## SC ENTIFIC OCEAN DRILLING

**CREDIT: Thomas Ronge & IODP JRSO** 



## SC ENTIFIC OCEAN DRILLING

### In the Highlights issue

#### IN THE REPOSITORY

IODP Expedition 399: Building Blocks of Life, Atlantis Massif

IODP Expedition 395: Reykjanes Mantle Convection and Climate

IODP Expedition 400: Northwest Greenland Glaciated Margin

Expedition 398P: JR Academy and School of Rock

#### **CREATIVE coreNER**

Tales from the Deep: Stories of Scientific Ocean Drilling

An Art Gallery in the Middle of the South Atlantic

3.9.2. Haiku

#### **EXPEDITION SCHEDULE**

# In the repository... Expedition 399: Building blocks of life, Atlantis Massif

Andrew McCaig and Susan Lang, Expedition 399 Co-Chief Scientists; Peter Blum, Expedition 399 Project Manager

written by Lesley Anderson and Sarah Treadwell, Expedition 399 Onboard Outreach Officers

**Origins of Life** The *JOIDES Resolution* left Ponta Delgada, Portugal in mid-April and sailed to the Atlantis Massif, a large underwater mountain in the middle of the Atlantic Ocean. It is located where two tectonic plates are slowly drifting apart, making mantle rocks more accessible for ocean drilling. The massif is unique because it hosts the Lost City hydrothermal field, where white chimneys vent warm fluids. A water-rock reaction called serpentinization causes these fluids to be rich in hydrogen and small organic molecules that can support life. Astrobiologists believe that if this chemical process occurs here on Earth, it may also take place on other planets or moons—even within our solar system. Enceladus is an icy moon of Saturn that emits plumes of water into space, and NASA is interested in flying probes through the plumes to determine if the water-rock interactions on this distant planetary body are similar to those on Earth.

The international team of scientists on Expedition 399 was led by Andrew McCaig (University of Leeds) and Susan Lang (Woods Hole Oceanographic Institution). The team set out with a primary focus to deepen legacy Hole U1309D, but the plans changed when drilling became very successful at a nearby site, U1601C. The original goal was to drill a 200m hole at U1601C, then return to U1309D. However, when the recovery rates increased to more than 100% and cores were returned at speeds unprecedented for hard rock drilling, the science party reevaluated. They decided to prioritize deepening Hole U1601C, as it was yielding historically challenging to access rock that that were of interest to all members of the science party. The group believes the >800m archive of core and the 1.2km deep borehole will be valuable to the scientific community as a whole, now and in the future.



TOP: The Coy glove box is used to work with microbiological samples (Credit: William Brazelton & IODP). BOTTOM: Siem personnel prepare a reentry cone (Credit: Erick Bravo & IODP JRSO).



**Preliminary Results** Preliminary results suggest drilling accessed both more altered and "fresher" mantle rocks less altered by sea water interactions. Recovering both from a largely continuous record was very exciting for geologists who want to understand what happens before and after these rocks are brought to the surface.

The microbiologists and geochemists were equally excited. Carbonate and other minerals in the rocks indicated where there had been fluid flow, and therefore zones that may have been favorable for hosting life. They were also able to send a water sampler down the borehole to collect fluids that had been altered through reactions with those same rocks. Combined, the recovered materials provide insight into the conditions for early life on Earth – and also what the environments could be like on icy moons such as Enceladus.

**Outreach** Expedition 399 had a team of two Education and Outreach officers on board the ship. One was a former teacher and current logistics planner for the United States Antarctic Program, the other an informal educator and professional science communicator, both from the United States. The team provided ship to shore broadcasts, organized meetings with the press, conducted interviews and managed the ship social media and blog. Due to the record-breaking nature of this expedition, more than 20 news and media agencies have published stories about Expedition 399 science. In addition to these onboard duties, 500 postcards were sent to classrooms around the world and a museum display for the ship was organized by one of the Outreach Officers. Their outreach impacted over 3 million people in 16 countries, and 42 states.

FROM TOP: Scientists wait for operations to end at the moon pool before sampling water from the Niskin bottles (Credit: Erick Bravo & IODP JRSO). Microbiologist Jordyn Robare uses a chisel and hammer on a piece of hard rock (Credit: William Brazelton & IODP). Expedition 399 scientists look at a piece of core under the stereoscope while performing a hardness test (Credit: Erick Bravo & IODP JRSO). Members of the science party discuss which piece of core will be taken for microbiological subsampling and analysis (Credit: Erick Bravo & IODP JRSO). Expedition 399 scientists raise their hands at the bow for a group photo (Credit: Erick Bravo & IODP JRSO).

# In the repository... Expedition 395: Reykjanes Mantle Convection and Climate

#### Ross Parnell-Turner and Anne Briais, Expedition 395 Co-Chief Scientists; Leah LeVay, Expedition 395 Project Manager

written by Jennifer Field, Expedition 395 Onboard Outreach Officer

**Science Objectives** Expedition 395 began in Ponta Delgada, Portugal on the 12th of June 2023 and finished in Reykjavik, Iceland on the 12th of August 2023. The objectives of this expedition were threefold: to explore the formation of the V-shaped ridges and troughs which are visible on the ocean floor south of Iceland, to discover the dynamic history of the oceanic gateways between the Norwegian Sea and Arctic Oceans and the North Atlantic, and to investigate the changes in hydrothermal fluid and basalt alteration over different types and ages of crust. The sites chosen for this expedition had an ideal combination of ocean spreading at the Mid-Atlantic Ridge, Iceland Plume interaction and the rapid accumulation of sediments via North Atlantic gateways.



Expedition 395 was preceded by Expedition 384 (engineering testing in 2020) and Expedition 395C that was run during strict COVID-19 protocols in 2021 without a science party on board. As a result, the scientists from this expedition have been actively working toward these three objectives for more than three years! The combined efforts of Expeditions 384, 395C, and 395 provided the scientists with over 400 m of oceanic basalt and over 5.8 km of sediment to examine.

After coring multiple holes along a transect through the Gardar and Björn sediment drifts and using data from Expeditions 395C and 384, Expedition 395 scientists are able to correlate complete sequences of sedimentary history through key Pleistocene and Pliocene Periods (roughly 5 million years ago). The newly drilled site off the east coast

TOP: Lab Officer Chieh Peng, Expedition Project Manager Leah LeVay, and Co-Chiefs Ross Parnell-Turner and Anne Briais smile on the catwalk after the Expedition's first core came aboard. BOTTOM: Deepa Dwyer, Suzanne O'Connell, and Sarah Friedman look over some of the unusual core from site U1564 (Credit: Jennifer Field & IODP).

of Greenland on the Eirik drift provided scientists with tantalizing views of never-before-seen structures from this area and offered clues about sedimentation in the dynamic cycles between glacial and interglacial periods. The cores from the different sites will also provide information about how circulation through the Denmark strait has changed as a result of the action of the Iceland mantle plume. At the Eirik Drift, Expedition 395 achieved the second deepest hole drilled by the JR (1367 m) with only one drill bit! This site also provided the deepest sedimentary microbiological sample in the Atlantic Ocean. This sample, and the others taken, will be used to infer environmental conditions of the sediment, nutrient cycling, and the sediment-water interactions throughout the sedimentary profile.

In addition to sedimentary records, Expeditions 395, 395C, and 384 retrieved basalt cores that provide insights into the formation of the seafloor in and around the V-shaped ridges and troughs from which they were taken. Determination of the chemical composition of the basalt will indicate the conditions under which the ocean crust formed and the role that the Iceland mantle plume played in the area's unique morphology. Highly altered basalts will shed light on the interactions between these rocks and the surrounding hydrothermal fluids and sediments. The science party will have much work to do post-cruise to continue to sample, collate, and examine all of the data that they have gathered.

**Exciting Happenings for Expedition 395** There were plenty of non-science happenings onboard the JR for Expedition 395. This expedition may well have been called a birthday expedition with each of the co-chiefs celebrating their birthdays in addition to eight other scientists and technicians on board. There were a couple of holiday celebrations as well. The fourth of July and Bastille Day were celebrated and our Canadian and Belgian scientists were honored on their national days. Another event that added excitement was a rendezvous with the Icelandic Coast Guard Ship "*Thor.*" *Thor* brought out a few expedition essentials including a thin section billet from College Station, TX and some severing tools. In addition to these necessities, they brought fresh vegetables and fruit which was welcomed by everyone on board! The supplies were plucked by the crane operator off



TOP: Katharina Hochmuth and Anita DiChiara take a photo with the bald eagle made by the laboratory technicians in honor of the Fourth of July. BOTTOM: Takuma Suzuki and Saran Lee give a ship-to-shore tour in Japanese (Credit: Jennifer Field & IODP).







TOP: Boris Karatsolis, Justin Dodd, Deborah Eason, and Gabriel Pasquet discuss newly arrived basalt cores (Credit: Jennifer Field & IODP). MIDDLE: Icelandic Coast Guard Ship *Thor* brought necessary supplies to the JR (Credit: Jennifer Field & IODP). BOTTOM: Expedition scientists gather for a photo in front of the bridge (Credit: Tiffany Liao & IODP JRSO). the back of *Thor* and transferred to the helipad in moderate seas. While the science party was waiting for the installation of casing and a reentry funnel at site U1564F, they participated in a scavenger hunt that took them throughout the ship looking for clues. This was a fun and exciting way to get out of the labs and to meet new people onboard.

Outreach Outreach efforts were multi-modal and included a series of YouTube videos explaining the process of coring from the view of the drill floor and of the core flow in the core lab. Images and videos were disseminated to the public via Twitter, Facebook, and Instagram. The Ship's log was also updated and twelve blog entries were posted throughout the 8-week expedition. These posts ranged from how the ship works to the science happening onboard. Many of these blogs were done in collaboration with scientists and Siem crew members. As the Expedition took place in the summer months, Ship-to-Shore events were focused on summer programs for students. A total of 24 Ship-to-Shore events were held which included two Open Houses and one Chinese Live Stream Event. These events combined reached over 400,825 people from more than 15 countries. Not only did these events include onshore participants, but they also involved the scientists on board. Every scientist on the ship and many of the marine technicians were involved in one or more outreach events. There were also tours given in Japanese, Chinese, and Tamil languages. This team effort on the part of the science party and the technicians made the Ship-to-Shore events a more educational and positive experience for the participants. Media coverage included a live interview on Nebraska TV (NTV) with the Expedition Project Manager, Dr. Leah LeVay, and the facilitation of an article written about Expedition 395 for Marine Technology Magazine.

# In the repository... Expedition 400: Northwest Greenland Glaciated Margin

Paul Knutz and Anne Jennings, Expedition 400 Co-Chief Scientists; Laurel Childress, Expedition 400 Project Manager

written by Elizabeth Doyle and Michelle Pratt, Expedition 400 Onboard Outreach Officers



LEFT: Tracy Frank and Lara F. Perez discuss the features in a fresh core (Credit: Beth Doyle & IODP). RIGHT: Sami Cargill prepares a piece of core to be sampled for paleomagnetic analyses (Credit: Erick Bravo & IODP JRSO).

**Coring into Greenland's Past** IODP Expedition 400 launched from Reykjavík, Iceland on August 13, 2023. Almost nine rewarding and at times pitching and rolling weeks later, the research vessel returned to Skarfabakki Harbour carrying fresh insights into the history of the vast northern Greenland Ice Sheet.

The *JOIDES Resolution* drilled into the sedimentary record of Melville Bugt, off the coast of Northwest Greenland. This region of the larger Baffin Bay was once occupied by the ice sheet, whose sediment deposits record past advances and retreats and provide clues about the impacts of fluctuating global climates. Expedition 400 scientists set out to undertake a comprehensive analysis of these sedimentary archives which could span around 30 million years, covering warm and cold periods, including times when greenhouse gas levels were even higher than they are today. The six drilling sites, reaching depths of approximately 300 to 1,000 meters below the seafloor, were strategically chosen along a transect across the northwest Greenland continental shelf and slope.

The drilling sites tapped into a composite stratigraphic succession that encompasses preglacial settings and exposes the initial growth of the northern Greenland Ice Sheet as well as its cycles of glaciation and

interglaciation. These cycles ranged from the ice sheet reaching its maximum positions at the shelf edge to a retreat toward the land that potentially approached a near-complete melting.

Successful drilling operations led to the recovery of more than two kilometers of sediment and geophysical logging data. Scientists pored over sedimentary features within the sand, silt, and mud, and around the varied glacial drop stones. Equally intriguing were the corkscrew burrows and other signs of bioturbation, fossilized bivalves and gastropods, wood fragments, and ikaite, a mineral named after Greenland's Ika (now Ikka) Fjord and stable only at freezing temperatures. High resolution analyses of the composition, physical properties and age of the sediment cores will fill in knowledge gaps about the Greenland Ice Sheet's response to past climate warming and establish the timeline of its inception, growth, and periods of melting and regrowth.

**Outreach** Prior to Expedition 400, the two Outreach Officers traveled to Denmark and Greenland to meet with community and organization representatives, learn about the educational systems and share news of the expedition ship-to-shore tours. A blog about onshore outreach activities and an expedition video trailer were posted before

<complex-block>

TOP: From left, Vikash Kumar, Fawz Naim, and Volkan Özen pose for a photo at sunrise (Credit: Erick Bravo, & IODP JRSO). BOTTOM: An iceberg's winding path as seen through marine radar with enhanced target detection (Credit: Beth Doyle & IODP).

departure. During the expedition, two open houses were hosted and sixty virtual tours were conducted. These included tours for the Copenhagen International School as well as those facilitated for the ECORD Summer School, Geological Survey of Denmark and Greenland, the National Centre for Polar and Ocean Research in Goa, India and IODP China. Scientists co-led tours in French, Danish, Chinese and Japanese. These ship-to-shore events combined reached approximately 2,394 participants, plus approximately 2.5 million for two IODP China events.

The outreach officers, each taking responsibility for a 12-hour shift, disseminated images, videos and text via Twitter, Facebook, and Instagram. Posts covered topics including cores recovered, life onboard, and expedition updates. The Ship's Log was updated with blog entries ranging from a profile of the onboard baker to features on ice navigation and the expedition's paleoecologist. Four related Discovery on Deck videos were posted on the *JOIDES Resolution* YouTube channel. A collaboration with Reach The World included three live broadcasts and four blog-style articles. Twenty-eight classrooms registered and several participated in live broadcasts.

Media coverage included social media posts with GNS Science in New Zealand, interviews with scientists on board, and an article to be published by the University of Colorado at Boulder.

# In the repository... Expedition 398P: JR Academy and School of Rock

written by Maya Pincus (USSSP)

Thinking about the *JOIDES Resolution* typically conjures images of scientists hard at work, eyes glued to hand lenses, faces pressed close to core after core—or drillers boldly identified by their red jumpsuits, mapping an elegant ballet across the rig floor as their machines wrestle core barrels out of the ocean.

JR Academy participant Brayelin Cordones enjoys a peaceful sunset (Credit: Brayelin Cordones & IODP).

What often goes unacknowledged, hidden in the shadow of groundbreaking scientific discoveries, are the myriad other opportunities provided to less obvious demographics. Fortunately, through the creativity of the U.S. Science Support Program's Education and Outreach team, the *JOIDES Resolution* is able to act as host to students and teachers in the downtime between scientific expeditions.

Most recently, Expedition 398P commenced in February with the primary objective of transiting the ship from Heraklion, Greece, to Tarragona, Spain, for six weeks of maintenance and repair during a tie-up in port. With no scientists onboard for this full-length non-expedition, there was plenty of room to host other parties. First, 15 undergraduate students from all over the USA boarded the *JOIDES Resolution* in February. As the ship sailed, these students participated in JR Academy, a program developed to introduce undergraduates to scientific ocean drilling while developing skills in science communication. When the ship arrived in Tarragona, JR Academy participants were replaced by 12 educators from six states for School of Rock. In partnership with the American Geosciences Institute, School of Rock teachers endeavored to update and revise existing educational resources, modernizing them for the post-pandemic digital space and aligning them to national learning standards.

In the two months since, participants of JR Academy and School of Rock have had time to reflect on their experiences, and explore how their time on the ship will affect their personal and professional futures.

For the students of JR Academy, the most profound takeaway was the exposure to new career paths, both in science and ocean exploration. To

LEFT: JR Academy participants pose on the dock in Heraklion, Greece, before boarding the *JOIDES Resolution* (Credit: Brayelin Cordones & USSSP). RIGHT: Chai Comrie helps make a film (Credit: Chai Comrie & USSSP).





some, like Brayelin Cordones, it was a chance to think about the future through a new lens. She explains it in a way that many people can likely relate to: "As someone who spends most of their life in one spot, it was an eye-opening experience... Before this trip, I felt like my life was just a straight path. Go to college, study for four years, and get a job. But now I know that there's an entire world to explore. A lot of the workers started out in completely different career paths, from the military to working as an automotive engineer. I learned that there's no shame in change." Chai Comrie adds "I am much more at ease stepping outside my comfort zone. In fact, I've become more adventurous and open to new experiences. Currently, I am exploring internship opportunities without limiting myself to just one area. This experience reminded me of my love of the environment and am now considering pursuing a minor in Global and Environmental Sustainability."

Others, like Chelsea McDonald, were empowered to continue their geology education with renewed vigor. "*The JR Academy has shown me an avenue I could take with my degree in geology,*" she says. "*Since I was a freshman in college I have dreamed of being able to go on the JR to do research with core samples. The JR Academy gave me that experience and helped assure me that geology is one of the best careers out there (in my biased opinion). It also helped me see the importance of science communication. As a scientist it's crucial to be able to share your findings with the public, especially the community that you will be working in. Geology is important to the well being of our earth and to the people living in it. When you are a good science communicator you can help inspire others around you and be a voice to enact change.*"

It is clear from their reflections that the JR Academy students are at the forefront of a new generation of passionate Earth scientists, and will lead the future of research, communication, and stewardship of the planet. Not far behind them are the students of the School of Rock teachers, who are participating in lessons based on data collected during IODP expeditions.

Inspired by the "Secrets of the Sediments" lesson, Nicoline Chambers is having her students make connections between scientific ocean drilling and space exploration. She (and her students) learned that *"bringing a sample up from Earth's interior has a LOT in common with* 



FROM TOP: JR Academy students learn about all the instruments used to collect core data (Credit: Mike Toillion & USSSP). Rob McKinley takes pictures of cores to share with his students (Credit: Maya PIncus & USSSP). After washing and sieving, Nikki Chambers prepares foraminifera samples for her classroom (Credit: Maya Pincus & USSSP). Alejandra Martinez collaborates with School of Rock teachers to plan a lesson based on IODP data (Credit: Alejandra Martinez & USSSP). bringing a sample home from Mars. In both cases, you don't know what you're going to encounter in your sample. In both cases, you are exposing your sample to vastly different environmental factors, simply by bringing them home." In her revised version of Secrets of the Sediments, students developed an understanding of how the fossilized foraminiferan life in the sediment samples can be used as a proxy to understand how Earth's climate was once vastly different. To make the activity as authentic as possibly, Nikki brought real foraminifera samples back from the JOIDES Resolution ("loads of thanks, Fabricio!"). To drive the interdisciplinary investigation home, they "followed that with studying the 'Mars samples' to look for life: we did a DNA extraction, looked for cells/ life structures, and used various methods to reanimate dormant life. All of the things that biologists do with core samples here on Earth can/will be done with the Mars samples that will be returned in 8 years...so cool!!"

Rob McKinley is another teacher using his experiences in School of Rock to bring scientific ocean drilling to life in his classroom. He says, "Our school is in the process of piloting some new phenomena and storyline-based units in our 9th grade physical science course, and the lessons in tectonics that my group worked on are going to be an immediate centerpiece of this. School of Rock was not only a hugely valuable professional experience for me, but working with a really amazing group of participants and instructors (not to mention doing it on the JOIDES Resolution!) was inspiring and invigorating at a time in the school year when I needed it most."

The creativity driving School of Rock teachers in their adaptation of pre-existing lesson plans is evident in the classroom of Tony Del Campo as well. He is planning a "Rocks Tell Stories" unit, in which students will participate in fieldwork "*that is similar to what is being done upon the* JOIDES Resolution."

Perhaps the most powerful component of School of Rock was the opportunity for educators to collaborate, bounce ideas off each other, and work together to not just improve the educational materials already available, but also to find new ways to make complex science accessible to all learners. Alejandra Martinez is confident about her growth as an educator, saying "What I learned while working on my lesson and collaborating with the other teachers has made me feel even more knowledgeable and enthusiastic about integrating more earth

science concepts into my curriculum, concepts that coring can shed light on. Teaching them through that lens will connect my students to current and past research and makes the science relevant to their lives and the work we do in the classroom." Tony adds, "Being surrounded by outstanding educators from across the United States who were selected to be part of School of Rock was incredible. I am so grateful for how welcoming and inclusive the other teachers were. There were so many informal moments when the other teachers were open to sharing their classroom ideas with me. They modeled what collaboration should be. You can not help but be inspired to become a better teacher like them."

Anyone who has sailed aboard the *JOIDES Resolution*, whether as a scientist, technician, student or educator, knows it is an experience like no other. From countless scientific discoveries to advances in STEM education, the floating laboratory welcomes people in all walks of life, and brings them together to increase our understanding of our planet.

School of Rock teacher David Thesenga takes his students on a virtual tour of the ship (Credit: Alejandra Martinez & USSSP).



# Introducing... Tales from the Deep: Stories of Scientific Ocean Drilling

In celebration of the United Nations-designated World Oceans Day and National Oceans Month as an extension, we are excited to announce a new feature of U.S. Science Support Program education and outreach—*Tales from the Deep: Stories of Scientific Ocean Drilling*. This project, spearheaded by Dr. Laura Guertin and supported by Maryalice Yakutchik and



Tales from the Deep: Stories of Scientific Ocean Drilling Public Community • Moderated • Community Organizations Drilling deep into science stories from the seal More

Maya Pincus (Onboard Outreach Officers, Expeditions 390, 392, and 391 respectively), is a collection of conversations published to the StoryCorps Archive. StoryCorps is a nonprofit organization that records, shares, and preserves stories to build connections between people. Because all interviews are preserved at the American Folklife Center at the Library of Congress in Washington, D.C., these records of scientific ocean drilling will be preserved long after our beloved *JOIDES Resolution* is retired. The objective of *Tales from the Deep* is to showcase how multifaceted our community is. Though we were brought together by the science, our experiences are so much more than that. Instead, this collection offers a glimpse into the most human elements of scientific ocean drilling: the little stories of everyday life that often get overlooked as we prioritize our data.

What's it like to sail on an ocean expedition with a food allergy? Which books are the best at the end of a long day in the lab? How did we even end up here? These are the questions that many people outside our community wonder, but have never had a chance to ask. By acknowledging the people behind our incredible work, we are offering non-traditional audiences an access point into scientific ocean drilling, and will hopefully engage groups that have been overlooked or excluded in the past.

The most important thing to know about *Tales from the Deep* is that we're just getting started! In the coming months, we will add many more narratives, as well as audiogram-style trailers, transcripts, relevant images and educational materials, and more. This project is evolving into a multi-media repository for stories about life at sea. For now, you can listen to the ever-growing library of audio narratives in the StoryCorps archive. But you can look forward to a standalone website in the coming months, hosting a web of interconnected resources that bring scientific ocean drilling to life.

If you are as excited about this project as we are, there are ways you can get involved:

- Share your story and be featured in a recorded conversation about an experience on *Glomar Challenger, JOIDES Resolution, Chikyū*, a mission-specifc platform, or as shore-based support
- Recommend a topic for a new conversation
- Suggest ideas for additional resources to supplement each audio narrative
- Provide feedback about the resources that are currently available

Share your thoughts in a survey (bit.ly/SC-IODP-survey), where you can also sign up to record your topic, and stay tuned for the next story! Laura will also take questions and feedback directly at guertin@psu.edu.

# **Creative COREner**



#### An Art Gallery In The Middle Of The South Atlantic

To the trained scientist, a photomicrograph of a thin section or an x-ray image is a way to track down the intricate details of a sample to better understand its origin and formation. To a layperson, it can be abstract art begging for interpretation (Credit: Tessa Peixoto, Expedition 393).

#### Credit: Maryalice Yakutchik and Marlo Garnsworthy



#### 3.9.2. Haiku

This literary porthole into deep oceandrillingrepresentssymbiosis in both form and function. It's a string of dozens of voices of distinct species of scientists who travelled from countries all over the world to live in close quarters and work together aboard the *JOIDES Resolution* for the longterm, mutual benefit of all. The poem describes, in sequence, 68 sediment cores spanning more than 70 million years and constituting the whole of a hole. The free ebook is now available!

# **Call for contributions**

If there's one thing that can be said about the International Ocean Discovery Program (and the Integrated Ocean Drilling Program, and the Ocean Drilling Program, and the Deep Sea Drilling Program), it's that we are a tight-knit community. Just as much as this newsletter is for you, we want it to be from you, too! In future editions we will highlight our readers by featuring the following community contributions:

- From the Field Have you had an experience with scientific ocean drilling that you want to share? Write a piece to tell us your perspective "from the field" for our next edition. Bonus points if you include some pictures!
- **Scientist Spotlight** Do you know someone who's making waves in the ocean drilling scene, whether it's a grad student or decorated scientist? Send us a nomination! Briefly tell us why this person deserves a shout-out, and ideally how to get in touch with them. Self-nominations are also accepted.
- Photo Montage We'll take any photos you have to share!
- **Creative COREner** Scientists are creators too! Send in your paintings, drawings, digital designs, poems, short stories, sculptures, or any other ocean science art you've made.

Send your contributions (and questions and concerns) to **mpincus@ldeo.columbia.edu** no later than the 20th of the month to be featured in the next issue.

## Find us on the web!



You don't need to wait for next month's newsletter to keep up-to-date with our adventures in science! We update our blog and social media regularly. Get involved, and stay in touch!

Twitter: TheJR Facebook: JOIDES Resolution Instagram: joides\_resolution Web: https://joidesresolution.org

## Join the mailing list ightarrow





# **IODP Expedition Schedule**

## **Expedition 401 Mediterranean-Atlantic Gateway Exchange**

December 10, 2023 - February 9, 2024 JOIDES Resolution

## **Expedition 402 Tyrrhenian Continent-Ocean Transition**

February 9 - April 8, 2024 JOIDES Resolution

## **Expedition 403 Eastern Fram Strait Paleo-archive** June 4 - August 2, 2024

JOIDES Resolution

## **Expedition 405 Japan Trench Tsunamigenesis**

September 12 - December 7, 2024 *Chikyu* 

## Expedition 406 New England Shelf Hydrogeology

TBD 2024 *MSP* 





