

Challenger Wave



Monthly newsletter of the Challenger Society for Marine Science (CSMS)

NEWS

NOC's first Associate Director for National Capability Science

The National Oceanography Centre (NOC) is proud to announce Professor Penny Holliday has been appointed as their first ever Associate Director for National Capability Science. National Capability (NC) is funding provided by the Natural Environment Research Council part of UK Research and Innovation to enable the UK research community to stay at the forefront of environmental science globally, to meet national strategic needs, and to inform government and business decision-making on environmental issues. NOC accesses a range of NC funding which enables marine scientists throughout the UK to undertake world-class research.

Penny will provide strategic oversight of the NC Science activities and act as a bridge across all UK NC programmes, to ensure that our NC Environmental Data Services (BODC), NC Large Research Infrastructures (BOSCORF and NMF) and NC Science are well-aligned. She will also lead on developing impact from our work and



ensure our breadth of engagement activities provide advocacy for the best ocean science and technology.

Penny commented, "I'm so excited to take on this new role at the NOC and play my part in enabling the excellent teams at NOC and our partner centres to deliver the NC research programmes. With climate change visibly affecting people and wildlife, the need for clear

information to support resilience to current and future risk and to protect the environment is more pressing than ever."

New IMBeR Scientific Steering Committee Members

IMBeR (Integrated Marine Biosphere Research) are thrilled to introduce five new members who have been appointed to the IMBeR Scientific Steering Committee (SSC). The SSC is responsible for the development, planning and implementation of IMBeR science as laid out in the IMBeR Science Plan (2016-2025). More information about the SSC is available at imber.info/about/who-we-are/scientific-steering-committee-2023/.

Marta Ballesteros: Marta works on governance design and performance to tackle the challenges associated with blue growth and blue justice at Centro Tecnológico del Mar-Fundación (CETMAR). In her work, she facilitates transdisciplinary research with multiple stakeholders at multiple governance scales. She also advises regional, national and European governments on fisheries policy, particularly in the sustainable development of fisheries communities.



Wen-Chen Chou: Wen-Chen Chou is a carbonate chemist at the National Taiwan Ocean University. His work focuses on ocean margins and coastal waters. He is currently working on ocean acidification and the role of coastal blue carbon in mitigating climate change. He is



currently working on developing an integrated blue carbon project towards ocean-based CO₂ removal (CDR) in South East and Eastern Asia.

Jess Melbourne-Thomas: Jess is a transdisciplinary researcher with a combined background in ecosystem modelling, policy engagement and knowledge mobilisation. She leads the Marine Socio-ecological Systems Team at CSIRO Environment, and undertakes research on climate change adaptation and sustainability pathways for fisheries and aquaculture, including indigenous engagement. She also works as a knowledge broker.



Rowan Trebilco: Rowan's expertise is in observations, modelling and assessment of marine systems. He leads the Ecosystem Modelling Team at CSIRO Environment, and co-leads the Environmental Change and Adaptation Research Theme in the Centre for Marine Socioecology, University of Tasmania. His current focus is assessing status, trends, risks and opportunities for marine social-ecological systems, developing climate change adaptation strategies, and using traditional knowledge with scientific knowledge to support sustainable policy, governance and management.



Ron Vave: Ron Vave is a Postdoc Research Fellow at East Carolina University. He is an interdisciplinary researcher who works on natural resource governance at community and national levels. He has extensive experience in training and implementing indigenous resource management



projects within the seven countries of the Indo-Pacific Locally Managed Marine Area (LMMA).

Measurement Systems for 21st Century Oceanography

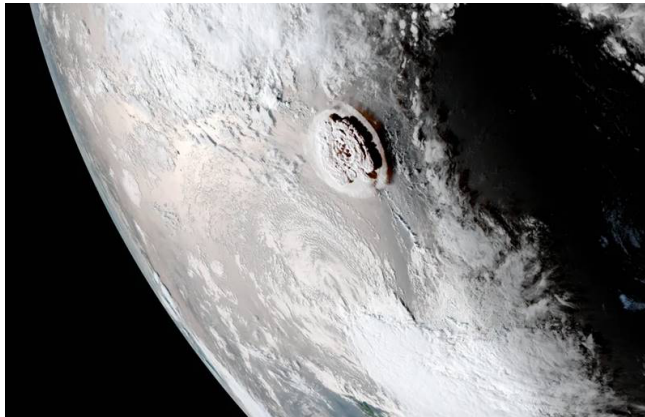
There is an imperative to measure the ocean in greater detail if we are to chart a sustainable future on this planet. The Net-Zero Oceanographic Capability Scoping Study (2021), [noc.ac.uk/files/documents/facilities/NZOC SUMMARY REPORT V2.pdf](https://noc.ac.uk/files/documents/facilities/NZOC_SUMMARY_REPORT_V2.pdf), commissioned by the Natural Environment Research Council (NERC), therefore undertook a detailed review of the sensor systems and networks that will be needed to meet anticipated marine science priorities. The Future Marine Research Infrastructure (FMRI) Programme, www.fmri.ac.uk, is continuing this engagement to shape NERC's strategic investment in measurement technologies that enable new and different science.

The FMRI Programme, in partnership with the National Oceanography Centre and the Department for Environment, Food & Rural Affairs (Defra), is convening two workshops to consider the challenges and opportunities in Measurement Systems for 21st Century Oceanography. The first event brought together a diverse set of perspectives to challenge established thinking and stimulate fresh ideas. The second event on the 18th October will share these initial outcomes and provide all interested stakeholders with the opportunity to contribute to the discussion. The virtual event over Zoom, will take place between 13:30-15.30 on Wednesday, 18th October 2023. To participate in this virtual event, please register now by visiting <https://noc-events.co.uk/measurement-systems-21st-century-oceanography-registration>. If you have any other questions, please contact the FMRI team at fmri@noc.ac.uk.

Fastest underwater flow on Earth created by the most explosive volcanic eruption ever recorded

An international research team, led by scientists from the National Oceanography Centre (NOC) has shown how the collapse of a major volcanic eruption into the ocean triggered the fastest underwater flows ever recorded. The eruption of the submerged Hunga Volcano in January 2022 triggered fatal tsunamis and pressure waves that travelled around the planet; however, new research (published in the journal Science),

doi.org/10.1126/science.adi3038, shows that major impacts were also felt far below the sea surface, when erupted volcanic material plunged straight into the ocean.



The Hunga volcano eruption from space. Image: NASA

The sudden delivery of huge volumes of hot volcanic rocks, ash and gas into the ocean created avalanche-like flows, which travelled at speeds of up to 122 km hr⁻¹ along the seafloor, causing extensive damage to the two seafloor cables that connected the Kingdom of Tonga to the global telecommunications network and provide connectivity between islands. Subsea cables underpin our daily lives, carrying more than 99% of all digital data traffic worldwide, including the internet. When Tonga’s only international cable was abruptly severed, the whole nation was disconnected from the rest of the world in the midst of a volcanic crisis.

Dr Isobel Yeo, volcanologist at the National Oceanography Centre and joint-lead scientist on the paper, said: “A huge number of the world’s volcanoes lie under the ocean, yet only a handful of those are monitored. As a result, the risk posed to coastal communities and critical infrastructure remains poorly understood, and more monitoring is urgently needed.”



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The timings and locations of the cable damage allowed the researchers to determine the speeds of eruption-triggered seafloor flows for the first time and to better understand the hazards at other submerged volcanoes worldwide.

Scientists and industry collaborators rapidly responded to find out what caused this disruption. Seafloor sampling and surveys were collected by the research vessel RV Tangaroa, owned by New Zealand’s National Institute of Water and Atmospheric Research (NIWA). Just a few months after the eruption, scientists set sail to find out what caused the disruption, including key evidence showing that the cable damage was caused by powerful and dense currents.

Dr Mike Clare, also of NOC, added: “The extremely fast flow speeds were caused by collapses of the eruption plume, which was up to 57km high. It then fell directly into the ocean onto very steep underwater slopes. Their initial speed was so fast, that these underwater flows were capable of running several hundred metres upslope and for at least one hundred kilometres across the seafloor. Their remarkable power explains the widespread damage to the seafloor cables.”



Semisi Panuve, CEO of Tonga Cable Ltd, an industry partner in the project, said: “The unique insight from this research is now being used by



industry collaborators to improve the resilience of cable systems in other regions with active volcanoes. It’s important that we now understand what happened to our cables and why it was so difficult to locate them during the repair.”

Richard Wysoczanski, Principal Scientist for Marine Geology at NIWA and co-author of the paper, concluded: “Thanks to generous funding from the Nippon Foundation and



incredible international collaboration, we now have this vital research that is relevant to anyone around the world who lives within proximity of underwater volcanoes, including countries around the Pacific Ring of Fire. We are armed with knowledge that

will help keep communities informed and protected in the future.”

The paper was led by NOC authors in conjunction with scientists from NIWA and was part of a joint project funded by the Natural Environment Research Council in collaboration with 13 partners across an array of research and industry organisations from Tonga, New Zealand, Australia, Germany, USA, and the UK.

VIEWS

IDCORE students gauge public opinion on renewables

Engineering students on an award-winning academic programme have admitted to being out of their 'comfort zone' during training in social sciences at SAMS, during which they gauged public opinion on marine renewable energy. The 12 Engineering Doctorate (EngD) students are part of the EPSRC-funded IDCORE (Centre for Doctoral Training in Offshore Renewable Energy) programme, a collaborative partnership between SAMS (Scottish Association for Marine Science) and the universities of Edinburgh, Strathclyde and Exeter.



IDCORE students are geared up for their public survey work in Oban's Station Square with lecturer Dr Suzi Billing, left.

During their fortnight in Oban, the students were working with social scientists and science communications experts at SAMS to learn about the social dimension of renewable energy. This included visiting the streets of Oban, canvassing opinions on renewable energy projects. Student Eve Andrews said: “We came to SAMS last year to learn about marine mammal interactions with renewable energy projects and this year we’re hoping to get a broader perspective on the

societal impacts. For us, it’s a different way of thinking about things. As engineers, we want to develop renewable energy projects that have positive societal impacts, but until now we haven’t had training on how to measure that. We’re definitely out of our comfort zones; in engineering it’s all about maths and what the numbers say, but in this type of research there is more than one way to do things.”

Over the two-week module, the students were taking part in public surveys and had a field trip by boat, a tour of Oban and a series of lectures. Dr Suzi Billing, a SAMS principal investigator in social science, co-ordinates the social science module for IDCORE. She said: “I think it has been a great challenge for the students to learn how to include different perspectives in their work and they have done a great job in trying to do that. For the public interviews in Oban, they devised their own surveys on the topic of renewable energy. They asked people for their perspectives on marine renewable energy and learned that it’s not always positive and that people have conditions. People from different demographics and backgrounds will give different opinions, but you can’t really understand that until you engage with the public.” To learn more about the IDCORE programme, visit www.idcore.ac.uk/.

Data quality back on track and helping to deliver UK sea level rise figures

Despite ever-increasing global recognition on the importance of sea level data to inform decision makers on climate and environmental policies, there was insufficient data to update the UK sea level index in both 2020 and 2021 (Kendon et al., 2022; doi.org/10.1002/joc.7787). However, data quality and reliability are now back on track and the tide gauge network is at a high enough standard to calculate this vital statistic. Importantly, the Environment Agency (EA) have been able to submit mean sea level values, for the purposes of tracking sea level rise, in 2022.

In late 2021 OceanWise were awarded the Environment Agency’s contract to maintain and update the United Kingdom’s National Tide Gauge Network (NTGN) which underpins coastal flood forecasting around the UK and comprises a network of 42 tide gauges sited at key locations. On taking on the contract OceanWise became responsible for ensuring the real-time stream of high-quality data from the network, whilst

sympathetically maintaining the legacy sensors to maintain the long-term data record. OceanWise achieve this by providing maintenance, systematic improvements and quickly responding to any ad hoc faults that might arise.



All 42 tide gauges across the UK. Image source / credit: [ntsif.org/](https://www.ntsif.org/)

As OceanWise’s CFO, Dr Mike Osborne explains, “We are delighted to have been given the responsibility of maintaining the NTGN on behalf of the nation. We have particularly enjoyed working with the EA and NOC to upgrade the network, using our expertise and experience in sensor, and data acquisition and management technologies, whilst at the same time maintaining and enhancing the legacy ‘bubbler’ based systems to improve the reliability and quality of the data overall”.

Message from the new CIESM DG

Dear colleagues and friends, the first days in a new post are always somewhat hectic but I could not let them pass without a message to all of you, who are the proud members of our vast CIESM family. On the 1st September, I took the “CIESM torch” to assume the Directorship of our Commission with great pleasure mixed with a sense of humility and a feeling of belonging.



First, I address my sincere thanks to the Board and President of CIESM for having selected me for this important function in a troubled period when our Commission, with its noble mission to use marine research for promoting dialogue between our shores, is more than ever a precious instrument for peace. I measure the extent of the responsibility of taking over the reins of this Commission, where I have been working for the last two decades, well aware of its remarkable achievements.

Eight new Member States joined our regional “family” during the last thirty years. In that period, we witnessed a remarkable increase in women’s participation in our Congresses (beyond 50% since 2010) and programmes, and an outstanding geographic coverage (over 30 countries represented at each Congress). We are halfway towards our milestone of ‘100 CIESM Monographs’, designed to provide free, policy relevant, and upmost quality scientific advice.

We have maintained our visibility in a more and more challenging context, with new actors appearing on the marine science scene. We were, indeed, invited to numerous strategic panels and renewed various multi-lateral collaborative agreements. Success is not an accident. Hats off to the wise and rigorous leadership of my predecessor, Frédéric Briand, who kept our CIESM science growing, independently from fashion trends. Frédéric’s full and passionate commitment to CIESM has been a driving force towards our remarkable success story and I am happy to have convinced him to accompany the transition as outgoing Director for a few more months.

Last but not least, I do thank you for your active contribution to our success, which I saw first hand since I joined our Commission. I thank you for your engagement in our science committees, in our research programs, in our Congresses. Your spirit of initiative, your motivation, your enthusiastic interventions in these various contexts have inspired our strategies.

I firmly commit myself, supported by a highly skilled, devoted and hardworking HQ team, to maintain CIESM as a creative, cross-cultural multi-disciplinary think-tank in marine science, able to defend research and environmental priorities with scientific impartiality. As you know,

progress is not a matter of destination; it is a direction. We will then, all together, look in the same direction, to maintain CIESM on its dynamic, forward-looking track. - **Laura Giuliano**

SALTS

Arctic bound: The Ocean Warrior project prepares to expand the frontiers of marine science with its foundation expeditions

A unique voyage to build a greater scientific understanding of the marine environment in the Arctic and the impacts of global climate change saw a team of scientists and ‘citizen scientists’ set sail from Svalbard at the start of September aboard Europe’s largest wooden schooner. Ocean Warrior is the brainchild of internationally-renowned explorer, Jim McNeill, who has been running scientific expeditions to the Arctic for over two decades and has acted as a consultant for natural history programmes such as the BBC’s Frozen Planet.



Designed to collect critical scientific measurements from remote areas of the Arctic Ocean in order to build up an improved picture of the changes taking place due to climate change and other factors, Ocean Warrior will also help to ‘ground-truth’ data collected via satellites. For the first ten-day leg of the expedition (departed Svalbard on September 1st with a subsequent departure on September 11th), the 18-strong team, including crew members, scientists and citizen scientists are tasked with building an understanding of the vessel and her capabilities, in order that the potential for scientific data capture can be maximised. The expedition aims to install and test scientific and technological equipment such as weather stations, FerryBox, CTD, Bathymetry, Communications, and Safety. Additionally, an online dashboard will be created to convey the findings and capture stories through digital and broadcast content capture.

The project is supported by Plymouth Marine Laboratory (PML), a world leader in the field of marine research, Valeport Ltd. (who design and manufacture oceanographic and hydrographic instrumentation), Mole Energy, Dartmoor

Brewery and Henri Lloyd. Travelling to seldom-visited areas of the Ocean each year between June and October, Ocean Warrior intends to cover 10,000 nautical miles each year, over the next ten years, collecting data on a range of key ‘indicators’, in areas such as water quality, plankton, eDNA, salinity and ocean acidity. This will help scientists gain a clearer understanding of the pace of change taking place, their impacts on marine ecosystems, and what the future may hold for the Arctic region and the wildlife, populations and economies which depend upon it, www.pml.ac.uk/News/Arctic-bound-The-Ocean-Warrior-project-prepares-to.



The Linden in icy waters. Image courtesy of Jim McNeill / Global Warrior

"Our quest is to help scientists put a better, more immediate ‘finger on the pulse of our planet’ by exploring the extreme environments on Earth in the greatest detail. These are the indicators of change and by measuring, benchmarking and monitoring over a 10-year period we should be able to detect changes, both good and bad. Through the citizen science aspect of the explorations we’re also enabling people from different walks of life to come and be part of something that will generate highly important scientific research." said Jim McNeill. "I am so honoured and delighted to have Icarus and his team at PML spearheading the science. As one of the centres of excellence, worldwide, I look forward to pushing boundaries together."

Professor Icarus Allen, Chief Executive of PML, who will be part of the team for the first leg of the expedition, said: "We’re delighted to be the scientific partner aboard Ocean Warrior and are extremely excited about the prospect of delivering research



with her over a sustained time period. To support a sustainable future for the Ocean we need to be in a position to monitor the changes which are happening. Ocean Warrior will be a valuable addition to this pursuit and I'm looking forward to seeing how we can develop the project over the years ahead."

Guy Frankland, Head of Marketing at Valeport, said: "We understand the pressing importance of expeditions such as this, and are proud to be supporting Ocean Warrior with the provision of our leading-edge marine sensing and monitoring equipment. On board the project team will be using our SWIFT CTDplus profiler to gather important data. High quality, precision data is fundamental to the expedition's success, enabling the team to measure and benchmark environmental change as the project develops."



CALENDAR

2nd-5th October 2023: 5th Euro-Mediterranean conference for Environmental Integration

Rende (Cosenza), Italy

The editorial office of the Euro-Mediterranean Journal for Environmental Integration, www.springer.com/journal/41207, in collaboration with the University of Calabria (UNICAL), www.unical.it/?lang=en, organizes this year's the EMCEI. On this occasion, we are pleased to invite you to take part in the conference (in person or virtually) and share/discuss your latest research findings from various fields of environmental sciences. Visit our website, www.emcei.net, to learn more about the event.

The MedGU Annual Meeting is one of the largest international geoscience meetings in the Mediterranean region. It aims to provide a forum where geoscientists, especially early career researchers, present and discuss their findings with experts in all fields of geosciences. It will feature talks and panels covering a diverse range of geoscience and geoscience-society topics.

The EMCEI series is one of the largest

international gatherings of environmental science in the Mediterranean (400-500 participants). The EMCEI aims to provide a forum where scientists, especially early career researchers, can present their findings and discuss their ideas with experts in all fields of environmental sciences. Contact us, if you need more information: contact@emcei.net.

18th October 2023: Oceans of Knowledge 2023. Beyond Net Zero: The role of the ocean in climate repair

London, UK

Beyond that contained in the Earth's crust, the ocean holds by far the largest stock of carbon on our planet, dwarfing carbon in the atmosphere and soils.

How can we make most effective use of the ocean's capacity to produce oxygen and sequester carbon in delivery of net zero and beyond, while regenerating healthy ocean environments and essential ecosystem services? What can be achieved through restoration of natural ocean systems that contribute to removing carbon dioxide from the atmosphere, or the use of other climate repair solutions?

The 'Beyond Net Zero – the role of the ocean in climate repair' edition of the Oceans of Knowledge conference series, at the Institute of Physics in London on Wednesday the 18th October 2023, will explore these opportunities.

The conference will set this critical future use of the ocean into the context of associated scientific, technological, engineering, operational and regulatory challenges. It will focus on the ocean data, information and knowledge needed to inform the use of the ocean in climate repair.

For more information, registration and the current programme, visit www.imarest.org/events/category/categories/imarest-event/oceans-of-knowledge-2023.

18th October 2023: Measurement Systems for 21st Century Oceanography

There is an imperative to measure the ocean in greater detail if we are to chart a sustainable future on this planet. The Net-Zero Oceanographic Capability Scoping Study (2021), [noc.ac.uk/files/documents/facilities/NZOC SUMMARY REPORT V2.pdf](http://noc.ac.uk/files/documents/facilities/NZOC_SUMMARY_REPORT_V2.pdf), commissioned by the Natural Environment Research Council (NERC), therefore undertook a detailed review of the sensor systems and networks that will be needed to meet anticipated marine science priorities. The Future Marine Research Infrastructure (FMRI) Programme, www.fmri.ac.uk, is continuing this engagement to shape NERC's strategic investment in measurement technologies that enable new and different science.

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19th-22nd October 2023: Arctic Circle Assembly 2023

Reykjavik, Iceland

Breaking previous records, over 280 session proposals have been received and over 700 speakers have already confirmed from more than 27 countries. Attended by more than 2000 participants from over 60 countries last time, the Assembly is the largest international gathering on Arctic, Climate, Energy, Oceans, Geopolitics and

more. Registration is now open, www.arcticcircle.org/assemblies/2023-assembly-registration, and help finding hotel accommodation is available, www.arcticcircle.org/hotels. For more information and booking activities, visit www.arcticcircle.org/.

7th November 2023: Beyond the Ocean's Depths: Revisiting the Challenger Expedition

Revisiting the Challenger Expedition (1872-1876) Interdisciplinary Conference, www.rmg.co.uk/whats-on/national-maritime-museum/beyond-oceans-depths-revisiting-challenger-expedition-1872-1876. This event is in part sponsored by the Challenger Society for Marine Science and the UCL Department of Science and Technology Studies, www.ucl.ac.uk/sts/science-and-technology-studies.

With the environmental threat of global warming, rising seas and biodiversity loss, knowledge of the ocean is more important than ever. The Challenger Expedition, www.rmg.co.uk/stories/topics/hms-challenger-expedition-oceanography-trailblazer, named after the British Royal Navy vessel *HMS Challenger* which circumnavigated the globe from 1872 to 1876 with the aim to explore the deep sea, has been celebrated as a foundational moment in the history of modern oceanography. Data and specimens obtained from the expedition are actively studied by scientists today, and provide a historical benchmark for climate change and species distribution. Meanwhile, historians are increasingly calling for the voyage's imperial context to be recognised, and are bringing attention to people and places that have previously been given little attention in the expedition's historiography. How do we tell more inclusive and holistic histories of *Challenger*, while engaging with its scientific importance today? Looking forwards, what can we learn from the past while considering the future of ocean science?

'Beyond the Ocean's Depths' will provide a welcoming interdisciplinary forum for historians, scientists, museum curators, and coastal and island communities to share ideas and their work. The day will bring together a variety of perspectives, and resources. Papers are encouraged on a range of topics related to *Challenger*, 19th-century ocean science and

voyages of exploration in a broad sense, especially:

- The use of *Challenger* materials in modern scientific research
- *Challenger*-related objects in museum collections
- Public engagement and education
- Colonial legacies
- Untold histories
- Local knowledge and expertise
- Links between oceanography past, present and future

This one-day conference will be held in person at the National Maritime Museum, Greenwich and online. It will consist of four panels, each consisting of three 15-minute papers and a Q&A, and a guided visit to the Caird Library, www.rmg.co.uk/collections/caird-library, to view *Challenger* archives, photographs and ship plans. We will also have a keynote talk and time to view relevant gallery spaces. If you have any queries, please contact the organisers at research@rmg.co.uk.

7th-9th November 2023: The Nansen Legacy Symposium, Towards a new Arctic Ocean – Past, Present, Future

Tromsø, Norway

During this science conference, www.nansenlegacy-symposium.com, the current understanding of the Arctic Ocean across disciplines and regions will be presented and discussed. In the mornings we will have plenary sessions with invited key-note presentations, dedicated presentations on the use of science for societal needs, and panel discussions to stimulate interdisciplinary discussion and involve user perspectives.

During the afternoons, we welcome the pan-Arctic research community across the natural science disciplines, and stakeholder representatives interested in knowledge status and future perspectives, to contribute to a vibrant symposium to build bridges across disciplines, regions, and from natural sciences to societal needs.

Details about registration are here: <https://www.nansenlegacy-symposium.com/registration/> Feel free to also check out the program overview <https://www.nansenlegacy-symposium.com/program/program-overview/> (more details will be added soon) and our compilation of practical

details <https://www.nansenlegacy-symposium.com/practicalities/>.

15th-17th November 2023: The 11th Annual World Congress of Ocean

Sapporo, Hokkaido, Japan

Following the success of the previous events, we are honored to launch The 11th Annual World Congress of Ocean-2023 (WCO-2023). WCO-2023 is intended to provide a platform for professionals around the world to exchange state-of-the-art research and development and identify research needs and opportunities in the field of the Oceans. It covers a wide range of topics related to Ocean Economy, Maritime Law, Ocean Engineering, Ocean Energy, Green Port, Shipping and Modern Shipbuilding, Marine Management and Environment Protection, Ocean Science, etc. Over the conference period, you will have opportunities to share information and come face to face with business leaders, academic researchers and government agents around the world. It serves as a great opportunity to find global partners and build up research and business relations.

The three-day conference has an effective series of activities such as plenary lectures, parallel symposiums, oral communications and lively poster sessions etc. Currently Programmed activities at a glance include:

- Opening Ceremony and Keynote Forum
- Track 1: Ocean Economy and Finance
- Track 2: Maritime Law
- Track 3: Coastal and Ocean Engineering
- Track 4: Ocean Energy Development and Utilization
- Track 5: Emerging Ocean Science and Technology
- Track 6: Marine Management and Environment Protection
- Track 7: Smart Port, Green Shipping & Shipbuilding
- Track 8: Marine Biotechnology
- Track 9: Aquaculture and Fisheries

Sapporo, the capital of Hokkaido, Japan's northernmost island, draws international visitors for its annual Snow Festival and its world-famous ramen. Those seeking out the full diversity of Japanese cuisine will want to visit: a city with a ramen-inspired theme park is one that embraces and pampers foodies. For more information about the conference, please visit

www.bitcongress.com/wco-2023/default.asp.

27th-30th November 2023: 3rd Mediterranean Geosciences Union annual meeting

Istanbul, Turkey

The annual meeting of the Mediterranean Geosciences Union, association.medgu.org/, will be held this year at the Congress Center of Istanbul Technical University. Visit our website, www.medgu.org, to learn more about the event.

The MedGU Annual Meeting is one of the largest international geoscience meetings in the Mediterranean region. It aims to provide a forum where geoscientists, especially early career researchers, can present and discuss their findings with experts in all fields of geosciences. It will feature talks and panels covering a diverse range of geoscience and geoscience-society topics. Contact us, if you need more information, contact@medgu.org.

5th-7th December 2023: MASTS Annual Science Meeting (ASM), Science, Sustainability and Society – valuing and protecting our marine systems

Glasgow, Scotland

Join us as we celebrate our thirteenth annual conference in-person at the Technology & Innovation Centre, University of Strathclyde, Glasgow. The Marine Alliance for Science and Technology Scotland (MASTS) Annual Science Meeting is a cross-disciplinary event that brings together members of the marine science community, with the aim of promoting and communicating research excellence and forging new scientific collaborations. Early bird registration will open in September.

The first two days will bring together expert plenary speakers and contributed talks, panel sessions and posters outlining the latest research and management practices that address key topics related to marine science and management in the face of global climate change. Alongside our general science sessions, the event will include special topic sessions, and plenty of opportunity to enjoy networking with your peers and making new contacts. The first day will also host the annual “Decommissioning & Wreck Removal” workshop. The third day will be devoted to workshops and we already have some confirmed (more details soon).

Talks will be followed by a live group Q&A

www.challenger-society.org

session within which all the speakers will be panel members.

Sessions are included on the following topics:

- General Science sessions (any field of study related to marine science)
- Multiple Aquatic Stressors
- Artificial Intelligence
- Deep Sea
- Climate Change
- eDNA
- Blue Carbon

For further details about the sessions, please visit our dedicated webpage, masts.ac.uk/annual-science-meeting/. Don't forget to stay up to date on the ASM by following us on Twitter, www.twitter.com/mastscot, or LinkedIn, www.linkedin.com/company/masts-scotland, #MASTSasm2023. If you would like to get involved or have a query about the ASM, please drop us an email, masts@st-andrews.ac.uk. We would love to hear from you if you would like an exhibit space at the ASM. Finally, it may be worth booking accommodation now. It's a busy month in Glasgow and places get booked up quickly.

12th-14th March 2024: Oceanology International 2024

London, UK

Build your personal and corporate brand. Be a speaker at Oi 2024. We're delighted to let you know that the Call-for-Papers for Oceanology International is open for you to submit your abstracts. Use this link, www.oceanologyinternational.com/london/en-gb/landing-pages/call-for-papers.html, to discover more. If you, or someone else in your company has a paper, research, or case study to share, then Oi is the ideal stage for you. The Call-for-Papers closes on the 12th, Sept and all applicants will be notified on the 10th October whether their talk has been accepted.



Topics on the agenda for 2024 include:

- Asset Integrity & Monitoring
- Coastal Zone & Shallow Water

- Data Interpretation & Ai
- Hydrography, Geophysics & Geotechnics
- Marine Pollution Mitigation & Environmental Stressors

Plus, many more. Oceanology International is one of the largest ocean tech, science, and engineering conferences globally. “Speaking at Oi provides you with a perfect platform to connect with new and exclusive contacts, it’s like a VIP pass to your part of the ocean science and technology community.”, Dr. Ralph Rayner, Conference Chairman.

26th March 2024: ASSW 2024 Science Day Edinburgh, Scotland

The Arctic Science Summit Week (ASSW) 2024 Science Day will be held at the Dynamic Earth, www.dynamicearth.co.uk/. The day’s theme of “Arctic Coasts” encompasses all International Arctic Science Committee (IASC) Working Group areas, iasc.info/our-work/working-groups.



There will be a mixture of invited talks on the day’s theme from each working group, panel discussions on net zero arctic research aspirations and on effects of arctic environmental change on coastal communities, and a public facing Keynote presentation. Abstract submission for poster presentations will be open to all ASSW attendees.

“Our Dynamic Earth” is a public facing science centre focussed on the natural history of planet Earth. Alongside the IASC working group talks and panel discussions, there will be public displays related to scientific community research activities in the Arctic. We invite ASSW participants to get in touch with the local organising committee about bringing their displays to this space, assw.info/program/science-day-2024.

10th-12th April 2024: UN Ocean Decade Conference

Barcelona, Spain

Three years after the start of the UN Decade of Ocean Science for Sustainable Development (2021-2030), oceansdecade.org/, a global conference will bring together the Ocean Decade community and partners to celebrate achievements and set joint priorities for the future of the Decade. Hosted by Spain and co-organized with UNESCO’s Intergovernmental Oceanographic Commission (IOC/UNESCO), it will be a 3 day, in-person event co-led with a range of partners: Government of Catalonia and the Barcelona City Council through the Barcelona Capital Náutica Foundation, and the Spanish National Ocean Decade Committee, which is led by the Ministry of Science and Innovation through the Spanish Research Council (CSIC).



The conference will be a key moment for governments, leaders, maritime sectors, philanthropy, universities, private sector, NGOs and more, to take stock of the achievements of the first three years of the Ocean Decade and define a collective vision for the coming years. Participants will benefit from concrete examples and best practices in ocean science to deliver “the science we need for the ocean we want”. A key outcome of the 2024 UN Ocean Decade Conference will be the publication of a set of white papers related to the 10 Decade Challenges, oceansdecade.org/challenges/, that will identify future priorities for the Ocean Decade to generate the knowledge needed for science-based solutions related to global challenges, such as climate change, food security, biodiversity conservation, sustainable ocean economy, pollution and natural hazards.

A number of related high-level national and international events will take place before and after the main conference and there will also be

scope for partners to propose and lead side events, exhibitions and networking events relevant to the conference themes on the days before the conference and in the sidelines of the conference itself.



Registration for the 2024 Ocean Decade Conference will take place in two steps:

- Pre-registration which will be open from 8 June to 30 September 2023.
- Full registration which will take place from 30 September to 30 October 2023.

To pre-register for the 2024 Ocean Decade Conference, visit oceandecade-conference.com/registration.php. Deadline for pre-registration is 30th September 2023.

On-site Satellite Events will take place at the Conference venue on 10th-12th April 2024 during the lunch breaks of the Conference, while off-site Satellite Events will be organized in a variety of locations around Barcelona starting from 8th April. To learn more about Satellite Events and to submit your application, please visit oceandecade-conference.com/satellite-events.php. Deadline for submission is 30th October 2023.

To provide partners with the opportunity to present their activities, foster knowledge-sharing and strengthen collaboration, a small number of booths will also be available at the Conference venue. Stay tuned for information on calls for posters and for presentations during the parallel sessions. If you would like to receive updates,

please sign up here, www.surveymonkey.com/r/OceanDecade24_updates. For more information, please contact, the Ocean Decade Team at oceandecade@unesco.org.

14th-19th April 2024: EGU General Assembly 2024

Vienna, Austria

The EGU hereby invite you to take an active part in organizing the scientific programme of the conference, from now until the 14th September 2023, by suggesting sessions with conveners and a description in your preferred programme group, meetingorganizer.copernicus.org/EGU24/provisionalprogramme. Prior to suggesting a session, we strongly encourage you to review the guidelines. Please check with all conveners that they agree to take part in the proposed session and refer to the convener guidelines and rules for detailed information of what to expect.

Please find convener guidelines and rules at, egu24.eu/guidelines/conveners.html, education & outreach session guidelines at, www.egu24.eu/guidelines/eos.html, inter- and transdisciplinary session guidelines at, www.egu24.eu/guidelines/its.html, union symposia and great debate guidelines at, www.egu24.eu/guidelines/us_and_gdb.html, and short course guidelines at, www.egu24.eu/guidelines/sc.html.

We create a new programme every year, and the programme groups therefore do not show sessions from last year. This means that all session proposals need to be submitted even if similar sessions were run in previous years. When making suggestions, explore the programme groups and place your proposal only into the PG that is most closely aligned with the proposed session's subject area. Please avoid submitting session proposals that are similar to sessions already suggested. In this case, it is possible to suggest modifications to an earlier session proposal. If the subject area of your proposal is strongly aligned with two or more PGs, it is possible to request a co-organization between PGs. You will be able to indicate PGs that you believe should be approached for co-organization in the session submission form. However, you can only put your session proposal into one lead PG.

The programme committee will take into account all suggested sessions and use them to compile the final session programme as the basis for the

call-for-abstracts. Then, conveners of approved sessions will be asked to actively promote their sessions and the public will be invited to submit their abstracts. This will be announced by a separate email. If you have questions about the appropriateness of a specific session topic, you may contact the programme group chair and/or the officers of the specific programme group, www.egu24.eu/about/programme_committee_composition.html.

10th-14th June 2024: The 9th EGO meeting International Underwater Glider Conference Gothenburg, Sweden

The International Underwater Glider Conference aims to bring together leading researchers, innovators, and experts from around the globe to exchange knowledge, share discoveries, and foster collaborations in the exciting realm of underwater gliders. The conference promises to be an engaging platform for sharing insights, addressing challenges, and shaping the future of this field. We plan for presentations, workshops, poster sessions, and networking opportunities.

The planning team will return to you with event registration, hotel suggestions, and more information about financial support during the coming months. In the meantime, I encourage you to mark the dates in your calendar.



SAVE THE DATE

We are excited to announce that we will be part of hosting the next International Underwater Glider Conference.

 **Gothenburg, Sweden**
June 10 - 14 / 2024

- ▶ Registration form to be sent out separately
- ▶ Call for abstract open on **September 2023**

Get excited by:

- Cutting edge science
- Plenary, workshops, and training sessions
- Scientists and industry gathered in one place

If you have any questions, don't hesitate to contact:
louise.biddle@voiceoftheocean.org -or- **vturpin@ocean-ops.org**



The CSMS email address is challenger.society@gmail.com. Contributions for next month's edition of Challenger Wave should be sent to: john@myocean.co.uk by the 29th September.

JOBS and OPPORTUNITIES

There are jobs on the IMBER web site

<http://www.imber.info>



Integrated Marine Biosphere Research

Jobs and opportunities

New

- Principal fisheries scientist: Pacific Community. Apply by **17 September**
- Postdoc: Statistics for Multivariate Spatial and Temporal Data, University of Helsinki, Helsinki, Finland. Apply by: **17 September**
- Scientific Project Officer: Marine Biodiversity, Joint Research Centre (JRC) . Apply by **18 September**
- Aquatic food system data scientist, University of Washington, Seattle, USA. Open until filled
- Leadership for climate-resilient fisheries fellowship. Apply by **24 September**
- Project Manager: EMBRC-ERIC Paris, France Apply by 24 September
- NF-POGO Regional Training Programme: Marine pollution and biogeochemistry in coastal environments, 12-25 November, Lome, Togo. Apply by **25 September**
- Research assistant: Conservation impacts of bottom trawl fisheries, UBC, Vancouver, Canada. Apply by **30 September**
- Postdoc: Marine biodiversity and ecosystem services, University of Southern Denmark, Sønderborg, Denmark. Apply by **30 September**
- Assistant Prof (Tenure-Track): Chemical Oceanography, University of British Columbia, Vancouver, Canada. Apply by **1 October**
- Assistant Prof: Chemical Oceanography, Berkeley University, Berkeley, CA, USA. Apply by **2 October**
- Lenfest request for proposals: Including Indigenous knowledge in ocean and coastal evidence-based decision-making. Apply by **16 October**
- New NSF-funded program to train future leaders in the face of rapidly changing oceans
- 2024 Simons ECR funding opportunity: Aquatic Microbial Ecology and Evolution. Letter of intent deadline: **1 November**
- Assistant/Associate professor: Marine and environmental sciences, Northeastern University, Boston, USA. Apply **now**
- EuroMarine cooperative ECR project funding opportunity: Apply by **14 November**

In case you missed it...

- Postdoc: Transforming climate action through law, Dalhousie University, Halifax, Canada. Apply **now**
- PhD: Environmental science and policy, University of Miami, Miami, USA. Apply **now**
- Postdoc: Interdisciplinary research synthesis and analysis for Future Ocean and Coastal Infrastructures, Memorial University, St John's, Newfoundland, Canada. Apply **now**
- PhD: Protection of Maritime Heritage through Marine Planning, Haifa University, Haifa, Israel. Apply **now**. Open until filled
- Manager: Ecosystem Advisory Services, Benguela Current Convention, Swakopmund, Namibia. Apply by **15 September**
- Postdoc: Sargassum ecology, Netherlands Institute for Sea Research, The Netherlands. Apply by **30 October**

imber@imr.no