

Challenger Wave



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

NEWS

The latest CSMS Travel award winners

This round's travel award recipients are Elin Thomas from Queens University Belfast attending the IUCN World Conservation Congress in Marseille, Yixi Zheng from the University of East Anglia attending Ocean Sciences, and Eleni Christoforou from the University of Glasgow also travelling to Ocean Sciences. Many congratulations to them all and we look forward to seeing their reports in Challenger Wave shortly.

Call for new members of the National Oceanography Centre Association of Marine Science National Capability Beneficiaries (NOCA) Steering Board

The NOC Association of Marine Science National Capability Beneficiaries (NOCA), noc.ac.uk/about-us/our-national-role/noc-association, established and constituted by the National Oceanography Centre (NOC) is the primary vehicle for NOC's engagement with the beneficiaries of NOC-led marine science National Capability. The NOCA Steering Board is a non-executive body whose primary role is to provide advice to the Chief Executive of NOC on:

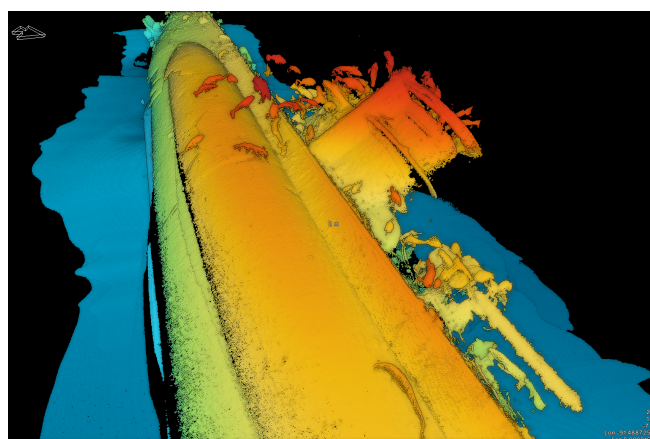
1. the strategic development and delivery of marine science national capability and facilitating those engaged in the NERC funded marine science community to work together to advance UK marine science for public benefit and
2. the wider leadership role of NOC within UK and international marine science.

As several members of the NOC Association Steering Board have now completed their term of membership, we are seeking to recruit five new members. If you are interested in applying, further

details are available here: careers.noc.ac.uk/vacancy/new-members-noca-steering-board-410229.html. Enquiries by email or telephone to the NOCA Secretary, Jackie Pearson, are very welcome. Please feel free to share details of this opportunity with colleagues: Jackie Pearson, National Oceanography Centre Telephone, 023 8059 6097 or Email, jfpea@noc.ac.uk.

Sonardyne acquires underwater imaging and inspection specialist 2G Robotics

Marine technology provider Sonardyne International Ltd. has acquired underwater imaging and inspection specialist 2G Robotics Inc. 2G Robotics will join the Sonardyne group of companies, while remaining an independent business and brand, continuing to serve its customer base in unmanned and autonomous underwater vehicles (AUVs) and remotely operated vehicles (ROVs). 2G Robotics' founder Jason Gillham will continue to lead the company as Chief Executive Officer.



The acquisition of 2G Robotics is the latest step in Sonardyne's long-term growth strategy and follows the acquisition of Danish survey software company EIVA last year. John Ramsden, Sonardyne's managing director, says, "2G Robotics has a dedicated research team and well developed product and service lines, with scope

for growth. As an independent company, their offering is complementary to the growing range of products and services our wider group of companies provides to the marine sector.”

Jason Gillham adds, “Sonardyne is a great fit for us, with their existing global reach. We look forward to growing with their support and working with our new partners.” 2G Robotics is based in Ontario, Canada. The company was founded in 2007, and will continue to operate from its current location. The terms of the acquisition, which was for the business and assets of 2G Robotics Inc., were not disclosed.

VIEWS

EMODnet 2nd Open Conference and Jamboree - Save the date: 22-25 September 2020

Five years after the first edition, we are delighted to announce the organisation of the second EMODnet Open Conference (22-23 September 2020) and Jamboree (23-25 September 2020). During the event, EMODnet partners, communicators and data providers/users will take stock of EMODnet achievements over the past 10 years, connect across stakeholder communities and set goals for the future.



To start the week, the EMODnet Open Conference will focus on use cases and ocean data and observation requirements to develop essential open marine data services for blue economy actors, public sector, civil society and researchers: www.emodnet.eu/conference2020.

Applications are now being accepted for IMBeR's ClimEco7 summer school

Given the multitude of challenges currently facing the oceans, interdisciplinary ocean science is needed to generate rigorous data, conclusions and projections that can inform effective ocean governance, shape 'blue' sustainable development initiatives, and support social-ecological sustainability.

In keeping with the UN Decade of Ocean Science for Sustainable Development (2021-2030) to provide the science we need, for the ocean we want, ClimEco7 will draw on the expertise of lecturers from the natural, social and economic sciences, to enable participants to develop a strong theoretical and applied understanding of interdisciplinary ocean science. Participants will also gain practical skills through a variety of interactive workshops.

ClimEco7 provides the opportunity to spend extended time with an amazing group of researchers who work in diverse areas of marine research. They will all be there for the whole thing, including the fun parts !, www.imber.info/en/events/climeco-imber-summer-schools/imber-climeco7-summer-school/lecturers.

We welcome applications from MSc and PhD students, and early career researchers (who obtained their PhDs < 7 years ago), from any country and any discipline of marine science. Because of the practical nature of the summer school, numbers will be limited to a maximum of

70 participants. The IMBeR ClimEco summer schools are great! Apply before 9 March to be part of ClimEco7: www.imber.info/en/events/climeco-imber-summer-schools/imber-climeco7-summer-school.

Proposals are now being accepted for Sessions at the Eighth Arctic Circle Assembly, to be held October 8 – 11, 2020 in Reykjavík, Iceland.

Sessions at the Arctic Circle Assembly are held in auditoriums, lecture halls, board rooms, and open spaces throughout Harpa and nearby venues. Sessions are organized by governments, institutions, organizations, universities, think tanks, companies and others. In addition the Arctic Circle itself organizes Plenary Sessions at the Assemblies. For Information, visit www.arcticcircle.org/assemblies/2020/proposals.

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

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 a 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



Celebrate the world's largest ocean technology exhibition and conference. Oceanology International is turning 50, and you are invited to the celebration. The event brings the industry together, from businesses to government and thought leaders from different sectors, to offer the latest information and technology that are moving our oceans.

Dramatic progress in ocean surveying is unlocking previously unimaginable opportunity across the ocean tech community. The 50th Anniversary Oi expo looks ahead to the next half century of surveying and services, bringing together 500 companies in 17,000 m² of exhibition space designed to inspire. Survey and services are key dimensions of the current ocean tech revolution, enabling new kinds of insight into the ocean floor, aquatic life and ongoing change in our oceans.

Progress in automation is unlocking previously unimaginable opportunity across the ocean tech community. It's a unique chance to meet the teams behind the innovations and see the

technology in action. From subsea controls to autonomous survey boats, aerial drones to independent sample collectors, unmanned systems will streamline operations and deliver new depth in detail and data.

This is a unique chance to find out what's possible, meet the teams and see the technology in action. Register online now to attend Oi 2020: www.oceanologyinternational.com/.

Visit the show to:

- Have access to a free and interactive educational programme that will inspire and inform you on key industry topics.
- Meet experts and do business – the show offers more than 500 exhibitors, global suppliers of cutting-edge technology.
- Stay up to date with regulations and policies to make more effective decisions for your business and projects.
- Explore features such as the Ocean ICT Zone, focused on marine and ocean IT, communications, satellite and data solutions.

Here are some of the exciting developments for 2020:

- Expanded Dockside Demonstrations - we doubled the number of companies demonstrating technology at the dockside so you have even more options for an immersive experience.
- New tracks at this year's conference - Asset Integrity and Monitoring, Coastal Zone and Shallow Water, Data Interpretation and AI, and much more. Full programme coming soon.
- Expanded Ocean ICT Zone – More exhibitors and technology at the area dedicated to the latest IT and Communication Technologies for the Ocean Space.

To succeed in your future ocean strategies, you need to be where the people shaping them are. Register now to Oceanology International 2020 and celebrate our 50th anniversary where the industry is.

Our technical sessions unpack the latest developments and insights on essential topics, including:

- offshore energy development

- asset monitoring
- navigation and positioning
- hydrography, geophysics and geotechnics
- environmental stressors
- data interpretation and AI

It's shaping up to be a sensational show and an occasion no one in the Ocean tech community can afford to miss.



In its 50 years, Oi has consistently advanced with the community involved in exploring, monitoring, developing or protecting the world's oceans by providing networking across different sectors, knowledge exchange from various disciplines and valuable business opportunities. That reflects on the developments of the show programme year by year and the new benefits for attendees.

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

Vienna, Austria

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

ESSI1.1 - Informatics in Oceanography and Ocean Science.

The session presents the **state of art information systems in oceanography** (metadata, vocabularies, ISO and OGC applications, data models), **interoperability** (Virtual Research Infrastructures, Interoperability forms, Web services, Quality of Services, Open standards), **data circulation and services** (quality assurance / quality control, preservation, network services) and **Education in ocean science** (Education and Research, Internet tools for education). The 2020 session should provide new ideas on the interoperability issues deriving from different sources of data.

Nearshore processes: fluid motions and sediment transport

The nearshore zone is one of the most dynamic places on earth. Here, the perpetual interaction between waves, tides, wind and the seabed drive the fluid motions that initiate sediment transport

and, ultimately, shape the world's coastal areas. The magnitudes and spatiotemporal scales at which these processes act vary tremendously, and understanding the small-scale processes that underlie large-scale coastal dynamics remains a challenge.

This session welcomes contributions that focus on small scale (from turbulence to mean flow, sand grains to ripples) physical processes in the nearshore zone of wave-dominated coasts. Ranging from approximately 10 m water depth up to the shoreline, this region comprises the shoaling, surf and swash zones. Topics include cross-shore and alongshore wave field evolution, wave-breaking and turbulence, swash-zone processes, cross-shore and alongshore current structures, extreme events, sediment mobilisation and transport, and biophysical interactions. This session will include abstracts describing field measurements, numerical and laboratory modelling, theoretical analysis, and model-data assimilation. We particularly welcome studies including innovative data collection approaches, or with a focus on uncertainties in measurements and predictions.

Further details of the session and the general assembly can be found at: <https://meetingorganizer.copernicus.org/EGU2020/session/36177>. With this session we hope to further raise the current coastal research profile at EGU. For those that are not familiar with EGU, but do know AGU: the annual General Assembly is similar to the AGU Fall meeting, hosting a wide range of interesting sessions that link to our field.

Co-conveners:

Timothy Price - Utrecht University, the Netherlands

Matthieu de Schipper - Delft University of Technology, the Netherlands

Nadia Sénéchal - University of Bordeaux, France

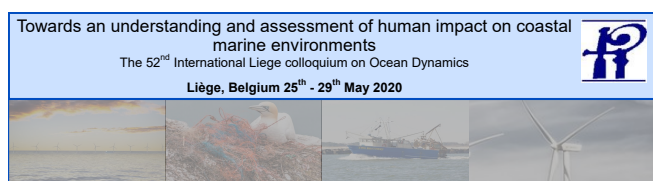
Àngels Fernández Mora - SOCIB Balearic Islands Coastal Observing and Forecasting System, Spain

25th - 29th May 2020: 52nd International Liège colloquium on Ocean Dynamics: towards an understanding and assessment of human impact on coastal marine environments

Liège, Belgium

The coastal ocean is under increasing multiple (climate and not-climate) pressures that affect its functioning and health, and compromise the

provision of services to society. The set-up of a scientifically underpinned ecosystem-based management scheme for the coastal ocean requires a thorough understanding of human impacts on the physics, biogeochemistry and biodiversity at large scale. Such a management scheme should be firmly embedded in the science-management-policy interface, taking account of selecting useful and communicable indicators for the ecosystem health, targeting ecosystem services and making use of novel analytical tools acknowledging the complexity of Drivers-Pressures-Stressors-Impacts-Responses (DPSIR) interactions.



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The 52nd international Liege colloquium will gather an interdisciplinary community of scientists to overview the progress in our capabilities to understand, monitor and forecast the impact of human activities on coastal marine environments to guarantee a productive and healthy system as requested by the EU Marine Strategy Framework Directive and the UN Sustainable Development Goal 14.

Regular sessions will be held on the following themes:

- Assessing the impact of sedimentary changes on the coastal ocean physics, biodiversity and biogeochemistry.
KEYNOTE : **Martin Solan** (University of Southampton, United Kingdom)
- Assessing the impact of marine structures on the coastal ocean physics, biodiversity and biogeochemistry.
KEYNOTE : **Jennifer Dannheim** (AWI and HIFMB, Germany)
- Assessing the impact of land-based pressures on the coastal environment, river-estuary-coastal ocean coupling.
KEYNOTE : **Marjorie A.M. Friedrichs** (Virginia Institute of Marine Science, USA)
- Multiple stressors, multi-use, cumulative effect assessment, including climate change.
KEYNOTE : **Philip Boyd** (University of Tasmania, Australia)
- Ecosystem services.
KEYNOTE : **Tara Hooper** (Plymouth Marine Laboratory, United Kingdom)
- Indicators definition for ocean health assessment in connection with SDG14 and GES assessment.
KEYNOTE : **Ángel Borja** (AZTI, Spain)
- Science base for marine spatial planning.
KEYNOTE : **Vanessa Stelzenmüller** (Thünen Institute, Germany)

SIDE EVENT:

A special event gathering scientists, stakeholders and industries is foreseen for reviewing current knowledge and gaps on offshore wind farms impacts on biodiversity and biogeochemistry. The special event will set the scene for a follow-up discussion during a networking reception directly following the presentations.

Website: <http://labos.ulg.ac.be/gher/home/colloquium/>

Place of the Conference:

University of Liège - Place du 20-Août, 7 - 4000 Liège - Belgium

Organization Committee:

Ulrike Brackman (UGent, BE)
Arthur Capet (ULiège, BE)
Steven Degraer (RBINS, BE)
Marilaine Grigore (ULiège, BE)
Tom Moens (UGent, BE)
Karine Soetaert (NIOZ, BE)
Jan Vanaverbeke (RBINS, BE)
Gert Van Hooij (ILVO, BE)

Scientific Committee:

Tundi Agardy (Marine Conservation, US)
Salvatore Arico (IOC-Unesco)
Silvana Birchenough (CEFA, UK)
Ángel Borja (AZTI, SP)
Denise Breitburg (Smithsonian, US)
Joop Coolen (Wageningen Marine Research, NE)
Valérie Cummins (University College Cork, Future Earth Coast, IE)
Farid Dahdouh-Guebas (ULB, BE)
Minhan Dai (Xiamen University, CN)
Ghada El Serafy (Deltare, NE)
Emmanuel Harant (UCL, BE)
Stéphane Isoard (EEA)
Philippe Lalaye (UAC, Benin)
Diego Macías (URC, IT)
Patrick Meire (UABE)
Angélique Melet (MOI, FR)
George Petts (Eunodos)
Pierre Pettigee (IFREMER, FR)
Nadia Pinardi (UB, IT)
Augustin Sanchez-Arcilla (Polytechnic University of Barcelona, SP)
Irene Schloss (University of Ushual, AR)
Emily Snell (NOAA, US)
Emil Stanev (HZG, GE)
Adrian Stancu (GeoEcoMar, RO)
Vanessa Stelzenmüller (Thünen Institut, DE)
Michiel Vandegehechulte (VLIZ, BE)
Johan van der Molen (NIOZ, NE)

Assessing the impact of sedimentary changes on the coastal ocean physics, biodiversity and biogeochemistry.

KEYNOTE Speaker: **Martin Solan** (University of Southampton, United Kingdom)

Assessing the impact of hard substrate introduction on the coastal ocean physics, biodiversity and biogeochemistry.

KEYNOTE Speaker: **Jennifer Dannheim** (AWI and HIFMB, Germany)

Assessing the impact of land-based pressures on the coastal environment, river-estuary-coastal ocean coupling.

KEYNOTE Speaker: **Marjorie A.M. Friedrichs** (Virginia Institute of Marine Science, USA)

Multiple stressors, multi-use, cumulative effect assessment, including climate change.

KEYNOTE Speaker: **Philip Boyd** (University of Tasmania, Australia)

Ecosystem services.

KEYNOTE Speaker: **Tara Hooper** (Plymouth Marine Laboratory, United Kingdom)

Indicators definition for ocean health assessment in connection with SDG30 and GES assessment.

KEYNOTE Speaker: **Ángel Borja** (AZTI, Spain)

Science base for marine spatial planning.

KEYNOTE Speaker: **Vanessa Stelzenmüller** (Thünen Institute, Germany)

SIDE EVENT: A special event gathering scientists, stakeholders and industries is foreseen on **Tuesday May 26th** afternoon for reviewing current knowledge and gaps on offshore wind farms impacts on biodiversity and biogeochemistry. The special event will set the scene for a follow-up discussion during a networking reception directly following the presentation.

A special Issue of Biogeosciences will be published with selected contributions from the Colloquium. Further details (scientific committee, submission, registration, deadlines, venue...) are available on the web site (<http://labos.ulg.ac.be/gher/home/colloquium/>). We are looking forward to welcoming you in Liège - **Organizing committee**

The 52nd international colloquium will gather an interdisciplinary community of scientists to overview the progress in our capabilities to understand, monitor and forecast the impact of human activities on coastal marine environments to guarantee a productive and healthy system as requested by the EU Marine Strategy Framework Directive and the UN Sustainable Development Goal 14.

Regular sessions will be held on the following themes:

27th May 2020: Structures in the Marine Environment 2020

Glasgow, Scotland

The question of structures in the marine environment and the impact their presence or removal may have on marine ecosystems continues to attract interest from across stakeholder groups.



INSITE



Following the success of the first conference in 2019, at SIME 2020 our continued focus will be on the robust evidence base needed to support appropriate environmental management and policy / regulatory decision making. SIME 2020 will be held at the Technology and Innovation Centre, Glasgow, and we look forward to sharing further details in due course.

1st - 3rd June 2020: ESSAS Annual Science Meeting

Sapporo, Japan

ESSAS (Ecosystem Studies of Subarctic and Arctic Seas) will hold its annual science meeting in 2020 on "Linking past and present marine ecosystems to inform future fisheries and aquaculture". The list of meeting sessions will be posted soon, stay tuned, essas.arc.hokudai.ac.jp/what_s_new/2020-essas-annual-science-meeting/.

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**

17th - 19th June 2020: 9th International Workshop on Marine Technology - MARTECH 2020

Vigo, Spain

The organising Campus de Excelencia Campus do Mar (University of Vigo, Spain) and the Universitat Politècnica de Catalunya (UPC, Spain) call for papers for MARTECH 2020, www.martech-workshop.org.

The main objective of the MARTECH Workshop is to show latest investigations and exchange of information and points of view on current research in MARine TECHnology. The Program Committee cordially invites you to participate and submit your contribution in one of the proposed topics:

- Operational Oceanography
- Instrumentation, Metrology, Signal processing
- Seafloor observatories and sensor networks
- Observatories, remote sensing
- Marine Robotics: ROVs, AUVs, ASVs, Gliders
- Underwater imaging and communication
- Seafloor and Water Column characterization
- Technology for Marine Biology and Aquaculture
- Renewable energies
- Coastal, regional, and offshore research vessels and platforms
- Marine Geophysics technology and solutions
- Marine Data Interoperability and data flow
- Technologies for a sustainable dredging
- 2020 as a point between the past and the future



Researchers and technologists are invited to submit a short abstract along with authors' names, affiliation, paper title, work description and keywords. All submissions must be made electronically through the conference web site. Abstracts will be reviewed by the Technical Program Committee. Authors of accepted abstracts must register for the workshop.

Abstracts will be published and printed in the Instrumentation Viewpoint magazine ISSN 1886-4864 DLB-32814-2006 and it will be included with the conference materials. Full papers will be published electronically as Conference Proceedings.

Important Dates:

**** Due to the interest aroused among researchers, the Organizing Committee has decided to extend the abstract submission deadline until the **15th February** ****

- Early Bird registration March 31th, 2020
- Martech 2020 June 17th- 19th, 2020

Yours sincerely, Dr. Ana Bernabeu, General Chair and Dr. Joaquin del Rio, Steering Committee Chair

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, practioners, 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.

The Scientific Committee is developing a program that will highlight the advances and research made to address the current environmental problems facing our changing world. A focus will be on the sustainable solutions to the most pressing problems of our time.

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.

Early-bird registration rates are available until 27 March 2020, www.ecosummitcongress.com/conference-register.asp.

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.

22nd - 25th September 2020: EMODnet 2nd Open Conference and Jamboree

Oostende, Belgium

Five years after the first edition, we are delighted to announce the organisation of the second EMODnet Open Conference (22-23 September 2020) and Jamboree (23-25 September 2020). During the event, EMODnet partners, communicators and data providers/users will take stock of EMODnet achievements over the past 10 years, connect across stakeholder communities and set goals for the future.



To start the week, the EMODnet Open Conference will focus on use cases and ocean data and observation requirements to develop essential open marine data services for blue economy actors, public sector, civil society and researchers: www.emodnet.eu/conference2020.

7th - 9th October 2020: Marine Alliance for Science and Technology for Scotland 10th Annual Science Meeting (ASM)

Glasgow, Scotland

Join us at the Technology and Innovation Centre, Glasgow. We will look back at the significant progress made by our partners and collaborators, and look forward to 2021, which sees the start of the decade of ocean science for sustainable development. We will examine the modern challenges that face our marine waters, and identify ways and means to conserve and sustainably use the oceans, seas and marine resources for sustainable development.

This cross-disciplinary meeting brings together members of the marine science community, with the aim of promoting and communicating research excellence and forging new scientific collaborations. The cross-disciplinary nature of the event as well as the high calibre of the selected talks means that scientists can broaden their knowledge in marine science as well as benefit from expertise and ideas gained in a range of fields other than their own. Science presentations and e-poster sessions will take place on the first two days, together with Plenary Speakers and opportunities to network.

We are delighted that IMarEST is sponsoring the student prizes for the 2020 ASM. Best Presentation - £200 first prize and a £100 second prize and Best Poster - £130 first prize and a £70 second prize. Winners of the Best Presentation and Poster will be invited to attend the IMarEST Scottish Branch evening lecture to obtain their certificate and prize (travel cost to be reimbursed by IMarEST). You must be a student member of IMarEST to be eligible for these prizes, www.imarest.org/membership/membership-registration/upgrade-your-membership/student-member-simarest.

E-poster submission deadline is 16.00 on Monday **28th September 2020**.

On the third day the venue will host a number of meetings and workshops: If you are interested in hosting one of these, or if you are interested in **exhibiting** at the 2020 event, or anyone wishing to showcase or demonstrate a piece of kit/equipment please email Dr Emma Defew, ecd2@st-andrews.ac.uk. For further general information, please visit, www.masts.ac.uk/annual-science-meeting/.

8th – 11th October 2020: Eighth Arctic Circle Assembly

Reykjavik, Iceland

Proposals are now being accepted for Sessions, which will now run for either 55 or 60 minutes. Sessions at the Arctic Circle Assembly are held in auditoriums, lecture halls, board rooms, and open spaces throughout Harpa and nearby venues. Sessions are organized by governments, institutions, organizations, universities, think tanks, companies and others. In addition the Arctic Circle itself organizes Plenary Sessions at the Assemblies. SUBMISSION DEADLINE: MAY 1st, 2020. For Information, visit www.arcticcircle.org/assemblies/2020/proposals.

11th – 14th January 2021: The Fifth Xiamen Symposium on Marine Environmental Sciences

Xiamen, China

Background

To promote interdisciplinary studies in marine environmental science and to foster the next generation of ocean scientists, the State Key Laboratory of Marine Environmental Science (MEL, <http://mel.xmu.edu.cn/en>), Xiamen University initiated the Xiamen Symposium on Marine Environmental Sciences (XMAS) in 2014, with the overarching theme **The Changing Ocean Environment: From a Multidisciplinary Perspective**. XMAS has grown to be one of Asia's largest conferences in marine sciences and acts as a hot spot to exchange research interests in global and regional oceans.

Its fifth iteration, XMAS-V (<http://melmeeting.xmu.edu.cn/xmas5>) will be held in Xiamen from **January 11th to 14th, 2021**. XMAS-V will focus on how **Multidisciplinary Sciences Can Serve a Sustainable and Healthy Ocean**. It will be one of the important hallmarks of Xiamen University's centenary celebrations. The symposium will consist of different, interconnected sessions covering physical oceanography, marine biogeochemistry, biological oceanography, and marine ecotoxicology along

with workshops for emerging topics in marine environmental sciences such as how to achieve the goals outlined in the United Nations Decade of Ocean Science for Sustainable Development (2021-2030).

MEL was established in 2005 under sponsorship from the Ministry of Science and Technology of China (MOST). It has been awarded The Excellent State Key Laboratory twice in two recent official reviews by MOST. MEL is dedicated to interdisciplinary cutting-edge research in marine environmental sciences, with particular strengths in marine biogeochemistry and ecosystem studies.

Originally known as Amoy, Xiamen is an island renowned for rich cultural relics, a pleasant climate, and beautiful natural scenery. It is located on the southeast coast of China and has a long history of international commerce. It has a monsoonal humid subtropical climate characterized by mild and dry winters (average January temperature around 15 °C /59 °F).



Important Dates

January 1, 2020: Call for Session/Workshop Proposals Begins
April 30, 2020: Call for Session/Workshop Proposals Ends
May 15, 2020: Decision of Proposals Sent
June 1, 2020: Abstract Submission Begins
August 31, 2020: Abstract Submission Closes
September 30, 2020: Authors Notified of Acceptation
October 1-31, 2020: Registration
November 15, 2020: Scientific Program Posted

Chair of XMAS-V

Minhan Dai, Xiamen University

Local Organizing Committee

Yawei Luo
Zhilian Cao, Yongxiang Huang, Xing Jian, Xin Lin, Jian Ma,
Dalin Shi, Shanlin Wang, Siqi Wu and Wei Zhuang

Organizers

State Key Laboratory of Marine Environmental Science, Xiamen University
Department of Earth Sciences, National Natural Science Foundation of China

Contact

Ying Huang
xmas@xmu.edu.cn +86-592-2181571



The State Key Lab of Marine Environmental Science (MEL), Xiamen University and the Earth Science Division of the National Natural Science Foundation of China (NSFC) are going to hold the fifth bi-annual meeting XMAS-V. The theme of XMAS-V is **Multidisciplinary Sciences Serving a Sustainable and Healthy Ocean**. More information about the meeting can be found at <http://melmeeting.xmu.edu.cn/xmas5/>.

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 28th February.

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

There are jobs on the IMBER web site

<http://www.imber.info>



IMBeR

Integrated Marine Biosphere Research

Jobs and opportunities

- Assistant Teaching Prof: Marine Science, Mississippi, USA. Open until filled
- Asst./Assoc. Prof: Ocean Engineering. Mississippi, USA. Open until filled
- Assistant Prof: Biological Oceanography, Mississippi, USA. Open until filled
- Postdoc: Fisheries Ecology and Population Dynamics, URI, USA. Review of applications start 8 Feb so apply NOW
- PhD: Ecosystem services. UFZ; Germany. Apply by 10 Feb
- Temporary Project Consultant: Ocean acidification. IOC, Paris, France. Apply by 13 Feb
- Senior Oceans and Coasts Policy Advisor, The Nature Conservancy, Arlington, Va USA. Apply by 14 Feb
- Gund Postdoc Fellowships: Interdisciplinary environmental research, Vermont, USA. Apply by 15 Feb
- Postdoc: Benthic Ecology at LSCE/IPSL, Gif-sur-Yvette, France. Apply soon. No deadline given
- 17 PhDs and 12 Postdocs for "Changing Earth – Sustaining our Future" program at AWI, Germany. Apply by 16 Feb
- Submit an article to Frontiers Research Topic: Phytoplankton dynamics under climate change: Abstracts by 21 Feb
- Undergraduate ocean acidification summer research lab and cruise opportunity. During July and Aug 2020. Apply by 23 Feb
- PhD: Experimental approaches to test the effect of climate change on marine diazotrophs, Marseille, France. Apply by 28 Feb
- Ocean Plastics Research Manager. Ocean Conservancy, Portland, OR, USA. No deadline given
- Postdoc: Biogeochemical modelling, UAF, Fairbanks, USA. Apply by 14 March
- Women in Ocean Science Scholar and Intern awards to work in the Caribbean. Scholars apply by 28 Feb, Interns by 15 March
- Junior Research Group Leader: Marine political ecology. AWI, Germany. Apply by 29 Feb
- Assistant Teaching Prof: Marine Science, University Southern Mississippi, USA. Review of applications starts 1 March
- NF-POGO Centre of Excellence training in Observational Oceanography, AWI, Germany. Starts Oct 2020. Apply by 15 March
- Postdoc: Mollusc aquaculture, University of Bologna, Ravenna, Italy. Apply by 31 Mar
- Four Postdocs: Marine Sciences, IsBlue Labs, Brest, France. Apply by 23 April
- MSc: Fisheries science (2 years funding), MUN, St John's, Canada. Apply by 15 May
- PhD: Fisheries science (4 years funding), MUN, St John's, Canada. Apply by 15 May

Visit the IMBeR Website

imber@imr.no