February 2017

Challenger Wave

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

NEWS

Interested to learn about the physics of the ocean ?

Apply now for participation in the WE-Heraeus Summer School on "Physics of the Ocean" on 10-14 July 2017 in Bad Honnef, Germany, www.futureocean.org/oceanphysics2017, Organisers: Martin Visbeck and David Marshall

This Summer School aims at providing a broader view of the ocean system from a physical perspective, encompassing a large range of scales and their interactions. Other than receiving lectures, the students will participate through various activities such as poster sessions, exercises, discussions and a field excursion. There will be a set of "Super Problems" introduced at the beginning of the summer school; the students will work on these problems throughout the summer school and present their results and solutions at the end. Participants are urged to contribute to the summer school by presenting work of their own, generally in the form of posters and active participation in discussion and working sessions.

Who can apply ?, young scientists, advanced master students, graduate students and first year postdoc, from all over Europe and beyond. Students from all fields with an interest in physics who want to increase their knowledge about the ocean can apply for participation in the summer school "Physics of the Ocean".

Interested ?, then please apply for the summer school here and upload your CV and letter of motivation. Deadline: 31 March 2017. Students will be selected based on their background and aspiration to enhance their career in marine sciences. Applicants are expected to have at least a basic knowledge of one of the sub-disciplines of environmental physics or marine sciences and they will usually be active in a research field somewhat related to the topic of the summer school. The registration fee for successful applicants is 100 € to be paid cash onsite. Full board and lodging at the Conference venue "Physikzentrum Bad Honnef" will be covered by the WE-Heraeus-Foundation. For questions please contact Sigrid Keiser, skeiser@geomar.de

SAMS scientists set to discover true impact of global warming on the Arctic Ocean

Major UK Arctic research projects that will help us better understand and predict the rapid environmental changes in the polar region have been awarded to the Scottish Association for Marine Science (SAMS). The Oban-based institute is leading two of the four main Arctic projects funded by the Natural Environment Research Council (NERC) through its £10m Changing Arctic Ocean programme and has involvement in the other two, led by the universities of Liverpool and Leeds.

The Arctic region has seen the most dramatic changes in climate over the past few decades, with ice melting at a quicker rate each year because of rapid warming. While the daily average global temperature rose by 0.55 degrees Celsius from 1979-2000, the temperature in the Arctic rose by 6.42 degrees Celsius for the same period. The average Arctic sea ice cover for November 2016 set a record low, leading to suggestions that sea ice cover could be at a tipping point, from which the region may not recover.

The two SAMS projects, Arctic PRIZE, www.sams.ac.uk/arctic-prize, and DIAPOD, www.sams.ac.uk/diapod, aim to help us understand these changes in the Arctic and how they will affect the climate, ocean properties, marine life and food stocks across the northern hemisphere. They will benefit from SAMS' expertise in marine

biology, physical oceanography and marine robotics.

Picture of the Lillehookbreen glacier taken from on board the research vessel Helmer Hanssen north-west of Spitsbergen, Svalbard

Arctic PRIZE is led by Dr Finlo Cottier, who holds an Adjunct Professorship at project partner University of Tromsø, the Arctic university of Norway. The project will address questions over how changes in sea ice and ocean properties will affect the large-scale ecosystem of the Arctic Ocean throughout the year and, crucially, during the relatively unexplored dark polar winter. SAMS robotics from the NERC-funded Scottish Marine Robotics Facility will be used to measure oceanographic data and take samples in this harsh winter environment and in places too dangerous for researchers to access. The project will then produce predictive tools to assess how the Arctic ecosystems will respond to a reducing sea ice cover. SAMS' long-term collaborators in Norwegian institutes are heavily involved in Arctic PRIZE.

SAMS' marine robotics will be used to shed new light on the dark polar winter

DIAPOD, led by Professor David Pond, will examine the role of the *Calanus*, a small shrimp like animal that is a crucial element of the marine food web. Current predictions suggest that a warming Arctic will reduce their numbers. Whales, seals and commercially-important fish stocks rely on *Calanus* as a high-energy food source.

The copepod Calanus, like this Calanus finmarchicus, is the main source of food for an array of Arctic species but their numbers are believed to be declining as the Arctic Ocean warms

SAMS Director Prof Nicholas Owens said: "SAMS is synonymous with research in the Arctic, a region that is giving us a window into the pace and effects of climate change. "In order to prepare for potential changes in our weather, our food stocks and our marine habitats, we must first understand how global warming is affecting our oceans now." For a short launch video on the projects, see: https://youtu.be/wNyCtZWyGTo.

NERC Chief Executive, Professor Duncan Wingham, said: "This £10m investment demonstrates NERC's commitment to high-quality research in the Arctic region, building understanding of how this complex marine environment is changing in response to global climate change. Profound and fast-paced change in marine ecosystems in the Northern Hemisphere has implications for the UK and internationally. Today's research into the impacts of stressors on Arctic marine ecosystems including diminishing sea ice, ocean acidification and pollutants will help scientists understand and predict future environmental change. It is vital to understand our changing Arctic Ocean, both to help manage environmental change globally and to inform appropriate decision-making around the use of our natural resources."

SAMS will host the UK Arctic Science Conference in Oban from Tuesday, September 19 to Thursday, September 21, 2017. As an academic

partner of the University of the Highlands and Islands, SAMS UHI offers a BSc (Hons) in Marine Science. Students can apply to study at the University Centre in Svalbard for a year to graduate with BSc (Hons) Marine Science with Arctic Studies.

History of Marine Science, a new initiative

At the CSMS Conference in Liverpool last September several people were concerned at the thought of the Society's Special Interest Group (SIG) on History being abandoned. As a result, a case was made for the SIG to be re-formed and in November Council agreed for the initiative to go ahead. It is presently being led by John Gould (Southampton) and Phil Woodworth (Liverpool).

Why is exploring, documenting and preserving the history of our science important and interesting ? Our present day capability to observe and model the oceans is built on earlier successes (and failures) and enabled by advances in generic technologies (computing, communication, electronics, materials). Here are just 3 examples.

- The present-day Argo profiling float array provides round the clock information on the ocean's temperature and salinity. Its roots can be traced back to John Swallow's success in the 1950s in developing a prototype neutrally-buoyant float to measure deep-ocean currents. In the 1960s Swallow's floats provided the first evidence of the energetic ocean mesoscale variability.
- Extending our knowledge of sea level rise back in time has been aided by discovering and exploring past tide-gauge records, trying to asses their quality and comparing them with modern day observations. These old records are sometimes discovered in the most unlikely places. They need rescuing before they are lost forever, and then analysed by modern methods.
- Biological, geological and physical/chemical samples collected on early expeditions (for instance the Challenger Expedition in the 1870s, the Discovery Investigations of the 1920s and 30s) provide us with the opportunity to study changes that have occurred in the oceans over many decades, the key to understanding climate change.

Behind the science are the people who made those ground-breaking discoveries, scientists just like us today. Who were they ? What motivated and influenced them ? What was life like for them many decades ago ? The History SIG seeks to explore many aspects of the contribution that the UK has made in all marine science disciplines and also to ensure that present day and recent material that may be of interest to future studies is captured and preserved.

We invite you to visit the History SIG tab on the CSMS web site, http://www.challenger-society.org.uk/History_of_Marine_Science_SIG, to explore what has been done already and what is planned. We hope you will then join the already rapidly growing group. ***- John Gould, Philip Woodworth***

The 2017 Summer School on HF and X-band radars is calling for applications

Courses will be hosted at Caen University and the Coastal and Continental Morphodynamic Lab (M2C) between 21st and 25th August, 2017. This Summer School, sponsored by Caen University, CNRS and the Coastal and Continental Morphodynamic Lab, is aimed at exposing researchers to:

- a general overview of radio-oceanography (history, marine applications, existing networks, etc.),
- a course on fundamentals for radio-oceanography to provide the tools for understanding subsequent lectures,
- a course on the different HF and X-band technologies and their measurements and validation steps,
- a course on data analysis methods for surface currents and sea states, with practical exercises on computers of Caen University,
- a course on data assimilation techniques for the inclusion of radar data in numerical models,
- two cases of study with HF radars: one for marine renewable energy (Iroise sea) and one for tsunami detection (American West Coast).

The program also includes a visit to the HF radar site in Cap de La Hague on the 22nd August. We invite applications from early-career researchers engaged in general research activities at academic and non-academic institutions, as well those enrolled in graduate and/or post-doctoral studies. More information is available at the Summer School web page: https://sites.google.com/site/anneclairebennis/Home/actualites

To apply, please send your CV and a one page

letter of motivation stating your rationale for attending the Summer School to ac.bennis@unicaen.fr and valerie.casado@unicaen.fr,by March 1, 2017. For further information, please contact valerie.casado@unicaen.fr

44 Invading species loose in the North Atlantic

Accidental introductions of non-native species has been of increasing concern since the 1980s when human-mediated transportation, mainly related to ships' ballast water, was recognized as a major route by which species are transported and spread. A review just published by PML Applications Ltd (the wholly-owned subsidiary of Plymouth Marine Laboratory, PML) and the University of Plymouth, brings together and updates evidence on invasive species for the NE and SW Atlantic Ocean, in order to assess the risk represented by the shipping trade between these two regions.

The study found that the pathways most frequently recorded as transporting invasive species are ballast water and biofouling for both regions, while aquaculture has also been a very significant route of introduction and spread of invasive species in the NE Atlantic. It also established that the number of non-native species that have become invasive with high ecological impacts are 44 in the NE Atlantic and 15 in the less well studied south-western Atlantic. Cecilia de Castro, lead author of the review, commented: "This study comes at a pertinent time, providing further evidence to highlight the importance of the IMO Ballast Water Convention, which has recently reached 35 per cent of world merchant shipping tonnage and will enter into force on 8/09/2017. Though countries such as the UK have yet to sign up, the convention remains a landmark step towards halting the spread of invasive aquatic species, which can damage biodiversity and local ecosystems, as well as create potential economic problems."

The subject of non-native species is a crucial issue that needs to be addressed to raise general awareness and publicity, alongside scientific surveys and monitoring, improved data availability, regulations, management tools, risk assessment, stakeholders' commitment, enforcement, best practices and constant surveillance. For example, Chinese mitten crabs are officially listed as one of the World's 100 worst invasive species. They can cause damage to fishing gear and river banks, block intake screens, modify natural habitats and compete with native species, and it is this economic and ecological damage that makes this crab such an unwelcome arrival. The full extent of these exotic pests in English and Welsh waters is currently unclear and a consortium of research institutes is requesting mitten crab sightings from members of the public, anglers and waterway workers, to clarify the distribution of this species.

Professor Jason Hall-Spencer is coordinating the UK-Brazil collaboration. He says: "An estimated 10,000 marine species are transported around the world in ballast water every day. This sometimes causes outbreaks of diseases such as Cholera in which 1000s of people die, and commonly introduces toxic algae which can cause massive kills of aquatic life. I would hope the UK signs up to the United Nations ballast water regulations to help secure healthy productive seas."

You can read the paper 'Invasive species in the North-eastern and Southwestern Atlantic Ocean: A review', here http://dx.doi.org/10.1016/j.marpolbul.2016.12.048

VIEWS

Reefs go live

Taking classrooms underwater is the objective of the Central Caribbean Marine Institute's latest educational initiative. Designed to let any student, regardless of location or physical ability, experience the wonders of life under the ocean's surface, ReefsGoLive is CCMI's latest initiative to promote ocean literacy and ultimately to create more stewards of the oceans, without them even having to get wet. ReefsGoLive is a virtual underwater experience with marine scientists communicating in real-time with students in the classroom, living room or on a mobile device, through the use of full face masks worn by the diver and the ability to live stream from underwater.

"We now live in a world where information and media is available in real-time", said Tom Sparke, Education Manager at CCMI who developed this initiative. "Education needs to be tailored to

connect with today's student. ReefsGoLive is an innovative tool that will engage with young students by taking them on a virtual dive with our marine scientists to unlock the secrets of Little Cayman's reefs. ReefsGoLive has the potential to change the way students interact with their pristine waters and aid in CCMI's mission to promote ocean literacy amongst young people."

The project has already been piloted with a live lionfish lesson delivered in real-time to a group of 25 students at Westwood High School in Massachusetts, USA. Teacher Mr. Michael Mao was keenly interested in the project; "The students in my class were very engaged in the lesson and indicated that it was more interesting than just watching a YouTube video", he explained. "They particularly liked the interaction with the scientists and the ability to get their questions answered immediately. It is a great way to expose students to field research and environmental issues."

Ocean literacy is one of CCMI's key mandates as it strives to take its cutting edge research and translate that information to the wider public through education programmes that will promote ocean stewardship globally. "ReefsGoLive will make it possible to broadcast live underwater lessons right into any classroom that has a weblink, said Dr. Carrie Manfrino, CCMI President. "The programme will help the CCMI to reach their long term goal for every child in the Cayman Islands to be ocean literate by the time they are 12 years old." Each year, CCMI offers scholarships for local school children to come over to the Little Cayman Research Centre, they host 10 local school programs, and their educators travel to Grand Cayman to teach part of their Young Environmental Leadership Course (YELC). "We have run out of space at the research centre during peak months for researchers and we have been looking for solutions. I am pleased that we will get closer to the grand vision of ocean literacy thanks to the ReefsGoLive project", she said.

Funding is required to purchase the equipment, develop the ocean literacy training modules, brand and promote the programme, and then deliver the programme into schools. To donate to this project, email coral@reefresearch.org. For more information on Reefs Go Live or to donate to the project, visit reefresearch.org/reefs-go-live.

The Central Caribbean Marine Institute is a US, UK, and Cayman Islands non-profit organization whose mission is to protect coral reefs for the future by strengthening our understanding of what contributes to resilience and by reinforcing discoveries that offer hope to restore the balance of healthy coral reefs. We engage children and communities in active coral reef conservation as a part of our Science and Society initiative. Public and private contributions support our work.

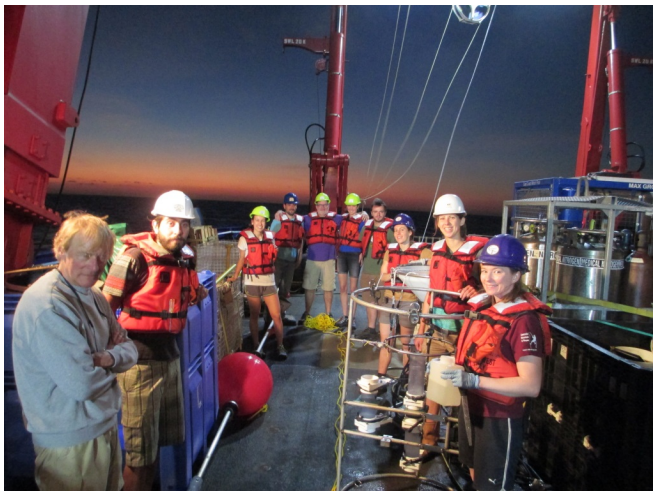
SALTS

Report from the Eastern Tropical North Pacific

I was awarded the Challenger Society Stepping Stones grant to allow me to collaborate with a group of American scientists and join their research cruise to the Eastern Tropical North Pacific. The cruise was led by scientists from the University of Washington, Seattle and brought together scientists interested in the degradation of sinking particles. I was fortunate enough to be invited to Join Prof. Rick Keil's group and help with particle trapping and in situ incubations, as well as collected pumped water samples.

The ship left from Manzanillo Mexico on 28th December, and once on board the work began prepping the floating sediment trap incubators (PHORCYS) and making sure we were all ready for the first set of deployments. It was great to learn more about the techniques they used and the tracers that we would be using to monitor different reactions in the incubators. We were working in the oxygen minimum zone off Mexico, so were particularly interested in the anaerobic

reactions. After the usual couple of days to really get everything working correctly we were catching lots of particles for everyone to use for their experiments. The research cruise lasted just over two weeks, we deployed a total of 42 traps and 60 water pumps, a great achievement for the whole group. It was really interesting to be able to learn about the different experiments going on board the ship and was a great chance to network with some amazing scientists from the US and Mexico.



The night time trapping team

Working at night to deploy and recover the sediment traps, we managed to escape the intense heat of the day and got to enjoy concocting ourselves the curious meal that is 'mid-rats' where pretty much anything goes from cereal, to curry to ice cream! We'd start the day with breakfast, and finish with dinner, overlapping with the rest of the scientists on board and getting the chance to chat about what they were working on.

Deploying the sediment trap incubators

It was a great chance to really learn more about American Institutions and the process of getting post-doc positions etc, as well as just getting some great career advice from those who'd been in the game a long time. Despite becoming creatures of the night and only seeing a little daylight, we were treated to some beautiful sunrise, sunsets and moonsets. Check out the cruise blog at hohohomz.wordpress.com to find out more about life on board and the science we were doing.

One of the amazing sunsets

It has been an incredible 3 weeks, and I really want to thank the Challenger Society for helping me to form these strong networks and to enable me to learn lots of great new skills that I can apply to my own research and share with others in the UK. I've opened the door for possible future collaborations/post-docs with the US team, and know that from the strong friendships formed I will always be able to seek their advice in the future.

Having a great time at sea

I'd really encourage everyone to apply for the Stepping Stones grant as it is a great way to help you boost your career and explore your interests, hopefully setting the seed for a long scientific career ahead.

- Anna Belcher, NOC, Southampton

CALENDAR

14th-15th February 2017: EMODnet Sea-basin Checkpoints Stakeholder Conference

Brussels, Belgium

There will be another opportunity to meet and consider the future requirements for more efficient and effective marine observation and data acquisition, management and open-sharing practices in Europe at the forthcoming EMODnet Stakeholder Conference and Sea-basin Workshops, at the Royal Flemish Academy of Belgium for Science and the Arts. This Stakeholder Conference provides an exciting opportunity to showcase the work of the EMODnet Checkpoints.

20th-24th February 2017: Marine Imaging Workshop 2017

Kiel, Germany

The Marine Imaging Workshop 2017 follows on from a successful 2014 workshop, and invites anyone using visual imagery in the marine realm: scientists, engineers, researchers, regulators, and commercial partners. The focus is on developments and challenges in methods of marine optical imaging: imagery acquisition, processing and manipulation, annotation, segmentation and automated strategies, data management, application to scientific aims, and outlook and future developments.

Important Dates

30 Sept 2016	Registration and abstract submission open
8 Nov 2016	Abstract submission deadline
25 Nov 2016	Abstract acceptances announced
16 Dec 2016	Registration deadline
13 Jan 2017	Photo competition entry deadline
20-23 Feb 2017	Workshop

Registration

Attendance is limited to 120. Those with presentations (talk/poster) will be given preference – limit of 1 talk per attendee (additional posters available).

Please register on the workshop website. The registration fee is 250 € (+optional conference dinner), to be paid upon abstract acceptance.

Photo competition

Submit your best marine images to be judged for prizes! Adriana Basques is an international award winning underwater photographer who will judge the entries (http://www.adrianabasques.com). See contest rules on the workshop website.

Accommodation

Special rates at some Kiel hotels are provided for workshop attendees. Details are on the workshop website.

www.marine-imaging-workshop.com

23rd-28th April 2017: European Geosciences Union General Assembly

Vienna, Austria

Craig Smeaton from the University of St. Andrews will convene session BG3.3/OS3.9, entitled *Coastal Carbon: From Vegetated Coasts to Sedimentary Stores*. Details of the session can be found at http://meetingorganizer.copernicus.org/EGU2017/session/24946.

The *Copernicus Marine Environment Monitoring Service (CMEMS)* session, OS4.6, will focus on studies of:

- scientific advances on thematics relevant to CMEMS that are needed for the short to long term evolution of the CMEMS products.
- verification, validation and uncertainty estimates of CMEMS products, forecasting skills.
- the use of CMEMS products for downstream applications.
- ocean monitoring and on the long-term assessment of the ocean physical and biogeochemical states.

A detailed description is available in the direct link to session OS4.6, http://meetingorganizer.copernicus.org/EGU2017/session/24345. General information on the General Assembly, is available at http:// egu2017.eu/home.html.

Session OS2.2 is entitled *Advances in understanding of the multi-disciplinary dynamics of the Southern European Seas (Mediterranean and Black Sea).* Introduced with a Keynote talk given by Professor Joaquin Tintoré, the session will overview recent developments and understanding, by observations and modelling, of the Southern European Seas (SES) general circulation, physical processes, their ecosystems and biogeochemical fluxes. For further information, visit the EGU Assembly site: http://meetingorganizer.copernicus.org/EGU2017/session/23131.

22nd-26th May 2017: The 49th International Liege colloquium on Ocean Dynamics, the 8th Warnemünde Turbulence Days

Liège, Belgium

Almost four decades after the "Marine Turbulence", 11th Liège Colloquium in 1980. Three decades after the "Turbulence in the ocean. From the millimeter to the megameter", 19th Liège Colloquium in 1987. Two decades

after the "Marine Turbulence Revisited", 29th Liège Colloquium in 1997. One decade after the "Turbulence Re-revisited", 39th Liège Colloquium in 2007. The exciting topic of marine turbulence will be revisited for the 3rd time during "Marine Turbulence Re^3-visited" as the 49th Liège Colloquium in 2017.

As in 2007, the workshop will be co-organised together with the Warnemünde Turbulence Days (its 8th edition), a biennial workshop on specific challenges in marine turbulence, organised by the Leibniz Institute for Baltic Sea Research in Warnemünde (Germany).

From decade to decade enormous progress is achieved in our understanding of marine turbulence. A major trigger of this progress is the technological development of oceanic instrumentation, numerical modeling and theory. For the instruments, higher sampling rates, larger data storage and faster data processing facilities generally allow for better resolution but do also open perspectives for novel mechanical, acoustic and optical devices. For the numerical modeling, steadily growing computer resources allow for substantially more complex models and higher resolution than a decade ago. The theory of marine turbulence has further developed towards concepts linking small-scale turbulence, internal waves, surface waves, and (sub)meso-scale dynamics. Tight collaboration between marine and atmospheric scientists in all these fields has substantially triggered progress in the field of geophysical turbulence.

Combining the historically broad approach of the Liège Colloquium with the specialized Warnemünde Turbulence Days, this joint venture will concentrate on five focal topics :

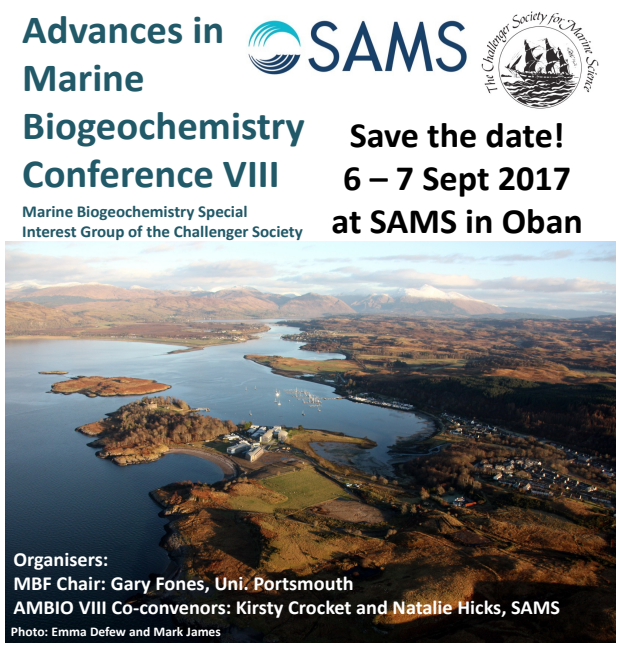
- Turbulence-wave-interaction
- Turbulence-(sub)mesoscale interaction
- Turbulence and the marine ecosystem
- Turbulence observations in the ocean
- Turbulence modelling in the ocean

Contributions to these focal topics as well as to related problems of marine turbulence are invited to the Liège Colloquium in 2017.

Further details (registration, deadlines, venue, etc.) are available on the web site http://labos.ulg.ac.be/gher/home/colloquium/colloquium-2017/. We are looking forward to welcoming you in Liège on behalf of the Organizing Committee.

19th-22nd June 2017: Oceans '17 conference
Aberdeen, Scotland

6th-7th September 2017: Advances in Marine Biogeochemistry Conference VIII
Oban, Scotland
Save the date for AMBIO VIII, more information nearer the time, www.challenger-society.org.uk/Marine_Biogeochemistry_Forum



AMBIO meetings set the stage for Marine Biogeochemistry in the UK, connecting disciplines within the field and establishing networks for the integration of early career scientists. The AMBIO VIII meeting in September 2017 is to be hosted at the Scottish Association for Marine Science in Oban. Save the date! Registration will open in early 2017.

Info: www.challenger-society.org.uk/Marine_Biogeochemistry_Forum
Contact: kirsty.crocket@sams.ac.uk, natalie.hicks@sams.ac.uk

2nd-6th October 2017: the 5th IMBIZO
Woods Hole, MA, USA
Mark the dates !, IMBER will hold its fifth IMBIZO (the Zulu word for a gathering) at the Woods Hole

Oceanographic Institute. The theme of IMBIZO V will be: *Marine biosphere research for a sustainable ocean: Linking ecosystems, future states and resource management*. We will follow the usual IMBIZO format of three concurrent but interacting workshops – topics to be announced soon. Please spread the news widely.

2nd-13th October 2017: A GODAE OceanView International School "New Frontiers in Operational Oceanography"
Mallorca, Spain
The implementation of operational oceanography in the past 15 years has provided many societal benefits and has led to many countries adopting a formal roadmap for providing ocean forecasts. Following on from the GODAE OceanView international schools held in France (Chassignet and Verron, 2006) and in Australia (Schiller and Brassington, 2011), this school will bring together senior experts and young researchers (pre- and post-doctorate) from across the world and expose them to the latest research in oceanography, specifically how it will impact operational oceanography. In addition to formal lectures, shorter talks by experts in the field will acquaint the participants with a wide range of applications.

For information on how to apply, go to https://www.godae-oceanview.org/outreach/education-training/gov- summer-school-2017/
Deadline: 28th February 2017

13th-15th October 2017: Fifth Arctic Circle Assembly
Reykjavík, Iceland
Proposals are now being accepted for Breakout Sessions at the Fifth Arctic Circle Assembly to be held October 13-15, 2017 in Reykjavík, Iceland. Participation will be granted based on session topic, area of focus, goals, and room availability at the Harpa Reykjavík Concert Hall and Conference Centre, https://player.vimeo.com/video/152251225?autoplay=1. When proposals are submitted, 50% of speakers need to be confirmed.

Submission Deadline: MAY 12th, 2017

Proposals must follow guidelines, please submit proposals to Secretariat@ArcticCircle.org. The Arctic Circle provides an open, democratic forum for discussion and cooperation on Arctic Affairs. We hope to see you in Reykjavík this fall.

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

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JOBS

PDRA position in Physical Oceanography at the Scottish Association for Marine Science (SAMS) linked to the NERC Changing Arctic Ocean Programme.

https://sams.myciphr247.com/jobsearch.aspx

The Arctic is arguably the most rapidly changing environment on the planet and changes in sea ice are modifying critical biological and biogeochemical processes. These challenges are being addressed through the NERC Research Program *"The Changing Arctic Ocean"*. SAMS is leading the Arctic PRIZE project (Arctic Productivity in the Seasonal Ice Zone) http://www.sams.ac.uk/arctic-prize/ in collaboration with 5 other UK institutes and numerous world-leading international partners. We are seeking a highly-motivated and dynamic postdoctoral researcher to support the delivery of the physical oceanographic component of Arctic PRIZE.

The successful applicant will hold a PhD and have a background in physical oceanography with an interest in how physical processes impact on biological and biogeochemical systems. They will ideally have experience of using autonomous vehicles (gliders and/or AUVs) to make sustained measurements in shelf seas and an understanding of arctic oceanography. Ideally they will have a track record of working within a multi-disciplinary project environment.

The main duties are
1) Contribute to the preparation, planning and execution of Arctic PRIZE research cruises.
2) Contribute to the delivery of the robotics program in Arctic PRIZE.
3) Lead and publish high quality peer-reviewed research to meet SAMS research objectives.
4) Form and maintain national and international relationships and collaborations for arctic research.
5) Travel to national and international meetings to present research findings.

For general enquiries about the position please contact Dr Finlo Cottier at Finlo.Cottier@sams.ac.uk
Closing Date: 17th February 2017

There are also jobs on the IMBER web site

http://www.imber.info