

**2018 NF-POGO Visiting Fellowship for
Ship-board Training**

Fellowship Report

Name of Trainee: Dr. Abed El Rahman Hassoun

Name of Supervisor (Parent Institution): Dr. Milad Fakhri

Supervisor (Host Institution): Dr. Toste Tanhua

Dates of Training: 01/02/2018 to 04/04/2018 and 16/04/2018 to 17/05/2018

Section A

(To be completed by the fellow and returned to the POGO Secretariat)

Please note Q1-Q3 will be passed on to the host and parent supervisor and made publicly available on the OTP website; Q4 will be read only by the POGO Secretariat and remain confidential

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

My activities during the training period could be divided into two categories:

*Lab. work:

-Prior to the MSM 72 cruise, I spent one month in the IEO in A Coruña, Spain at Marta Álvarez's lab. There, I was trained to be familiar with the instruments I will use and the analysis I will conduct during the scientific cruise. It was a useful period to learn the methodologies that the Spanish colleagues and I will apply aboard the Maria S. Merian research vessel. In this context, I was trained to upgrade my sampling and measurements skills for the following carbonate system parameters: total dissolved inorganic carbon, total alkalinity, pH, and calcium carbonate ions, using Vindta system, potentiometric titration, and spectrophotometry method to analyse the aforementioned parameters respectively. I also learnt how the pCO₂ and dissolved oxygen are measured in the IEO. During my presence there, I was introduced by Marta to the IEO's researchers and got to know the research topics they are working on, which was great to build a new network for future potential collaborations. Marta and I had also the opportunity to discuss how to proceed with the Mediterranean Sea historical data compilation in the framework of the CARIMED project.

-After the MSM 72 cruise, I spent one month in GEOMAR, Kiel, Germany at Toste Tanhua's lab. My presence there was very useful to broaden my knowledge about the data treatment and first & second quality control checks, particularly that I had the opportunity to learn few methods with Toste and Nico (a contractual IT at GEOMAR, and a participant in the MSM 72) on how to do the quality control check for an enormous amount of data and how to compare different cruises' data based on a reference dataset to do an objective quality control check. This work was done in the context of a project entitled "CARIMED" intended to compile the historical and recent Mediterranean Sea cruises' data, to do quality control checks on it and to put it in a user-friendly way as a product to be used by researchers interested in studying the environmental trends in the Mediterranean Sea. This work is helpful for the MSM 72 data treatment as well. In addition, my presence there was helpful to learn the methodologies used at GEOMAR to measure the carbonate system parameters and transient tracers, and to learn how the researchers there are assessing the impacts of global environmental phenomena (such as the global warming, ocean acidification, etc.) on marine organisms in climate-controlled chambers. Besides, I had the opportunity to promote for the time-series stations I'm monitoring in Lebanon and I am now working on involving these sites into the OceanSites network with Johannes Karstensen.

*Field work:

The prior and post activities in A Coruña and Kiel respectively were focusing about the MSM 72 cruise. This cruise was conducted on board of the German R/V Maria S. Merian between the 02/03/2018 and 03/04/2018 along the entire Mediterranean Sea. Interdisciplinary experts from

many countries were working together to fulfil the objectives of this cruise. I was a part of a Spanish team (3 ladies) with whom I worked in shifts to better distribute our tasks and manage our time on board. My tasks aboard were to sample and analyse the carbonate system parameters: total dissolved inorganic carbon, total alkalinity, pH, and calcium carbonate ions, using Vindta system, potentiometric titration, and spectrophotometry method respectively. My presence aboard helped me to have an idea about the methods used to measure the transient tracers and nutrients from colleagues who were measuring these parameters on board.

2) What applications of the training received do you envision at your parent institution?

Although I am measuring the carbonate system parameters in Lebanon, the new methodologies I have acquired were very interesting to compare the quality of analysis obtained by the different techniques, to have a thorough idea how other laboratories are analysing these critical parameters, and to check how to improve the quality of our analysis back home. Also, the quality control check of big dataset will be very useful to apply for the time-series data in Lebanon.

3) Please provide your comments on the Fellowship Programme.

The POGO fellowship is a very practical and useful fellowship programme. The staff are very friendly and professional: I didn't need to ask for the money transfer after moving to a new training place because the wire was done automatically. The amount of money dedicated for the living in each city (A Coruña/Spain and Kiel/Germany), where the training happened, was fair.

As an early-career researcher, I so much appreciate such fellowship program because it gives the young researcher an opportunity to be integrated in international research teams with well-known experts from prestigious institutions which would help to improve the personal skills, capacity building, and the knowledge of the researcher. Moreover, this program helps a lot to build a solid network of experts from various nations which is very useful for future collaborations.

Thank you wholeheartedly.

Signature

A Hassoun

Date:

03/07/2018

Section B

(To be completed by host supervisor and returned to the POGO Secretariat)

Please note Q1-Q3 will be passed on to the parent supervisor and trainee and made publicly available on the OTP website; Q4 will be read only by the POGO Secretariat and remain confidential

1) Please provide your comments on the performance of the trainee.

Dr. Abed El Rahman Hassoun was a very engaged trainee and very keen to learn and pick up on all aspects of marine chemistry and oceanography. He was very easy to work with and certainly carried

his own weight during the cruise, and was a valuable addition to the cruise, i.e. the fellowship was useful for us, the supervisors, as well as for the trainee. Abed was active in contacting different scientists at GEOMAR that he felt had something that he could learn from, this was highly appreciated.

2) Is this exchange likely to lead to future collaboration with the trainee's parent institution? If so please give example(s) of how this collaboration may be pursued.

It is indeed very possible. We are doing several experiments in the Mediterranean, and particularly the time-series his institute is operating is a valuable contribution to the ocean observing system of the Mediterranean Sea, and is likely to be more so thanks to the additional skills and contacts picked up with the trainee.

There is currently no cooperation, but we are actively working on different ways to make this happen.

3) Please provide your comments on the Fellowship Programme.

This is an excellent programme. The way the fellow has time before and after the cruise by the supervisors, in addition to the cruise itself, obviously, is a very useful concept. I like the way one can apply to the program where you often already have a cruise, and a potential candidate that would fit the program. Obviously, other concepts would also work, and might work better for other supervisors. In all this a very useful and easily executed fellowship programme that I hope will be continued.

The support from POGO staff was excellent and non-formal in a positive way to make it work.

Signature

Dr. Toste Tanhua

Date: 10/6/2018

SECTION C

(To be completed by parent supervisor and returned to the POGO Secretariat)

Please note Q1 will be passed on to the host supervisor and trainee and made publicly available on the OTP website; Q2 will be read only by the POGO Secretariat and remain confidential

1) Do you agree with the above comments and do you have any additional feedback you wish to provide?

The POGO fellowship programme is a very interesting opportunity for early-career scientists who are aiming to improve their knowledge about the latest ocean science methodologies and techniques, whether in labs or aboard oceanographic cruises, with worldwide prestigious experts.

I do agree with the above comments and see that this fellowship is very useful to enhance a researcher skills, and to widen his professional network with colleagues from international institutions with whom valuable scientific publications could be prepared and future potential collaborations would see the light.

This is how ocean science could evolve and prosper.

I would like to thank the host supervisor (Dr. Toste Tanhua) for his invitation and collaboration with our researcher before, during and after the programme, and a big thank you for the POGO staff who were very cooperative with our researcher to facilitate the fellowship procedures for him during all the programme stages.

Signature

Dr. Milad Fakhir

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Date: 30/7/2018