Report on POGO-AMT GreenSeas fellowship for research cruise training 2012

Trainee’s Report

**Name of Trainee:** Ms Priscila Lange  
**Superior (Parent Institution):** Dr Virginia Tavano Garcia

**Supervisor (Host Institution):** Dr Gavin Tilstone  
**Dates of Training:** 16/09/2012-21/12/12

**Subject of Training:** Contribution of micro-phytoplankton to total primary production in the subtropical Atlantic Gyres

1) Please provide a brief description of activities during the training period:

Before the cruise, Dr. Gavin Tilstone presented his main objectives and past research on primary production that based our project. The pre-cruise activities included training in measurement and fitting of PE curves and inherent optical properties (i.e. absorption coefficient & fluorescence of CDOM), calibration of the spectrophotometer and tests in the performance of the in situ filtration rig, preparation of the material for the cruise (collecting and packing the equipments and consumables), medical examinations (ENG1 certificate) and Sea Survival Course required for the cruise. Also, during the meeting of the Green Seas Partnership at PML, I presented the project made under supervision of Dr. Michael Lomas (Bermuda Institute of Ocean Sciences - BIOS) as part o the NF-POGO Training Course in Observational Oceanography (2011-2012).

During the cruise, I measured phytoplankton photosynthesis (PE curves), filtering in different pore-sized filters in order to acquire the photosynthetic parameters of three different size classes: 0.2-2µm, 2-10µm and >10µm. I also analyzed size-fractionated chlorophyll required to normalize carbon incorporation to chlorophyll and helped filtering for PABS (samples are still on the ship). The PE incubations were made once a day, at two depths (surface and DCM) during the "noon CTD" (around 13:00). I also helped Dr. Tilstone to process (filter) the simulated in situ primary production, which also considered these three phytoplankton size classes. I did not participate in the CDOM measurements but Dr. Tilstone showed me how to do these.

The last four weeks of the fellowship were dedicated to the project (see subject of training). Our objective is to evaluate the latitudinal variation of primary production of microphytoplankton (cells larger than 10µm) in the Atlantic Ocean, focusing on the contribution of this size class in the oligotrophic gyres. To this end, during this last period I prepared the dataset of previous AMTs (temperature, salinity, phytoplankton microscopy and flow cytometry counts, primary production and productivity, data provided by the British Oceanographic Data Centre (BODC)), searched references in this topic, and created the figures that will be inserted in this manuscript.

During this period in the UK, I had also the opportunity of visiting potential advisors for a PhD:

a) Dr. Mark Moore, National Oceanography Centre Southampton (NOCS), who I visited prior to the AMT. He showed me the laboratories and we could discuss the project I can apply for;

b) Dr. Heather Bouman, Oxford University, who I visited after the AMT. She was very kind, showed me the city, the University and the laboratories, and we also discussed the projects I am applying for;

c) Dr. Gavin Tilstone, Plymouth Marine Laboratory, who besides being my instructor during the present programme, showed interest in being my advisor/co-advisor in the PhD project, exposing great and very original ideas that can be added to the prior projects or generate a new one.
2) What applications of the training received do you envision at your parent institution?

The experience acquired, contact with other scientists and techniques learnt during the AMT cruise (primary production measurements) are very important to Brazil, as there are not many people in the country making primary productivity measurements in oceanic areas nowadays. This will allow me to contribute with the expansion of the Brazilian oceanographic research in a near future. I intend to start my PhD in 2013, and I am trying to create a connection between FURG and the University I will study at, by including both in my PhD project and having supervisors of both institutions. Also, if possible, I want to relate this project with projects of other Brazilian graduate students, to strengthen even more international collaborations and possibly help training these students in the techniques I learnt in PML.

3) Please provide your comments on the Fellowship Programme.

The programme was well elaborated and organized, and working with Dr. Gavin Tilstone was very good. He is patient, creative, very experienced and loves to teach, so it was very mind-blowing and constructive for me as a student. His enthusiasm is really contagious and made the hard work become something fun and pleasant. The periods before and after the cruise were very important for the practical and operational training. The AMT was the longest scientific cruise I have participated, but the ship (R/V James Cook) is the largest and the most comfortable ship I have sailed on. The relationship between the scientists and the crew was fantastic, as well as amongst scientists, and everybody was very cooperative and kind all the time. It was an amazing experience!

I am currently applying for PhD positions in different places in the United Kingdom, through initiatives from the Brazilian Federal Government created to stimulate Brazilian students to perform their studies in foreign centres of excellence in science (i.e. Science Without Borders and partnerships between the National Council for Scientific and Technological Development - CNPq - and both the University of Southampton and Oxford University). In this perspective, this fellowship was very important as it allowed me to be in touch with scientists that are kindly supporting me in the search and application for PhD positions, like Dr. Trevor Platt and Dr Shubha Sathyendranath.

The scientists I met during this experience added a lot in my life in terms of advices, instructions and ideas. This was a great opportunity I had to start my future career, and I am very happy and pleased for this amazing and constructive journey! Thank you POGO and Green Seas!

4) Please provide details as to how your contribution towards living expenses was spent. Attach receipts for all major expenses.

I spent most of the stipend with the rent of accommodation and food. Some of the stipend was also spent to fund the train tickets to Oxford to meet a possible supervisor for my DPhil project, which is being created through collaboration between Oxford University, National Oceanography Centre Southampton (NOCS) and Plymouth Marine Laboratory (PML).

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Please return completed form by facsimile to +44 1752 633101
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IMPORTANT: Please also mail the completed form with attached receipts to:

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