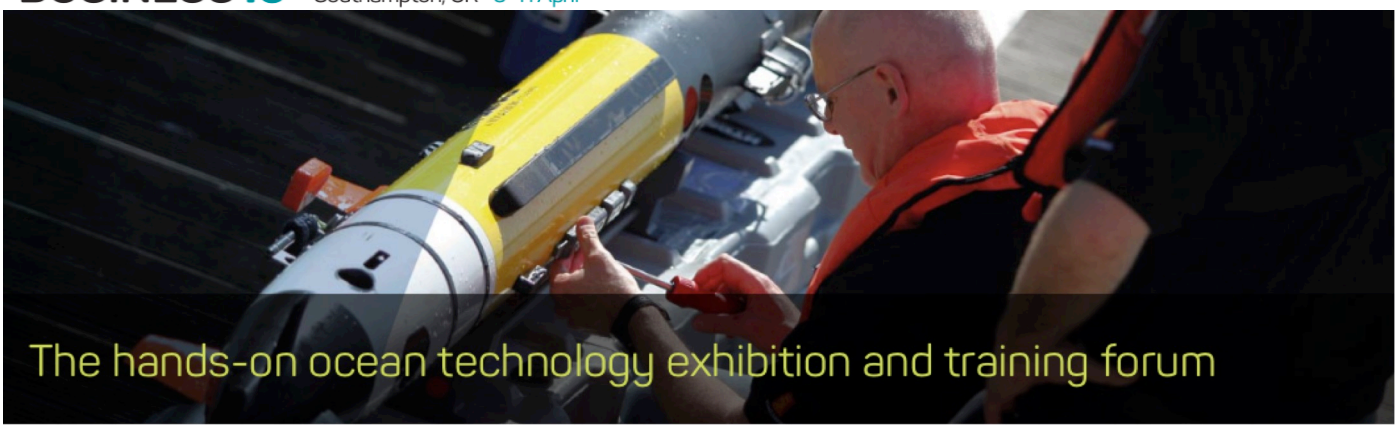
March 2019

Challenger Wave

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



NEWS

Minke whale sound recorded for the first time off Scotland's east coast

The Minke whale is one of the largest marine species regularly visiting the Scottish coast but its secretive and unpredictable lifestyle mean much of its behaviour remains a mystery.

Now marine mammal researchers at the Scottish Association for Marine Science (SAMS) and Marine Scotland Science (MSS) have recorded the sounds of Minke whales off Scotland's east coast for the first time, as they seek to learn more about these unique creatures. Their findings, which are included in a paper published Tuesday in the journal Scientific Reports were drawn from data collected by MSS, as part of the East Coast Marine Mammal Acoustic Study (ECOMMAS) array of underwater sound recorders, a long term Scottish Government monitoring project.

Although ECOMMAS was developed primarily to monitor the east of Scotland bottlenose dolphin population, SAMS marine ecologist Dr Denise Risch used software she and colleagues from Cornell University, New York, developed, to pick out the Minke whale's underwater sounds, known as pulse trains, from two years' worth of recordings.

Minke whales are among the largest marine species regularly visiting the Scottish coast but little is known about their behaviours and lifestyle

Dr Risch said: "Although Minke whales are often seen around Scotland, they have so far rarely been recorded acoustically. Their calls are produced at lower frequencies compared to those of other species like dolphins, which makes them difficult to record from moving platforms, such as boats. By using static underwater recorders, the MSS team were able to record Minke whale

sounds near to the Scottish east coast, which is really exciting. To get a better idea of how animals use these sounds and how we can use them to assess populations, we need more year-round recordings further from shore because low frequencies do not travel well in shallow waters."

Minke whales can grow to 8-10 metres in length but are hard to track because of their behaviour. Unlike Humpback whales and dolphins, they do not 'display' when they come to the surface. And despite being sighted around the globe, the whereabouts of Minke whale breeding grounds and migration routes are not clear.

"Acoustically, the Minke populations across the globe are very different," explains Dr Risch, who has also studied Minke whales off the east coast of North America and Antarctica. "They have very pronounced 'accents' based on where they are in the world. We've studied the Humpback whale song for the past 40 years but the Minke whale sounds across the world were described relatively late, which just adds to its mystery. There is a lot we still have to learn but what we do know about the Minke whale is fascinating."

Dr Risch will now use the same methodology to monitor Minke whales on the west coast of Scotland, as part of the COMPASS project. Environment Secretary Roseanna Cunningham said: "This exciting study highlights how we might use acoustic monitoring to study the presence and distribution of whales in Scottish waters. It is also testament to the excellent collaboration between Marine Scotland Science and SAMS that builds on international research in the US."

International Society for Microbial Ecology / Earth Systems Sciences - Ocean Microbial Biomes / RGNO course 2019 in Namibia

We are pleased to announce the 6th course of the Regional Graduate Network in Oceanography (RGNO), a SCOR-supported cooperative Research and Capacity Building Initiative in southern Africa. The course will again be hosted by the University of Namibia's Sam Nujoma Marine Research Center in Henties Bay and Namibia's National Marine Information and Research Center in Swakopmund, and take place between April 28 and May 24, 2019.

The African RGNO is a research-driven, intense learning experience in the biogeosciences of the Benguela Current Ecosystem (BCE), a particularly interesting ocean habitat. Participation is most valuable for people who are actively involved in an ongoing research project to which the course topics can contribute and who would like to apply their skills to a better understanding of the BCE.

The graduate network's success depends on the initiative of its participants, their ability to cooperate as partners in course research projects and their commitment to developing ocean sciences in Africa and worldwide.

The time plan and details for a successful application can be found via the link: www.microeco.ethz.ch/rgno_namibia_18-21/RGNO_Namibia.html. Applications must be sent to the course director and coordinator, Dr. Chibo Chikwililwa at the University of Namibia (UNAM), chibochikwililwa@yahoo.co.uk before March 10, 2019. Chibo will also respond to inquiries and advise accepted participants on visa applications, housing and transportation in Namibia. Questions regarding the cruise should be sent directly to Dr. Deon Louw deonlo@yahoo.com or to Richard Horaeb rhoraeb84@yahoo.com. Richard is also directing the MEEO (Marine Environmental Education and Outreach) activities. ***- Kurt Hanselmann, for the RGNO Organising Team***

VIEWS

Ocean Challenge – The Challenger Society's Journal

Ocean Challenge aims to spread information about, and improve understanding of, all aspects of marine science and technology. If you have an idea for an article about your research, or would like to present a perspective for discussion amongst the Challenger community please get in touch with the editor, Angela Colling (angelamcolling@gmail.com). The Chair of the Editorial Board for Ocean Challenge, Grant Bigg (grant.bigg@sheffield.ac.uk) would also be interested in hearing from you if you are interested in finding out what being a Board member involves.

The Marine Facilities Advisory Board (MFAB)

The purpose of the Marine Facilities Advisory Board is to gather views from the UK marine science community and report to the Executive

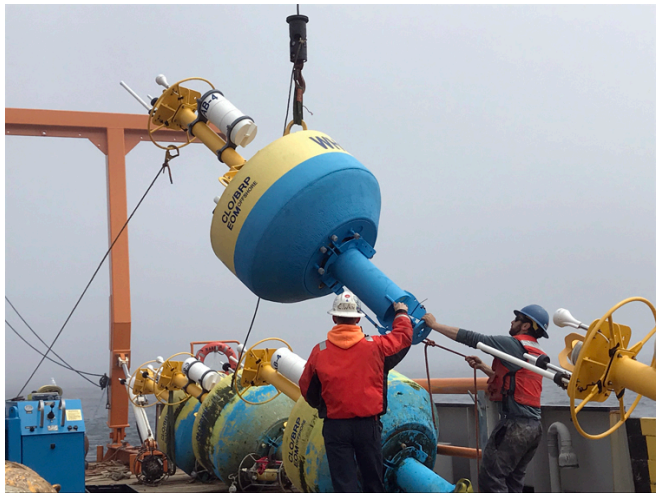
Director of the National Oceanography Centre on current capability and future development of the Natural Environment Research Council National Marine Equipment Pool.

For an overview of MFAB, please download the leaflet or for more detailed information, please visit the MFAB web-site. If you have a specific question, please contact the MFAB Secretary, Jackie Pearson, jfpea@noc.ac.uk Tel: 023 8059 6097. Your views and feedback are warmly welcome.

Planet Ocean Ltd is pleased to announce the signing of an exclusive distribution agreement with EOM Offshore LLC of Pocasset, MA USA for the UK and Ireland.

On February 21, 2019, Planet Ocean Ltd and EOM Offshore LLC formed a strategic relationship. Planet Ocean Ltd will now serve as an exclusive representative for EOM Offshore in the UK and Ireland. Planet Ocean represents a broad range of oceanographic instruments in the industry and the addition of EOM Offshore's specialized mooring equipment to its portfolio will strengthen the company's capabilities.

EOM Offshore is a Woods Hole Oceanographic Institution (WHOI) spinoff that was established to commercialize its patented Stretch EM Cable, along with its Electromechanical Chain and its Marine Recovery Systems. The Stretch EM Cable solves many problems commonly associated with traditional catenary mooring systems, and it provides an ideal platform for real-time acoustic monitoring, due to its ability to isolate ambient noise from acoustic sensors that are on the mooring.



EOM Offshore strives to develop new products using its patented Stretch EM Cable technology. EOM Offshore was recently awarded a Small Business Innovation Research grant to develop a version of its stretch cable carrying fibre optics, and it has developed a prototype for a conservation mooring that will be used to restore seagrass meadows in ports and harbours.

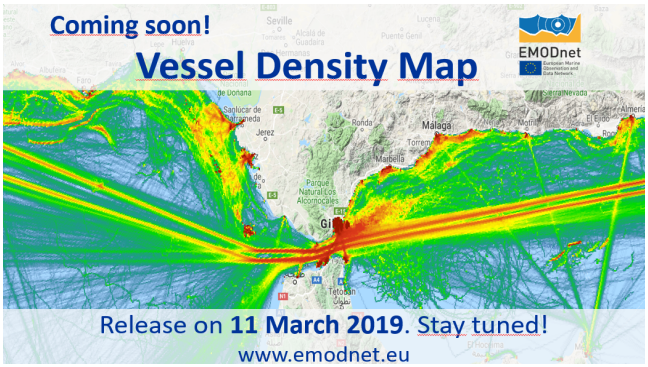
Terry Sloane MD of Planet Ocean commented "We are extremely proud to be associated with EOM Offshore. Two of the biggest problems associated with deploying data buoys are (a) keeping them on station in relatively deep water and (b) getting data and power to and from the buoy to an instrument fixed to the seabed. The EOM cables designed by engineers at WHOI, are essentially rubber cords that can stretch to 2.5 times their un-stretched lengths. This means that buoys can be deployed on tight moorings, restricting their movement on the surface. What is more remarkable about the EOM solution is that the rubber has cable embedded within so that data and power can be carried thus solving two problems at the same time".

EOM Chairman and CEO Dr. David G. Aubrey added: "EOM Offshore LLC is anxious to provide a broad introduction of its technology offerings to the market place, expanding from its enthusiastic adoption by U.S. academic institutions. By teaming with market leaders such as Planet Ocean Ltd, our tradition-breaking solutions will gain a broader application."

Coming soon - EMODnet Vessel density map

On the 11th of March 2019, EMODnet users will have access to a new data product. The EMODnet Vessel density map will offer graphical representation of shipping density in European

waters and will be available free of charge for viewing, downloading, processing and use from the EMODnet Human Activities portal.



Stay tuned on www.emodnet.eu.

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

7th to 12th April 2019: 2019 EGU general assembly
Vienna, Austria
The meeting programme for the EGU General Assembly 2019 (7–12 April, Vienna) was published in February, egu2019.eu/abstracts_and_programme/. With more than 1000 scientific sessions, debates, short courses and side events, and close to 17,000 abstracts, it promises to be a varied and exciting meeting.

OS4.9, "Recent advances in physics and biogeochemistry from gliders and other autonomous underwater vehicles", https://meetingorganizer.copernicus.org/EGU2019/session/30236. This session provides an open forum for interdisciplinary discussions of the latest advances in oceanographic applications of autonomous underwater vehicles, including their use and complementarity in combination with other platforms.

Topics for this session include physical (e.g. hydrology, hydrodynamics, acoustic, optic), geochemical (e.g. nutrients) and biological (e.g. primary and secondary production, biomasses) variability of the ocean, ocean processes at different spatial and temporal scales (from ocean turbulence to basin-wide circulation), and interactions between the ocean, atmosphere and land.

Looking forward to seeing you in Vienna, the conveners, Antonio Olita, Bàrbara Barceló-Llull, Louise Biddle, Federica Pessini and Simón Ruiz.

OS4.5/NP6.9, "The realm of (sub)mesoscale dynamics: variability, impact, and new challenges", https://meetingorganizer.copernicus.org/EGU2019/session/30232.

Mesoscale and submesoscale structures such as fronts, meanders, eddies, and filaments are found worldwide, from the global ocean to marginal seas. During recent years it has been shown that these features play a key role in the advection of heat, salt, biogeochemical properties, and in the enhancement of biological activity across all trophic levels. Due to their typical spatial and temporal scales, direct observations of these features remain currently an open challenge and their study requires a joint multi-platform effort combining in situ and remote sensing observations with theory and numerical models.

This session will provide a forum to properly address the new scientific advances associated with:
• Variability of (sub)mesoscale structures through observations (in situ and remote sensing), theory, and numerical simulations.
• 3D dynamics related to (sub)mesoscale features.
• Temporal and spatial interactions between different structures.
• Impact on mixing and transport of hydrographic properties.
• Physical and biogeochemical interactions.
• Limitations and improvements of the observational platforms and numerical simulations.
• A particular emphasis is put on challenges associated with the observation and numerical representation of subsurface (sub)mesoscale

eddies.

We are looking forward to meeting you in Vienna, the conveners, Bàrbara Barceló-Llull (IMEDEA (UIB-CSIC)), Angel Amores (IMEDEA (UIB-CSIC)) and Bruno Buongiorno Nardelli (CNR).

OS4.11, 'Copernicus Marine Environment Monitoring Service. This CMEMS session will focus on:

- research activities that are required to maintain CMEMS systems at the state of the art and prepare their long-term evolution, including (but not limited to):
  - for models: physical and biogeochemical modeling, coupling with coastal systems; coupling with sea-ice, atmosphere & waves; data assimilation both for physics (ocean, sea-ice, wave) and biogeochemistry; progress in short-term forecasts and assessment of forecasting skills.
  - for observations: impact of existing and future in situ and satellite observations for estimates of the ocean state; processing and analysis of remote and in-situ observations of the ocean; use of Sentinel products.
  - for long-term evolutions: seasonal to multidecadal regional projections for the coastal ocean and marine ecosystems, ocean model forcing from river discharge of freshwater and nutrients.
- verification, validation and uncertainty estimates of CMEMS products, forecasting skills,
- ocean monitoring and long-term assessment of the ocean physical and biogeochemical states,
- the use of CMEMS products for downstream applications.

Please note that presentations have not been limited to research teams directly involved in CMEMS; the convenors: Angélique Melet (Mercator Ocean, France, angelique.melet@mercator-ocean.fr), Stefano Ciavatta (PML, UK, s.ciavatta@pml.ac. uk), Emanuela Clementi (CMCC, Italy, emanuela.clementi@cmcc.it), Ananda Pascual (IMEDEA, Spain, ananda.pascual@imedea.uib-csic.es).

OS4.35, "Informatics in Oceanography and Ocean Science session". The session presents the state of art information systems in oceanography (metadata, vocabularies, ISO and OGC applications, data models), interoperability (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).

This 2019 session should provide new ideas on the interoperability issues deriving from different sources of data and new data streams. ISO standards introduce the necessary elements in the abstract process aiming to assess 'how' and 'how much' data meets applicable regulatory requirements and aims to enhance user needs. Data management infrastructures should include an evaluation of data by assuring relevance, reliability and fitness-for-purposes / fitness-for-use, adequacy, comparability and compatibility. The session aims also to create a link to the important initiatives on ocean literacy. Presenters are strongly encouraged to demonstrate how their efforts will benefit their user communities, facilitate collaborative knowledge building, decision making and knowledge management in general, intended as a range of strategies and practices to identify, create, represent and distribute data, products and information.

OS2.5, "Advances in Understanding of the Multi-Disciplinary Dynamics of the Southern European Seas". This session will overview recent developments and understanding, by observations and modelling, of the Southern European Seas (SES) general circulation, physical processes, biogeochemical interactions and their ecosystems.

Themes of particular interest are:
- Interaction of scales and processes in the SES: hydrodynamic and ecosystem interactions at multiple temporal and spatial scales (down to submesoscale), coastal processes and shelf-to-open sea interactions, straits dynamics, ocean response to atmospheric forcing, impact of environmental conditions on ecosystem functions from local to regional scales.

- Assessing, understanding and predicting the potential impact of climate change in the SES: long term trends, occurrence of extreme events, development of downscaled models at basin and regional scales, novel approaches to model marine ecosystems, ecosystem functions and

biodiversity.

- Integrated Observing System in the SES: development of new sensors, scale of interests, development of advanced methodologies for upscaling local information, new satellite products, processes that need to be monitored, identification of data gaps (eg. observing system experiments).

- Science-based Integrated management of the SES: support to Marine Spatial Planning and deployment of Marine Protected Areas , scenario studies, mapping of anthropogenic pressures, habitat and ecosystem services, potential support for nature-based solutions and/or sustainable exploitation of marine resource.

Looking forward to meeting you in Vienna. Gianmaria Sannino, Emil Stanev, Katrin Schroeder, Arthur Capet, and Alexander Mikaelyan

9th to 11th April 2019: Ocean Business 2019
Southampton, UK
As one of the most unmissable events in the ocean technology calendar, the organisers have been overwhelmed by how quickly re-bookings have been flooding in; “Never before have we had such an incredible response to re-booking exhibition space. Exhibitors see Ocean Business as the perfect platform to seek out new opportunities for a relatively low cost. Such a rapid and positive response has been astounding!” exclaimed Cheri Arvonio, event manager.

offshore SURVEY 19
Conference focused on the technology, operations and business issues in the global field of offshore surveying
9-10 April 2019 Southampton UK

The Offshore Survey 2019 Programme is now online. After an overwhelming response to the call for papers, the Offshore Survey conference technical committee has developed a high powered programme focusing on the technology, operations and business issues in the global field of offshore surveying. The conference promises two days of inspiring, intriguing and thought provoking sessions, offering delegates an insight into innovative technologies, case studies and reality checks, as well as some insight on the future potential of offshore surveys. Sessions include:

Autonomous Vehicles and Vessels
Future Industry Perspective
Satellite Derived Products
Coastal and Environmental
Imagery and Visualisation
Education and Competencies
Data and Digitalisation

Space is limited so delegates are encouraged to register online in advance.

The 2019 event will see the same winning formula as in previous years with an international exhibition, three-day programme of hands-on training and demonstration sessions, a cutting edge conference, various associated meetings, Ocean Careers and an amazing line of up social events keeping exhibitors and visitors networking around the clock.

Discover job opportunities and career advice within the ocean technology, marine science and offshore industries. Ocean Careers held alongside the Ocean Business event, offers advice on career opportunities: take part in one-to-one speedy meetings with key industry professionals and be inspired by presentations from leading global companies.

Brand new for 2019 - showcase your research to potential employers in a creative, engaging and non-traditional presentation. The audience will form the jury and vote on the winner. The winner will receive an award of £500. The RBR Ocean Science Slam is intended for graduate students engaged in ocean science and technology. The event will connect early career scientists with prospective employers, leading research faculty, and innovative ocean technology companies.

The organisers have opened up the last few remaining stands to new companies wishing to exhibit. Interested parties are encouraged to be quick as every show to date has been a sell out and for a number of years there has been a long waiting list. Space won’t be available for long. For

further information about Ocean Business, visit www.oceanbusiness.com/.

6th – 10th May 2019: 51st Liège colloquium on ocean dynamics: Polar oceans facing changes

Liège, Belgium

To be held at Place of the Conference: University of Liège – Place du XX-Août, 7 – 4000 Liège – Belgium.

Polar oceans are facing profound changes. The Arctic Ocean and the waters west of the Antarctic Peninsula are at the forefront of global warming, while the rest of the polar oceans will face changes in the very near future. The changes to face are not limited to a rise in atmospheric temperature and modification in the freshwater budget. Increases of economic activities (shipping, tourism, fisheries and mineral extraction), contaminants and invasive species also put polar oceans at risk. Changes are already witnessed in terms of ice shelf volume, wind patterns and precipitation, sea ice extent, ocean circulation, ocean acidification and freshening, primary productivity, biodiversity and community structure or ecosystem functioning. As polar oceans are key components of the Earth system, changes there will have global impacts such as sea level rise, changes in lower latitude oceanic productivity, and oceanic CO_2 uptake, among other ecosystem services.

The 51st Liège colloquium on ocean dynamics will address the observation and prediction of these changes and their consequences. More specifically, the following topics will be covered:

- ***Measuring anthropogenic impact and pollutants.*** This spans measurement of physical parameters, trace contaminants, inventory of climate related gases, micro plastics measurement, bio-indicators, monitoring economic activities
- ***Observing changes.*** Remote sensing is key to monitor sea ice and ice sheet shrinkage, ocean warming and freshening, changes in ocean circulation and environmental forcing. In parallel, several initiatives (e.g. AMAP, SOOS, SOCCOM, ASPeCt, ANTOS, INTAROS, SAON, CAFF, BEPSII among others) have developed to reinforce monitoring of the polar oceans and provide insights on current changes
- ***Assessing impacts.*** Anthropogenic forcing are impacting physical processes and biogeochemistry but also biodiversity and food web functioning. Tracking changes in an evolutionary perspective is challenging
- ***Specific cryosphere-oceans interaction***. At the interface between land and polar oceans, ocean interactions with ice sheets and sea ice are key in controlling ice-sheet balance, sea level rise and water mass transformation rates
- ***Enlarge our temporal perspective: paleo-oceanographic changes.*** Ocean sediment records provide paleoclimate proxy indicators of past changes. These benchmarks allow a better grasp on current changes in term of level, significance and rapidity
- ***Predicting future changes***. Modeling is a major tool to understand past and present changes and to predict future changes from a local to a global perspective. More specifically, simple ocean model, ice sheet or sea ice- ocean coupled model, biogeochemical model, dynamic energy budget, species/trait distribution model among others are well suited to investigate changes in polar oceans.
- ***Teleconnection and global perspective***. As a result of the teleconnection of polar oceans to the global ocean, changes in polar oceans can propagate more globally. Assessing such impacts is critical to understand actual and future changes of the global ocean
- ***Mitigation.*** Several tools can be used to mitigate or limit the impact of some anthropogenic pressures: enforcement of conservation measures, marine protected areas, sewage treatment, education and awareness raising that need to be further developed to tackle polar ocean changes.

Special sessions on dedicated projects are welcome. Papers dealing with the above-described subject are welcome and will be published in a special issue. Further details (submission, registration, deadlines, venue, etc) are available on the web site : labos.ulg.ac.be/gher/home/colloquium/. *Deadline*: Submission of abstracts **- 15th March 2019**. We are looking forward to welcoming you in Liège in the name of the Organizing Committee.

Sincerely,

Bruno Delille and Gilles Lepoint, (Chercheur Qualifié FRS-FNRS)

6th – 10th May 2019: GODAE OceanView Symposium, Ocean Predict '19
Halifax, Canada
The next GOV Symposium invites ocean scientists, ocean observation specialists, industry representatives, service providers and users of ocean data and products from across the local, national and international operational oceanography community to engage in science sessions, booth exhibitions and discussions to explore and define the direction of future operational oceanography.

GODAE OceanView continues to provide coordination and leadership in consolidating and improving global and regional ocean analysis and forecasting systems. The Symposium objectives include:

- Getting a common picture of future development in all aspects of Operational Oceanography
- Motivating integrated international community projects to further advance science and benefits of Operational Oceanography
- Enhancing end-user awareness of present capacity and providing collaborative output of future in operational oceanography and end-user engagement

The symposium is built around six major themes covering all aspects of Operational Oceanography. Abstracts will be invited to contribute to plenary, splinter and poster sessions. Especially welcome are representatives from the service provider and end-user community, to exhibit their work and products, and to engage with the science community.

Further information about the symposium, themes and description of sessions is now available from the OceanPredict '19 website: http://www.oceanpredict19.org.

We are looking forward to your participation; Fraser Davidson, Eric Chassignet, PN Vinayachandran and Kirsten Wilmer-Becker on behalf of the OceanPredict '19 Symposium Organising Committee. The Symposium is sponsored and supported by MEOPAR, DFO and other members of the GODAE OceanView Patrons Group.

10th – 11th May 2019: Arctic Circle Forum in China
Shanghai, China
The Arctic Circle will hold a Forum under the title "China and the Arctic," hosted by the Ministry of Natural Resources and the Ministry of Foreign Affairs of the People's Republic of China.

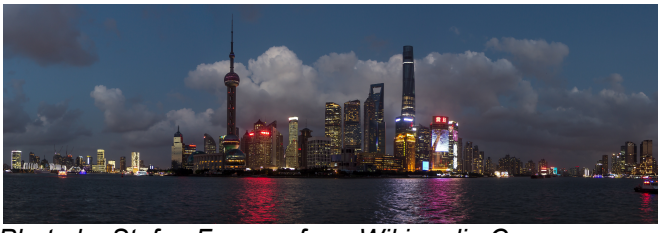


Photo by Stefan Fussan, from Wikimedia Commons

The Forum will be organized in cooperation with the Polar Research Institute of China (PRIC), the Shanghai Institutes for International Studies (SIIS) and Shanghai Science & Technology Museum, and will take place at Shanghai Science & Technology Museum. Significant discussion will be held on China's involvement in the Arctic through the Belt and Road Initiative, as well as dialogue on ocean and marine science, transport and infrastructure, renewable energy, indigenous socioeconomic development and stewardship, and Arctic governance. More program news and registration information will be published in March. The Arctic Circle provides an open, democratic forum for discussion and cooperation on Arctic Affairs, china@arcticcircle.org.

11th May 2019: Tides and the port of Liverpool
Liverpool, UK
The Merseyside Maritime Museum is hosting a one day meeting on Tides and the port of Liverpool. This meeting marks the 100th anniversary of the world-famous Liverpool Tidal Institute. Founded at Liverpool University in 1919, before moving to Bidston Observatory on the Wirral, this was the precursor of the Proudman Oceanographic Laboratory and the National Oceanography Centre. It also marks the start of teaching and research in Oceanography at Liverpool University, the first oceanography department in the UK.

This meeting is organised by the National Oceanography Centre and the University of Liverpool, in association with the Centre for Port and Maritime History (University of Liverpool, Liverpool John Moores University and Merseyside Maritime Museum) and the Liverpool Institute for Sustainable Coasts and Oceans (National

Oceanography Centre, University of Liverpool and Liverpool John Moores University).

The meeting will run from 10 am to 2 pm with free registration and free refreshments. For a list of speakers and to sign up, please go to: https://conference.noc.ac.uk/ocean-tide-and-port-liverpool and download a ticket. The National Oceanography Centre building in Liverpool will also be open that day for you to see the machines which made tidal predictions before the days of digital computers; see the above web site for information on that also. Please sign up yourself and spread the word to your friends, schools etc.

20th May 2019: Institute of Aquaculture Students' Association Careers Fair for Postgraduate Students

Stirling, UK

We would like to draw your attention to the event Aquaculture Careers 2019 organized by the Aquaculture Students' Association (ASA) at the Institute of Aquaculture, University of Stirling. This year the event is taking place a month later than usual, and will run from 09:15 – 16:00.

In the past the event has hosted some stands free-of-charge. However this year the students have decided to apply a nominal charge of £50 for a stand. This charge will contribute toward the sole significant overhead of the event, which is catering. Would this be of interest to any of your companies? In the last two years the event attracted 150 – 200 students of MSc/PhD level with a keen interest in Aquaculture. If this would be of interest, please could you contact Carolina Fernandez carolina.fernandez@stir.ac.uk who is President of the ASA.

20th – 24th May 2019: 8th EGO Meeting and International Glider Workshop

Rutgers University, New Jersey, USA

Save the days, express your interest at docs.google.com/forms/d/e/1FAIpQLSeEksxZdaYLtQc0Em9NMCsUaBWy6NEfZkY2ISu55i9CkkacuA/viewform.

17th – 21st June 2019: IMBER 2nd Open Science Conference

Brest, France

The 2nd IMBeR Open Science Conference. http://www.imber.info/en/events/osc--imber-open-science-conference/osc-2019/2019-imber-open-science-conference

8th – 18th July 2019: 27th IUGG General Assembly
Montreal, Canada
Details of the P02 symposium, Physics and Biogeochemistry of Semi-Enclosed, Shelf Seas, and Coastal Zones can be found below and at this link http://iugg2019montreal.com/p.html.

This interdisciplinary symposium provides a joint forum for oceanographers whose research focuses on physical, chemical, and biological processes in coastal zones, semi-enclosed and shelf seas of the World, as well as their responses to climate change and anthropogenic impacts. These areas are often characterized by complex interactions between land, ocean, and atmosphere, they exhibit rich dynamics driven by a variety of feedbacks and forcing mechanisms. Marginal seas and coastal areas are particularly vulnerable to climate change effects and anthropogenic stressors. Given their limited geographical extension and their sometimes constricted connection to the open ocean, these environments often exhibit shorter timescales in their responses to external forcing: this is why they are widely recognized as natural "laboratories" for studying oceanic processes and interactions between the physical, biogeochemical and climatic spheres. They also play an exceptionally important role in ecosystem services and socio-economic issues and require careful governance measures to avoid or mitigate environmental deterioration.

Gathering experts from different regions, the symposium will give a global perspective of the topic through comparison and elucidation of similarities and differences. Contributions on different regions are invited, related to themes such as innovative observational, theoretical, experimental and modeling studies of the hydrodynamics, marine biogeochemistry (e.g., nutrient dynamics, primary production, acidification, algae blooms) and the influence these regional seas and coastal zones exert on the adjacent basins/oceans and on the global scale. Studies of past, present and future climate variability are welcome, as well as interdisciplinary studies on the bio-physical interactions in semi-enclosed and shelf seas.

The convenor and co-convenors of this session are: Peter Zavialov (Russia), Jianping Gan (China), Osmar Moller Jr (Brazil), Katrin Schroeder (Italy).

17th – 19th September 2019: IOCCP meeting, OceanObs '19
Honolulu, Hawaii, USA
For more details of the IOCCP OceanObs'19 meeting, please go to http://www.oceanobs19.net/breakout-sessions/.

1st – 5th October 2019: 42nd CIESM Congress
Salzburg, Austria

The International Society for Ecological Modelling Global Conference 2019 have organised symposiums at the conference. The deadline to submit your abstracts is the 8th April 2019, www.elsevier.com/events/conferences/international-society-for-ecological-modelling-global-conference/submit-abstract.

This global conference, to be held at the Salzburg Congress Centre, is the 22nd biennial conference

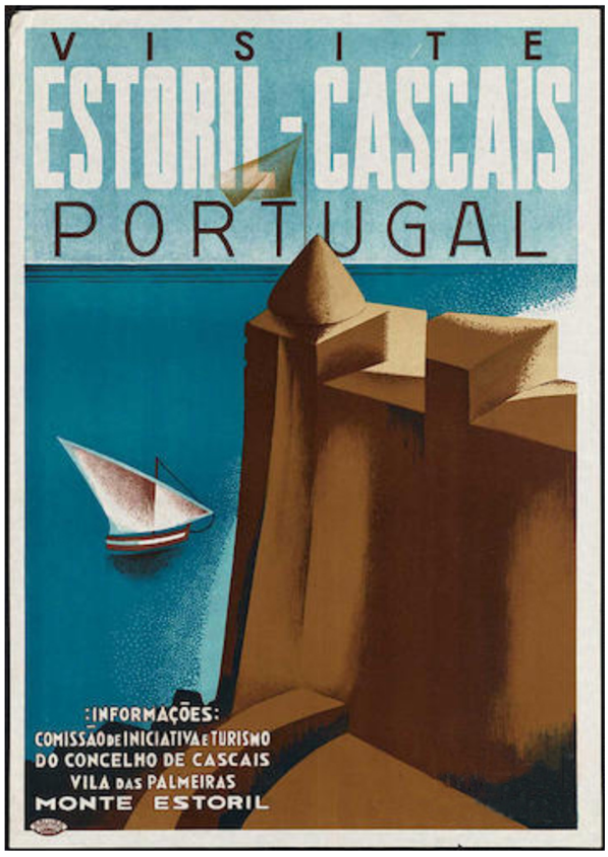
of The International Society for Ecological Modelling (ISEM) and will bring together scientists from all professions and applications that deal with the use of ecological models and systems ecology. The Conference Chairs are:

Gudrun Wallentin, Department of Geoinformatics, University of Salzburg

Tarzan Legović, Ruđer Bošković Institute

Brian Fath, Department of Biological Sciences, Towson University

7th – 11th October 2019: 42nd CIESM Congress
Cascais, Portugal
We hope to see as many of you as possible next October in Cascais, where our Congress will zoom in on the Atlantic/ Mediterranean interface. Some 1000 scientists will be there to share and debate their findings and their views on marine issues.



If your research matches one of our 76 Congress themes, we encourage you to submit a paper online. Do not wait much longer: Cascais is a picturesque town, highly popular with tourists and so hotels and pensions in the vicinity will fill up quickly. Have a close look at the Congress themes selected by our Science Council for the occasion, www.ciesm.org/. Please make a note that the period to submit your one-page illustrated paper online will run from 15th January to 5th April 2019. ***- Cordially, The CIESM Congress Team***

10th – 13th October 2019: Seventh Arctic Circle Assembly
Reykjavik, Iceland
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. On Sunday, thematic Excursions and Tours devoted to areas of interest to Arctic Circle participants will be offered.

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. Proposals are now being accepted for Breakout Sessions with a submission deadline of the 10th May 2019.

ARCTIC CIRCLE

Participation will be granted based on session topic, area of focus, goals, and room availability at the Harpa Reykjavík Concert Hall and Conference Center. When proposals are submitted, 50% of speakers need to be confirmed. 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.

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 29th March.

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

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JOBS

There are jobs on the IMBER web site

http://www.imber.info

IMBeR

Integrated Marine Biosphere Research

Jobs and opportunities

- Director, Integrated Marine Observing System, Hobart, Tasmania. Apply by 11 March
- Research position: Modelling to investigate marine ecosystem structure, functioning and dynamics, Bergen, Norway. Apply by 15 March
- Postdoc: Tuna populations and ecosystem modelling, Sète, France. Apply now, open until position is filled
- Associate Senior Lecturer: Marine Chemistry. Gothenburg, Sweden. Apply by 5 April
- PICES: Executive Secretary, Sidney, BC, Canada. Apply by 15 June
- PhD: Population bottleneck of batoids, KwaZulu-Natal Sharks Board, South Africa. Apply now
- Postdocs: Interdisciplinary graduate school for the blue planet ISblue Fellowships. Apply by 3 May
- Future Earth Ocean KAN Knowledge Mobilization working group
- 15 PhD scholarships: Long-term perspective on human exploitation of marine vertebrates. Applications open in March. Submit expressions of interest now
- PhD: Mercury biogeochemistry in oxygen minimum zones, Marseilles, France.

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