International Ocean Discovery Program

JOIDES Resolution Science Operator

FY17 Q4 Operations and Management Report

1 July–30 September 2017

Cooperative Agreement OCE-1326927

Submitted by the JRSO

to

The National Science Foundation

and

The *JOIDES Resolution* Facility Board

15 November 2017

Contents

Introduction

The organization of this quarterly operations and management report reflects activities and deliverables outlined in the International Ocean Discovery Program (IODP) *JOIDES Resolution* Science Operator (JRSO) FY17 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).

Management and administration

Management and administration functions of the JRSO include planning, coordinating (with other IODP-related entities), overseeing, reviewing, monitoring, assuring compliance, and reporting on IODP activities.

Subcontract activities

Overseas Drilling Limited

The JRSO continued to interact with Overseas Drilling Limited (ODL) to ensure efficient and compliant operations of the *JOIDES Resolution*.

Schlumberger Technology Corporation Inc.

The JRSO continued to interact with Schlumberger Technology Corporation to ensure that wireline logging operations aboard the *JOIDES Resolution* continue in an efficient and compliant manner. The JRSO and Schlumberger worked successfully to streamline travel and shipping activities.

Progress reporting

JRSO FY17 Q3 Quarterly Operations and Management Report

The JRSO operations and management report for the second quarter of FY17 (April–June 2017) was submitted to NSF on 4 August (http://iodp.tamu.edu/publications/AR/FY17/FY17_Q3.pdf).

JRSO FY18 Annual Program Plan

The IODP JRSO FY18 Annual Program Plan was submitted to NSF on 30 June (http://iodp.tamu.edu/publications/PP/IODP_JRSO_FY18_APP.pdf).

Liaison activities

The 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).

Planning meetings

Brad Clement (Director of Science Services), Mitch Malone (Assistant Director of Science Services and Manager of Science Operations), Jay Miller (Manager of Technical & Analytical Services), and James Rosser (Manager of Development, IT & Databases) attended a planning meeting and facility tour of a Siem Offshore drilling vessel in Rotterdam, The Netherlands, on 20 and 21 July.

Brad Clement attended the US Advisory Committee (USAC) meeting in New York, NY, held 1–3 August.

Brad Clement and Adam Klaus (Supervisor of Science Support) attended the IODP Forum meeting in Shanghai, China, on 11 and 12 September and the IODP PMO meeting in Shanghai, China, on 13 September.

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.

Program website statistics

During the last quarter, the IODP TAMU website received 41,147 site visits and 390,036 page views. Where possible, visits by JRSO employees and search engine spiders were filtered out of the count.

Legacy web services

The Ocean Drilling Program (ODP) science operator, ODP legacy, and Deep Sea Drilling Project (DSDP) publications websites are hosted at TAMU. Key data, documents, and publications produced during DSDP and ODP are preserved in the legacy websites, which highlight the scientific and technical accomplishments of these ground-breaking precursors to the Integrated Ocean Drilling Program and IODP. The 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.

Legacy website statistics

Legacy website	FY17 Q4 page views*	FY17 Q4 site visits*
www-odp.tamu.edu	304,699	22,246
www.odplegacy.org	3,465	1,195
www.deepseadrilling.org	86,976	7,163
Total	**395,140**	**30,604**

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

Project portfolio management

The JRSO closed one project (X-ray Fluorescence [XRF] Core Scanner Laboratory) and continued work on two existing projects: XRF Core Scanner Uploader and Reports and Coulometer. Additionally, the JRSO is developing project management plans for four new projects: SampleMaster Replacement; KappaBridge Uploader & LORE Reports; Data Publication; and DESClogik Replacement (a branch of the GEODESC Project, which remains on hold).

JRSO projects

XRF Core Scanner Uploader and Reports

Project scope and deliverables

This project was formerly referred to as the Shore XRF Core Scanner Implementation project. The JRSO will purchase a second Avaatech XRF core scanner to be used on shore along with an existing Avaatech scanner to facilitate postexpedition XRF scanning. Goals include (1) developing data structure, uploader, and reports for XRF Core Scanner data; (2) developing quality assurance guidelines and quality control data tracking; (3) taking delivery of a second XRF Core Scanner; and (4) training JRSO staff in the use, care, and maintenance of both scanners.

Project status

The JRSO extended the completion date for this project until September 2017 to resolve a technical challenge. This project remains open pending end user testing and should be completed in late October.

XRF Core Scanner Laboratory

Project scope and deliverables

The purpose of this project is to review and revise current XRF operations and devise new procedures for the JRSO shore-based XRF laboratory. The implementation of these changes, both before and during installation of the new machine, should streamline the XRF core scanning process and provide a solid foundation for the new XRF laboratory. This project is closely related to the XRF Core Scanner Uploader and Reports project.

Project status

The JRSO completed this project on 12 September.

GEODESC

Project scope and deliverables

The purpose of this project is to replace DESClogik, with the principal goal of increasing performance and reliability. The GEODESC project will design, build, and deliver a new and improved geological description (GEODESC) tool set.

Project status

Because GEODESC would require an enormous investment of resources, the JRSO decided to keep the GEODESC project on hold while exploring additional options for a core description tool over the next several months, including the use of commercial software. This action spawned a new project, DESClogik Replacement, to review commercially available core description software. The JRSO is currently developing a project management plan for the DESClogik Replacement project.

Coulometer

Project scope and deliverables

The purpose of this project is to design, build, and deliver an application with a simple, intuitive user interface that will make it easier for technicians and scientists to operate the coulometer and correctly record the results of measurements. The new application will guide the user through a series of steps that make it simple and intuitive to operate the instrument and to save or discard results. The Coulometer application will be used as a pilot project for the development of a new and improved instrument control framework.

Project status

The JRSO extended the completion date for this project until early October 2017.

KappaBridge Uploader & LORE Reports

Project scope and deliverables

The purpose of this project is to create an uploader to transfer the KappaBridge magnetic susceptibility data to the Laboratory Information Management System (LIMS) database and build LORE reports for viewing and downloading the data.

Project status

The JRSO approved this project for project management plan development in September.

Data Publication

Project scope and deliverables

The purpose of this project is to build a framework, tools, and processes capable of publishing expedition information for long-term repository storage and discovery of referenceable information. This project will also support publication of data files not currently available online. When completed, all published information will be available for science community use via the JRSO publications website, a dynamic search engine (similar to LORE/OVERVIEW), and web-based searches.

Project status

The JRSO approved this project for project management plan development in September.

Science operations

The JRSO is responsible for planning, managing, coordinating, and performing activities and providing services, materials, platforms, and ship- and shore-based laboratories for JRSO expeditions; long-range operational planning for out-year JRSO expeditions; and technical advice and assistance for European Consortium for Ocean Research Drilling (ECORD) Science Operator (ESO) and Center for Deep Earth Exploration (CDEX) expeditions.

JRSO expedition schedule

Expedition		Port (origin)	Dates [1, 2]	Total days (port/ sea)	Days at sea (transit[3]/ ops)	Co-Chief Scientists	Expedition Project Manager
Non-IODP (11 June–27 July 2017) 46 days							M. Malone
Tasman Frontier Subduction and Climate	371	Townsville, Australia	27 July– 26 September 2017	61 (3/58)	58 (7/51)	R. Sutherland G. Dickens	P. Blum
Australia Cretaceous Climate and Tectonics	369	Hobart, Tasmania (Australia)	26 September– 26 November 2017	61 (5/56)	56 (7/49)	R. Hobbs B. Huber	K. Bogus
Creeping Gas Hydrate Slides and Hikurangi LWD[4]	372	Fremantle, Australia	26 November 2017– 4 January 2018	39 (5/34)	34 (15/19)	I. Pecher P. Barnes	L. LeVay
Ross Sea West Antarctic Ice Sheet History	374	Lyttelton, New Zealand	4 January– 8 March 2018	63 (5/58)	58 (16/42)	R. McKay L. De Santis	D. Kulhanek
Hikurangi Subduction Margin	375	Lyttelton, New Zealand	8 March– 5 May 2018	58 (5/53)	53 (2/51)	L. Wallace D. Saffer	K. Petronotis
Brothers Arc Flux	376	Auckland, New Zealand	5 May– 5 July 2018	61 (5/56)	56 (2/54)	C. de Ronde S. Humphris	T. Höfig
Non-IODP (5 July–14 October 2018) (101 days)							M. Malone
South Pacific Paleogene	378	Lyttelton, New Zealand	14 October– 14 December 2018	61 (4/57)	57 (11/46)	D. Thomas U. Rohl	C. Alvarez Zarikian
Non-IODP (14 December 2018–18 January 2019) (35 days)							M. Malone
Amundsen Sea West Antarctic Ice Sheet History	379	Punta Arenas, Chile	18 January– 20 March 2019	61 (3/58)	58 (12/46)	K. Gohl J. Wellner	A. Klaus

Expedition		Port (origin)	Dates [1, 2]	Total days (port/ sea)	Days at sea (transit[3]/ ops)	Co-Chief Scientists	Expedition Project Manager
Iceberg Alley Paleoceanography & South Falkland Slope Drift[5]	382	TBD	20 March–May 2019	TBD	TBD	M. Weber	T. Williams
Dynamics of Pacific Antarctic Circumpolar Current	383	TBD	May–July 2019	TBD	TBD	TBD	C. Alvarez Zarikian
Panama Basin Crustal Architecture (504B) & Engineering Testing[6]	384	TBD	July–September 2019	TBD	TBD	TBD	P. Blum
Guaymas Basin Tectonics and Biosphere	385	TBD	September–November 2019	TBD	TBD	TBD	T. Höfig
Non-IODP/transit (November 2019–January 2020)							M. Malone
Gulf of Mexico Methane Hydrate[7]	386	TBD	January–March 2020	TBD	TBD	TBD	L. LeVay
South Atlantic expedition TBD	387	TBD	March–May 2020	TBD	TBD	TBD	TBD

Notes: TBD = to be determined.
[1] Dates for expeditions may be adjusted pending non-IODP activities.
[2] The start date reflects the initial port call day. The vessel will sail when ready.
[3] Transit total is the estimated transit to and from port call and does not include transit between sites.
[4] Combined expedition with 841 APL (Ancillary Project Letter) and logging while drilling (LWD) from Proposal 781A (Expedition 375).
[5] Combined expedition with 846 APL.
[6] Combined expedition with 769 APL and engineering testing.
[7] Complementary Project Proposal (CPP) is contingent on substantial financial contribution outside of normal IODP funding.

JRSO expeditions

Expedition 367 and 368: South China Sea Rifted Margin

Postexpedition activities

The postexpedition editorial meeting was held 18–22 September and the sampling party was held 23–29 September in College Station, Texas.

Expedition 371: Tasman Frontier Subduction

Planning

Planning and initiation of air freight to Townsville, Australia, and port call logistics were completed. Coordination of port call outreach activities with the Australia/New Zealand IODP Consortium (ANZIC) office continued until implementation in port.

Staffing

Expedition 371 Science Party staffing breakdown

Member country/consortium	Participants	Co-Chief Scientists
USA: United States Science Support Program (USSSP)	10*	1
Japan: Japan Drilling Earth Science Consortium (J-DESC)	3	
Europe and Canada: European Consortium for Ocean Research Drilling (ECORD) Science Support and Advisory Committee (ESSAC)	9	
Republic of Korea: Korea Integrated Ocean Drilling Program (K-IODP)	1	

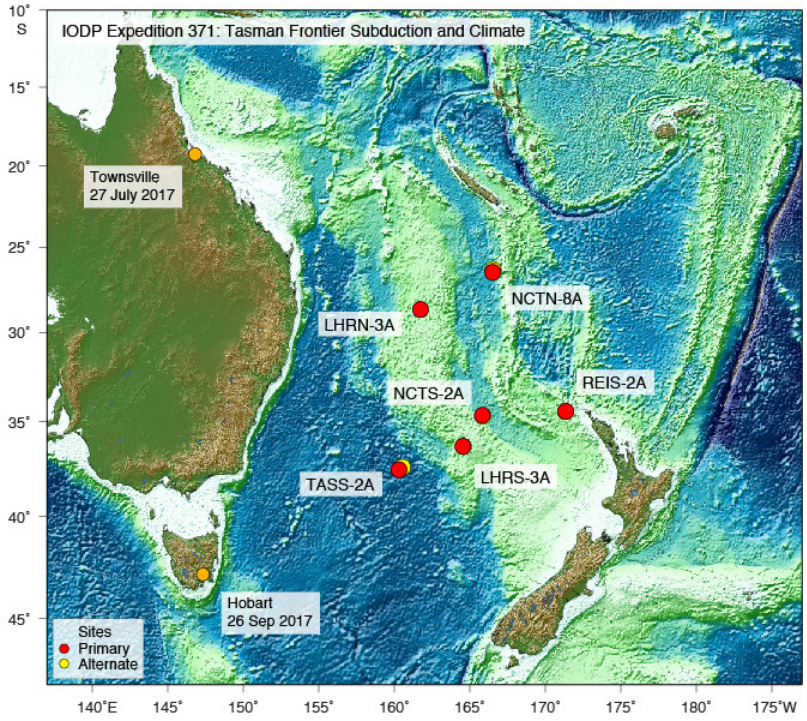
Member country/consortium	Participants	Co-Chief Scientists
People's Republic of China: IODP-China	2	
Australia and New Zealand: Australia/New Zealand IODP Consortium (ANZIC)	2	
India: Ministry of Earth Science (MoES)	0	
Brazil: Coordination for Improvement of Higher Education (CAPES)	1	

*Includes onboard Education/Outreach Officer.

Clearance, permitting, and environmental assessment activities

In accordance with the New Zealand Exclusive Economic Zone (EEZ) Act, notifications of marine scientific research to key Māori groups were issued. A report of pre-activity notification and an initial environmental assessment form were submitted to the New Zealand Environmental Protection Authority.

Operations summary



Coring summary

Site	Hole	Latitude	Longitude	Water depth (mbsf)	Cores (*N*)	Interval cored (m)	Core recovered (m)	Recovery (%)
U1506	U1506A	28°39.7180′S	161°44.4240′E	1494.9	36	306.10	192.48	62.9
Site U1506 totals					**36**	**306.10**	**192.48**	**62.9**
U1507	U1507A	26°29.3158′S	166°31.7039′E	3568.4	46	425.40	352.70	82.9
	U1507B	26°29.3158′S	166°31.7155′E	3568.3	52	488.40	371.53	76.1
Site U1507 totals					**98**	**913.80**	**724.23**	**79.3**
U1508	U1508A	34°26.8902′S	171°20.6073′E	1608.7	23	210.30	201.13	95.6

Site	Hole	Latitude	Longitude	Water depth (mbsf)	Cores (*N*)	Interval cored (m)	Core recovered (m)	Recovery (%)
	U1508B	34°26.8975′S	171°20.5990′E	1608.6	37	316.70	133.29	42.1
	U1508C	34°26.8905′S	171°20.5889′E	1608.6	35	283.80	184.84	65.1
Site U1508 totals					**95**	**810.80**	**519.26**	**64.0**
U1509	U1509A	34°39.1312′S	165°49.6599′E	2910.9	74	690.70	462.84	67.0
Site U1509 totals					**74**	**690.70**	**462.84**	**67.0**
U1510	U1510A	36°19.7385′S	164°33.5220′E	1238.2	52	483.40	255.85	52.9
	U1510B	36°19.7392′S	164°33.5347′E	1238.4	7	66.30	64.66	97.5
Site U1510 totals					**59**	**549.70**	**320.51**	**58.3**
U1511	U1511A	37°33.6665′S	160°18.9380′E	4846.7	3	26.60	7.86	32.0
	U1511B	37°33.6656′S	160°18.9379′E	4846.6	45	431.40	279.26	19.2
Site U1511 totals					**48**	**458.00**	**287.12**	**62.7**
Expedition 371 totals					**410**	**3729.10**	**2506.44**	**67.2**

Science summary

The primary goal of Expedition 371 was to understand Tonga-Kermadec subduction initiation through recovery of Paleogene sediment records in the Tasman Sea of the southwest Pacific. Secondary goals were to understand climate history and climate dynamics since the Paleogene. Six sites were drilled, recovering 2,506 m of cored sediment and volcanic rock. Wireline logs were collected at two sites. The observations made represent a substantial gain in fundamental knowledge about the northern part of the continent of Zealandia because the only previous boreholes that penetrated strata beneath the upper Eocene were at DSDP Sites 206, 207, and 208, drilled in 1971.

The cored intervals at Sites U1506–U1510 sampled nannofossil and foraminiferal ooze or chalk that contained volcanic or volcaniclastic intervals with variable clay content. Paleocene and Cretaceous sections are more clay rich or predominantly claystone. At the final site, U1511, a sequence of abyssal clay and diatomite was recovered with only minor carbonate. The ages of strata at the base of each borehole were between middle Eocene and Cretaceous, and our new results provide the first substantial basis for defining formal lithostratigraphic units that can be mapped across a substantial part of northern Zealandia and related to onshore regions of New Caledonia and New Zealand.

The primary science objectives of Expedition 371 were successfully completed. All six sites provided new stratigraphic and paleogeographic information that can be put into context through regional seismic-stratigraphic interpretation and hence provide strong constraints on geodynamic models of subduction zone initiation. Our new observations can be directly related to the timing of plate failure, the magnitude and timing of vertical motions, and the timing and type of volcanism. Secondary paleoclimate objectives were not all completed as planned, but significant new records of southwest Pacific climate were obtained and will be the subject of postexpedition research.

Expedition 369: Australia Cretaceous Climate and Tectonics

Planning

Research plans were distributed to the science party, and the final supplies for the expedition were received. Surface and air freight were dispatched. Planning for the port call and public relations activities and communication with the science party continued.

Staffing

A Brazilian Education/Outreach Officer accepted the invitation to sail. One scientist withdrew because of a medical issue but could not be replaced because of the proximity of the expedition start date.

Clearance, permitting, and environmental assessment activities

Authorization to conduct research in Australian waters was issued on 20 September.

Expedition 372: Creeping Gas Hydrate Slides and Hikurangi LWD

Planning

Issues with berthing priority for the *JOIDES Resolution* in Wellington, New Zealand, were raised by the port authority. They confirmed that the *JOIDES Resolution* would be required to move off the berth to anchorage multiple times during the January 2018 and March 2018 port calls. The end port in January was therefore switched to Lyttelton (Christchurch), which would be less disruptive to overall science time. The JRSO continued to work with the port agent to clarify issues with immigration on required visas. All three pressure core sampler (PCS) barrels were assembled and tested. The temperature dual-pressure tool (T2P) is being reassembled with the Principal Investigators (University of Texas at Austin), awaiting final parts, and will be sent to the port in the air freight. All items for the surface freight were received and dispatched to Fremantle, Australia. The final award for logging-while-drilling (LWD)/measurement-while-drilling (MWD) tools will be made in October when FY18 funds are available. Combined research plans for Expeditions 372 and 375 were circulated to the science parties, and expedition leadership began planning conference calls to target specific groups.

Staffing

One Education/Outreach Officer from New Zealand and one from the US accepted invitations to sail. A scientist from Brazil withdrew, and a replacement is being sought.

Clearance, permitting, and environmental assessment activities

New Zealand issued research authorization on 25 September.

Expedition 374: Ross Sea West Antarctic Ice Sheet History

Planning

An ice observer was secured for the expedition, and discussions with the German Aerospace Center were initiated to provide ice imagery service during the expedition. The *Scientific Prospectus* and the *Scientific Prospectus Addendum* were published. The start and end ports were switched from Wellington, New Zealand, to Lyttelton, New Zealand.

Staffing

A replacement was found for the scientist who withdrew at the end of last quarter. Another scientist withdrew, and the process to replace was initiated. A New Zealand Education/Outreach Officer accepted the invitation to sail.

Clearance, permitting, and environmental assessment activities

NSF will complete the requirements to meet US regulations that implement the Protocol on Environmental Protection to the Antarctic Treaty and its annexes. The JRSO will be required to submit a waste permit application.

Expedition 375: Hikurangi Subduction Margin

Planning

Combined research plans for Expeditions 372 and 375 were circulated to the science parties, and expedition leadership began planning conference calls to target specific groups. The start port was switched from Wellington to Lyttelton. Work on various aspects of the seafloor observatory continued. A fit test was done in August for the flow meter, Osmo package, and seat, and final machining is ongoing. Work continued on the plan to release the seafloor package, including plans for a drop test. A CORK design and operations meeting was held 6 and 7 September in College Station, Texas. Planning continued on OsmoSampler package handling on ship. The flow meter capsule “Quadrant Seal” (with swellable rods) was fabricated and tested with good results. Design of a full-size version is in progress.

Staffing

A US Education/Outreach Officer accepted the invitation to sail.

Clearance, permitting, and environmental assessment activities

The marine scientific research (MSR) application was submitted to the US State Department on 14 July, and the embassy submitted the application to the New Zealand government on 19 July.

Expedition 376: Brothers Arc Flux

Planning

Planning continued on several unique aspects of high-temperature operations. We received a very reasonable quote for rental of a high-temperature borehole fluid sampler and are evaluating deployment requirements. The new electronics package for the wireline high-temperature sensor was received.

Staffing

The second round of invitations was issued, and a special call for a downhole measurements specialist was identified and issued. A US Education/Outreach Officer accepted the invitation to sail.

Clearance, permitting, and environmental assessment activities

The MSR application will be submitted at the beginning of next quarter.

Expedition 378: South Pacific Paleogene

Planning

The pre-expedition meeting was scheduled for 6 and 7 November in College Station, Texas.

Staffing

A call for applications was issued on 17 July with a deadline of 15 September for applications to PMOs. Applications are due to the JRSO on 15 November. The staffing webinar was conducted on 28 August.

Expedition 379: Amundsen Sea West Antarctic Ice Sheet History

Planning

The pre-expedition meeting was scheduled for 1 and 2 November in College Station, Texas.

Staffing

A second Co-Chief Scientist accepted the invitation to sail. A call for applications was issued on 17 July with a deadline of 15 October for applications to PMOs. Applications are due to the JRSO on 15 December. The staffing webinar was conducted on 21 August.

Expedition 382: Iceberg Alley Paleoceanography & South Falkland Slope Drift

Staffing

One Co-Chief Scientist accepted the invitation to sail. A call for applications was issued on 17 July with a deadline of 15 October for applications to PMOs. Applications are due to the JRSO on 15 January.

Expedition 386: Gulf of Mexico Methane Hydrate

Planning

Initial planning conference calls with the proponents were initiated to start discussion of permitting requirements and nonstandard equipment that will be a critical part of the expedition. Plans were made for routine meetings/calls to be held to track issues and progress.

Engineering support

Engineering equipment acquisitions and updates

The hydraulic power units for the vibration-isolated television (VIT) winch were installed in Subic Bay, Philippines. Piping was run and installed. Final parts will be delivered to the Fremantle, Australia, port call and will be completed by the crew as time allows.

Technical and analytical services

Maintenance period activities

Remobilization activity (Expedition 371T)

The JRSO has implemented maintenance tasks that under normal circumstances will curtail or even circumvent the need for a "kick the tires, light the fires" (KTLF) effort following a maintenance period/tie-up. The instruments in the laboratory are exercised during the tie-up, and problems are identified and dealt with wherever possible before a return to the operational phase.

However, the Expedition 371T transit, like the Expedition 362P/T tie-up and transit before it, did not fall into the normal circumstances category because of the scope of changes planned by the Development, IT, & Databases (DITD) Department:

- Changeover of Mac and PC workstations to new machines.
- Changeover of PC instrument hosts to new machines.
- Adoption of Windows 10 environment on the new PC systems.
- Changeover of database servers (e.g., adoption of Oracle 12g).
- Changeover of network servers.
- (Necessitated) testing and bug-fixing effort to test JRSO software in the new environment.

Because the scope of changes was fairly extensive, JRSO management decided that additional staffing was required to ensure the KTLF activity would have the systems ready for Expedition 371. A fallback

position was maintained for all of the instruments: the old hosts with the Windows 7 environment remained on board and available in case the problems could not be resolved prior to Expedition 371.

Technical documentation update effort

A major objective during this transit was to update the manuals and user guides for the instruments. A total of 77 user guides and other documents were updated to a "371T" version, and staff identified the remaining updates that could not be completed because not all laboratories had a technician sailing during Expedition 371T (e.g., paleomagnetism and imaging). The remaining updates will be completed during the next few expeditions.

Summary

The majority of systems were fully functional at the start of Expedition 371, with only a few issues:

- Inductively-Coupled Plasma–Atomic Emission Spectrometer (ICP-AES) installation failed to complete prior to the Townsville port call (this was completed during Expedition 371, which was not the plan).
- The velocity gantry had to be put back on the Z420/Win7 host because driver issues could not be resolved. The Expedition 371 technicians resolved these issues, and the gantry was updated to the new operating system during that expedition.
- The Agilent Chemstation Open Lab installation on GC2 had an issue preventing it from opening results files; a ticket was opened with Agilent to deal with this issue, and it was resolved during Expedition 371.
- DESClogik demonstrated a display problem when used on the new 4K resolution monitors; the resolution of the computers feeding those displays must be set at the older resolution, and a long-term solution is being sought.

Analytical systems

Analytical systems acquisitions and updates

The new Agilent 5110 ICP-AES was used successfully throughout Expedition 371 without any issues. The data reduction software is being modified to more easily get the data from the new instrument into the LIMS.

Development and testing of the new *P*-wave logger (PWL) system on the Special Task Multisensor Logger (STMSL) was successfully completed. The system is now the primary measurement tool for *P*-wave velocity, and the legacy system is serving as the backup until it also can be replaced with the new design.

The STMSL is now designated as the main Whole-Round Multisensor Logger (WRMSL) and will be the workhorse, and the forward logger is now designated as a special task logger.

The JRSO acquired another Zeiss DISCOVERY V8 stereomicroscope to replace aging SV-8 and SV-11 microscopes. It will be installed on the ship, and one of the older scopes will be retired for shore usage. The JRSO also acquired a number of additional phase objectives to support nannofossil work on the Zeiss Axioskop A1 microscopes.

In response to a Geochemistry laboratory working group (LWG) recommendation, the JRSO has acquired a KOACH clean bench system to provide an ultralow particulate-count area for microbiology work. The system is flexible and can be mounted on a benchtop or inside of a glove box and will significantly reduce contamination of microbiological samples.

Laboratory working groups

The LWGs provide oversight, research direction, and quality assurance for the methods, procedures, and analytical systems both on the *JOIDES Resolution* and on shore. The groups meet regularly to review cruise evaluations, expedition technical reports, and issues management communications to provide advice on corrective actions and potential developments for laboratories.

Curation and Core Handling

The Curation and Core Handling LWG did not meet this quarter because no curation-related issues arose from recent expeditions.

Geochemistry

The Geochemistry LWG met this quarter to discuss ongoing issues and any issues arising from recent expeditions.

- Ongoing issues:
    - The LWG recommended the purchase of the KOACH clean bench system, as noted above.
    - The LWG continued investigating options for acquisition of an energy-dispersive spectrometer (EDS) for the Hitachi TM-3000 scanning electron microscope and will produce a recommendation in the near future regarding this technology.
    - The LWG discussed the implementation of the XRF Core Scanner Facility and the programmatic XRF measurements.
    - The LWG will investigate a modification of the Metrohm ion chromatograph (IC) to measure nitrate/nitrite and ammonium in pore waters; this technology would be an add-on, post-

conductivity-detector process, and although run times might be slightly longer, will not affect the current IC measurements.

- Expedition 368 issues:
    - Cruise evaluations contained several comments about the failure of the Teledyne-Leeman ICP-AES; this issue has already been resolved, as noted above.
    - A scientist recommendation was made to purchase a laser-induced breakdown spectrometer (LIBS) system to supplement the capabilities of the portable energy-dispersive XRF (pXRF); the LWG did not recommend moving forward on this issue at this time. The JRSO tested this technology and determined that it is not a mature enough technology for the shipboard environment; the LWG will continue to monitor developments in the technology.

Geology

The Geology LWG did not meet this quarter because of schedule conflicts (e.g., LWG science lead at sea) but will meet early next quarter to discuss ongoing issues as well as any arising from recent expeditions.

Geophysics

The Geophysics LWG met this quarter to discuss issues arising from Expedition 368 and ongoing issues.

- Ongoing issues:
    - The LWG received a report about the superconducting rock magnetometer (SRM) testing done in the Shanghai port call by external members (Gary Acton [Sam Houston State University], Antony Morris [University of Plymouth], Robert Musgrave [University of New South Wales], and Xixi Zhao [University of California Santa Cruz and Tongji University]); the system is functioning as expected and is superior to the old SRM for demagnetization. The LWG will monitor the various recommendations in the report and ensure they are implemented (as of the time of this writing, most have been).
    - The LWG discussed the ongoing PWL system issues and determined that they would discuss the outcome post–Expedition 371 (see above).
    - The LWG discussed potential areas in which QA/QC data acquisition and reporting would be useful, with the idea to target several areas needing improvement; the LWG will produce a list of QC procedures and required system changes.
    - A low-pass filter was installed to resolve a long-standing issue with power supply to the TeKa Berlin TK-04 thermal conductivity system (high-frequency, high-intensity, intermittent power

spikes); the JRSO will investigate whether this installation resolves some of the data quality issues previously reported.

- During the upcoming Expedition 375, one of the physical properties scientists will bring his own thermal conductivity system (which offers only full-space needle options) to do a comparative study of the results.
- Work to correct the core orientation tool issues continued during the quarter; Siem Offshore core technicians may have found the cause (a screw that is insufficiently strong to prevent rotation).
- The LWG considered the engineering proposal to adopt a gyro orientation system rather than a magnetic one; engineering and analytical staff will work together to evaluate options for this.

- Expedition 368 issues
  - To address concerns about the SRM from the Expedition 367 and 368 scientists, the JRSO brought Bill Goodman (Applied Physics) to the Hong Kong port call and the aforementioned scientists to the Shanghai port call to evaluate the system and its performance; the system was shown to work properly.
  - During Expedition 368, a portion of the Agico JR-6A spinner data were uploaded using the sample reference frame instead of the geological reference frame (which is the same as the SRM frame). There was some suspicion about the functionality of the SRM, but the problem was traced to an error in exporting data from the Agico software. Procedures were changed to prevent this from recurring.
  - A bug in the Section Half Multisensor Logger (SHMSL) code swapped the column headers for Chroma and Hue; this bug was fixed, and older data will be adjusted appropriately.
  - The natural gamma radiation (NGR) detector 7 failed during an earlier expedition and was replaced successfully during the Shanghai port call.
  - Some video failures of the VIT camera system were noticed, and the JRSO began investigating the source of the failures; however, the VIT now has dual cameras, so no operations have been affected to date.

Development, IT, and databases

The JRSO manages data supporting IODP activities, including expedition and postexpedition data, provides long-term archival access to data, and supports JRSO Information Technology (IT) services. Daily

activities include operating and maintaining shipboard and shore-based computer and network systems and monitoring and protecting JRSO network and server resources to ensure safe, reliable operations and security for IODP data and IT resources.

Expedition data

LIMS database

No new data were added to the LIMS database on shore this quarter. Data from Expeditions 361 (South African Climates) and 362 (Sumatra Seismogenic Zone) 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.

Top 10 countries accessing JRSO web databases

	Janus database		LIMS database	
Rank	Country	Visitor sessions	Country	Visitor sessions
1	USA	975	United States	608
2	United Kingdom	624	China	329
3	China	301	Germany	259
4	Germany	286	United Kingdom	159
5	Japan	268	Japan	157
6	France	71	Canada	34
7	Canada	51	France	34
8	Australia	46	India	30
9	Italy	44	Spain	24
10	Netherlands	43	Australia	21
	Others	299	Others	205
	Total	**3,008**	**Total**	**1,860**

Top 20 database web queries

	Janus database		LIMS database	
Rank	Query	Views	Query	Views
1	Photo	1,690	Sample	1,161
2	Core summaries	948	Imaging—core section	650
3	Site summaries	799	Physical properties—MS	642
4	Special holes	682	Imaging—core photo	445
5	Sample	588	Summaries—sections	436
6	Physical properties—MS	458	Hole summaries	268
7	Chemistry—IW	436	Core summaries	231

Rank	Janus database		LIMS database	
	Query	Views	Query	Views
8	Physical properties—MAD	363	Physical properties—MAD	149
9	Chemistry—carbonates	327	Physical properties—GRA	138
10	Summaries—hole	291	Physical properties—color reflectance	131
11	Geological ages	258	Physical properties—NGR	129
12	Physical properties—GRA	253	Chemistry—IW	122
13	Imaging—prime data	243	Chemistry—carbonates	95
14	Summaries—hole trivia	193	Imaging—closeups	77
15	Chemistry—rock eval	188	X-ray—XRD	73
16	Imaging—closeups	182	X-ray—pXRF	58
17	Paleontology—range tables	150	Imaging—thin sections	56
18	Site detail	131	Affine	56
19	Leg summaries	129	Physical properties—PWL	55
20	Paleontology—analysis	102	Paleomag	54
	Others	1,498	Others	1,299
	Total	**9,909**	Total	**6,325**

Data requests to the TAMU Data Librarian

Requests	Total		Country	Total
Photos	6		USA	7
Core description	5		United Kingdom	4
How to	4		Canada	2
Seismic	2		Australia	1
Chemistry	1		Belgium	1
Information	1		China	1
			Germany	1
			Ireland	1
			Sri Lanka	1
Total	**19**		Total	**19**

Core curation

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

JRSO expedition core sampling

The JRSO planned sample and curation strategies this quarter for upcoming JRSO Expeditions 372, 374, and 375.

GCR activity

The following table summarizes the 10,460 samples that were taken at the GCR during the quarter. Sample requests that show zero samples taken may represent cores that were viewed by visitors during the quarter, used for educational purposes, or requested for XRF analysis. 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 samples” is recorded in the “Number of samples taken” column if no new samples were taken.

GCR sample requests

Sample request number, name, country	Number of samples taken	Number of visitors
52763IODP, Randle, USA	35	2
53824IODP, O’Connel, USA	34	7
50601IODP, White, USA	400	
52597IODP, Si, USA	73	
52906IODP, Kast, USA	50	
50515IODP, Marret-Davies, United Kingdom	23	
52532IODP, Elling, USA	220	
51142IODP, Holbourn, Germany	55	
52062IODP, Bhattacharya, USA	50	
53392IODP, Krahl, Brazil	0	
54171IODP, Kulhanek, USA	4	1
51811IODP, Bridges , USA	7	1
51885IODP, Chalk, United Kingdom	2	
53105IODP, Hessler, USA	43	
53588IODP, Sharman, USA	21	3
53631IODP, Fonseca, Portugal	1	
53901IODP, Wade, United Kingdom	28	
53912IODP, Ohneiser, New Zealand	372	1
53930IODP, Minton, United Kingdom	183	
53983IODP, Yao, Canada	16	
54250IODP, Covault, USA	11	
53023IODP, Chase, Australia	86	
52498IODP, Zakharov, USA	11	
54041IODP, Sawyer, USA	2	
53948IODP, Dunkley Jones, United Kingdom	192	
54446IODP, Marsaglia, USA	26	
51562IODP, McCartney, Poland	165	
48974IODP, Feng, China	1,563	
54046IODP, Ravelo, USA	180	
54099IODP, Biester, Germany	322	
54083IODP, Muhong, China	89	
54441IODP, Wade, United Kingdom	4	

Sample request number, name, country	Number of samples taken	Number of visitors
54574IODP, Gaskell, USA	11	
51251IODP, Chutcharavan, USA	99	2
52968IODP, Valet, France	4,953	4
55029IODP, Todd, United Kingdom	20	
55691IODP, LeVay, USA	0	1
55704IODP, Lear, USA	23	
55417IODP, Etourneau, Spain	27	
55669IODP, Super, USA	104	
54570IODP, Biddle, USA	9	
55804IODP, Hessler, USA	71	1
52577IODP, McCarron, United Kingdom	0	
55985IODP, Hoogakker, United Kingdom	28	
56133IODP, Swart, USA	11	
53543IODP, House, USA	394	
55733IODP, Abdullajintakam, USA	23	
56140IODP, Jacobel, USA	268	
56302IODP, Shu, USA	30	
49786IODP, Hessler, USA	57	
52539IODP, McCarron, United Kingdom	0	
41172IODP, Hatfield, USA	64	1
Tours/demonstrations (6)		53
Totals	**10,460**	**77**

Use of core collection

The 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, the GCR hosted a VIP tour for six delegates from the Ocean University of China.

GCR tours/visitors

Type of tour or visitor	Number of visitors
Scientist visitors	24
Educational tours/demonstrations (5)	47
Public relations tours (1)	6
Total	**77**

Other GCR activities

The sample party for Expeditions 367 and 368 was held 23–28 September at the GCR with 42 scientists in attendance. The expeditions recovered both sediment and hard rock, and essentially two separate

sample parties were held, one for the sediment samples and one for the hard rock samples. In total, 26,605 sediment samples and 1,553 hard rock samples were taken.

The Expedition 362T core description party was held 1–4 August at the GCR. The 18 m of hard rock cores recovered from the expedition were shipped from the Kochi Core Center (KCC) to the GCR where they were described by three visiting scientists. Thirty thin-section billets were taken at the GCR and sent to the *JOIDES Resolution* to be processed during Expedition 371.

A Houston-based company called C-Air-S was given the contract to replace the heating, ventilation, and air conditioning (HVAC) in the GCR reefers. Construction will begin mid-October and conclude in March 2018. The current cooling system will stay in place and operational until the new system is fully functional.

Chad Broyles accepted the post of GCR Superintendent effective 1 October.

XRF Core Scanning Facility

During the quarter, 863 core sections were scanned at the GCR. Brian LeVay (XRF Laboratory Manager) wrote new documentation relating to the operation, advanced configurations, maintenance, and troubleshooting of the XRF, which will be added to the JRSO website soon.

Core sections scanned

Request Type	Expedition, name, country	XRF	SHIL	WRMSL
Old Instrument				
Personal	363, Kulhanek, USA	206		
Personal	Multi, McCarron, United Kingdom	18	18	
Personal	198, LeVay, USA	8		
Program	367	108		
Program	368	71		
New Instrument				
Personal	356, Petrick, USA	80		
Personal	113, O'Connel, USA	11		
Personal	113, Rumford, USA	1		
Program	367	137		
Program	368	223		
Totals		**863**	**18**	**0**

Notes: SHIL= Section Half Imaging Logger; WRMSL= Whole-Round Multisensor Logger.

Publication services

IODP Publication Services provides publication support services for Integrated Ocean Drilling Program and IODP riserless and riser drilling expeditions; editing, production, and graphics services for

required Program reports (see “Progress reporting” in “Management and administration”), technical documentation, and scientific publications as defined in the JRSO cooperative agreement with NSF; and distribution of Integrated Ocean Drilling Program, ODP, and DSDP publications.

Scientific publications

Newly published content on the IODP Publications website

Reports and publications	JRSO	USIO	CDEX	ESO*
Scientific Prospectus	10.14379/iodp.sp.374.2017 10.14379/iodp.sp.374add.2017		10.14379/iodp.sp.380.2017	
Preliminary Report				10.14379/iodp.pr.364.2017
Data Report		10.2204/iodp.proc.341.203.2017 10.2204/iodp.proc.342.202.2017 10.2204/iodp.proc.344.207.2017	10.2204/iodp.proc.348.201.2017 10.2204/iodp.proc.337.202.2017 10.2204/iodp.proc.333.205.2017	
Expedition Report	10.14379/iodp.proc.361.2017	10.2204/iodp.proc.174AXS.111.2017	14379/iodp.proc.365.2017	

*ESO publications are produced under contract with the British Geological Survey.

Citation management

Scientific publication 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, as are the Integrated Ocean Drilling Program, ODP, and DSDP scientific reports and publications. CrossRef tracks the number of times a publication is accessed, or resolved, through the CrossRef DOI resolver tool. Program statistics for the reporting quarter are shown in the table below.

Number of online DOI resolutions

Reports and publications	DOI prefix	July 2017	August 2017	September 2017	FY17 Q4 total
IODP	10.14379	1,589	1,733	2,880	6,202
Integrated Ocean Drilling Program	10.2204	5,205	3,997	6,496	15,698
ODP/DSDP	10.2973	7,377	6,431	7,558	21,366

FY17 Scientific Ocean Drilling Bibliographic Database Report

Each year, IODP Publication Services produces an annual report that provides information on how Program-related research is disseminated into the scientific community through publications. The 2017 Scientific Ocean Drilling Bibliographic Database Report looks at publications from highly ranking peer-reviewed journals, publications by authors from current IODP member countries, and publications by IODP expedition and Science Plan theme. The study was published 29 September and is available online at http://iodp.tamu.edu/publications/AGI_studies/AGI_study_2017.pdf.

Publications management

Integrated Ocean Drilling Program closeout activities

Publications closeout

Integrated Ocean Drilling Program publications closeout activities continued during the reporting period. Expedition reports and postexpedition research publications published during the quarter in the *Proceedings of the Integrated Ocean Drilling Program* are listed above in "Scientific publications." In addition, publication obligation papers and data reports related to Expeditions 320/321, 327, 329, 333, 337, 339, 341, 342, 344, and 346–348 were submitted to English language peer-reviewed journals or the Program.

Publications website

The IODP Publications website is hosted at TAMU. During the last quarter, it received 17,015 site visits and 587,519 page views. Where possible, visits by JRSO employees and search engine spiders were filtered out of the count.

Other projects and activities

Publication archiving solution

On 15 September, Publication Services began a subscription with Archive-It (https://archive-it.org), a long-term archive specializing in full website backups. The main IODP publications website (http://publications.iodp.org/index.html) is now archived, with full content from all Integrated Ocean Drilling Program and IODP volumes included. Quarterly crawls will incrementally update the archive with new files. Our initial backup totals 182.3 GB of data and 165,544 total documents. The archive can be viewed publicly at https://archive-it.org/collections/9148. We chose Archive-It because of the relatively low cost and the ability to archive all file types with no added fees or extra file preparation. Archive-It has been archiving websites for years, and they are dedicated to keeping archives readable and accessible long term.

Expanding online access

Integrated Ocean Drilling Program and IODP expedition reports and data reports are now indexed at ScienceOpen, a freely accessible search and discovery platform that puts research in context (https://www.scienceopen.com/collection/IODP_Publications). ScienceOpen offers new ways to open up information for the scholarly community. Data available on research articles are analyzed, and articles are linked via authors, citations, keywords, journals, and more. Users can further add to the context of an article with comments, recommendations, or post-publication peer reviews. Researcher-led topical collections also provide opportunities for discovery and communication.

ScienceOpen allows researchers to set up a personal profile based on their Open Researcher and Contributor ID (ORCID) and network with other scientists. Research can be viewed in context with citations, Altmetric scores, usage numbers, shares, and more. Researchers can create topical collections, gathering together the best research in the field regardless of journal or publisher. Researchers are also encouraged to share their expertise on any article on the platform, either by commenting, recommending, or through Public Post-Publication Peer Review.

IODP deposited 593 chapters from Expeditions 301–360 into ScienceOpen this quarter.

JRSO expedition science outreach support

This quarter, JRSO staff assisted with planning for Expeditions 371 and 369 port call public relations and outreach activities.

The 28 July port call in Townsville, Australia, was attended by 38 scientists, 10 media representatives, and 6 visitors from the ReefHQ Great Barrier Reef Aquarium, and the 27 and 28 September port call in Hobart, Australia, was attended by 33 VIPs from government agencies and media outlets, 97 scientists, and 36 high-school teachers. News coverage for Expedition 371 was televised in 38 Australian cities and appeared in 4 print newspapers and 25 online news sites, and a related interview with Neville Exon (The Australian National University, Canberra) aired on 12 radio stations.

Abstracts authored by JRSO staff

16th International Nannoplankton Association Meeting (INA16)

- Fernando, A.G.S., Dunkley Jones, T.D., Beaufort, L., **Kulhanek, D.K.,** and IODP Expedition 363 Scientists, 2017. Stratigraphic distribution of a four-rayed symmetric discoaster in IODP 363 sites in the Indian Ocean and Pacific Ocean*. Journal of Nannoplankton Research,* 37:62.

- Guballa, J.D.S., Peleo-Alampay, A.M., and IODP Expedition 349 Scientists (including **D.K. Kulhanek**), 2017. Calcareous nannofossil biostratigraphy and paleoceanographic clues from the latest Pliocene-

Pleistocene from IODP Expedition 349 Site U1431D, South China Sea. *Journal of Nannoplankton Research,* 37:75.

- Jiang, S., **Kulhanek, D.K.**, Watkins, D.K., Jordan, R.W., and Hoshina, K., 2017. Latest Early Cretaceous calcareous nannofossils from southern Tibet, China. *Journal of Nannoplankton Research,* 37:87.
- **Kulhanek, D.K.**, Dávila Castro, L., Lakin, N.T., Morelos, D., Prebble, J.G., Bostock, H., and Cortese, G., 2017. Early Holocene calcareous nannofossil assemblages as indicators of past sea surface temperature and nutrient conditions in the New Zealand region. *Journal of Nannoplankton Research,* 37:101.
- Su., X., and **Kulhanek, D.K.**, 2017. Nannofossil evidence for the age and depositional environment during the onset of rifting in the South China Sea and the West Philippine Sea. *Journal of Nannoplankton Research,* 37:149.
- Uy, M.A.C., Peleo-Alampay, A.M., and the IODP Expedition 349 Scientists (including **D.K. Kulhanek**), 2017. Refining Pleistocene-Holocene calcareous nannofossil biostratigraphy of IODP Expedition 349 Site 1433, South China Sea. *Journal of Nannoplankton Research,* 37:162.

Past Antarctic Ice Sheet Dynamics (PAIS) Conference 2017

- Dunbar, G., Grant, G., Naish, T., **Kulhanek, D.**, Sefton, J., and Alloway, B., 2017. The relative influence of precession and obliquity on late Pliocene (3.3–2.4 Ma) polar ice sheet dynamics and global sea-level change [presented at the 2017 Past Antarctic Ice Sheet Dynamics (PAIS) Conference, Trieste, Italy, 10–15 September 2017].
- **Kulhanek, D.K.,** Levy, R.H., Clowes, C.D., Prebble, J.G., Rodelli, D., Jovane, L., Morgans, H.E.G., Zwingmann, H., Griffith, E.M., Scher, H.D., Sorlien, C., Wilson, D.S., Luyendyk, B.P., Kraus, C., McKay, R.M., and Naish, T., 2017. Revised chronostratigraphy of DSDP Site 270 and implications for Ross Sea seismic stratigraphy and late Oligocene to early Miocene paleoenvironment [presented at the 2017 Past Antarctic Ice Sheet Dynamics (PAIS) Conference, Trieste, Italy, 10–15 September 2017].

Land-Ocean Interactions Across the Indian Ocean: Toward Regional Integration of Recent Drilling Results

- Milliken, K.L., Pickering, K., Chemale, F., Kutterolf, S., Mukoyoshi, H., Pouderoux, H., and IODP Expedition 362 Scientists (including **K.E. Petronotis**) 2017. Petrologic aspects of the Nicobar Fan and underlying pre-fan sediments: preliminary results from IODP Expedition 362, Sumatra Seismogenic Zone [presented at the 2017 Land-Ocean Interactions Across the Indian Ocean: Toward Regional Integration of Recent Drilling Results Workshop, Narragansett, Rhode Island (USA), 10–12 July 2017].

- Pickering, K., Milliken, K.L., Chemale, F., Kutterolf, S., Mukoyoshi, H., Pouderoux, H., and IODP Expedition 362 Scientists (including **K.E. Petronotis**), 2017. Nicobar Fan and underlying sediments: preliminary results from IODP Expedition 362, Indian Ocean [presented at the 2017 Land-Ocean Interactions Across the Indian Ocean: Toward Regional Integration of Recent Drilling Results Workshop, Narragansett, Rhode Island (USA), 10–12 July 2017].

Articles authored by JRSO staff

Program-related science and other articles authored by JRSO staff published during this quarter include the following. Bold type indicates JRSO staff. Other Program-related science articles are available online through the ocean drilling citation database (http://iodp.tamu.edu/publications/bibliographic_information/database.html) and the IODP Expedition-related bibliography (http://iodp.tamu.edu/publications/citations.html).

- Christensen, B.A., Renema, W., Henderiks, J., De Vleeschouwer, D., Groeneveld, J., Castañeda, I.S., Reuning, L., **Bogus, K.,** Auer, G., Ishiwa, T., McHugh, C.M., Gallagher, S.J., Fulthorpe, C.S., and IODP Expedition 356 Scientists, 2017. Indonesian Throughflow drove Australian climate from humid Pliocene to arid Pleistocene. *Geophysical Research Letters,* 44(13):6914–6925. https://doi.org/10.1002/2017GL072977

- Cook, C.P., Hemming, S.R., van de Flierdt, T., Pierce Davis, E.L., **Williams, T.,** and Lopez Galindo, A., 2017. Glacial erosion of East Antarctica in the Pliocene: a comparative study of multiple marine sediment provenance tracers. *Chemical Geology,* 466:199–218. https://doi.org/10.1016/j.chemgeo.2017.06.011

- McNeill, L.C., Dugan, B., Backman, J., Pickering, K.T., Pouderoux, H.F.A., Henstock, T.J., **Petronotis, K.E.,** Carter, A., Chemale, F., Jr., Milliken, K.L., Kutterolf, S., Mukoyoshi, H., Chen, W., Kachovich, S., Mitchison, F.L., Bourlange, S., Colson, T.A., Frederik, M.C.G., Guèrin, G., Hamahashi, M., House, B.M., Hüpers, A., Jeppson, T.N., Kenigsberg, A.R., Kuranaga, M., Nair, N., Owari, S., Shan, Y., Song, I., Torres, M.E., Vannnucchi, P., Vrolijk, P.J., Yang, T., Zhao, X., and Thomas, E., 2017. Understanding Himalayan erosion and the significance of the Nicobar Fan. *Earth and Planetary Science Letters,* 475:134–142. https://doi.org/10.1016/j.epsl.2017.07.019

- Pierce, E.L., van de Flierdt, T., **Williams, T.,** Hemming, S.R., Cook, C.P., and Passchier, S., 2017. Evidence for a dynamic East Antarctic ice sheet during the mid-Miocene climate transition. *Earth and Planetary Science Letters*, 478:1–13. https://doi.org/10.1016/j.epsl.2017.08.011

Appendix: JRSO quarterly report distribution

J. Allan, NSF, USA, jallan@nsf.gov

T. Janecek, NSF, USA, tjanecek@nsf.gov

T. Kashmer, NSF, USA, tkashmer@nsf.gov

D. Thomas, Texas A&M University, USA, dthomas@ocean.tamu.edu

A. Koppers, JRFB Chair, Oregon State University, USA, akoppers@coas.oregonstate.edu

W. Bach, JRFB Member, University of Bremen, Germany, wbach@uni-bremen.de

B.K. Bansal, JRFB Member, MoES, India, bansalbk@nic.in

G. Camoin, JRFB Member, European Management Agency, CEREGE, France, camoin@cerege.fr

B. John, JRFB Member, University of Wyoming, USA, bjohn@uwyo.edu

M. Coffin, JRFB Member, ANZIC, University of Tasmania, Australia, Mike.Coffin@utas.edu.au

G.Y. Kim, JRGB Member, KIGAM, Korea, gykim@kigam.re.kr

C. Neal, JRFB Member, University of Notre Dame, USA, neal.1@nd.edu

G.N. Sobrinho, JRFB Member, CAPES, Brazil, geraldo.nunes@capes.gov.br

Y. Sun, JRFB Member, MOST, China, suny@most.cn

P. Wilson, JRFB Member, University of Southampton, United Kingdom, paul.wilson@noc.soton.ac.uk

L. Zhou, JRFB Member, Peking University, China, lpzhou@pku.edu.cn

J. Austin, JRFB Liaison, IODP Forum Chair, University of Texas at Austin, USA, jamie@utig.ig.utexas.edu

R. Gatliff, JRFB Liaison, ESO, British Geological Survey, United Kingdom, rwga@bgs.ac.uk

H. Given, JRFB Liaison, IODP Support Office, Scripps Institution of Oceanography, USA, hgiven@ucsd.edu

S. Gulick, JRFB Liaison, SEP Co-Chair, East Carolina University, sean@ig.utexas.edu

B. Katz, JRFB Liaison, EPSP Chair, Chevron Corporation, USA, BarryKatz@chevron.com

S. Kuramoto, JRFB Liaison, CDEX, JAMSTEC, Japan, s.kuramoto@jamstec.go.jp

G. Lericolais, JRFB Liaison, ECORD Facility Board Chair, IFREMER, France, Gilles.lericolais@ifremer.fr

K. Miller, JRFB Liaison, SEP Co-Chair, Rutgers University, USA, kgm@rci.rutgers.edu

Y. Tatsumi, JRFB Liaison, CIB Chair, Kobe University, Japan, tatsumi@diamond.kobe-u.ac.jp