

Challenger Wave



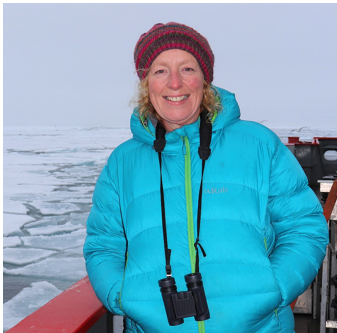
Monthly newsletter of the Challenger Society for Marine Science (CSMS)

NEWS

Ocean circulation, ice melt and increasing tourism could all be contributing to Arctic microplastics

A new study measured microplastic concentrations in the highly productive Barents Sea and suggest that ocean circulation, ice melt, tourism, inadequate waste management, shipping and fishing are all likely contributors. The Ocean State report 7, in which it is published is available here marine.copernicus.eu/news/copernicus-ocean-state-report-7-release?

Dr Rachel Coppock, Marine Ecologist at Plymouth Marine Laboratory and co-author on the study, commented: “The Arctic region is remote and most of us might imagine that it is a pristine natural wonder. But once microplastics enter the marine environment they are transported on currents, often from populated areas many thousands of miles away, ending up far from the source and in the case of the high Arctic, may become trapped in sea ice and released during the spring melt. Warming seas are causing greater sea ice melt, potentially releasing further microplastics and adding another layer of complexity to marine life adapting to a changing world”.



Heather Emberson-Marl, lead author on the paper and MSc student with the University of Exeter and Plymouth Marine Laboratory, said: “It is apparent that microplastic data from the Arctic is limited and this study will act as a reference point for further research. Additionally, sampling methods between studies of microplastics within

the Arctic vary and the differing units of measurement used in previous research make it difficult to draw comparisons. We recommend that future studies should strive for a standardized sampling protocol to allow for direct comparisons and more robust conclusions on the ecological and toxicological effects on the Arctic’s marine biology”.

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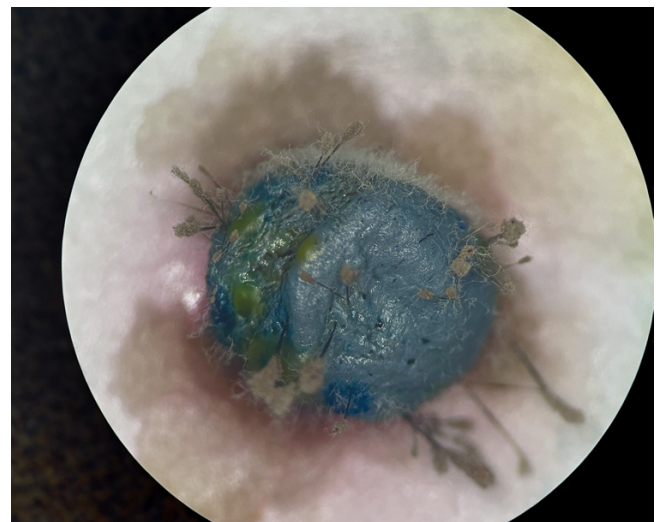
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Improving methods to study the ‘Plastisphere’.

This study published in *Frontiers*, doi.org/10.3389/fmicb.2023.1259287, is the first comparison of the efficiency and efficacy of methods to culture microplastic-colonising bacteria to help increase understanding of the ‘Plastisphere’, a term given to the novel microbial communities that live on discarded plastic in the environment and which is distinct from its surroundings.



Plastic bead found in a river near Truro and left to culture; credit Emily Stevenson

Emily Stevenson, lead author on the study and PhD student with the University of Exeter and Plymouth Marine Laboratory, commented: “This is a valuable study as without assessment of

removal efficiency, culture-based research efforts are not currently optimised, comparable or consistent to extract viable bacterial cells from microplastics for further study. By standardising our methods across laboratories, study designs and scientific capacity, it will increase our understanding of the role of microplastics in supporting distinct, pathogenic or AMR communities, and the subsequent ecological threats they pose”.



Artificial Intelligence successfully predicts toxins in UK seafood

The National Oceanography Centre (NOC) has developed a new scientific approach to be used alongside artificial intelligence (AI) to test for toxic algae that can result in severe and fatal sickness in humans. A new paper published in ‘Harmful Algae’, doi.org/10.1016/j.hal.2023.102497, highlights the benefits of using the new methods to predict blooms of harmful algae in marine populations, designed to enable local authorities to mitigate the risks to both people and wildlife.

NOC scientists tested water over a six-month period from September 2021 until March 2022 in St Austell Bay in Cornwall, famous for its production of oysters, mussels and clams, and a well-known hotspot for toxic marine algae. The plant periodically blooms near seafood production areas, which can lead to the potential contamination of seafood. If this is consumed, it can result in debilitating and sometimes fatal syndromes that attack the gut and nervous system. Working in collaboration with Cornwall Port Health Authority, the University of Glasgow, the University of Exeter, and Cefas, scientists tested water for the DNA of a species called *Dinophysis accuminata* in three seafood production sites, Porthallow, Mevagissey and Ropehaven. *Dinophysis* produces a toxin called okadaic acid, which attacks the digestive system and can cause severe pain and sickness.

In 2019 the UK had an outbreak of food poisoning, with 13 reported illnesses involving okadaic acid. This is a heat stable toxin found in various species of shellfish, which can pose a risk of sickness even once cooked. The standard

method of identifying this toxin involves the observation of water samples under a microscope and using a very skilled ‘taxonomist’ to identify the toxic cells and count them. This approach is time consuming and expensive, so in order to help propose an alternative solution, NOC adopted new methods, using molecular biology to identify and count genetic sequences in a fraction of the time and with far greater sensitivity and accuracy.

This new molecular biology-based approach has enabled NOC’s industry leading team to identify the same trend as the microscope-based method and was able to predict a rise in toxic algae at least 4 weeks earlier than the microscope method. The molecular testing was used to inform the validity of an AI-based model for predicting *Dinophysis* blooms, developed by the University of Glasgow and University of Exeter.

Dr Jonathan McQuillian, Molecular Biologist at NOC, said: “We’re embracing the move to genetic testing methods coupled with AI as it’s an



incredibly important scientific tool that can help UK businesses mitigate health risks in seafood production. This is the first example of this approach being used alongside the UK’s statutory algal surveillance program, and this breakthrough

further pushes for the adoption of DNA testing in early warning systems. DNA testing is still relatively new technology with clear advantages over traditional microbiological testing methods, which should reassure the public that the stringency and standards of testing food and water supplies for harmful microbes are utilising the very latest technology.”

Further development of these methods, particularly their integration with ocean-deployed sensors or handheld testers, will revolutionise the way in which the UK monitors biohazards, not just in the marine sector, but also across healthcare, military, and industrial industries.

Ambitious projects to investigate how life in the sea helps the ocean store carbon

The Natural Environment Research Council (NERC) BIO-Carbon programme has announced

new funding for three ambitious projects that will investigate how marine organisms contribute to storing large amounts of carbon dioxide in the ocean. Each of the projects encompasses a diverse array of UK universities and research institutes, as well as collaborating with a group of international partners and organisations. Marine organisms play a critical role in storing carbon in the ocean that would otherwise be in the atmosphere. However, recent evidence suggests that climate models are not fully accounting for their impact. This could hinder predictions of the ocean's role in future carbon storage at a critical time.

The projects being funded by the Bio-Carbon programme include the PARTITRICS (PARTicle Transformation and Respiration Influence on ocean Carbon Storage) project, led by Prof. Stephanie Henson, National Oceanography Centre (NOC). The £2.3 million PARTITRICS project will use shipboard observations and autonomous underwater vehicles (AUVs) to answer how organic matter is transformed through interactions between particles and organisms. It will also look at how this changes depending on depth, location, and season.

The Coccolithophore controls on ocean alkalinity (CHALKY) project, led by Prof. Alex Poulton from Heriot-Watt University, will quantify how diversity and ecology influence the oceans' ability to absorb carbon dioxide. Part of the CHALKY project will examine the influence of marine viruses and grazing by zooplankton, microscopic animals such as copepods, foraminifera and sea snails that form a vital part of the ocean's food chain.

The Integrating Drivers of Atlantic Productivity (IDAPro) project, led by Prof. Mark Moore from the University of Southampton, will further use a combination of ship-based, robotic and satellite platforms, to improve the understanding of the productivity of phytoplankton, the single cell organisms that form the basis of all life in the ocean and which are ultimately responsible for an enormous amount of ocean carbon storage.

The three projects will also collaborate on a simultaneous mission funded by the Future Marine Research Infrastructure (FMRI) programme. FMRI seeks to enhance ocean exploration by delivering a new generation of UK research infrastructure. To coincide with a

research ship expedition next spring, NOC's famous *Boaty McBoatface* AUV will embark on a trip from Iceland to the UK, rendezvousing with the research ship en route. A suite of sensors on the AUV will allow it to provide data to the different projects over a wider area than possible using the ship alone, assisted by multiple smaller robot samplers, called gliders and Bio-ARGO floats, which will also be deployed during the expedition. BIO-Carbon will utilise both the RRS *James Cook* and RRS *Discovery*, noc.ac.uk/facilities/ships, UK world class research facilities operated by NOC.

Adrian Martin, BIO-Carbon Champion, said: "With countries striving for net-zero carbon and



the debate ongoing over whether we can use the ocean to remove excess carbon dioxide from the atmosphere, the need to understand how the ocean stores carbon has never been stronger and we know that marine life plays an important role.

Partnering with the Future Marine Research Infrastructure (FMRI) project, these three exciting projects will use an ambitious combination of research vessels and marine robots. Together they will deliver fundamental insights into how ocean organisms will help it continue to store carbon as the climate changes."

All three projects will generate new data on how ocean biology impacts the storage of carbon that will help to inform the next generation of ocean modelling through future stages of the BIO-Carbon programme; noc.ac.uk/news/ambitious-projects-investigate-how-life-sea-helps-ocean-store-carbon?.

Ocean and Coastal Futures Bursary

As part of our commitment to encouraging and supporting diversity, equity and inclusion, Ocean and Coastal Futures is launching its first Coastal Futures Bursary in partnership with the Esmée Fairbairn Foundation. This opportunity is open for young people aged 18 to 30 years old, who are currently under-represented in the marine and coastal sector and face financial barriers to attending. Individuals do not have to be working

or studying in the sector currently but must reside in the UK.

The conference is on the 24th and 25th January in London. It is a hybrid conference, and we are offering two in-person and two online bursaries. The deadline for both types is the 8th of December and offers will be made by the 15th of December 2023. Check out the additional information brochure, www.challenger-society.org.uk/News/coastal_futures_bursary, for further guidance and a link to the application form. Please do share with anyone who may want to apply.

NOC awarded Employer of the Year 2023

The National Oceanography Centre (NOC) is thrilled to have been named the Employer of the Year 2023 at the Mersey Maritime Awards. The Maritime Industry Awards are open to any business, company, individual, non-profit organisation or charity, operating in or supporting the maritime, logistics and energy sectors across the Liverpool City Region and wider North West, with three categories open to national entries.

Natalie Campbell, NOC Associate Director, said "I'm incredibly proud NOC has been recognised as an industry leader in people engagement, support and development. We thrive because of the dedication and talent of all our people, who work collectively towards our vision of a thriving, healthy ocean. I'm excited to share this collective success with the leadership team and my amazing 674 colleagues."



On hearing the news Professor Ed Hill, NOC Chief Executive, commented, "I am absolutely delighted that we have won this award, which is testament to the talent and commitment of all our

staff and I'd especially like to thank those who have been involved in our numerous initiatives that make NOC a great place to be, where our people succeed and deliver great work."

Request for Assistance with PGR Careers Support

At the Marine Alliance for Science and Technology Scotland (MASTS) We are designing a series of career focus events and resources, to support transitions for our highly skilled, innovative and resourceful postgraduates into diverse, fulfilling and meaningful careers that positively impact society.; but we need your help.

We are asking for your participation in a short, recorded interview about you. Your job, responsibilities and organisation, the wider industry and sector, the challenges, opportunities and skills needs, and any advice you have for career transitions beyond a PhD to this sector specifically. We are looking for participants from academia, research, government, NGOs, and private business and industry, in diverse jobs, organisations and sectors, willing to help by contributing:

1. 20 mins of your time to meet at the Annual Science Meeting (ASM), or online if you are not attending the ASM, to record a short interview (10-15 mins).
2. If you are available and willing, another 30-40 minutes to take part in a panel Q&A/ break out discussion on these dates:
 - Tues 13th Feb - Renewable Energy, and Aquaculture.
 - Tues 26th March - sector focus TBC
 - Tues 30th April 2024 – sector focus TBC

Sectors/ areas can include but are not limited to:

- Renewable energy and low carbon
- Decommissioning
- Aquaculture
- Policy, regulation & planning
- Conservation & management
- Land and sea, coastal protection, flood risk
- Fisheries
- Biotechnology
- Environmental data science & modelling
- Climate change and impacts
- Pollution and Stressors

- Biodiversity
- Circular economies
- Waste management
- Biogeochemistry
- Technology, sensors, observation and monitoring
- Deep sea systems
- Sustainable resource use and blue/green economies

No significant preparation is needed, just your thoughts on some questions. If you are interested, please get in touch and we can arrange a meeting at the ASM, or another time online, to record an interview. Many thanks in advance, save the date for the 13th MASTS Annual Science Meeting, 5th-7th December 2023 at the TIC, University of Strathclyde, Glasgow, www.masts.ac.uk/, telephone 07876 765 945 :-
Dr Lois Calder, Dean of Graduate School, MASTS

Ocean Community Empowerment and Nature (OCEAN) competitive grants programme

Defra are currently in the process of mobilising Ocean Community Empowerment and Nature (OCEAN), www.gov.uk/government/publications/blue-planet-fund/ocean-community-empowerment-and-nature-ocean-grants-programme, a new competitive grants programme under the UK's £500 million Blue Planet Fund, www.gov.uk/government/publications/blue-planet-fund/blue-planet-fund.

OCEAN aims to attract proposals from local organisations working closely with coastal communities most affected by declining ocean health across all Official Development Assistance (ODA) eligible countries. Defra will be launching the first call for grant proposals in February 2024.

A public call to appoint OCEAN Expert Committee members is now open. Defra are now looking to appoint a committee of up to 10 marine and development experts to provide high quality, specialist advice on which OCEAN project applications should receive funding. Defra are therefore looking for individuals who, as leaders in their field, can contribute at the highest levels and work effectively as part of the OCEAN Expert Committee.

Members will be expected to:

- assess and score applications against set criteria, to agreed timelines and standards,

to enable Defra to award funding to high-quality projects,

- provide strategic advice
- champion the OCEAN grants programme

Defra would like to encourage applications from a wide range of backgrounds and global contexts, including the private sector, academia and professional institutions, non-governmental organisations, and other stakeholders. Applicants can be based anywhere, but applications from those in low- and middle-income ODA-eligible countries are particularly encouraged.

To find out more and to apply to join the OCEAN Expert Committee, please read our OCEAN Expert Committee recruitment pack, www.gov.uk/government/publications/blue-planet-fund. The closing date for applications is 12:00 noon on Friday 1st December 2023.

UN Decade of Ocean Science (2021-2030); Take part in the Call for Decade Actions No. 06/2023

The vision of the Ocean Decade is 'the science we need for the ocean we want'. The Ocean Decade provides a convening framework for diverse sectors from around the world co-design and co-deliver the scientific knowledge and the partnerships needed to achieve a better understanding of the ocean system, and deliver science-based solutions to achieve the 2030 Agenda for Sustainable Development.

To achieve the Ocean Decade vision, a wide range of partners will implement endorsed Decade Actions in the form of programmes, projects or activities over the next eight years. You are invited to contribute to that vision by requesting endorsement for transformative Decade Actions via Call for Decade Actions No. 06/2023.

Please note that to access the Call documentation and submit your Action, you will need to be a member of the Ocean Decade Network. We encourage you to join the Network as soon as possible.

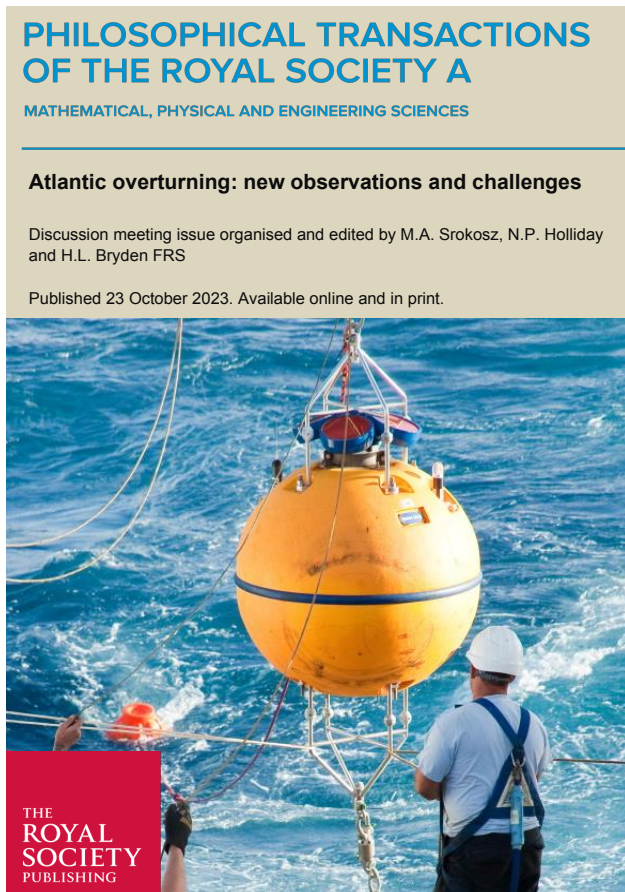
Current deadlines for actions are the 10th December 2023 and the 31st January 2024. To find out more about the calls and to apply, please visit forum.oceandecade.org/page/take-action.

National Marine Equipment Pool: Autumn 2023 call (Round 4) for applications

Members of the UK marine science community are invited to submit applications for items of equipment to be considered for addition to the National Marine Equipment Pool (NMEP). Full details of the application process are available on the Marine Facilities Advisory Board (MFAB) website, noc.ac.uk/partnerships/our-national-role/coordinating-uk-marine-science/advisory-bodies, and questions to Jackie Pearson, MFAB Secretary, are welcome, jfpea@noc.ac.uk. The closing date for applications is Friday 15 December 2023.

Royal Society Special Issue

Royal Society Publishing has recently published a special issue of Philosophical Transactions A entitled Atlantic overturning: new observations and challenges, organised and edited by M A Srokosz, N P Holliday and H L Bryden FRS and the articles are available at www.bit.ly/TransA2262.



The print issue can be purchased at the reduced price of £40 per issue by contacting sales@royalsociety.org.

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IEWS

Valeport strengthens team with new Product Manager

Leading manufacturer of oceanographic and hydrographic instrumentation, Valeport, has welcomed Amy Thompson as Product Manager. Amy, an experienced oceanographic engineer, brings more than a decade of expertise from customer relations roles to this newly created position at Valeport. Joining from a Support Manager role at OceanWise, Amy will strengthen Valeport's Innovation and Product Department working with respected hydrographic professional, Iain Slade, who leads this department.

Drawing on her operational oceanographic experience, Amy's new role sees her assisting in shaping the product strategy for all Valeport and Valeport Water products. Her responsibilities encompass generating innovative ideas and managing the product lifecycle from inception to customer delivery and beyond. Amy collaborates closely with the broader team to ensure Valeport's product portfolio remains relevant and aligned with current and future customer needs.



The appointment of Amy underpins Valeport's commitment to continually innovate its range to ensure Valeport technology remains at the forefront of the sector. Iain Slade comments: "Amy's appointment comes at a key time as we consolidate our offering, improve product support and look to future developments with our range of environmental sensors. Amy's operational knowledge, practical experience, passion for sustainability and in depth understanding of customer needs is a real asset and a great match for our growth plans. We're delighted to have Amy on our team."

Amy has worked on a variety of projects both in the UK and internationally, including projects for the UK Hydrographic Office and Environment Agency. She holds a Masters in Oceanography and sits on the Board of the Marine Science and

Technology Group at the Society of Maritime Industries. Commenting on her new role, Amy said: "I am very excited to join Valeport. I've worked with many Valeport products in previous roles and have always trusted the technology. The opportunity to join the new Innovation and Product Development Department to assist in the development of new technologies and indulge my passion for innovative solutions is very appealing. But another important factor was also the culture of the Valeport business. I find Valeport's culture very attractive, not only are the team all highly skilled, but they seem to me to be incredibly happy. There's an impressive number of colleagues having many years of experience working within the business, and I really like that."

Upscaling Autonomy Working Group report published

A recommendation of the landmark Net Zero Oceanographic Capability (NZOC) report, noc.ac.uk/files/documents/nzoc_summary_report.pdf, was that "NERC should expect to double the size of the autonomous fleet it supports every five years." In response, the NOCA and the Challenger Society

for Marine Science formed the joint Upscaling Autonomy Working Group (UAWG). The UAWG ran a series of information webinars, followed by a consultation, on the future shape of upscaling of marine autonomy in the UK.



UPSCALING MARINE AUTONOMY IN THE UK
A REPORT BY THE UPSCALING AUTONOMY WORKING GROUP OF THE NOC ASSOCIATION AND THE CHALLENGER SOCIETY FOR MARINE SCIENCE



With thanks to NOCA Chair, Professor Mark Inall and members of the UAWG, the report from the consultation has now been published and is available on this [this NOC Association page](https://noc.ac.uk/partnerships/our-national-role/coordinating-uk-marine-science/noc-association), noc.ac.uk/partnerships/our-national-role/coordinating-uk-marine-science/noc-association.

First deliveries of ecoSUBm5-Power+ AUV with ecoCAM

EcoCAM is a brand new 4k video and still image camera developed by the ecoSUB team, fully integrated into the ecoSUBm5-Power+ AUV system. The camera system has been designed to provide extremely high-quality video and still

images, whilst being an ideal solution for machine learning applications. A 1.1" Sony IMX267 global shutter CMOS sensor, coupled with a Computar fixed 8mm lens provides high resolution, high frame rates and noise free image reproduction (8.85 MPix (4096 x 2160 px) at 33.0 fps). The camera is an underwater first, running with Subsea USBC data transfer, to provide excellent data speed for video encoding on a Jetson Orin Nano computer.

Both new users from the US and Germany intend to use the ecoCAM for machine vision applications, benefitting from the power of the Nvidia Jetson backseat computer, enabling edge computing. In one case the camera feed is being used with a navigation algorithm to pilot the vehicle into a docking station.



The ecoCAM module is a compact unit, rated to 2,500m, suitable for ecoSUBm-series AUV platforms, and is mounted in a custom nose cone that allows the camera to be orientated from forward looking to downward looking for seabed imaging. Subsea lighting packages can be provided for low/zero light applications. Onboard our ecoSUBm5-Power+ AUV platform, the ecoCAM can be coupled with side scan sonar, DVL and acoustic modem for underwater coms and USBL, if required.

EcoSUB Robotics is a division of Planet Ocean which was established in 2004 to provide instrumentation to the oceanographic research community, commercial oceanographic and survey companies and the defence sector. Today Planet Ocean represents 24 of the world's leading manufacturers of marine scientific instruments and systems. Find out more about

ecoSUB Robotics, www.ecosub.uk/, and Planet Ocean, planet-ocean.co.uk/.

Marine robot fleets set to revolutionise ocean exploration

A fleet of marine robots that can tackle complex offshore tasks, part of a recently completed, groundbreaking project funded by Innovate UK, is poised to change approaches to ocean exploration. Autonomous marine systems are being developed and deployed in increasing numbers. However, as maritime operations become ever more complex and expensive, and installed energy infrastructure increases in scale and distance from shore, there is a rapidly emerging need for more sophisticated multi-platform capabilities.

Squads of Adaptive Robots (SoAR), a 2-year collaborative research and development initiative, gtr.ukri.org/projects?ref=10012626, was led by the developer of ecoSUB AUVs, Planet Ocean. The project kicked off in September 2021 and culminated this summer with full system testing at Smart Sound Plymouth on England’s south coast.

The SoAR team’s aim was to demonstrate how large-scale survey and exploration missions can be achieved by going beyond the limitations of individual AUVs. Industry partners Planet Ocean, Sonardyne International and HydroSurv worked alongside the National Oceanography Centre (NOC), Royal Holloway University and the Offshore Renewable Energy (ORE) Catapult to develop advanced AI-driven mission planning, communications protocols for fleet coordination and significant improvements in underwater navigation and communications technology.



Open-water trials successfully showcased co-ordinated missions designed, monitored and

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adapted in real-time by an intelligent “Autonomy Engine”. The trials involving several surface and underwater autonomous systems, with mission management conducted from a remote shore-based command and control facility. The trials simulated an offshore wind farm concession survey mission informed by a comprehensive business case analysis by the team at ORE Catapult.



SoAR has led to the introduction of several technological innovations, including advanced AI-driven mission planning, open-source communications protocols for heterogeneous fleet coordination and a range of new and enhanced platform capabilities for both surface and sub-surface systems. The variety of small form factor robotic platforms involved in the project represented some of the best innovation in UK ocean robotics to date.

The SoAR concept is adaptable to various applications but strategically tailored to address the specific needs of the offshore wind sector, developing an approach that will offer new operating paradigms and substantial long term cost savings for offshore asset construction and maintenance compared to conventional methods.

SALTS

No news from sea this month I’m afraid

I know that this is a favourite section for many readers, where we get the inside information about life at sea, its thrills and spills. So please the next time you are at sea or carrying out any fieldwork, please remember that a simple paragraph or two will get you published here. –

Ed

CALENDAR

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.

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. Talks will be followed by a live group Q&A 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.

26th February–1st March 2024: CLASS Modelling Workshop

Southampton, UK

The Climate Linked Atlantic Sector Science project (CLASS) is a 6-year NERC-funded project that provides world-leading science to improve our understanding of the Atlantic Ocean. Involving a team of scientists from across the UK's marine institutions, CLASS builds upon sustained ocean observational science, state-of-the-art technology and world-class modelling.



As the CLASS project concludes, the National Oceanography Centre (NOC) is running a workshop / hackathon to showcase its modelling activities. This will provide an opportunity for marine researchers in the UK to become familiar with a broad range of model simulations, including high-resolution regional and global modelling, integrated ecological and biogeochemical processes, and simulations spanning from the near-present day to the end of the 21st century. Supported by NOC modelling experts, workshop attendees will learn how

models can complement observational or data-based analysis. Workshop activities will include:

- An introduction to the basic principles underlying ocean physical and biogeochemical dynamics, and how modelling approaches support novel research questions.
- Guided analysis of model outputs using Python, with an introduction to tools such as COAsT.
- A collaborative group analysis based on attendee-run Lagrangian simulations.
- An icebreaker event where attendees can share their own research
- and an off-site activity (TBC).

Applicants must be PhD students or early career researchers (within 5 years of PhD award). Applicants should have a basic familiarity with Python and gridded data products. Workshop attendees will need to bring a laptop with prerequisites installed/set-up (e.g., may include access to services such as JASMIN). Details will be announced in due course.

Accommodation (4 nights) and meals will be provided at no cost. Attendees are responsible for arranging and paying for their own travel to Southampton. Please complete the application form to register for the workshop, docs.google.com/forms/d/13dbyKJIDNbbhKL9dk3LkHCulfWfJhev10JfFRh91Ly8/viewform?edit_requested=true. Registration closes on 22nd January 2024 and places are limited and will be allocated on a first come, first served basis so please register early. The course organisers are A. Yool (NOC Southampton), J. Jardine, R. Patmore (NOC Liverpool)

12th-14th March 2024: Oceanology International 2024
London, UK



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

The calls for posters and oral presentations, oceansdecade-conference.com/home.php, are now open. Applications for the two calls must be submitted before 23.59h CET on the 1st December 2023.

Three years after the start of the UN Decade of Ocean Science for Sustainable Development (2021-2030), oceansdecade.org/, this 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,

www.challenger-society.org

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.



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 oceansdecade@unesco.org.

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

Vienna, Austria

To keep you up to date, we will be sending you important EGU24, egu24.eu, information 'EGU24 Updates' at least once per month, at the beginning of the month. You will still receive direct emails when tasks have a specific deadline, so make sure you check your spam folders and settings so that you don't miss anything. More information about the planned

format and additional features of the EGU24 General Assembly will be available soon.

The Call for Abstracts opened on the 1st November. The Programme is online, meetingorganizer.copernicus.org/EGU24/provisionalprogramme. Submit your regular abstract to the session of your choice by 13:00 CET, on the 10th January 2024. You can apply for financial support if you submit your abstract by 13:00 CET, on the 1st December 2023.

If you work on any form of blue or sedimentary carbon, please consider submitting an abstract to the “Blue Carbon: The role of coastal and marine sedimentary organic carbon in the global carbon cycle” session. The session will explore the pivotal role of coastal and marine sedimentary systems in global carbon cycling and climate regulation and discuss the challenges these ecosystems face and how multidisciplinary research is advancing our understanding.

7th-8th May 2024: Arctic Circle Berlin Forum Berlin, Germany

The Arctic Circle Secretariat is accepting Session Proposals for the 2024 Arctic Circle Berlin Forum, hosted by the Federal Ministry of Education and Research and co-organized with the German Arctic Office at the Alfred Wegener Institute Helmholtz Centre for Polar and Marine Research.

Proposals will be considered for Sessions running a maximum of 60 minutes. Proposals must include the following:

- The Session's proposed name (80 characters maximum)
- Organizing body/bodies
- Contact person and contact details
- Description of the Session (250 words maximum)
- List of speakers and speaker topics, indicating confirmation status

At least half of the proposed speakers must be confirmed by the time of submission. Diversity among speaker backgrounds, affiliations and nationalities is strongly encouraged. Governments, institutions, organizations, universities, think tanks, companies and other such bodies are eligible to submit Proposals. Proposals received from individuals will be considered to the extent that integrating them into existing Sessions is possible. Proposals

must indicate the Session topic's relevance to the Forum's theme: The Arctic at Crossroads. The deadline for submitting proposals is February 1st, 2024, www.arcticcircle.org/berlin-forum-proposal-guidelines. Please direct any further inquiries about the Berlin Forum to berlin@arcticcircle.org.

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.



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**

Got 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

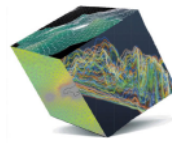


The conference promises to be an engaging platform for sharing insights, addressing challenges, and shaping the future of this field. We plan for presentations, workshops, poster sessions, and networking opportunities. The planning team will return to you with event registration, hotel suggestions, and more information about financial support during the coming months. In the meantime, I encourage

you to mark the dates in your calendar.

8th-12th July 2024: AMEMR Conference 2024
Plymouth, UK

Welcome to the 7th AMEMR conference, we are pleased to announce Abstract Submission is now open, with a submission deadline of the 15th December 2023; full details at www.amemr.com/. The AMEMR (Advances in Marine Ecosystem Modelling Research) Symposium series provides an opportunity to present, discuss and learn about a wide variety of marine modelling challenges, methods, applications and outcomes.



AMEMR 2024

Over the years AMEMR has grown into the forum to present and absorb the latest developments in marine (eco)system modelling and discuss new challenges and opportunities. It is a great place to develop networks and we encourage Early Career Researcher involvement. Check out the Themes and sessions for AMEMR 2024 at www.amemr.com/themes-and-sessions.html. You can also follow us on Twitter [@amemr_updates](https://twitter.com/amemr_updates).

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 30th November.

JOBS and OPPORTUNITIES



Funded PhD opportunity at the National Oceanography Centre

PhD opportunity in ocean carbon observations. The student will be based at NOC and supervised by NOC, University of Southampton and Clearwater Sensors Ltd. It is anticipated that the student will be heavily involved with the GEORGE sensor validation and deployments in 2025 and 2026. Interested individuals can contact me directly for further info.

<https://www.findaphd.com/phds/project/keeping-up-with-ocean-change-using-robots-to-push-the-envelope-in-ocean-carbon-observing/?p161206>

Dr Socratis Loucaides, Principal Scientist, Ocean Technology and Engineering, ICOS-Ocean Thematic Centre, National Oceanography Centre, European Way, Southampton, SO14 3ZH
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Full professor of Marine Biology at the Faculty of Life Science of the University of Vienna

The successful candidate will have an outstanding and internationally recognized research portfolio in marine biology (marine ecology) at the population, community or ecosystem level with a focus on, or including higher organisms (animals, multicellular plants). Scientists whose research programs complement existing areas and allow interaction with established groups at the Faculty of Life Sciences are encouraged to apply. Strong commitment to the further development of the discipline especially with regard to environmental change is expected. The professorship represents the discipline marine biology (marine ecology) in teaching at all levels of study (BA, MA, PhD).

For more information see . https://personalwesen.univie.ac.at/jobs-recruiting/professuren/detail-seite/news/marine-biology/?no_cache=1&cHash=825b121faf3c3c85348bbd47b8ca2ff0 and / or contact Clara Priemer, clara.priemer@univie.ac.at.

Job opportunity (Cornwall, UK) - Physical oceanographer (permanent position)

My research centre is looking for a physical oceanographer to join our team. This is a permanent position at lecturer or senior lecturer scale based at the (lovely, though I'm biased) Cornwall campus in the UK. I would be grateful if you could pass this information onto anyone you think may be interested. Full details can be found via the link below.

jobs.exeter.ac.uk/hrpr_webrecruitment/wrd/run/ETREC107GF.open?VACANCY_ID=755305gvrh&WVID=3817591jNg

Professor Jamie Shutler, Chair in Earth observation and climate, Centre for Geography and Environmental Science, University of Exeter, Penryn, TR10 9FE, J.D.Shutler@exeter.ac.uk.

There are jobs on the IMBER web site

<https://imber.info/category/news/>



Integrated Marine Biosphere Research

Jobs and opportunities

New

- Postdoc: Nature Based Solutions: Blue carbon ecosystems in South Africa, Stellenbosch University, Stellenbosch, South Africa. No closing date. Apply **now**
- Research Officer: Modelling for Marine Sustainability, University of Cape Town, Cape Town, South Africa. Apply by **20 November**
- Compliance Fisheries Observer, Falklands Government, Stanley, Falkland Islands. Apply by **26 November**
- Fisheries Analyst - Applied Research (Small Scale Fisheries), Global Fishing Watch, Work remotely. Apply by **1 December**
- PhD: Spatiotemporal patterns of the southern Indian Ocean higher predator community, University of Southampton, UK. Apply by **3 January 2024**
- Call for applications: Masters of Marine Management, Dalhousie University, Halifax, NS, Canada. Apply by **15 January 2024**
- Royal Society Postdoc Fellowship. Apply by **24 January 2024**

In case you missed it...

- Prof: Climate Policy and Social Science, Brown University, Providence, RI, USA. Open until filled
- IIASA summer program for PhD students, 1 June-31 August 2024, Vienna, Austria. Apply **now**
- PhD: Ocean's evolution: Deciphering circulation changes since the last glacial maximum. University of St Andrews, St Andrews, UK. Apply **now**
- PhD: Blue Carbon, University of East Anglia, Norfolk, UK. Apply **now**
- Postdoc: Ocean biogeochemical dynamics using obs and numerical models, St Andrews University, St Andrews, UK. Apply by **20 November**
- Postdoc: High latitude ocean dynamics, using observations and numerical models, St Andrews University, St Andrews, UK. Apply by **20 November**
- Trevor Platt Early Career Fellowship opportunity: Research project at the Plymouth Marine Lab, Plymouth, UK Apply by **15 December**
- Swiss Climate Summer School: Climate Change: From the Dawn of the Anthropocene to Options for the Future, 1–6 September 2024, Grindelwald, Switzerland. Apply by **15 January 2024**

imber@imr.no