beginning logging operations in open holes for optimizing the system's capabilities. The USIO will continue to routinely assess results and work with Schlumberger to optimize the system.

Wireline Logging Routine Maintenance

The *JOIDES Resolution* permanent rig-up for logging requires two sheave wheels to translate the wireline from outside the derrick to the center and then down into the hole. The sheave wheels and axles were replaced during this quarter in compliance with Schlumberger maintenance guidelines. Replacement of the outboard sheave required rental of a 180-ton crane. Transocean staff created a small lifting beam on top of the sheave wheel beam that greatly assisted with replacing the outboard sheave. This lifting beam will eliminate the need for crane rental during required annual sheave wheel replacement.

Licensing IODP technology

The TAMU Office of Technology Commercialization licensed the commercial use of the Pressure Core Sampler (PCS) to DOWDCO, an oilfield services contractor, and licensed an option to Hydril USA Manufacturing LLC, a Houston-based oil services firm, to incorporate the Common Data Acquisition System (CDAQ) into their proprietary dual gradient pump system. In both cases IODP reserves the right to use the technologies for non-profit research.

ENGINEERING DEVELOPMENT

There are no Engineering Development deliverables scheduled for FY10.

DATA MANAGEMENT

IODP Databases

LIMS Database

Data collected during Expeditions 327 and 328 were successfully transferred to shore, merged with the cumulative Laboratory Information Management System (LIMS) database, and made available online to the participating scientists. These data are in moratorium and not yet available to the public.

Log Database

Expedition 327 standard and image data were processed and included in the online database.

IODP Database Data Requests

LIMS Database

Visits by USIO-TAMU employees were filtered out.

Top 10 Countries Accessing LIMS Web Database		
Rank	**Country**	**Visitor Sessions**
1	United States	372
2	Japan	64
3	United Kingdom	40
4	Germany	32
5	New Zealand	22
6	Korea (South)	19
7	India	15
8	France	14
9	Australia	13
10	Europe (country unspecified)	10
	Other	70
	Total	**671**

Top LIMS Web Queries		
Rank	**Query**	**Uploads**
1	LIMS – client	301
2	SCI – data	174
3	Samples	154
	Total	629

Janus Database

Visits by USIO-TAMU employees were filtered out.

Top 10 Countries Accessing Janus Web Database		
Rank	**Country**	**Visitor Sessions**
1	United States	1,135
2	Germany	485
3	United Kingdom	344
4	Japan	219
5	Canada	67
6	Europe (country unspecified)	64
7	France	64
8	Australia	53
9	Norway	52
10	China	51
	Other	393
	Total	**2,927**

Top 20 Janus Web Queries		
Rank	**Query**	**Uploads**
1	Sample	1,584
2	Imaging: core photo	1,014
3	Site summary	670
4	Hole trivia	422
5	Requests	416
6	Core summaries	251
7	Physical properties: GRA	250
8	Point calculation	247
9	Leg summaries	201
10	Physical properties: MSL	192
11	Hole summaries	152
12	Sample invest	140
13	Physical properties: MAD	138
14	Imaging: closeups	130
15	Paleo: age model	129
16	Physical properties: PWL	129
17	Site summaries trivia	128
18	Imaging: prime data images	126
19	Physical properties: color data	121
20	Chemistry: carbonates	118
	Others	1,798
	Total	**8,356**

Other Web Statistics		
Database query hits:		
	Entire site (successful)	17,173
	Average per day	186
Visitor sessions:		
	Total number of visitor sessions	2,927
	Average per day	31
	Average length of visit	03:43
	International visitor sessions	61.02%
	Visitor sessions of unknown origin	0.20%
	Visitor sessions from United States	38.78%
Visitors:		
	Unique visitors	1,663
	Visitors who only visited once	1,200
	Visitors who visited more than once	463
	Average visits per visitor	1.76

Data Requests to Data Librarian	
Requests	**Total**
Country:	
United States	9
United Kingdom	3
France	1
Switzerland	1
Norway	1
Japan	1
Iran	1
Total	**17**
Data:	
Usage and location questions of Janus, LIMS, and/or DSDP data	8
Photo requests	3
Seismic	2
Sample data	2
Paleo data	1
Hole data	1
Total	**17**

Log Database

Visits by USIO-LDEO employees were filtered out.

Top 10 Countries Accessing Log Web Database		
Rank	**Country**	**Visitor Sessions**
1	United States	319
2	Germany	169
3	United Kingdom	104
4	Japan	76
5	Australia	41
6	Canada	41
7	China	41
8	India	27
9	France	25
10	Norway	23
	All others	170
	Total	**1,036**

Other Log Web Statistics		
Database query hits:		
	Entire site (successful)	5,876
	Average per day	5.67
Visitor sessions:		
	Total number of visitor sessions	1,038
	Average per day	11.24
	Average length of visit	5:51
	International visitor sessions	52.80%
	Visitor sessions of unknown origin	16.41%
	Visitor sessions from United States	30.79%
Visitors:		
	Unique visitors	660
	Visitors who only visited once	565
	Visitors who visited more than once	471
	Average visits per visitor	2.28

Data Requests to Log Data Supervisor		
Expedition	**Request Number, Name, Affiliation, Country**	**Type of Data**
	There were no data requests for this period.	

Projects and Other Activities

LIMS Reports Development

TAMU developers continued to produce new LIMS Reports, including 14 new queries which began beta testing. Once completed, the new LIMS Reports will support Janus-style drill-down access to LIMS data.

Regional Test and Integration Facility

Work began on the information technology infrastructure required to support the Regional Test and Integration Facility (RTIF.) The RTIF is a part of the post–scientific ocean drilling vessel (SODV) Corrective Action Plan and will provide a consolidated facility for testing USIO-developed software. The USIO conducted initial planning this quarter to clarify the requirements for the facility and purchased equipment that will form the basis for the preliminary installation of the RTIF server infrastructure.

Computer System Upgrades for the Borehole Research Group

With help from USIO Marine Computer Specialists, LDEO continued troubleshooting the network admission control (NAC) agent that was repeatedly blocking or dropping network connections for the LDEO Mac workstations in the Logging Office. Temporary workarounds were found that enabled the computers to connect automatically after a reboot.

LDEO received and configured a ReadyNAS unit for offsite backup at the Ocean Leadership office and began copying initial backups to the device locally. When the unit is fully seeded it will be moved to the Ocean Leadership server room and installed in the racks and will begin synchronizing itself with the master copy at LDEO Borehole Research Group (BRG) nightly.

CORE CURATION

Sample Requests

All core sample requests were handled by the GCR, Bremen Core Repository (BCR), and Kochi Core Center (KCC). Sample requests handled by the GCR are reported in this table.

IODP Expedition/ Repository	Visitors	Request Number, Name, Country	Number of Samples
Gulf Coast Repository:			
	1	22096A, Bohaty, United Kingdom	0
		21767C, O'Connel, USA	76
		22120A, Bijl, Netherlands	71
		22108A, Turchyn, United Kingdom	108
		22095A, Wang, USA	278
		22124A, Zachos, USA	23
		306IODP, Leon-Rodriguez, USA	11
		22114A, Arning, Germany	54
		295IODP, Backman, Sweden	28
		22126A, Yamamoto, Japan	450
		21341G, Rafter, USA	19
		22138A, Winkler, USA	120
		22128A, Chetelat, United Kingdom	44
		22132A, Yu, USA	111
	1	21894A, Xie, USA	29
	1	20902B, Lyle, USA	55
		22131A, Murikama, Japan	48
		22113A, Galbraith, Canada	107
	1	22013A, Lund, USA	130
		785IODP, Beltran, France	123
	2	22136A, Nelson, Spain	0
		722IODP, Teagle, United Kingdom	18
		22144A, Ballentine, United Kingdom	24
		21604A, Sexton, United Kingdom	44
		21983A, Yu, USA	1
		20725E, Badger, United Kingdom	44
		22146A, Cleary, USA	0
	1	21894D, Marcantinio, USA	5
		22158A, Hoefig, Germany	16
		22155A, Herbert, USA	99
		22156A, Rogerson, United Kingdom	5
		22051B, Coogan, Canada	13
		864IODP, Tominaga, USA	7
		22160A, Collins, USA	307
	1	22167A, Schmidt, USA	95
		22164A, Owens, USA	12
	1	22172A, Zachos, USA	3
	1	22139A, Skilbeck, Australia	2
	1	22026A, Bourne, United Kingdom	777
	1	22153B, Farmer, USA	234

IODP Expedition/ Repository	Visitors	Request Number, Name, Country	Number of Samples
Gulf Coast Repository,			
	1	22153A, Harwood, USA	397
	8	21855B, Kato, Japan	3,259
	3	768IODP, McHugh, USA	192
	1	311IODP, Evans, USA	284
	2	314IODP, Channel, USA	65
	15	22163A, Kennicutt, USA (Educational)	0
	56	Public Relations Tours (3)	No samples
Expedition 327: Juan de Fuca Hydrogeology			
		26 sample requests	1,761
Total science	**27**	**72**	**9,549**
Total education:	**15**	**1**	**0**
Total public relations:	**56**	**0**	**0**
Total:	**98**	**73**	**9,549**

Projects and Other Activities

USIO Projects, Samples, and Moratorium Protocol for Legacy Cores

In August 2010, the USIO developed a draft document outlining the protocol the USIO will follow when working with legacy cores and materials. The document was reviewed and is under revision.

IODP Curator's Meeting

The USIO hosted the annual IODP curator's meeting held 28–30 September 2010 at the GCR in College Station, Texas (see **"Meetings"** in "USIO Interactions with IODP-MI, ESO, and CDEX" for more information).

PUBLICATIONS

USIO Reports

FY10 Q3 IODP-USIO Quarterly Report

The USIO report for the third quarter of FY10 (April–June 2010) was submitted to NSF and the IODP central management office (IODP Management International, Inc. [IODP-MI]) on 13 August 2010. (http://iodp.tamu.edu/publications/AR/FY10/FY10_Q3.pdf)

FY10 Annual Report

Production of the IODP-USIO FY10 Annual Report was initiated with planning discussions and development of a table of contents and production schedule. Photographs and graphic images were collected for potential use in the report, and efforts began toward developing report content.

FY11 IODP-USIO Annual Program Plan to IODP-MI

On 3 August 2010, the USIO submitted for review and evaluation the revised IODP-USIO FY11 Annual Program Plan to IODP-MI, which outlines requests for SOC and POC costs including the South Pacific Gyre Expedition, Louisville Seamount Trail Expedition, Costa Rica Seismogenesis Project Expedition, Superfast Spreading Rate Crust 4 Expedition, an 85-day maintenance period, and the Mid-Atlantic Ridge Microbiology Expedition; long–lead time planning costs for expeditions proposed for FY12; and continuing SOC shore-based activities during FY11. The

IODP-USIO FY11 Annual Program Plan to IODP-MI budget totals $67,295,548, with $4,078,906 in SOC requested from IODP-MI and $63,216,642 requested from NSF to support platform operating costs.

FY11 IODP-USIO Annual Program Plan to NSF

On 3 August 2010, the USIO submitted for review and evaluation the revised IODP-USIO FY11 Annual Program Plan to NSF, which combines costs that were identified in previous fiscal years as SOC Operations, POC, and SIC into a single budget containing all NSF-funded costs in a category newly defined as IODP-USIO U.S. Systems Integration Contract costs (SIC) (see **"Appendix A: Finance Report"** for more information).

The IODP-USIO FY11 Annual Program Plan to NSF outlines requests for costs including the South Pacific Gyre Expedition, Louisville Seamount Trail Expedition, Costa Rica Seismogenesis Project Expedition, Superfast Spreading Rate Crust 4 Expedition, an 85-day maintenance period, and the Mid-Atlantic Ridge Microbiology Expedition; long–lead time planning costs for expeditions proposed for FY12; and USIO efforts for education and outreach and associated management and administrative support. The IODP-USIO FY11 Annual Program Plan to NSF budget totals $64,322,723.

The IODP-USIO FY11 Annual Program Plan to NSF also includes Appendix I: USIO IT Security Summary, Appendix II: Recommended IODP-USIO Program of Insurance, and Appendix III: USIO Science Operating Costs by Institution.

2010 Ocean Drilling Citation Report

The 2010 Ocean Drilling Citation Report was completed this quarter. The Ocean Drilling Citation Database, a subset of the American Geological Institute's (AGI's) GeoRef database, is produced by AGI in collaboration with IODP-MI. Compilation of this database began in 1999, and it has been online since August 2002. A review of the records in the database provides information on how Program-related research is disseminated into the scientific community through publications and can therefore indicate the impact of Program science.

IODP Publication Services produces annual studies of the Ocean Drilling Citation Database based on the records in the database as of February of each calendar year. This year the database contained 26,014 citation records related to DSDP, ODP, and IODP. The 2010 study is available online at http://iodp.tamu.edu/publications/citations/AGI_study.pdf.

IODP Scientific Publications

Publication	Release Date	Digital Object Identifier	Comments
Scientific Prospectus:			
Expedition 334: Costa Rica Seismogenesis Project (CRISP): sampling and quantifying input to the seismogenic zone and fluid output	12 August 2010	10.2204/iodp.sp.334.2010	
Expedition 326: NantroSEIZE Stage 3: plate boundary deep riser: top hole engineering	23 August 2010	10.2204/iodp.sp.326.2010	Edited and formatted for CDEX
Expedition 331: Deep Hot Biosphere	2 September 2010	10.2204/iodp.sp.331.2010	Edited and formatted for CDEX

Publication	Release Date	Digital Object Identifier	Comments
Preliminary Reports:			
Expedition 325: Great Barrier Reef environmental changes: the last deglacial sea level rise in the South Pacific: offshore drilling northeast Australia	30 August 2010	10.2204/iodp.pr.325.2010	Edited and formatted for ESO
Proceedings of the Integrated Ocean Drilling Program:			
Volume 319			
NanTroSEIZE: Stage 2: NanTroSEIZE: riser/riserless observatory	31 August 2010	10.2204/iodp.proc.319.2010	Edited and formatted for CDEX
Volume 311			
Expedition 311 synthesis: scientific findings	9 July 2010	10.2204/iodp.proc.311.213.2010	

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 (http://www.iodp.org/program-policies/). To fulfill this obligation, scientists must have their papers published 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 FY10 Q4	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	8
307	13 June 2008		4	3
311	27 June 2008		12	8
309/312	28 August 2008		9	9
310	4 November 2008		16	7
314/315/316	4 October 2010		2	

Synthesis papers

Expedition	Submission Deadline (26 Months Postmoratorium)	Deadline Extensions Approved in FY10 Q4	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*	
311	29 December 2008		1	1
309/312	27 February 2009		1*	
310	4 May 2009		1*	

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

Scientific Publication Distribution

Publication	Number Distributed
IODP Publications:	
Proceedings of the Integrated Ocean Drilling Program Expedition Report DVDs	3
ODP Publications:	
Proceedings of the Ocean Drilling Program, Initial Reports	1
Proceedings of the Ocean Drilling Program, Scientific Results	1
DSDP Publications:	
DSDP *Initial Reports* (books)	1

IODP Digital Object Identifiers

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

Reports and Publications	DOI Prefix	Number of Resolutions			
		July 2010	August 2010	September 2010	FY10 Q4 Total
IODP	10.2204	2,420	2,022	1,963	6,405
ODP/DSDP	10.2973	8,069	4,245	4,331	16,645

Program-Related Citations Submitted to AGI

In November 2008, the USIO began submitting Program-related and other ocean drilling citations to 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 table below shows citations submitted to AGI between November 2008 and August 2010. Future quarterly reports will provide the number of citations submitted to AGI during each quarter.

Citations	Sent to AGI	Added to Database
Program-related	1,135	560
Other ocean drilling science–related	291	0
Total citations	1,426	560

Projects and Other Activities

Science Editing Class Tour

An external review team member who participated in an IODP Publication Services site visit and department review in April 2010 returned to IODP-TAMU on 5 August with six TAMU graduate science editing students and a medical editor from China. The group received an overview of the IODP editorial process, observed the Expedition 317 postexpedition meeting, and spoke with a few scientists to get perspectives of authors.

IODP Publication Services Meeting with IODP-MI

IODP Publication Services staff met with the IODP-MI Data and Publications Manager in Washington, DC, in September 2010 and discussed

- Expedition publication issues, including publication submission deadlines, journal publication conflicts, prime data requirements, and volume DVD production;
- Status of USIO-suggested IODP Sample, Data, and Obligations Policy revisions for observatory data;
- Status of upcoming implementation projects including forward-linking of publications with CrossRef, long-term archive plans for Program publications (DSDP, ODP, and IODP), and the Publication Obligation Tracking System;
- Program publications citation and impact-factor implications, including indexing options and modifications to the Ocean Drilling Citation Database annual study methods;
- Possible options for publishing education and outreach efforts; and
- Publication of implementing organization (IO)-specific versus cross-IO technical note series.

IODP Publication Services Meeting with AGI

IODP Publication Services staff visited the AGI office in Washington, DC, in September 2010 to discuss database issues, data formats, and data harvesting. Specific topics included how items get into the Ocean Drilling Citation Database, what the USIO can do to help expedite addition of Program-related entries, and potential streamlined methods for conducting the next annual study of the Ocean Drilling Citation Database.

EDUCATION

U.S. education activities are supported by NSF through other Program integration costs (OPIC).

Deep Earth Academy

Deep Earth Academy Web Site

The Deep Earth Academy Web site (deepearthacademy.org) highlighted the School of Rock 2010 program this quarter, including its call for applications, biographies of participants, and their planned agenda.

JOIDES Resolution Web Portal and Social Networking

The joidesresolution.org Web site promoted Expeditions 327 and 328 this quarter. The site showcased blogs of the seven-person Education and Outreach team that participated in Expedition 327 and School of Rock participants' blogs during Expedition 328. The Web site also featured an animation about drilling and CORK installation produced by S. Keske, a TAMU graduate student computer animator who sailed during Expedition 327 as a member of the Education and Outreach team.

During Expedition 327, the joidesresolution.org Web site also featured an exciting project on a sister site: Adopt a Microbe (http://sites.google.com/site/adoptamicrobe/). This site encouraged visitors to virtually adopt microbes, do weekly activities related to them, and read about their adventures. The mini-site featured artwork by D. Bowman, an artist who sailed during Expedition 327 as a member of the Education and Outreach team.

Educational Materials Distribution

Deep Earth Academy distributed materials at conferences and outreach activities and in response to requests received through the Deep Earth Academy Web site. During this quarter, Deep Earth Academy distributed 863 posters, 138 DVDs, and 2,298 other materials including pencils, bookmarks, *JOIDES Resolution* magnets, and tape measures. Materials were distributed at the following meetings.

Conference/Meeting/Workshop	Date	Location
TXESS Revolution Training	14–15 July 2010	Austin, Texas
International Society for Microbial Ecology Symposium	23–27 September 2010	Los Angeles, California
FENCON Children's Program Workshop with Julie Pollard	15 September 2010	Flower Mound, Texas

Materials Development and Education Programs

Materials Development

Materials developed this quarter included a new mini-poster featuring the *JOIDES Resolution* on one side, with the other side featuring activities designed to encourage young children and families to follow along using joidesresolution.org. We also produced a new pencil featuring the *JOIDES Resolution*'s URL; custom-designed, *JOIDES Resolution*–themed FLIP videocams for J/aRt prizes; and a giant 4-foot inflatable globe to be used at conferences and other public events to showcase the *JOIDES Resolution*'s location and drill sites.

Videoconferencing

Shipboard staff conducted 22 live ship-to-shore events to classrooms, summer camps, museums, universities, and conventions during the quarter. These events reached nearly 1,000 attendees, who learned about science conducted on board the *JOIDES Resolution,* shipboard safety, what it's like to live and work on a research vessel, and the careers and lives of scientists and technicians on board.

Educational Outreach

School of Rock 2010

This year's School of Rock workshop was held 8–19 September 2010 during Expedition 328 on the Cascadia margin off the coast of British Columbia. Participants included 17 educators from the United States and Europe, and included classroom teachers, museum educators, staff from other partner science organizations, artists, videographers, and media specialists. Participants took part in hands-on activities related to sediment analyses and learned about geology of the Cascadia region, how the ocean floor is investigated, and how CORKS shed light on the hydrology and geology of the Cascadia subduction zone.

Participants also developed individual and group projects for translating science and ship operations to a variety of audiences. Projects in development as a result of School of Rock 2010 include two versions of the *Tales of the Resolution* comic book, a series of videos, interactive computer activities on cores, laboratory activities, articles for publication in science education journals and textbooks, narrated slide shows, public lectures, and revisions of some of our existing materials.

Port Call Educational Activities

Deep Earth Academy staff gave public tours during the *JOIDES Resolution*'s port call in Victoria, British Columbia (Canada) in early September 2010. A new "passport" process was piloted during these tours, during which participants received passport stamps (designed by artist and Expedition 327 Outreach Officer D. Bowman) at each tour location. While this addition was originally envisioned as appealing to children, tour visitors of all ages enjoyed the tour passports and stamps. Action photos printed on SKINS adhesive material were posted all around tour locations on the ship, so that visitors could see *JOIDES Resolution* scientists and crew members in action—views that are usually not accessible during port calls. The port call also featured an exhibition of D. Bowman's artwork.

Onboard Educator Program

Expedition 327 (5 July–5 September 2010) included the largest group of education and outreach personnel ever to sail on a full-length IODP expedition. Six berth spaces were allocated to education and outreach and were funded by the USIO, Deep Earth Academy, and European Consortium for Ocean Research Drilling (ECORD). The Education and Outreach team included three classroom teachers (one from the United States and two from France), a computer animator, an artist, and an Historically Black Colleges and Universities (HBCU) engineering student (see **"HBCU Fellowship"** for more information). The Deep Earth Academy director also sailed as the Staff Educator to coordinate the group's activities. During the expedition, the Education and Outreach team learned about and assisted in shipboard science, participated in an extensive program of on-board seminars and activities, and developed individual projects for outreach. The outreach projects include a series of science demonstrations, a set of paintings of the *JOIDES Resolution* and microbes, new classroom activities, computer interactive activities for students, several videos, a project focused on remotely operated vehicles, and a new computer graphic animation about CORKs (see **"Communications Outreach Activities"** for more information). These projects will be edited, revised, and rolled out during FY11.

Education Officers and/or videographers will sail on every expedition in FY11 and have already been chosen for Expeditions 329 and 336: Mid-Atlantic Ridge Microbiology.

Educational Outreach Events

Event*	Target Audience	Date	Location
National Marine Educators Association Annual Conference (including live ship-to-shore videoconference)	Teachers/Marine Educators	19–24 July 2010	Gatlinburg, Tennessee
Victoria Port Call	General public	5–8 September 2010	Victoria, British Columbia (Canada)
J/aRT winner event	General public	1–3 July 2010	Utica, New York

*Teacher workshops, lectures, presentations, or meetings that were conducted by representatives of the Deep Earth Academy or at which representatives of Deep Earth Academy gave presentations.

Plans continued for one of the largest events in Deep Earth Academy's history. The USA Science and Engineering Festival—expected to draw crowds in the tens of thousands—will be held on the National Mall 23–24 October 2010. The Deep Earth Academy booth will include a giant core, microscopes with microfossils, and pencil giveaways.

Diversity Support Activities

USIO Diversity Initiatives

Recent efforts to develop partnerships and promote IODP and the USIO's diversity initiatives include presenting at the GeoSciEd VI: Geoscience Education—Developing the World conference held in Johannesburg, South Africa, in September 2010. Organized by the International Geosciences Education Organization, an affiliate to the International Union of Geological Sciences, the conference offered the opportunity for geoscience educators at all levels and disciplines in both informal and formal contexts to collaborate and discuss topics such as best practices in teaching and learning, the future of geosciences and geoscience careers, and promoting diversity in the geosciences. The presentation given at this conference was titled "IODP-USIO's Initiatives to Attract Minority Students to Degrees and Careers in Earth System Sciences (or Complementary Fields)".

Historically Black Colleges and Universities Programs

HBCU Fellowship

B. Richardson, an engineering junior at Virginia State University, completed her term as the first HBCU Fellow to join an IODP expedition as part of her fellowship. Richardson sailed on board the *JOIDES Resolution* as a member of the education and outreach team alongside an international group of scientists and engineers on Expedition 327 from 5 July to 5 September 2010. During this time, she developed products to help bring scientific ocean drilling to students and teachers, attended presentations on marine geology, shadowed engineers and scientists, constructed ROVs, and participated in videoconferences to middle schools and science camps. Richardson's postexpedition HBCU activities will include participating in the USA Science and Engineering Festival in October 2010 and completing the education and outreach projects initiated during the Expedition 327.

Strategic Partnerships

Deep Earth Academy partnered with C-DEBI on several microbiology-related projects, including funding and selection of additional outreach staff for Expedition 336, sponsoring the 2010 J/aRt competition, and assisting with the Adopt a Microbe during Expedition 327.

Deep Earth Academy continued to work with the Maryland Science Center to plan future programs, including several ship-to-shore videoconferences to be held in early FY11, as well as other potential programs.

A number of strategic partners sent representatives to participate in the School of Rock 2010, including the American Meteorological Society; Paleontologic Research Institution in Ithaca, New York; Denver Museum of Nature and Science; Aquarium of the Pacific; Institute for the Application of Geospatial Technology at Cayuga Community College in Auburn, New York; and KQED Public Media in San Francisco, California. All of these organizations are current or potential partners for upcoming projects and grant proposals.

Outside Funding and Sponsorships

Deep Earth Academy was declined on its part of Proposal 1030925 to NSF titled "Collaborative research: large-scale, long-term, multi-directional, cross-hole experiments in the upper oceanic crust using a borehole observatory network" to place educators on board follow-up expeditions. The science portion of the proposal was approved for funding, so the education section was revised and submitted to C-DEBI in response to its small grants call for proposals. Results of that submittal are expected during FY11 Q1.

Deep Earth Academy's joint proposal with the American Meteorological Society to NSF Climate Change Education Partnership Program, Phase I program solicitation 10-542 was declined. Plans were initiated to submit a proposal to NSF Informal Science Education program solicitation 10-565 in early December 2010.

OUTREACH

Communications Outreach Activities

USIO communications and outreach activities this quarter focused on opportunities to publicize scientific ocean drilling through related publications and events with the goal of raising public and media awareness.

Highlights include the following:

- The USIO supported NRC Committee on Scientific Ocean Drilling meetings by creating presentations, documents, and fact sheets and attending NRC meetings to answer questions about the Program (see **"Management and Administration"** for more information).
- During IODP Expedition 327, the USIO funded and managed participation of a member of the Education and Outreach Team (S. Keske, TAMU Department of Visualization) to create a computer animation video of drilling technology and CORK installation. The project was a success and the final product has been used in press conferences and to teach School of Rock 2010 participants about CORK observatories. The video can be viewed at http://www.youtube.com/watch?v=iNzNGR5fQnI.
- The USIO, IODP-Canada, and Ocean Networks Canada coordinated several public events for the *JOIDES Resolution*'s 5–9 September 2010 port call in Victoria, British Columbia (Canada), including public tours for approximately 130 participants and VIP tours for the NRC Committee on Scientific Ocean Drilling, NSF representatives, and IODP-Canada guests. A press conference on 7 September resulted in coverage on the evening news (television) and in local newspapers. Evening science lectures on 7 September included

talks by scientists from Expedition 328, followed by a reception featuring artwork from a member of the Expedition 327 Education and Outreach Team and booths and banners advertising the IODP and Ocean Networks Canada programs. NSF representatives and members of the NRC Committee on Scientific Ocean Drilling attended the reception.

Public Relations Materials

During this quarter, the Communications Team 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):

- Texas artist joins ocean research expedition in Pacific Northwest (7 July 2010).
- Ohio teacher joins ocean research expedition in Pacific Northwest (7 July 2010).
- Texas A&M student joins ocean research expedition in Pacific Northwest (7 July 2010).
- Fellowship awardee joins ocean research expedition in Pacific Northwest (7 July 2010) (release to promote the HBCU Fellowship)
- Seafloor observatories installed to run dynamic experiments (7 September 2010).
- IUP professor returns from research and education expedition in Pacific Ocean (22 September 2010).
- Green Mountain College instructor returns from research expedition in Pacific Ocean (22 September 2010).
- Museum educator returns from research and education expedition in Pacific Ocean (22 and 29 September 2010) (two separate releases, tailored for two different museum educators, pushed to their local press in Colorado and New York).
- Local teacher returns from research expedition in Pacific Ocean (20, 22, and 29 September 2010) (three releases tailored for three different teachers and pushed to their local press in Tennessee, New York, and Colorado).
- KQED science educator returns from research expedition in Pacific Ocean (29 September 2010).
- New seafloor observatory takes pulse of planet in Pacific Northwest (30 September 2010).

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).

- **Geldmacher, J.,** Hoernle, K., Hanan, B.B., Blichert-Toft, J., Hauff, F., Gill, J.B., Schmincke, H.-U., 2010. Hafnium isotopic variations in East Atlantic intraplate volcanism. *Contrib. Mineral. Petrol.* doi:10.1007/s00410-010-0580-5

News Articles, Programs, Media Citations, or Public Commentary

Examples of news articles, programs, media citations, or public commentary related to IODP expeditions published this quarter included the following. 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.

- A-Channel TV News, 2010. Research vessel rocks in Victoria—scientists to drill holes in ocean floor. *A-Channel TV News,* 7 September 2010. http://www.youtube.com/watch?v=nn0OrkPfqAc
- Johnson, G., 2010. Marine scientists set off from Victoria in latest expedition to install underwater observatory. *Times Colonist,* 10 September 2010. http://www.timescolonist.com/technology/Marine+scientists+from+Victoria+latest+expedition+install+underwater+observatory/3507102/story.html#ixzz12FpANGfv
- Johnson, G., 2010. Underwater science observatories explore British Columbia's ocean floor. *Vancouver Sun,* 11 September 2010. http://www.vancouversun.com/technology/Underwater+science+observatories+explore+British+Columbia+ocean+floor/3510738/story.html (also appeared in the Calgary Herald: http://www.calgaryherald.com/business/floor+science+observatories+probe+beneath+Canada+ocean+floor/3505523/story.html?cid=megadrop_story)
- McCracken, E., 2010. Researchers set out to probe earthquakes. *Goldstream News Gazette,* 10 September 2010. http://www.bclocalnews.com/vancouver_island_south/goldstreamgazette/news/102652884.html
- Ramienski, D., 2010. A round up of cool jobs in government. 1500 *AM Federal News Radio,* 16 July 2010. http://www.federalnewsradio.com/?sid=2004315&nid=35
- Texas A&M University, 2010. World's top ocean drilling leaders to meet. *Texas A&M News and Information Services,* 20 July 2010. http://tamunews.tamu.edu/2010/07/20/world%E2%80%99s-top-ocean-drilling-leaders-to-meet/

USIO INTERACTIONS WITH IODP-MI, ESO, AND CDEX

Interactions

IODP-ESO Expedition 325 Onshore Science Party Meeting

The USIO provided publications support for ECORD Science Operator (ESO) Expedition 325 Onshore Science Party Meeting held 30 June–21 July 2010 in Bremen, Germany. An IODP Publication Services staff member facilitated collecting the expedition reports for publication and assisted with figure preparation during the meeting.

IODP Publications Discussions with IODP-MI

IODP Publications staff met with the IODP-MI Data and Publications Manager in Washington, DC in September 2010 and discussed a wide range of publication issues (see **"Publications"** for more information).

Meetings

IODP working group, task force, and other special meetings are described in this section. Standard SAS committee and panel meetings are listed in **Appendix B: Conference and Meeting Schedule.** USIO attendees to all meetings are listed in **Appendix C: Travel.**

IODP Data Management Coordination Group

A Data Management Coordination Group technical meeting was held 14 and 15 July 2010 in Tokyo, Japan. Main objectives of the meeting were to update information about the Scientific Earth Drilling Information System (SEDIS) III project and Sample and Data Request Management System (SDRM) v2 development. ESO and USIO staff collaborated on SEDIS III software framework components and plans for the future, and a USIO representative provided a demonstration of the SDRM v2. Valuable feedback was received from all IOs, including a very positive response to the new functions and features from USIO and Center for Deep Earth Exploration (CDEX) curators.

IODP Outreach Group Meeting

The annual IODP Outreach Group meeting was hosted by IODP-MI at their Tokyo office on 14 and 15 September 2010. The USIO participated in the meeting where outreach professionals from Europe, Asia, and the United States met to share best practices, coordinate on upcoming projects, and share recent successes and accomplishments.

Logging Symposium

The University of Leicester hosted a Logging Symposium on 21 and 22 September 2010 after completion of the FY10 IODP expeditions. The symposium was attended by scientists from LDEO-BRG, CDEX, Leicester, Montpellier, and Aachen. Logging Consortium staff and other participants assembled 18 presentations recapping the scientific successes and collective operational experiences from recent expeditions.

Paleontology Coordination Group

The USIO hosted the IODP-MI Paleontology Coordination Group (PCG) meeting held 24 and 25 September 2010 in College Station, Texas. Attendees discussed details of the Taxonomic Names List (to be delivered to IODP-MI by the end of the calendar year) and what additional support the PCG might give to IODP in the future. As part of this meeting, the USIO demonstrated using the DESClogik application to capture paleontological data.

IODP Curator's Meeting

The annual IODP curator's meeting, "From Ship to Shore," was held 28–30 September 2010 at the GCR in College Station, Texas. Attendees included representatives from the GCR, BCR, and KCC, as well as participants from Ocean Leadership, ECORD, the Institute for Arctic and Alpine Research, the San Andreas Fault Observatory at Depth, and Marine Works Japan. Topics for the three-day meeting included advancements in data management, new developments in technology, core-handling logistics, and policy issues.

IODP Depth Scales Meeting

The USIO hosted the IODP Depth Scales meeting held 30 September–2 October in College Station, Texas. Attendees worked to revise the IODP Depth Scales document in order to better

communicate depth scale issues to onboard Science Parties and to provide graphical examples of each depth scale. A revised document is pending from IODP-MI.

APPENDIX A: FINANCE REPORT

Finance Report Format

The first quarter of FY10 marked a change in how the USIO quarterly report's **Appendix A: Finance Report** is organized.

From FY04 through FY09, the USIO Annual Program Plan budget request was partitioned into categories determined by a complex set of cost definitions. Over the years, these definitions have been adjusted and finally simplified to the current structure. The FY10 quarterly report **Appendix A: Finance Report** correlates to the FY10 Annual Program Plans to NSF and IODP-MI in a structure that dramatically reduces the number of pages in the appendix. To accommodate this correlation, the prior years' costs in the finance report appendix have been combined as noted in the table below.

FY10 Definition	Prior Years' Definitions
Science Operating Costs (SOC)	SOC, SOC nonoperations
Platform Operating Costs (POC)	POC, SOC operations
Other Program Integration Costs (OPIC)	U.S. Systems Integration Contract costs (SIC) demobilization, SIC nondemobilization
Systems Integration Contract (SIC) costs	POC, SOC Operations, SIC demobilization, SIC nondemobilization

Adjustments were also made within and between work breakdown elements (WBEs). Prior years' costs from the defunct Education and Outreach WBE have been merged with the Education WBE, and prior years' costs from the DSDP/ODP Core Redistribution Project have been rolled up into the Core Curation WBE. In addition, the line-item FY08 budget adjustments reported in the FY09 Q4 report have been rolled up into the Salaries and Wages line item within their relative WBEs.

Beginning with the FY10 Q1 report, the finance report appendix provided to NSF includes SIC costs as defined above and the finance report appendix provided to IODP-MI includes SOC and POC costs as defined above.

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

APPENDIX B: CONFERENCE AND MEETING SCHEDULE

Conference/Meeting*	Date	Location
Data Management Coordination Group (DMCG) Meeting	14 and 15 July 2010	Tokyo, Japan
Engineering Development Panel (EDP) Meeting	14–16 July 2010	Santa Fe, New Mexico
Expedition 313 Operations Review Task Force (ORTF) Meeting	19–23 July 2010	Edinburgh, Scotland
Site Survey Panel (SSP) Meeting	26–28 July 2010	Brest, France
Scientific Technology Panel (STP) Meeting	5–7 August 2010	Geneva, Switzerland
NanTroSEIZE ORTF Meeting	9–14 August 2010	Tokyo, Japan
Science Planning Committee (SPC) Meeting	30 August– 1 September 2010	San Diego, California
IODP Outreach Group Meeting	14 and 15 September 2010	Tokyo, Japan
Expedition 323 ORTF Meeting	14–16 September 2010	College Station, Texas
Logging Symposium	21 and 22 September 2010	Leicester, United Kingdom
IODP-MI Paleontology Coordination Group (PCG) Meeting	24 and 25 September 2010	College Station, Texas
Expedition 324 ORTF Meeting	28–30 September 2010	College Station, Texas
IODP Curatorial Meeting	28–30 September 2010	College Station, Texas
IODP Depth Scales Meeting	30 September– 2 October 2010	College Station, Texas

*Implementing organization meetings, IODP-MI task force meetings, Science Advisory Structure (SAS) panel meetings, Program-sponsored conferences, and scientific and educational conferences at which the USIO had a booth or exhibit.

APPENDIX C: TRAVEL

Purpose*	Dates	Location	Institution: Personnel
Expedition 327 Education and Outreach	4 July–8 September 2010	Victoria, Canada	Ocean Leadership: L. Peart Education and Outreach Team: D.Bowman, J. Kane, S. Keske, B. Richardson
Expedition 327 Port Call Assistance	5–8 July 2010	Victoria, Canada	Ocean Leadership: S. Cooper Educator at Sea: W. Gorton, J. Magnusson TAMU: B. Julson, M. Malone, D. Partain
Project Management Institute (PMI) Training Class	9–18 July 2010	Newark, New Jersey	TAMU: P. Blum
Very Small Aperture Terminal (VSAT) Training	11–17 July 2010	San Francisco, California	TAMU: G. Banta
Data Management Coordination Group (DMCG) Meeting	14 and 15 July 2010	Tokyo, Japan	Ocean Leadership: D. Fils LDEO: B. Arko TAMU: C. Broyles, R. Mithal, J. Rosser, P. Rumford
Engineering Development Panel (EDP) Meeting	14–16 July 2010	Santa Fe, New Mexico	Ocean Leadership: G. Myers

Purpose*	Dates	Location	Institution: Personnel
National Marine Educators Association (NMEA) Meeting	19–22 July 2010	Gatlinburg, Tennessee	Ocean Leadership: S. Cooper, K. Gottlieb
Expedition 313 Operations Review Task Force (ORTF) Meeting	19–23 July 2010	Edinburgh, Scotland	Ocean Leadership: D. Divins
U.S. Scientific Ocean Drilling Vessel (SODV) Meeting	20–23 July 2010	Washington, DC	TAMU: B. Wasson
Site Survey Panel (SSP) Meeting	20–29 July 2010	Zurich, Switzerland	TAMU: P. Blum
National Resource Council (NRC) Meeting	24–27 July 2010	College Station, Texas	Ocean Leadership: K. Ludwig
Wireshark Global Knowledge Training	25 July–1 August 2010	Atlanta, Georgia	TAMU: G. Banta
Magnetometer Testing	1 –4 August 2010	Webster, Texas	LDEO: G. Kapoor, E. Meissner
Scientific Technology Panel (STP) Meeting	5–7 August 2010	Geneva, Switzerland	Ocean Leadership: G. Myers LDEO: H. Evans TAMU: D. Houpt, J. Miller
National Business Travel Association (NBTA) International Convention and Exposition	8–12 August 2010	Houston, Texas	TAMRF: K. Bass
Costa Rica and Panama Reconnaissance	8–13 August 2010	Puntarenas, Costa Rica; Balboa and Colon, Panama	TAMU: R. Mitchell
NanTroSEIZE ORTF Meeting	9–14 August 2010	Tokyo, Japan	Ocean Leadership: D. Divins
Corewall Meeting	16–18 August 2010	Minneapolis, Minnesota	LDEO: D. Quoidbach, T. Williams
Airlines Reporting Corporation (ARC) Specialist Training	23–28 August 2010	Scottsdale, Arizona	TAMRF: K. Bass
SeaSpy Training	24 and 25 August 2010	Markham, Ontario, Canada	TAMU: E. Moortgat
VI Geoscience Education Conference	28 August– 4 September 2010	Johannesburg, South Africa	Ocean Leadership: M. Morell
Paleoceanography Meeting	28 August– 4 September 2010	San Diego, California	TAMU: C. Alvarez Zarikian
Science Planning Committee (SPC) Meeting	30 August– 1 September 2010	San Diego, California	Ocean Leadership: D. Divins LDEO: A. Malinverno TAMU: M. Malone
Federal Travel Regulations (FTR)–Joint Travel Regulations (JTR) Training	30 August– 3 September 2010	Washington, DC	TAMRF: I. Kindt
Expedition 328 Port Call Assistance	3–12 September 2010	Victoria, British Columbia (Canada)	Ocean Leadership: S. Cooper, A. Divins TAMU: B. Clement, P. Gates, B. McCannon, J. Miller TAMRF: I Kindt, K. Snider

Purpose*	Dates	Location	Institution: Personnel
Expedition 328: School of Rock	4–19 September 2010	Victoria, British Columbia (Canada)	Ocean Leadership: J. Collins, D, Divins, K. Ludwig School of Rock Participants: J. Brey, P. Ceisel, D. DeBaise, D. Duggan, P. Gallagher, K. Hamner, S. Hovan, S. Kasbati, J. Katzenberger, R. King, M. Lazo, K. Noval, S. Slough, A. Swensrud, J. Van Hoesen, A. Work
X-ray Fluorescence (XRF) Workshop	6–21 September 2010	Amsterdam, The Netherlands	TAMU: T. Gorgas
Mantle Frontier Workshop	8–12 September 2010	Washington, DC	TAMU: J. Geldmacher
National Instruments LabVIEW Programming Training	12–14 September 2010	Austin, Texas	TAMU: D. Hornbacher, A. Morgan
Dangerous Goods Training	12–18 September 2010	Las Vegas, Nevada	TAMU: T. Brashear
Expedition 323 ORTF Meeting	14–16 September 2010	College Station, Texas	Ocean Leadership: G. Myers
Expedition 328 Transit Port Call Assistance	16–22 September 2010	Victoria, British Columbia (Canada)	TAMU: R. Mitchell
Laser Marker product testing	17 and 18 September 2010	Dallas, Texas	TAMU: B. Mills
National Instruments LabVIEW Programming Training	19–21 September 2010	Austin, Texas	TAMU: B. Mills
Meeting with American Geological Institute (AGI) and American Geophysical Union (AGU)	19–22 September 2010	Washington, DC	TAMU: A. Miller, L. Peters
Association of Earth Science Editors (AESE) Annual Conference	19–24 September 2010	Victoria, British Columbia (Canada)	TAMU: J. Hesse
Oracle Database 11g: Administration Workshop II	19–24 September 2010	Austin, Texas	TAMU: A. Trefethen
Logging Symposium	21 and 22 September 2010	Leicester, United Kingdom	LDEO: H. Evans, A. Fehr, G. Guerin, D. Goldberg, G. Iturrino, J. Lofi, A. Malinverno, M. Reagan, A. Slagle, T. Williams
Relocating to College Station from Alleyton, Texas	21–25 September 2010	College Station, Texas	TAMU: P. Pleasant
Assertiveness Training	21–26 September 2010	San Francisco, California	TAMU: C. Broyles
Expedition 324 ORTF Meeting	29 September–1 October 2010	College Station, Texas	Ocean Leadership: G. Myers LDEO: G. Iturrino

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

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