

International Ocean Discovery Program  
*JOIDES Resolution* Science Operator  
FY24 Q1 Operations and Management Report

1 October–31 December 2023  
Cooperative Agreement OCE-1326927

Submitted by the JRSO  
to  
The National Science Foundation  
and  
The *JOIDES Resolution* Facility Board

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# 1. Introduction

This quarterly operations and management report reflects activities and deliverables outlined in the International Ocean Discovery Program (IODP) *JOIDES Resolution* Science Operator (JRSO) FY24 Annual Program Plan to the National Science Foundation (NSF), as implemented by Texas A&M University (TAMU), acting as manager and science operator of the research vessel *JOIDES Resolution* as a research facility for IODP. Administrative services in support of JRSO activities are provided by the Texas A&M Research Foundation (TAMRF) through TAMU Sponsored Research Services (SRS).

# 2. Expedition operations

This section provides information on the following aspects of JRSO expedition support:

- Planning (including logistics and engineering development);
- Staffing (including a staffing table for expeditions implemented during this quarter);
- Clearance, permitting, and environmental assessment activities;
- Expedition operations (including a site map, a coring summary table, and preliminary science results for each expedition completed during this quarter); and
- Postexpedition activities (including postcruise editorial meetings).

Table 2.1. JRSO expedition schedule

Expedition		Port (origin)	Dates <sup>1</sup>	Total days (port/sea)	Days at sea (transit <sup>2</sup> /ops)	Co-Chief Scientists	Expedition Project Manager/Contact
NW Greenland Glaciated Margin	400	Reykjavík, Iceland	12 August–13 October 2023	62 (5/57)	57 (15/42)	P. Knutz A. Jennings	L. Childress
Transit/tie up (dry dock) 400T (13 October–10 December 2023; Reykjavík, Iceland, to Amsterdam, Netherlands) (58 days)							
Mediterranean-Atlantic Gateway Exchange	401	Amsterdam, Netherlands	10 December 2023–9 February 2024	61 (3/58)	58 (10/48)	R. Flecker E. Ducassou	T. Williams
Tyrrhenian Continent–Ocean Transition	402	Napoli, Italy	9 February–8 April 2024	59 (5/54)	54 (2/52)	N. Zitellini A. Malinverno	E. Estes
Transit/tie up (maintenance) 402T (8 April–4 June 2024; Napoli, Italy, to Amsterdam, Netherlands) (57 days)							
Eastern Fram Strait Paleo-archive	403	Amsterdam, Netherlands	4 June–2 August 2024	59 (3/56)	56 (14/42)	R.G. Lucchi K. St. John	T. Ronge
Tie up/Demobilization 404D (2 August–30 September 2024; Amsterdam, Netherlands <sup>3</sup> ) (59 days)							

<sup>1</sup>The start date reflects the initial port call day. The vessel will sail when ready.

<sup>2</sup>Preliminary total estimated transit (i.e., to and from the operational area and between sites).

<sup>3</sup>Amsterdam is the tentative demobilization port.

## Expedition 399: Building Blocks of Life, Atlantis Massif

### Postexpedition activities

Completion of core curation and dry imaging of the cores took place in October–November 2023, followed by a core description party on 4–15 December 2023 in College Station, Texas, to complete these activities with a safe asbestos-handling protocol approved by TAMU Environmental Health & Safety. Air monitoring of various core handling activities and sample cutting were conducted by a third party to inform future handling of Expedition 399 cores and the potential for recovery of serpentinized peridotites during Expedition 402.

## Expedition 395: Reykjanes Mantle Convection and Climate

### Postexpedition activities

XRF scanning was completed at the Gulf Coast Repository (GCR) in preparation for sampling. The sampling party is scheduled for 15–21 January at the Bremen Core Repository (BCR), in Bremen, Germany. The editorial meeting is scheduled for 26 February–1 March in College Station, Texas.

## Expedition 400: NW Greenland Glaciated Margin

Table 2.2. Expedition 400 science party staffing breakdown

<b>Member country/consortium</b>	<b>Participants</b>	<b>Co-Chief Scientists</b>
USA: United States Science Support Program (USSSP)	13	1
Japan: Japan Drilling Earth Science Consortium (J-DESC)	2	
Europe and Canada: European Consortium for Ocean Research Drilling (ECORD) Science Support and Advisory Committee (ESSAC)	6	1
People’s Republic of China: IODP-China	2	
Australia and New Zealand: Australia/New Zealand IODP Consortium (ANZIC)	1	
India: Ministry of Earth Science (MoES)	1	

Figure 2.1 Expedition 400 site map.

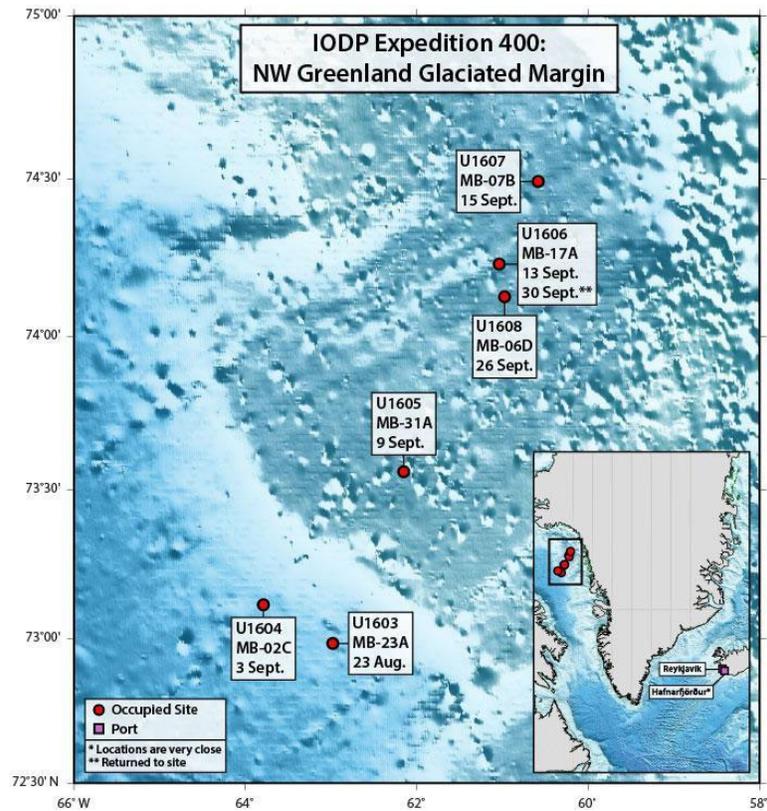


Table 2.3. Expedition 400 coring summary

Site	Hole	Latitude	Longitude	Water depth (mbsl)	Cores (N)	Total penetration (DSF)	Interval cored (m)	Core recovered (m)	Recovery (%)
U1603	U1603A	72°59.0386'N	62°58.8333'W	1800.76	13	118.6	118.6	119.0	100
	U1603B	72°59.0441'N	62°58.8431'W	1800.76	26	244.0	134.9	122.7	91
	U1603C	72°59.0480'N	62°58.8542'W	1800.76	8	285.0	73.5	22.78	31
	U1603D	72°59.0506'N	62°58.8735'W	1800.76	17	422.0	152.6	43.31	28
	U1603E	72°59.0551'N	62°58.8829'W	1800.37	7	59.1	59.1	17.48	30
	U1603F	72°59.0361'N	62°58.8180'W	1801.25	15	134.3	134.3	116.93	87
<b>Site U1603 totals</b>					<b>86</b>	<b>1,263.0</b>	<b>673.0</b>	<b>442.18</b>	<b>61</b>
U1604	U1604A	73°6.9002'N	63°47.4227'W	1942.24	32	250.6	250.6	232.91	92
	U1604B	73°6.9077'N	63°47.3996'W	1943.63	55	429.6	429.6	317.85	74
<b>Site U1604 totals</b>					<b>87</b>	<b>680.2</b>	<b>680.2</b>	<b>550.76</b>	<b>84</b>
U1605	U1605A	73°33.6421'N	62°9.0687'W	528.66	47	282.0	282.0	38.45	14
<b>Site U1605 totals</b>					<b>47</b>	<b>282.0</b>	<b>282.0</b>	<b>38.45</b>	<b>14</b>
U1606	U1606A	74°13.9380'N	61°2.2426'W	652.65	20	182.4	182.4	30.14	17
	U1606B	74°14.2845'N	61°1.6553'W	656.38	39	350.0	350.0	164.44	47
	U1606C	74°14.1955'N	61°1.8156'W	654.05	17	186.7	161.7	45.31	28
	U1606D	74°13.6459'N	61°2.7548'W	648.32	13	132.1	118.5	7.83	7
<b>Site U1606 totals</b>					<b>89</b>	<b>851.2</b>	<b>812.6</b>	<b>247.72</b>	<b>25</b>

Site	Hole	Latitude	Longitude	Water depth (mbsl)	Cores (N)	Total penetration (DSF)	Interval cored (m)	Core recovered (m)	Recovery (%)
U1607	U1607A	74°29.5499'N	60°34.9900'W	738.62	103	978.0	978.0	752.64	77
<b>Site U1607 totals</b>					<b>103</b>	<b>978.0</b>	<b>978.0</b>	<b>752.64</b>	<b>77</b>
U1608	U1608A	74°7.6818'N	60°58.3172'W	606.88	60	561.0	561.0	267.35	48
<b>Site U1608 totals</b>					<b>60</b>	<b>561.0</b>	<b>561.0</b>	<b>267.35</b>	<b>48</b>
<b>Expedition 400 totals</b>					<b>472</b>	<b>4,615.4</b>	<b>3,986.8</b>	<b>2,299.10</b>	<b>58</b>

## Science summary

Expedition 400 (NW Greenland Glaciated Margin) (12 August–13 October 2023) was designed to address current knowledge gaps in the evolution and variability of the Greenland Ice Sheet (GrIS) and its role in Earth’s climate system. Understanding the long-term history of the GrIS is key to understanding Northern Hemisphere glaciation, elucidating mechanisms underlying amplification of glacial cycles since the Late Pliocene, and predicting how the GrIS will respond to modern climate warming. Expedition 400 cored a transect across the northwest Greenland margin extending from the shelf to Baffin Bay, where thick Cenozoic sedimentary successions primarily reflect the evolution of the northern GrIS (NGrIS). The mission strategy was to retrieve a composite stratigraphic succession representing the Late Cenozoic era from the Oligocene/Early Miocene to the Holocene. The proposed drill sites specifically targeted high-accumulation rate deposits associated with contourite drifts and potential interglacial deposits within a trough-mouth-fan system, including proximal shelf deposits, all densely covered by excellent quality 2D and 3D seismic data.

By the end of the expedition, approximately 2,300 m of sediments were recovered across six sites. Lithologies recovered include mud, sand, and diamicton spanning the Oligocene/Early Miocene to Holocene. Downhole logging was successful at four sites.

## Postexpedition activities

XRF scanning will take place in the second quarter at the GCR in preparation for sampling. The editorial meeting is scheduled for 3–7 June in College Station, Texas.

## Expedition 401: Mediterranean-Atlantic Gateway Ocean Transition

### Planning

All port call activities were completed. The science party boarded the vessel on 11 December 2023.

### Clearance, permitting, and environmental assessment activities

Additional information was requested by Portugal, Spain, and Morocco. Spain issued their authorization on 30 November but restricted some activities at the single primary site in Spanish territory. Portugal issued their authorization on 5 December after confirming that the observer had been invited. The Morocco application had to be resubmitted following a breakdown in communications at the US Embassy in Rabat, and we are awaiting their approval for two alternate sites that are located on the border between Spain and Morocco.

## Expedition 402: Tyrrhenian Continent–Ocean Transition

### Planning

The Science Party submitted their science plans, and discussions of the research coordination strategies are underway. The EPM, Co-Chief Scientists, and technical staff met to review laboratory measurements and sampling. Additionally, discussions about the use of the logging equipment head (LEH-PT; downhole pressure and temperature), Sediment Temperature Tool (SET; downhole temperature), and Kuster (downhole water sampling) tool sets are ongoing. Multiple ship tours are being planned for the starting and ending port calls, which are both located in Napoli, Italy. A science party meeting was held during the American Geophysical Union (AGU) Fall Meeting for all those who attended the conference.

### Staffing

Two scientists withdrew, and JRSO invited two new scientists to fill these positions.

### Clearance, permitting, and environmental assessment activities

The Italian authorization is expected early next quarter.

## Expedition 403: Eastern Fram Strait Paleo-archive

### Planning

The science party submitted their science plans, and discussions of the research coordination strategies are underway. A sediment workshop is planned for the week of 21 April in Trieste, Italy. A science party meeting was held during the AGU Fall Meeting for all those who attended the conference.

### Staffing

Staffing is complete.

### Clearance, permitting, and environmental assessment activities

Norway raised concerns about the vertical seismic profile (VSP) work planned for the expedition and strongly recommended against any seismic work taking place 1 July–31 October, which would mean the expedition can only do seismic work in June. We have been in discussion with Norway regarding their recommendation but are waiting on the Expedition 403 Environmental Evaluation (EE) for more information. We plan to submit the EE to Norway next quarter and ask them to clarify their decision.

## 3. Management and administration

Management and administration (M&A) activities include planning, coordinating (with other IODP-related entities), overseeing, reviewing, monitoring, assuring compliance for, and reporting on IODP activities.

### Progress reporting

The JRSO operations and management report for the fourth quarter of FY23 (July–September) was submitted to NSF on 27 October ([http://iodp.tamu.edu/publications/AR/FY23/FY23\\_Q4.pdf](http://iodp.tamu.edu/publications/AR/FY23/FY23_Q4.pdf)), and the FY23 Annual Report was submitted to NSF on 20 December.

## Liaison activities

JRSO reports to and liaises with funding agencies and IODP-related agencies (e.g., *JOIDES Resolution* Facility Board [JRFB], JRFB advisory panels, Program Member Offices [PMOs], and other national organizations and facility boards) and participates in facility board, advisory panel, and IODP Forum meetings. Minutes from the facility board meetings are available online (<http://iodp.org/boards-and-panels/facility-boards>).

## Project portfolio management

Work continued on the new Rig Instrumentation System (iRIS) and the Hyperspectral Line Scan Logger (HyperScan) projects. The Google Migration project was reactivated, and a new project manager was assigned.

### New Rig Instrumentation System

#### *Scope and deliverables*

This project will provide a drilling/coring driller's display system (DDS) that will replace the existing RigWatch/Tru-VU with a modular DDS that meets the performance and end user experience-related requirements as determined during the design and review phases of the project lifecycle. As much as possible, the system will use the sensor, cabling, computing, and data display infrastructure currently installed on the *JOIDES Resolution* rig instrumentation system. The project manager is John Van Hyfte (JRSO Supervisor of Engineering and Logistics Support).

#### *Status*

JRSO deployed the backbone of the iRIS software suite during Expedition 399. All major components of the system are complete, and iRIS is currently undergoing acceptance testing during Expedition 401.

### Hyperspectral Line Scan Logger

#### *Scope and deliverables*

The purpose of this project is to select a suitable hyperspectral camera and integrate it into a logger system to provide noncontact, ultrahigh-resolution spectral data to replace the current Ocean Optics spectrometer and, potentially, the existing image logger. The new hyperspectral camera will provide higher quality color data by removing artifacts caused by GLAD ClingWrap and will provide higher spatial resolution color spectral data because each pixel represents the full color spectrum of the base image. The project manager is Lisa Crowder (JRSO Laboratory Officer).

#### *Status*

A new hyperspectral camera that overcomes the issues with noise in the 400–430 nm signal and full-spectrum, intensity-adjustable line lights were purchased and integrated into the logger. The application developers are writing LabVIEW code to communicate with the new camera and revising the motion control and the camera triggering algorithms to automate data acquisition from the instrument.

## Google Migration

### *Scope and deliverables*

The purpose of this project is to transfer all content (Google Sites, Google Drives, Google Docs, etc.) from the scientific-ocean-drilling domain to the TAMU domain. This will transfer primary responsibility for management of these resources from IODP to the TAMU Technology Services department, thus ensuring its availability to the science community beyond the termination of the IODP program.

### *Status*

Courtney Landry (IODP Configuration Manager) was selected as the new project manager. A small team within the IODP IT department has identified a subset of the content in the scientific-ocean-drilling domain to move to the TAMU Google domain. Once we have successfully migrated this content to the new domain we will use the information learned during this test phase to move the remainder of the content to the TAMU domain and then close the scientific-ocean-drilling domain.

## 4. Subcontract activities

JRSO continued to interact with ODL AS to ensure efficient and compliant operations of *JOIDES Resolution*. JRSO management meets with ODL AS biweekly to discuss operational and logistical issues.

JRSO continued to interact with Schlumberger to ensure that wireline logging operations aboard *JOIDES Resolution* continue in an efficient and compliant manner. JRSO and Schlumberger worked successfully to streamline travel, shipping, and maintenance activities. Three faulty Accelerator Porosity Sonde (APS) tools were removed from the vessel during the tie up, and a new tool will be sent to the ship for Expedition 403. Arrangements were made to send a UBI tool to Expedition 402.

## 5. Science operations

The Science Operations (SciOps) department provides scientific, operational, engineering, and logistical planning and implementation for *JOIDES Resolution* drilling expeditions in response to the IODP science planning structure. JRSO is responsible for scoping, planning, managing, and implementing science expeditions (see Expedition operations); providing services and materials for the platform and oversight to drilling and logging contractors; and utilizing IODP resources to oversee engineering development projects.

### Expedition outreach support

Plans are in progress for a JR Academy to be held during the April Expedition 402T transit from Napoli, Italy, to Amsterdam, Netherlands. Port call tours are being planned at the request of IODP-Italy for the February and April Napoli port calls. A three-person film crew will sail during Expedition 403. A five-part Greek documentary was released about Hellenic Arc Expedition 398.

## 6. Technical and analytical services

The Technical and Analytical Services (TAS) department develops, maintains, and operates a diverse array of scientific equipment for analyzing cores and core samples; staffs the shipboard laboratories with skilled technicians; provides support for shipboard scientists; assists with downhole tools and measurements; and facilitates shipboard core curation, handling, and shipping.

## Analytical systems

### 3.5 kHz Echo sounder

The 3.5 kHz echo sounder has been nonfunctional since 2021, requiring that we rely solely on the 12 kHz system. Multiple attempts to repair and replace accessible components of the 3.5 kHz system failed to resolve the issue. During the dry dock in November, the sonar dome was removed from the ship and inspected. The 3.5 kHz electronics compartment was found to be flooded, and signs of arcing were evident. TAS staff replaced the electronics and the seals, and the 3.5 kHz echo sounder is once again functional.

## Laboratory working groups

The laboratory working groups (LWGs) provide oversight, research direction, and quality assurance for the methods, procedures, and analytical systems both on *JOIDES Resolution* and on shore. The groups meet regularly to review cruise evaluations, expedition technical reports, and any concerns raised by the IODP Issues Management Team to provide advice on corrective actions and potential developments for laboratories.

### Curation and Core Handling

The Curation LWG did not meet this quarter because there were no curatorial issues raised in recent cruise evaluations.

### Geochemistry and Microbiology

The Geochemistry LWG met this quarter to discuss ongoing issues as well as those arising from recent expeditions.

#### *Expedition 399*

- The tabletop pH meter did not work; this has been repaired.
- A scientist reported that the coulometer did not have sufficient instructions for the user to measure low-percent-carbonate samples. This problem can be overcome by increasing the sample size. JRSO will ensure the user guide explains this solution.

#### *Expedition 400*

- A scientist asked why the coulometer software does not allow for the analysis of dolomite (or other non-CaCO<sub>3</sub> carbonate species). The coulometer only reports micrograms of carbon, and JRSO software multiplies this by a factor to convert to calcium carbonate because the assumption is that most carbonate is in this form. There is no way to evaluate the percentage of the carbonate arising from MgCO<sub>3</sub> or any other carbonate species using this instrument.
- A scientist made the observation that it would be better to have a way to measure organic carbon directly rather than using the silver-cup/hydrochloric acid method on the carbon-hydrogen-nitrogen-sulfur (CHNS) analyzer, which has not been very successful during some expeditions. JRSO has no equipment and is not aware of any that would allow that to be done.
- A scientist recommended a better weighing system for microgram-/milligram-scale samples but did not provide any information. JRSO reached out to that scientist to gather information.

### *Ongoing issues*

- A document for coordinating microbiology and petrology sampling in basement rocks will be circulated to the LWG. The document also addresses two issues: how to avoid injury when attempting to break hard rocks into smaller samples and how to document large hard rock pieces before they are broken into smaller pieces. A dremel tool was acquired for sampling more safely and a Foldio imaging system was acquired for documenting samples. Manual pages were created for the Laboratory Guides Wiki that explain the use of these tools.

## Geology

The Geology LWG met this quarter to discuss ongoing issues as well as those arising from recent expeditions.

### *Expedition 395*

- A scientist recommended that JRSO staff be trained to set up circular polarization for doing analysis on nanofossils so that it can be performed if needed on future cruises. We appreciate that the scientists helped train staff on this method.

### *Ongoing issues*

- The issue of image quality in JPG images produced by the Section Half Imaging Logger (SHIL) was discussed. The issue is that the brightness, gamma correction, and contrast can be changed by the user to enhance features or to produce a good image on paper for hand-drawn descriptive purposes. Thus, JPG images may vary from the unaltered TIF, which does not undergo the user-defined corrections. JRSO considered adding a third, unaltered JPG image to the database, but rejected that in favor of recommending that the TIF be preserved for rigorous image analysis.
- The science parties for Expeditions 399, 395, and 400 mostly liked the new descriptive software GEODESC, but some critical comments were received. These comments were collected and analyzed for future improvements. For example, the structural geologists did not feel that the structural geology framework was sufficient for their needs. Another scientist complained about the flexibility for entering non-fossil data in free-text columns. The latter issue was a training issue; GEODESC can allow any number of free-entry columns. Additional work will be done to ensure scientists are aware of everything the package can do, in addition to adding features and fixing bugs where appropriate.

## Geophysics

The Geophysics LWG met this quarter to discuss ongoing issues as well as those arising from recent expeditions.

### *Expedition 399*

- A scientist commented that it would be good if the natural gamma radiation spectra were made more accessible and easy to use. JRSO will consider means to do this, but it is unlikely to be acted upon before the end of operations.
- Comments were raised about LORE reports for samples taken above the borehole (e.g., a Niskin bottle water sample). The Curation LWG created a schema to handle these sorts of samples, but the Laboratory Management Information System (LIMS) online report portal (LORE) reports look very messy because all of the samples are registered at a depth of 0 m below seafloor (LIMS cannot

handle negative depths). The LWG recommended that offline Excel tables be created with water column depth for each sample clearly demarcated.

#### *Expedition 395*

- Scientists would like JRSO core loggers to have software for reviewing the data on the instrument before upload and to edit extraneous data points at this point. JRSO prefers not to allow widespread editing of raw data before they are uploaded.
- Macintosh laptops continued to have issues connecting to the JRSO network. The network software continues to be unreliable, and no obvious workaround has been identified.
- Scientists would like the LIMS Viewer (LIVE) software to be available on shore. The LWG will create a working group to manage this, and IT will create the tileset images needed for LIVE to show images (e.g., core section half images).

#### *Ongoing issues*

- The new X-ray Linescan Imager (XSCAN) is working well, and the science parties are very pleased with the data being collected.
- XSCAN software was enhanced to allow the user to reprocess X-ray images with different parameter sets to enhance features in a given image.
- Additional work was done on the one remaining functional Magnetic Susceptibility Sonde (MSS) downhole tool. The Schlumberger engineer set the internal configuration switches to enhance sensitivity, which appeared to work well during Expedition 400 with good comparison with shipboard whole-round track magnetic susceptibility data.

## 7. TAMU Technology Services

TAMU Technology Services oversees JRSO data collection/storage, management, and archiving; maintains IT infrastructure on ship and shore; develops and maintains instrument-specific software for data acquisition; and manages the Program's extensive databases.

### Expedition data

#### LIMS database

Data from Expedition 400 were added to the LIMS database on shore this quarter. Expedition 391 and 397T data were released from moratorium during this quarter.

#### Expedition data requests

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

Table 7.1. Top 10 countries accessing JRSO web databases

Rank	Janus database		LIMS database	
	Country	Visitor sessions	Country	Visitor sessions
1	USA	854	USA	2,993
2	China	300	China	608
3	United Kingdom	200	United Kingdom	411
4	Germany	103	Japan	200
5	Netherlands	66	Germany	182
6	Australia	61	Canada	150
7	Japan	60	Italy	100
8	Italy	57	France	82
9	Canada	52	India	69
10	Switzerland	42	New Zealand	48
11	Other	356	Other	477
	<b>Total</b>	<b>2,151</b>	<b>Total</b>	<b>5,320</b>

Table 7.2. Top 20 database web queries

Rank	Janus database		LIMS database	
	Query	Views	Query	Views
1	Physical properties—GRA	371	Images—core photo	3,201
2	Hole summary	364	Samples	1,412
3	Physical properties—MAD	273	Hole summary	1,053
4	Paleontology—age model	175	Section summary	999
5	Chemistry—rock eval	160	Images—section photo	947
6	Hole trivia	150	Core summary	759
7	Images—closeup	146	Chemistry—carbonates	582
8	Site details	140	X-ray—XRF	411
9	Physical properties—RSC	137	Physical properties—GRA	391
10	Images—prime data	119	Chemistry—interstitial water	345
11	Splice	119	Physical properties—MAD	337
12	Chemistry—interstitial water	114	Paleomag—SRM section	318
13	Physical properties—NGR	95	Physical properties—NGR	297
14	Physical properties—AVS	85	Images—closeup	297
15	Paleontology—age profile	79	Chemistry—gas safety	284
16	X-ray—XRD	74	X-ray—XRD	282
17	Site summary trivia	71	Physical properties—MS	270
18	Paleontology—paleo investigation	69	Physical properties—RSC	209
19	Paleontology—range charts	65	Images—thin section	207
20	Chemistry—gas safety	53	Images—microimg	172
	Other	1,197	Other	3,378
	<b>Total</b>	<b>4,056</b>	<b>Total</b>	<b>16,151</b>

Table 7.3. Data requests to the TAMU Data Librarian

Requests	Total	Country	Total
How to	5	USA	5
Data	4	CHN	2
Images	1	AUS	1
Forwarded	1	UK	1
		NZ	1
		FR	1
<b>Total</b>	<b>11</b>	<b>Total</b>	<b>11</b>

## Network systems operation, maintenance, and security

JRSO conducted routine system maintenance in accordance with the TAMU IT security policy. In addition, we completed Phases I and II of the annual risk assessment and are currently working to correct the 55 findings uncovered during the assessment.

During the first quarter of FY24, JRSO IT staff worked with campus network engineers and technicians to replace all switches and wireless access points. JRSO is fully integrated into the Aggie NextGen network as of 5 November.

During Expedition 399, JRSO added Starlink satellite service to the ship in conjunction with the existing very small aperture terminal (VSAT) satellite service. This has resulted in greater reliability when the ship is operating in higher latitudes and provides additional bandwidth to support more efficient communication between ship and shore. To improve the security of our Starlink network traffic, we are attempting to route this traffic through our switches on campus similar to the way we route the older VSAT traffic. We have experienced several technical hurdles that have prevented this to date. IODP network technicians worked with TAMU and Marlink network engineers, and we believe we have found a solution, which we expect to implement during Expedition 401.

## 8. Core curation

JRSO provides services in support of Integrated Ocean Drilling Program and IODP core sampling and curation of the core collection archived at the GCR.

### Sample and curation strategies

This quarter, JRSO planned sample and curation strategies for Expeditions 400 and 401. The GCR also completed preparing sample lists for the Expedition 395 postexpedition sample party, which will be held 15–21 January at the BCR. A doublewide trailer was rented and outfitted to create a laboratory capable of safely mitigating concerns related to asbestiform minerals present in Expedition 399 cores. Proper hard rock curation was completed in October and November on ~850 m of Expedition 399 Site U1601 cores that contained asbestiform minerals. This included adding bins to 217 core sections that we could not bin during the expedition and adding labels to hard rock pieces in 738 core sections. Additionally, all Site U1601 core sections were reimaged wet and dry. During completion of the hard rock curation effort, we sampled cores that were identified and unable to be cut on board. Air monitoring for airborne asbestos particles was conducted to assess the health risks of working with cores that contain asbestiform minerals. In December, the GCR hosted a core description workshop for the Expedition 399 science party to complete core description work. Additionally, thin section billet and inductively coupled plasma

spectroscopy (ICP) samples were identified and collected from core sections that were unable to be sampled during the expedition. Additional air monitoring was conducted to provide data while cutting samples.

## Sample requests and core sampling

The following table provides a summary of the 1,669 legacy (postmoratorium) samples taken at the GCR during this quarter. Sample requests that show zero samples taken may represent cores that were viewed by visitors during this quarter, used for educational purposes, or requested for XRF analysis. 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 8.1. GCR sample requests

Sample request number, name, country	Number of samples taken	Number of visitors
104606IODP, Yu, China	269	0
104062IODP, Koenig, Spain	31	0
104720IODP, Anna Joy, UK	250	0
104745IODP, Hoogakker, UK	92	0
104768IODP, Gupta, India	20	0
104756IODP, Hoegler, USA	133	0
104324IODP, Chen, China	125	0
104789IODP, Shakun, USA	166	0
104793IODP, Evangelinos, UK	67	0
104800IODP, Zhang, China	103	0
104777IODP, Bruggmann, Switzerland	44	0
104848IODP, Remirez, USA	33	0
104860IODP, Penman, USA	4	0
104884IODP, Davidson, Germany	4	0
104876IODP, Sifan Wu, China	38	0
104956IODP, Gonzalez-Lanchas, UK	18	0
104861IODP, Hoegler, USA	146	0
104939IODP, Wang, USA	40	0
105026IODP, Luiza Fraga Ferreira, Germany	24	0
105048IODP, Verhaert, Australia	9	0
105061IODP, Pei, USA	53	0
Tours/demonstrations (2)	2	36
<b>Totals</b>	<b>1,669</b>	<b>36</b>

## Use of core collection and education and outreach support

JRSO 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. This quarter, two GCR tours were given to TAMU undergraduate classes. Outreach

activities were limited this quarter because significant GCR staff time was dedicated to supporting the Expedition 399 onshore curation work and a core description workshop.

## Onshore XRF scanning

During this quarter, 1,410 core sections and discrete samples were scanned on the XRFs at the GCR. Documentation relating to the operation, advanced configurations, maintenance, and troubleshooting of the XRF is available at <https://sites.google.com/scientific-ocean-drilling.org/xrf-iodp/home>. Because of the upcoming renovation of the GCR laboratory spaces, the entire scanning XRF laboratory, including both instruments, was moved this quarter to a temporary laboratory space until the renovation is complete.

Table 8.2. Core sections scanned

Request type	Expedition, name, country	XRF 1	XRF 2	SHIL	WRMSL*
Programmatic	395/395C/384, Yeon, LeVay, Satolli, Jones, Modestou, Hanson, Ibrahim, Matthias, Karatsolis, USA	633	777		
<b>Totals</b>		<b>633</b>	<b>777</b>		

Notes: XRF = X-ray fluorescence, SHIL = Section Half Imaging Logger, WRMSL = Whole-Round Multisensor Logger.  
\*The WRMSL is currently unavailable because it is serving as the development track for a new X-ray system.

## 9. Publication services

The Publication Services (Pubs) department provides publication support services for IODP riserless and riser drilling expeditions (see Expedition operations) and editing, production, and graphics services for required Program reports (see Management and administration), technical documentation (see Technical and analytical services), and scientific publications as defined in the JRSO cooperative agreement with NSF. The Pubs department also maintains legacy access and archiving of Integrated Ocean Drilling Program, Ocean Drilling Program (ODP), and Deep Sea Drilling Project (DSDP) publications.

## Scientific publications

Table 9.1. Newly published content on the IODP Publications website

Reports and publications	JRSO	Other
<i>Scientific Prospectuses</i>		
<i>Preliminary Reports</i>		
Expedition Reports	10.14379/iodp.proc.391.2023 10.14379/iodp.proc.391.101.2023 10.14379/iodp.proc.391.109.2023 10.14379/iodp.proc.391.102.2023 10.14379/iodp.proc.391.103.2023 10.14379/iodp.proc.391.104.2023 10.14379/iodp.proc.391.105.2023 10.14379/iodp.proc.391.106.2023 10.14379/iodp.proc.391.107.2023 10.14379/iodp.proc.391.108.2023	10.14379/iodp.proc.386.2023 10.14379/iodp.proc.386.101.2023 10.14379/iodp.proc.386.102.2023 10.14379/iodp.proc.386.103.2023 10.14379/iodp.proc.386.104.2023 10.14379/iodp.proc.386.105.2023 10.14379/iodp.proc.386.106.2023 10.14379/iodp.proc.386.107.2023 10.14379/iodp.proc.386.108.2023 10.14379/iodp.proc.386.109.2023 10.14379/iodp.proc.386.110.2023 10.14379/iodp.proc.386.111.2023 10.14379/iodp.proc.386.112.2023 10.14379/iodp.proc.386.113.2023
Data Reports		
Technical Note	10.14379/iodp.tn.5.2023	

Notes: Other = European Consortium for Ocean Research Drilling Science Operator (ESO), The Institute for Marine-Earth Exploration and Engineering (MarE3), Integrated Ocean Drilling Program US Implementing Organization (USIO), and Oman expedition publications.

## Web services

In addition to internal JRSO web page updates and additions, new content is regularly added to IODP expedition web pages at <http://iodp.tamu.edu/scienceops/expeditions.html>.

During the first quarter of FY24, the IODP TAMU website received 488,572 page views and 57,112 site visits and the IODP Publications website received 366,345 page views and 77,887 site visits. Where possible, visits by JRSO employees and search engine spiders were filtered out of the counts. Visitors to the IODP TAMU website came from more than 217 countries.

The ODP science operator, ODP legacy, and DSDP publications websites are hosted at TAMU. Key data, documents, and publications produced during DSDP and ODP are preserved in these legacy websites that highlight the scientific and technical accomplishments of these ground-breaking precursors to the Integrated Ocean Drilling Program and IODP. These legacy websites contain downloadable documents that cover a wide spectrum of Program information, from laboratory and instrument manuals to Program scientific publications, journals, and educational materials.

Table 9.2. Legacy website statistics

Legacy website	FY24 Q1 page views*	FY24 Q1 site visits*
www-odp.tamu.edu	267,934	51,856
www.odplegacy.org	3,424	2,133
www.deepseadrilling.org	134,660	27,630
<b>Total</b>	<b>406,018</b>	<b>81,619</b>

Note: \*Where possible, visits by JRSO employees and search engine spiders were filtered out.

## Discovery and accessibility

### 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. CrossRef tracks the number of times a publication is accessed, or resolved, through the CrossRef DOI resolver tool. Program statistics for this quarter are shown in the tables below.

Table 9.3. Number of online DOI resolutions

Reports and publications	DOI prefix	October 2023	November 2023	December 2023	FY24 Q1 total
IODP	10.14379	19,903	20,905	19,605	<b>60,413</b>
Integrated Ocean Drilling Program	10.2204	15,718	15,696	17,275	<b>48,689</b>
ODP/DSDP	10.2973	22,713	26,393	37,086	<b>86,192</b>

Table 9.4. Top 10 IODP DOIs resolved during FY24 Q1

DOI (10.14379)	Resolutions	Title
10.14379/IODP.PROC.367368.105.2018	1,068	<i>Proceedings</i> Volume 367/368: Site U1501
10.14379/IODP.PROC.363.2018	1,048	<i>Proceedings</i> Volume 363: Western Pacific Warm Pool
10.14379/IODP.PR.382.2019	638	<i>Preliminary Report</i> : Expedition 382 Iceberg Alley and Subantarctic Ice and Ocean Dynamics
10.14379/IODP.PROC.367368.102.2018	583	<i>Proceedings</i> Volume 367/368: Expedition 367/368 methods
10.14379/IODP.PROC.372B375.105.2019	463	<i>Proceedings</i> Volume 372B/375: Site U1520
10.14379/IODP.PROC.370.2017	389	<i>Proceedings</i> Volume 370: Temperature Limit of the Deep Biosphere off Muroto
10.14379/IODP.PROC.356.102.2017	341	<i>Proceedings</i> Volume 356: Expedition 356 methods
10.14379/IODP.PROC.370.102.2017	298	<i>Proceedings</i> Volume 370: Expedition 370 methods
10.14379/IODP.PROC.367368.103.2018	289	<i>Proceedings</i> Volume 367/368: Site U1499
10.14379/IODP.PROC.370.201.2018	276	<i>Proceedings</i> Volume 370: Data report: calcareous nannofossils from the middle Miocene to Pleistocene, IODP Expedition 370 Site C0023

## ScienceOpen

Integrated Ocean Drilling Program and IODP expedition reports and data reports are indexed at ScienceOpen.

Table 9.5. ScienceOpen collection statistics ([https://www.scienceopen.com/collection/IODP\\_Publications](https://www.scienceopen.com/collection/IODP_Publications) and <https://www.scienceopen.com/collection/8b0582f6-47bf-4988-b90a-8533135e6fcc>)

Collection	Number of articles	Article views	Number of authors	Referenced articles
<i>Proceedings of the International Ocean Discovery Program</i> collection	836	25,870	2,045	9,810
<i>Scientific Ocean Drilling Expedition Research Results</i> collection	10,670	66,992	22,260	106,379

## Legacy activities

### Closeout

Integrated Ocean Drilling Program publications closeout activities continued during the reporting period. Data reports published during this quarter in the *Proceedings of the Integrated Ocean Drilling Program* are listed above in Scientific publications.

### Publications archiving

The main IODP publications website (<http://publications.iodp.org/index.html>), which includes full content from all Integrated Ocean Drilling Program and IODP volumes, and other publications pages are archived at the Internet Archive, a long-term archive specializing in full website backups. Currently, our collection houses 2 TB of data and more than 8.5 million files.

## Citation management

IODP Pubs contracts with the American Geosciences Institute (AGI) to maintain the Scientific Ocean Drilling Citation Database, a subset of the GeoRef database that contains more than 40,800 records for Program-related scientific ocean drilling publications from 1969 to the present.

Table 9.6 Scientific Ocean Drilling Bibliographic Database statistics

Program-related publications	October 2023	November 2023	December 2023	FY24 Q1 total
Searches	634	889	228	<b>1,751</b>
Citation views	385	485	166	<b>1,036</b>

## Downloadable IODP bibliographies

IODP Pubs also maintains a current PDF list of publications and conference presentations/abstracts authored by JRSO staff and Research Information Systems (RIS)–format citation data lists for IODP program publications and staff-authored journal articles (<http://iodp.tamu.edu/staffdir/indiv.html>). RIS is a standardized tag format that enables citation programs to exchange data. Users can import the content of the RIS files into most bibliographic software. RIS-format citation data lists are also available for expedition-related bibliographies for Expeditions 301–405. The IODP program publication and JRSO

staff-authored publication lists are updated quarterly. Expedition-related bibliography lists are updated monthly.

### Abstracts authored by JRSO staff

Abstracts of conference presentations during this quarter authored by JRSO staff include the following. Bold type indicates JRSO staff.

#### *AGU Fall Meeting*

- **Acton, G.D.**, Satolli, S., Di Chiara, A., Friedman, S.A., Dwyer, D., **Roth, A.**, Higley, M., **Hastedt, M.**, **Novak, B.**, **Rudbäck, D.**, **Blum, P.**, and the IODP Expedition 395 Science Party, 2023. Azimuthal orientation of piston cores collected by the International Ocean Discovery Program (IODP): an example from the North Atlantic. Presented at the 2023 American Geophysical Union Fall Meeting, San Francisco, CA, 11–15 December 2023. Abstract GP43D-0532
- Beethe, S., Walczak, M., Koppers, A.A.P., Koukousioura, O., Woodhouse, A., Preine, J., Druitt, T., Kutterolf, S., **Ronge, T.**, Bernard, A., Berthod, C., Chen, H., Chiyonobu, S., Clark, A., DeBari, S.M., Fernandez-Perez, T.I., Gertisser, R., Huebscher, C., Johnston, R., Jones, C., Joshi, K.B., Kletetschka, G., Manga, M., McCanta, M.C., McIntosh, I.M., Metcalfe, A., Morris, A., Nomikou, P., Pank, K., Peccia, A., Polymenakou, P., Tominaga, M., and Yamamoto, Y., 2023. After the Minoan: new radiocarbon ages of recently uncovered eruptions in the Santorini Caldera. Presented at the 2023 American Geophysical Union Fall Meeting, San Francisco, CA, 11–15 December 2023. Abstract V41E-0150
- Berndt, C., Planke, S., **Alvarez Zarikian, C.A.**, Frieling, J., Jones, M.T., Millett, J.M., Brinkhuis, H., Bünz, S., Svensen, H.H., Longman, J., Scherer, R.P., Karstens, J., Manton, B., Nelissen, M., Faleide, J.I., Reed, B., Huisman, R.S., Agarwal, A., Andrews, G.D., Betlem, P., Bhattacharya, J., Chatterjee, S., Christopoulou, M.E., Clementi, Filina, I., Guo, P., Harper, D., Lambart, S., Mohn, G., Nakaoka, R., Varela, N., Wang, M., Xu, W., Yager, S., Ferre, E.C., and Tegner, C., 2023. Shallow-water hydrothermal venting linked to the Paleocene Eocene Thermal Maximum. Presented at the 2023 American Geophysical Union Fall Meeting, San Francisco, CA, 11–15 December 2023. Abstract OS11C-1295
- Brassell, S.C., Doiron, K.E., Bijl, P., Wagner, T., Herrle, J.O., Uenzelmann-Neben, G., Bohaty, S., **Childress, L.B.**, and the IODP Expedition 392 Science Party, 2023. Contributions of polycyclic aromatic hydrocarbons (PAH) derived from angiosperms and wildfires in Campanian to Paleocene sediments from high southern latitudes. Presented at the 2023 American Geophysical Union Fall Meeting, San Francisco, CA, 11–15 December 2023.
- Cooper, S.K., Ballenger, J., **Alvarez Zarikian, C.A.**, Mossa, L., **Childress, L.B.**, Brase, L., McGee, S., Robeck, E., and Pincus, M., 2023. The IODP School of Rock: forging new synergy towards excellence in sharing data-rich science. Presented at the 2023 American Geophysical Union Fall Meeting, San Francisco, CA, 11–15 December 2023. Abstract ED13A-07
- **Childress, L.B.**, **Acton, G.D.**, **Percuoco, V.P.**, and **Hastedt, M.**, 2023. LILY: LIMS with lithology for exploring IODP data. Presented at the 2023 American Geophysical Union Fall Meeting, San Francisco, CA, 11–15 December 2023. Abstract IN13C-0585
- Cunningham, E., Hartley, A.S., Lambart, S., Chatterjee, S., Guo, P., Tegner, C., Planke, S., Berndt, C., **Alvarez Zarikian, C.A.**, Betlem, P., Brinkhuis, H., Christopoulou, M.E., Filina, I., Frieling, J., Harper, D., Jones, M.T., Longman, J., Millett, J., Mohn, G., Scherer, R.P., Varela, N., Xu, W., Yager, S., Andrews, G.D., Agarwal, A., Bhattacharya, J., Ferré, E.C., Nakaoka, R., and Wang, M., 2023. Mantle source conditions and their control on magmatic productivity during the Northeast Atlantic breakup.

Presented at the 2023 American Geophysical Union Fall Meeting, San Francisco, CA, 11–15 December 2023. Abstract OS11C-1292

- Davidson, P., Koppers, A.P., and the Expedition 392 Scientists [including **L.B. Childress**], 2023. Preliminary <sup>40</sup>Ar/<sup>39</sup>Ar results from IODP Exp. 392: basement ages from the Agulhas Plateau. Fall AGU 2023. Presented at the 2023 American Geophysical Union Fall Meeting, San Francisco, CA, 11–15 December 2023.
- DeBari, S., Pfundt, C., Pank, K., McCanta, M.C., Peccia, A., McIntosh, I.M., Woodhouse, A., Druitt, T., Kutterolf, S., **Ronge, T.**, Beethe, S., Berthod, C., Chiyonobu, S., Clark, A., Gertisser, R., Huebscher, C.P., Koukousioura, O., Johnston, R.M., Metcalfe, A., Nomikou, P., Preine, J., and the IODP Expedition 398 Science Team, 2023. An early (~1.6 Ma) coarse-grained tephra unit in the Christiana-Santorini-Kolumbo volcanic field recovered from IODP Expedition 398: implications for early Hellenic arc magmatic processes. Presented at the 2023 American Geophysical Union Fall Meeting, San Francisco, CA, 11–15 December 2023. Abstract V41E-0151
- Doiron, K.E., Brassell, S.C., Bijl, P., Wagner, T., Herrle, J.O., Uenzelmann-Neben, G., Bohaty, S., **Childress, L.B.**, and the IODP Expedition 392 Science Party, 2023. Evolutionary developments in alkenones from the Campanian to Paleocene recorded in sediments from the Transkei Basin (IODP Site U1581). Presented at the 2023 American Geophysical Union Fall Meeting, San Francisco, CA, 11–15 December 2023.
- Druitt, T.H., Kutterolf, S., Preine, J., Gertisser, R., Karstens, J., Keller, J., Huebscher, C., Koukousioura, O., Manga, M., McCanta, M.C., McIntosh, I.M., Metcalfe, A., Nomikou, P., Pank, K., **Ronge, T.**, Woodhouse, A., Crutchley, G.J., Beethe, S., Berthod, C., Chiyonobu, S., Chen, H., Clark, A., DeBari, S.M., Johnston, R.M., Peccia, A., Yamamoto, Y., Bernard, A., Fernandez Perez, T.I., Jones, C., Joshi, K.B., Kletetschka, G., Xiaohui, L., Morris, A., Polymenakou, P., Tominaga, M., and Papanikolaou, D., 2023. Deposits from a spectrum of shallow marine to subaerial explosive eruptions studied by deep drilling at Santorini (IODP Expedition 398). Presented at the 2023 American Geophysical Union Fall Meeting, San Francisco, CA, 11–15 December 2023. Abstract V13B-0116
- Druitt, T.H., Kutterolf, S., **Ronge, T.**, Huebscher, C., Nomikou, P., Preine, J., Gertisser, R., Keller, J., Koukousioura, O., Manga, M., Metcalfe, A., McCanta, M.C., McIntosh, I.M., Pank, K., Woodhouse, A., Beethe, S., Berthod, C., Chiyonobu, S., Chen, H., Clark, A., DeBari, S.M., Johnston, R.M., Peccia, A., Yamamoto, Y., Bernard, A., Fernandez Perez, T.I., Jones, C., Joshi, K.B., Kletetschka, G., Xikaohui, L., Morris, A., Polymenakou, P., Tominaga, M., and Papanikolaou, D., 2023. A giant shallow-marine pyroclastic flow eruption from ancestral Santorini discovered by deep drilling (IODP Expedition 398). Presented at the 2023 American Geophysical Union Fall Meeting, San Francisco, CA, 11–15 December 2023. Abstract V44B-02
- **Estes, E.R.**, Laaker, E.M., Davis, J.E., Faz, N., Johnson, M., Solorzano, J., Kelly, R.P., Bundy, R.M., Sylvan, J.B., Oldham, V., and Robinson, R.S., 2023. Combined chemical and biological approach to understand manganese cycling in seasonal hypoxic zones. Presented at the 2023 American Geophysical Union Fall Meeting, San Francisco, CA, 11–15 December 2023. Abstract B32D-08.
- Ferre, E.C., Agarwal, A., Varela, N., Berndt, C., Planke, S., **Alvarez Zarikian, C.A.**, Betlem, P., Bhattacharya, J., Brinkhuis, H., Chatterjee, S., Christopoulou, M.E., Clementi, Filina, I., Frieling, J., Guo, P., Harper, D., Jones, M.T., Lambart, S., Longman, J., Millett, J.M., Mohn, G., Nakaoka, R., Scherer, R.P., Tegner, C., Wang, M., Xu, W., Yager, S., and Andrews, G., 2023. Maghemitization of titanomagnetite, submarine alteration and marine magnetic anomalies in the Vøring Basin, North Atlantic. Presented at the 2023 American Geophysical Union Fall Meeting, San Francisco, CA, 11–15 December 2023. Abstract OS11C-1291

- Geldmacher, J., Liu, J., Ichiyama, Y., Davidson, P., and the Scientific Team of IODP Expedition 392 [including **L.B. Childress**], 2023. The origin of the Agulhas Plateau at the African-Southern Ocean Gateway (IODP Exp. 392): first results from igneous rock geochemistry. Presented at the 2023 American Geophysical Union Fall Meeting, San Francisco, CA, 11–15 December 2023.
- Gilhooly, W., III, Kallmeyer, J., Treude, T., Willbrandt, T., Sylvan, J.B., **Estes, E.R.**, Wang, Y., and the South Atlantic Transect IODP Expedition 390 & 393 Scientists, 2023. Cryptic sulfur cycling in sediments of the South Atlantic Gyre. Presented at the 2023 American Geophysical Union Fall Meeting, San Francisco, CA, 11–15 December 2023. Abstract B53G-1967
- Gürer, D., Dallanave, E., Bohaty, S.M., Uenzelmann-Neben, G., Sprain, C.J., Hu, P., Roberts, A.P., and the Expedition 392 Scientists [including **L.B. Childress**], 2023. Age of emplacement and paleolatitude of the Agulhas Plateau – IODP Expedition 392, Site U1582. Presented at the 2023 American Geophysical Union Fall Meeting, San Francisco, CA, 11–15 December 2023.
- Harris, M., Carter, E., Evans, A., Albers, E., Belgrano, T., Kempton, P.D., Jonnalagadda, M., Coggon, R.M., Teagle, A.H., Reece, J.S., Sylvan, J.B., **Estes, E.R.**, **Williams, T.**, and the South Atlantic Transect IODP Expedition 390 & 393 Scientists, 2023. Investigating hydrothermal alteration during the aging of ocean crust: insights from the South Atlantic transect IODP Expeditions 390/393. Presented at the 2023 American Geophysical Union Fall Meeting, San Francisco, CA, 11–15 December 2023. Abstract OS12A-01
- Hendy, I.L., Chicoye, M., Hollis, C.J., George, S.C., Yasukawa, K., Haynes, L., **Childress, L.B.**, and the IODP Expedition 378 Scientists, 2023. Cenozoic marine basin evolution in the SW Pacific: bulk sediment elemental data from IODP Site U1553, New Zealand. Presented at the 2023 American Geophysical Union Fall Meeting, San Francisco, CA, 11–15 December 2023.
- Hodell, D.A., Abrantes, F.F.G., **Alvarez Zarikian, C.A.**, and the Expedition 397 Scientific Party and XRF Scanning Team, 2023. Co-evolution of millennial and orbital climate variability during the intensification of Northern Hemisphere glaciation in the Late Pliocene. Presented at the 2023 American Geophysical Union Fall Meeting, San Francisco, CA, 11–15 December 2023. Abstract PP31A-02
- Jennings, A., Knutz, P., **Childress, L.B.**, and the Expedition 400 Scientists, 2023. Preliminary Results of IODP Expedition 400 to Northwest Greenland. Presented at the 2023 American Geophysical Union Fall Meeting, San Francisco, CA, 11–15 December 2023.
- Kletetschka, G., Morris, A., **Roth, A.**, Preine, J., Druitt, T.H., Kutterolf, S., **Ronge, T.**, Huebscher, C., Chiyonobu, S., Koukousioura, O., Yamamoto, Y., Woodhouse, A., Clark, A., DeBari, S.M., Beethe, S., Berthod, C., Bernard, A., Chen, H., Gertisser, R., Fernandez Perez, T.I., Jones, C., Johnston, R.M., Joshi, K.B., Xiaohui, L., Manga, M., McCanta, M.C., McIntosh, I.M., Pank, K., Peccia, A., Tominaga, M., Nomikou, P., Polymenakou, P., Whitlock, S.E., and Schnur, S., 2023. A sequence of volcanic events from sediment cores IODP398, U1589, near Santorini. Presented at the 2023 American Geophysical Union Fall Meeting, San Francisco, CA, 11–15 December 2023. Abstract V41E-0149
- Krissek, L.A., Meth, C., Camerlenghi, A., **Childress, L.B.**, Christensen, B.A., Daigle, H., Humphris, S.E., Kachovich, S., Kuroda, J., Li, Y.Y., Pandey, D., Shevenell, A., and Slagle, A., 2023. Ocean Drilling Legacy Assets Projects (LEAPs): a new approach to collaborative research. Presented at the 2023 American Geophysical Union Fall Meeting, San Francisco, CA, 11–15 December 2023.
- Kutterolf, S., Druitt, T.H., **Ronge, T.**, Beethe, S., Bernard, A., Berthod, C., Chen, H., Chiyonobu, S., Clark, A., DeBari, S.M., Fernandez Perez, T.I., Gertisser, R., Huebscher, C.P., Johnston, R.M., Jones, C., Joshi, K.B., Kletetschka, G., Koukousioura, O., Xiaohui, L., Manga, M., McCanta, M.C., McIntosh, I.M.,

Morris, A., Nomikou, P., Pank, K., Peccia, A., Polymenakou, P., Preine, J., Tominaga, M., Woodhouse, A.D., and Yamamoto, Y., 2023. The story of heaven and hell (IODP Expedition 398) – objectives, challenges and results of drilling into volcanic deposits of the Christiana-Santorini-Kolumbo volcanic field. Presented at the 2023 American Geophysical Union Fall Meeting, San Francisco, CA, 11–15 December 2023. Abstract V43A-08

- Malinverno, A., Zitellini, N., **Estes, E.R.**, and the Tyrrhenian Magmatism and Mantle Exhumation (TIME) Proponents, 2023. Probing mantle exhumation in the continent-ocean transition of the Tyrrhenian Basin, Mediterranean Sea (IODP Expedition 402). Presented at the 2023 American Geophysical Union Fall Meeting, San Francisco, CA, 11–15 December 2023. Abstract V31E-0146
- Manga, M., Beethe, S., Huebscher, C., McIntosh, I.M., Nomikou, P., Preine, J., Tominaga, M., Druitt, T.H., Kutterolf, S., **Ronge, T.**, and the IODP Expedition 398 Scientists, 2023. Physical properties of submarine volcanoclastic deposits in the central Hellenic volcanic arc. Presented at the 2023 American Geophysical Union Fall Meeting, San Francisco, CA, 11–15 December 2023. Abstract V41E-0153
- McCanta, M.C., Druitt, T., Kutterolf, S., **Ronge, T.**, and the IODP Expedition 398 Science Party. Changing Redox Conditions in the Santorini Magma Storage Region. Presented at the 2023 American Geophysical Union Fall Meeting, San Francisco, CA, 11–15 December 2023. Abstract V41E-0152
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## Appendix: JRSO quarterly report distribution

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