



### Official Kick-Off for the GEO Task "Oceans and Society: Blue Planet"

A kick-off symposium for the new GEO marine Task SB-01 "Oceans and Society: Blue Planet" was held in Ilhabela, São Paulo State, Brazil, from November 19 to 21, 2012. The symposium was co-sponsored by the Canadian Space Agency (CSA), the Group on Earth Observations (GEO), the National Institute for Space Research (INPE) and POGO. It took place just prior to the GEO-IX Plenary, held in Foz do Iguaçu, Brazil (November 22 and 23, 2012).

The Symposium highlighted each of the Task components through special sessions on their programme elements. A broad range of themes were addressed during the symposium. The objectives of the Blue Planet symposium were to:

- Learn about the various relevant on-going activities;
- Coordinate better the ocean-related activities within GEO;
- Speak with a collective voice to GEO member nations and participating organisations;
- Raise awareness of the societal benefits of ocean observations to the broader community, targeting in particular policy makers and funding agencies;
- Seek new avenues for enhancing implementation of ocean observation systems; and
- Promote capacity building globally, especially in developing countries.

The symposium brought together a total of 68 participants from 24 countries, comprising leaders and representatives of various international organisations and networks (including the new GEO Director, Dr Barbara Ryan), research scientists and postdoctoral and graduate students. The symposium offered the opportunity for participants to become familiar with the full scope of the Task, and helped to develop synergies and to plan future activities. The meeting turned out to be a landmark event in the development of marine work within GEO.

Action Items from the meeting included the drafting of a "Mission statement and Vision" document, which will outline the Task strategy and will serve as the basis for a White Paper, which itself will include concrete plans for Blue Planet in the following areas:

- Future governance;
- Data/products sharing, access and exchange policy;
- Geo-spatial/digital architecture and information management;
- Education, outreach and new digital forms of communication;
- Capacity building (training scientists, social scientists);
- Production of material highlighting societal applications, benefits and end-user engagement;
- Detailed overview of all on-going works and projects linked with Blue Planet.

The idea is to have a White Paper that will provide the roadmap for the Task implementation. The meeting also resolved to set up a website and mailing list and to hold another Symposium in late 2013.

For more information see [http://www.faro-project.org/blue\\_planet/announcement.html](http://www.faro-project.org/blue_planet/announcement.html)



Participants at the Oceans and Society: Blue Planet Kick-Off Symposium

## Update on Capacity Building

### POGO-GreenSeas-AMT fellowship 2012

In 2012, a new partnership for capacity building was set up between POGO and the EU FP7 project GreenSeas, to collaborate in providing training for young scientists to gain sea-going experience. Thus, GreenSeas contributed towards the cost of the 2012 AMT fellowship for research cruise training. In addition, a new fellowship scheme was set up, modelled on the AMT fellowship, to enable a young scientist to take part in the 2013 Porcupine Abyssal Plain (PAP) cruise and receive training in a discipline relevant to the cruise programme.

The POGO-GreenSeas-AMT fellowship was awarded to Miss Priscila Lange from Brazil. She arrived in Plymouth in mid-September to prepare for the cruise under the supervision of Dr Gavin Tilstone (Plymouth Marine Laboratory) for a few weeks before joining the ship. After the cruise, Priscila returned to Plymouth, UK, for a further month of training. Her testimonial is shown below.

“As the recipient of the POGO-GreenSeas AMT Fellowship 2012, I had the opportunity to participate in the Atlantic Meridional Transect (AMT-22) cruise, supervised by Dr. Gavin Tilstone (PML). During the cruise, which started in Southampton-UK and ended in Punta Arenas-Chile, we investigated primary production of different phytoplankton size classes over the Atlantic Ocean, focusing on micro-phytoplankton (>10µm) in the oligotrophic gyres.



Priscila in the lab (G. Tilstone).

My training included measurements of phytoplankton size-fractionated biomass, primary production, photosynthesis (PI curves, using <sup>14</sup>C labeled bicarbonate) and inherent optical properties (absorption coefficient and Coloured Dissolved Organic Matter [CDOM] fluorescence). After compiling these data with a vast dataset from previous AMTs, provided by BODC, we found that

micro-phytoplankton contribute ~18% to the total integrated production in the Atlantic Gyres, in contrast with previous findings (35-50%), and show high chlorophyll normalized maximum photosynthetic rates.

The AMT was the longest scientific cruise I have participated in, and working with Dr. Gavin Tilstone was fantastic. His



On-deck incubators for measuring primary production (G. Tilstone).

enthusiasm is contagious and made the hard work become something fun. The relationship amongst scientists and between scientists and the crew was fabulous. We worked hard during almost 7 weeks, but the

sunsets on the bow allowed me to have some time with people on board, and make great friends that I already miss.

The experience acquired and techniques learnt during the AMT cruise will be very relevant to my future career, and will help me contribute to the expansion of Brazilian oceanographic research in the near future. The scientists I met during this experience added a lot to my career by providing advice, instructions and ideas. This was a great opportunity to start my future career, and I am very happy for this amazing and constructive journey! Thank you POGO, for guiding and helping us ground our future in oceanographic research.”



Sunset over the Atlantic (M. Yang).

## Changes in the POGO Secretariat

As of 28 January 2013, POGO Scientific Coordinator Dr. Sophie Seeyave will be on maternity leave. Her replacement, Dr. Victoria Cheung (vch{at}pml.ac.uk), has a degree in Geology from the University of Southampton as well as an M.Sc in Applied Marine Science and a PhD in Genetic Toxicology from the University of Plymouth. In addition to having managed a research laboratory at the university, she has also had experience in the private sector, as an events manager and as a public relations officer. We are fortunate to have found such an excellent person: we welcome her to the POGO family.



Vikki Cheung



## POGO and the United Nations Framework Convention on Climate Change (UNFCCC) Conference of the Parties (COP) 18, Doha, Qatar

*The following article was provided by Thecla Keizer (PML)*

The eighteenth session of the Conference of the Parties (COP 18) took place from Monday, 26 November to Friday, 7 December 2012 at the Qatar National Convention Centre in Doha, Qatar.

Since the UNFCCC entered into force in 1994, the COP to the UNFCCC has been meeting annually to assess progress in dealing with climate change. There are now 195 parties to the convention taking part in climate change negotiations.

POGO first took part in these UNFCCC COP meetings in 2009 at COP15 in Copenhagen. Earlier this year POGO



Dr Carol Turley OBE engaging with delegates at COP 18 (T. Keizer)

provided its support, alongside the World Bank, EU World Bank, European Union and UN bodies for the “Hot, Sour and Breathless – Ocean under stress” message which was spearheaded at COP 18 by a large international partnership including Plymouth Marine Laboratory (PML), SCRIPPS Institution of Oceanography, the UK Ocean Acidification Research Programme

(UKOA, 27 partners from the UK), European Programme on Ocean Acidification (32 partners from 10 countries), Mediterranean Sea Acidification in a Changing Climate Programme (MedSeA, 16 partners from 10 countries), Biological Impacts of Ocean Acidification Programme (19 partners from Germany), OCEANA and the Ocean Acidification International Coordination Centre (OA-ICC).

The partnership, coordinated by Plymouth Marine Laboratory, has developed a summary, in English and Arabic, for policy makers of the causes and effects of the key issues of ocean warming, acidification and deoxygenation and identifies potential “hot spots” where two or more of these may happen at the same time. POGO is included in this publication as a supporter. This publication is available from [www.oceanunderstress.com](http://www.oceanunderstress.com). Should you wish for some hard copies then please contact Thecla Keizer ([tke@pml.ac.uk](mailto:tke@pml.ac.uk)).

The next major UN Climate Change Conference – COP 19/ CMP9 - will take place in Warsaw, Poland, at the end of 2013.



Carol Turley and Thecla Keizer at COP 18 (T. Keizer)

## SOOS “Seeing Below the Ice” Workshop

*The following article was provided by Fiona Taylor*

More than 50 international scientists met in Hobart, Australia, 22-25 October 2012 to develop a strategy to observe ocean structure and circulation and ice-ocean interactions in the Antarctic sea ice zone.

Climate signals indicate that the Antarctic sea ice zone is undergoing rapid and accelerating changes where warming ocean meets both the sea-ice and ice shelves. These changes have far-reaching effects through their impact on global sea-level rise and warming rates, yet oceans below the ice are amongst the least understood and most poorly monitored systems in the world.

The four-day Seeing Below the Ice Workshop gave scientists the opportunity to present the current status of polar observing systems in both hemispheres, discuss key questions, define problems and recommend the solutions required to develop a sustained strategy for observations in the Southern Ocean sea-ice zone. A plan had been developed by the end of the workshop to outline the measurements needed, how to collect them and from where, in the sea ice zone to study ocean - ice interactions. A formal strategy will be developed in upcoming months.

Guest speakers at the workshop came from over 20 countries and included Professor Walter Munk, physical oceanographer, whose pioneering research more than 50 years ago demonstrated the relationship between winds and ocean circulation.

The SOOS-led Seeing Below the Ice Workshop attracted international scientists from more than 20 countries for four days of talks and discussion (F. Taylor).



Professor Munk also celebrated his 95th birthday in Hobart.

The Southern Ocean Observing System (SOOS), an international program hosted and sponsored by the Institute for Marine and Antarctic Studies (IMAS) at the University of Tasmania, led the Seeing Below the Ice Workshop, which was sponsored by CSIRO 'Wealth from Oceans Flagship', CliC and POGO. POGO sponsored Dr Alexander Klepikov (Arctic and Antarctic Research Institute, Russia) to attend the workshop.

## News from the POGO Members

### Ocean science robot revolution hits symbolic millionth milestone

Argo, an innovative global observing system based on drifting sensors cycling from the surface to the ocean mid-depths, was celebrated by scientists in mid-December after reaching a major milestone – one million incredibly valuable ocean observations. From 10 drifting robotic sensors deployed by Australia in the Indian Ocean in late 1999, the international research program has been quietly building up a global array of more than 3,500 profilers.

Celebrations included a series of high-level international presentations on December 12 by senior scientists involving Australia's Dr Wijffels, from CSIRO, her Argo co-Chair Prof Dean Roemmich from Scripps Institution of Oceanography, oceanographer Dr Josh Willis from the NASA Jet Propulsion Laboratory, and Dr Jim Cummings from the US Naval Research Laboratory.

Presently 28 countries contribute to the annual \$25M cost of operating the program. The 1.5 metre tall robotic sensors cycle vertically every 10 days, sampling temperature and salinity. The sensor's ascent and descent is regulated by a hydraulic pump, powered with lithium batteries. Their life expectancy is between 4-9 years, averaging more than 200 profiles per sensor as they drift with the currents and eddies. Data are collected at the impressive rate of one profile approximately every four minutes, (360 profiles per day or 11000 per month).

Dr Wijffels said almost 1200 scientific papers based on or incorporating Argo data have been generated since the start of the program. Prominent findings include:

- Analysis of ocean salinity patterns that suggests a substantial (16 to 24%) intensification of the global water cycle will occur in a future 2° to 3° warmer world.
- A more detailed view of the world's largest ocean current, the Antarctic Circumpolar Current.
- An insight into changing bodies of water in the Southern Ocean and the way in which carbon dioxide is removed from the atmosphere.
- Isolating the effect of ocean warming and thermal expansion on the global energy and sea level budget.



Dr Susan Wijffels explains some of the findings from the Argo program to Australian Science Minister, Senator Chris Evans, during a visit the Minister made to CSIRO's Australian Argo Lab to help celebrate Argo's one millionth observation on December 12 (C. Crerar, CSIRO).

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