



INTEGRATED OCEAN DRILLING PROGRAM
United States Implementing Organization

FY09 Quarterly Report 3

1 April–30 June 2009

NSF Contract OCE-0352500

Submitted by the USIO
to
The National Science Foundation
and
IODP Management International, Inc.



Integrated Ocean Drilling Program
United States Implementing Organization.

14 August 2009

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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) FY08 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 37: Identified the Ocean Leadership Anticipated Actual Indirect Rate for FY08 and added an addendum to the Statement of Work to provide for alternative use of the U.S. scientific ocean drilling vessel (SODV).

Modification 38: Updated Section F.4. Reporting Requirements regarding the IODP Policy Manual, updated Section H.7. Small Business Subcontracting Plan, shifted carryforward funds from the FY08 Annual Program Plan contract budget to the FY09 Annual Program Plan contract budget, and increased funding by 3,000,000.

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

Modification 18: Approved the FY09 science operating costs (SOC) subcontract budget at \$3,905,487 in accordance with the IODP Annual Program Plan submitted to the Lead Agencies on 31 October 2008.

Modification 19: Changed submittal time for the USIO Quarterly Report from 45 days to 60 days after the end of each reporting period, approved the FY08 carryforward request of \$399,221 (\$375,221 in obligated carryforward and \$24,000 in unobligated carryforward funds), and deobligated the FY08 unobligated budget amount of \$283,697.

Modification 20: Incorporated small business subcontract reporting requirements, replaced Section H.5. Small Business Subcontracting Plan in its entirety, and incorporated FAR Clauses 52.219-8. Utilization of Small Business Concerns (May 2004) and 52.219-9. Small Business Subcontracting Plan (April 2008).

Modification 21: Provided an additional \$1,000,000 in incremental funding for the FY09 SOC subcontract budget, and revised Section G.2. Contracting Authority by replacing Manik Talwani (President) with Dr. Kiyoshi Suyehiro (President and CEO).

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

Subcontract Activity

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

Ocean Leadership Subcontract JSC 4-03 with LDEO:

Modification 27: Reduced the amount of FY08 funding deobligation applied in Modification 26 from \$591,969 to \$160,841 and provided \$269,176 in incremental funding toward FY09 activities.

Modification 28: Approved the 31 October 2008 FY09 SOC Nonoperations (SOC Nonops) Budget of \$657,039, revising the FY09 Annual Program Plan from \$6,459,447 to \$6,395,922; decreased total estimated costs; provided \$1,491,047 in incremental funding toward FY09 activities; and modified the small business subcontracting clause.

Ocean Leadership Subcontract JSC 4-02 with TAMRF:

Modification 36: Provided incremental funding in the amount of \$13,084,417 for FY09 activities; modified clause F.4. Reporting Requirements to incorporate the requirement of a monthly financial report in addition to the quarterly financial report, effective April 2009; and modified clause H.7. Small Business Subcontracting Plan.

Modification 37: Approved the FY09 SOC Nonops budget of \$3,022,899, revising the FY09 Annual Program Plan from \$53,310,250 to \$53,383,444, and increased total estimated costs.

LDEO

Subcontract Activity

LDEO issued the following subcontract modifications during the reporting period.

LDEO Subcontract with Schlumberger:

Modification 8: Provided the third FY09 funding increment in the amount of \$332,833.

LDEO Subcontract with Leicester University:

Modification 11: Provided the third FY09 funding increment in the amount of \$137,483.

TAMRF

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

16 April 2009: Purchase of butyrate core liner and custom storage boxes in the amount of \$187,314.81.

Miscellaneous Activity

3 April 2009: Submitted a prior approval letter to Ocean Leadership for the purchase of butyrate core liner and custom storage boxes.

28 April 2009: Submitted to Ocean Leadership the first FY09 SF295 Small Business Report.

Personnel Status Ocean Leadership

There were no positions vacated during the quarter.

The following positions were opened and advertised during the quarter:

Communications Manager for Scientific Ocean Drilling Programs
Director, Science Communications

There were no positions filled during the quarter.

LDEO

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

TAMU

The following positions were vacated during the quarter:

Vice President, TAMRF (Bill Wasson): 01 April 2009
Human Resources Advisor (Ollie Berka): 01 May 2009
Coordinator II (Kim Johnson): 01 May 2009
Senior Project Accountant (Ashley Crane): 01 May 2009

The following positions were opened and advertised during the quarter:

Research Specialist I
Graphics Specialist II
Engineer
Staff Engineer
Supervisor of Engineering Services
Software Applications Developer

The following positions were filled during the quarter:

Temporary Executive Administrator (Bill Wasson): 01 April 2009
Marine Laboratory Specialist (Erik Moortgat): 01 April 2009
Senior Marine Instrumentation Specialist (Etienne Claassen): 04 May 2009
Administrative Assistant (Barbara McCannon): 01 May 2009
IODP Supervisor of Human Resources (Kim Johnson): 01 May 2009
Human Resources Representative (Ollie Berka): 01 May 2009
Senior Management Analyst (Ashley Crane): 01 May 2009
Temporary Curatorial Specialist (Brad Weymer): 29 May 2009

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.

FY09 Q3 USIO Web Site				
Parameter	www.iodp-usio.org	iodp.ldeo.columbia.edu	iodp.tamu.edu	Total
Page views	16,158	7,079	231,934	255,171
Site visits	10,234	1,330	46,628	58,219

New and updated Web pages	Release date	URL
Expeditions: Expedition 321 science reports	4 May	http://iodp.tamu.edu/scienceops/sitesumm/321
Expeditions: Expedition 321 friends and family photos	4 May	http://iodp.tamu.edu/scienceops/gallery/exp321/
Expeditions: Expedition 321 scientist photo profiles	4 May	http://iodp.tamu.edu/publicinfo/gallery/exp321/
Expeditions: Expedition 321T science reports	22 June	http://iodp.tamu.edu/scienceops/sitesumm/321T
Expeditions: Expedition 321T friends and family photos	22 June	http://iodp.tamu.edu/scienceops/gallery/exp321T/
Expeditions: Expedition 321T scientist photo profiles	22 June	http://iodp.tamu.edu/publicinfo/gallery/exp321T/
Participants: sexual harassment policy	26 May 2009	http://iodp.tamu.edu/participants/before_exp.html
Travel: port call travel information	April–June 2009	http://iodp.tamu.edu/travel/portcall.html
Travel: freight shipping information	April–June 2009	http://iodp.tamu.edu/travel/portcall.html
Newsroom: news releases	April–June 2009	http://www.iodp-usio.org/Newsroom/Releases.html
Newsroom: IODP in the news	April–June 2009	http://www.iodp-usio.org/Newsroom/news.html
YouTube: video clips	April–June 2009	http://www.youtube.com/OceanLeadership
Publications: FY09 Q2 Report	15 May 2009	http://iodp.tamu.edu/publications/AR.html
Employment: job postings	April–June 2009	http://www.iodp-usio.org/employment/
Staff Directory: TAMU staff directory	April–June 2009	http://iodp.tamu.edu/staffdir/
Staff Directory: TAMU organizational charts	April–June 2009	http://iodp.tamu.edu/staffdir/org_charts/
Travel: travel per diem rates	April–June 2009	http://iodp.tamu.edu/travel/perdiem.html
Curation: GCR frozen microbiology samples	15 May 2009	http://iodp.tamu.edu/curation/gcr/
TAS Applications: LIMS data portal	15 June 2009	http://iodp.tamu.edu/tasapps/
Laboratory: laboratory technical documentation	15 June 2009	http://web.iodp.tamu.edu:8080/CumulusE/ng/index.jspx
<i>JOIDES Resolution</i> : updates to ship's Web site	May 2009	Inaccessible from shore

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.

FY09 Q3 IODP Publications Web Site	
Parameter	publications.iodp.org
Page views	79,991
Site visits	21,520

U.S. IODP Educational Web Sites

FY09 Q3 Deep Earth Academy Web Sites*		
Web domain	www.joilearning.org	www.oceanleadership.org/learning
Page views	38,865	6,893
Site visits	8,177	Cannot be resolved

*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.

Parameter	FY09 Q3 ODP Web Site			FY09 Q3 DSDP Web Site
	www-odp.tamu.edu	www.odplegacy.org	Total ODP	www.deepseadrilling.org
Page views	1,072,177	9,076	1,081,253	85,109
Site visits	226,401	3,832	230,233	16,632

Stakeholder Web Sites

New and updated Web pages	Release date	URL
JOIDES Resolution Transocean	June 2009	http://deepwater.com/fw/main/JOIDES-Resolution-128.html
JOIDES Resolution TAMU College of Geosciences	June 2009	http://geosciences.tamu.edu/communications/geosciences-highlights/ocean-drilling
TAMU ODASES*	May 2009	http://odases.tamu.edu/

*Maintained entirely by the IODP-TAMU Web Administrator.

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
Deployment, mobilization, sea trials, transit ⁵	NA	Singapore	25 January–5 March 2009	39 (1/38)	27/11	NA	TAMU: J. Miller*
Pacific Equatorial Age Transect (PEAT)	320	Honolulu, Hawaii	5 March–5 May 2009	61 (5/56)	12/44	H. Pälike, N. Nishi	TAMU: A. Klaus* LDEO: H. Evans^
PEAT/Juan de Fuca Remedial Cementing Operations ⁶	321/ 321T	Honolulu, Hawaii	5 May–5 July 2009	61 (5/56)	20/36	M. Lyle, I. Raffi/ A. Fisher ⁶	TAMU: K. Gamage* LDEO: A. Malinverno^
Bering Sea	323	Victoria, British Columbia	5 July–4 September 2009	61 (5/56)	17/39	K. Takahashi, C. Ravelo	TAMU: C. Alvarez Zarikian* LDEO: G. Guerin^
Shatsky Rise	324	Yokohama, Japan	4 September–4 November 2009	61 (5/56)	17/39	W. Sager, T. Sano	TAMU: J. Geldmacher* LDEO: G. Iturrino^
Canterbury Basin	317	Townsville, Queensland	4 November 2009–4 January 2010	61 (5/56)	10/46	C. Fulthorpe, K. Hoyanagi	TAMU: P. Blum* LDEO: A. Slagle^
Wilkes Land ⁷	318	Wellington, New Zealand	4 January–9 March 2010	64 (5/59)	16/43	C. Escutia, H. Brinkhuis	TAMU: A. Klaus* LDEO: T. Williams^

Notes:

¹ Dates for expeditions may be adjusted pending final vessel delivery date from shipyard or 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 (*), the primary contact for the expedition, and the Logging Staff Scientist (^). In addition, further expedition information is available at www.iodp-usio.org.

⁵ An intermediate Guam port call is targeted for approximately 5 February 2009. Sea trials will be conducted at ODP Site 807.

⁶ Expedition consists of operations in both the Equatorial Pacific and Juan de Fuca Ridge. PEAT scientists are tentatively scheduled to disembark the vessel in San Diego, California, on approximately 23 June 2009. Lyle and Raffi are Co-Chief Scientists on the PEAT Expedition; Fisher is Chief Scientist on Juan de Fuca Cementing Operations.

⁷ Wilkes Land activities include operations at Adelie Drift (638 APL).

Expedition Planning and Implementation Activities USIO Pacific Equatorial Age Transect Expeditions

Expedition Staffing

Expedition Staffing Breakdown		
Member Country/Consortium	PEAT 1	PEAT 2
United States Science Support Program (USSSP)	8	8
Japan Drilling Earth Science Consortium (J-DESC)	7	9
European Consortium for Ocean Research Drilling (ECORD)	9	7
Korean IODP (K-IODP)	1	0
IODP-China	0	1
Australia-New Zealand IODP Consortium (ANZIC)	1	0
India	0	1

Expedition Implementation

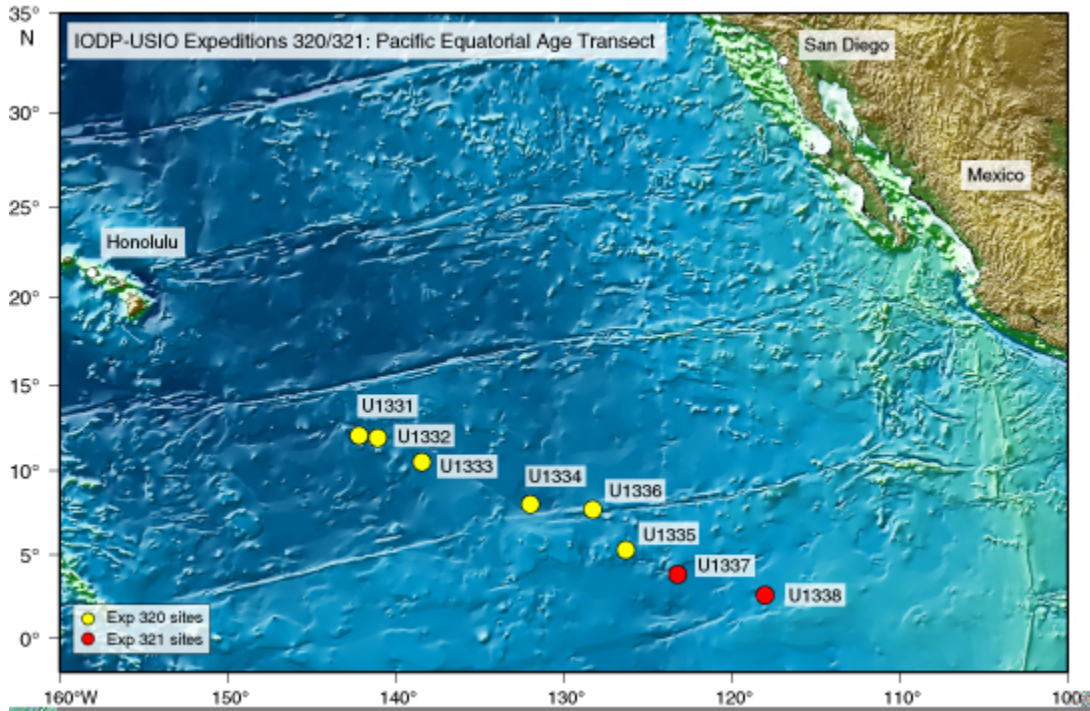
With limited coring to load test laboratory systems during sea trials, the Pacific Equatorial Age Transect (PEAT) I Expedition functioned effectively as a shakedown cruise. Despite the challenges, the PEAT 1 Science Party and technical staff were able to process and upload the desired data from ~3500 m of core into the database. An oversight group was formed to effectively manage and support addressing issues during the expedition and at the subsequent port call. An extensive crossover of PEAT 1 participants to capture issues resulted in substantial improvement, with no major difficulties in laboratory science systems during PEAT 2.

Logging Summary: The generator-injector (GI) air gun used for vertical seismic profile (VSP) logging operations was successfully tested during coring operations at Site U1334. During logging operations in Hole U1334, the transmission on the wireline logging winch failed while running the tool string into the hole, leaving the tool string at a depth of ~1.7 km inside the pipe. The tool string was successfully retrieved from the hole using t-bars, rig floor air tuggers, and the coring winch; however, no more logging was possible during Expedition 320.

During Expedition 321, two downhole tool string deployments in Hole U1337A provided measurements of natural gamma ray radioactivity, bulk density, electrical resistivity, elastic wave velocity, and borehole resistivity images in the depth interval 77–442 m WSF (wireline depth below seafloor). A third tool string deployment measured seismic waveforms in a VSP experiment at 16 stations between 214 and 439 m WSF.

Two wireline tool string deployments in Hole U1338B provided downhole measurements of natural gamma ray radioactivity, bulk density, electrical resistivity, elastic wave velocity, and borehole resistivity images in the depth interval 125–413 m WSF. A third tool string deployment measured seismic waveforms in a VSP experiment at 14 stations between 189.5 and 414.5 m WSF.

Expedition Operations



PEAT Expeditions Site Map.

PEAT Expeditions Coring Summary.

Site	Hole	Latitude (°/min)			Longitude (°/min)			Seafloor (mbrf)	Number of Cores	Meters cored	Meters recovered	% recovered
PEAT-1	U1331A	12°	04.0884'	N	142°	09.6961'	W	5127.3	22	190.6	155.08	81.4%
	U1331B	12°	04.0877'	N	142°	09.7085'	W	5127.4	20	175.8	163.03	92.7%
	U1331C	12°	04.0892'	N	142°	09.7201'	W	5128.0	12	107.0	109.54	102.4%
Site U1331 Totals:									54	473.4	427.65	90.3%
PEAT-2C	U1332A	11°	54.7095'	N	141°	02.7428'	W	4935.1	18	152.4	145.61	95.5%
	U1332B	11°	54.7209'	N	141°	02.7427'	W	4936.9	18	148.6	140.31	94.4%
	U1332C	11°	54.7366'	N	141°	02.7422'	W	4934.0	18	155.5	148.06	95.2%
Site U1332 Totals:									54	456.5	433.98	95.1%
PEAT-3C	U1333A	10°	30.9953'	N	138°	25.1728'	W	4865.0	22	184.1	176.25	95.7%
	U1333B	10°	30.9960'	N	138°	25.1597'	W	4861.8	20	180.3	178.36	98.9%
	U1333B	10°	30.9958'	N	138°	25.1459'	W	4865.1	24	177.0	176.97	100.0%
Site U1333 Totals:									66	541.4	531.58	98.2%
PEAT-04C	U1334A	07°	59.9980'	N	131°	58.3937'	W	4799.3	32	285.5	288.80	101.2%
	U1334B	07°	59.9979'	N	131°	58.4071'	W	4799.3	31	281.7	294.59	104.6%
	U1334C	07°	59.9979'	N	131°	58.4219'	W	4801.0	33	280.7	285.87	101.8%
Site U1334 Totals:									96	847.9	869.26	102.5%
PEAT-06C	U1335A	05°	18.7341'	N	126°	16.9949'	W	4339.0	45	421.1	422.08	100.2%
	U1335B	05°	18.7362'	N	126°	17.0088'	W	4343.4	46	417.5	428.70	102.7%
Site U1335 Totals:									91	838.6	850.78	101.5%
PEAT-05C	U1336A	07°	42.0735'	N	128°	15.2526'	W	4296.9	35	302.9	259.12	85.5%
	U1336B	07°	42.0599'	N	128°	15.2526'	W	4298.1	20	173.9	179.59	103.3%
Site U1336 Totals:									55	476.8	438.71	85.5%

Site	Hole	Latitude (°/min)			Longitude (°/min)			Seafloor (mbrf)	Number of Cores	Meters cored	Meters recovered	% recovered
		°	'	N	°	'	W					
PEAT-7C	U1337A	3°	50.0065'	N	123°	12.3558'	W	4472.0	48	449.8	420.11	93.4%
	U1337B	3°	50.0067'	N	123°	12.3621'	W	4472.0	28	250.9	242.65	96.7%
	U1337C	3°	50.0067'	N	123°	12.3755'	W	4478.6	32	282.3	273.72	97.0%
	U1337D	3°	50.0067'	N	123°	12.3858'	W	4476.5	49	442.9	431.97	97.5%
Site U1337 Totals:									157	1425.9	1368.45	96.0%
PEAT-8D	U1338A	2°	30.4685'	N	117°	58.1623'	W	4210.8	44	410.0	345.96	84.4%
	U1338B	2°	30.4692'	N	117°	58.1736'	W	4209.9	45	413.6	417.18	100.9%
	U1338C	2°	30.4687'	N	117°	58.1842'	W	4212.7	47	414.4	432.48	104.4%
	U1338D	2°	30.4689'	N	117°	58.1948'	W	4212.6	3	23.9	24.79	103.7%
Site 1338 Totals:									139	1261.9	1220.41	96.7%
PEAT Totals:									712	6322	6141	97.1%

Science Results

IODP Expedition 320/321 (PEAT; Sites U1331–U1338) was designed to recover a continuous Cenozoic record of the paleoequatorial Pacific by coring above the paleoposition of the Equator at successive crustal ages on the Pacific plate. These sediments record the evolution of the paleoequatorial climate system throughout the Cenozoic. As we gained more information about the past movement of plates and when in Earth's history "critical" climate events took place, it became possible to drill an age transect ("flow line") along the position of the paleoequator in the Pacific, targeting important time slices where the sedimentary archive allows us to reconstruct past climatic and tectonic conditions. The PEAT program cored 8 sites (6 during PEAT 1 and 2 during PEAT 2) from the sediment surface to at or near basement, with basalt aged between 53 and 16 Ma, covering the time period following maximum Cenozoic warmth, through initial major glaciations, to today. The recovered sediments allow reconstruction of extreme changes of the calcium carbonate compensation depth (CCD) across major geological boundaries during the last 53 m.y. A very shallow CCD during most of the Paleogene makes it difficult to obtain well-preserved carbonate sediments during these stratigraphic intervals, but a unique sedimentary biogenic sediment archive was recovered for time periods just after the Paleocene/Eocene boundary event, the Eocene cooling, the Eocene–Oligocene transition, the "one cold pole" Oligocene, the Oligocene–Miocene transition, and the middle Miocene cooling. With this archive, together with older DSDP and ODP drilling in the equatorial Pacific, the position of the paleoequator and variations in sediment thickness can be delineated from ~150°W to 110°W longitude.

The downhole log measurements from Holes U1337A and U1338B were used to define three logging units in each hole. Variations in density, electrical resistivity, *P*-wave velocity, and natural gamma ray were used to define these units. The downhole density and natural gamma ray measurements as well as resistivity images were instrumental for identifying and defining chert layers that were only partially recovered in the cores. The VSP measurements provided the basis for a travelttime–depth conversion that allows seismic reflectors to be correlated to stratigraphic events.

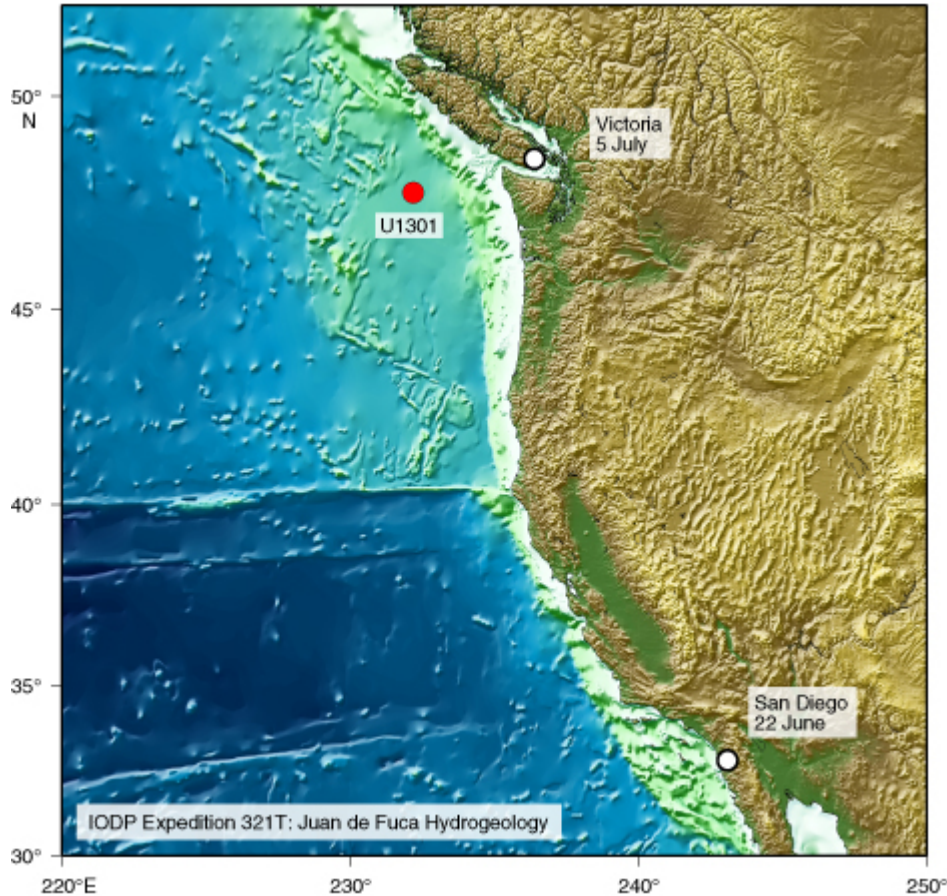
USIO Juan de Fuca Remedial Cementing Operations

Expedition Staffing

For the brief operations undertaken during Expedition 321T, only a Chief Scientist and proponent sailed to oversee cementing.

Clearance and Permitting:

Clearance to perform remedial cementing operations was received from Canada during the reporting period.

Expedition Operations**Juan de Fuca Remedial Cementing Operations Site Map.**

IODP Expedition 321T (Juan de Fuca Remedial Cementing) consisted of only cementing operations; no scientific data or samples were collected. Expedition 321T completed all planned operations more quickly and with less difficulty than anticipated. The operations benefitted from excellent weather and sea conditions in an area where working conditions can be poor, even during an optimal weather window.

Holes U1301A and U1301B were re-entered and filled with cement without incident. Observations with the subsea television showed cement pouring up and out of the holes on the platform, indicating that both cones were successfully filled with cement. Proponents will visit the two circulation obviator retrofit kits (CORKs) in August 2009 with the submersible Alvin to download data, determine if the observatories are now sealed, and replace downhole instrument strings in preparation for completing the full suite of interdisciplinary experiments.

USIO Bering Sea Expedition

Expedition Planning

The Bering Sea Expedition *Scientific Prospectus* was modified to incorporate the addition of Ancillary Project Letter (APL) 739, which adds a microbiological program to the expedition. Review of initial research, sample, and data plans was under way during the quarter, as well as responding to plans and requirements for implementing the APL. Final logistical planning was under way and planning for port call public relations activities was initiated.

Expedition Staffing

Three scientists proposed by the proponent group were invited to sail to implement APL 739. The APL was added after Program Member Office (PMO) staffing quotas had been filled, so APL scientists were determined not to be part of the normal staffing tally.

Clearance and Permitting Activities

A response to the application to occupy sites in Russian waters is still pending despite extensive U.S. State Department efforts during the quarter.

USIO Shatsky Rise Expedition

Expedition Planning

Sample, data, and research planning was initiated. One of the Co-Chief Scientists secured a third-party towed magnetometer for the expedition. USIO staff are assessing logistical, deployment, and data requirements, and logistical and port call planning were initiated.

Schlumberger has located two ultrasonic borehole imagers (UBI) for this expedition. The tools are being checked and will be shipped to Yokohama, Japan.

Expedition Staffing

Scientific staffing was completed. A HBCU educator and a Japanese educator were selected and invited to sail.

Clearance and Permitting Activities

The Environmental Protection and Safety Panel (EPSP) and the TAMU safety panel recommended approval of all sites to estimated total depth plus 200 m.

USIO Canterbury Basin Expedition

Expedition Planning

A detailed review of the operational plan and corresponding revisions to the *Scientific Prospectus* were completed. Science planning was under way, addressing requests from the Science Party. Detailed sample and data request review was scheduled to begin at the end of the quarter.

The Logging Staff Scientists revised all the logging time estimates and discussed logging operations with new operations staff assigned to the expedition, including the Staff Scientists and Operations Superintendent.

Expedition Staffing

Replacements were invited to fill positions of scientists that cancelled participation due to the schedule change. Four additional cancellations were received during the quarter, and

efforts were initiated to replace the positions. Work began on contractual details for an interested organic geochemist to sail as a hydrocarbon safety contractor.

Clearance and Permitting Activities

Clearance was received from New Zealand via the U.S. State Department for the revised dates of the expedition.

USIO Wilkes Land Expedition

Expedition Planning

Efforts investigating ice/weather management and observer and weather service options were re-initiated this quarter.

Expedition Staffing

Three scientists cancelled participation and new nominations were received and invitations issued.

Environmental Assessment

A third-party company was contracted to produce an Environmental Assessment for seismic activities for the Bering Sea Expedition.

Projects and Other Activities

Advanced Piston Corer Temperature Tool Model 3

The Advanced Piston Corer Temperature Tool Model 3 (APCT3) tools were run several times during Expeditions 320 and 321 with very good results. The tools gave clean temperature measurements, the electronics performed well, and the new temperature program (TPFit) proved to be user friendly. Ship electronics technicians began training in operation and deployment of the new tools.

Common Downhole Data Acquisition System/Sediment Temperature Tool

The firmware for the common downhole acquisition (CDAQ) systems was enhanced for use in the sediment temperature (SET) and sediment temperature and pressure (SETP) tools, and two SET tools were deployed successfully during Expeditions 320 and 321. Two additional SET tools were assembled, calibrated, and shipped to Japan, and assembly began for one SETP tool to be shipped in mid-July 2009 for use on the *Chikyu* during Expedition 322.

Geosciences Laboratory (ODASES)

The university-procured X-ray fluorescence (XRF) core logger was installed in the Geosciences Laboratory and IODP staff were trained in its operation and maintenance. Ownership of this instrument will be transferred to IODP-TAMU as part of the ODASES-IODP agreement.

Lockable Flapper Valve Project

A Lockable Flapper Valve Task Force (LFVTF) was established to draw on the professional experience of others to explore different options of addressing the recurring problem of the lockable flapper valve (LFV) unlatching. The LFVTF comprises engineering personnel from LDEO and TAMU, Schlumberger logging engineers, Overseas Drilling Limited (ODL)

core technicians, and a consultant from Stress Engineering. The LFVTF will also address safety issues raised by the drilling crew on board the *JOIDES Resolution* to insure that any design change is vetted by engineers that are experienced with the LFV and its operation.

Metrology Laboratory (Calibration Laboratory)

The temperature bath for the Metrology Laboratory was serviced and returned to TAMU for use in temperature calibrations.

Wireline Heave Compensating System

A number of equipment failures occurred with the Wireline Heave Compensator (WHC) during Expedition 320. The hydraulic valve controlling pressure to the compensator had an electronic failure, and the Schlumberger winch transmission failed. Both units were shipped back to their manufacturers for failure analysis, with return delivery expected at the beginning of next quarter. During the Expedition 321 port call, four Schlumberger engineers and two Electro-Wave engineers were present to effect repairs. The work performed during the Honolulu, Hawaii, port call consisted of

- replacing transmission on electro-hydraulic winch unit
- replacing vickers valve
- changing out logging cable
- adjusting and testing the winch unit
- performing training with ODL winch operators
- installing manual controls for compensator flying head
- installing hydraulic cooling feedback to vickers valve
- installing differential pressure gauges on the vickers valve

An Electro-Wave engineer sailed during Expedition 321 to provide engineering and software support during WHC testing. A robust analysis of downhole tool dynamics relative to ship surface movement led to extensive changes to the controlling software. Testing in port and prior to logging operations at sea continued following a systematic protocol developed to determine the optimum tuning values necessary for proper WHC operation. Logging operations were successfully completed during Expedition 321, leading us to believe that the repair efforts were successful.

ENGINEERING DEVELOPMENT

There are no Engineering Development deliverables scheduled for FY09.

DATA MANAGEMENT

Projects and Other Activities

Computer System Upgrades on the *JOIDES Resolution*

Upgrades were prepared for the LDEO information technology (IT) system during Expedition 321T, including ordering parts and software and also testing various configurations on local machines. Upgrades implemented during Expedition E321T included the following:

- Upgraded all LDEO Mac systems from MacOS X 10.4 to 10.5

- Set up network home directories for all users

- Set up a Macintosh Software Update Service to distribute updates to all LDEO and TAMU Macs

- Configured all LDEO PCs to update from the TAMU Windows Update Service instead of the Microsoft update service

- Installed a shipboard version of the GeoMapApp server

- Installed the newest versions of Correlator and Corelyzer on the data visualization system in the Logging Office

Log Database Upgrade

A mirror copy of the shore-based log database was installed on board the *JOIDES Resolution* to allow for easy downloading of expedition data. Automatic synchronization of important data stored between ship and shore was implemented. This involved modification and extensive checking of the ship's database scripts installed on Macs, as well as testing of the new chron jobs created to allow for easy transfer of the data to and from the ship. Downloading procedures were streamlined and tested for both the shore-based and shipboard databases.

IODP Databases

LIMS Database

Data collected during Expedition 320 were successfully transferred to shore, merged with the cumulative LIMS database, and made available to the participating scientists on the Web. These data are in moratorium and not yet available to the public.

Log Database

Data from Expeditions 301–321 are available online, including data from European Consortium for Ocean Research Drilling (ECORD) Science Operator (ESO) Expeditions 302 and 310. IODP data from Expeditions 320T, 320, and 321 (a total of 5 holes) were fully processed for inclusion in the IODP online database.

IODP Database Data Requests

Janus Database

Top 10 Countries Accessing Janus Web Database*		
Rank	Country	Visitor Sessions
1	United States	1,017
2	Germany	443
3	United Kingdom	411
4	Japan	265
5	China	117
6	West Europe (unspecified country)	91
7	France	90
8	Australia	84
9	Spain	71
10	Italy	63
	All others	524
	Total	3,176

*Excluding access from TAMU.

Top 20 Janus Web Queries*		
Rank	Query	Uploads
1	Samples	992
2	Core photos	777
3	Site summaries	613
4	Hole trivia	444
5	Core summaries	429
6	Hole summaries	425
7	Age models	370
8	Chemistry carbonates	319
9	Range charts	265
10	Paleo occurrences	241
11	Age profiles	228
12	Leg summaries	181
13	Moisture and density (MAD) data	165
14	Prime data images	159
15	Depth point calculator	156
16	Gamma ray attenuation (GRA) data	133
17	Magnetic susceptibility	132
18	Paleontology investigation	117
19	Site details	100
20	Site summary trivia	100
	Others	1,377
	Total	7,983

*Excluding access from TAMU.

Other Web Statistics*		
Database query hits:		
	Entire site (successful)	23,707
	Average per day	260
Visitor sessions:		
	Total number of visitor sessions	3,176
	Average per day	34
	Average length of visit	00:12:34
	International visitor sessions	67.85%
	Visitor sessions of unknown origin	0.13%
	Visitor sessions from United States	32.02%
Visitors:		
	Unique visitors	1,782
	Visitors who only visited once	1,326
	Visitors who visited more than once	456
	Average visits per visitor	1.78

*Excluding access from TAMU.

Data Requests to Data Librarian*	
Requests	Total
Country:	
United States	16
United Kingdom	5
New Zealand	2
India	2
Belgium	1
Germany	1
Pakistan	1
Total	2
Data:	
Samples	4
Photos	9
Seismic	3
Paleo	2
Chemistry	1
Physical properties	1
Magnetics	1
DSDP	1
VCD	1
Temperature	1
Special holes	1
Other	4
Total	29

*Excluding access from TAMU.

Log Database

Top 10 Countries Accessing Log Web Database*		
Rank	Country	Visitor Sessions
1	United States	466
2	Spain	167
3	United Kingdom	132
4	China	86
5	Japan	57
6	France	32
7	Italy	30
8	Germany	29
9	Australia	24
10	Netherlands	23
	All others	269
	Total	1,315

*Excluding access from LDEO.

Other Log Web Statistics*		
Database query hits:		
	Entire site (successful)	7,079
	Average per day	5.34
Visitor sessions:		
	Total number of visitor sessions	1,330
	Average per day	14.60
	Average length of visit	5:28
	International visitor sessions	44.11%
	Visitor sessions of unknown origin	20.46%
	Visitor sessions from United States	35.44%
Visitors:		
	Unique visitors	718
	Visitors who only visited once	624
	Visitors who visited more than once	706
	Average visits per visitor	1.92

*Excluding access from LDEO.

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

CORE CURATION

Sample Requests

All core sample requests were handled by the Bremen Core Repository (BCR), Gulf Coast Repository (GCR), 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
<i>Gulf Coast Repository:</i>			
		21756A, Rae, United Kingdom	9
		21753A, Brown, USA	410
		21783A, Raitzsch, USA	40
		21705B, Twiney, United Kingdom	53
	2	21769A, Kurnosov, Russia	165
		21763A, Taylor, United Kingdom	44
		21760A, Bartoli, Switzerland	146
		21754A, Price, United Kingdom	87
		21355H, Diester-Hass, Germany	229
		21460C, Girault, Switzerland	46
		21766A, Bhaumik, India	300
		21645B, Swann, United Kingdom	61
		21832A, Ravizza, USA,	45
		21595C, Henehan, United Kingdom	14
		21819A, Carter, New Zealand	241
		21818A, Haug, Switzerland	166
		21798A, Elderfield, United Kingdom	14
		21795A, Ando, Korea	23
		21829A, Bhattacharya, USA	115
		21806A, Meynadier, France	16
		21805A, Muratli, USA	109
		20317G, Martin, USA	138
		21781A, Boharty, United Kingdom	7
		21834A, Willard, USA	60
		21805B, Muratli, USA	92
		21844A, Hermann, Switerland	40
		21839A, Stoll, Spain	24
		21826A, Sinha, India	955
		21812A, Buitrago Reina, Spain	274
		21730B, Robinson, United Kingdom	112
		21460C, Verleye, Belgium	26
		21004D, Braylower, USA	14
	1	21765A, Raymond, USA	11
	1	21764A, Baldauf, USA	171
	18	21814A, Rumford, USA (Bracket High School)	22
	15	21842A, Firth, USA (School of Rock)	160

IODP Expedition/Repository	Visitors	Request Number, Name, Country	Number of Samples
Total science	4	34	4,257
Total education:	33	2	182
Total PR:	0	0	0
Total:	37	36	4,439

PUBLICATIONS

USIO Reports

FY09 Q2 IODP Quarterly Report

The USIO report for the second quarter of FY09 (January–March 2009) was submitted to the National Science Foundation (NSF) and the IODP central management office (IODP Management International, Inc. [IODP-MI]) on 15 May 2009.

FY09 Annual Program Plan

On 8 April 2009, the USIO submitted to IODP-MI and NSF for review and evaluation a revised version of the IODP-USIO FY09 Annual Program Plan for SOC and platform operating costs (POC). The IODP-USIO FY09 Annual Program Plan consists of requests for SOC Nonoperations and POC costs of non-SODV mobilization activities; SOC Operations costs; PEAT Expedition 1/Juan de Fuca Remedial Cementing, PEAT Expedition 2, Bering Sea Expedition, and Shatsky Rise Expedition; long-lead time planning costs for expeditions proposed for FY10; and continuing SOC shore-based activities during FY09. The IODP-USIO FY09 Annual Program Plan budget totals \$54,912,578, with \$3,804,249 in SOC Nonoperations requested from IODP-MI and \$7,684,506 in SOC Operations and \$43,423,823 in POC requested from NSF.

On 8 April 2009, the USIO submitted to NSF a revised version of the Appendix to the FY09 Annual Program Plan for U.S. systems integration contract costs (SIC). The Appendix to the IODP-USIO FY09 Annual Program Plan outlines requests related to the IODP-USIO U.S. Systems Integration Contract, which include costs that cover USIO efforts for education and outreach and associated management and administrative support. The FY09 Annual Program Plan Appendix to NSF includes a SIC budget totaling \$1,057,042 and also provides SOC Operations, SOC Nonoperations, and POC budget details.

FY10 Annual Program Plan

On 4 June 2009, the USIO submitted to IODP-MI for review and evaluation a revised version of the IODP-USIO FY10 Annual Program Plan for SOC and platform operating costs (POC). The IODP-USIO FY10 Annual Program Plan consists of requests for SOC Nonoperations and POC costs of non-SODV mobilization activities; SOC Operations costs; Shatsky Rise Expedition, Canterbury Basin Expedition, Wilkes Land Expedition, a 114-day tie-up period, and two to-be-determined expeditions; long-lead time planning costs for expeditions proposed for FY11; and continuing SOC shore-based activities during FY10. The IODP-USIO FY10 Annual Program Plan budget totals \$63,533,777, with \$3,961,102 in SOC Nonoperations requested from IODP-MI and \$8,877,009 in SOC Operation and \$50,695,665 in POC requested from NSF.

On 15 June 2009, the USIO submitted to NSF a revised version of the IODP-USIO FY10 Annual Program Plan for SOC and POC and the Appendix to the FY10 Annual Program

Plan for U.S. systems integration contract costs (SIC). The Appendix to the IODP-USIO FY10 Annual Program Plan outlines requests related to the IODP-USIO U.S. Systems Integration Contract, which include costs that cover USIO efforts for education and outreach and associated management and administrative support. The FY10 Annual Program Plan Appendix to NSF includes a SIC budget totaling \$1,427,100 and also provides SOC Operations, SOC Nonoperations, and POC budget details, and appendixes detailing the USIO IT Security Summary and the Recommended IODP-USIO Program of Insurance.

IODP Scientific Publications

Publication	Release Date	Digital Object Identifier	Comments
Scientific Prospectus:			
Expedition 313 (New Jersey shallow shelf: Shallow-water drilling of the New Jersey continental shelf: global sea level and architecture of passive margin sediments)	April 2009	doi:10.2204/iodp.sp.313.2009	Edited and formatted for ESO
Expedition 319 (NanTroSEIZE Stage 2: NanTroSEIZE riser/riserless observatory)	April 2009	doi:10.2204/iodp.sp.319.2009	Edited and formatted for CDEX
Expedition 322 (NanTroSEIZE Stage 2: subduction inputs)	May 2009	doi:10.2204/iodp.sp.322.2009	Edited and formatted for CDEX
Expedition 323 (Pliocene–Pleistocene paleoceanography and climate history of the Bering Sea)	May 2009	doi:10.2204/iodp.sp.323.2009	
Expedition 321T (Juan de Fuca hydrogeology: cementing operations at the Hole U1301A and Hole U1301B borehole observatories (CORKS))	May 2009	doi:10.2204/iodp.sp.321T.2009	
Preliminary Reports:			
Expedition 320T (USIO Sea Trials and Assessment of Readiness Transit (START): Ontong Java Plateau)	June 2009	doi:10.2204/iodp.pr.320T.2009	
Proceedings of the Integrated Ocean Drilling Program:			
Volume 301			
Data report: paleomagnetic and rock magnetic measurements on Hole U1301B basaltic samples	7 April 2009	doi:10.2204/iodp.proc.301.204.2009	
Expedition 301 synthesis: hydrogeologic studies	13 May 2009	doi:10.2204/iodp.proc.301.206.2009	
Volume 302			
Data report: semiquantitative determination of detrital input to ACEX sites based on bulk sample X-ray diffraction data	5 May 2009	doi:10.2204/iodp.proc.302.203.2009	Edited and formatted for ESO
Volume 303/306			
Data report: carbon stable isotope ratios of dissolved inorganic carbon in interstitial waters from IODP Expedition 303 Sites U1305,	19 June 2009	doi:10.2204/iodp.proc.303306.207.20	

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Publication	Release Date	Digital Object Identifier	Comments
U1306, and U1307 (Eirik Drift)			
Volume 304/305			
Data report: microprobe analyses of primary mineral phases from Site U1309, Atlantis Massif, IODP Expedition 304/305	29 May 2009	doi:10.2204/iodp.proc.304305.202.2009	
Volume 307			
Data report: three-dimensional observation and quantification of internal structure of sediment core from Challenger Mound area in Porcupine Seabight off western Ireland using a medical X-ray CT	3 April 2009	doi:10.2204/iodp.proc.307.209.2009	
Data report: bio- and lithofacies, mineralogy, and organic content of Challenger Mound (Porcupine Seabight, SW Ireland)	14 April 2009	doi:10.2204/iodp.proc.307.204.2009	
Data report: heat flow associated with Challenger Mound, IODP Expedition 307	18 May 2009	doi:10.2204/iodp.proc.307.203.2009	
Data report: carbon isotope composition of total dissolved inorganic carbon in interstitial water, Sites U1316, U1317, and U1318, Porcupine Seabight	12 June 2009	doi:10.2204/iodp.proc.307.206.2009	
Data report: geochemical characterization of a lithified horizon of Challenger Mound, Hole U1317B	16 June 2009	doi:10.2204/iodp.proc.307.201.2009	
Data report: geochemical and microbial biomarker investigations of sedimentary successions from the Belgica carbonate mound province in the Porcupine Basin, offshore Ireland	26 June 2009	doi:10.2204/iodp.proc.307.205.2009	
Volume 308			
Data report: natural remanent magnetization of IODP Holes U1319A, U1320A, U1322B, and U1324B and magnetic carrier identification by scanning electron microscopy	6 April 2009	doi:10.2204/iodp.proc.308.209.2009	
Data report: consolidation state and stress ratio of clay-rich sediments from Site U1320	6 May 2009	doi:10.2204/iodp.proc.308.207.2009	
Data report: X-ray analyses of bulk sediment in IODP Holes U1320A and U1324B, northern Gulf of Mexico	29 June 2009	doi:10.2204/iodp.proc.308.214.2009	
Volume 309/312			
Data report: bulk rock compositions of samples from the IODP Expedition 309/312 sample pool, ODP Hole 1256	17 June 2009	doi:10.2204/iodp.proc.309312.204.2009	

Publication	Release Date	Digital Object Identifier	Comments
Volume 311			
Data report: clues about carbon cycling in methane-bearing sediments using stable isotopes of the dissolved inorganic carbon, IODP Expedition 311	30 April 2009	doi:10.2204/iodp.proc.311.206.2009	
Data report: stable isotope composition of authigenic carbonates from the northern Cascadia margin, IODP Expedition 311, Sites U1325–U1329	5 May 2009	doi:10.2204/iodp.proc.311.210.2009	
Data report: elemental, Rock-Eval, and isotopic compositions of bulk sediments, IODP Expedition 311	8 May 2009	doi:10.2204/iodp.proc.311.207.2009	

IODP Scientific Publication Deadline Extension Requests

The IODP Sample, Data, and Obligations Policy requires all Science Party members to conduct research and publish the results of their work. 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 FY09 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	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	6

Synthesis papers

Expedition	Submission deadline (26 months postmoratorium)	Deadline extensions approved in FY09 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	
303/306	10 November 2008		1	
307	15 December 2008	1		
311	29 December 2008		1	
309/312	27 February 2009	1		
310	4 May 2009	1	1	

Scientific Publication Distribution

Publication	Number Distributed
IODP Publications:	
<i>Proceedings of the Integrated Ocean Drilling Program</i> Expedition Report DVDs	762
ODP Publications:	
<i>Proceedings of the Ocean Drilling Program, Initial Reports</i>	3
<i>Proceedings of the Ocean Drilling Program, Scientific Results</i>	4
DSDP Publications:	
DSDP <i>Initial Reports</i> (books)	3

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 third quarter are shown in the table below.

Reports and Publications	DOI Prefix	Number of Resolutions			
		April 2009	May 2009	June 2009	FY09 Q3 Total
IODP	10.2204	4,404	2,245	2,660	9,305
ODP/DSDP	10.2973	19,952	3,323	8,257	31,532

EDUCATION

U.S. education activities are supported by NSF through SIC funding. These activities are not included in the POC and SOC budgets.

Deep Earth Academy

Education Visual Identity—Deep Earth Academy Web Site

Deep Earth Academy worked with Ocean Leadership's new Web developer to migrate content over to Ocean Leadership's new Web site. In the process, Deep Earth Academy staff worked on refining and updating all of our content and removing outdated materials. Work on this project continues (<http://www.oceanleadership.org/education/deep-earth-academy/>).

JOIDES Resolution Web Portal

The Ocean Leadership Education Director sailed on the PEAT 1 Expedition to lay the groundwork for future Teacher-at-Sea participants' work on the Web portal. Work on www.joidesresolution.org conducted during the expedition set the tone and resolved many challenges for the site. Blogs were posted from expedition participants almost daily, and development began for a page especially for younger children and for a guidebook to help upcoming educators at sea learn how to use the Web site.

M. van Hout, a professional videographer from Zcene Media, sailed on the PEAT 2 Expedition as a representative of Deep Earth Academy. Van Hout recorded the story of the expedition, gathered new video assets for the ship, and provided regular video updates that gathered an enthusiastic following. These updates—framed as Peat News Network (PNN)—were posted almost weekly on the home page of the *JOIDES Resolution* Web site, bringing humor and excitement to the science of the expedition. The joidesresolution.org site has seen steady growth in visitors and page views.

Social Networking

The *JOIDES Resolution* facebook page was updated frequently, and its fan list is growing on both facebook and twitter. In addition, the PNN video clips were posted and regularly viewed on the Ocean Leadership YouTube channel.

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. Materials were distributed at the following meetings.

Conference/Meeting/Workshop	Date	Location
European Geosciences Union (EGU) General Assembly 2009	19–24 April 2009	Vienna, Austria
American Geophysical Union (AGU) 2009 Joint Assembly: The Meeting of the Americas	24–27 May 2009	Toronto, Ontario, Canada
School of Rock 2009	23 June–5 July 2009	Expedition 301 Transit
National Marine Educators Association (NMEA) Annual Meeting	29 June–3 July 2009	Monterey, California

	“Hole” Story Poster	Micro- fossils Poster	Legacy Poster	Physics Poster	Sea90E Poster	DVDs	Book- marks	Pencils	Beach Balls
Normal distribution	16	27	26	19	20	16	71	15	81
Conferences/ workshops	62	629	1,364	83	166	114	4,923	915	857
Total	78	656	1,390	102	186	130	4,994	930	938

Materials Development and Education Programs

New materials developed this quarter were focused on the joidesresolution.org Web site and on museum programs.

Materials Development

Deep Earth Academy developed an extensive set of activity cards and related supporting materials for table-based museum and other public programs. These materials will be well used in the future as our museum outreach and coordination with the Distinguished Lecture Series program expands.

Deep Earth Academy staff also developed a mini-poster featuring the *JOIDES Resolution* on the front and an activity focused on using the Web site on the reverse. Plans were initiated for this poster to be mailed out as part of the Earth Science Week mailing in October 2009.

The third issue of the “Tales of the Resolution” comic book/graphic novel series was completed and uploaded to the Web. A link was provided on the joidesresolution.org Web page. This episode (“Resolution Reloaded”) describes the procedures and events that took place on the Sea Trials expedition.

Port Call Educational Activities

Deep Earth Academy staff conducted successful educational workshops on board the *JOIDES Resolution* during the Honolulu, Hawaii, port call on 7 May 2009. Staff led a workshop for ~20 teachers and one for 40 homeschooled students and their parents. During the workshops, both students and teachers were able to tour the ship, talk to ship-based personnel about their careers, and learn about educational resources they could use to follow along with the ship’s upcoming expeditions.

Videoconferencing

During the PEAT 1 Expedition, Deep Earth Academy staff worked with ship-based IT staff to test and conduct eight separate live video events, including broadcasts and conversations with schools, museums, and science fairs across the United States. Live video tests were also made with the Denver Museum of Nature and Science and the Maryland Sciences Center. Plans began for a schedule of live videoconferences with the *JOIDES Resolution* during the Bering Sea, Shatsky Rise, and Canterbury Basin expeditions.

Educational Outreach

School of Rock 2009

The 4th annual School of Rock workshop took place on the Expedition 321T transit from San Diego, California, to Victoria, British Columbia, beginning on 22 June 2009 with the boarding of teachers and faculty. The 2009 teachers were selected from more than 100 applicants and included 11 teachers from the United States, 2 from Japan, and 1 each from

France and Portugal. This is the first School of Rock workshop to include international teachers, who were selected by their respective implementing organizations (IOs) in Japan and Europe.

School of Rock faculty was headed by USIO staff members. Additional instructional staff included K. Inderbitzen (University of Miami’s Rosenstiel School of Marine and Atmospheric Science), L. Sautter (College of Charleston), A. Fisher (University of California, Santa Cruz), and L. Anderson (University of Leicester, United Kingdom). Participants learned all about CORKS, cores, and hydrology along the Juan de Fuca plate while the *JOIDES Resolution* conducted a remedial cementing operation as part of Expedition 321T.

Teacher-at-Sea Program

During May 2009, Deep Earth Academy conducted the selection process for the Bering Sea Expedition Teacher at Sea, with assistance from USIO staff. Out of the fifteen applications received for this position, the committee selected D. LaVigne, a high school physics teacher from Atlanta, Georgia.

In June 2009, Deep Earth Academy brought LaVigne and J. Pollard (previously selected Canterbury Expedition teacher at sea) to Ocean Leadership’s offices in Washington, D.C., for orientation and training. During this time, the teachers were given a chance to meet each other and key staff, learn about the structure of the Program and its importance, videoconference with their respective TAMU Staff Scientists, learn how to use the *JOIDES Resolution* Web site, and begin brainstorming detailed plans for their shipboard time.

In addition, an educator was selected to participate in Expedition 324 (Shatsky Rise). Please see the “**HBCU Educator-at-Sea Pilot Program**” for more information.

Teacher-in-Residence Program

During this quarter, the Ocean Leadership Teacher-in-Residence spearheaded Deep Earth Academy’s museum and Year of Science collaboration programs and assisted in planning for Teachers at Sea, School of Rock, new curricula, and upcoming fall programs.

Teacher Workshops

Conference/Meeting*	Date	Location
Darwinism and The Environment Workshop	4 April 2009	Chapel Hill, North Carolina
Baltimore Distinguished Lecture Series Education Program	1 May 2009	Baltimore, Maryland
Honolulu Port Call Workshop for Educations/Students	7 May 2009	Honolulu, Hawaii
World Ocean Day at the National Museum of Natural History	6 June 2009	Washington, D.C.
Watershed Recreation Day at the Supplee Lane Recreation Area	7 June 2009	Laurel, Maryland

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

Diversity Support Activities
Historically Black Colleges and Universities Fellowship

HBCU Fellowship

The USIO continues exploring mechanisms that will improve the recruitment of faculty/ research mentors and students in the HBCU Fellowship and increase the participation of minorities in scientific ocean drilling.

HBCU Educator-at-Sea Pilot Program

Dr. N. Idrisi, from the University of the Virgin Islands, Center for Marine and Environmental Studies, was selected in May as the 2009 HBCU Educator at Sea. Idrisi will participate in IODP Expedition 324 (Shatsky Rise) scheduled to begin in Yokohama, Japan, on 4 September 2009 and end in Townsville, Australia, on 4 November 2009. As the HBCU Educator at Sea, Idrisi will promote the exciting scientific capabilities and the people involved in IODP research and operations; promote science and science support careers to underserved minorities (particularly HBCU students); help reach out to HBCU institutions and minority-serving teachers and their students (eighth grade and high school); raise the profile of the HBCU Fellowship; create educational materials related to the Shatsky Rise Expedition; and spread the word that IODP science and the *JOIDES Resolution* are perfect vehicles for earth systems science education.

Minorities Striving and Pursuing Higher Degrees of Success in Earth System Science Initiative

Ocean Leadership continued its partnership with the “Minorities Striving and Pursuing Higher Degrees of Success in Earth System Science” (MS PHD’S) Professional Development Program. The USIO partially supported the attendance of 5 students and 1 administrator at the IODP Science Steering and Evaluation Panel (SSEP) meeting in Utrecht, The Netherlands. Preceding the meeting, the students participated in a day of orientation activities to learn about IODP, the Science Advisory Structure (SAS), and the SSEP proposal review process. To prepare for the discussions, each student acted as student watchdog, following proposals assigned to him or her throughout the meeting. Five U.S. members of the SSEP acted as mentors to the students, discussing career paths, providing insight into the proposal development and evaluation process, and explaining how science operates internationally.

National Collaborations

June 2009 was Oceans and Water month, during which Deep Earth Academy staff participated in a World Ocean Day event at the National Museum of Natural History (NMNH; see “**Museum Partnerships**”), and the Year of Science Web site (http://www.yearofscience2009.org/themes_ocean_water/celebrate/) featured a link to joidesresolution.org with an invitation to follow the expedition on line and interact with the staff on board.

OUTREACH

Public Affairs

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.

Outreach and Education port call activities took place in Honolulu, Hawaii, 5–7 May 2009, to celebrate the *JOIDES Resolution*’s return to operations and completion of the first of two IODP expeditions to the Equatorial Pacific. Highlights included the following events:

NSF, the USIO, and University of Hawaii at Manoa’s School of Ocean and Earth Sciences and Technology (SOEST) welcomed guests for a reception at the Waikiki Aquarium on 5 May 2009.

On 6 May 2009, NSF, the USIO, and SOEST welcomed guests at the Honolulu Harbor for a Hawaiian blessing of the *JOIDES Resolution* and remarks from A. Bement (NSF), B. Taylor (University of Hawaii at Manoa), and R. Gagosian (Ocean Leadership), after which a press conference was held and more than 125 visitors toured the *JOIDES Resolution*.

M. Delaney (UCSC) gave a science lecture and NSF and the USIO hosted a reception on the evening of 6 May 2009.

On 7 May 2009, Deep Earth Academy conducted a career-focused workshop for high-school students and a workshop for teachers.

Public Relations Materials

USIO Media Advisories/News Releases

The following media advisories were distributed this quarter:

- 2 April 2009: Readiness Assessment Team Support on the *JOIDES Resolution*
- 14 April 2009: U.S. Scientific Ocean Drilling Community Needs You!
- 22 April 2009: HBCU Educator at Sea aboard the renovated *JOIDES Resolution*
- 23 April 2009: CHART Workshop: Comment on the Draft Report
- 12 May 2009: Apply to Host a Distinguished Lecturer
- 13 May 2009: INVEST: Additional U.S. Participant Support Available
- 28 May 2009: Letter from the U.S. Advisory Committee for Scientific Ocean Drilling
- 2 June 2009: NSF Seeks Candidates for Director, Division of Ocean Sciences, Directorate of Geosciences
- 3 June 2009: Upcoming Deadline: Volunteer to Serve on USAC and SAS

The following news releases were distributed this quarter:

IODP expands to 24 countries: Australia, India, New Zealand join Integrated Ocean Drilling Program, 6 April 2009. [Also published in *NewsWise*, *EurekAlert!*, *Bio-Medicine*, and *National Driller*.]

Newly rebuilt drillship *JOIDES Resolution* en route to port call: scientific drilling vessel to dock in Honolulu harbor, May 5–9, 2009, 29 April 2009. [Also published in *EurekAlert!*, *7th Space Interactive*, and *Red Orbit*.]

Scientists launch drill rig to acquire information-rich sediments off New Jersey Coast, 30 April 2009. [Also published in *Newswise* and *Terra Daily*.]

JOIDES Resolution returns to ocean drilling in the Pacific Ocean: nearly 53 million years of climate and ocean acidification history found by following the paleo-equator, 1 May 2009.

JOIDES Resolution returns to ocean drilling in the Pacific Ocean, 4 May 2009.

Clement appointed Director of Integrated Ocean Drilling Program, 10 June 2009. [Also published in *KTBX.com*.]

Georgia teacher latest to set sail on *JOIDES Resolution*, 30 June, 2009.

Articles Authored by USIO Staff

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).

Williams, T., 2009. Ocean drilling: how the past can provide clues to our planet's future climate. *Pop. Mech.*, 3 April 2009.

<http://www.popularmechanics.com/science/earth/4311826.html>

Williams, T., 2009. Ocean drilling tech: exploring seabed history with 600,000 pounds of pipe. *Pop. Mech.*, 17 April 2009.

<http://www.popularmechanics.com/science/research/4313883.html>

News Articles, Programs, Media Citations, or Public Commentary

News articles, programs, media citations, or public commentary published during this quarter resulting from IODP media and public awareness efforts 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.

Altonn, H., 2009. Drill ship unfolds 'pages of a history book.' [Honolulu] *Star Bulletin*, 9 May 2009.

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Anonymous, 2009. Where was man?: ocean-drilling scientists cite history of Arctic climate change. *Believe in America.net*, 5 June 2009.

<http://believeinamerica.net/?p=3632>

BBC News, 2009. Q&A Nankai Trough Expedition: a pioneering project off the coast of Japan aims to go further into an earthquake zone than ever before. *BBC News*, 30 May 2009. <http://news.bbc.co.uk/2/hi/science/nature/8074929.stm>

Black, R., 2009. Ocean monster shows hidden depths. *BBC News*, 28 May 2009.

<http://news.bbc.co.uk/2/hi/science/nature/8071021.stm> [Also published in Washed It!]

Delaney, P., 2009. 60 seconds in the Mid-Pacific: a research expedition begins to wrap.

Sci. Am., 7 May 2009. <http://www.scientificamerican.com/blog/60-second-science/post.cfm?id=a-research-expedition-begins-to-wra-2009-05-07>

Edwards, K., 2009. Behind the scenes: hunting for life in rocks beneath the seas.

LiveScience, 24 April 2009. <http://www.livescience.com/environment/090424-bts-ocean-science.html>

GeoPlace, 2009. UIC's Correlator and Corelyzer software aids geoscientists aboard scientific ocean drilling expeditions. *geoplac.com*, 28 April 2009.

<http://tinyurl.com/kl5utg>

Gose, J., et al., 2009. Water in enstatite from Mid-Atlantic Ridge peridotite: evidence for the water content of suboceanic mantle? *NewsGuide.us*, 4 June 2009.

<http://www.newsguide.us/education/science/June-2009-Geology-and-GSA-Today-media-highlights/>

Grant, J., 2009. Piscatawy teacher to explore the earth's core. *myCentralJersey.com*, 17 June 2009. <http://www.mycentraljersey.com/article/20090617/NEWS/906170321/-1/aboutus>

Hansson, L., 2009. Earth's climate and ocean acidification history. *EPOCA*, 22 May 2009. <http://oceanacidification.wordpress.com/2009/05/22/earth%E2%80%99s-climate-and-ocean-acidification-history/>

KBTX News, 2009. Re-dedication of research ship "JOIDES Resolution" set for May 6 in Hawaii. *KBTX.com*, 5 May 2009. <http://www.kbtx.com/tamu/headlines/44364667.html>

Laird, P., 2009. Researchers around the world will study off coast of NJ. *NBC40.net*, 29 April 2009. http://www.nbc40.net/view_story.php?id=9076

Marine Technology Reporter, 2009. Expedition to earthquake zone. *Seadiscovery.com*, 29 May 2009. <http://www.seadiscovery.com/mtStories.aspx?ShowStory=1030432056>

Mudur, G.S., 2009. India joins deep ocean drillers. *The Telegraph* [Calcutta, India], 24 April 2009. http://www.telegraphindia.com/1090425/jsp/nation/story_10874448.jsp

National Driller, 2009. Drillship JOIDES Resolution arrives at port. *National Driller*, 7 May 2009. http://www.nationaldriller.com/CDA/Articles/Industry_News/BNP_GUID_9-5-2006_A_10000000000000585567

National Science Foundation, 2009. Sea-floor sediments illuminate 53 million years of climate history: JOIDES Resolution completes first expedition as redesigned ship. *National Science Foundation News*, 1 May 2009.

http://www.nsf.gov/news/news_summ.jsp?cntn_id=114708&org=NSF&from=news
[Also published in *physorg.com*, *EurekAlert!*, *Congoo*, and *7th Space Interactive*.]

News at Otago, 2009. New Zealander returns from multinational ocean drilling expedition. *News at Otago*, 4 June 2009. http://www.otago.ac.nz/news/news/2009/04b-06-09_press_release.html

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Ohio State University, 2009. Ocean sediment to reconstruct record of ancient climate. *Huliq News*, 16 June 2009. <http://www.huliq.com/11/82295/ocean-sediment-reconstruct-record-ancient-climate>

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Scientific Blogging News Staff, 2009. Ancient sediment record reveals new details of four global warming and cooling booms. *scientificblogging.com*, 15 June 2009. http://www.scientificblogging.com/news_articles/ancient_sediment_record_reveals_new_details_four_global_warming_and_cooling_booms

Simon, J., 2009. Quibbletown science teacher to join School of Rock science expedition. *myCentralJersey.com*, 20 May 2009. <http://www.mycentraljersey.com/article/20090520/GETPUBLISHED/905200327/Quibbletown+Science+Teacher+to+Join+School+of+Rock+Science+Expedition>

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Texas A&M University, 2009. Re-dedication of "JOIDES Resolution." *Texas A&M News & Information*, May 2009. <http://tamunews.tamu.edu/archives/article.php?articleid=7679&month=5&year=2009> [Also published in KBTX.com.]

The Times of India, 2009. NCAOR scientist may be on ocean drilling team. *The Times of India*, 26 April 2009. <http://timesofindia.indiatimes.com/Cities/NCAOR-scientist-may-be-on-ocean-drilling-team/articleshow/4449418.cms>

Underhill, J., and Smellie, P. (Eds.), 2009. NZ joins world's largest geoscience programme. *Scoop Independent News Sci-Tech*, 7 April 2009. <http://www.scoop.co.nz/stories/SC0904/S00012.htm>

Van, L., 2009. Off-shore drill launches after two decades. *The Daily Targum* [Rutgers University], 3 May 2009. <http://www.dailytargum.com/university/off-shore-drill-launches-after-two-decades-1.1743119>

Museum Partnerships

Deep Earth Academy worked to develop an ongoing relationship with the Maryland Science Center (MSC) in Baltimore, Maryland. This effort was kicked off with a day of ocean drilling-related activities and display tables at the MSC on 1 May 2009 in association with a Distinguished Lecture Series event. A live ship-to-shore videoconference with the *JOIDES Resolution* was planned but not realized due to weather and bandwidth issues on board the ship. However, a fall series of drilling-related programs and live videoconferences is planned with MSC for homeschool, classroom, and general public audiences.

Deep Earth Academy began building an ongoing relationship with the National Museum of Natural History and its new ocean educator. As part of this partnership, Deep Earth Academy staffed a table on the museum floor during World Ocean Day on 6 June 2009, during which they demonstrated cores, microfossils, and other related artifacts and handed materials out to visitors.

Unreported FY09 Q2 Activity

There were several pages inadvertently left out of the FY09 Q2 report. Outreach information from the FY09 Q2 report is provided below.

Congressional Outreach

The USIO exhibited at the 15th Annual CNSF Capitol Hill Reception and Exhibition on 24 March 2009. Additionally, IODP scientists conducted Congressional Hill visits after the CNSF event. R. Wilkens (University of Hawaii at Manoa) met with the offices of Sens. Inouye and Akaka and Rep. Abercrombie, and J. Channell (University of Florida) with the offices of Sens. Nelson and Martinez.

USIO INTERACTIONS WITH IODP-MI AND OTHER IMPLEMENTING ORGANIZATIONS

Interactions

Proposed Publications Staff Exchange between the USIO and CDEX

USIO and CDEX representatives met on 6 May 2009 at the Expedition 321 port call in Honolulu, Hawaii, to discuss a possible FY10 staff exchange. As proposed, an MWJ shipboard technician would receive training at TAMU on IODP seagoing and shore-based publications duties. A site visit to College Station, Texas, by CDEX and MWJ representatives was scheduled for the fourth quarter of FY09.

Meetings

Science and Technology Panel

A Science and Technology Panel (STP) Meeting was held 6–8 May 2009 in Honolulu, Hawaii (see “Appendix C” for list of USIO attendees) to take advantage of the arrival of the *JOIDES Resolution* after Expedition 320T. The STP chairperson (and Readiness Assessment Team [RAT] member) presented the outcome of the assessment cruise. Representatives of the USIO, CDEX, and ESO presented the current status of projects and expeditions.

Science Steering and Evaluation Panel

A Science Steering and Evaluation Panel (SSEP) Meeting was held 25–28 May 2009 in Utrecht, The Netherlands (see “Appendix C” for list of USIO attendees). A total of 22 proposals were reviewed by the panel. USIO staff gave a presentation that included an overview of the current USIO expedition operations schedule; tasks of the RAT evaluation, along with challenges that were identified and responsive actions taken by the USIO; and an exhibition of slides showing the new laboratories and equipment on board the *JOIDES Resolution*, including the new WHC and its performance.

The presentation included an overview of Expedition 320 logging problems and LDEO port-call activities undertaken to remediate them, an update on potential USIO commercial and engineering work after the Wilkes Land Expedition, and NSF’s request to include another scientific expedition within FY10.

Environmental Protection and Safety Panel

An Environmental Protection and Safety Panel (EPSP) Meeting was held 11 and 12 June 2009 in Golden, Colorado (see “Appendix C” for list of USIO attendees). USIO staff presented an overview of recent USIO activities.

Unreported FY09 Q2 Activities

There were several pages inadvertently left out of the FY09 Q2 report. Information missing from the FY09 Q2 report is provided below.

Interactions

USIO Support to CDEX during FY09 Q2

Core Curation Support: The USIO supported CDEX by uploading into the Janus database legacy core samples taken at KCC (see “Core Curation”).

Engineering Support: The USIO continued discussions with CDEX to finalize preparations for supplying SET and SETP tools along with a colleted delivery system for Expedition 322 (1 September–10 October 2009). The USIO will also provide one Engineer/Technician to deploy temperature and pressure tools on the expedition.

Shipboard publications support: USIO and CDEX representatives met on 25 March 2009 to finalize the FY09 agreement for publications support on the *Chikyu* during Expeditions 319 and 322. A February 2009 request by CDEX—that the USIO consider training a Marine Works Japan shipboard technician to provide IODP publication services on the *Chikyu* and *JOIDES Resolution*—was also explored. Since FY08, the USIO has provided publication coordination aboard both platforms. A second meeting to discuss CDEX’s staffing proposal was scheduled for 7 May 2009 during the USIO Expedition 321 port call in Honolulu, Hawaii.

Pre-expedition Meetings: USIO staff participated via videoconference in the pre-expedition meetings for CDEX Expeditions 319 and 322 in mid-January and mid-February 2009, respectively. Although planned as separate NanTroSEIZE Stage 2 science programs, the two CDEX expeditions could potentially evolve into a single science program with a common moratorium. Expedition 319 contingency Site NT1-01A is located in the Shikoku Basin seaward of the trench above a basement high and provides a paired site for proposed Site NT1-07A, the primary drilling target for Expedition 322. If NT1-01A is drilled during Expedition 319, there would be implications for the science party, the sampling strategy, the number of first postexpedition meetings, and the number of NanTroSEIZE Stage 2 *Proceedings* volumes published.

Meetings

Engineering Development Panel Meeting

An Engineering Development Panel (EDP) Meeting was held 13–15 January 2009 in Shanghai, China (see “Appendix C” for list of USIO attendees). USIO staff gave a presentation including updates on the SODV status, sea trials, FY09 expedition schedule, project updates, and other activities, including a short description of the DeepStar riserless mud recovery feasibility study. The USIO also requested rig time for the logging-while-coring system on an undecided future expedition.

Site Survey Panel Meeting

The Site Survey Panel (SSP) Meeting was held 4–6 February 2009 in Busan, Korea (see “Appendix C” for list of USIO attendees). A USIO representative gave a presentation covering major current USIO operational and planning activities and issues.

Scientific Technology Panel Meeting

The STP Meeting held 6–9 March 2009 in Honolulu, Hawaii (see “Appendix C” for list of USIO attendees) coincided with the *JOIDES Resolution* port call, and the meeting included a tour of the ship and STP review and endorsement of the Readiness Assessment Team (RAT) findings. USIO staff gave a presentation during Expedition 320T testing of the wireline heave compensation system newly installed on the *JOIDES Resolution*, and the STP endorsed allocating rig time during upcoming expeditions for a static test at the beginning of logging operations at each site to allow for further calibration and adjustment of the new system. The STP also asked the USIO to provide further information about specific problems it has encountered associated with clearance for drilling in territorial waters that may be contingent on countries claiming intellectual property rights for all findings coming from microbiological sample analyses.

IODP-MI Operations Task Force

An IODP-MI OTF Meeting was held 15 March 2009 in Miami, Florida (see “Appendix C” for list of USIO attendees). The main focus of discussion revolved around how to accommodate engineering time and APL operations on IODP platforms. The OTF recommended that the SPC consider allocating time into each IODP platform schedule to accommodate APLs and engineering testing. The OTF proposed as a guideline using three days per two-month expedition and if there is no appropriate engineering testing or approved APL for a given expedition, the time will transfer to the science objectives of the expedition.

Science Planning Committee

An SPC Meeting was held 16–19 March 2009 in Miami, Florida (see “Appendix C” for list of USIO attendees). The SPC reviewed and ranked 28 proposals, and recommended the Proposal 739 APL “Bering Sea Subseafloor Life” to the OTF for scheduling in FY09. In addition, the SPC adopted the OTF’s proposed principle that time be allocated into each IODP platform schedule to accommodate APLs and engineering testing.

Program Member Offices

A PMO Meeting was held 20 March 2009 in Miami, Florida (see “Appendix C” for list of USIO attendees). Reports were given by representatives of each PMO and expedition staffing procedures and issues were reviewed.

APPENDIX A: FINANCE REPORT

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

APPENDIX B: CONFERENCE AND MEETING SCHEDULE

Conference/Meeting*	Date	Location
Engineering Task Force Meeting	1–3 May 2009	Annapolis, Maryland
Science and Technology Panel (STP) Annual Meeting	6–8 May 2009	Honolulu, Hawaii
IODP Data Management Coordinating Group (DMCG) Meeting	18 and 19 May 2009	Washington, D.C.
IODP Bering Sea Expedition 323 Kick-Off Meeting	20 May 2009	College Station, Texas
Science Steering and Evaluation Panel (SSEP) Meeting	25–28 May 2009	Utrecht, Netherlands
Environmental Protection and Safety Panel (EPSP) Meeting	11 and 12 June 2009	Golden, Colorado
Science Advisory Structure Executive Committee (SASEC)	15 and 16 June 2009	Washington, D.C.
National Marine Educators Association (NMEA) Annual Meeting	29 June–3 July 2009	Monterey, California

*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
USIO Meeting	5 and 6 April 2009	Palisades, New York	Ocean Leadership: D. Divins, R. Gagosian TAMU: S. Bohlen
Project Management Training	5–10 April 2009	Houston, Texas	TAMU: J. Miller
USIO Meeting	14–16 April 2009	College Station, Texas	Ocean Leadership: D. Divins
Earth Science Advisory Meeting	21–24 April 2009	San Francisco, California	TAMU: S. Bohlen
U.S. scientific ocean drilling vessel (SODV) Meeting**	22 and 23 April 2009	College Station, Texas	Ocean Leadership: S. Higgins
Labview Training	26 April–1 May 2009	Austin, Texas	TAMU: H. Zhao
Engineering Task Force Meeting	1–3 May 2009	Annapolis, Maryland	Ocean Leadership: S. Higgins
Expedition 321 Port Call	5–8 May 2009	Honolulu, Hawaii	Ocean Leadership: S. Cooper, D. Divins, R. Gagosian, J. Farver, S. Higgins, J. Hubler, M. Morell, L. Peart, G. Schmidt LDEO: D. Goldberg
Fume Hood Survey	5–9 May 2009	Honolulu, Hawaii	TAMU: R. Meyer
Science and Technology Panel (STP) Meeting	6–8 May 2009	Honolulu, Hawaii	Ocean Leadership: S. Higgins LDEO: D. Goldberg, T. Williams TAMU: D. Houpt
LV Class/Training	10–12 June 2009	Austin, Texas	TAMU: T. Cobine
Environmental Protection and Safety Panel (EPSP) Meeting	11 and 12 June 2009	Golden, Colorado	TAMU: N. DaSilva, M. Malone
AMS Training	11–15 May 2009	College Station, Texas	TAMU: J. Attryde (ODL)

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Purpose*	Dates	Location	Institution: Personnel
IODP-MI Meeting	17 June 2009	Washington, D.C.	LDEO: D. Goldberg
Evaluation	17–20 June 2009	College Station, Texas	TAMU: E. Jackson
IODP Data Management Coordinating Group (DMCG) Meeting	18 and 19 May 2009	Washington, D.C.	LDEO: D. Quoidbach TAMU: P. Foster, J. Rosser
Science Steering and Evaluation Panel (SSEP) Meeting	25–28 May 2009	Utrecht, The Netherlands	LDEO: G. Guerin TAMU: C. Alvarez-Zarikian, J. Geldmacher
Kinley Cutte Training	26 and 27 May 2009	Houston, Texas	TAMU: J. Attryde (ODL)
Payroll Seminar	29 and 30 June 2009	Austin, Texas	TAMRF: K. Huff
Publications Assistant on <i>Chikyu</i> for CDEX Expedition 319	30 May–22 July 2009	Osaka, Japan	TAMU: L. Peters
Agilent CG Classes	31 May–5 June 2009	Alpharetta, Georgia	TAMU: Y. Vasilyeva
Expedition 321T Port Call	21–30 June 2009	San Diego, California	Ocean Leadership: D. Divins LDEO: B. Arko, T. Baker, D. Quoidbach
National Marine Educators Association (NMEA) Annual Meeting	23–30 June 2009	Monterey, California	Ocean Leadership: S. Cooper
Severing Operations Training	28–30 June 2009	Huoma, Louisiana	TAMU: J. Attryde (ODL)
National Science Foundation (NSF) Meeting	30 June–7 July 2009	Arlington, Virginia	LDEO: D. Goldberg

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

**USIO funded this trip for USIO representative(s) to attend an SODV Project meeting.

APPENDIX D: USIO QUARTERLY REPORT DISTRIBUTION LIST

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