SCIENTIFIC OCEAN DRILLING

CREDIT: Chieh Peng, IODP JRSO

Digital Newsletter

the Drilling Dispatch

April 2023

SCIENTIFIC OCEAN DRILLING

In This Issue

Happening now...
Expedition 398P: Transit and Maintenance

written by Maya Pincus (USSSP),
with contributions from Leah LeVay, Enrico de Pano, and Steve Thomas (IODP JRSO)

We think of the expeditions as the busiest time for the *JOIDES Resolution*, but tie-ups in port can be just as, if not more, involved. After transiting from Heraklion on the Greek island of Crete at the end of Expedition 398, the ship has been docked in Tarragona, Spain since February 21. Teams from IODP and Siem Offshore have been working around the clock to install new hardware and software, carry out maintenance and repairs to existing structures, clean, and overall prepare the JR for another productive year of scientific ocean drilling.

Here are some of the major projects taking place right now:

- **Installation of high-temperature logging wireline:** Expedition 399 will drill into the Atlantis Massif, notable for the the Lost City Hydrothermal Field. Scientists participating in this expedition will investigate the internal structure, cooling history, and hydrogeology of the Massif in order to develop a better understanding of the building blocks and origins of life. The new wireline system will allow participants to safely carry out downhole logging in boreholes with ambient temperatures of up to at least 145°C.

- **Deployment of a new rig instrumentation system:** Since the last transit, Expedition 397T, JRSO and Siem have been working together to install a new rig implementation system to replace RigWatch. The new system will allow drillers and scientists to observe the ocean floor with greater sensitivity.

TOP: During tie-ups, emergency evacuation drills take place on the dock (Credit: Maya Pincus & USSSP). MIDDLE: Siem electrician Stefan Pretorius cleans one of the bearings for the bow thruster. (Credit: Maya Pincus & USSSP). BOTTOM: Physical Properties technician Alejandro Avila prepares petrophysics instruments for the upcoming expedition (Credit: Maya Pincus & USSSP).

- **Installation of new X-ray imager:** X-ray imaging of cores can prove to be a valuable tool by showing features that may not be readily discernable to the naked eye. A new X-ray imager, called X-SCAN, is being installed to replace the current X-ray imager that was deployed on Expedition 379. X-SCAN has the capability of producing X-ray images at multiple angles around a core section without having to remove and turn the core.

- **Updates to IT systems:** Tie-ups are the best opportunity for Marine Computer Specialists (MCSs) to carry out the tasks that would otherwise be too invasive to a team of scientists at sea. This port call, the MCSs are busy with many projects, such as deploying new Mac Mini M1 computers to all Mac workstation locations on the ship; updating servers for Zenworks, Windows, Linux, and ESXi; setting up a new Dell PowerStore storage device for more storage in the ship's data center; and preparing to bring Starlink onboard.

- **Replacement of the second drawworks brake:** Expedition 390 ended a week early when one drawworks brake failed. The issue was quickly resolved when a new brake was air-freighted to Cape Town for replacement. Now, during EXP398P, the second brake is being replaced to ensure proper functionality of the system through the end of the *JOIDES Resolution*'s tenure.

- **Routine maintenance:** Crew members are busy as ever, carrying out regular maintenance and repairs. This includes replacing flooring, repairing thruster bearings, deep cleaning of hard-to-reach spaces, loading freight, and more.

On April 5, the JOIDES Resolution will set sail once again, this time to the port of Ponta Delgada in the Autonomous Region of the Azores in Portugal. Less than a week later, a new team of crew members, technicians, and scientists will board the ship to begin Expedition 399: Building Blocks of Life, Atlantis Massif.

TOP: A member of the drilling crew caries out cleaning and repairs on the top drive. The old drawworks brake can be seen in the foreground, ready to be removed (Credit: Maya Pincus & USSSP). MIDDLE: Air is moved from one part of the ship to another to facilitate maintenance operations (Credit: Maya Pincus & USSSP). BOTTOM: Marine Computer Specialist Enrico de Pano works to update the system (Credit: Maya Pincus & USSSP).

In the repository...
Expedition 398: Hellenic Arc Volcanic Field

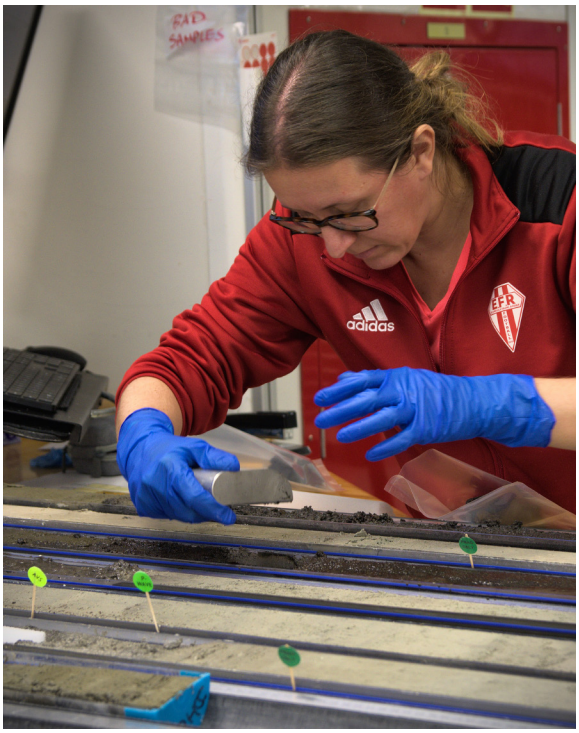
Timothy H. Druitt and Steffen Kutterolf,
Expedition 398 Co-Chief Scientists;
Thomas A. Ronge,
Expedition 398 Project Manager

written by Sara Whitlock and Susan Schnur (USSSP)

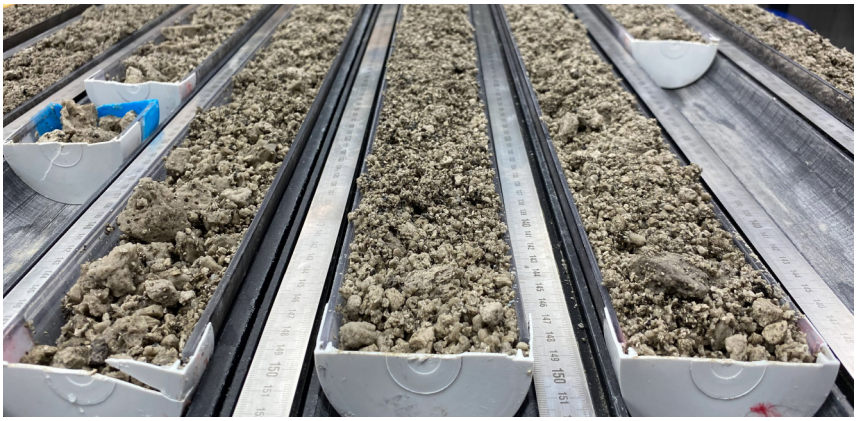
Drilling to discover Santorini's volcanic history Expedition 398 scientists headed to the Aegean Sea from Tarragona, Spain in early December. After a five-day transit, they arrived at the first drilling site of the expedition and began lowering the drill pipe in the Anhydros Basin, next to the beautiful island Amorgos.

By collecting cores at locations throughout the sea around Santorini, expedition scientists started the process of learning more about the eruptive history of the Santorini, Kolumbo, and Christiana volcanoes. These volcanoes have been active throughout at least the last million years, with some notable eruptions like in the Late Bronze Age and 1650 CE.

In total the expedition drilled 7.3 km into the ocean floor and recovered 3.3 km of core from sites around the three volcanoes. These cores represent the deepest material ever recovered from the Aegean Sea, and expedition scientists are hard at work using them to learn about the history of the volcanoes' eruptions as well as how tectonic movements and sea level changes in the region impacted those eruptions.



ABOVE: Co-chief scientists Steffen Kutterolf (left) and Timothy Druitt (right)pose with EPM Thomas Ronge (center) on the bow at the start of the expedition (Credit: Erick Bravo & IODP). LEFT: Sedimentologist Carole Berthod takes a sample from the working half of a core section (Credit: Jonas Preine & IODP). BELOW: Core section halves full of pumice on the description table. (Credit: Acacia Clark & IODP).



Those kilometers of core were hard won—it was sometimes difficult to recover volcanic materials, which are different from the rocks and sediments into which the JR normally drills. But through a combination of different drilling sites and technologies, the expedition was successful in recovering the most complete volcanic history of this region to date—and they got to see many beautiful views of the islands in this chain along the way!

Participants of Expedition 398 rung in the New Year in the Aegean Sea (Credit: Thomas Ronge, IODP JRSO).

Seeing land is unusual for the JR, which normally operates far out at sea for the entire two-month stretch of each expedition. But for EXP398, our transit from Tarragona to the waters near Santorini was the only time land wasn't visible from the ship, and island views boosted morale as the party celebrated Christmas and New Year at sea. A particular high point was arriving near Santorini on New Year's Eve just in time to see fireworks on the island as the crew celebrated with our own ball drop.

Outreach As the science party was hard at work collecting and describing cores from around the volcanic chain, the onboard outreach officer was busy coordinating outreach to schools and journalists around the world. By the end of the expedition, the outreach officer and scientists on board had conducted 59 tours of the ship for students, reaching more than 6,500 students. Outreach to schools around Greece was particularly successful, with members of the science party coordinating tours with almost every school on Santorini, and several others around Greece.

LEFT: Shun Chiyonobu and Olga Koukousioura work in the microscope lab (Credit: Jonas Preine & IODP). RIGHT: Timothy Druitt leads a field trip of Santorini's geology from the deck of the *JOIDES Resolution* (Credit: Thomas Ronge, IODP JRSO).

Media outreach onboard was also a unique part of this expedition. Because several drilling sites in the Santorini caldera were within ferry distance from shore, we were able to welcome the mayor and deputy mayor of Santorini, the commander of the port police authority, and 12 documentarians and members of the media onto the ship for two days during the last week of the expedition. Two local news stories were published immediately after this visit, and two documentaries about the expedition are scheduled to come out next year. The onboard outreach officer complemented this visit by reaching out to 51 journalists based in expedition members' home cities and placed eight other stories in local publications.

Onboard outreach to schools and the media was particularly successful thanks to onshore outreach efforts that took place in October, two months before the expedition set sail. To help educate people about the JR and the expedition, the USSSP Outreach Program prepared an interactive exhibit held at the Bellonio Cultural Center in Fira town on Santorini in October 2022. The exhibit was a combination of a successful USSSP traveling exhibit, known as 'In Search of Earth's Secrets', and additional content relating specifically to the expedition. In collaboration with USSSP staff, the Onshore Education and Outreach Officer prepared outreach materials such as a brochure, banner stands, and educational activities. Many of the materials were also translated into Greek with the help of two PhD students at the University of Athens, who also helped run the exhibit. Also crucial to the success of the exhibit were six undergraduate students from the American College of Greece, who enthusiastically immersed themselves in learning about the expedition and IODP.

In total the exhibit reached about 1,800 people on the island. This included eight primary schools, three junior high schools, and one high school. The exhibit also hosted a nursery school group, a technical high school, and an adult education group. The general public also had the opportunity to visit the exhibit in the evening, and many people came to the official opening ceremony. The exhibit was also a great opportunity for media outreach, with expedition scientists and USSSP staff doing several interviews with TV filming crews before and during the exhibit. Kids loved the exhibit—many students asked insightful questions and several students came back later to learn more. Many said they wanted to be scientists someday and could imagine sailing on a two-month expedition. This is exactly the type of enthusiasm we want to instill in kids who might one day grow up to be IODP scientists themselves!

Expedition Project Manager Thomas Ronge poses with his drone (Credit: Erick Bravo & IODP).

FEATURED VIDEO

Welcome to the *JOIDES Resolution*

During JR Academy, 15 undergraduate students from all over th USA worked together to learn about scientific ocean drilling and science communication. See what they accomplished in this filmed produced by NASA Astrobiology filmaker Mike Toillion, who participated in JR Academy as an instructor.

For your calendar

- **Submit an IODP Drilling Proposal**
  (Deadline: 3 April 2023; learn more here)
- **Call for nominations: Asahiko Taira International Scientific Ocean Drilling Research Prize**
  (Deadline: 12 April 2023; learn more here)
- **Submit an AGU session proposal**
  (Deadline: 12 April 2023; learn more here)
- **International Ocean Discovery Program Forum**
  (22-23 April 2023; Vienna, Austria)
- **European Geophysical Union Annual Conference**
  (23-28 April 2023; Vienna, Austria)
- **Submit site data for an IODP Drilling Proposal**
  (Deadline: 1 May 2023; learn more here)

SCI COMM RESOURCE OF THE MONTH

USSSP is partnering with the American Geosciences Institute to revise, curate, and revitalize our existing library of educational resources. Preview the updated version of the "Understanding Oceanic Crust Using Density" lesson, and let us know what you think of the new formatting!

Teacher-facing version
Student activity sheet
Survey

Spotlight on... Suzanne OConnell

written by Maya Pincus (USSSP)

Credit: Suzanne OConnell

When I sat down to interview Dr. Suzanne OConnell, I was expecting a 20-minute summary of her research and the ocean-drilling expeditions she sailed on to make those investigations possible. I wasn't expecting to spend an hour swapping stories about growing up in the northeastern U.S. (New England for her, New Jersey for me), the geology professors at our shared alma mater (go Oberlin!), and our pets (her Finn is a beautiful young Nova Scotia Duck Tolling Retriever; my home is overrun by a motley gang of two stray cats and an 18-year-old mutt).

I bring this up not to diminish the many accomplishments of her long career, but as a grounding reminder that even the heroes of our field had to start somewhere. If you're anything like me, still trying to figure out what you want to do when you grow up a decade after most of your friends decided it was time to get married and have kids, it's a breath of fresh air to hear the winding path that Suzanne took to find her "forever" job.

Suzanne was on my radar for a number of articles she had written that kept popping up in my field of relevance. Even before NSF announced the end of funding to our beloved *JOIDES Resolution*, my education and outreach group had been talking about modeling an "IODP Greatest Hits" text after Suzanne's GSA Today retrospective on the 50th anniversary of scientific ocean drilling. When Women's History Month hit, I kept running into her analyses of the leaky pipeline of women in academia, and more specifically, in oceanography. Off the bat, these coincidences indicate two important things to know about Suzanne: She is devoted not just to her research but to helping teach the world about what she knows, and she has dedicated her career to fighting the social, political, and economic injustices that make science less accessible to some than to others. A social justice warrior in the most admirable sense of the word, Suzanne uses her role as a researcher and educator to empower students of all backgrounds to use science to leave a positive impact on both their own futures and the world.

Suzanne practices her highland bagpipes on the helideck during Expedition 312, summoning the incoming rain clouds (Credit: IODP).

Suzanne uses a hand lens to inspect an Iceberg Alley dropstone during Expedition 382 (Credit: Lee Stevens & IODP).

Her scientific ocean drilling story begins with a whisper, echoing through the hallways of the Oberlin College geology department. Speaking of the wife of the late department chair, who "had an office somewhere in the rafters," the male professors said reverently, "She sailed on the *Glomar Challenger*." Though it was years before Suzanne had the chance to sail on that hallowed ship, the way the men of her department talked about the woman who had sailed certainly made an impression.

In the years after undergrad, Suzanne worked in Yosemite for a year, mapped ophiolites in Newfoundland for her masters degree with the State University of New York at Albany, toyed with the idea of a career in oil exploration, then settled on a position as the Science Coordinator for JOIDES, the Joint Oceanographic Institutions for Deep Earth Sampling. After that two-year position ended but before the start of her doctorate at Lamont-Doherty Earth Observatory, she had the opportunity to join her first expedition on the *Glomar Challenger*, Leg 74. A few years later she sailed again on Leg 96, its "bittersweet" final expedition. In the years since, she sailed on the *JOIDES Resolution* six times: twice as a Staff Scientist, three times as a member of the science party, and once as an educator for a now-retired program at the Science Museum of Minnesota.

Suzanne's research now focuses on how the past can help us understand the present and the future. Specifically, she studies marine sediments from high latitudes, interrogating them for what they can reveal about our planet the last time atmospheric CO_2 levels were above 400 ppm. Through analyses of microfossil abundance, sediment grain size, and geochemistry, she answers the questions *How fast did the ice sheets melt then? What does that mean for the ice sheets now, and for Earth's global climate system?* She reads the layers of sediment in ocean cores like pages in a book, teasing out the interconnected history of Earth's ice, oceans, and climate.

A prolific writer, Suzanne has authored and co-authored over sixty scientific papers, and regularly publishes articles that translate the complexities of geology to matters anyone could understand and get excited about. She speaks with pride about the number of students she has mentored over the years. Though not all of them have ended up as career scientists, she still keeps in touch with many of them, demonstrating that she is as accomplished a teacher as she is a paleoceanographer.

With only one year left before the demobilization of the *JOIDES Resolution*, the long-delayed Expedition 395 is guaranteed to be Suzanne's last cruise. But going back to the theme of coincidences, this expedition will mark a special anniversary: She celebrated her birthday on her very first trip to sea. Happening during the same summer months as Leg 74, Expedition 395 will be a chance for her to bookend her ocean drilling career with another shipboard birthday.

Suzanne's students pose in front of a historical photo at the 2013 Geological Society of America conference in Denver (Credit: Suzanne OConnell).

Spotlight on... Marie Tharp

written by Maya Pincus (USSSP)

Credit: Lamont-Doherty Earth Observatory and the estate of Marie Tharp

If you've ever been involved in an ocean-drilling expedition, you know the importance of understanding the ocean floor. It's impossible to pick the right place to drill if you don't know what you're drilling into. But not too long before the birth of the very first scientific ocean drilling program, people assumed that the ocean floor was flat and featureless, a nondescript expanse of slowly accumulating sediments. The realization that the ocean floor is in fact a complex map of ridges, rifts, and valleys has in part been the motivation for IODP and its previous iterations. This discovery revealed that the ocean floor holds the key to understanding the very nature of Earth processes.

We owe this body of knowledge to Marie Tharp (30 July 1920 - 23 August 2006), whose maps of the ocean floor led her to be recognized by the Library of Congress as one of the greatest cartographers of the 20th century. Though her name is slowly making its way into the mainstream, with a Google Doodle game showcasing her science and the renaming of a U.S. Navy pathfinder-class oceanographic survey ship in her honor, she wasn't always so well-regarded.

Discrimination is in no way gone from the workplace, but in the 1940s, it took an entire world war for a girl to have a go at getting a geology degree. After trialing and ruling out several career paths deemed appropriate for a woman at the time ("I couldn't type and couldn't stand the sight of blood, so I decided to try teaching and began taking education courses, which convinced me that I wouldn't like teaching all that much"), Tharp had the opportunity to earn her Master's degree in geology at the University of Michigan, as "Girls were needed to fill the jobs left open because the guys were off fighting." Following this path eventually took her to Columbia University's Lamont Geological Survey (now Lamont-Doherty Earth Observatory), where she worked with Bruce Heezen to draft and plot profiles of the ocean floor based on echo sounder data. The only reason she landed that position at all is that she showed up at Lamont, asked for a job, and waited three weeks for Maurice "Doc" Ewing, the director at the time, to return from sea.

Google celebrated the life and career of Marie Tharp with its November 21, 2022 Doodle. The Library of Congress named her one of the greatest cartogrohers of the 20th century on that day in 1998 (Credit: Google).

Tharp drafts a detailed map of the mid-Atlantic ocean floor based on thousands of echo soundings over several expeditions (Credit: Lamont-Doherty Earth Observatory and estate of Marie Tharp).

The first attempts to visualize the ocean floor were carried out by cartographers in the U.S. Navy, whose technology was limited to lengths of rope with lead weights on the end. These early expeditions indicated the presence of underwater mountains in the middle of the Atlantic Ocean, but it wasn't until the development of sonar in the 20th century that maps could be developed with resolution higher than one datum per 50 square miles. Ewing and a colleague at Woods Hole Oceanographic Institute, Joe Worzel, developed a continuous echo sounder that would send pings to the ocean floor at regular intervals, which would be recorded by a microphone on the ship and documented by a stylus that would use an electric spark to mark the length of time it took the echo to return, thus indicating the depth to the ocean floor.

Tharp was never allowed to sail on any of these sounding expeditions, but she worked resolutely at her desk, day and night, to translate a series of burns on a spooled strip of paper into detailed maps of the mid-Atlantic. As the months turned into years, and more data became available from new cruises, Marie began to notice something unexpected: a rift that spanned the length of the mountain range in the middle of the ocean. It seemed like Marie had found evidence in support of the highly controversial theory of continental drift—the mid-ocean ridge appeared to be the place where continents were rending apart.

This was not the news her colleagues wanted to hear. Instead of approaching her observation through the lens of scientific curiosity, Heezen dismissed it as "girl talk." He made her redo all of the charts she had painstakingly created. But the science was sound, and as technology advanced, the newest data always showed the rift, or the "gully" as Tharp and Heezen called it. Eventually it was incontrovertible.

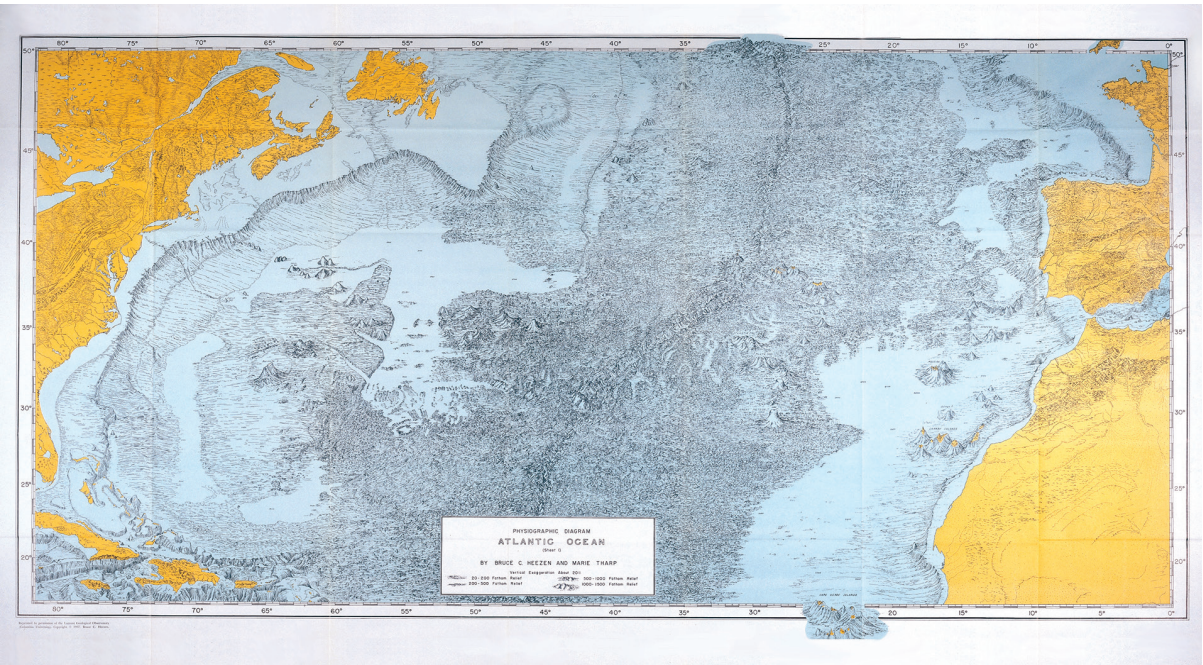
Tharp's interpretations of the seafloor were widely doubted, but she stood by them, knowing "the data would speak for itself" (Credit: Lamont-Doherty Earth Observatory and estate of Marie Tharp).

Heezen wasn't the only person to doubt Tharp's work. After Ewing and Heezen published an abstract about Tharp's discovery (it was still too soon for a woman's name to be affiliated with such important work), the famous explorer, Jacques Cousteau himself, set out to disprove her. He hooked up a submersible camera to a ship and set out on a trans-Atlantic voyage, determined to show that a rift in the middle of the ocean was impossible. But Tharp had interpreted her data correctly, and the rift was exactly where she said it would be. Cousteau's videos had the opposite goal of what he intended: they actually proved Tharp right!

Tharp poses with several of the maps that she drew, as well as a globe showing the mid-ocean ridges spanning the entire planet, July 2001 (Credit: Lamont-Doherty Earth Observatory and the estate of Marie Tharp).

Over the next 25 years, Tharp and Heezen continued to refine their maps as more expeditions came back with data, not just from the Atlantic, but from all of Earth's oceans. Tharp estimates that she plotted tens of thousands of soundings by hand, if not more. The result was a global map that Tharp describes as "a revolution in geological thinking, which in some ways compares to the Copernican revolution. Scientists and the general public got their first relatively realistic image of a vast part of the planet that they could never see." Her dedication to rigorous science was the first step in our modern understanding of plate tectonics.

As we reflect on Tharp's accomplishments in the years after her death, it's hard to decide what stands out more. Are we impressed by her intellect, which enabled her to envision a chain of mountains out of an invisible plain, leading us to the conclusion that continental drift was more than a myth? Or do we revere her persistence and determination, which drove her to change the field of science, despite setback and dismissal throughout her entire career? In the case of Marie Tharp, maybe we can't take one without another. It was the strength of her voice through which she was able to carry out her science and make sure it wasn't lost to the world.



Tharp and Heezen's 1957 map of the seafloor (Credit: Marie Tharp Maps LLC and Lamont-Doherty Earth Observatory and estate of Marie Tharp).

How to...
Find free educational resources on the JR website

written by Maya Pincus (USSSP)

Attention educators! Are you looking for a way to engage your students in authentic ocean-drilling science? Then you've come to the right place!

The *JOIDES Resolution* website hosts a vast library of free resources. Whether you teach students in kindergarten or college, there is guaranteed to be a lesson perfect for your class. Given that we've been creating lessons and activities since the early 2000s, there is a lot to search through if you're looking for something specific. Use this guide to find exactly what you're looking for.

- **Step 1**: Navigate to the *JOIDES Resolution* website (https://joidesresolution.org).
- **Step 2:** Click "For Educators" on the right side of the page (or to skip a step, go straight to https://joidesresolution.org/for-educators).
- **Step 3:** Look around. You can request a replica of one of our most famous cores for your classroom,
- download one of many free posters or children's books, play an online video game, or...
- **Step 4:** Find a lesson plan to engage your students in real ocean-drilling data. Click the "Classroom activities" tab.
- **Step 5:** Use the drop-down menu to filter your search. You can sort lessons by type of resource, intended age group, and topic, or just browse the entire library from newest to oldest. There is also a search option at the bottom of the page if you have a specific keyword in mind.
- **Step 6:** If you'd like to browse the resources organized by the Strategic Objectives of the 2050 Science Framework, you can preview a new version of the website, developed during the 2021 virtual School of Rock workshop.
- **Step 7:** Finally, for those of you who love spreadsheets, you can access and manipulate a complete database of educational materials here.

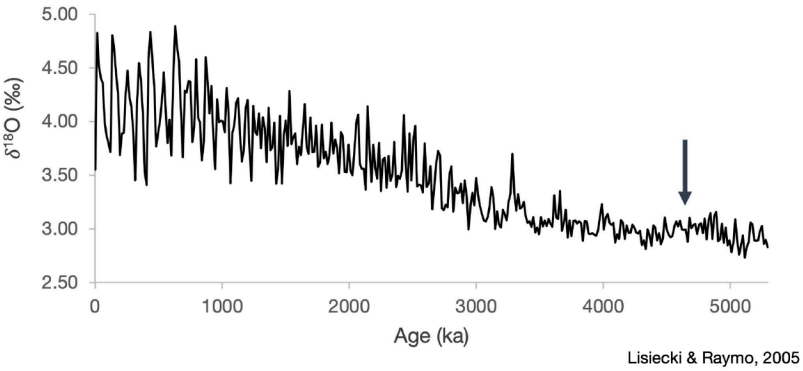
We are partnering with the American Geosciences Institute (AGI) to revise and update our resources! Over the next two years we will modernize the lessons on our website to ensure consistent formatting, updated links, connections to real IODP data, and alignment to the Next Generation Science Standards. All materials in their present state will be available in an archive, so you won't lose the resources you know and love, but stay tuned for the revitalized versions coming soon!

Women of SciOD

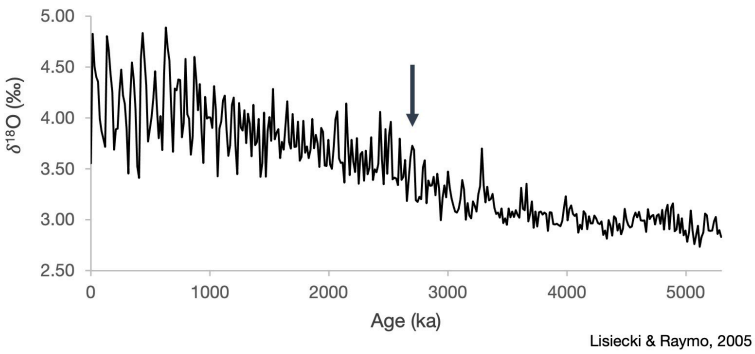
FROM TOP LEFT: Samanta Trotta, EXP 339; Crew Photo, DSDP Leg 94; Maria Snyder, 2019 JR Academy; Women of EXP362; Bailey Flugel, 2019 JR Academy; Lauren Haygood, In Search of Earth's Secrets; Susan Ponce, EXP344; Women of 2019 JR Academy; Women of EXP391; Morgane Brunet, EXP372.

Creative CORErner...
A story in the stitch

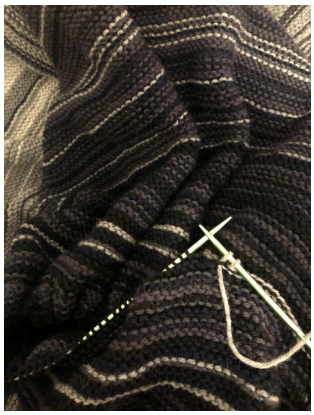
Scientists can sometimes get a bad rap for being less-than-perfect communicators, but our readers know that we are actually some of the best storytellers out there. Take Isabel Dove, for example, who studies diatomon-bound nitrogen isotopes. A dedicated paleoceanographer and paleoclimatologist, Isabel has found a way to make a complex 5.3-Myr analysis of benthic $\delta^{18}O$ records accessible to even the most amateur scientist. See how she translated the iconic LR04 benthic oxygen isotope stack into a blanket she knit herself in the images below.

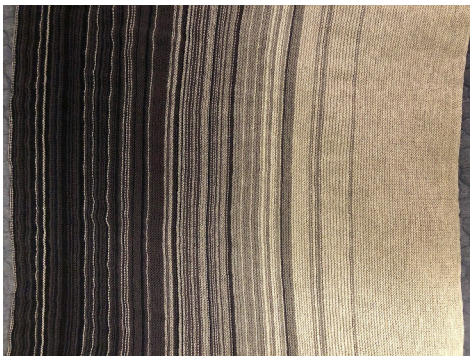


Lisiecki & Raymo, 2005



Lisiecki & Raymo, 2005





To learn more about the science and the process, you can check out Isabel's Twitter (@IsabelDiatom) and Instagram (@id.knits) accounts.

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 accomplished 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** - Thanks to everyone who submitted photos for this month's WOMEN IN SCIENTIFIC OCEAN DRILLING theme! April is Earth Month, so for next edition please send in your photos that illustrate the theme **Invest in Our Planet**.

- **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 April 20, 2023 to be featured in next month's newsletter.

See you next month!