



INTERNATIONAL
OCEAN DRILLING
PROGRAMME

ECORD
European Consortium for
Ocean Research Drilling

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NEWSLETTER





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Contents

ECORD News	3
Understanding the Ocean Below the Seafloor, UNOC event.....	6
Outgoing ECORD staff.....	8
Incoming ECORD staff.....	10
ECORD Awards.....	12
The International Ocean Drilling Programme (IODP ³).....	14
IODP ³ MSP Facility Board news	21
ECORD Science Operator News	24
Science Article	30
Magellan ³ and MagellanPlus Workshops Series.....	34
ECORD Educational Activities	42
ECORD Communication News.....	46
ECORD at meetings, conferences and events	52
ICDP News.....	53
News from ECORD members countries.....	54
Acronyms	60



The International Ocean Drilling Programme (IODP³) - www.iodp3.org - is an international research programme dedicated to advancing the scientific understanding of the Earth through drilling, coring, and monitoring the sub-seafloor. The European Consortium for Ocean Research Drilling (ECORD) - www.ecord.org - supports the participation of European and Canadian scientific communities in IODP³ and provides funding for the implementation of mission-specific platform expeditions. ECORD is funded by 14 countries (see back page).

IODP³ depends on facilities funded by two platform providers with financial contributions from additional partner agencies. Together, these entities represent 17 nations whose scientists are selected to staff IODP³ research expeditions conducted throughout the world's oceans, and large-scale research projects using ocean drilling archives (Scientific Projects using Ocean Drilling Archives or SPARCs). Scientist activities are managed by the IODP³ Programme Member Offices.

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Cover photo: Platform L/B Robert during IODP³- NSF Expedition 501: New England Shelf Hydrogeology.
Credits: Andrea Vale ECORD/IODP³/NSF.

A lot has happened since the last issue of the ECORD Newsletter has been published in spring 2024. The last 18 months have been primarily marked by the end of the International Ocean Discovery Program on 30 September 2024 and the launch of the International Ocean Drilling Programme (IODP³) on January 1st, 2025, through a two-year long process of exchange of views and ambitions between ECORD and JAMSTEC (see [the International Ocean Drilling Programme \[IODP³\]](#)).

The newly formed IODP³ interim entities (iSEP – interim Science Evaluation Panel, iMSP-FB – interim Mission-Specific Platform) have started their activities in 2024 to prepare a smooth transition between the two programmes. In parallel, the ECORD Council has funded from May 1st, 2024, onwards, the activities of the new IODP³ Science Office (IODP³-SO), which is based at the University of Plymouth, UK, with Antony Morris (University of Plymouth, UK) as Lead Director and Nobu Eguchi (JAMSTEC, Japan) as co-Director.

The last IODP expeditions

The two last IODP expeditions were implemented by the *JOIDES Resolution (JR)* and *Chikyu*, for which ECORD provided half of its regular annual contribution to NSF (3.5 M\$) and 1 M\$ to JAMSTEC.

The IODP Expedition 403: Eastern Fram Strait Paleo-archive (Co-chief Scientists: Renata Giulia Lucchi, ECORD-Italy and Kristen St John, USA), which aimed at investigating the area around Svalbard, which is very sensitive to climatic variability and can be considered as a 'sentinel of climate change'. This expedition has been the last expedition implemented by the *JR* after 29 years of outstanding services for three successive international ocean drilling programmes. The *JR* has been demobilized soon after, implying the cancellation of IODP Expedition 404: Arctic-Atlantic Gateway Paleoclimate supported by proposal 979 (Principal Investigator: Wolfram Geissler, ECORD-Germany), which was initially scheduled in September and October 2024. EMA has initiated discussions with NSF regarding a potential re-scheduling of this expedition with substantial additional ECORD funding, but for a variety of reasons along with several other internal considerations at JRSO and TAMU, adding Expedition 404 back to the schedule at this late date was not feasible.

The IODP Expedition 405: Japan Trench Tsunamigenesis - JTRACK (Co-chief Scientists: Shuichi Kodara, Japan, Marianne Conin, ECORD-France, Christine Regalla, USA, Patrick Fulton, USA, Kohtaro Ujiie, Japan and Jamie Kirkpatrick, ECORD-Canada), implemented by *Chikyu* from September 6th to December 20th, 2024, has been the last expedition of the International Ocean Discovery Program. This expedition aimed at exploring what controls shallow slip during great earthquakes and has been focused on drilling into the Japan Trench subduction zone and the fault zone in the region of large, shallow slip observed during the 2011 Tohoku-oki earthquake.

The launch of IODP³

In parallel to the development of the IODP³ Memorandum of Cooperation (MoC) linking ECORD, JAMSTEC and the IODP³ Associate Members, a new ECORD Agreement for the period 2025-2029 has been established among the 14 ECORD members, following disengagement of Finland at the end of IODP.

Changes in the ECORD functioning compared to the last five years concern the disappearance of the ECORD Facility Board whose activities are now transferred to the IODP³ MSP-FB and the transfer of some other entities at the IODP³ level: the Vision Task Force, the Communication Task Force and the Magellan Workshop Series Programme (MagellanPlus that became Magellan³ in the new programme). A new entity, the ECORD Financial Committee (EFC) has been established by the CNRS to provide advice and guidance on ECORD financial issues and budget follow up.

The ECORD Council has previously extended the terms of the other ECORD entities and their Chairs/Directors through 2025 to ensure a smooth transition between the two programmes: the ECORD Managing Agency (hosted by the Centre National de la Recherche Scientifique – CNRS), the ECORD Science Operator (hosted by the British Geological Survey – BGS, in Edinburgh), the ECORD Science Support and Advisory Committee (hosted by the National Institute of Oceanography and Applied Geophysics – OGS, in Trieste) and the Bremen Core Repository (hosted by the MARUM at the University of Bremen). The ECORD Council has observed that these ECORD entities are fit for purpose and are working very well, involving no changes in their

management and functioning.

During the last months of IODP, ECORD has negotiated an MoU with NSF for the period from October 1st, 2023, to 30 September 30th, 2029, regarding the storage and archiving of NSF-owned cores recovered from previous ocean drilling programmes at the Bremen Core Repository (BCR) at MARUM, University of Bremen in Germany.

These cores will continue to be stored, archived, and sampled at the BCR at no cost to NSF and remain available for scholarly studies, e.g. investigations on legacy material (cores and data), sampling, and education, to all global scientists following guidelines approved by the JOIDES Resolution Facility Board. The intention of all IODP members was to preserve the core distribution amongst the three repositories (BCR, Gulf Coast Repository and Kochi Core Center) and to maintain the continuity of core and data legacies to better serve the needs of the global science community.

The first IODP³ expeditions

During the interim phase of the newly formed IODP³ entities, three offshore expeditions have been scheduled for the first year of the programme:

The IODP³-NSF Expedition 501: New England Shelf Hydrogeology (Co-chief Scientists: Brandon Dugan, USA, Karen Johannesson, USA and Rebecca Robinson, USA), which was previously scheduled in 2024 and postponed due to a lack of a suitable coring system/platform for summer 2024, has been successfully implemented by ESO from May 19th to August 1st, 2025. The initial selected Science Party has been preserved but has been adapted to a new funding scenario introduced by the co-funding of the expedition by the US National Science Foundation (NSF), following a proposition from EMA. The objectives of this expedition are to determine the origin and volume of offshore freshwater in the subseafloor of the New England Shelf that will lead to a better understanding of this hydrogeological phenomenon worldwide.

Two expeditions will be implemented by JAMSTEC-MarE3 with Chikyu before the end of 2025:

The IODP³ Expedition 502: Impact of Petit-Spot Magmatism on Subduction Zone Seismicity and Global Geochemical Cycles (Co-chief Scientists: Asuka Yamaguchi, Japan and Hiroko Kitajima, Japan) will aim at exploring the nature of the acoustic basement in the outer rise area of the NW Pacific subduction system to shed light on the impacts of subduction inputs and help to determine the global role of petit-spot magmatism.

The IODP³ Expedition 503: Hadal Trench Tsunamigenic Slip History (Co-chief Scientists: Ken Ikehara, Japan and Michael

Strasser, ECORD-Austria) plans to drill a trench basin in the Central Japan Trench to recover the whole trench-fill sequence and establish event-stratigraphy for paleoseismologic interpretations.

Three proposals have been submitted in 2025 regarding the newly created Scientific Projects using Ocean Drilling Archives (SPARCs), which is the second type of IODP³ expeditions that are based the use of legacy assets (core, samples and data) collected previously by ocean drilling to address globally significant processes/problems (see [the International Ocean Drilling Programme \[IODP³\]](#)):

- P1102-S - OJP-ASH - The volcanic ash record from Ontong Java Plateau (Lead Proponent: Robert Musgrave, ANZIC-Australia).
- P1104-S - SIGNALS - Stratigraphic Integration of North Atlantic Legacy Sites (Lead Proponent: David Hodell, ECORD-UK).
- P1108-S - ENIGMA: ExploratioN Into a Global early Miocene Anomaly (Lead Proponent: Adam Woodhouse, ECORD-UK).

These three first SPARCs will be implemented in 2026 and each of them will receive a budget of 300 k€ for their implementation.

Forward look

After decades of unified international programmes, from DSDP to the International Ocean Discovery Program, major changes regarding the organization of international activities related to scientific ocean drilling have occurred over the last 18 months. The end of IODP has made an abrupt transition from a single international programme operated by independent platform providers to independent ocean drilling programmes. Based on its well-established operation, its successful implementation and competitiveness in the international research landscape, the ECORD infrastructure has taken advantage of this new scenario and has initiated a new way of operating scientific ocean drilling while benefiting from its 22 years of experience involving innovations in all fields.

Thanks to ...

Finally, on behalf of ECORD as a whole, we express our warm thanks and gratitude to Sasha Turchyn and Angelo Camerlenghi, who have been instrumental in the creation of IODP³ and in the continuity of ECORD activities during the transition phase between IODP and IODP³ as Chair of the ECORD Facility Board / Co-Chair of the interim Mission-Specific Platform Facility Board, and Chair of ESSAC, respectively.

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Scientist at work during IODP³-NSF Expedition 501: New England Shelf Hydrogeology.
Credits: Andrea Vale ECORD/IODP³/NSF.

UNDERSTANDING THE OCEAN BELOW THE SEAFLOOR Side event on scientific ocean drilling at the United Nations Ocean (UNOC3)

The ECORD has recently initiated activities aimed at opening scientific drilling to the wide blue-ocean scientific community, the European Commission and policy makers to explore opportunities for future synergies. In 2024, a White Paper was submitted by the European Consortium for Ocean Research Drilling (ECORD) and the International Continental Scientific Drilling Program (ICDP) to the Commission Expert Group on the Interim Evaluation of Horizon Europe presenting scientific drilling and advocating consideration in the scope of the future Framework Program of Research and Innovation.

This document is listed in the Final report that was delivered by the Expert Group on October 16th, 2024: Align Act Accelerate. Research, technology and innovation to boost European competitiveness. (<https://op.europa.eu/en/publication-detail/-/publication/2f9fc221-86bb-11ef-a67d01aa75ed71a1/language-en>).

A short document Scientific Drilling, A globally ranging, distributed research infrastructure for Earth and Life Sciences fostering technological innovation, was submitted to the Italian Ministry of University and Research in view of the hosting of the G7 Ministerial Meeting on Science and Technology in July 2024. The largest initiative was the organization on June 3rd 2025 of an off-site side event during the week before the United Nations Ocean Conference in Nice, with the coeval presentation of a poster on scientific ocean drilling at the One Ocean Science Congress, Nice 4-6 June, 2025.

The side event was conceived building from the consideration that the role of the seafloor is critical to understanding the ocean system, which is often underrepresented in policymaking processes and considered as a marginal component of ocean governance. Scientific ocean drilling is the basis for interdisciplinary research into interlinked Earth system processes that influence the future of our planet. It also provides fundamental tools for managing the energy transition and tackling the growing societal and lifestyle challenges that we face. The motivation stressed the crossdisciplinarity of scientific ocean drilling, encompassing Earth and Life sciences and including environmental change, the Earth's climate system, geohazards, georesources, the deep biosphere and the origin of life, geodynamic processes and the life cycle of tectonic plates. A strength of scientific ocean drilling was identified in the need for technological innovations that include drilling technology, downhole measurements and observations, big data analysis and data science.

The aim of the event was to demonstrate to the blue ocean scientific community and policy makers the opportunities for future synergies with seabed and sub-seabed observation and exploration on a global scale, addressing representatives of governments, funding bodies and international organizations that focus their activities on earth and marine sciences.

The event was organized by ECORD with the support of the International Ocean Drilling Programme (IODP³). It was hosted by the Institut de la Mer de Villefranche-sur-Mer, France (IMEV) and was convened by Angelo Camerlenghi, ESSAC Chair.

Group picture of the participants.
Credits: Nicole Beneventi ECORD/IODP³



The program included four keynote presentations illustrating the key elements of scientific ocean drilling:

- Scientific ocean drilling – Observing the ocean past to inform the future of our Planet. An overview by Rosalind Coggon, University of Southampton (UK);
- Introducing the International Ocean Drilling Programme (IODP³) by Gilbert Camoin, CEREGE (CNRS, France) and EMA Director;
- Technological challenges in scientific ocean drilling by Dave McInroy, BGS, Edinburgh (UK) and ESO Science Manager;
- Scientific ocean drilling for Sustainable Development Goals by Michael Strasser, University of Innsbruck and ESSAC delegate for Austria.

Statements on scientific ocean drilling were provided by Nicolas Arnaud, INSU Director (CNRS, France), Mitchell Malone, Director of the Scientific Ocean Drilling Coordination Office (SODCO, USA), Qizhen Chen, Executive Deputy Director General of ACCA21 (National Science Foundation of China), Kawano Takeshi, Executive Director of JAMSTEC (Japan), followed in alphabetical order by Jas Chambers, Chair and Cofounder, Ocean Decade (Australia), Farid Chemale Junior, Coordinator of the INCT-Atlantic (Brazil), Mary-Lynn Dickson, Director of the UNCLOS program in Canada, Gelsomina Pappalardo, CNR IMAA Director, ESFRI vice-Chair and National Italian delegate, Sverre Planke, Professor University of Oslo (Norway), Antony Morris, Chair of the NERC UK-IODP Programme Advisory Group, Lisa Simone de Grunt, Director of Programmes of the World Ocean Council.

The event was concluded with the presentation of the "Declaration of Commitment to Scientific Ocean Drilling", in which all participants in the Side Event declared that:

- Scientific ocean drilling with its synergies with scientific continental drilling, shall remain a priority in the development of future policies and strategies aimed at:
 - Understanding the Earth, its oceans and cryosphere, and the microbial life they host;
 - Supporting informed decision-making for a sustainable and safe blue economy;
 - Contributing to the achievement of the UN Sustainable Development Goals;
 - Promoting ocean literacy.
- The implementation of future scientific ocean drilling programs shall be guided by the enduring principles that inspired previous programs, as outlined in the 2050 Science Framework, including:
 - Open access to samples and data;
 - Standardized measurements;
 - Bottom-up proposal submission and peer review;
 - Transparent regional planning;
 - Promoting safety and operational success through site characterization;
 - Regular framework assessments;
 - Collaborative and inclusive international programs;
 - Promotion of diversity and inclusion.
- Based on the enduring principles listed above, all necessary actions shall be undertaken to promote international cooperation in the context of scientific ocean drilling, implement new expeditions, enhance the scientific value of legacy data and samples, engage new generations of scientists, expand stakeholder engagement, and ensure continued national participation and support.

Over 100 participants, both online and in person, attended the event. The event was endorsed by the UNESCO Ocean Decade, reinforcing the global commitment to foster scientific knowledge and innovation to ensure a healthy and resilient ocean. At the One Ocean Congress, under Theme 10: Vibrant science to inform and support ocean action, international collaboration in ocean sciences and technologies, a poster entitled "The international Ocean Drilling Programme (IODP³) – Exploring the Ocean's past to inform on their future" and authored by Hanno Kinkel and Angelo Camerlenghi was displayed.

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More info: <https://www.ecord.org/understanding-the-ocean-below-the-seafloor/>

Outgoing ECORD staff

Phillipe Pezard

Dr Philippe Pezard, retired as a Head Research Scientist at CNRS Geosciences Montpellier at the University of Montpellier in September 2024. Philippe has long been involved in downhole logging and scientific ocean drilling and was one of the original founders of the European Petrophysics Consortium (EPC).

After graduating in 1980 with an engineering degree from l'École Supérieure d'Ingénieurs de Marseille, Philippe worked as a Schlumberger field engineer for a few years. This experience influenced and informed his academic career. In 1986 he enrolled in the PhD program at Columbia University, joining the Borehole Research Group (BRG) at the Lamont - Doherty Earth Observatory (LDEO) led by Roger Anderson. Roger advocated for and pioneered the acquisition of scientific ocean logging data, for the Ocean Drilling Program (ODP) the successor IODP programs. Philippe gained his doctorate from Columbia University in 1990, where his thesis focussed on the electrical properties of mid-ocean ridge basalt.

Realizing the potential of the recently introduced Formation MicroScanner tool (FMS) for scientific investigations, Philippe convinced Schlumberger to develop a slim version to be used in ODP operations where logging tools had to pass through the drill pipe. The slimline FMS was thus introduced in ODP operations during Leg 126 in the Izu-Bonin forearc basin and quickly became part of the standard logging suite thereafter. Through his time with the group at the LDEO BRG Philippe established important lifelong associations and collaborations with Dave Goldberg of LDEO and Mike Lovell at the University of Leicester.

After finishing his PhD, Philippe moved back to Marseille and created a logging group working with the LDEO BRG to contribute to ODP and IODP logging operations. Following his move to Montpellier, he equipped his new group there with slimline logging tools to allow operation in narrow diameter boreholes at moderate temperatures and at a cost that was affordable for research labs.

Philippe's career has focused on petrophysics, borehole geophysics, and fluid circulation in geological formations, with

a particular emphasis on oceanic crust, hard rock structures and, more recently, aquifer environments, geothermal energy and CO₂ storage. His recent research focussed on the hydrogeology of coastal aquifers, the physical and geological factors controlling groundwater distribution, and the dynamics of saltwater intrusion in coastal areas, particularly in the Mediterranean. He's been partner of numerous national, European or worldwide projects. Philippe was a advocate for the innovative use of resistivity technology and was the co-founder of imaGeau, a company that developed in-situ permanent instruments for downhole electrical monitoring.

Over his career he has led or contributed to numerous logging campaigns for IODP and the International Continental Scientific Drilling Program (ICDP). From 2001 to 2003, Philippe served as the head of the French Steering Committee for Scientific Ocean Drilling. When the multi-platform approach was introduced with IODP, Philippe created the EPC with colleagues, Tim Brewer and Pete Harvey from Leicester, and others from the universities of Utrecht and Aachen, as part of the ECORD Science Operator (ESO) in 2003.

As EPC his group at Montpellier completed successful logging campaigns for IODP Expeditions in Tahiti (310), New Jersey (313), Great Barrier Reef (325), Chixculub (364) and Corinth (381). The most recent IODP³-NSF Expedition 501 Expedition has benefitted from innovations that are a legacy of Philippe's research and expertise, and particularly from his work on aquifers. For Expedition 501, ESO chose to log through PVC casing and, for the first time on a Mission Specific Platform expedition, undertake NMR logging.

Over the course of his career, Philippe has authored over 220 scientific publications, advised more than 15 PhD and 20 Masters theses. Philippe remains as an Emeritus Research Scientist at the University of Montpellier and is involved in the Eastern Lights project. Following his retirement, Dr Johanna Lofi took over the lead of the logging within the European Petrophysics Consortium.



Malgo Bednarz

EMA Communication Officer
(2019-2024)



See "[ECORD awards](#)" for further informations.

Incoming ECORD staff

Benjamin Palmer

EPC Project Officer
(started Sep 2024)



Benjamin Palmer joined the European Petrophysics Consortium (EPC) in September 2024 as Project Officer for the IODP group at the University of Leicester, following Simon Draper's retirement in November 2023. In this role, Benjamin supports EPC through a blend of administrative coordination and logistical expertise, with a particular focus on expedition planning and delivery, as well as organising key events such as the Petrophysics Summer School.

Benjamin's background is in science communication and public engagement in science, and he brings a wide range of skills to the role, including project management and events coordination. He is currently undertaking a Project Management Degree Apprenticeship and is keen to embed project management principles into EPC's operations to enhance efficiency, collaboration, and strategic planning.

In his spare time, Benjamin is an avid knitter and cross-stitcher.

Nicole Beneventi

EMA Communication Officer
(started May 2025)



Nicole Beneventi has joined the ECORD Managing Agency as Communication Officer. She holds a Master's degree in Pharmaceutical Chemistry and a postgraduate qualification in Science Communication.

Before joining ECORD, Nicole worked for several years at an Italian research institute focused on marine, polar, and Earth sciences, where she served as Communication and Press Officer.

In addition to her institutional experience, Nicole has worked as a journalist for various online and print magazines, writing on topics related to sustainability, climate, and health policies.

Caroline Daniel

IT Specialist MARUM, University of Bremen
(started Sep 2025)



Caroline M. has recently joined the Bremen Core Repository group at MARUM – Center for Marine Environmental Sciences, University of Bremen.

Growing up in Belgium she initially started studying electrical engineering at the University of Aachen (RWTH-Aachen), Germany, but after a while she discovered her growing interest in information technology and completed training as an IT specialist.

Three years ago, she moved to Bremen to start working as a software developer. Caroline recently finished a training as a specialist in information security, she is an ocean enthusiast at heart and enjoys working with an interdisciplinary approach between science and technology.

Incoming ECORD staff

Chang Liu

ESO Geochemist
MARUM,
University of Bremen,
Germany
(started Sep 2025)



Chang Liu has recently joined the Bremen Core Repository group at MARUM – Center for Marine Environmental Sciences, University of Bremen.

He earned his PhD in Marine Geology from Louisiana State University, where his research focused on applying a variety of proxies developed from deep-sea drilling cores to reconstruct past ocean-terrestrial and climate conditions, with a particular emphasis on the source-to-sink pathways of marine sediments.

Chang first sailed as a shipboard sedimentologist on IODP Expedition 368. He then worked for six years at the IODP-JRSO, participating in ten IODP expeditions as a JRSO staff responsible for the shipboard geochemistry laboratory. In this role, he trained shipboard scientists, ensured the maintenance and operation of laboratory instruments, and oversaw QA/QC of analytical data during expeditions. Most recently, Chang contributed to rebuilding the geochemistry laboratory at the Gulf Coast Repository following the demobilization of the *JOIDES Resolution*.

At MARUM, Chang is looking forward now to bring his expertise and experience to ESO, supporting future ECORD MSP expeditions through the organization, operation, and supervision of the geochemical program. He also anticipates contributing to onshore activities such as sampling parties, ECORD summer schools, and workshops. Driven by his passion for scientific ocean drilling, Chang is enthusiastic about continuing his career in Europe and contributing to the international research community.

Tayyaba Khurram

EPC technician,
(started Nov 2024)



Tayyaba Khurram joined EPC as a technician for the IODP group at the University of Leicester. In this role, she supports all expedition activities of the EPC by participating in ocean drilling and coring projects on behalf of the ECORD Science Operator (ESO) during both the onshore and offshore phases of IODP expeditions. Tayyaba holds a PhD in Petrophysics and is an Associate Fellow of the Higher Education Academy (AFHEA).

With an academic background in geophysics, she has experience in borehole data processing and passive seismic studies, QA/QC expertise, knowledge of logging techniques, subsurface analysis, and geophysical data processing and interpretation of vertical seismic profiles (VSP). Since joining the group, she has been further developing her coding skills and contributing to the ongoing automation projects within the team. She is actively involved in equality, diversity, and inclusion (EDI) work as a member of the Geological Society's first EDIA Committee and the UK Technical Equality, Diversity and Inclusion Network (TEDIN) Sub-Committee. She has recently submitted two grant proposals to develop frameworks for conflict management in high-pressure environments and to enhance accessibility in laboratory settings for technical staff. Both initiatives have potential relevance and wider applicability for IODP and similar research organisations.

Outside of work, Tayyaba enjoys calligraphy, wood carving, and watching science fiction.

29 October 2024

David McInroy

received the **13th ECORD Award**

on the occasion of the 13th ECORD Council-ESSAC Meeting, Oslo

David has been the ESO Science Manager since 2010, having previously served as Staff Scientist from 2004-2009 on IODP Expeditions 302: Arctic Coring Expedition, 310: Tahiti Sea Level and 313: New Jersey Shallow Shelf. Since 2004, I have had the honour of working in three phases of international scientific ocean drilling. While program members, structures and approaches may have changed, my underlying task has not. I work with an amazing, dedicated team to enable talented researchers to achieve world-class earth science. What an incredible position to be in! I remember clearly the day the previous ESO Science Manager, Dan Evans, asked me to become involved in the new IODP. At the time, I knew only a little about the predecessor Ocean Drilling Program, mostly that it and the wonderful *JOIDES Resolution* produced the reams of beige and blue Initial Reports and Scientific Results that lined many bookcases in the BGS Marine department. Could I really have a central role in such a program? Daunting as it was, I said yes. After all, my first role was to sail to the central Arctic Ocean to core the first ever deep hole there; saying no was never an option. Little did I know how much my career would be shaped by IODP. I have participated in, coordinated and overseen 11 diverse mission-specific platform expeditions, working with hundreds of scientists. Of course, I could not achieve any of this without the hard work and support of ESO team members past and present, from BGS, MARUM, University of Leicester and University of Montpellier, and this award is also a recognition of their contribution. I'm absolutely thrilled to continue serving the scientific ocean drilling effort as we move forward into the next phase, and I'm certain another decade of success for the whole community awaits.



29 October 2024

Angelo Camerlenghi

received the **14th ECORD Award**

on the occasion of the 13th ECORD Council-ESSAC Meeting, Oslo

Angelo has been the ESSAC Chair since 2022, having sailed in three Ocean Drilling Program Legs: 115: Mascarene Plateau as Marine Technician, 146: Cascadia Margin as Sedimentologist, and 178: Antarctic Glacial History and Sea-Level Change as Co-Chief scientist. My scientific career in Earth Sciences has been characterized by a constant link to scientific ocean drilling. I first met the Ocean Drilling Program when I started a program of Master of Science in Geological Oceanography at Texas A&M in College Station, in 1986. The ODP had just started, and Phil Rabinowitz, the director, offered a student fellowship that allowed me to join the great group of graduate students. I began to join the activities of ODP as a shore-based student-technician, under the supervision of Kay Emeis. While a PhD student in Milano, I served as Assistant Secretary at the ESCO (ESF Scientific Consortium for ODP) Secretariat at the University of Milano, from 1989 to 1991 together with Elisabetta Erba. Chair of the ESCO Office was Maria Bianca Cita. At that time ECORD did not exist, and the consortium was among the so-called smaller (smaller, in terms of financial contribution, than Germany, France and UK) European countries participating in ODP. I have been ESSAC delegate for Italy in 2004 and 2005, when the chair was Jeroen Kenter first, and Chris McLeod later. Much later I had the opportunity to experience the ESSAC Office as a Chair, where I had the pleasure to share the task with a great companion, Hanno Kinkel. We began soon after the pandemic, and the transition of the office from Plymouth was made smooth by the cooperative attitude of Tony Morris, and Hanno. Being in ESSAC during the process of cessation of IODP and onset of IODP³ has been a rewarding experience. Managing ESSAC revealed to be much more than expedition staffing, support to summer schools and early career scientist. It turned out to be an immersive experience of planning, fostering, engagement at international level, with a taste of diplomacy. In all this, persons made the difference. In-person meetings, retreats, and full immersions were key to overcome difficulties and cast indelible experiences. My gratitude to Gilbert, Nadine, Mike, Guido, Dave, Ulla, Hanno, Tony, Sasha, Gabi and Tim, my fellow PMO chairs Sanny, Carl, Ron, and Annalisa, Charna, Larry, Nobu, Nobi, Harue, the friends in ICDP and many others.



29 October 2024

Malgo Bednarz

received the **15th ECORD Award**

on the occasion of the 13th ECORD Council-ESSAC Meeting, Oslo

November 2024, Malgo Bednarz left the ECORD Managing Agency in Aix-en-Provence. For six years she has been responsible for ECORD's communication. Malgo has a PhD in sedimentology and many years of experience as professional graphic and web designer as well as multimedia developer. Her experience and knowledge brought ECORD's communication to a different level. As ECORD's Communication Officer she created new communication resources, organised museum exhibitions, managed the ECORD website, organised booths at scientific conferences, etc. We warmly thank her for her enthusiasm, passion and creativity, and for the many years of hard work and her contribution to ECORD. We wish her all the best for the future.



Expedition 405 on board of D/V *Chikyu*.
Credit: Doriane Letexier, ECORD/IODP



The International Ocean Drilling Programme



Gilbert Camoin



Principles of the International Ocean Drilling Programme - IODP³

IODP³ consists of an international scientific collaboration addressing important questions in Earth, Ocean, Environmental and Life sciences described in the 2050 Science Framework, based on the study of rock and/or sediment cores, borehole imaging, in-situ observatory data, and related geophysical imaging obtained from the subseafloor.

IODP³ has adopted a transparent, open, flexible, and international modus operandi, programme-wide standard policies and guidelines, sustainable management, and publicly accessible knowledge-based resources.

IODP³ has been largely built on the legacy of previous programmes – as a duty of memory - and their basic principles:

- Single international Science Framework
- International staffing of expeditions and advisory panels
- Transparent, open, flexible and international

IODP³ objectives and organization

IODP³ investigations are based on research proposals that address the objectives of the 2050 Science Framework, or other outstanding new research ideas.

IODP³ implements and funds two types of expeditions:

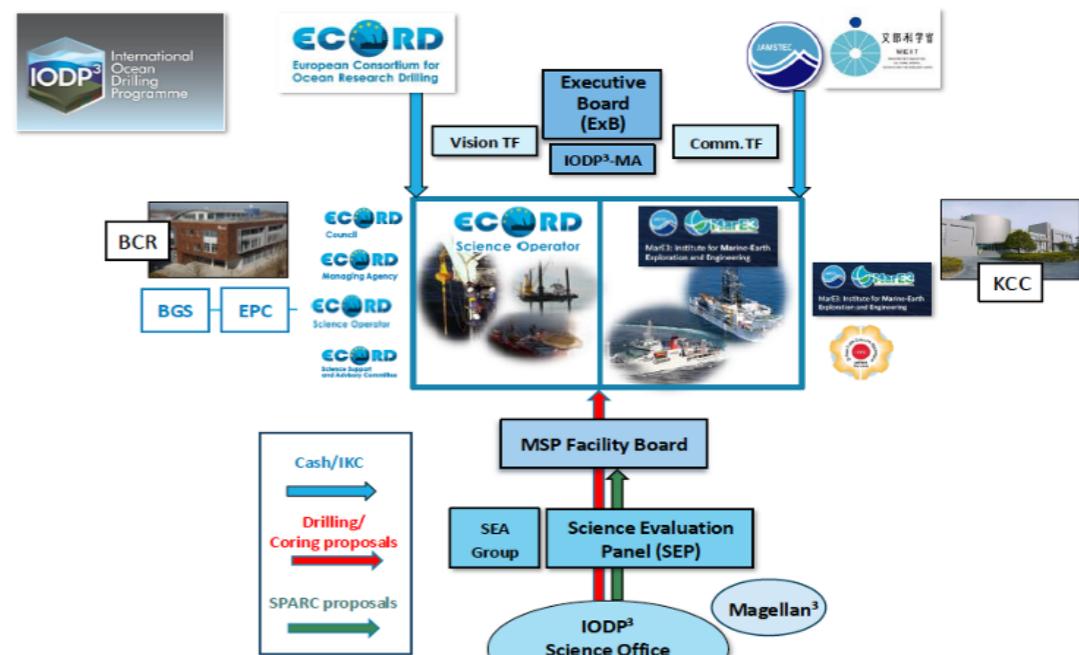
- Offshore expeditions following an expanded Mission Specific Platform (MSP) concept.
- Scientific Projects using Ocean Drilling ARChives (SPARCs) that are international and multidisciplinary projects that have objectives originating from or that are based on ocean drilling archives.

Drilling and SPARC proposals are submitted with a bottom-

up process to the IODP³ Science Office (IODP³-SO) by teams of proponents belonging to the international research community.

The Magellan³ Workshop Series Programme (MG³) is designed to support scientists from IODP³ and ICDP members in developing new and innovative scientific drilling proposals that meet the ambitions of the 2050 Science Framework and/or the ICDP Science Plan 2020-2030 by funding or co-funding workshop proposals and travel grants.

The primary responsibility of the Science Evaluation Panel (SEP) is to evaluate all proposals submitted to IODP³ in a fair, open, and transparent manner, in terms of both scientific excellence



and completeness and quality of the site characterization data packages. The SEP is composed of top international experts selected through competitive calls.

The Safety and Environment Advisory (SEA) Group is an advisory body to the MSP-FB, SEP and IODP³ Operators and will provide independent advice regarding potential safety and environmental issues associated with the general and specific geological settings of proposed IODP³ drill sites. The SEP and the SEA Group serve all platforms employed by the programme.

The MSP Facility Board (MSP-FB) is primarily in charge of scheduling offshore expeditions and SPARCs based on their scientific merit and operational constraints within the limits of the available resources.

The IODP³ Executive Board (ExB) is the IODP³ entity responsible for assuring effective decision-making and overseeing the programme.

The IODP³ Managing Agency (IMA) primarily manages the IODP³ budget, negotiates and execute contracts with IODP³ partners and entities.

IODP³ includes two task forces based on the model developed by ECORD over the last decade: the Vision Task Force oversees developing a long-term scientific and funding strategy and the Communication Task Force is in charge of communication activities in the programme.

IODP³ expeditions

Offshore expeditions - IODP³ offshore expeditions are implemented by the IODP³ Operators, ESO and/or JAMSTEC-MarE3 following an expanded Mission Specific Platform (MSP) concept by diversifying drilling and coring technologies - riserless and riser drilling, giant piston coring - and applying them to all drilling environments, as determined by scientific priorities, operational efficiency, and better value for money. Two JAMSTEC vessels, *D/V Chikyu* and *R/V Kairei*, are identified as MSP facilities.

Three offshore expeditions have been scheduled for the

first year of the programme: the IODP³ 3-NSF Expedition 501: New England Shelf Hydrogeology (Co-chief Scientists: Brandon Dugan, USA, Karen Johannesson, USA and Rebecca Robinson, USA), the IODP³ Expedition 502: Impact of Petit-Spot Magmatism on Subduction Zone Seismicity and Global Geochemical Cycles (Co-chief Scientists: Asuka Yamaguchi, Japan and Hiroko Kitajima, Japan), and the IODP³ Expedition 503: Hadal Trench Tsunamigenic Slip History (Co-chief Scientists: Ken Ikehara, Japan and Michael Strasser, ECORD-Austria).

Land-to-Sea Transects (L2S), requiring scientific drilling at both onshore and offshore sites or at shallow marine sites to be implemented jointly with the International Scientific Continental Drilling Program (ICDP) are one of prime objectives for IODP³.

The duration of IODP³ expeditions is flexible and is determined by scientific requirements and available funds.

IODP³ offshore expeditions are intended to have no significant environmental impact, and they are carried out in conformance with the highest accepted levels of environmental sensitivity.

IODP³ offshore expeditions are undertaken by international teams of scientists - Science Team - selected by the MSP Operator(s) and the Co-chief Scientists, based on

recommendations made by Program Member Offices (PMOs). Staffing decisions will consider, as far as possible, the goal of achieving the maximum diversity of gender, career stage, nationality, disciplinary, cultural in science parties.

The size of expedition Science Parties is flexible and is determined by scientific requirements.

IODP³ includes services provided by the Bremen (BCR) and Kochi (KCC) core repositories.

IODP³ will provide open access to all expedition samples and data once the expedition Science Team members have had the opportunity to complete the initial studies within the established moratorium period, typically one year. After the expiration of the moratorium period, the programme will make samples, cores, and data available to any scientist, in accordance with the IODP³ Samples, Data and Obligations Policy following the FAIR data principles.

Scientific Projects using Ocean Drilling ARChives (SPARCs)

IODP³ 'Scientific Projects using Ocean Drilling Archives' (SPARCs) provide a mechanism for the international scientific ocean drilling community to propose new large-scale projects that may address any aspect of the 2050 Science Framework and involving interdisciplinary collaborations.

SPARCs have objectives that maximise the return on the legacy assets (i.e. cores, samples, and data from current and past scientific ocean drilling programmes) without new drilling or other operations at sea.

SPARCs must address globally significant processes/problems and use innovative, creative, and multidisciplinary approaches that could include, for example, the production of large new datasets from samples, integration of data across multiple expeditions and/or multiple boreholes, and/or the application of new methods or technologies (e.g., AI, 'big data' approaches) that were not available when the legacy assets were collected. The scientific ambition of SPARC projects must far exceed that of standard requests for samples or data as they are intended to provide a new avenue to facilitate collaboration at scales larger than conventional single or multi-proponent sample requests. In parallel, standard requests for samples and data can be submitted at any time.

Each SPARC has a funded duration of three years and receives €300,000 for its implementation. SPARC proposals should have a maximum of five co-proponents. All co-proponents

of a funded SPARC will automatically become Science Team members (with two selected as Co-Chief Scientists), but the remaining Science Team members will be selected following an open call for applications. The overall size of a final SPARC Science Team is flexible and can be adapted to project needs but will normally consist of a minimum of 15 scientists, with no fixed upper limit.

Three SPARC proposals have been submitted in 2025 and will be implemented in 2026:

- P1102-S - OJP-ASH - The volcanic ash record from Ontong Java Plateau (Lead Proponent: Robert Musgrave, ANZIC-Australia)
- P1104-S - SIGNALS - Stratigraphic Integration of North Atlantic Legacy Sites (Lead Proponent: David Hodell, ECORD-UK)
- P1108-S - ENIGMA: ExploratioN Into a Global early Miocene Anomaly (Lead Proponent: Adam Woodhouse, ECORD-UK).

See "The International Ocean Drilling Programme (IODP³) is ready to be launched":
<https://www.ecord.org/ecord-headlines-24/>

IODP³ Partnership

As Platform Providers, ECORD and Japan are the IODP³ Core Members. International governmental and non-governmental entities not regularly providing scientific ocean drilling platform(s) to IODP³ can become:

- Associate Members by making annual cash contributions to IODP³ (on the order of 1 M€); ANZIC has joined IODP³ in June 2025 as Associate Member for five years.
- Temporary Members by providing cash and/or project-based in-kind contributions (IKC) (with a minimum of 0.5 M€) to access IODP³ expedition(s); the National Science Foundation (NSF) is a Temporary Member in 2025 based on their cash contribution to the IODP³-NSF Expedition 501 New England Shelf Hydrogeology'.

IKC and/or cash contributions from any IODP³ member or non-member country/institution are potentially acceptable to fund offshore expeditions. IKCs may include essential scientific

or operational services that the IODP³ would normally pay for, fully/partly funded drilling platforms, support vessels, hazard site survey (if required), permitting assistance, onshore facilities near drill sites (if required), ice management, and remote logistical assistance etc.

IODP³ expects to exchange ideas, views and information with the other international research programmes that employ scientific drilling to explore Earth and planetary processes, including the U.S. Sub-Seafloor Sampling Program (S3P), China's ODP and the International Scientific Continental Drilling (ICDP) during the meetings of the newly formed Scientific Drilling Forum, which will meet for the first time in October 2025 in Mazara del Vallo (Italy). IODP³ as a whole or individual IODP³ partners expect to develop collaborations with these programmes for the benefit of the international scientific community.



IODP³- NSF Expedition 501: New England Shelf Hydrogeology.
Credits: Andrea Vale ECORD/IODP³/NSF.



ECORD MSP expeditions

IODP³ MSP Facility Board News

Meetings

The interim MSP Facility Board met twice in 2025, once virtually in February to choose a proposal to implement in 2026 – this was immediately after the meeting of the interim Science Evaluation Panel, which evaluated the proposals submitted into IODP³. It was at this meeting that the decision was taken to implement GLACE-NS in 2026. The second meeting was in May, 2025 and was held in person in Yokohama Japan. This was the first meeting of the new interim MSP-FB, with four new members, Margot Goddard, Hakime Naruse, Junichiro Kuroda and Tom Dunkley Jones. The day after the iMSP-FB meeting finished, the Executive Board approved the terms of reference and the 'interim' was dropped, making it the MSP-FB.

At the meeting in May 2025, the Facility Board approved the



SPARC proposals and discussed implementation plans for 2027 and 2028. The consensus was to recommend the Nadir Impact Crater for drilling in 2027, pending the outcome of an extended risk assessment.

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ECORD
Facility Board

MSP Expedition and SPARCs

There are four offshore expeditions in 2025, with three SPARC scheduled and one offshore expedition in 2026. Find below a summary of the offshore Expeditions and the SPARCs that we have scheduled. Call to Participate in IODP³ Expedition 507 GLACE-NS: Late Cenozoic Glaciers, Landscapes, Climates, and Ecosystems of the North Sea opened on October 1st.

Expedition 501: New England Shelf Hydrogeology

Co Chief Scientists: Brandon Dugan and Rebecca Robinson
Expedition Project Manager: Jeremy Everest and Margaret Stewart

The goal was to explore submarine groundwater discharge off the coast of New England, looking for the extent and composition of freshwater lenses in the subsurface fluids. Expedition 501 was co-badged with NSF which was a tremendous success. Subsurface monitors were placed in the wells to retrieve data on freshwater fluxes over the coming five years.

Expedition 502E: Extended Monitoring and Resurveying of Japan Trench Borehole Observatories

Co-chief Scientists: Patrick Fulton (Cornell Univ.) and Nur Schuba (UTIG)
Expedition Project Manager: Lena Maeda (MarE3)

The goal is to monitor long-term changes in stress and formation fluids along the Japan Trench megathrust, recover the thermometers installed in Holes C0019D and C0019Q during IODP Expedition 405 and redeploy them in the same boreholes.

Expedition 502: Impact of Petit-Spot Magmatism on Subduction Zone Seismicity and the Global Geochemical Cycle

Co-chief Scientist: Asuka Yamaguchi (AORI) and Hiroko Kitajima (TAMU)
Expedition Project Manager: Natsumi Okutsu (MarE3)



The goal is to investigate petit-spot volcanism estimated to exist beneath the seafloor at ~5,400 m water depth, and assess its impact on seismic activity and geochemical cycles.

Expedition 503: Hadal Trench Tsunamigenic Slip History

Co-chief Scientist: Ken Ikehara (AIST) and Michael Strasser (U Innsbruck)
Expedition Project Manager: Lena Maeda (MarE3)

In Expedition 503, sediment cores will be recovered from the full sequence of the Japan Trench basin. By combining sediment analyses, age dating, pore-water, and microbiological investigations, the project will elucidate the earthquake history and evaluate its relationship with event deposits and elemental cycles, including carbon sequestration.

SPARCs

- Expedition 504S – The Volcanic Ash Record from the Ontong Java Plateau

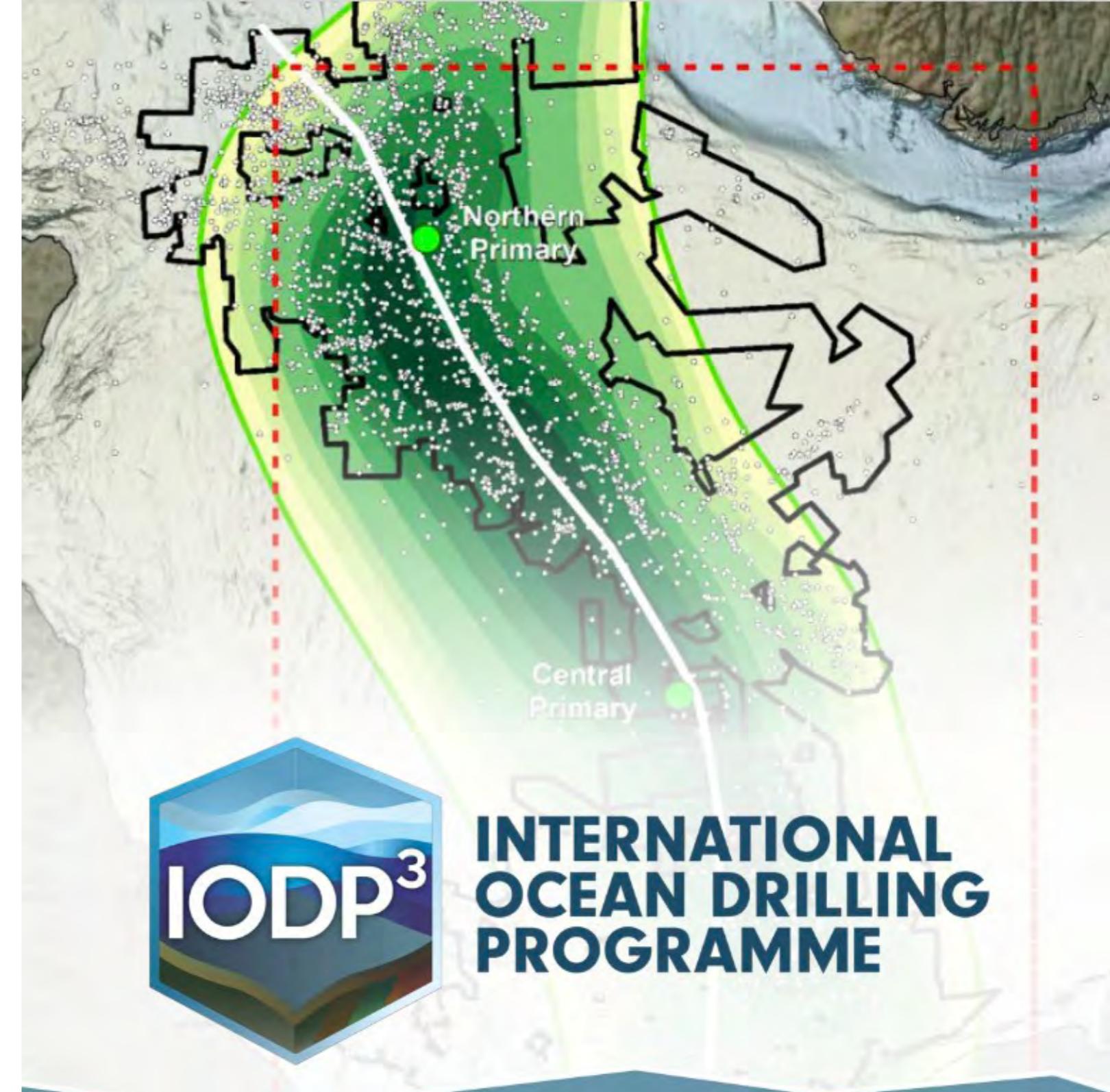
Co-Chief Scientists: Bob Musgrave (University of Newcastle, Australia), Ann Dunlea (Woods Hole Oceanographic Institution, USA)

- Expedition 505S – ENIGMA: Exploration into a Global Early Miocene Anomaly

Co-Chief Scientists: Adam Woodhouse (Cardiff University, UK), Jennifer Kasbohm (Carnegie Institution for Science, USA)

- Expedition 506S – SIGNALS: Stratigraphic Integration of North Atlantic Legacy Sites

Co-Chief Scientists: David Hodell (University of Cambridge, UK), Arisa Seki (Shinshu University, Japan)



CALL FOR PARTICIPATION
IODP³ Expedition GLACE-NS:
Late Cenozoic Glaciers, Landscapes, Climates, and Ecosystems of the North Sea
Deadline: 1 December 2025



Implementation of MSP expeditions

IODP Expedition 389: Hawaiian Drowned Reefs



Since the end of the Expedition 389 Onshore Science Party (OSP) in February 2024 (ECORD Newsletter #40, April 2024), the ESO team has continued to coordinate the Science Party in various post-expedition activities.

The expeditions Preliminary Report was published on 8 May 2024: Webster, J.M., Ravelo, A.C., Grant, H.L.J., and the Expedition 389 Scientists, 2024. Expedition 389 Preliminary Report: Hawaiian Drowned Reefs. International Ocean Discovery Program. <https://doi.org/10.14379/iodp.pr.389.2024>.

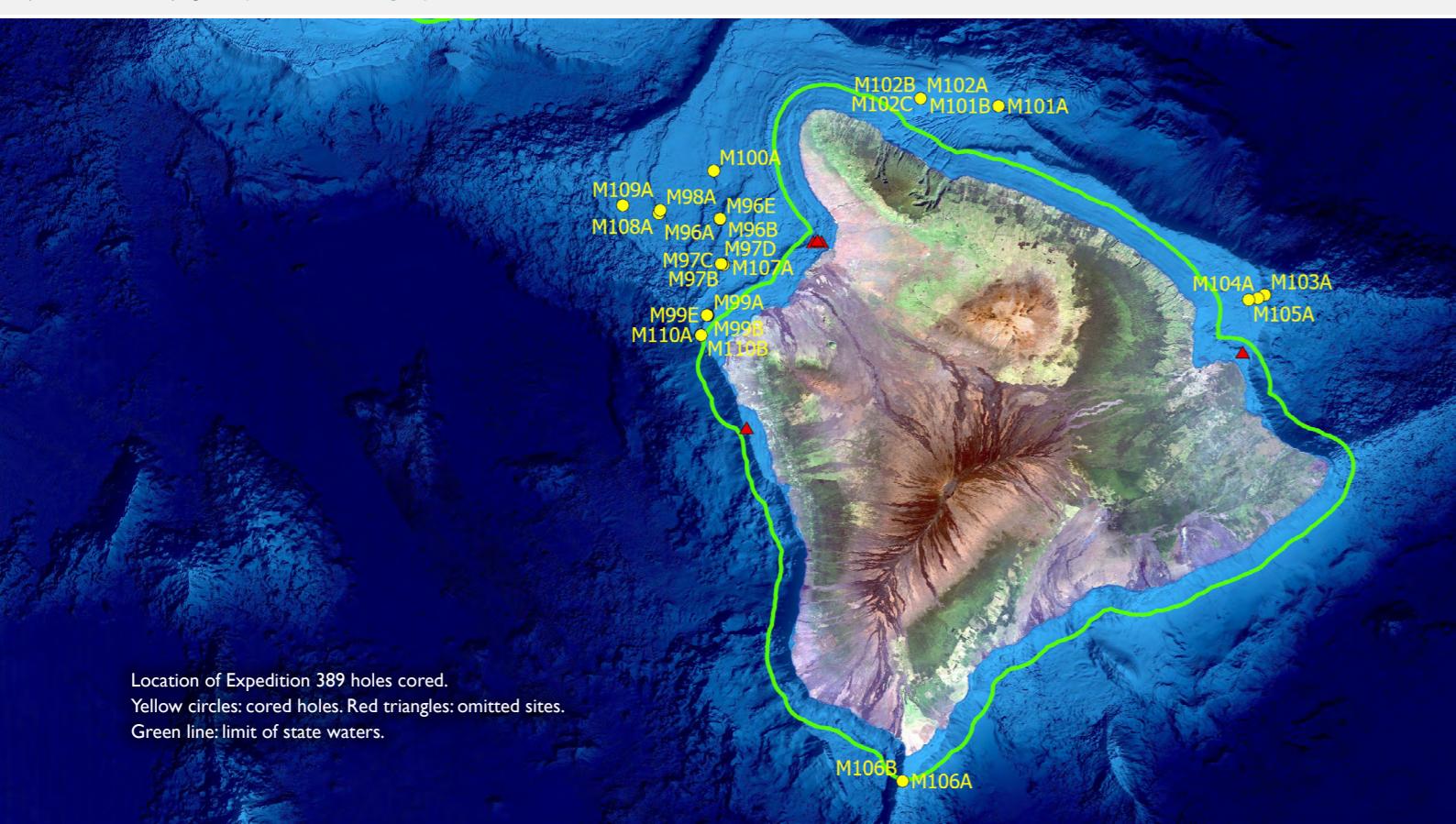
Later in the year, Science Party and ESO Team members met for the 1st Post-expedition Meeting (Editorial), which was held in TAMU, College Station, on 26-30 August. The team worked on the Proceedings volume for this expedition, which was published on 26 February 2025: Webster, J.M., Ravelo, A.C., Grant, H.L.J., and the Expedition 389 Scientists, 2025. Hawaiian Drowned Reefs. *Proceedings of the*

International Ocean Discovery Program, 389: College Station, TX (International Ocean Discovery Program). <https://doi.org/10.14379/iodp.proc.389.2025>.

The Science Party and their collaborators are continuing their post-expedition research, based on samples and data collected at the Onshore Science Party. The majority of papers from this expedition are expected to be submitted before October 2026 and will be listed in the expedition-related bibliography in due course at <https://publications.iodp.org/proceedings/389/389title.html#pgfId-1148293>.

Co-chief Scientists:	Jody Webster Christina Ravelo
Offshore dates:	31 Aug – 31 Oct 2023
Onshore Science Party dates:	6 – 26 Feb 2024, MARUM, Germany
Vessel:	MMA Valour
Port:	from/to Honolulu, Hawaii

Expedition 389 webpage: <https://www.ecord.org/expedition389/>



IODP³ - NSF Expedition 501: New England Shelf Hydrogeology

Co-chief Scientists:	Brandon Dugan, Karen Johannesson, and Rebecca Robinson
Offshore Operation:	I May – I August 2025
Onshore Operation:	Max. 28 days from 14 January 2026, at the MARUM and IODP Bremen Core Repository, University of Bremen.
Vessel:	Liftboat Robert
Port:	Bridgeport, CT.

Mobilisation for the expedition took place in Bridgeport, Connecticut, between 28-30 April 2025, attended by various team members from all ESO partners. The mains tasks were to install the ESO lab containers on the vessel, check and test the equipment, make the necessary cable runs, finalise the IT network, make final detailed plans with the Matrix drilling team and ship crew, and introduce the Science Team to the vessel.

The expedition was originally planned to depart on May 1st. Ultimately, the final permit from the US Army Corps of Engineers was awarded on 17 May, with two days wait-on-weather required before sailing on the 19 May. Please consult the daily and weekly reports at <https://www.ecord.org/expedition-501-reports/> for detailed information on how the expedition progressed, and also the expedition blog at <https://expedition501.wordpress.com/> for further background explanations, including contributions by ESO team members.

The *L/B Robert* left port on the 19 May and transited to the first Site M0111. Being a standing platform, a pre-load sequence was required, after which the vessel jacked up to working height, approximately 10m above wave height.

This expedition cored into the Atlantic continental shelf offshore New England, USA, to explore current and past states of fluid composition, pressure, and temperature in continental shelf environments. This location is a remarkable example of where the distribution of freshwater within the continental shelf sediments is far out of equilibrium with modern sea level, with low salinity groundwater in shallow Pliocene-Pleistocene sand aquifers over 100 km from shore. Freshwater-saltwater boundaries are abrupt, indicating the disequilibrium nature of such systems. This expedition will help to better constrain rates, directions, and mechanisms of groundwater flow and chemical fluxes in continental shelf systems, and will test process-based models for shelf freshwater off New England and other systems around the world.

In early 2024, the ECORD Facility Board rescheduled this expedition for spring-summer 2025, after an unsuccessful tendering exercise in late 2023 for drilling and platform services. Throughout the summer of 2024, the ESO team prepared to run a new tendering exercise for an offshore operation in May-August 2025. The ESO team met with multiple suppliers in formal and informal market engagement sessions to convey the special requirements of this expedition.

After a formal tendering and evaluation period throughout autumn 2024, ESO awarded the drilling contract to Matrix Offshore Services, Tennessee, who provided the *Liftboat Robert* equipped with a land-based Boart Longyear mining rig. In parallel, the ESO Team prepared their own equipment and services, namely equipment maintenance, testing, and certification, stock checks, organising shipping, and supporting staff to obtain travel documentation to work in the USA. Other critical activities included science planning, with ESO and the Co-Chiefs handling and evaluating incoming sample requests and designing the shipboard workflows, which included groundwater testing and sampling procedures.

During these early stages of the Offshore Operation, the Expedition 501 Science Team began initial description of cores, analysis of water chemistry, and bulk physical properties based on multi-sensor core logger (MSCL) data. The sedimentology team provided a preliminary lithological description based on core section photographs taken while the cores were in the liners. The aqueous geochemistry team collected interstitial water samples using Rhizon and squeeze cake sampling methods for salinity, ammonium, alkalinity, and pH analyses. In addition, the geochemistry team and microbiology team completed sample splits and preservation for shore-based interstitial water and microbiological analyses.

The physical properties team conducted non-invasive measurements of P-wave velocity, bulk density, magnetic susceptibility, electrical resistivity, and natural gamma radiation using the MSCL. The data was ready offshore for initial interpretation and correlation with seismic interpretations, preliminary core descriptions, and interstitial water data.

Hole M0111B progress initially stalled due to a break in the casing. To overcome this issue, the PQ drill rods were run back into the hole to 120 mbsf, and used as casing through which smaller-diameter HQ drill rods and BHA were run for coring. This is a 'piggy-back' approach which was also used successfully in Expedition 313: New Jersey Shallow Shelf in 2009.

On 29 May, the first groundwater pump test was carried out at around 231 mbsf, in an interval that was not recovering well, suggesting a major change in lithology. No formation water was recovered, yet the test provided learning opportunities for the rig crew, the ESO team, and the Science Team. These initial tests also confirmed the functionality of the packer system, submersible pump, and sampling manifold system. Coring resumed, and further groundwater pump tests were attempted at 272 mbsf, eventually achieving a stable flowrate that enabled the cleaning of the borehole and samples of formation fluid to be taken. Multiple drawdown and recovery periods provided valuable data to determine in situ hydrogeological properties. Water quality monitoring during the test provided information on fluid electrical conductivity, temperature, and pH. All these data are crucial to meeting the objectives of Expedition 501.

After the pump test, coring resumed. Loose sands continued to affect recovery in places, and a stuck core barrel eventually parted, leading to the removal of the drill string from the borehole. After re-running the BHA, gamma ray logging through pipe was conducted. On completion, PVC casing was successfully run to a depth of 343 mbsf, and the metal drill pipe and casing was then tripped out and the deck cleared for transit to new Site M0113.

The top 150 mbsf of Hole M0111C was punctuated by HPC coring attempts and open hole drilling, after which the rotary Alien Corer (ALN) was used. At 171 mbsf, the packer was deployed and groundwater pumping commenced, eventually reaching a steady flow of 6 L/min. Groundwater and noble gas samples were successfully taken, after which coring resumed. At TD (231 mbsf), a second groundwater pump test was carried out, followed by a through-pipe gamma log run before successful removal of the packer. All downhole equipment was recovered on 17 June, and the LB Robert transited to site M0112.

Coring commenced at Hole M0112A using a combination of HPC and ALN corers with excellent recovery (up to 89%). Coring of Hole M0112A was completed on 29 June to a depth of 328.71 mbsf, which was followed by the downhole logging program. After switching to a new hole location, coring commenced at Hole M0112B. Three groundwater pump tests and water sampling were carried out at around 110 mbsf, 171 mbsf and 255 mbsf (TD). At TD, a through-pipe gamma ray log was run successfully, followed by the installation of a SCIMPI, a Simple Cabled Instrument for Measuring Parameters In-Situ. The ship crew, drillers, and Expedition 501 team helped to deploy the SCIMPI, which was successfully installed in less than three hours.

The SCIMPI system has four measurement modules at four depths that will be sealed in the borehole as it collapses. Each measurement module will record in situ pressure, temperature, and electrical resistivity for multiple years before being recovered during a future, non-drilling operation. The drill pipe and casing was then tripped out and the deck cleared for transit to new Site M0113.

Coring proceeded at M0113A until 273 msbf, when a potential aquifer sand was recovered. After proving sufficient thickness, it was decided to set the packer and attempt to extract water from the formation. The initial extraction of water from the drill string proceeded well until the pump failed. Rebound of the water level was recorded but after an hour it was noted there was no further increase in water into the string.

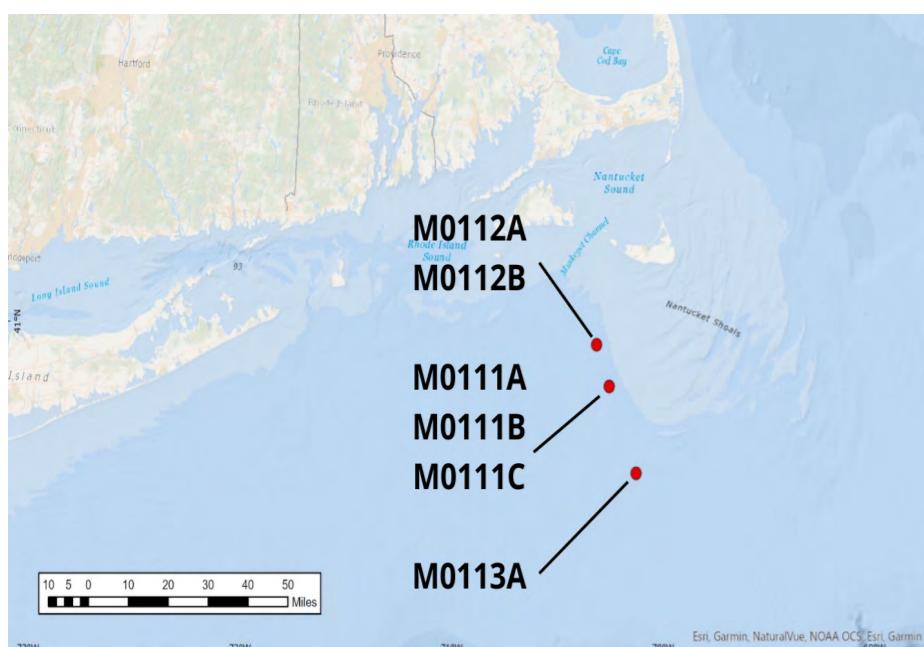


Figure 1: location of Expedition 501 holes.
Credits: ECORD/IODP³/NSF

After resuming coring for short interval, a second pump test was attempted, and groundwater was successfully extracted from the borehole. Once the level of the head had settled, the water was replenished at a constant rate and there was little need to adjust the pump speed to maintain the flow. This final test was extremely successful, and all samples requested were collected and consistent data recorded. The pumping test provided significant volumes of water for aqueous geochemical, noble gas, and microbiological analyses and sample collection. The test also provided a large time-series data set to help address the physical and chemical hydrogeology of this offshore freshened groundwater aquifer. Coring resumed and TD was reached after steady progress using the HPC & ALN core barrels. A through-pipe gamma ray log was run, followed by the full logging suite through PVC casing. On completion, the second and final SCIMPI was successfully deployed into the borehole before midnight, marking the last science operation of Expedition 501.

The *L/B Robert* jacked down and was floating free of the seabed at 1740 hrs on 31 July. The vessel, with its full complement comprising Expedition 501 Science Team members, the ESO team, contractors from Matrix Offshore Services, drilling crew from Boart Longyear, mud engineering team from IMDEX, and the ship's crew from Seacor Marine, departed for Bridgeport, Connecticut.

The *L/B Robert* docked in Bridgeport on the 1st of August, 74 days after leaving, and the tremendously successful Offshore Operation phase of Expedition 501 officially came to an end. The Offshore Operation recovered a total of 871.33 m of core from six holes across three sites, with an average recovery of 71%. See Table 1 for a summary of the holes completed, and Figure 1 for the actual locations of the drilled holes.

Expedition 501 webpage: <https://www.ecord.org/expedition501/>

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Table I: Summary of Expedition 501 holes completed.

Note: hole depth includes open hole intervals (no coring attempted).

Hole	Proposal site	Lat ,Long WGS84	Water depth (m)	Hole depth (mbsf)	Sum of cored intervals (m)	Core recovery (m)	No. of cores	No. of cores
M0111A	MV-03C	40.8747 -70.2697	42	63.65	49.58	48.85	29	98.5%
M0111B	MV-03C	40.8746 -70.2697	42	392.93	336.05	201.06	171	59.8%
M0111C	MV-03C	40.87411 -70.2697	42	231.36	96.26	65.57	38	68.1%
M0112A	MV-08A	40.87411 -70.2697	41	328.71	319.51	255.96	217	80.1%
M0112B	MV-08B	40.9976 -70.333383	41	339.82	103.26	59.25	55	57.4%
M0113A	MV-04C	40.618333 -70.136972	54	325	323.19	241.14	208	74.6%

Downhole geophysics achievements

IODP³-NSF Expedition 501: New England Shelf Hydrogeology, probed into freshened groundwater, with successful coring operations, pump tests, and long-term monitoring sensors. In addition to those achievements, the European Petrophysics Consortium (EPC) led downhole wireline geophysics operations, with several “firsts” for the ECORD Science Operator (ESO). It was the first time a nuclear magnetic resonance tool has been deployed on an MSP expedition, and, to ensure continuous data acquisition in unconsolidated sediments, ESO made use of PVC casing for downhole geophysics operations.

The Géosciences Montpellier lab provided six logging engineers (Gilles Henry, Gérard Lods, Simon Barry, Fadl Raad, Linda Luquot, Laurent Brun), for the nearly three month-long expedition. Logging engineers were involved in the expedition from the mobilisation to the demobilisation. The team was managed at sea by Petrophysics Staff Scientists (PSS) Erwan Le Ber and Andrew McIntyre.

Most of the downhole logging equipment was new, and deployed for the first time at sea, following extensive onshore testing. The new equipment included two 10-foot containers (one for acquisition, one for equipment storage); a 2000 m winch (and its backup) with advanced depth and tension monitoring tools; and of course, a set of geophysical tools. The geophysical tools were selected to address the key scientific aspects of the expedition: gamma ray and magnetic susceptibility for lithological interpretation and core-log integration; formation electrical conductivity to track water freshening; and for the first time on an MSP, borehole nuclear magnetic resonance to characterise formation porosity. The tools used by EPC are ultraslimline (e.g. typically <60mm diameter) and some can be combined (stacked) to reduce operational time. In order to prevent the hole from collapsing, which would limit data collection, a PVC casing was deployed for downhole logging operations.

In the early expedition planning stages, ESO agreed to explore options for installing a PVC casing for borehole geophysics data acquisition. The rationale for this proposal from EPC was based on: (1) experience during IODP Expedition 313 (New Jersey Shallow Shelf) where the downhole dataset collected was

incomplete at some depths and in some holes due to unstable borehole conditions that prevented the tools to be lowered into the borehole; and (2) existing drilling reports in New England indicating unstable and unconsolidated sediments of similar ages to the ones to be drilled during Expedition 501. The drilling contractor Matrix Offshore Services manufactured the PVC casing and its use allowed the tools (standalone or stacked) to collect continuous data at all times during their deployment. The PVC casing was swiftly installed by the drilling team (less than 3 hours for up to 450 meters of casing) for downhole geophysics operation, then recovered back on deck. Simon and Gérard, who sailed as logging engineers on IODP Expedition 313 back in 2009, confirmed that this approach was a game changer for the acquisition of downhole logging data.

Thanks to meticulous pre-expedition planning between ESO and Matrix Offshore Services, skilful offshore logging engineers and high-standard reliable operational support from the drilling team, excellent and continuous downhole geophysical logs were collected. This bounty will be integrated to other expedition data to better understand the aquifer studied offshore New England.

The borehole nuclear magnetic resonance (BMR) tool was acquired specifically for the expedition. ECORD does not send nuclear sources, used to measure formation density or porosity, downhole. In the BMR tool name, “nuclear” refers to hydrogens nuclei (found in water) present in the formation. The method measures the hydrogen nuclei response to magnetic tipping (generated by powerful magnets and RF antenna on the tool). Depending on where the water is in the formation, for example free in the pore space, capillary bound between grains or clay bound, nuclei will respond differently. The BMR tool can differentiate between these types of porosities, providing valuable information when studying aquifers.



Erwan Le Ber, Andrew McIntyre, Simon Barry, Sarah Davies and Johanna Lofi.



Top: Logging Engineer Simon Barry preparing a logging tool.
Bottom right: PSS Andrew McIntyre carrying a tool (Credits: Le Ber @ ECORD_IODP3_NSF)

Bottom left: Erwan Le Ber collaborating with the drilling team to set up logging equipment. (Credits: McIntyre @ ECORD_IODP3_NSF)

IODP³ - NSF Expedition 501: New England Shelf Hydrogeology

Exploring onshore-offshore freshwater systems and their impacts on groundwater flow, biogeochemical cycles, and microbiology

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Coastal hydrological systems are important as they provide significant freshwater to coastal communities around the world.

These freshwater resources are exploited by groundwater wells that produce from unconfined or confined aquifers with well screen depths of less than 100m. In 2000, coastal groundwater production along the US Atlantic and Pacific coastlines was about 2.4% of annual global groundwater withdraws (Konikow and Kendy, 2005). Sea-level rise poses a unique issue to coastal freshwater sustainability (Werner et al. 2013). In this context, offshore freshened groundwater (OFG) systems that occur within continental shelves below sea level are of particular interest. The global occurrence of OFG is volumetrically significant (Post et al., 2013; Micallef et al., 2021), but not a well-studied resource. To date, the residence times of these freshwater resources are unknown. This leads to questions related to the origin of the freshwater and over what time scale was it emplaced. As coastal populations continue to grow and sea-level rises, stresses on these vulnerable coastal resources will increase. It is therefore crucial to understand the hydrodynamics of these systems, to characterize their extent, to establish their relation to equilibrium conditions, and to define their potential as a resource.

IODP³-NSF Expedition 501 was designed to directly investigate OFG systems including their linkages to onshore systems, their dynamics and residence times, their relation to nutrient and rare Earth element transport, and their influence on biogeochemical cycling and microbial distribution and activity. Expedition 501 targets the U.S. Atlantic continental shelf south of Massachusetts, USA (Figure 1A). We are focusing on this system as it has strong baseline data. Prior drilling campaigns documented OFG at depths exceeding 100 m below sea floor (mbsf) (Hathaway et al., 1979). Three-dimensional modeling, based on limited hydrogeological data, has estimated that up to 1300 km³ of freshwater is sequestered between New Jersey and Maine (Cohen et al., 2010). Recent marine electromagnetic surveys have also helped document the distribution of OFG along this margin (Figure 1B) (Gustafson et al., 2019). Prior studies along the margin, however, were not focused on the hydrologic system, and did not characterize hydrogeological properties or complete extensive analyses of water or dissolved gas chemistry, which limits our ability to fully characterize the OFG system and model its evolution. Expedition 501 will provide an integrated geological, hydrological, geochemical, biological, and geophysical approach to understand the volume and distribution of this OFG, its emplacement mechanism, and the impacts of this active hydrogeological system on element and nutrient cycling as well as on microbe diversity and activity.

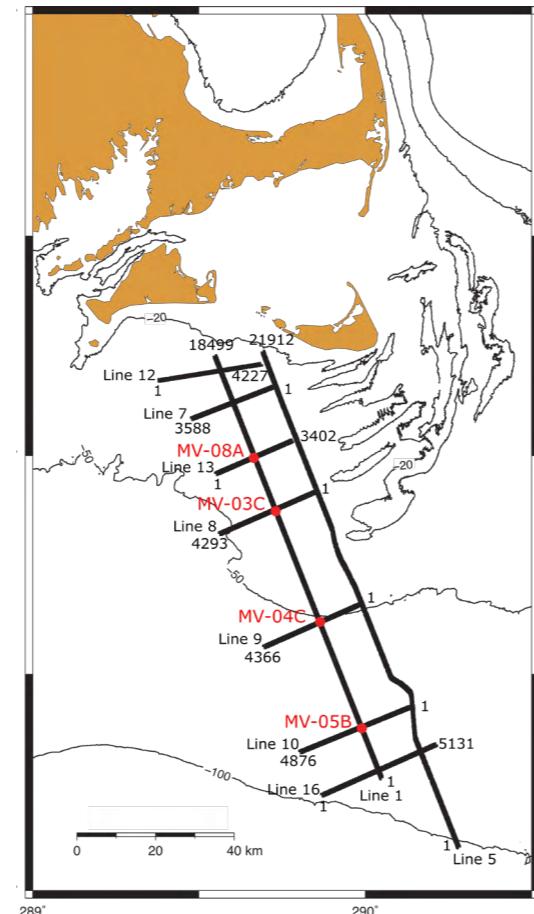


Figure 1A. Basemap of IODP³-NSF Expedition 501 study region including primary sites (solid red circles) and high-resolution MCS data (black lines).

Volume and Distribution of Offshore Freshened Groundwater

Limited well data from the AMCOR drilling project provide evidence that freshwater exists within the U.S. Atlantic continental margin (Hathaway et al., 1979) (Figure 2). Marine electromagnetic surveys in our study region document a significant offshore extension of elevated resistivity that is interpreted to be controlled by freshwater with shelf sediments (Gustafson et al., 2019) (Figure 1B). Expedition 501 will complete high-resolution porewater analyses on fluids from core samples and from limited pump tests to provide a robust downhole salinity profile at each site. Porewater analyses combined with lithological characterization will allow evaluation of preferential lithologies in which freshened water is migrating and stored. Porewater salinity data will be

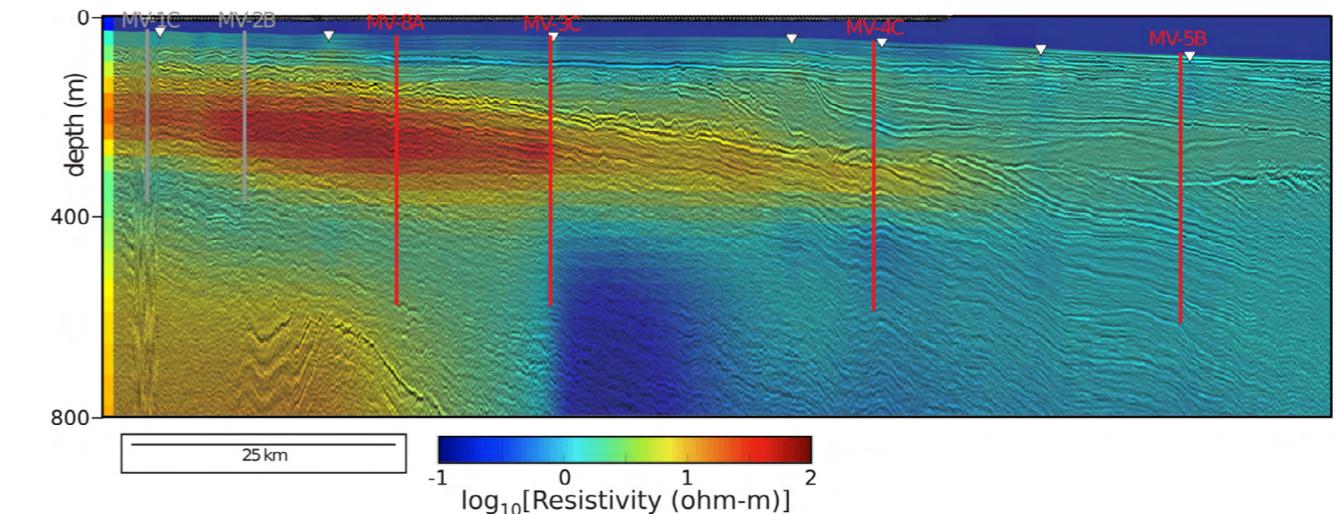


Figure 1B. Top – Depth-converted seismic Line 1 (Siegel et al., 2012) (located in Figure 1A) overlain by electrical resistivity interpretations based on joint inversion of controlled-source electromagnetic and magnetotelluric data (Gustafson et al., 2019). Primary proposed sites MV-8A, MV-3C, MV-4C, and MV-5B are labeled in red.

integrated with wireline resistivity data to calibrate models that can be used to estimate salinity in sand-rich units (Archie, 1942) and clay-rich units (Glover et al., 2000). Calibrated resistivity models applied to the marine electromagnetic data and core-informed regional stratigraphy will allow significant improvements of the distribution and volume of freshened water.

Emplacement Mechanisms and Timing

There is growing evidence that passive margin sediments host large volumes of paleo-freshwater, and it is hypothesized that these waters were emplaced during the past two million years as a result of Pleistocene glaciations (e.g., Edmunds, 2001; Person et al., 2003, McIntosh et al., 2012; van Geldern et al., 2014). A number of mechanisms have been proposed to explain the emplacement of freshwater within continental shelf sediments during glacial periods. Early studies focused on the shore-normal hydraulic gradient associated with topography as the prime driving force for freshwater recharge during sea-level lowstands (Meisler et al., 1984) (Figure 3). Alternatively, Groen et al. (2000) argued that local flow systems associated with secondary topography of the subaerially exposed and incised shelf are essential for freshwater emplacement in continental shelf sediments (Figure 3). Person et al. (2003, 2012) emphasized the role of sub-ice-sheet recharge and recharge from pro-glacial lakes as critical for freshwater emplacement far offshore (Figure 3).

Key aspects to characterizing the emplacement mechanism(s) and timing are determining water and dissolved gas isotopic composition and obtaining water ages. At the simplest level, these data provide the temporal constraints on the origin of the freshwater which then can be used to refine groundwater flow models to test emplacement mechanisms, to evaluate flow pathways, and to predict dynamics of the flow system. The primary approaches for determining water ages are with krypton (81Kr), helium (4He), carbon (14C), tritium (3H), and oxygen (18O) from porewater samples. To get the best constraints on water ages, multiple age-dating approaches will be employed. We will collect fluids from confining units via Rhizon samplers and core squeezing. In limited aquifer intervals we will collect water using pumping tests. Our

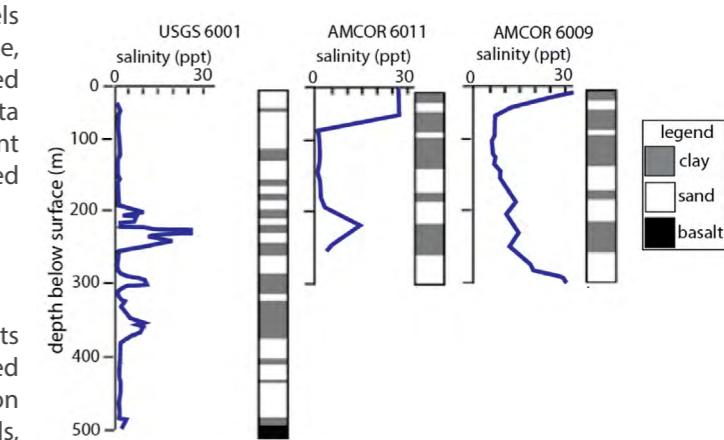


Figure 2. Salinity and lithology data from USGS and AMCOR wells drilled in the 1970s (Folger et al., 1978; Hathaway et al., 1979). USGS 6001 is located on Nantucket Island and documents the presence of freshwater deeper than predicted from modern equilibrium conditions. AMCOR 6011 and 6009 document the presence of freshened groundwater up to 100 km offshore along the U.S. Atlantic margin offshore New England.

combined approach for fluid sampling will also provide enough fluid for rare earth elemental (REE) analyses allowing improved constraints on global geochemical cycles and on the contribution of REEs to the ocean via submarine groundwater discharge (SGD). This in turn allows a better understanding of SGD volumes, which are not well constrained.

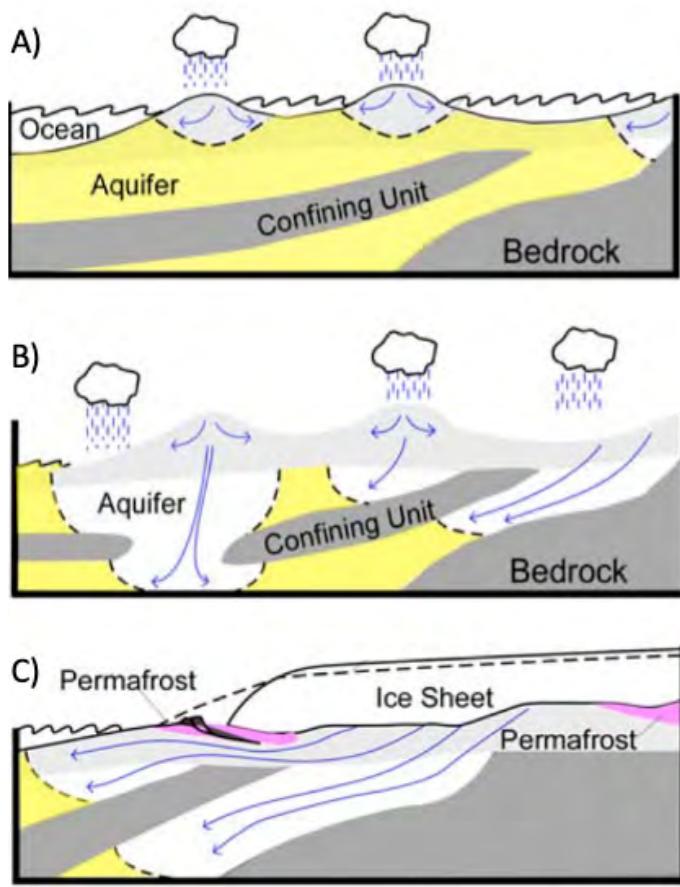


Figure 3. Conceptual models of offshore freshwater emplacement. Freshwater-saturated sediments are light gray and white; saltwater-saturated sediments are yellow.
 A) Equilibrium freshwater lens under present-day meteoric recharge produces a small lens of freshwater under islands.
 B) Meteoric recharge to exposed aquifers and increased gradient during sea-level low-stand drives the freshwater-saltwater interface deeper and farther offshore (e.g., Groen et al., 2000; Meisler et al., 1984).
 C) Sub-ice sheet recharge during a glacial period; high pressure from glacial advances drives freshwater deeper and pushes the freshwater-saltwater interface farther offshore (e.g., Person et al., 2003; Siegel et al., 2014).

We will also use core data and pump tests to develop a permeability model that will be integrated with the stratigraphic interpretation for the region. By constraining the hydrostratigraphic framework for the OFG system, we will have improved constraints for modeling the dynamics of the flow system including recharge rates, fluid residence times, and transport of dissolved nutrients and REEs.

Microbe Diversity and Activity

Through core and fluid sampling we will constrain the lateral and vertical variations in microbial abundance, diversity, and productivity. It has been suggested that salinity is the most important determinant of a microbial community. We will integrate salinity, pH, temperature, and pressure data with microbial abundance, taxonomic diversity, and metabolic diversity analyses on microbiological samples. With three sites, we will gain insights on vertical gradients and lateral gradients and their relation to regional advection and local advection/diffusion. This allows addressing questions related to methanogenesis versus methane oxidation, if the systems are aerobic or anaerobic, and to determine the important microbial processes (e.g., Mailloux et al., 2013;

Trembath-Reichert et al., 2017). This could also expand our understanding of methane cycling in the shelf and the slope to define the importance of fluid flow and sediment in this connected ecosystem. Such analyses linked with geochemistry could provide motivation for post-expedition research such as culturing to isolate environmentally relevant model organisms, metagenomics, metatranscriptomics, and isotopic studies to give a more detailed microbiological picture. Data from this environment with bioinformatic and statistical learning interpretation can also be used to inform process-based models on microbial-biogeochemical cycling and bio-energetic models to quantify microbial activity and geochemical cycling (Bradley et al., 2018, 2020).

Drilling Approach with Advanced Fluid Testing and Sampling

Expedition 501 will use a three-site approach to allow characterization of the freshwater endmember, the seawater endmember, and the transition between the endmembers. All sites will include a single hole to a maximum depth of 550 mbsf. The single hole methodology for coring, wireline logging, and in situ testing builds on the successful operational strategy used on IODP Expedition 313 which sampled similar sediments in a similar geological environment (Mountain et al., 2010).

The drilling strategy is to drill MV-8A first, which will sample the freshwater endmember that is predicted to be bounded on top and bottom by seawater (Figure 1b). The second site to be drilled will be MV-4C which could be the seawater endmember based on numerical modeling results (Siegel et al., 2014) or the freshwater-seawater transition based on electromagnetic and magnetotelluric data (Gustafson et al., 2019) (Figure 1b). If MV-4C is the seawater endmember, the third site to be drilled will be MV-3C to sample the seawater-freshwater transition. If MV-4C sample the freshwater-seawater transition, the third site to be drilled will be MV-5B to sample the seawater endmember, as predicted by numerical models and electromagnetic and magnetotelluric data.

At each site, we will employ a robust wireline logging plan that will provide high quality density, porosity, and resistivity logs. Wireline logging data will be critical in intervals dominated by unconsolidated sand where recovery will be limited and recovered material will be disturbed and contaminated by the drilling process. Standard core measurements of moisture and density and porewater analyses for fluid chemistry in silt-to-clay rich zones combined with wireline logging resistivity and density data will provide more than sufficient information to ground-truth the electromagnetic and magnetotelluric data. The core and porewater data will provide regular and precise porosity and chemistry data that can be enhanced by wireline logs especially in zones where recovery is limited. These porosity and porewater chemistry data also provide essential inputs and constraints for numerical models.

In addition to coring and logging, Expedition 501 will complete a limited number of downhole pump tests to provide hydrogeological, geochemical, microbiological data from permeable horizons that contain freshened water. Downhole pump tests are limited within IODP, and

challenging, however, a downhole casing and testing plan will be developed to increase our probability for success. Successful pump tests will provide in situ field measurements of permeability and pristine-to-minimally contaminated water samples that will provide essential samples for microbiological analyses and gas samples for determining water age.

Closing Remarks

Expedition 501 will be the first study dedicated to characterizing OFG, which is present in continental shelves around the world. In some locations, these OFG systems could provide water resources for densely populated, near-shore regions. Expedition 501 data and post-expedition research will provide a step-change in our understanding of the processes driving emplacement and recharge of OFG systems and will also lead to a better fundamental understanding of this worldwide hydrogeological phenomenon and its impact on microbial process and biogeochemical cycling. With advanced knowledge, we can begin to assess OFG systems as a potential resource and develop strategies for protection and sustainable management of these valuable resources in the near future. As we constrain the flow dynamics, we will also gain a better understanding biogeochemical and element cycling in continental shelf environments.

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MagellanPlus and Magellan³ Workshops Series



Catalina Gebhardt Jun-ichiro Ishibashi

The Magellan³ Workshop Programme

The Magellan³ Workshop Programme brings together the international scientific drilling community to spark new ideas and collaborations for the next generation of Earth, life, and environmental research.

Designed to bridge continents and disciplines, the programme supports workshops that develop innovative proposals for ocean, land-to-sea, and Scientific Projects using Archived Research Collections (SPARC), drawing on both new expeditions and existing core materials.

Funding of up to €15,000 is available per workshop, enabling researchers to convene, exchange ideas, and refine their proposals. In addition, individual travel grants are offered

to support researchers in participating in related scientific activities, fostering broader engagement and knowledge exchange. Jointly supported by ECORD, ANZIC, and J-DESC, Magellan³ aims to nurture creative science that aligns with the 2050 Science Framework and the ICDP Science Plan, helping to define the future directions of scientific drilling.

Guidance and oversight are provided by the Magellan³ Science Steering Committee (SSC), comprising 13 members from the three partner entities, who work together to shape the programme's vision and ensure a balanced and forward-looking portfolio of workshops. Proposals can be submitted to the steering committee twice a year.

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Co-chair Magellan³

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Co-chair Magellan³



Past MagellanPlus workshops

MagellanPlus: Drilling the Tonian to Cryogenian boundary in the Inner Hebrides, Scotland (14–16 July 2024, London, UK)

From 14 to 16 of July 2024, the MagellanPlus ECORD Workshop was held at the Kathleen Lonsdale Building, University College London. The event brought together an international group of scientists from diverse disciplines and career stages to lay the groundwork for a new drilling proposal focused on the Garvellach Islands in the Inner Hebrides, Scotland. Discussions centred on potential drill sites, operational logistics, and scientific goals within the

framework of the ECORD Mission Specific Platform. The workshop aimed to recover the highest-resolution record of the late Tonian to Cryogenian transition, a key interval in Earth's history marking the onset of the global Sturtian glaciation.

Organising committee

Graham Shields (University College London)
Elias Rugen (University College London)

MagellanPlus: NHIS: Evolution of the Northern Hemisphere Ice Sheets: timing, drivers, and interconnections (4–7 February 2025, Belfast, Northern Ireland)

The MagellanPlus workshop on the evolution of the Northern Hemisphere Ice Sheets (NHIS) took place in Belfast (Northern Ireland) on February 4th to 7th, 2025. The idea for this workshop was born after other MagellanPlus workshops about ocean drilling around Greenland (NorthGreen, Copenhagen, Nov. 2022) and in the North Sea (CenoStore, Belfast, Jan. 2023), and several others on the Future of Scientific Ocean Drilling – IODP³ (Jan 2023 and March 2024). During these workshops, it was clear that there is a widespread interest in the community on paleo ice sheet reconstructions, and feedback mechanisms between cryosphere, oceans and atmosphere. The aim of this workshop was to explore synergies among different ocean drilling initiatives and ideas targeting the evolution of the Northern Hemisphere ice sheets and feedback mechanisms in the North Atlantic and Arctic oceans, and the gateways into other ocean basins. 46 people attended the workshop, four of whom online, from ten European countries, the UK, Canada, the USA, Japan and New Zealand, and across 35 universities and research institutions. A fourth of the attendees were ECRs. These were fully supported by the funding received by ECORD's MagellanPlus Workshop programme and the Networking Initiative of the Marine Institute of Ireland, so that all travel and accommodation expenses were covered.

The day before the start of the workshop we had an optional field trip to the Causeway Coast of Northern Ireland, travelling across the Arroyo moraine complex and visiting Dunluce Castle, Magheracross Viewpoint, Bushmills and the Giant's Causeway. Attendees had the full Irish experience of all seasons in one day...from sunshine to soaking wet!

The workshop had a series of invited talks to provide an overview of the new IODP³ programme (Gabriele Uenzelmann-Neben as ECORD Vice Co-Chair, and David McInroy BGS/ECORD science operators), a discussion around data helpful for paleo ice sheet reconstructions (Jeremy Ely, Sheffield) and the impact of long-term tectonic and topographic considerations on the interpretation of deep-sea oxygen isotope records in reconstructing past ice volume (Robert McKay, Victoria University Wellington, NZ). We heard about lessons learnt from recent IODP expeditions in polar regions, a Land2Sea proposal for Svalbard and the possibility

of shallow and inexpensive scientific drilling in the central Arctic. These talks helped us focus on what may be achievable and what may be aspirational but still worth pursuing and were followed by a series of nine regional updates from the Laurentide Ice Sheet, across gateways and onto Greenland and the European Ice Sheets, and more talks across different days on proxies, teleconnections and possible correlations with terrestrial records. Coffee breaks and lunches provided the opportunity for people to view and discuss the poster contributions across a range of topics, from ice sheet modelling and the regolith hypothesis to proxies and data availability. These discussions were ongoing for the duration of the workshop. For the rest of the time, the attendees split across different self-assigned group to discuss regional interests, potential synergies and new ideas. Each group was co-chaired by an experienced researcher and an ECR who had to encourage discussions (not that there was any need for this!) and take notes. On the last morning, we summarised the discussions from all groups and presented some of the highlights in a plenary session, which was followed by more specific conversations among different groups on how to move these forwards in terms of proposal submissions.

As organisers, we felt that the workshop was successful with many meaningful conversations, new ideas and connections formed and the time to further develop ongoing collaborations. Groups formed organically and several people were refining ideas and proposals until it was time to leave. The community has many ideas that can address several of the IODP 2050 Science Objectives and Flagship Initiatives.



Group picture of the participants

Organising committee

Sara Benetti (Ulster University)
Wolfram Geissler (AWI)
Georgina Heldreich (Ulster University – ECR)
Colm Ó Cofaigh (Durham University)

The HIGHLAND Magellan Plus Workshop was held at the Institute of Polar Sciences (CNR-ISP) in Bologna, Italy, from 25 to 27 June 2025. The event brought together 63 participants (39 in person and 24 online) from nine countries, representing a wide range of disciplines including marine geology, glaciology, oceanography, sedimentology, geophysics, and polar engineering. The main goal of the workshop was to catalyze the development of a new interdisciplinary drilling proposal focused on Edisto Inlet, Northern Victoria Land, Antarctica a small, underexplored fjord at the marine margin of the East Antarctic Ice Sheet.

Participants reviewed existing geophysical, sedimentological, and oceanographic datasets and concluded that Edisto Inlet offers an exceptional natural archive to reconstruct ice-ocean-climate interactions during the Late Quaternary and

Holocene. Thick sediment drifts and high sedimentation rates provide the opportunity to recover continuous and high-resolution records of past environmental variability, directly addressing IODP³ priorities on Earth's climate history and polar sensitivity.

Technical discussions highlighted the feasibility of shallow-water drilling using a mission-specific platform, while emphasizing the need for detailed environmental and logistical planning. The workshop fostered new international collaborations and outlined the roadmap for developing a pre IODP³ proposal, with a writing team established and a target submission window set for July 2026. HIGHLAND successfully set the foundation for future Antarctic drilling to unravel the mechanisms of ice-sheet retreat and ocean forcing in one of Earth's most sensitive polar regions.

Organising committee

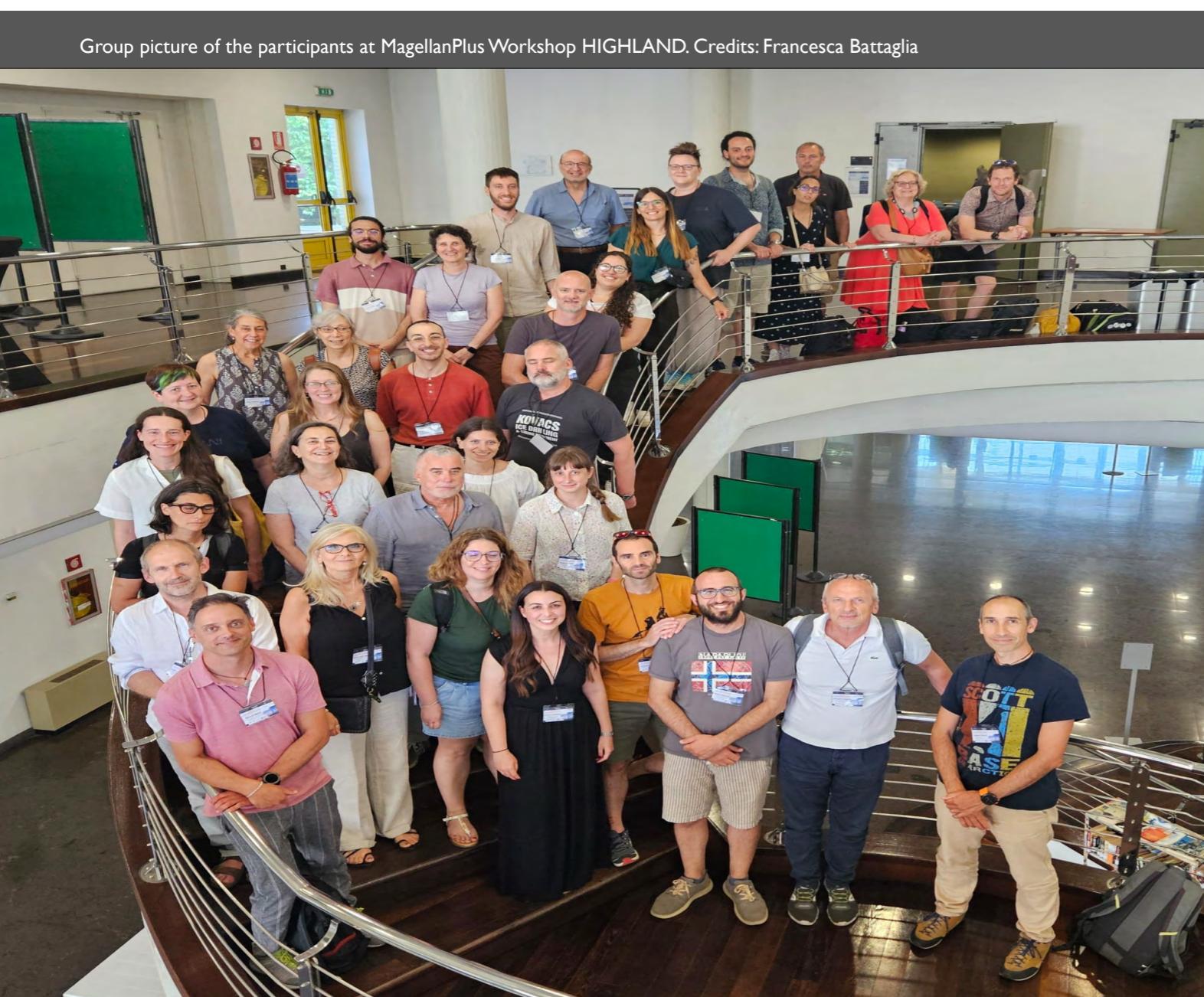
Francesca Battaglia (CNR-ISP)

Tommaso Tesi (CNR-ISP)

Laura De Santis (OGS)

Michele Rebesco (OGS)

Group picture of the participants at MagellanPlus Workshop HIGHLAND. Credits: Francesca Battaglia



In these interconnected workshops, a group of international scientists work together to explore best practices for combining digital and curatorial activities to improve the capacity of scientific marine drilling in the digital domain.

During the MagellanPlus 21st Century Drilling Workshop series, we were joined in Bremen by a wide range of international researchers to form teams for Biostratigraphy, Core description and Geochemistry-Physical Properties, with a digital team spanning all three groups. The teams were made up of experienced scientists and early career researchers (ECRs, including PhD students) alike and included both those with prior (shipboard) experience or those who have not had the opportunity to participate in an IODP expedition or activity before.

The two MagellanPlus workshops have been part of a wider 21st Century Drilling Umbrella effort focussing on revisiting legacy material at IODP repositories, with J-DESC's RECORD ReC23-01 taking place at the KCC in August 2023, and the USSP 21st Century Drilling workshop to be held in early 2025 at the GCR. Each workshop team has carved its own path appropriate to the material being worked on.

Organising committee

Anna Joy Drury (University of Leicester)

Beth Christensen (Rowan University)

Gerald Auer (University of Graz)

Thomas Westerhold (MARUM, University of Bremen)

U. Röhl (MARUM, University of Bremen)

21st Century Drilling:
Building Capacity in the Digital Domain
on scientific ocean drilling
legacy material

We are excited to announce
Two linked 5-day MagellanPlus
'21st Century Drilling Workshops'
at BCR, MARUM, Germany

>>> Workshop 2: 3-12 November 2024 <<<

Workshop 1: 8-12 April 2024

We will create new records (core descriptions, geochemistry) from digital core and evaluate this data with reassessment of physical cores during two in-person workshops at MARUM using Miocene cores from the South Atlantic. Online syntheses will develop best practices for digital drilling of legacy materials while aiming to advance our understanding of Miocene IRD.

We are looking for experienced scientists and early career researchers to form teams in Core description, Biostratigraphy and Geochemistry/Physical Properties (~10 participants total).

Application deadline for Workshop 2 is 02.09.2024

Some travel support is available for ECORD scientists
For details see: <https://le.ac.uk/iodp/events/21stCenturyDrilling>

Organising committee:
A.J. Drury, B. Christensen
G. Auer, T. Westerhold
and U.Röhl

UNIVERSITY OF LEICESTER marum Center for Marine Environmental Scien UNI GRAZ UCL

WorldMapGenerator

Group picture of the lecturers and participants of the second MagellanPlus Workshop at MARUM. Photo: MARUM – Center for Marine Environmental Sciences, University of Bremen; V. Diekamp



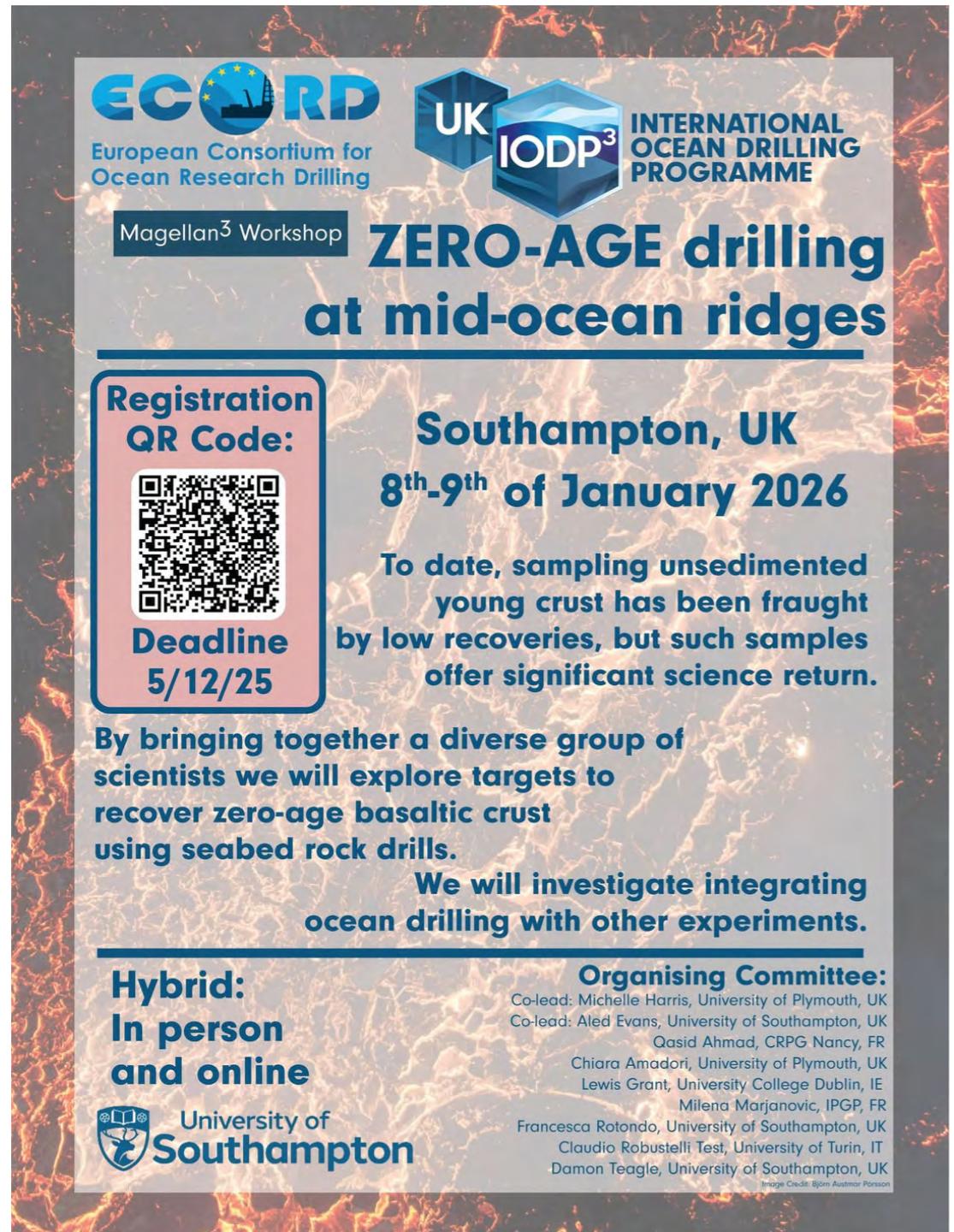
Upcoming Magellan³ workshops

Magellan³: ZERO-AGE drilling at mid-ocean ridges (8–9 January 2026, Southampton, UK)

To date, sampling unsedimented young crust has been fraught by low recoveries, but such samples offer significant science return.

By bringing together a diverse group of scientists this workshop will explore targets to recover zero-age basaltic crust using seabed rock drills.

The workshop will investigate integrating ocean drilling with other experiments.



Magellan³: Young and Cool (11–13 March 2026, Bremen, Germany)

The "Young and Cool" workshop aims to advance the development of subseafloor observatories for microbiological and hydrogeochemical research on the southern Reykjanes Ridge, using a Mission Specific Platform approach.

The observatories will allow long-term monitoring and quantitative assessments of chemical fluxes and their biological controls in young, cool mafic oceanic crust, to enhance our understanding of crustal carbon and elemental cycling and their impact on the Earth System.

For informations:

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Magellan³: i-CREATE: Impact Crater Evolution and Terrestrial Environmental Consequences (27–29 April 2026, Edinburgh, UK)

Hypervelocity impacts are the most important planetary process across the Solar System, and fundamentally change the physical properties of planetary crust. They represent significant regional to global hazards but can also generate habitable environments that persist long after impact.

i-CREATE is a three day workshop in Edinburgh, with an field trip to the NW Highlands to visit the Stac Fada Member impact ejecta deposits. The goal is to develop new drilling

proposals investigating buried impact craters, to test fundamental physics of impact cratering, and investigate the environmental consequences of such events.

For informations:

Uisdean Nicholson: u.nicholson@hw.ac.uk

Sean Gulick: sean@ig.utexas.edu

Magellan³ & USSSP workshop: Impact Crater Evolution and Terrestrial Environmental Consequences (i-CREATE)

Dates: April 27th to May 1st 2026 | **Venue:** Heriot-Watt University, Edinburgh, UK

Hosts: Uisdean Nicholson, Sean Gulick. **Watchdog:** Christian Koeberl

Summary: Hypervelocity impacts are the most important planetary process across the Solar System and fundamentally change the physical properties of planetary crust. They represent significant regional to global hazards but can also generate habitable environments that persist long after impact. This 3-day workshop in Edinburgh, followed by an optional field trip to the spectacular Stac Fada Member impact ejecta sequence in the NW Highlands, aims to develop new IODP³/ICDP drilling proposals investigating buried impact craters. These will allow us to understand the fundamental physics of impact cratering and investigate the environmental consequences of such events.

To apply to join, please contact u.nicholson@hw.ac.uk

See <https://icreate.site.hw.ac.uk/> for more details.

U.S. SCIENCE SUPPORT PROGRAM MAGELLAN³ WORKSHOP SERIES



ECORD Educational Activities

Summer schools and ECORD training courses 2025

As usual, in 2025, ECORD has supported three Summer Schools in Urbino (Italy), Leicester (UK), and Bremen (Germany) (see next page).

While the summer schools in Urbino and Leicester continue with their established thematic scope in 'Paleoclimatology' and 'Downhole Logging for IODP Science' respectively, the ECORD Summer School in Bremen provides a different theme every year, with 'Southern Ocean – Antarctic paleoclimate interactions' as the topic of 2025.

ESSAC has provided 28 merit-based scholarships to applicants from ECORD member countries, all MSc or PhD students and Early Career Researchers.

ECORD Summer School: Urbino Summer School in Paleoclimatology

University of Urbino, Italy (23 July – 8 August 2025)

The summer school of the USSP consortium focuses on past climate dynamics with special emphasis on the analysis of long-term carbon cycling and its implications in the understanding of present and future climates. USSP integrates lectures, symposia, field trips, and exercises on the many different areas of paleoclimatology including biogeochemical cycling, paleoceanography, continental systems, and all aspects of deep-time climate modelling. These techniques and systems are explored through interactive discussions of Cretaceous OAEs, P/E hyperthermals, the Greenhouse-Icehouse transition, Neogene and Quaternary climate dynamics.

The goal of USSP is to provide participants with an advanced working knowledge on the paleobiological and geochemical proxy data and their use in reconstructing and modelling of past climates.

USSP is taught by ~15-25 leading scientists from around the world, with teacher rotations between years, and can accommodate 50-60 students (end-MSc or early career Graduate and post-Graduate) based on their submitted CVs.

Read more on:

<https://urbinossp.wordpress.com/>



ECORD Summer School: MARUM – Center for Marine Environmental Sciences and the Bremen Core Repository, University of Bremen, Germany (8 – 19 September 2025)

The major goal of the school is to bring PhD students and Postdocs in touch with scientific ocean drilling at an early stage of their career, inform them about the exciting research within the scientific ocean drilling programs that have been proven to be the most successful internationally collaborative research programs in the history of Earth sciences, and to prepare them for future participation in drilling expeditions. Such training will be achieved by taking the summer school participants on a "shipboard simulation" where they get familiarized with a wide spectrum of state-of-the-art analytical technologies and core description and scanning methods according to the high standards of scientific ocean drilling expeditions. In addition, the thematic topic of the summer school will be reviewed by various scientific lectures by the leading experts in the field.

The topic of this year was "Southern Ocean – Antarctic paleoclimate interactions". 30 early career scientists from 13 countries were participating.

Read more on:

<https://www.marum.de/research-academy/ECORD-training/ECORD-Summer-Schools.html>



ECORD Summer School: Downhole Logging for Marine Geoscience

University of Leicester (30 August – 5 September 2025)

The Summer School introduces the interpretation and applications of downhole logs and physical property data primarily from the International Ocean Drilling Programme (IODP³). The course explores the relevance and unique insights of these data for a range of fields, including paleoclimatology, sedimentology, hydrogeology, and broader geological and ecological processes such as sediment provenance and water column productivity.

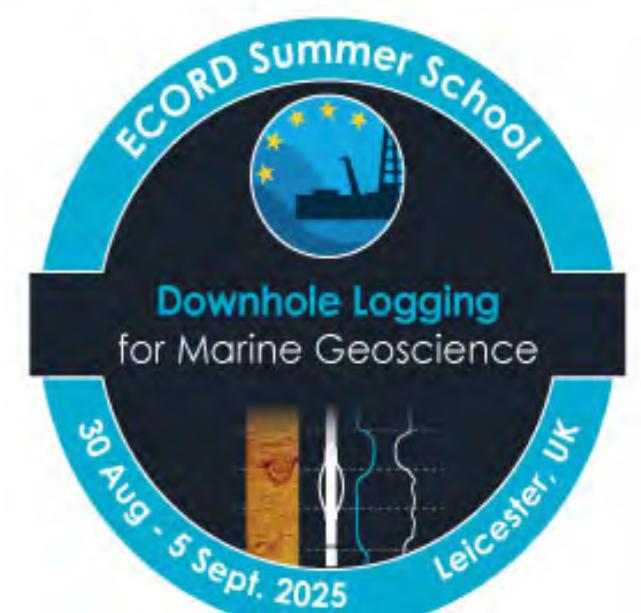
Participants will gain insight into:

- Offshore logging planning and operations
- Core physical properties and measurement techniques
- Data processing and data quality assessment
- Scientific log interpretation
- Applications of downhole logging and petrophysics

Introductory sessions on petrophysics, the study of the physical (and chemical) properties of rocks and their interactions with fluids, are at the heart of the Summer School.

These core principles are then used for insight into broader marine geoscience questions and environments through practical exercises and presentations that provide experience of interpreting downhole logging data and integrating them with other datasets based on real world science applications.

Read more on:
<https://le.ac.uk/iodp/summer-schools>





ECORD Summer Schools 2025

Several summer schools are sponsored every year by ECORD to further foster the education of young scientists in marine-related sciences and to train a new generation to participate in future ocean drilling expeditions.



Leicester, UK



Bremen, Germany



Urbino, Italy



ECORD summer school on Downhole Logging for Marine Geoscience. Credits: LEBER, ECORD/IODP³/EPC/BGS





Nicole Beneventi Ulrike Prange David McInroy Hanno Kinkel Nadine Hallmann

ECORD Communication: news and activities

Within the framework of the new IODP³ programme, the ECORD Communication Group is working to harmonize all communication materials and content, both online and offline, with the new programme identity. This includes updating wording, visuals, and logos to ensure consistent and recognizable communication across all platforms and outreach activities. A major current focus of the ECORD Communication Group is the development of a coherent strategy for ECORD communication and outreach, aligning all efforts with the new IODP³ framework.

The group has also continued to strengthen cooperation with various museums and science centres to promote scientific drilling and ECORD through permanent, long-term, and short-term exhibitions. In addition to core replicas and audio-visual materials, one of the highlights offered by the ECORD Communication Group to support short-term exhibitions is the ECORD Sphere.

ECORD outreach and communication activities



Outreach for Expedition 501

Each Mission Specific Platform Expeditions is different from the previous one, and the operator as well as science teams need to adapt to new objectives, new vessels and new procedures to meet the scientific objectives (see also [IODP³ - NSF Expedition 501: New England Shelf Hydrogeology](#)).

Outreach activities started way earlier as usual, and not on paper, but in the cape region. Since Co-Chief Scientist Brandon Dugan has been involved in the project for almost two decades, he knew where to start a community engagement tour before in expedition in March 2025.

The aim was to inform the community about the project, provide contact details, facilitate dialogue, offer to come back after the expedition and update about expedition as well as put findings into context. The team met with School classes on Nantucket and Martha's Vineyard to present the project and to explain why we need to learn more about how Earth works in general and why water aquifers might become relevant for communities. In addition to talks and a media interview, chambers of commerce, visitor centers and libraries were visited, in order to explore possibilities to get in touch for virtual talks during or in person visits after the expedition. In all our efforts in the run-up to the event, we were also actively supported by WHOI Communications.

The community engagement approach was appreciated by local contacts, and after the offshore phase ended, existing

contacts were informed again to keep them up to date. Also, the expedition was presented at the Woods Hole Science Stroll in August by Co-Chief scientist Becky Robinson.

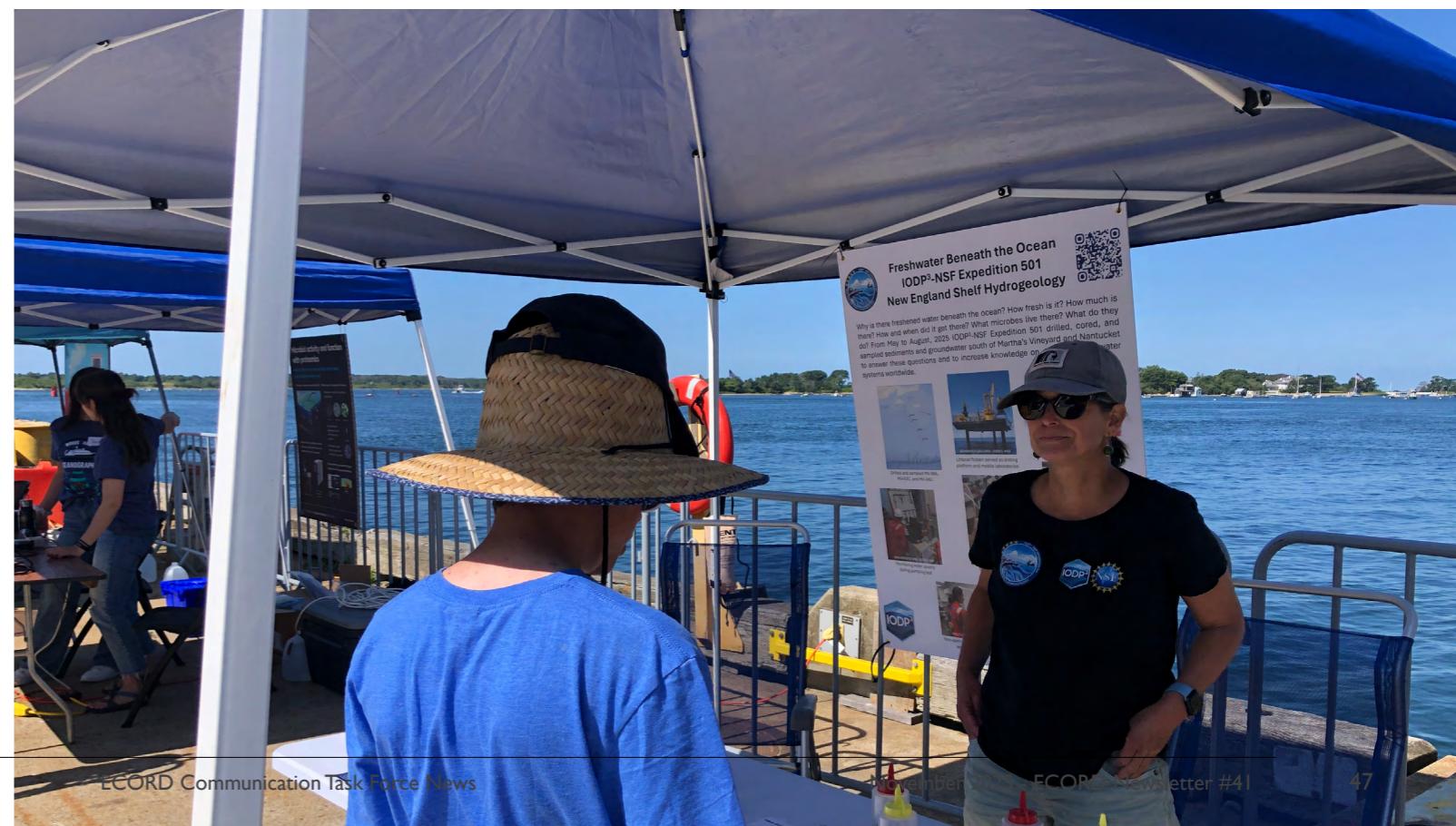
The science team was involved early on, as well as their home institution communications team, and updated prior and during the expedition. The science team was completed by three offshore communicators: Andrea Lee Vale, Maryalice Yakutchik and Maike Rademaker. They joined the expedition vessel for ten days each in May, June and July, and took over the blogsite and Instagram.

Media relations kicked off with a media release at the start of the expedition and a news item marking the end. All PMOs and partners (USSSP, ANZIC and JAMSTEC) were also involved. Other elements of outreach activities for this expedition are the blogsite, social media posts on several platforms (X, Instagram, Bluesky, Mastodon and now also LinkedIn) and single ship to shore events.

It was a conscious decision within in ECORD Communication Group to opt for journalists as outreach officers rather than communicators, using journalists' networks and distribution channels, resulting in excellent coverage of the expedition on [Associated Press](#), [CNN](#) and [CBS](#), as well as [German Deutschlandfunk](#) and various other international news outlets.

Expedition webpage: <https://www.ecord.org/expedition501/> Expedition blog: <https://expedition501.wordpress.com>

Co-chief scientist Rebecca Robinson at the Woods Hole Science Stroll. Credits: Ulrike Prange ECORD/IODP³/NSF



ECORD in museums and exhibitions

The ECORD Communication Group has been working to strengthen ECORD's presence at permanent and short-term exhibitions in museums across Europe. This includes the fabrication and donation (or long-term loans) of materials for museums and research institutions, as well as loans of the ECORD Sphere for dedicated exhibitions.

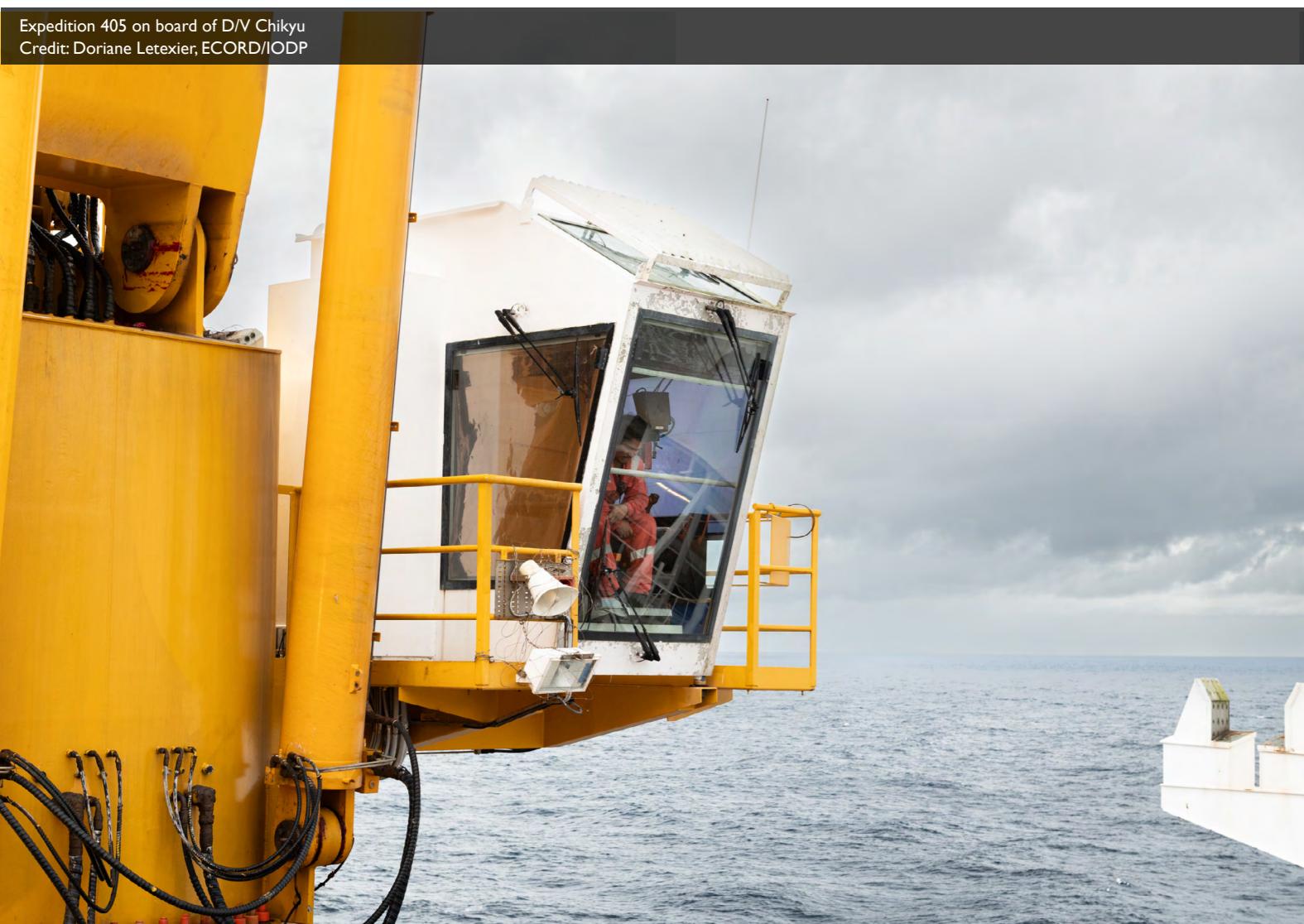
Since 2022, ECORD is proud to have its presence at three permanent exhibitions:

- The Cosquer Méditerranée Museum in Marseille, France (since 2022)
- The Natural History Museum (NHM) Vienna, Austria (since 2023)
- The German Maritime Museum (DSM), Germany (since 2024).

New exhibitions are planned for development in the coming years.

ECORD online

The ECORD Communication Group keeps working on the active presence of ECORD in the Internet through social media (Facebook, X, Instagram, YouTube, Mastodon). Recently the ECG opened the ECORD Blusky account (@ecord.bsky.social) and the ECORD LinkedIn account. The ECORD website is also undergoing a redesign and reorganization of its content to provide a clearer structure and an improved user experience, making information and resources easier to access and navigate.



Expedition 405 on board of D/V Chikyu
Credit: Doriane Letexier, ECORD/IODP

Resources

ECORD Sphere

The ECORD Sphere was exhibited in Vienna, Bremen, and Berlin in 2023. Its next stop was the Science Center in Faro, Portugal, where it was featured in an exhibition related to IODP Expedition 401 (December 2023 – February 2024).

In February 2024, the ECORD Sphere was displayed in Naples, Italy, to mark the start of IODP Expedition 402 (coinciding with the JR's presence at the port of Naples).

In April 2024, it traveled to Vienna for EGU 2024 and subsequently to the University Museum at Utrecht University, The Netherlands, for display. Its most recent public appearance was at EGU 2025 in Vienna.

The ECORD Communication Group is currently planning additional short-term exhibitions across Europe to continue sharing the ECORD Sphere with a wider audience.

ECORD Sphere webpage:
<https://www.ecord.org/resources/ecord-sphere/>

Core replicas

Seven replicas of ODP and IODP drilled cores are available for various activities and display at temporary exhibitions and conferences in Europe and Canada.

The ECORD Communication Group ordered the fabrication of several new core replicas, from among which, some were donated to museums and other found their home at the EPC (University of Leicester) as the ECORD hub for replica loans within the UK.

Institutions interested in borrowing ECORD core replicas for educational or exhibition purposes can submit a request through the ECORD website. Detailed information about each core, including expedition details and scientific findings, is also available online. Each replica comes with an A3-format poster, available in English and Spanish. Additional languages will be available in the future.



Trieste Next Science Festival, Italy

How to loan a core replica?

To order a loan, contact Nicole Beneventi at EMA (nicole.beneventi@osupytheas.fr) with inquiry about the availability of any of the core replicas.

ECORD shares these materials on a temporary basis with scientists and teachers under the conditions described in the loan document. The materials are loaned free of charge with the ordering university/research institution covering the shipment of core replicas back to EMA.



Tahiti Sea-Level core replica.

More: <https://www.ecord.org/resources/>

ECORD at conferences, events and meetings

EGU 2025 (27 April - 2 May 2025, Vienna, Austria)

The outreach teams of ECORD and ICDP welcomed visitors at a joint ECORD/IODP³-ICDP booth under the banner of Scientific Drilling. Attendees explored booths 48 and 49 in the Entrance Hall, where the ECORD Sphere was also on display.

On 28 April 2025, a joint ECORD-ICDP Town Hall Meeting was held at the Natural History Museum Vienna (See next page).

The ECORD-ICDP Scientific Session on **"Achievements and Perspectives in Scientific Ocean and Continental Drilling"** at the EGU General Assembly 2025 showcased the latest breakthroughs, innovative methodologies, and emerging directions in both ocean and continental drilling.

These events highlighted the global collaboration and ongoing advances that continue to drive scientific drilling forward.



AGU 2025 (15 - 19 December 2025, New Orleans, USA)

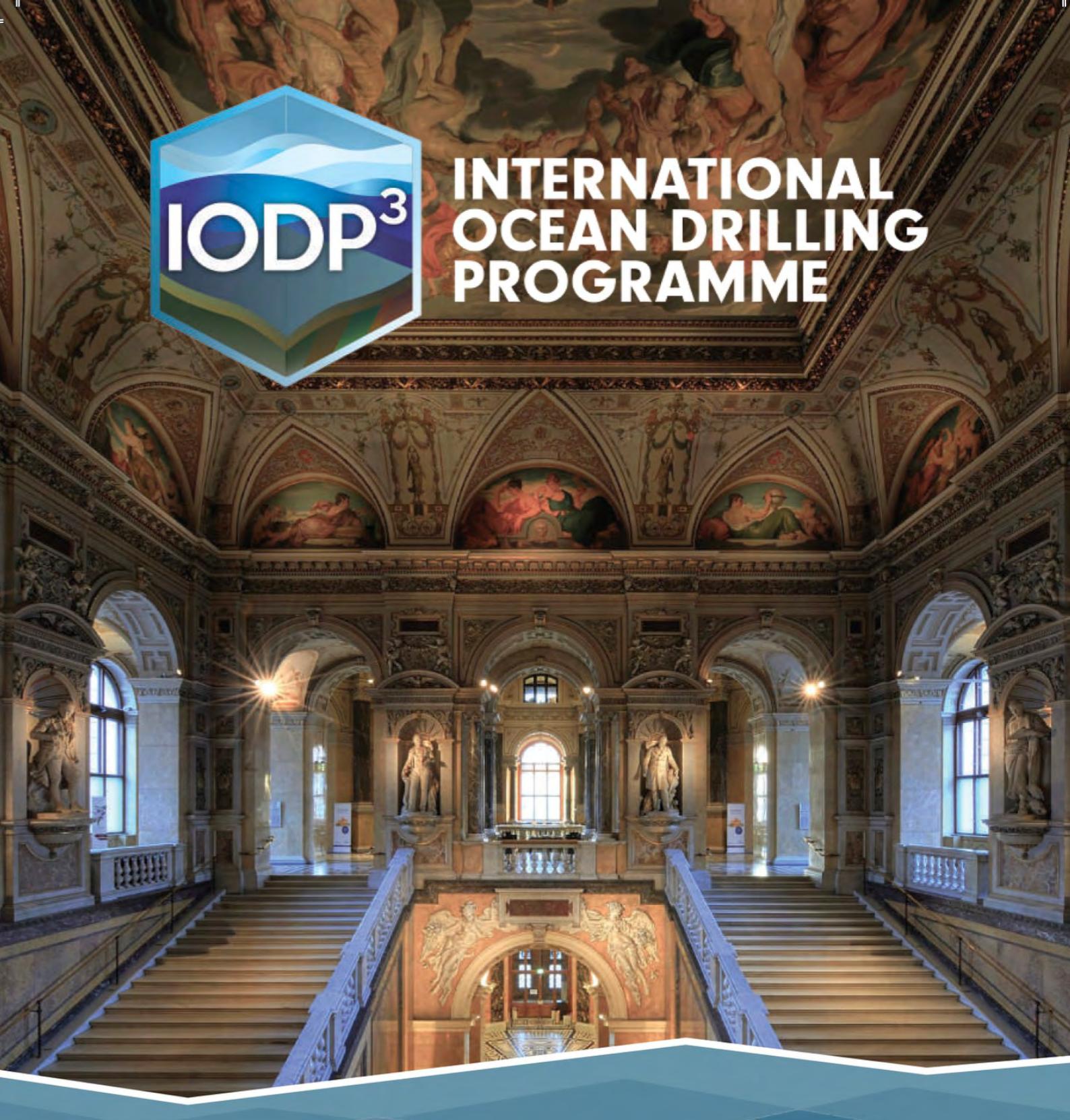
The outreach teams of ECORD, ICDP, IODP³ and SODCO are pleased to invite you to visit the joint IODP³/SODCO/ICDP booth under the banner of Scientific Drilling at the upcoming AGU 2025 Annual Meeting. You can find us at the booth 436 at the Ernest N. Morial Convention Center, Halls B2-C

Join us to learn more about the latest developments and discoveries from the international scientific drilling programs. Meet our teams, explore current and future projects, and find out how ocean and continental drilling initiatives are advancing our understanding of Earth's dynamic systems.

AGU25

New Orleans, LA | 15–19 December 2025

View at the joint ECORD-ICDP booth at last year's EGU in Vienna, Austria. Credits: ECORD/IODP³/ICDP



ECORD-ICDP TOWNHALL MEETING

Monday 28 April 2025
Natural History Museum Vienna

2025

3 November ESSAC fall meeting Edinburgh, UK	4-5 November ECORD council ESSAC meeting #14 Edinburgh, UK	7 November ECORD Communication Group meeting Edinburgh, UK
15-19 December AGU 2025 New Orleans, US		
2026		
8-9 January Magellan³ ZERO AGE Southampton, UK	11-13 March Magellan³ Young and Cool Bremen, Germany	27-29 April Magellan³ iCREATE Edinburgh, UK
3-8 May EGU 2026 Vienna, Austria		June MSP-Facility Board Vancouver, Canada
June ECORD Council spring meeting #12		June IODP³ Executive Board

[ECORD meetings](#) | [IODP³ meetings](#) | [Conferences](#) | [Workshops and colloquia](#)

IODP³ Expeditions 2025

31 October - 24 November

IODP³ Expedition 502: Impact of Petit-Spot Magmatism on Subduction Zone Seismicity and Global Geochemical Cycles

24 November - 12 December

IODP³ Expedition 503: Hadal Trench Tsunamigenic Slip History

Introducing the ICDP Early Career Researcher (ECR) Network: Empowering the Next Generation of Continental Drilling Scientists

The International Continental Scientific Drilling Program (ICDP) is proud to announce the launch of the Early Career Researcher (ECR) Network, a dedicated community to support and connect early career geoscientists involved in continental scientific drilling. This network will promote collaboration, mentorship, skill development, and leadership among the next generation of scientists within the global ICDP community.

opportunities to develop valuable skills and make meaningful contributions.

Open Access & Community Feedback: Joining the network requires no formal application or deadline, interested early career researchers can sign up via a simple online form. Members are encouraged to participate actively by sharing feedback, ideas, and helping steer the network's future activities.

What the ECR Network Offers:

Mentorship Program: The network features a structured mentorship initiative where senior ICDP scientists provide guidance on career development, grant writing, research planning, and integration into ICDP projects. This program aims to accelerate early career growth and build a supportive knowledge-sharing environment.

Collaboration & Networking: ECR members have access to workshops, events, and community calls created specifically to promote interdisciplinary collaboration and peer-to-peer engagement. Events like the successful "Next Generation" workshop, premiered in Vienna, 25-27 April 2025, unify ECRs from ICDP member countries and beyond. This milestone event established a governance structure, launched the mentorship program, and set a strong foundation for ongoing network activities.

Working Groups & Initiatives: Members can join ad hoc working groups focused on science communication, mentorship, events, and other strategic initiatives, providing

Who Should Join?

If you are a student, postdoctoral researcher, or early-stage professional engaged in geoscience research related to continental drilling, the ICDP ECR Network offers a unique platform to expand your scientific horizons and advance your career.

How to Get Involved?

Joining is easy, simply fill out the quick sign-up form on the ICDP website to stay informed and connected with the network's activities. Get involved in mentorship, leadership, working groups, and events to maximize your early career potential.

Learn more and join today at: <https://www.icdp-online.org/ecr-network/>

For questions or to share ideas, contact the ICDP ECR Network leadership team at icdp.ecr@gmail.com.

ICDP Early Career Researchers at the 'Next Generation Workshop' in Vienna, 25-27 April 2025. Credits: ICDP





France

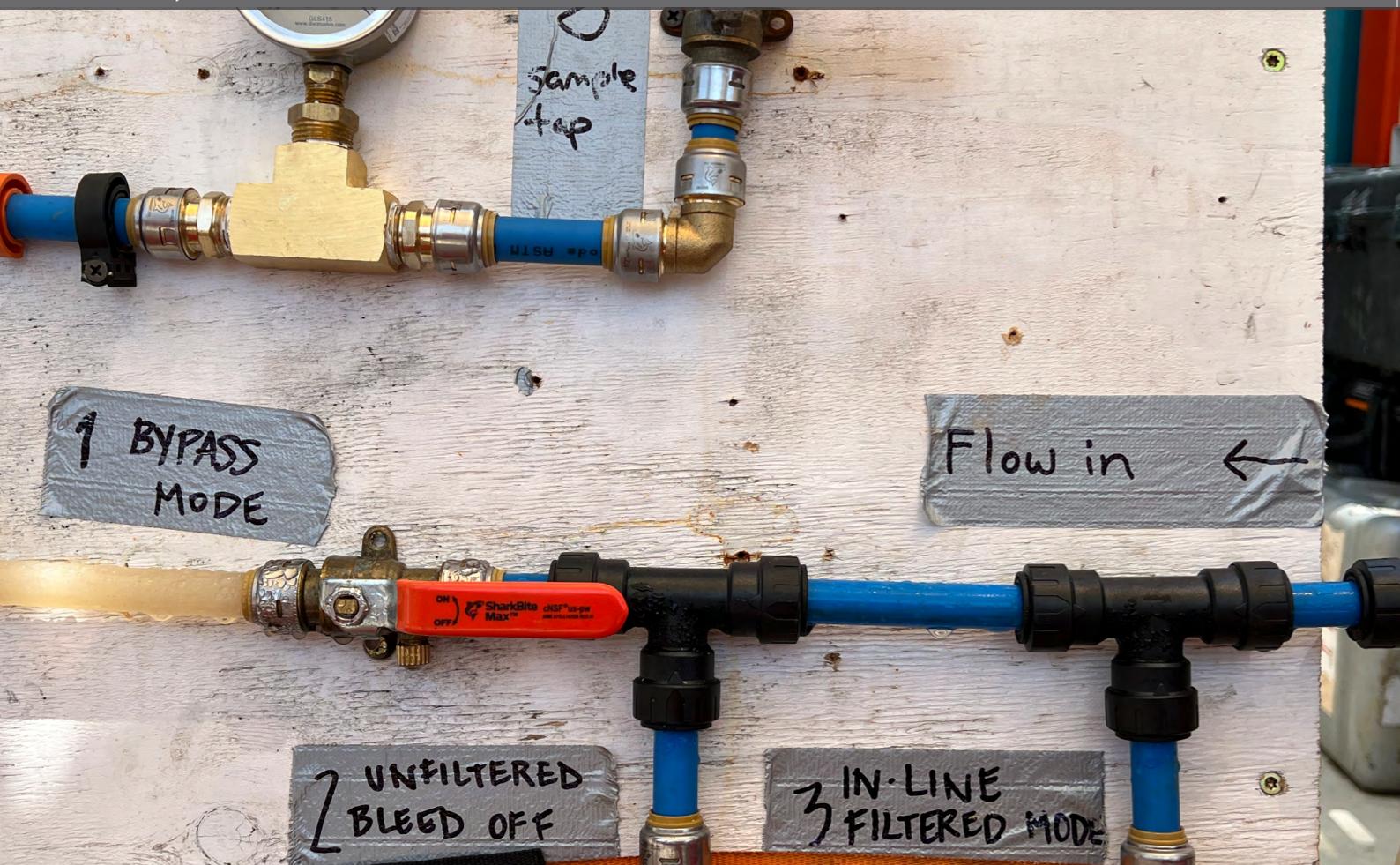
The year 2025 marked the launch of IODP³ jointly led by ECORD and JAMSTEC, continuing on from the previous international programs DSDP, ODP, IODP-1, and IODP-2.

This significant change also coincided with a renewal of the operation and management of national actions coordinated by the IODP³-France Office, for which Anne Le Friant is now in charge following Georges Ceuleneer's unfailing commitment at the head of the Office since 2012. The main changes in the operation of the IODP³-France Office for the French community are as follows:

1. For all participants in the drilling expedition's "science team": automatic financial support for the pre- and post-expedition phases and preliminary post-expedition analyses. This funding has been fixed to €15,000 per participant and €20,000 for participation as co-chief of the expedition.
2. For the entire French scientific community, the launch of an annual call for projects using DSDP, ODP, IODP-1, IODP-2 and IODP³ data linked to the national TelluS program

Anne Le Friant- lefriant@ipgp.fr
ESSAC Delegate

IODP³- NSF Expedition 50: New England Shelf Hydrogeology.
Credits: Maryalice Yakutichik, ECORD/IODP³/NSF.



Denmark

Greenland Paleoclimate Conference: IODP Expedition 400 Second Science Meeting and Greenland Paleoclimate Symposium, Copenhagen, Denmark, 15-19 September 2025.

Organizing committee: Lara F. Pérez (Geological Survey of Denmark and Greenland, Denmark), Paul C. Knutz (Geological Survey of Denmark and Greenland, Denmark), Heike Zimmermann (Geological Survey of Denmark and Greenland, Denmark), Anne Jennings (UC Boulder, INSTAAR, USA), Laurel Childress (IODP/Texas A&M University, USA)

The IODP Expedition 400 Second Science Meeting was held at the Geological Survey of Denmark and Greenland in Copenhagen. The workshop welcomed all the expedition participants and collaborators to discuss current and future scientific developments in relation to the unique sediment archives obtained from the Northwest Greenland continental margin during the expedition in 2023. The attendants presented work in progress through 15-minute talks and

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two poster sessions. Several breakout sessions took place hosting manuscript discussions, data gaps, and future work. In addition, the participants took part in a fieldtrip to Stevns Klint – a well-known UNESCO world heritage site for the K/T boundary. Later in the week, national and international experts were invited as keynote speakers to the Greenland Paleoclimate Symposium. The discussions during the symposium included initiatives for data modeling integration and land-to-sea future proposals.

The meeting received funding from Carlsberg Foundation and had a total of 38 contributions with 32 oral and six poster presentations. A total of 82 participants were registered during the week with 55 in person and 27 online participants.

IODP Expedition 400 Second Science Meeting and Greenland Paleoclimate Symposium.



After the outstanding Italian participation in drilling expeditions in 2024, participations has been above average in the first year IODP³, with six invited members in Science Teams of Expeditions 501, 502 and 503, among which four are Early Career Researchers. Among scientific expertise, hydrogeology has entered the record of Italian participation for the first time. All participants have been granted the maximum allowed funding to support their participation in the expedition offshore or in the laboratory onshore.

Participation in training events was also very good, with 10 between students and Early Career Researcher and students involved in Training Schools.

IODP³, ECORD and the CNR committee managing the Italian participation in ECORD and ICDP (IODP-Italy) were featured with a dedicated booth as Gold Sponsor in the joint Congress of the Italian Society for Mineralogy and Petrography and the Italian Geological Society 'Geosciences and the Challenges of the 21st Century' held in Padova from 16 to 18 September 2025. In the introductory statements during the opening ceremony, the future of scientific ocean drilling was mentioned among the great challenges for the Italian Earth Sciences in the coming years.

Activities to support data management in relation to the Italian participation in scientific drilling and marine coring programs has continued within the national [project ITINERIS \(Italian Integrated Environmental Research Infrastructures System\)](#). A training course entitled 'Digital collection and archiving of drilling data with mDIS' has been organized and hosted by Riccardo Tribuzio and Davide Mariani at the Department of Earth and Environmental Sciences, University of Pavia from February 4 to 7 2025. Trainers were Cindy Kunkel, Katja Heeschen, and Knut Behrends, International Continental Scientific Drilling Program – Operational Support Group (ICDP-OSG), GFZ German Research Centre for Geosciences. The course was targeted to scientists and technicians to deepen their knowledge on the parametrization of drilling sample metadata and samples across four main sectors: Litho-Bio Stratigraphy, Geochemical, Petrography, and

Structural Geology by applying the database software mDIS (mobile Drilling Information System) developed and used at GFZ Potsdam within the ICDP (International Continental Scientific Drilling Program) and adopted by ECORD.

In addition, ITINERIS has boosted the access of Italian researchers (among which many early career researchers) to both the ECORD and the ICDP infrastructures. This has resulted in increasing the national participation in terms of proposal writing, participation in drilling expeditions/projects, initiatives to use legacy samples/data, and training activities.

Finally, the Italian community and CNR in particular, are proud to be the hosts the first Scientific Drilling Forum in Sicily from October 14 to 15 2025 at the Institute for the Study of Anthropogenic Impacts and Sustainability in the Marine Environment (IAS), one of the three marine research institutes of the Department of Earth System Sciences and Environmental Technologies (DSSTTA) of the CNR.



The IODP-Italy booth and the scientists who attended it at the joint congress of the Italian Society for Mineralogy and Petrography and the Italian Geological Society 'Geosciences and the Challenges of the 21st Century', Padova 16 - 18 September 2025.

From Left to right: Laura Crispini, Valentin Basch, Nevio Zitellini, Elisabetta Erba, Riccardo Tribuzio, Filomena Loreto, Paola Vannucchi, Angelo Camerlenghi, Angelo Domesi, Mara Limonta, Arianna Secchiarì.

Annalisa Iadanza - iodp-italia@cnr.it, annalisa.iadanza@cnr.it
ECORD Council Chair
(CNR) IODP-Italy

Maria Elena Martinotti - mariaelena.martinotti@cnr.it, iodp-italia@cnr.it
(CNR) IODP-Italy Scientific Secretariat and the national IODP-Italy Committee

IODP-Italy: www.iodp-italia.cnr.it

On 9 October 2025, the Austrian scientific drilling research community gathered at the Austrian Academy of Sciences (ÖAW) in Vienna for the symposium ["Österreich in ICDP und IODP-Programmen – Beitrag zur integrativen Erdsystemwissenschaft"](#). The event highlighted Austria's contributions to international scientific drilling and its value for advancing interdisciplinary Earth system research. From microbial life beneath the seafloor to the use of machine learning in core analysis, presentations and poster discussions reflected a motivated and diverse community. The lively atmosphere and inspiring exchange underlined how actively Austrian researchers engage with international partners in ICDP and IODP—an important achievement for a small, land-locked country that values its role in ECORD.

The years 2024–2025 marks Austria's transition into the new IODP³ program, with continued post-expedition research, new workshops, and preparations for upcoming expeditions. Following recent participation in IODP Expeditions 389: Hawaiian Drowned Reefs and 405: Tracking Tsunamigenic Slip Across the Japan Trench, Austrian scientists are advancing research on microbially mediated carbonate diagenesis, earthquake-related sedimentation, and subsurface microbial processes—showing how results from the previous program continue to evolve into new projects.

Austrian researchers have also contributed to shaping future science themes through MagellanPlus workshops bridging the IODP-2 and IODP³ programs. The "21st Century Drilling" workshop created new digital core datasets and explored "virtual drilling" of legacy materials, combining digital and physical analyses of Miocene cores to study ice-rafted debris and train early-career scientists. The October 2025 ["Land-to-Sea Shaking Studies \(L2S³\)"](#) workshop in Taipei will unite experts from marine seismology to limnology to integrate onshore and offshore methods for tracking

earthquake shaking across land-sea transects, paving the way for new collaborative proposals on seismic hazard and paleoseismology.

An "Austrian" highlight ahead is [IODP3 Expedition 503 – "Buried in the Trench: Hadal Trench Deep-Time Paleoseismology"](#), scheduled for November–December 2025. The expedition will drill into the Japan Trench to uncover sediments that record the long-term history of giant earthquakes and tsunamis, investigating how such events shape deep-sea ecosystems and biogeochemical cycles. An interdisciplinary Austrian science team will take part, and an Austrian-led dedicated podcast series, "Deep Sea Chronicles – Earth's Memory Beneath Japan," will share this work with the public.

Within the new IODP³ structure, Austrian scientists also contribute to program coordination and planning through participation in the Science Evaluation Panel (SEP) and Magellan³ Science Steering Committee, ensuring Austrian perspectives are represented in international peer review processes. Beyond research, Austrian scientists were involved in outreach and diplomacy at off-site UN Ocean Conference (UNOC3), contributing to a side event on [Understanding the Ocean below the seafloor](#) and to the [Declaration of Commitment to Scientific Ocean Drilling](#).

The first year of IODP³ has seen strong engagement from Austria, with numerous applications for expeditions, panels, and workshops from all career stages and a broad range of disciplines—from downhole logging, sedimentology and paleoclimatology to microbiology. This continued enthusiasm reflects a lively national community that values collaboration and actively contributes to international scientific ocean drilling. With IODP Expedition 503 soon to begin, Austrian researchers look forward to new discoveries and continued cooperation in this exciting new phase of IODP³.



Scientific Drilling is off to a great start in 2025 after securing four year funding from the Swiss National Science Foundation to continue our memberships of the scientific drilling programs on land (ICDP) and at sea (IODP³). Over 40 Swiss-based scientists contributed to formulating an attractive and convincing science proposal guided by the science framework of the respective programs.

At the topical conference 'Swiss Drilling Day' in June 2025 nearly 60 scientists gathered to hear about the latest developments of the just-launched IODP³ from program director Gilbert Camoin and subsequently discussed projects, proposals and plans within the Swiss context.

Switzerland furthermore had three participants on ocean drilling expeditions: Prof. Rolf Kipfer and Paul Moser Roeggl (both EAWAG) sailed onboard Expedition 501 as inorganic chemists (May-Aug 2025). They sampled and processed pore waters for noble gas measurement in the first ever hydrology-focused drilling on the New Jersey shelf. Dr. Christopher Yen (University of Lausanne) is scheduled to take part in the upcoming Expedition 502 (Oct-Nov 2025) with the goal to drill the outer rise area of the Japan Trench. His research specifically aims at constraining differentiation mechanisms

in petit-spot magmas and the distribution of heterogeneities within the lithospheric mantle. This project will be conducted as a post-doctoral study in collaboration with Prof. Sébastien Pilet at the University of Lausanne, who has submitted a shore-based, mineralogical study (research plan only) to elucidate the processes of magma differentiation during its ascent from the lithospheric base to its emplacement in sediments.

We also welcome two new ESSAC delegates for Switzerland: Prof. Esther Schwarzenbach (University of Fribourg) and Prof. Samuel Jaccard (University of Lausanne). They will take over the baton of representing Switzerland in ESSAC from Prof. Gretchen Frueh-Green (ETH Zurich) as of 2026. Gretchen has been our liaison for 14 years and we have all benefited from her extensive experience, insight and vision for Switzerland's participation in International Scientific Ocean Drilling. A community-wide thank you to Gretchen for all those years of service to us!

Swiss scientific drilling will be present at the annual Swiss Geoscience Meeting (5-6 Dec 2025) with a booth and information, updates and networking opportunities for all interested in scientific drilling from a Swiss perspective.

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 Fabio Anselemetti - Flavio.anselmetti@unibe.ch
 SwissDrilling Coordination Office

Gretchen Früh-Green - frueh@ethz.ch
 ESSAC Delegate
 SwissDrilling: <http://www.swissdrilling.ch>

Martina Kern-Lütschg - martina.kern@snf.ch
 ECORD Council member

Ireland is happy to have been able to recommit to the ECORD Agreement 2025-2029, enabling participation of our scientists in IODP³. Our community remains excited and engaged with the opportunities presented by IODP³ and ECORD membership; leading to the organisation of the first 'Irish Scientific Drilling Workshops'.

The first (September 2024) of these occurred between ECORD Distinguished Lecturer talks by Cedric John & Sverre Planke. The second (February 2025) was organised to align with the timing & venue of the wider annual 'Irish Geological Research Meeting', a pattern that is hoped to be repeated in successive years. In both cases the workshops provided an excellent opportunity to gather the Irish scientific drilling community and featured a range of scientific talks, while also providing a chance to update the community on IODP³.

David Hardy - David.Hardy@gsi.ie
 ESSAC Delegate

The MagellanPlus Workshop 'NHIS Evolution of the Northern Hemisphere Ice Sheets: timing, drivers, and interconnections' (organised and hosted by University of Ulster, February 2025) was also of key significance to the Irish community.

Research is continuing by our most recent sailed participant (Dr Weimu Xu, Expedition 396: Mid-Norwegian Continental Margin Magmatism). In conjunction with her dedicated PhD student (Nikita Turton, UCD), her research is focused on paleoclimate and environmental changes during the Paleocene-Eocene Thermal Maximum, based on core material from the Modgunn Hydrothermal Vent Complex. Preliminary findings were presented at EGU2025 and AIPEA2025(18th International Clay Conference); and a future presentation at the International Sedimentological Congress (ISC2026) will present their latest work, under the session 'Deciphering climate and environmental records in shallow marine environments across space and time'.



Some of the participants at the first Irish Scientific Drilling Workshop, hosted by UCD.

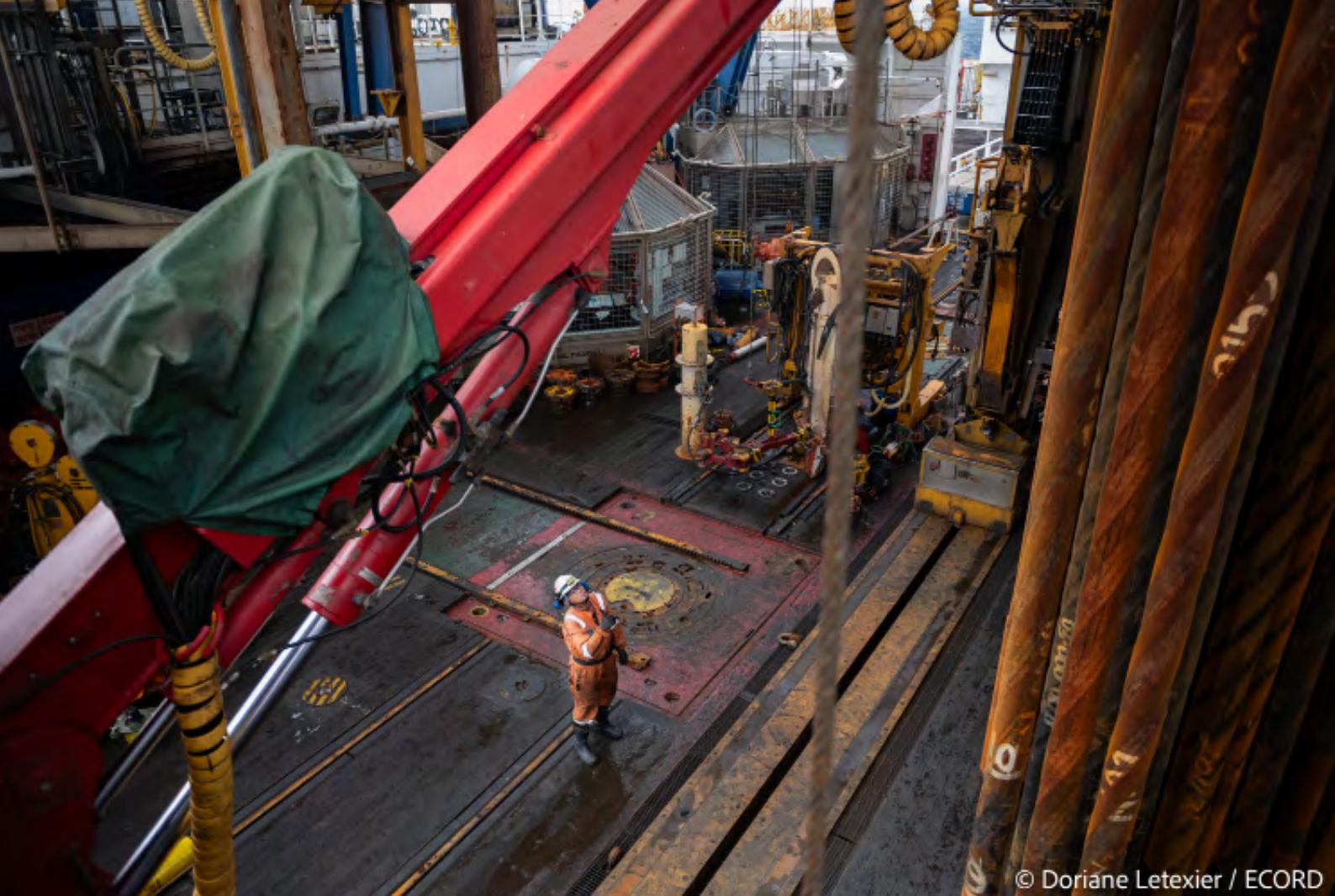


Acronyms

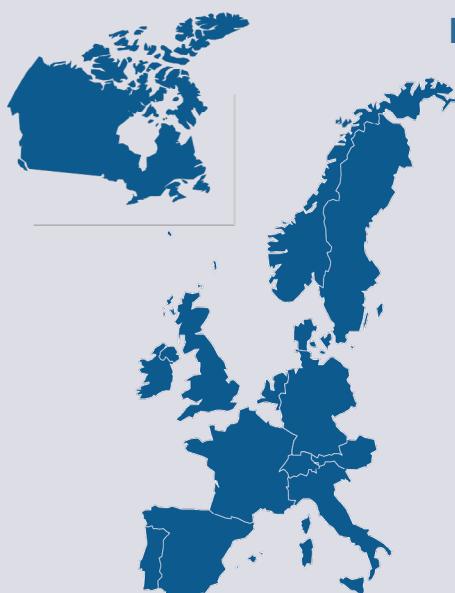
ACEX: Arctic Coring Expedition
AGU: American Geophysical Union
AMS: Arctic Marine Solutions
ANZIC: Australian and New Zealand IODP Consortium
ArcOP: Arctic Ocean Paleoceanography, IODP Expedition 377
BCR: Bremen Core Repository
BRG: Bundesanstalt für Geowissenschaften und Rohstoffe - Federal Institute for Geosciences and Natural Resources
BGS: British Geological Survey
BMS: Boring Machine System
CCOD: Canadian Consortium for Ocean Drilling
CIB: Chikyu IODP Board
CNR: Consiglio Nazionale delle Ricerche – National Research Council, Italy
CNRS: Centre National de la Recherche Scientifique - National Center for Scientific Research, France
DAFSHE: Danish Agency for Science and Higher Education
DFG: Deutsche Forschungsgemeinschaft - German Research Foundation
ECORD: European Consortium for Ocean Research Drilling
EFB: ECORD Facility Board
EGU: European Geosciences Union
EMA: ECORD Managing Agency
EPC: European Petrophysics Consortium
EPSP: Environmental Protection and Safety Panel
ESO: ECORD Science Operator
ESSAC: ECORD Science Support and Advisory Committee
EVTF: ECORD Vision Task Force
FB: Facility Board
FCT: Fundação para a Ciência e a Tecnologia - National Funding Agency for Science and Technology
FNS: Fonds National Suisse de la Recherche Scientifique - Swiss National Science Foundation
FY: Fiscal Year
GPC: Giant Piston Corer
GSI: Geological Survey of Ireland
IBM: Izu Bonin Mariana
ICDP: International Continental Scientific Drilling Program
IKC: In-kind contribution
IODP: Integrated Ocean Drilling Program (2003-2013) & International Ocean Discovery Program (2013-2024)
IODP³: (IODP cubed) International Ocean Drilling Programme (from 2025)

JAMSTEC: Japan Agency for Marine Earth Science and Technology
J-DESC: Japan Drilling Earth Science Consortium
JOIDES: Joint Oceanographic Institutions for Deep Earth Sampling
JpGU: Japan Geoscience Union
JR: JOIDES Resolution
JRFB: JOIDES Resolution Facility Board
JRSO: JOIDES Resolution Science Operator
MarE3: Institute for Marine-Earth Exploration and Engineering
MARUM: Zentrum für Marine Umweltwissenschaften der Universität Bremen - Center for Marine Environmental Sciences, University of Bremen
mbsf: metres below seafloor
mbsl: metres below sea level
MCIN: Ministry for Science and Innovation, Spain
MeBo: Meeresboden-Bohrgerät - seafloor drill
MEXT: Ministry of Education, Culture, Sports, Science & Technology, Japan
MoU: Memorandum of Understanding
MSP: Mission-specific platform
NHM: Natural History Museum
NSF: National Science Foundation, USA
NWO: Nederlandse Organisatie voor Wetenschappelijk Onderzoek - Netherlands Organisation for Scientific Research
ÖAW: Österreichische Akademie der Wissenschaften - Austrian Academy of Sciences
OGS: Istituto Nazionale di Oceanografia e di Geofisica Sperimentale – National Institute of Oceanography and Applied Geophysics
ODP: Ocean Drilling Program
OSP: Onshore Science Party
PI: Principal Investigator
PMO: Program Member Office
PSP: Personal Sampling Party
SEP: Science Evaluation Panel
SMR: Science Mission Requirements
SODCO: Scientific Ocean Drilling Coordination Office
SPRS: Swedish Polar Research Secretariat
SSO: Science Support Office
UKRI: UK Research and Innovation
USSP: U.S. Science Support Program





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France	4	Centre National de la Recherche Scientifique (CNRS)
Germany	5	Deutsche Forschungsgemeinschaft (DFG)
Ireland	6	The Geological Survey of Ireland (GSI)
Italy	7	Consiglio Nazionale delle Ricerche (CNR)
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