

Closeout of *JOIDES Resolution* IODP Expedition Obligations and Operation of an Instrumented Gulf Coast Repository FY25 Q4 Operations and Management Report

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1. Introduction

This quarterly operations and management report reflects activities and deliverables outlined in the Proposed Work section of the proposal Closeout of International Ocean Discovery Program (IODP) Expedition Obligations and Operation of an Instrumented Gulf Coast Repository submitted to the National Science Foundation (NSF), as implemented by Texas A&M University (TAMU). Administrative services in support of these activities are provided by the Texas A&M Research Foundation (TAMRF) through TAMU Sponsored Research Services (SRS).

2. Management and administration

Management and administration (M&A) activities include planning, coordinating, overseeing, reviewing, monitoring, assuring compliance for, and reporting on IODP closeout and GCR activities.

Advice and guidance related to closeout activities are provided by the program officer and the *JOIDES Resolution* Advisory Board (JRAB), which is a continuation of the JR Facility Board that oversaw the *JOIDES Resolution* Science Operator (JRSO) activities, but in an advisory capacity. Advice and guidance associated with the instrumented repository will be provided by a GCR Advisory Board. The GCR Advisory Board (GAB) was populated by six scientists from the US Scientific Ocean Drilling community. The inaugural meeting will take place 13–14 January 2026. The JRAB approved a new member for the Curatorial Advisory Board, who was nominated by the repository curators.

Amendments 3 and 4 were received from NSF and processed, providing project funding through March 2027.

3. Gulf Coast Repository

On behalf of NSF, the Gulf Coast Repository (GCR) at Texas A&M University stores and curates 151 kilometers of Deep Sea Drilling Project (DSDP), Ocean Drilling Program (ODP), Integrated Ocean Drilling Program, and IODP cores from the Pacific Ocean, the Caribbean Sea and Gulf of Mexico, and the Southern Ocean. The GCR also stores the San Andreas Observatory at Depth (SAFOD) core collection.

Laboratories

The GCR infrastructure includes 9,000 square feet of newly renovated instrumented laboratories and 15,000 square feet of refrigerated space. The laboratories contain most of the instruments that were demobilized from the *JOIDES Resolution*.

During this quarter, hiring was completed to fill an open technician position in the GCR. A second vacant technician position will be filled next quarter. The GCR continued to host users of its service center. The GCR staff were engaged in supporting the 2025 GCR Cores for Research and Education (CORE) School and the U.S. Science Support Program Teacher-Researcher and Curriculum Experience (TRACX) workshops and the first project splitting and analyzing non-IODP core sections. At the end of Q4, the status of instrumentation removed from the ship and/or under development in the new laboratories is described below.

Instruments installed and operational

- X-ray Linescan Imager (XSCAN)
- Section Half Multisensor Logger (SHMSL)
- Section Half Image Logger (SHIL)

- Whole-round Multisensor Logger (WRMSL)
- AGICO JR-6A Spinner Magnetometers
- AGICO Kappabridge MFK2-FA Magnetic Susceptibility Meter
- ASC Scientific D-2000 AF Demagnetizer
- ASC Scientific Thermal Demagnetizer
- ASC Scientific Impulse Magnetizers
- Malvern Panalytical AERIS X-Ray Diffractometer (XRD)
- Hitachi Scanning Electron Microscope (SEM)
- SEC SNE-4500M Plus scanning electron microscope with Bruker Quantax EDS (SEM and EDS)
- Rock powdering preparation equipment (X-Press, Shatter Box, Mixer Mills)
- Labconco Freeze Dryer
- Natural Gamma Radiation Logger (NGRL) Instrument
- Superconducting Rock Magnetometer (SRM)
- Transmitted light and stereo microscopes
- Barnstead Water Purification System
- Coulometrics CM5011 Coulometer
- Agilent Cary 100 UV-Visible Spectrophotometer
- Metrohm Ion Chromatograph (IC)
- Agilent 7890 Gas Chromatographs (GCs)
- Weatherford Instruments Source Rock Analyzer (SRA)
- Agilent 5110 ICP-OES
- Thermo Electron Flash EA 1112 Elemental Analyzer (CHNS)
- Metrohm Titrino Autotitrators (Alkalinity/pH/Chloride)
- Core Splitter Assembled and modified to split varied core diameters and liner material
- Moisture and Density Station (MAD)

Instruments uncrated; not yet operational

- Hyperspectral Line Scan Logger (HYPERSCAN)
- Tormach CNC Mill

Instruments pending uncrating and installation

- Thermal Conductivity, which will be set up when requested by a user

New instruments installed

- Metrohm Model 940 Ion Chromatograph (IC)
- Bettersizer S3 Plus Particle Size Analyzer
- AGICO Low and High Temperature Apparatus for Kappabridge MFK2-FA Magnetic Susceptibility Meter

Use of laboratory facilities

This quarter was the first time drill cores from a non-scientific ocean drilling program were processed and split in the instrumented GCR laboratory facilities. These drill cores were larger in diameter and used a different core liner plastic than cores drilled on the *JOIDES Resolution*, which required modifications to the core tracks and core splitter.

X-ray fluorescence core scanning

During this quarter, 93 core sections were scanned on the X-ray fluorescence (XRF) scanners as part of three projects.

Table 2.1. Core sections XRF scanned.

Request type	Expedition	Name, country	XRF 1	XRF 2
Education	202	Childress, USA		14
Research	NA	Zhang, China		66
Research	28	Hochmuth, USA		13
Totals				93

Non-destructive core logger measurements

During this quarter, multiple projects utilized non-destructive core loggers that are part of the GCR service center facility.

Table 2.2. Core sections scanned on non-destructive core loggers.

Request type	Expedition	Name, country	SHIL	SRM	SHMSL	XSCAN	NGRL	WRMSL	HYPERSCAN
Research	Hochmuth, USA	Hochmuth, USA	13		13		13		
Research	NA	Zhang, China	120		120			120	
Research	Multiple	Penkrot, USA	150						
Research	18	Mckenzie, USA				16			
Education	202	Childress, USA	131	16	27		44	44	
Education	28, 147, 341	Cooper, USA	66		50	238	144	199	
Totals			480	16	210	254	201	363	

Discrete measurements

During this quarter, multiple projects utilized instrumentation for discrete measurements or analysis that are part of the GCR service center facility.

Table 2.3. Discrete samples measured or analyzed in the paleomagnetism laboratory (PMAG), physical properties laboratory (PP), geochemistry laboratory (GEOCHEM), microscope laboratory, and scanning electron microscope laboratory (SEM). Reported in days for the laboratory used.

Request type	Expedition	Name, country	PMAG	PP	GEOCHEM	MICROSCOPES	SEM
Research	405	Acton, USA	9				
Research	26, 31, 40, 74, 90, 94, 130, 154, 159, 177, 198, 321	Fraass, Canada			22		
Research	NA	Solomon, USA			1.5		
Research	NA	Han, USA			1.5		
Research	NA	Butterfield, USA			7		
Research	NA	McGovern, USA		3			
Research	NA	Zhou, USA			2		
Education	202	Childress, USA				5	
Education	28, 147, 341	Cooper, USA				2.5	
Research	NA	Sager, USA	6				
Research	NA	Yuan, USA		2			

Request type	Expedition	Name, country	PMAG	PP	GEOCHEM	MICROSCOPES	SEM
Totals (days used)			15	5	34	7.5	

Curatorial services

The GCR provides services in support of core sampling and curation of the IODP and predecessor programs Integrated Ocean Drilling Program, ODP, and DSDP core collection archived at the GCR. During this quarter, a job ad was posted to fill a vacant curatorial specialist position.

Sample requests

The following table provides a summary of the 10,162 legacy (postmoratorium) samples taken at the GCR during this quarter. Sample requests that show zero samples taken may represent cores requested for non-destructive core logger measurements or core description. For public relations or educational visits/tours, the purpose of the visit is shown in brackets in the “Sample request number, name, country” column, and no number is recorded in the “Number of samples taken” column if no new samples were taken.

Table 2.3. GCR sample requests.

Sample request number, name, country	Number of samples taken	Request type (R/E/ND)	Number of visitors
107073IODP, Ram, India	42	R	0
107108IODP, Straub, USA	3	R	0
107041IODP, McKenzie, USA	0	ND	0
107080IODP, Li, China	144	R	0
107053IODP, Zhang, China	1882	R	0
107122IODP, Monito, USA	22	R	0
106781IODP, Mishra, USA	737	R	0
107070IODP, O’Keefe, USA	24	R	0
107125IODP, Szymanowski, Switzerland	4	R	0
106930IODP, Strachan, New Zealand	38	R	0
107191IODP, Guo, USA	11	R	0
107199IODP, Garity, USA	2	R	0
106845IODP, Villa, Germany	2472	R	0
107064IODP, Xu, China	39	R	0
107189IODP, Dodd, Australia	21	R	0
107216IODP, Shahriar, Australia	8	R	0
106874IODP, Riboulleau, France	35	R	0
107102IODP, Yao, China	103	R	0
107237IODP, Li, Japan	9	R	0
107196IODP, Wang, China	171	R	0
107230IODP, Rodriguez, USA	112	R	0
107259IODP, Ling, China	42	R	0
107184IODP, Childress, USA	0	E	25
107213IODP, Figus, UK	54	R	0
106873IODP, Kars, UK	112	R	1
107282IODP, Kaber, UK	2	R	0
107227IODP, Xu, China	211	R	0
107283IODP, Figus, UK	36	R	0
107332IODP, Dunlea, USA	9	R	0
107215IODP, Zhong, China	342	R	0
107287IODP, Bombard, USA	30	R	8
107034IODP, Wu, China	748	R	0
107098IODP, Zhang, China	1100	R	0

Sample request number, name, country	Number of samples taken	Request type (R/E/ND)	Number of visitors
107294IODP, Yang, South Korea	129	R	0
107313IODP, Qian, China	47	R	0
106899IODP, Chen, Xinming, China	40	R	0
107350IODP, Maria Mejia, Germany	4	R	0
107340IODP, Li, Fangbing, China	50	R	0
107337IODP, Santucci, Italy	401	R	0
107370IODP, Nirenberg, USA	29	R	0
107404IODP, Tanaka, Japan	20	R	2
107334IODP, Liao, China	169	R	0
107378IODP, Azharuddin, Taiwan	50	R	0
107336IODP, Pina Paez, USA	10	R	0
106520IODP, Kars, UK	243	R	0
107014IODP, Karas, Chile	405	R	0
107226IODP, Hochmuth, Australia	0	ND	0
107286IODP, Gray, USA	0	ND	8
107291IODP, Deans, USA	0	ND	8
Non-SOD			
Tours (2)			20
Totals	10,162		72

R = research, E = education, ND = nondestructive analysis.

Broader impacts

The GCR promotes outreach use of the GCR core collection by conducting tours of the repository and providing materials for display at meetings and museums. The repository and core collection are also used for classroom exercises and workshops. This quarter, the GCR hosted CORE School and the US Science Support Program (USSSP) TRACX Workshop. CORE School is a five-day workshop funded by this award with the overarching goal to provide a mechanism to maintain expertise in scientific ocean drilling methods and subseafloor core analysis. The workshop included 22 participants (primarily graduate students) selected out of 88 applicants, 3 external instructors, and 2 internal instructors. Participants in CORE School gain experience in the instrumentation (and resulting science) of the GCR while networking with peers and geoscience faculty. The TRACX workshop brought 13 teacher participants, 5 researchers, and 4 American Geosciences Institute (AGI) and USSSP collaborators to the GCR to provide professional development for researchers and educators. The workshop is a follow-on to the former *JOIDES Resolution*-based School of Rock. In this iteration, researchers (PIs) came to the GCR to complete a small part of their ongoing research. Each PI was paired with a group of educators, and these teams met before, during, and after the workshop to develop plans for data collection at the GCR, collect the data, and then develop curriculum products for the classroom. Logistics and scientific support were provided to these workshops from the GCR's analytical, science, and curatorial services staff. Repository tours were given to the TAMU Undergraduate Summer School (Department of Geology & Geophysics), TAMU Department of Oceanography Advisory Council, and in support of the CORE School and TRACX workshops.

Repository projects

This quarter, a shipment of archive half core sections was packed and sent to the Bremen Core Repository (BCR). These sections were at the GCR for programmatic XRF scanning. This was the final shipment of IODP core to the BCR. Work to increase organization of the GCR's residues into recently installed shelving and new storage containers is ongoing.

4. Closeout

Closeout activities include completing the publications cycle for the last IODP expeditions, along with archiving publications and other digital materials, postexpedition science coordination, property disposition, legacy documentation, data access and migration, and financial closeout.

Publications

The Publications department is responsible for producing IODP scientific publications, including Expedition Reports and Data Reports contained in the volumes of the *Proceedings of the International Ocean Discovery Program*, technical documentation (*IODP Technical Notes*), and Program reporting. Additionally, Publications archives legacy publications and digital assets and maintains current and legacy websites.

The Expedition Reports volume was published for Expedition 401. Production activities continued for volumes for Expeditions 403 and 405.

Program publications

The Publications department worked on preparing Expedition Reports volumes for expeditions under moratorium and Expedition Research Results (data reports) for expeditions that are postmoratorium for JRSO. Digital Object Identifiers (DOIs) were deposited for the following program publications during the quarter.

Table 3.1. New content published on the IODP Publications website.

Publications	DOI	Science operator
Preliminary Reports		
IODP Proceedings	10.14379/iodp.proc.401.2025 10.14379/iodp.proc.401.101.2025 10.14379/iodp.proc.401.102.2025 10.14379/iodp.proc.401.103.2025 10.14379/iodp.proc.401.104.2025 10.14379/iodp.proc.401.105.2025 10.14379/iodp.proc.401.106.2025	JRSO
Data reports	10.14379/iodp.proc.400.201.2025 10.14379/iodp.proc.397.202.2025	JRSO

Sample request publications

Manuscripts published this quarter related to specific sample requests from the IODP repositories are listed in the table below.

Table 3.2. Papers published by expedition and IODP repository sample request number.

DOI of published paper	Expedition	IODP Sample Request Number
10.1038/s41467-025-62960-y	303/306	066480IODP 070509IODP 075704IODP
10.1038/s41598-025-17144-5	308	037570IODP
10.1029/2025PA005149	329	063898IODP
10.1038/s43247-025-02498-5	346	084226IODP 089356IODP
10.1016/j.palaeo.2025.113219	346	027134IODP
10.3390/jmse13091773	349, 367	046437IODP
10.1029/2024PA004995	353	060271IODP 051265IODP
10.1016/j.palaeo.2025.113150	355	027954IODP
10.1029/2024JB030242	358	065543IODP
10.61551/gsjfr.55.3.245	363	041426IODP 059879IODP

DOI of published paper	Expedition	IODP Sample Request Number
10.5194/jm-44-213-2025	363	041426IODP 059879IODP
10.1029/2025GL116662	363	040840IODP
10.1029/2025GL116177	367/368	082487IODP 099620IODP
10.1016/j.sedgeo.2025.106930	369	052213IODP
10.1016/j.marmicro.2025.102488	369	052213IODP
10.1016/j.gloplacha.2025.105056	369	051299IODP
10.3389/feart.2025.1630118	372A	090317IODP 053579IODP
10.1126/sciadv.adu4227	372B/375	053616IODP
10.1029/2024GL112200	372B/375	053355IODP
10.1016/j.jvolgeores.2025.108404	372B/375	052883IODP
10.1016/j.margeo.2025.107618	374	054580IODP
10.1029/2025GC012314	378	074905IODP
10.1038/s43247-025-02749-5	378	074990IODP
10.1038/s41467-025-60772-8	379	063750IODP
10.1038/s41467-025-61987-5	379	064302IODP
10.1016/j.marmicro.2025.102500	382	064468IODP
10.1038/s41467-025-62037-w	383	106524IODP 067987IODP
10.1016/j.marmicro.2025.102501	383	066440IODP
10.1016/j.gloplacha.2025.105087	383	068243IODP 104091IODP
10.1016/j.quaint.2025.109918	385	068389IODP
10.1016/j.margeo.2025.107629	385	068545IODP
10.1007/s00410-025-02262-0	385	105408IODP 101338IODP
10.1002/dep2.70044	386	076860IODP 103288IODP
10.1029/2025GL116967	397	095353IODP
10.1126/sciadv.ads9642	398	099126IODP
10.1029/2025GC012327	398	096713IODP
10.1016/j.gca.2025.09.024	399	098658IODP

Publications legacy and archiving

Digital object identifiers

Indexing, archiving, and tracking use of IODP, Integrated Ocean Drilling Program, ODP, and DSDP legacy publications are enabled through registration of a CrossRef DOI for each leg/expedition chapter and volume. CrossRef tracks the number of times a publication is accessed online through the CrossRef DOI resolver tool. Program statistics for this quarter are shown in the table below.

Table 3.3. Number of online DOI resolutions.

Scientific drilling program	DOI prefix	July 2025	Aug 2025	Sept 2025	FY25 Q4 totals
International Ocean Discovery Program	10.14379	13,657	16,166	16,335	46,158
Integrated Ocean Drilling Program	10.2204	6,083	9,051	10,618	25,752
ODP and DSDP	10.2973	128,845	165,920	184,336	479,101

NSF Public Access Repository

Metadata for IODP volumes and data reports are deposited to the NSF Public Access Repository (PAR) upon publication.

ScienceOpen

IODP expedition reports and data reports are indexed at ScienceOpen in the IODP *Proceedings* collection at https://www.scienceopen.com/collection/IODP_Publications. Expedition-related publications are indexed at ScienceOpen in the Scientific Ocean Drilling Expedition Research Results collection at

<https://www.scienceopen.com/collection/8b0582f6-47bf-4988-b90a-8533135e6fcc>. Collection statistics are shown in the table below.

Table 3.4. ScienceOpen collection statistics

Collection	Articles (#)	Article views (#)	Authors (#)	Referenced articles (#)
<i>Proceedings of the International Ocean Discovery Program</i> collection	936	44,103	2,238	10,949
Scientific Ocean Drilling Expedition Research Results collection	11,493	188,168	24,056	120,970

Zenodo

Complete volumes from the Integrated Ocean Drilling Program (Expeditions 301–348) and the Deep Sea Drilling Project (Volumes 1–96) are archived in the IODP Community at Zenodo (<https://zenodo.org/communities/iodp>; Resource type: Publication). Integrated Ocean Drilling Program volumes were downloaded 1,157 times during Q4, averaging 30 downloads per volume. Deep Sea Drilling Project volumes were downloaded 940 times during Q4, averaging 10 downloads per volume.

Internet Archive and Bibliographic Database

Digital archives of full volumes from DSDP, ODP, and both IODP programs are available as an Internet Archive collection at <https://archive-it.org/collections/9148>.

Metadata records for program publications and other leg/expedition-related publications can be found in the AGI Scientific Ocean Drilling Citation Database, a subset of the AGI GeoRef database, at <http://iodp.americangeosciences.org/>.

IODP volume publications from Expeditions 301–current are listed along with current citation counts in a Google Scholar profile at https://scholar.google.com/citations?hl=en&user=lqVDYooAAAAJ&view_op=list_works&sortby=pubdate.

HathiTrust

Archived DSDP and ODP hard-copy volumes are available in digital format at HathiTrust, an open-access, trusted digital library/repository as follows:

ODP archive: <https://babel.hathitrust.org/cgi/mb?a=listis;c=1868324439>

DSDP archive: <https://babel.hathitrust.org/cgi/mb?a=listis;c=1930557976>

Expedition-related publications

Legacy expedition-related publications published in peer-reviewed literature, along with current citation counts, are listed in the following Google Scholar profiles:

International Ocean Discovery Program (Expeditions 349–405):

<https://scholar.google.com/citations?user=i9nuMIgAAAAJ&hl=en>

Integrated Ocean Drilling Program (Expeditions 301–348):

<https://scholar.google.com/citations?user=RUruDbgAAAAJ&hl=en>

Ocean Drilling Program (Legs 101–210 published since 2000):

<https://scholar.google.com/citations?user=dRcpdRoAAAAJ&hl=en>

Website management

The Publications department maintains the GCR website and provides access to previous scientific drilling program information including the IODP/JRSO and IODP Publications websites, as well as the ODP, DSDP, and ODP Legacy websites.

Table 3.5. Current and legacy website statistics.

URL	Website	FY25 Q4 page views	FY25 Q4 site visits
https://gcr.tamu.edu/	Gulf Coast Repository	4,374	1,340
https://iodp.tamu.edu/	IODP/JRSO Home	406,666	58,955
http://publications.iodp.org/	IODP Publications	630,831	58,425
https://www-odp.tamu.edu/	ODP Home	145,652	29,464
http://www.odplegacy.org/	ODP Legacy	5,426	2,397
http://www.deepseadrilling.org/	DSDP Publications	31,726	8,034
Totals		1,224,648	158,615

Digital asset management

JRSO maintains an archive of all IODP digital assets, including expedition photos, videos, maps, logos, technical and operational reports, publications, and various other multimedia and documents, in a digital asset management system called MerlinOne

(<https://iodp.merlinone.net/MX/Profiles/en/landing/>). During this quarter, 544 assets were downloaded between Scientific Ocean Drilling department (SOD) staff and guest users, which were a mix of Friends and Family photos, expedition logos, and technical documents.

Publications authored by staff

Articles and abstracts published during this quarter authored by JRSO/SOD staff include the following. Bold type indicates SOD staff (<http://iodp.tamu.edu/staffdir/indiv.html>).

Articles authored by SOD staff

Abrantes, F., Magalhães, V., Hodell, D.A., Herbert, T.D., Alonso-Garcia, M., Castaño, M., Ferreira, F., Freitas, M., Gebara, L., Gil, I., Gonzáles-Martín, M., Lopes, A., Lopes, C., Matos, L., Mega, A., Molina, G., Naughton, F., Oliveira, D., Rebotim, A., Rodrigues, T., Salgueiro, E., Santana, A., Treyos-Tamayo, R., **Alvarez Zarikian, C.A.**, and the Expedition 397 Scientists, 2025. Data report: an improved splice using XRF data, IODP Expedition 397 Site U1586. In Hodell, D.A., Abrantes, F., Alvarez Zarikian, C.A., and the Expedition 397 Scientists, Iberian Margin Paleoclimate. Proceedings of the International Ocean Discovery Program, 397: College Station, TX (International Ocean Discovery Program).
<https://doi.org/10.14379/iodp.proc.397.202.2025>

Chen, X., Wu, J., Pang, X., Dang, H., Zhong, L., Yu, J., Colin, C., Liu, Z., de Lange, G.J., Kaboth-Bahr, S., Xuan, C., Ikeda, H., Herbert, T.D., May Huang, H.-H., **Alvarez Zarikian, C.A.**, Abrantes, F.F.G., and Hodell, D.A., 2025. Depth fluctuations of Mediterranean Outflow Water along its northward propagation during the Late Pleistocene. Geophysical Research Letters, 52(14):e2025GL116967.
<https://doi.org/10.1029/2025GL116967>

de Castro, M.J., Venancio, I.M., Santos, T.P., Lessa, D.V.O., Ballalai, J.M., Albuquerque, A.L.S., and IODP Expedition 383 Shipboard Scientists (including **C.A. Alvarez Zarikian**), 2025. Migration of oceanic fronts in the Pacific Southern Ocean during the Mid-Pleistocene transition. Marine Micropaleontology, 200:102501. <https://doi.org/10.1016/j.marmicro.2025.102501>

Metcalf, A., Druitt, T., Pank, K., Kutterolf, S., Preine, J., Kelfoun, K., Hübscher, C., Nomikou, P., **Ronge, T.A.**, Chiyonobu, S., Koukousioura, O., Woodhouse, A., Beethe, S., Manga, M., McIntosh, I., Tominaga,

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Postexpedition science coordination

Moratorium activities

Moratorium sample requests for Expeditions 401 and 403 were reviewed by the respective Sample Allocation Committees. The Expedition 401 moratorium ended 7 July 2025.

Postmoratorium activities

Two postcruise science meetings were held during Q4. The Expedition 400 science postcruise meeting was held in Copenhagen, Denmark, on 16–18 September with a field trip on 15 September to observe a K/Pg boundary outcrop and an open seminar on 19 September for other members of the high latitude research community. The Expedition 399 science postcruise meeting was held in Sestri Levante, Italy, on 22–24 September followed by a field trip on 25–26 September to see primary magmatic-hydrothermal features of the Internal Liguria Ophiolite in eastern Liguria (Day 1) and mantle evolution, serpentinization, and alkaline fluids in the Erro-Tobbio Massif in western Liguria (Day 2). Both meetings were attended by the majority of the shipboard scientists and several shore-based scientists, collaborators, students, and the expedition Staff Scientists.

Property disposition

Property from the *JOIDES Resolution* continued to be set up and made functional at TAMU. Our remote warehouse has been emptied of hardware and supplies related to drilling operations. We had been holding onto tubulars and other specific hardware items for the *JOIDES Resolution* at our remote laydown yard. However, with the recent decision by the owner to scrap the vessel, we began disposing of those items as well.

Technology services

Data access and migration

TAMU Technology Services oversees scientific ocean drilling data storage, management, and archiving; maintains information technology (IT) infrastructure on shore for the GCR and closeout activities; develops and maintains instrument-specific software for data acquisition in the GCR; and manages the Program's extensive databases.

Expedition data requests

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

Table 5.1. Top 10 countries accessing web database.

Rank	Janus database		LIMS database	
	Country	Visitor sessions	Country	Visitor sessions
1	Canada	2,666	United States	8,672
2	United States	1,251	China	3,003
3	China	351	Germany	760
4	United Kingdom	222	Poland	453
5	Brazil	184	Canada	412
6	Japan	111	United Kingdom	363
7	Germany	63	Japan	184
8	Italy	54	Italy	144
9	Netherlands	54	New Zealand	116
10	Australia	44	India	106
11	Other	574	Other	900
	Total	5,574	Total	15,113

Table 5.2. Top 20 database web queries.

Rank	Janus database		LIMS database	
	Query	Views	Query	Views
1	X-ray--XRD	38,556	Images--core photo	5,214
2	Sample	11,877	Samples	2,246
3	Paleontology--range charts	6,084	Section summary	1,957
4	Hole trivia	4,744	Images--section photo	1,951
5	Site summary	3,424	Core summary	1,760
6	Hole Summary	3,154	Hole summary	1,527
7	Chemistry--carbonates	3,115	Physical properties--MAD	1,337
8	Core summary	2,940	Chemistry--carbonates	1,226
9	Paleontology--agemodel	2,723	Paleomag--SRM section	1,173
10	Sediments--smear slides	2,607	X-ray--XRD	1,138
11	Paleontology--Paleo Investigation	2,495	Physical properties--GRA	1,101
12	Special holes summary	2,454	Images--microimg	1,080
13	Site summary trivia	2,205	Physical properties--MS	1,046
14	Images--core photo	974	Chemistry--interstitial water	1,034
15	Physical properties--PWS	378	Images--closeup	1,023
16	Physical properties--GRA	367	Physical properties--NGR	1,008
17	Physical properties--PWL	359	Paleomag--MSPOINT	949
18	Chemistry--interstitial water	331	Physical properties--RSC	923
19	Images--prime data	268	Physical properties--PWL	812
20	Chemistry--Rock Eval	253	Images--thin section	686
	Other	2,613	Other	7,864
	Total	91,921	Total	37,055

Other projects and activities

JRSO conducted routine system maintenance in accordance with the TAMU IT security policy. IT staff members continue to participate in campus-led security application deployments and monitoring and remediated issues as they arose.

Work to integrate ship instrument hosts into the shore computing environment continued. The project to replace Linux servers with a new vendor subsidized by TAMU to reduce costs continued. The JRSO

continued working with the campus enterprise group to relocate routing services to a more redundant, capable environment. A project was started that will replace the server virtualization software with a more cost-effective and appropriate solution.

Expedition 401 data were released from moratorium during this quarter.

Data migration to (1) NCEI and (2) Zenodo

Data migration efforts to Zenodo continued with 262 datasets created for IODP Expeditions 327, 329, 330, 335, 336, 340, and 401. A full list of expeditions for which data has been migrated to Zenodo is available at <http://iodp.tamu.edu/database/zenodo.html>.

4. Financial closeout

Financial JRSO closeout tasks continued but will be reported in the JRSO award quarterly reports.