

## Raising the profile of oceans within the Group on Earth Observations (GEO)

Since GEO was formed, POGO has always regarded it as an organization with which it should cooperate closely. POGO is associated with various marine activities in GEO, such as the Chlorophyll Globally Integrated Network (ChloroGIN) and Societal Applications in Fisheries and Aquaculture using Remotely-sensed Imagery (SAFARI), which have achieved considerable success. But notwithstanding the number of excellent marine projects related to GEO, the collective prominence of oceans within GEO has, until now, been less than we would have preferred.



View of the "Jet d'Eau"  
(fountain) on Lake Geneva.

### GEO Work Plan 2012-2015

With GEO launching a new Work Plan, POGO saw an opportunity for substantial enhancement of the profile of oceans in GEO by proposing an over-arching Ocean Task to be included in the new Work Plan. An initial proposal was submitted in February 2011 and expanded in April, in preparation for the GEO Work Plan Symposium that took place in Geneva (4-6 May 2011). The meeting was attended by Sophie Seeyave (POGO) Boram Lee (World Meteorological Organisation) and Keith Alverson (Global Ocean Observing System, GOOS), who gave a presentation on the different projects that would be grouped under the new Task. The other participants welcomed the enhanced visibility of the ocean in the new Work Plan and suggested some areas of potential synergy between tasks.

### Oceans and Society: the Blue Planet

The proposed Task has now been incorporated into the GEO Workplan (Version 1) as "SB-01 Oceans and Society: the Blue Planet". It includes GOOS, Coastal GOOS, the GOOS Panel for Integrated Coastal Ocean Observations (PICO), OceanSITES, ChloroGIN, SAFARI, the International Ocean-Colour Coordinating Group (IOCCG), the Continuous Plankton Recorder (CPR), the Committee on Earth Observation Satellites (CEOS) Virtual Constellations for the Ocean, the Global Ocean Data Assimilation Experiment (GODAE), WG 5 of GEO BON (Marine), CEOS WG on Climate, Water Quality (freshwater and coastal), the Coastal Zone Community of Practice and POGO capacity-building. An advantage of this arrangement is that it brings together many of the elements of Oceans United (<http://www.oceans-united.org>) to work collectively for an ocean observing system. Although oceans are not usually treated as a societal-benefit area of GEO, the new Task is grouped under "Information for Societal Benefits", implying a public need for ocean observations.

The 2012-2015 Work Plan Version 1 is under official review until 31 August. Based on the outcome of this review, Version 2 will be issued in October with other Plenary documents and submitted to the GEO-VIII Plenary (16-17 Nov 2011, Istanbul) for "acceptance as a living document". We regard the acceptance of this umbrella Task by GEO, the result of considerable lobbying by Oceans United and hard work by the POGO Secretariat, as marking a major step forward in POGO's relations with GEO.

### GEO Biodiversity Observation Network

GEO BON is the biodiversity element of GEO. It is structured around a series of working groups of which one (WG5) deals with marine biodiversity. Since WG5 was formed, it has been co-chaired by Jan de Leeuw and Carlo Heip. Jan has now stepped down due to other duties, so a new co-chair is being sought. The GEO BON scientific steering committee met recently in Geneva. POGO was represented by Trevor Platt. The committee consists mostly of terrestrial specialists. One of the current activities of the committee is to develop a set of Essential Biodiversity Variables (by analogy with the Essential Climate Variables already in use in the climate community). This is a challenging task that will require a great deal of work before a satisfactory solution is found. The EU is to issue a major funding call for work in support of GEO BON.

## Other POGO News



### New POGO Administrative Assistant

The POGO Secretariat is pleased to announce the addition of a new member to the team. Laura Ruffoni joined the Secretariat on a temporary basis at the end of May, and her position was made permanent on 4th July. Laura has a BA in Law from the University of Bergamo, Italy. She can be contacted at [laru@pml.ac.uk](mailto:laru@pml.ac.uk) or on [pogoadmin@pml.ac.uk](mailto:pogoadmin@pml.ac.uk).

### Institute for Marine and Antarctic Studies (IMAS) joins POGO

IMAS was created by the University of Tasmania Council in February 2009 to bring together the many strands of marine and Antarctic research currently being pursued in and around Hobart, to encourage the development of strengthened research links and exploit new research opportunities. IMAS is both a teaching and research organisation, with research covering a wide range of topics (see <http://www.imas.utas.edu.au/about-imas>). IMAS works in close partnership with other organisations such as the Integrated Marine Observing System (IMOS), with which it will soon be co-located. The IMAS representative to POGO is the Executive Director, Prof. Mike Coffin. POGO would like to extend a warm welcome to its newest member and looks forward to further collaboration.

### POGO at Expo 2012 Yeosu Korea

Planning is underway for the POGO exhibit at the 2012 Expo in Yeosu, Korea, under the theme "The Living Ocean and Coast". Following meetings with the Expo designers in May and June, the conceptual design of the exhibit has been agreed. This will be developed around the themes: (1) Ocean observations: "How have we been observing the ocean over the last century?"; (2) POGO member institutions: "Who is carrying out these observations?", including information about flagship projects of the member institutions; (3) Experiencing the ocean through the five human senses -interactive displays to demonstrate how the ocean looks/sounds/feels/smells/tastes. If you would like to contribute, please e-mail Sophie Seeyave at [ssve@pml.ac.uk](mailto:ssve@pml.ac.uk).



**EXPO 2012**  
YEOSU KOREA

POGO is also part of the Yeosu Declaration International Review Committee (IRC) and Sophie Seeyave participated in the IRC meeting in Seoul on 11 May 2011 where the first draft of the Declaration was reviewed.

### IOC XXVI Assembly, June 2011

The IOC Assembly was convened in June at UNESCO (Paris), where POGO was represented by Trevor Platt. One of the main items of business of interest to POGO was restructuring the governance of GOOS. Considerable time was spent on drafting a suitable resolution for consideration by the Assembly. Generally, member states of the IOC were enthusiastic about the proposed new structure. Another relevant agenda item was a report by John Gunn on behalf of the committee established after OceanObs' 09 (Venice) to discuss the way ahead for ocean observations. The vision of this group is based on a set of Essential Ocean Variables, which have yet to be defined. A major emphasis of the report is the extension of observing systems to include biological and biogeochemical observations. The Working Group has produced a draft Framework for Ocean Observing, which is under public consultation until 29 July.

### SCOR-POGO International Quiet Ocean Experiment Open Science Meeting

SCOR and POGO are convening an open science meeting for an International Quiet Ocean Experiment (IQOE) at IOC-UNESCO in Paris, from 30 August to 1 September 2011. The deadline for early registration is 31 July. The purpose of the open science meeting is to develop a Science Plan for the IQOE, a focused international research effort that may last a decade or so. In preparation for the meeting, an article on the IQOE was published in *Oceanography* (Boyd et al., 2011: [http://www.tos.org/oceanography/archive/24-2\\_boyd\\_il.html](http://www.tos.org/oceanography/archive/24-2_boyd_il.html)). Registration, programme and logistical information on the OSM can be found at: <http://www.iqoe-2011.org>.



## Update on POGO Capacity Building

### POGO Visiting Professorships

Last year's Visiting Professorships were awarded to Profs. Lisa Levin and David Checkley, both from Scripps Institution of Oceanography, who spent 6 months (Jan-June 2011) of sabbatical leave teaching and mentoring at the National Marine Information and Research Centre (NatMIRC).

They spent an intensive seven days with 37 UNAM Biology and Fisheries students in March. They lectured at the University of Namibia in Windhoek on general marine ecology, bioinvasions, ocean observing, and climate change and fisheries. The students were taken to the Henties Bay marine facility where they sampled four salt ponds, reflecting a salinity gradient from 35 to 200 ppt. Measurements, collections, and observations included water and sediment properties, planktonic and benthic algae and invertebrates, and birds.

The collections provided material for lab work over the next two days and assignments emphasized pond characterizations (species composition, abundance diversity) and ecosystem-level processes. Group presentations were given and discussions were held by the students. Additional activities at Henties Bay included two lectures on climate change (covering deoxygenation, acidification, natural and anthropogenic fisheries variations) and a rocky shore field trip to illustrate concepts given in lecture in Windhoek.



Prof. Levin and UNAM students on the rocky shore in Solitude (central Namibia).

During their stay, they spent a lot of time mentoring students and scientists, including their hosts, Drs.



Prof. Levin teaching at the Henties Bay field station.

Bronwen Currie and Anja Kreiner. This included advice on benthic survey/sampling design, sampling methods, isotope analyses and species identification, advice on the Continuous Underway Fish Egg Sampler (CUFES) and discussion of Northern Benguela ecosystems and fisheries.

They also established a Friday afternoon lecture series at NatMIRC. During the regular Friday seminars, all interested staff members (typically 15-20) were invited and joined discussions on several aspects of the pelagic system in the Northern Benguela. These seminars were very popular and provided an excellent opportunity at NatMIRC to exchange ideas on a regular basis. They also spent one week at the University of Cape Town (UCT), hosted by Prof. Coleen Moloney. They taught, lectured, and interacted with students and staff in the Departments of Zoology and Oceanography.

"Prof. Checkley showed great interest and understanding for the challenges faced at NatMIRC," commented Dr. Anja Kreiner. "I consider ourselves very fortunate that he spent six months at our institute and I am sure that many of the ideas sparked through discussions with him will be taken further and contribute to a better understanding of our marine system and improved management of our fisheries."

The next year's Visiting Professors have now been selected. Prof. Walker Smith (Virginia Institute of Marine Science, USA) will be visiting Lam Ngoc Nguyen at the Institute of Oceanography in Nha Trang, Vietnam, for 4 weeks in March 2012. Training will be on the use of fluorescence in oceanographic studies of coastal waters of Vietnam.

### Third Nippon Foundation-POGO Centre of Excellence Graduation

The following article was contributed by Emily Greenhalgh, Bermuda Institute of Ocean Sciences.

The third class of POGOian graduates headed home at the end of May and the year 4 trainees will arrive at the Bermuda Institute of Ocean Sciences (BIOS) later this summer. The NF-POGO Centre of Excellence in Ocean Observations (CofE) at BIOS is a 10-month program designed to educate and expand observational oceanography around the world by offering training and experience to scientists from developing countries.

Every year, the CofE receives roughly 100 applications for the 10 available slots. The potential candidates go through a rigorous vetting process by BIOS faculty and POGO Secretariat staff. To expand the reach of the program, the CofE chooses scientists from all over the world. In addition, the CofE tries to split the NF-POGO slots equally between genders. This year, the trainees hailed from the Ivory Coast, Russia, Turkey, Venezuela, Brazil, Ecuador, India, Iran, Tunisia, and Vietnam.

Other goals of the program are to grow human resources in developing countries, expand international networking in ocean sciences, and strengthen relations between developed and developing countries. "Ideal candidates already hold a position at an academic institution in their home country, furthering potential opportunities for training and scientific exchange with POGO member institutions around the world", said BIOS Education Director Dr. Gerry Plumley.

The program itself is rigorous; the 10 POGOians spend their months working closely with some of the best scientists in the field. POGO scholars not only attend lectures and workshops given by BIOS faculty and visiting scientists, they also gain hands-on experience in the lab and at sea. Bermuda, or more specifically the Sargasso Sea, is home to the longest running ocean time-series study in the world and the POGO scholars spend time training at sea on BIOS's research vessel, the 168-foot Atlantic Explorer, and using state-of-the-art instrumentation.

Each POGO scholar focuses a great deal of effort on an independent research project supervised by a member of the faculty or by POGO members. These projects focus on a number of different research themes that are important at BIOS, ranging from phytoplankton growth in the Sargasso Sea to the oceanic/atmospheric carbon cycle. Vietnamese POGOian, Thao Pham, worked

with Dr. Nicholas Bates on her project: "Interannual to Decadal Variability of Upper Ocean Carbon Cycle in the Western North Atlantic Ocean." She collected data from two long-term sampling sites, Hydrostation S and the Bermuda Atlantic Time-series Study (BATS), concerning temperature, salinity, dissolved inorganic carbon, total alkalinity and other germane parameters. "The most exciting thing I learned here is an understanding of the response of the ocean carbon cycle to climate change," said Thao. "I hope that I can continue this research in the South China Sea when I go back to Vietnam and continue my job at the Institute of Oceanography."

"These 10 months have been a continuous cycle of learning, experiencing and enjoying the science as well as different cultures which has changed my perspective about a lot of things," said 2011 POGO graduate, Gayatri Dudeja from India. When asked about the POGO program, nearly all of the students mentioned learning about different cultures among the most unique aspects. By transplanting international scientists to Bermuda, the CofE at BIOS fosters global cooperation and cultural understanding in a new way.



The Year 3 "POGOians" having recently graduated from the NF-POGO Centre of Excellence.

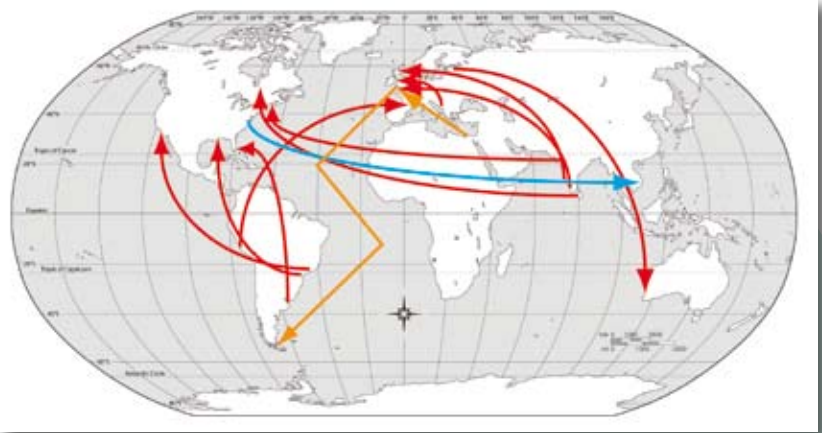
Fatih Sert, from Turkey, said that he planned to go back to his country and continue his PhD, while staying connected with the other POGOians. "I am hoping to keep in touch with all the people I met here. Hopefully it will be possible to design a collaborative research program with scientists from different parts of the world."

"With collaborations like these, it is expected that the legacy of the course will endure far into the future," added Plumley.



## POGO-SCOR Visiting Fellowships

Out of 37 applications received, ten POGO-SCOR Visiting Fellowships were awarded for 2011. The successful applicants were selected on the basis of the quality of their application, relevance of the proposed training to POGO and SCOR, and demonstration that it will lead to sustained capacity building at the host institute. The selection committee also had to strive to achieve regional balance in the final selection. The awardees are from Argentina, Brazil, Croatia, Estonia, India, Peru and Sri Lanka. The host institutions include Australia, USA, UK and France.



Map showing the origins and destinations of the 2011 POGO-SCOR Visiting Fellowships (red arrows), the POGO-AMT Visiting Fellowship (orange arrow) and the POGO Visiting Professorship (blue arrow).

## POGO-AMT Fellowship

This year's POGO-AMT fellow is Dr. Alaa Younes, from the National Institute of Oceanography and Fisheries (NIOF) in Alexandria, Egypt. He will be working with Dr. Gavin Tilstone, from Plymouth Marine Laboratory, on the effect of CO<sub>2</sub> enrichment on plankton community structure, photosynthesis and primary production in the Atlantic Ocean. He will arrive at PML at the end of August to receive training prior to the cruise, then embark on RRS Discovery on 29 September with the rest of the AMT scientific party. The 6-week cruise will start in Avonmouth (UK) and end in Punta Arenas, at the southern tip of Chile. Dr. Younes will then spend a further 4 weeks at PML carrying out some post-cruise analyses.

## NF-POGO Alumni Network for Oceans (NANO)

The Nippon Foundation has generously funded POGO Capacity Building programmes since 2004. These included at first the Visiting Professorships, which took place in India, Fiji, Sri Lanka, Brazil, Tunisia and Vietnam between 2004 and 2007. This programme was then superseded by the the Centre of Excellence in Ocean Observations in Bermuda, which is about to begin its fourth year. NF-POGO initiatives have trained some 180 scientists.

Creating a network of alumni has been part of the Nippon Foundation's vision for several years and this is now beginning to take shape. Since the exploratory meeting in October 2010, two fellowships have been awarded to NF-POGO alumni to start building the network. This has consisted of contacting all the former scholars of the aforementioned programmes, collecting information on their career progression and entering it into a database. A website was then developed (<http://www.nf-pogo-alumni.org>), including alumni contact details, research interests and publications (accessible only to the alumni), information on on-line oceanographic datasets and a survey to gather information on the data currently being collected by the alumni themselves.

The aim is to use this information to prepare proposals for joint projects to be conducted by the alumni. These proposals will be drafted during a Network Meeting in Abingdon (UK), from 26 to 28 September 2011. They will then be submitted to the Nippon Foundation in the hope of obtaining additional funding for these projects in 2012. Prior to this meeting, the alumni will be asked to provide outlines of joint projects that they would be interested in and able to contribute to. There will also be a regular NANO newsletter, including articles written by the alumni and by other NANO-affiliated scientists.

## Ocean Summer Schools website

The International Oceanographic Data and Information Exchange (IODE) of IOC has set up an Ocean Summer Schools site as a service to the global ocean science community. This Website is co-sponsored by IODE/IOC, SCOR, POGO, and the North Pacific Marine Sciences Organization (PICES). The website can be accessed at <http://www.oceansummerschools.org>.

## News from POGO Members

### **Plymouth Marine Laboratory (PML)**

*The following article was contributed by Kelvin Boot, Plymouth Marine Laboratory, UK.*

PML continues in its interdisciplinary approach to contributing to an understanding of the world's oceans, through ongoing projects and new collaborations. Ocean acidification has become an area of research where PML has developed a broad expertise. Within the UK Ocean Acidification Research Programme, PML is leading a number of work packages dealing with impacts on benthic organisms under different pH and temperature scenarios. A second work package relates to projecting any impacts into the future through modelling, whilst PML also has responsibility for Knowledge Exchange for the whole programme. One output has been a short film 'Ocean acidification: Connecting science, industry, policy and public' ([http://www.youtube.com/watch?v=\\_BPS8ctVW2s](http://www.youtube.com/watch?v=_BPS8ctVW2s)), which deals with the need for clear communication between the various stakeholder groups.

In recognition of PML's skills in Earth Observation (EO) it has become the coordinator for EAMNet which aims to construct a network linking EO information providers, user networks and centres of excellence in Europe and Africa in the area of coastal and marine observations towards sustainable development in Africa. The network will undertake capacity building and maintenance and build upon existing infrastructure and expertise in Africa. The overall aim is to improve the exploitation of EO data for coastal and oceanic monitoring towards an Africa-wide observation system (GOOS-Africa). The University of Cape Town (POGO member) is also a partner.

Marine Ecosystem Evolution in a Changing Environment (MEECE), a European FP7, in its third of a four year project is also coordinated from PML. It uses predictive models to explore the impacts of both climate drivers (acidification, light, circulation and temperature) and human induced drivers (fishing, pollution, invasive species and eutrophication) on marine ecosystems. Many of PML's other research areas including long-term data collection through the Western Channel Observatory, are of global significance, contributing to the wider knowledge necessary to understand and manage our seas into the future.

### **Indian National Centre for Ocean Information Services (INCOIS)**

Scientists from INCOIS in Hyderabad, India and the Centre for Earth Science Studies are working on a programme to establish an ocean forecast system that will provide the district-level administration in the State with early warning and information on natural hazards such as storm surges, cyclones, tidal waves, and tsunamis. The system will rely on a network of wave rider buoys and shore stations, supplemented by satellite data. While the first wave buoy off the coast of Valiathura in Thiruvananthapuram has become functional, the second one is to be established in Kozhikode this year. The buoys will generate real time information on waves, tides, ocean currents, and sea surface temperature. This information is relayed to a supercomputer at INCOIS and incorporated with satellite data to generate site-specific models for forecasting. The forecast will be disseminated to the fishing community through a website and electronic display boards along the coastal belt. Efforts are on to rope in mobile service providers to provide SMS alerts. To read the full article go to <http://ocean-partners.org/products/media/785-ocean-forecast-system-under-development-in-india>.

### **13th POGO Annual Meeting**

The next POGO Annual Meeting will be hosted by the University of Hawaii, from 9 to 11 January 2012 (see <http://ocean-partners.org/meetings-and-workshops/meetings-and-workshops/776-pogo-13>). The POGO Secretariat is now calling for suggestions of agenda themes and items. It was decided at the last POGO meeting that the agenda would be more focussed on strategic issues of international relevance.

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