

Challenger Wave



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

NEWS

Challenger Society's next President

Challenger Council are delighted to announce that Ros Rickaby, <https://www.earth.ox.ac.uk/people/rosalind-rickaby/>, will become the next President of the Challenger Society. Ros is currently Chair of Geology at Oxford and leads the OceanBUG research group. Her broad research interests encompass the interactions between organism evolution, ocean chemistry, atmospheric composition and climate, with a current focus on probing the geological past using information derived from modern day organisms. Ros was endorsed as President-Elect at the 2019 Challenger AGM in Edinburgh and she will take over as President during the 2020 Challenger Conference, which will take place in Oban.

In memory of Sir Anthony Laughton

It is with great sadness that Challenger Council received the news that Sir Anthony Laughton FRS died peacefully at home on 27th September 2019 after a short illness; he was 92. Sir Anthony was President of the Challenger Society for Marine Science from 1988 to 1990, a post he took up on retirement following a long and distinguished career that included Directorship of the UK's Institute of Oceanographic Sciences at Wormley (a predecessor of NOC). Sir Anthony later served as Director of the Society for Under Water Technology and as a member of the Council of the Marine Biological Association in Plymouth. A full obituary can be found at www.noc.ac.uk/news/sir-anthony-laughton-frs-1927-2019.

EMODnet's 2nd Open Sea Lab: a look back

With 70 participants from 19 nations, the second edition of EMODnet Open Sea Lab (OSLII) was a great success. OSLII captured the imagination in a way that few events in the marine data world

can, which is largely due to the openness, creativity and enthusiasm of all of those involved.



In total, 16 teams competed for a prize, developing novel marine and maritime applications using EMODnet, ICES and Copernicus Marine's wealth of marine data and services in just three days. The overall winner of Open Sea Lab 2019 was 'Team Ilvo' with the creation of an interactive fish stock assessment tool to allow non-specialists to understand and interpret fisheries data. The VLIZ and OVH awards went to 'CODEFISH' for their tool to provide near-future decision support for fisheries; and the Greenbridge award went to 'Changing Seas' for their educational augmented reality app to help families make responsible choices to protect their marine environment.

EMODnet would like to extend a huge thank you to co-organizers VLIZ, CMEMS and ICES, contributors IMEC, Marine at University Ghent, Greenbridge and OVH and funders EC and VLIZ. And last but not least, a big thank you to all who actively participated in this year's Open Sea Lab, as participants, coaches, speakers and judges! It seems that Open Sea Lab is something that will continue to grow into the future. EMODnet can now build on the outcomes of this year's OSLII and the open, innovative and diverse spirit that it nurtures. You can read the full OSLII report at:

www.emodnet.eu/emodnets-2nd-open-sea-lab-look-back.

Geosciences Travel Awards

As Editor-in-Chief of the open-access journal *Geosciences* (ISSN 2076-3263), I am pleased to announce the launch of the 2020 *Geosciences* Travel Awards for five young investigators in geoscience, future earth, and planetary science. The awards will consist of 500 Swiss Francs each.

This year, we are setting up five awards for young scholars in different subdisciplines of geoscience: Natural Hazards, Geophysics, Hydrogeology, Geochemistry & Biogeosciences, and general subjects. These subdisciplines are also Sections of *Geosciences*; for more information, please visit www.mdpi.com/journal/geosciences/sections.

We are currently accepting applications. Candidates should hold the position of postdoctoral fellow, assistant professor, or equivalent in geoscience, and should plan to attend and participate in an international conference in 2020. Eligible candidates are encouraged to submit their application online via www.mdpi.com/journal/geosciences/awards/submit/746 before 31 December 2020.

Required application documents:

1. Outline of current and future work (500 words).
2. CV, including a complete list of publications.
3. The conference you plan to attend and the work that you will present.
4. A letter of recommendation from your supervisor is preferred.

The winners will be announced on the *Geosciences* website by 29 February 2020, and the awardees are asked to acknowledge the support from the journal *Geosciences* in their presentations. Please find additional details at www.mdpi.com/journal/geosciences/awards.

Prof. Dr. Jesús Martínez-Frías Editor-in-Chief, *Geosciences*

Special Issue: Integrated Marine Biosphere Research: Ocean sustainability under global change for the benefit of society

Frontiers in Marine Science has announced a Special Issue dedicated to Interdisciplinary

research spanning natural and social sciences, needed to inform decision-making for the sustainable use and conservation of marine resources and services for the ultimate benefit of society. All Integrated Marine Biosphere Research (IMBeR) activities, including the recent 2019 Future Oceans2 Open Science Conference, support the following objectives:

- Understanding and quantifying the state and variability of marine ecosystems,
- Improving scenarios, predictions and projections of future ocean-human systems at multiple scales and,
- Improving and achieving sustainable ocean governance.

We invite submissions (perspective or opinion papers, policy briefs, research articles or reviews) relating to any of these objectives for a special issue of *Frontiers in Marine Science*: www.frontiersin.org/research-topics/11599/integrated-marine-biosphere-research-ocean-sustainability-under-global-change-for-the-benefit-of-soc.

Deadline for abstract submission is the 23rd November 2019, with manuscript submissions until 23rd March 2020: www.frontiersin.org/research-topics/11599/integrated-marine-biosphere-research-ocean-sustainability-under-global-change-for-the-benefit-of-soc.

Special Issue: Solving complex ocean challenges through interdisciplinary research - advances from early career marine scientists

Frontiers in Marine Science has announced a Special Issue dedicated to interdisciplinary research topics by Early Career Researchers.

Anthropogenic impacts are threatening the sustainability of the goods and services provided by the oceans, that may in turn affect societal well-being and livelihoods. Embedded within complex social-ecological systems, oceans show uncertain, unpredictable, and interconnected challenges that require interdisciplinary marine science to push towards sustainable, productive, and healthy oceans at a time of global change.

As Early Career Researchers (ECRs) are at the forefront of this new research agenda, this special issue is designed to showcase the diversity of research undertaken by early career marine scientists. Articles will be published as they are accepted. *Frontiers in Marine Science* is offering

discounts for publication in this issue, and there is an additional fee waiver that ECRs can apply for: www.frontiersin.org/research-topics/11540/solving-complex-ocean-challenges-through-interdisciplinary-research-advances-from-early-career-marine-researchers - overview.



Deadline for abstract submission is the 29th November 2019, with manuscript submissions until May 2020: www.frontiersin.org/people/login?returnUrl=https%3a%2f%2fwww.frontiersin.org%2fsubmission%2fsubmission%2fsubmissionhome.aspx%3fst=3%26tid=11540%26domainid=1%26fieldid=45%26specialtyid=637%26entitytype=2%26entityid=761. The special issue will be edited by the IMBeR Interdisciplinary Marine Early Career Network (IMECaN).

Special Issue: Managing for the Future - Understanding the Relative Roles of Climate and Fishing on Structure and Dynamics of Marine Ecosystems

Frontiers in Marine Science has announced a Special Issue dedicated to Marine management for the future.

Many continental shelf ecosystems support high-value fisheries with a long history of exploitation. The management and monitoring of these ecosystems in many regions has produced a substantial database on their structure and functioning and has led to the development of policies for their sustainable use. Yet despite this, we still have limited understanding of ecosystem variability, species and ecosystem responses to change, and how this may be mediated by climate change.

Some ecosystems that ostensibly appear very similar can respond quite differently to pressures such as fishing and climate change. Understanding how these drivers, singly and in combination, affect stock size, production, and energy flow through the system will provide insight into the commonalities and differences of the underlying mechanisms of observed ecosystem changes. This is critical both to understand system response to the various drivers, but also to project response to new stressors, to develop future scenarios and to manage for the future. Developing this understanding requires a combination of data compilation, novel analytical approaches, and ecological modelling.

We invite papers that explore marine ecosystem variability and the relative roles of environment, climate, fishing and trophic dynamics in marine ecosystems and implications for future management.

The subject can be addressed at the individual ecosystem level and through comparative process studies, and should:

- explore ecosystem variability over time and space
- explore the major linkages, interactions and dependencies between and within human and ocean systems
- use novel analytical techniques to explore these questions
- explore the combined effects of fishing and global change
- provide insight into how these dynamics can help inform sustainable management strategies

Finally, we propose to address the following question: "What is limiting our understanding of ecosystem variability? Implications for fisheries management." If you have any questions, please contact any of the editorial team.

We invite submissions relating for a special issue of Frontiers in Marine Science: www.frontiersin.org/research-topics/11581/managing-for-the-future-understanding-the-relative-roles-of-climate-and-fishing-on-structure-and-dyn. Deadline for abstract submission is the 31st October 2019, with manuscript submissions until 30th April 2020.

VIEWS

Future of ocean and cryosphere depends on critical choices being made now says IPCC special report

The latest Intergovernmental Panel on Climate Change (IPCC) Special Report, published today, highlights the urgency of prioritizing timely, ambitious and coordinated action to address unprecedented and enduring changes in the ocean and cryosphere.

The Institute of Marine Engineering, Science & Technology (IMarEST), holding the privileged position of Observer Status at the IPCC, was in attendance at the 51st Session of the IPCC to approve the report, held in the Principality of Monaco from 20-23 September 2019. The session saw scientists and policymakers from the 195 IPCC member governments refining the Summary for Policymakers (SPM) of the Special Report on the Ocean and Cryosphere in a Changing Climate (SROCC), and then formally approving this and the underlying full report, published on the 25th September.

The SROCC report represents the work of 104 scientists from 36 countries, referencing nearly 7,000 publications, and receiving a total of 31,176 comments from expert reviewers and governments in 80 countries. Here is a brief synopsis with comment from the IMarEST delegation present.

Observed changes and impacts

The report initially confirms and corroborates the findings of the 3rd Ocean State Report, recently published in the IMarEST's Journal of Operational Oceanography. The planet has witnessed significant climatic changes since pre-industrial times and the SROCC highlights considerable warming of the ocean, not just at its surface but also extending down to great depths with a greater prevalence of marine heatwaves. Ongoing loss of oceanic oxygen and acidification are further described, alongside sea level rises that are stated to have been accelerating in recent decades due to increasing loss of ice from the Greenland and Antarctic ice sheets at rates of $278 \text{ mm} \pm 11 \text{ yr}^{-1}$ and $155 \text{ mm} \pm 19 \text{ yr}^{-1}$ respectively.

Whilst detrimental impacts on ecosystems and human have already been witnessed the report elaborates on the effects on the abundance and distribution of ecologically, culturally and economically important animal and plant species. Geographical shifts of marine species ranging from plankton and fish to mammals and seabirds have been occurring at alarming rates as a result of ocean warming with estimated range shifts of $52 \pm 33 \text{ km decade}^{-1}$ (some plant groups) and $29 \pm 16 \text{ km decade}^{-1}$ (some animal groups) since the 1970s. This has already resulted in reduced ecosystem functioning and altered ecosystem structures. Shallow coastal ecosystems are confirmed to be under huge strain, with the report detailing a 50% decline in wetlands coverage over the 20th century. Seagrass meadows and kelp forests have also been hit hard.

Projected changes and risks

Expanding on the grim tidings portrayed by the observations up to the current day, the SROCC delivers the IPCC's projected changes in the future ocean system. The cutting edge scientific research delivers still more saddening outlook, as the pattern of warming seen since the 1970s is likely to continue. Further loss of Arctic sea ice, de-oxygenation, increased acidification and a heightened frequency of marine heatwaves are some of the notable consequences that can be expected by the turn of the century.

Further sea level rise is an apparent inevitability, with the previous figures cited by the IPCC under their fifth assessment cycle report (AR5) guidance released in 2010 being revised upwards due to a larger than expected contribution from the Antarctic ice sheet. Coastal wetlands could be all but wiped out by the turn of the century, with a global loss of 20-90% predicted by 2100. Such a dire outlook will undoubtedly have extensive impacts for the planet and for modern-day human life, with physical risks to low-lying coastal communities in cities, small islands and other regions. All types of responses to sea level rise such as protection and ecosystem-based adaption will have a role to play in an integrated and sequenced response to rising sea levels. However, vulnerable communities, especially those in coral reef and polar environments will face adaption limits well before the end of the century – even under a low greenhouse gas emission pathway. Without major adaptation, flood damage every year can be expected to

increase by two to three orders of magnitude by the turn of the century.

The consequences for human livelihoods and wellbeing will be further exacerbated by the decreases in abundance, distribution shifts of species and depleted fish catches. Global-scale biomass of marine animals is projected to drastically decrease by 15.0 +/- 5.9%, with maximum catch potential of fisheries decreasing by 20.5-24.1 % by 2100 under a high-emissions scenario, 3-4 times larger than a low-emissions scenario, placing significant strain on incomes and food security.

"The SROCC brings together in one place a view of profound changes taking place and their potential consequences. Unless rapid action is taken to reduce greenhouse gas emissions, it paints a bleak picture. In the absence of concerted action, the changes taking place have enormous consequences for the ocean, and by extension, the Earth as a whole. From the loss of coral reefs and the rise of sea levels to ocean deoxygenation, the ocean is at a tipping point. The report is a clear call for us to act on climate change before it is too late for the ocean and for all life on earth." Prof. Ralph Rayner FIMarEST, Co-Chair of the IMarEST Special Interest Group on Operational Oceanography and Editor of the IMarEST's Journal of Operational Oceanography.

Options for climate-resilient development

While making for a sobering read, the report injects some optimism with a discussion on the viable options for best mitigating the climatic effects and preserving the marine and cryosphere ecosystems. The development of extensive networks of protected areas is suggested as a means to help maintain existing ecosystem services and facilitate the poleward and altitudinal movements of populations, species and ecosystems, shifts already occurring in response to sea-level rise and global warming. However, the SROCC warns that while effective, the cost of coastal habitat restoration will be considerable, ranging from thousands to hundreds of thousands of US\$ per hectare and that its effectiveness will be limited to low emission scenarios.

Such strategies can be supported by well-managed coastal blue carbon ecosystems like seagrass meadows, mangroves and tidal marshes that will provide coastal protection and support fisheries. However, again, the

effectiveness of such strategies is modest, with their global potential likely to only offset <2% of current emissions. Care must also be taken when deciding the appropriate mitigation strategies for coastal communities as the IPCC states the technical limits of some protection measures, such as hard coastal protection, will be reached under a high-emissions scenario by 2100 and the biophysical limits of softer ecosystem-based adaptation will be reached well within that time period.

The report concludes with a plea for the critically urgent, ambitious and coordinated implementation of low-emission pathways and adaptation actions to reduce the climatic impact on the ocean and cryosphere.

"The SROCC presents a very worrying prognosis for the health of our future oceans and the planet. It is imperative that we take immediate action and respond to these stark warning signs and implement robust, sustainable and collaborative plans to mitigate the consequences of climate change as best as we can before it is too late. The global membership of the IMarEST has a significant role to play. Addressing the issues highlighted by the SROCC will require the most competent, ethical and committed professional engineers, scientists, technologists and policymakers to work together, across disciplines, across divisions of age, experience and gender and across political and geographical boundaries. The IMarEST is uniquely placed to support the marine profession to raise this tremendous challenge." Dr Bev Mackenzie, Technical & Policy Director, IMarEST.

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

10th – 13th October 2019: Seventh Arctic Circle Assembly

Reykjavik, Iceland

The 7th Assembly of the Arctic Circle, the largest annual international gathering on the Arctic. The Arctic Circle is an open, democratic forum where anyone can ask a world leader a question during Plenary Sessions, bring innovative ideas to interactive workshops, or organize Sessions in their own name: the platform is yours.



Following consultations with Arctic Circle partners and participants, it has been decided to open the Arctic Circle Assemblies ONE day earlier, on Thursdays. Plenary Sessions will end on Saturdays and the party for all participants will take place on the Saturday evening.

The Arctic Circle is now offering Arctic Circle Tours on Sunday, October 13th to locations that provide new insight into fundamental challenges for the Arctic and our Planet. Iceland, its expertise, and achievements serve as the foundation for each tour. Arctic Circle Tours will provide opportunities to learn about the sustainable use of ocean resources through new technologies, clean energy transformations, the science of retreating glaciers and the impacts they experience from climate change, extreme-weather infrastructure, as well as some of the most famous tourist sites in Iceland, such as the Golden Circle and the Blue Lagoon.

During the Tours, participants will be able to interact with Icelandic scientists, experts and business leaders, while enjoying extraordinary experiences that give life to their understanding of global and Arctic issues. Some of the Tours are organized in collaboration with selected Strategic Partners of the Arctic Circle. The Tours will start in the morning and participants who wish to arrive

at Keflavík International Airport in the early afternoon will be able to do so for most of the Tours.

Some excursion elements are subject to minor changes, which will be announced beforehand. Tours may be cancelled if they do not reach a minimum participation threshold. Please note: only participants of the Arctic Circle Assembly can register for Arctic Circle tours. Complete your registration for the Assembly, receive your participant number and use it to register for the excursions. Already have your Arctic Circle participant number ?. Register for thematic excursions here: icelandtravel.artegis.com/lw/el/35a8a8a0b746c366b8ace7911e12e93b/My%20registration.htmlRegistration?formName=regFormTemplate45914&custom=1571&navid=22761&event=13070.

Arctic Circle Assembly participants are advised to arrive in Reykjavík on Wednesday, October 9th in order to participate in morning Sessions on October 10th. Participants who wish to attend October 9th Pre-Events should arrive on October 8th or earlier.

The Arctic Circle is attended by over 2000 participants from more than 60 countries: confirmed speakers represent governments, businesses, scientific institutions, indigenous associations, environmental organizations and other Arctic partners. Breakout Sessions will begin on Thursday morning and the Opening Session will be held after lunch on that day. In addition opportunities will be created for those who so desire to hold Breakout Sessions, working or networking meetings on Sunday morning. Pre-Events will consequently be on Wednesdays. The Arctic Circle Secretariat has received over 180 proposals for Breakout Sessions at the upcoming 2019 Arctic Circle Assembly; a record high.

Programs from previous Assemblies, which list all past Breakout Sessions, may be found at www.arcticcircle.org. The Arctic Circle provides an open, democratic forum for discussion and cooperation on Arctic Affairs.

22nd – 25th October 2019: MARELEC 2019

Woods Hole, MA, USA

Join us to find out more about using underwater and airborne autonomous systems to perform electromagnetic measurements in the marine environment. Cutting edge technologies and

developments will be presented by leading scientists, engineers and academics in the various disciplines of geophysics, geotechnical engineering, oceanography and naval warfare during the 2019 MARELEC conference.



The first two sessions of the conference programme focus on underwater and airborne autonomous systems enhanced to perform measurements in a range of geophysical, research and defence applications and will feature a range of presentations from industry and government experts: find out more here - www.marelec.co.uk/conferences-meetings/conference-programme/.

12th – 14th November 2019: Marine Autonomy and Technology Showcase (MATS) 2019 Southampton, UK



Registration is now open, conference.noc.ac.uk/mats-showcase-2019, for the National Oceanography Centre's (NOC) Marine Autonomy and Technology Showcase (MATS) 2019, which will take place from 12–14 November at the NOC's waterfront site in Southampton.

MATS 2019 promises to be the biggest showcase to date, with a record number of abstracts received and a wide range of exhibitors already on board. MATS 2019 will feature a packed three-day programme of exhibits, presentations, panel discussions and networking, offering a unique and valuable opportunity to find out about the latest developments in marine autonomous technology and how this field is set to develop in the years to come. The event also enables organisations to engage with the NOC to explore

opportunities around funding, sharing ideas and getting those ideas in front of influential, high-profile users from the marine and maritime sector.

The event will welcome a broad roster of speakers from across industry, academia, and government organisations. Each day of the showcase will see leading figures from the world of marine autonomy and technology take to the stage to present on innovative, disruptive technologies, as well as presentations on current developments and future priorities and challenges.

Marine autonomy is a transformative technology that continues to generate huge interest from major industry sectors, including offshore renewable energy, oil and gas, and defence, and the showcase event was established by the NOC in 2015 in response to this growing interest. Outside of industry, the technology has continued to capture the public imagination in the last 12 months with the global popularity of Boaty McBoatface, the name given to one of the NOC's Autosub Long Range autonomous underwater vehicles.

Tickets are priced at £180 (including VAT) for the three-day event, which includes lunch and refreshments, and access to the icebreaker drinks, and an evening networking supper. The full programme and biographies of the speakers will be announced in the coming weeks. Full details on how to register are available on the NOC Conference website, conference.noc.ac.uk/mats-showcase-2019.

A limited number of discounted Student places will be available to apply for one of these please apply to NOCevents@noc.ac.uk with your name, academic establishment details and your interest within the MATS event field.

13th – 15th November 2019: Oceanology International China

Shanghai, China

Oi China, www.oichina.com.cn/en-gb, attracts 6,000 attendees from over 20 countries, this is your chance to position yourself as a leader in the industry to professionals from across Asia's marine technology and ocean science community. This year specific topics include:

- Unmanned Vehicles
- Ocean ICT
- Ocean Observation and Sensing

- Positioning and Navigation

20th - 24th January 2020: 9th EUROLAG conference on coastal lagoons and transitional environments

Venice, Italy.

www.eurolag9.it/



16th February 2020: Ocean Obs Research Coordination Network (RCN) OceanObs'19 Conference follow-up meeting

San Diego, USA

The Ocean Obs RCN will host an OceanObs'19 Conference follow-up meeting immediately preceding the AGU/TOS Ocean Sciences Meeting (<https://www2.agu.org/ocean-sciences-meeting/>).

The Ocean Obs RCN annual meeting on 16 February 2020 will be dedicated to the synthesis of threads and recommendations emerging from the OceanObs'19 Conference in Hawaii during September 2019. Of particular interest will be focusing the community on the planning for the implementation of initiatives emerging from OceanObs'19. The meeting will advance links between observation networks and operational users to facilitate the delivery of critical information to stakeholders, and to address critical policy issues that require multidisciplinary ocean observing systems.

The OceanObs RCN is an NSF-sponsored forum on all aspects of ocean observing. Discussions identify advances and challenges in ocean observing and may identify new technologies and

promote their cost-effective development, identify policy priorities, and highlight capacity building requirements for the next decade. This includes discussion of Decade of Ocean Science for Sustainable Development (2021-2030) being organized by the IOC (<https://en.unesco.org/ocean-decade>), and balancing ocean observations, science, use, and conservation requirements.

Jay Pearlman, Ph.D. Fellow IEEE, IEEE France, Director, Four Bridges jay.pearlman@ieee.org.

"Submit your Best Practices in Ocean Observing for peer-review: <https://www.frontiersin.org/research-topics/7173/best-practices-in-ocean-observing>

16th – 21st February 2020: AGU Ocean Sciences meeting

San Diego, USA

agu.confex.com/agu/osm20/prelim.cgi/Home/0.

Announcing session PS011 – “Vertical Transport: Pathways from the Surface to the Interior”.

The vertical transport of properties, including carbon, oxygen, and heat, is crucial for the production and export of organic carbon, ventilating the subsurface ocean, and modulating ocean-atmosphere exchange. However, vertical transport is poorly constrained observationally, and a challenge for models because vertical velocity is highly sensitive to small-scale processes and model resolution. We will discuss both physical and biological mechanisms for vertical transport on scales ranging from the mesoscale to smaller scales, and including processes affected by surface forcing, seasonality of the mixed-layer, restratification, advection, subduction, mixing, sinking and topography. We will address the underlying dynamics and kinematics for vertical transport of water and properties using multi-platform observations, modeling and theory, while exploring three-dimensional Lagrangian pathways and their spatial and temporal scales of coherence. The effects of such transport on the biological production and export of organic matter is of interest, as also, the large-scale and long-term implications for exchange between the upper ocean and interior. **Primary Chair**, Dhruv Balwada, Courant Institute of Mathematical Sciences. **Co-chairs**, Amala Mahadevan, Woods Hole Oceanographic Institution, Julius Johannes Marian Busecke, LDEO/Columbia University,

Daniel L Rudnick, Scripps Institution of Oceanography. **Primary Liaison**, Daniel L Rudnick, Scripps Institution of Oceanography.

17th – 19th March 2020: Oceanology International
London, UK



This is your opportunity to connect with new technical and strategic audiences from academia, government and over 15 other industries, all unified by their use of ocean technology.

Presentation subjects include:

- Offshore energy development
- Asset integrity and monitoring
- Hydrography, geophysics and geotechnics
- Coastal zone and shallow water
- Navigation and positioning
- Imaging and metrology
- Ocean observation and sensing
- Marine pollution and environmental stressors
- Automation and AI
- Unmanned vehicles and vessels
- Ocean ICT



3rd - 8th May 2020: European Geophysical Union (EGU2020)

Vienna, Austria

The programme for EGU 2020 is now available at meetingorganizer.copernicus.org/EGU2020/provisionalprogramme.

15th - 17th June 2020: INCISE 2020 "Canyons: human connections to the deep sea"

Cork, Ireland

On behalf of the international and local organising

committee we would like to announce early details for this event hosted at University College. The official INCISE 2020 website can be found at <https://www.incise2020.com/> where we will provide updates as the conference develops.

INCISE (International Network for Submarine Canyon Investigation and Scientific Exchange) is an annual forum bringing together scientists from around the world working on all aspects of submarine canyon research, and to stimulate discussions across disciplines. This cross-discipline approach allows scientists to collaborate and initiate a holistic approach to canyon research. The bi-annual conference brings together 80 - 100 geologists, biologists, engineers, oceanographers, ecologists and environmental managers. It provides a truly multidisciplinary and exciting forum for the exchange of knowledge and generation of ideas that underpin sustainable submarine canyon management.

At this early stage, we also welcome proposals and suggestions for pre-conference workshops to be hosted at INCISE 2020. For ideas, suggestions and proposals, please email: incise2020@gmail.com. We look forward to welcoming you to the City of Cork to experience our culture, engage in scientific discussion and discovery and enjoy the benefits that INCISE engagement offers. - **Prof Andy Wheeler and Dr Aaron Lim**

21st - 25th June 2020: 6th International EcoSummit Congress, EcoSummit 2020 - Building a sustainable and desirable future: Adapting to a changing land and sea-scape, Gold Coast, Australia

This conference series was founded in 1996 in Copenhagen, as a forum for scientists, practitioners, and policy-makers working across disciplines to solve the integrated environmental, social, and economic problems facing the world today. Since 1996, EcoSummits have occurred around the world (Canada, China, USA and Europe), with EcoSummit 2016 hosting 1400 participants from 87 countries in Montpellier, France.

EcoSummit 2020 will have a focus on coastal and marine ecosystems including adjacent terrestrial ecosystems and all habitats that are integrated within those ecosystems, including river networks, wetlands and catchments. We expect all aspects

of environmental modelling, engineering, science, and policy to be covered under the focus of climate adaptation and the need for developing socio- economic and environmental resilience and sustainable prosperity around the world. Further focus will be placed on fragile systems that are more likely to suffer the consequences of climate change and anthropogenic pressure such as islands, coastal communities and arid landscapes.

In the current context of an increasing world population, in particular in coastal regions, it is evident that building sustainable cities and using resources sustainably is inevitable. It is envisaged that the Summit will produce a declaration encompassing its vision and policy recommendations. We welcome your participation and look forward to seeing you at EcoSummit 2020. Abstract submission is now open; this is an open Call for Abstracts for presentations and posters to be submitted against the symposium topics listed on the conference website ecosummitcongress.com/. Abstract submission deadline: 15 November 2019.

Side events will also take place during Ecosummit 2020. If you wish to participate in a side event, please contact the organiser by email beforehand, as the number of places is limited in each event. There is no abstract submission to side events. Still time to submit a symposium or side event proposal: www.ecosummitcongress.com/participation-events.asp. For more general information Visit the EcoSummit 2020 website: ecosummitcongress.com.

EcoSummit 2020 Co-Chairs:

Robert Costanza, Crawford School of Public Policy at Australian National University, Australia.

Bai-Lian (Larry) Li, University of California, Riverside, USA.

Jan-Olaf Meynecke, Griffith University, Australia

7th - 11th September 2020: Challenger Society Biennial Meeting

Oban, Scotland



The biennial Challenger conference attracts around 300 leading UK marine scientists, science managers and early career scientists. As well as showcasing cutting edge marine science and

technology, the conference is noted for its training of young scientists and networking events, including a public lecture by an eminent authority on relevant societal marine issues.

The range of sponsorship opportunities are listed below. The conference organiser is Professor Nick Owens, and commercial exhibition organiser Terry Sloane will be happy to discuss any requirements that you may have.

Terry Sloane by email: terry@planet-ocean.co.uk or phone 01276 427 971

www.challenger2020.co.uk

www.challenger-society.org.uk

❖ Sponsorship Packages

Headline sponsor of conference (one only):

- 3m x 2m exhibition stand in prime location with 2 delegate passes
 - Prominent name and logo on the conference website and abstract book acknowledging
- MAIN SPONSOR**
- leaflet in delegates bag,
 - Full page advert on inside front cover of abstract book
 - Free "Gold upgrade"

£1600

Individual sponsorship opportunities:

Sponsors of individual elements of the event will be acknowledged in the lecture theatres, abstract book, on the conference website and on posters. Those sponsors with manned exhibition stands are able to upgrade to the **Gold package**, where they will have the opportunity to have a 5 minute speaking slot at the start of the plenary sessions.

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| • Manned exhibition stand 3m x 2m with 2 delegate passes | £600 |
| • "Gold Upgrade" (only five slots available) | £100 |
| • Co-sponsorship of conference dinner | £750 |
| • Co-sponsorship of ice breaker reception | £700 |
| • Co-sponsorship of poster session | £500 |
| • Co-Sponsorship of public lecture | £500 |
| • Sponsorship of keynote speaker | £550 |
| • Exhibition banner unmanned | £200 |
| • Brochure in delegates bag | £200 |
| • ¼ Page advert in conference handbook | £150 |
| • ½ Page advert in conference handbook | £300 |
| • One A4 leaflet in delegates bag | £100 |

Corporate society members benefit from a 15% discount

Once again the call is out for sponsors and exhibitors wishing to participate in next year's conference. The conference is a great place to be if you are recruiting marine science graduates.



For the only the third time, the conference will be held at SAMS (Scottish Association for Marine Science in beautiful OBAN. SAMS hosted the first post war conference back in 1946 and since then only once more since in 2006.

5th - 9th September 2022: Challenger Society Biennial Meeting – celebrating the 150th anniversary of the Challenger Expedition

London, UK

To be hosted by the National History Museum, just a 'date for the diary', stayed tuned.

The CSMS email address is info@challenger-society.org.uk. Contributions for next month's edition of Challenger Wave should be sent to: john@vectisenvironmental.com by the 31st October.

We continue to send printed copies of Challenger Wave to members of the CSMS without email addresses. However it is in everybody's interest to send your email address to Jennifer Jones, jxj@noc.ac.uk, as soon as possible

JOBS

VACANCY NOTICE IMEDEA(CSIC-UIB) · Mallorca

Publishing date: 13 September 2019

Closing date: vacancy will remain open until filled

The Mediterranean Institute for Advances Studies (IMEDEA) is offering a contract in data analysis and physical oceanography. The applicant will join a team of experts in physical oceanography, remote sensing and in situ data analysis of the Oceanography and Global Change Department.

Tasks:

- Statistical analysis of Essential Climate Variables for the global ocean: sea level, surface currents and waves. The products available in the C3S Climate Data Store database will be used.
- Comparison with data external to the database.
- Implementation of specific diagnoses for the variables to be analyzed.
- Production of technical semi-annual reports and contribution to the deliverables of the service contract.
- Participation in meetings (via teleconference and face-to-face) of the project.

Service contract:

- The selected candidate will work under the C3S_511 (Quality Assessment of ECV Products) contract funded by ECMWF in the frame of the Copernicus Climate Change Service (C3S).

Requirements:

- Degree in Physics, Engineer or equivalent
- Skills in computer science (Python) and data analysis
- Good oral and written communication skills (in English)
- Self-directed learning skills and autonomy
- Availability for travelling
- Immediate availability.

Additional knowledge:

- Background in physical oceanography and oceanographic data processing.

The position is initially available for one year starting end of 2019 with a possible extension in the frame of new funded projects. The gross annual salary will be between 25.000 € and 35.000 € depending on previous experience. Applicants should submit CV and contact details of two referees to Ananda Pascual (ananda.pascual@imedea.uib-csic.es), Antonio Sánchez (asanchez@imedea.uib-csic.es) and Marta Marcos (marta.marcos@uib.es).

The CLS Ocean and Climate cluster is recruiting a "Physical Oceanography Study" engineer to strengthen the existing team.

The main mission of the station is to carry out studies and developments related to the maintenance, improvement and valorization of multi-observation products for medium dynamic topography and surface currents. The complete job description (in French) is available on the CLS website: <https://www.cls.fr/jobs-carrieres/>.

Stephanie Guinehut

E-mail: sguinehut@groupcls.com

There are jobs on the IMBER web site

<http://www.imber.info>

**IMBeR**

Integrated Marine Biosphere Research

Jobs and opportunities

- Physical and chemical oceanographers: Join the US GO-SHIP cruise (March-April/May 2020). Apply by 15 Oct
- Postdocs for 2020: Any research topic conducted at the Scripps Institute of Oceanography, La Jolla, CA, USA. Apply before 25 Oct
- Assistant Prof: Earth and Planetary Science, University of Berkeley, Ca, USA. Apply by 30 Oct
- Postdoc: Physical Oceanography, WHOI, Woods Hole, USA. Apply by 31 Oct
- Postdoc: Coupled biological-physical modelling and ecological data analysis, WHOI, Woods Hole, USA. Apply by 31 Oct
- Intern: Science and strategy, Oceana, Washington DC, USA. Apply by 31 Oct.
- Postdoc: Role of plankton in nitrogen cycling and organic matter mineralization. University of Montana, Missoula, USA. Apply by 1 Nov
- Assistant Prof: Earth data science, UBC, Vancouver, Canada. Review of applications start 1 Nov
- Simons Foundation grant for 2020: Early Career Investigator in Marine Microbial Ecology and Evolution. Letter of intent by 5 Nov
- Two track-tenure marine policy positions, WHOI, Woods Hole MA, USA. Apply by 31 Dec
- Senior scientist: Ocean acidification, EAP, Lacey, WA, USA. Closing date: Continuous
- UNESCO/Japan Research Fellowships for postgraduates from developing countries : Apply by 29 Nov
- Postdoc: Marine chemistry, University of Southern Mississippi, USA. Position open until filled

Visit the IMBeR Website

imber@imr.no