2017 NF-POGO Visiting Fellowship for
Ship-board Training on the UK North Atlantic GEOTRACES section GA13-FRidge Cruise

Fellowship Report

Name of Trainee: MRS AZYYATI ABDUL AZIZ
Supervisor (Parent Institution): DR SUHAIMI SURATMAN

Supervisor (Host Institution): DR MALCOLM WOODWARD Dates of Training: 19/11/17-05/03/2018

Section A
(To be completed by the fellow)

1) Please provide a brief description of activities during the training period:
Before the cruise: I spent two weeks at University of Liverpool for one-to-one dissolved oxygen (DO) training by Dr Claire Mahaffey and supervised under Dr Alessandro Tagliabue. The training including how to collect DO samples, analysis DO samples based on modified Winkler method by using PC-controlled potentiometric titration system, quality control procedure, interpreted DO data and packed all the DO equipment and materials to they send to the cruise. Another 2 weeks, I received training regarding nutrient under supervision Dr Malcolm Woodward at Plymouth Marine Laboratory (PML). The nutrient training before the cruise including prepared reagents and standards, learned basic troubleshooting for 5 channel nutrient autoanalyzer, prepared the materials for nutrients analysis such as calibrate micropipettes, weighing all the chemicals material needed, and packing all the equipment and sent to National Oceanography Centre (NOC), Southampton. At the Southampton, I attended sea survival course at Warsash maritime academy and received seafarer medical certificate (ENG 1). Before sailed, I unpacked all the equipment and materials and prepared all the reagents needed for DO and setting up DO system and sodium thiosulphate standardization was carried out in order to test for reproducibility

During the cruise: I participated in GEOTRACES programmed (Fridge cruise) from NOC, Southampton (20th December 2017) to Guadeloupe, France (1st February 2018). In the cruise, my role on board is to collect DO samples at various depths from both the titanium and stainless steel rosette and analyses DO bottles sample, which will be used to calibrate the oxygen sensors on each. This cruise has introduced me about GO-SHIP protocol with handling, sampling and analyses the DO and to the world of oxygen minimum zones. Due to hectic work schedule and involved in the rushed activities, my main focus on DO analyses, but I also assist Dr Malcolm to analyses nutrients with collect nutrient samples, prepared fresh reagent and discuss about continuous flow segmented colorimetric auto analyzer for the standard five nutrients, nitrate, nitrite, silicate, phosphate and ammonium.

After the cruise: I work alongside with Dr Malcolm Woodward at PML for 1 month. I am so lucky, I got a chance to join PML staff to sampling nutrients at Western English Channel. I also have opportunity to hand-on continuous flow nutrient analyzer and learn to get highest reference standard of accuracy including analyses standard and samples, troubleshooting, salinity correction analysis, quality control procedure and interpret nutrients data. In addition, Dr Malcolm also teaches me how to interpret nutrients data in nanomolar units and the important usage of reference material nutrient seawater (RMNS) in order to obtain high-quality oceanic nutrients data and there are always something new knowledge to learn with him.

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

The most useful practical experience that I acquired over the on-ship training were 1) I was learned how to sampling, handling and analyses sea water samples based on International GO-SHIP protocol 2) The valuable hands-on training using segmented continuous flow analyzers and working alongside with the world's most experienced nutrient chemist, Dr E. Malcom S. Woodward. 3) Hands-on analytical training for dissolved oxygen analysis by using potentiometric titration system and trained by marine biogeochemistry expert, Dr Claire Mahaffey and supervised under Dr Alesandro Tagliabue who is expert in ocean biogeochemistry. The advices and opinions from expertise are needed in order to improve the quality of research in our institution (Institute of Oceanography and Environment (INOS), University Malaysia Terengganu. Hereafter, all the intensive practical experience that I gained from the experts will allow me to improve our previous shortcomings. I participated in collecting nutrients data in southern part of South China Sea, therefore, I am planning to follow GO-SHIP protocol during the seawater sampling and I am going to use references materials for nutrients in seawater (RMNS) in my nutrient analyses to contribute quality oceanic nutrients data in Malaysia. Also, if possible, I planning to measure dissolved oxygen (DO) during upcoming cruises in order to calibrate DO sensor that attached with CTD rosette, as on-board analysis is new to me.

3) Please provide your comments on the Fellowship Programme.

NF-POGO fellowship (Ocean Training Partnership (OTP)) ship-board training is innovative ocean learning experience. I am extremely blessed to have the opportunity to get out to sea and involved in collected hydrographic data, especially nutrients and dissolved oxygen data down to the bottom of the Atlantic Ocean with the most comfortable ship (RRS James Cook). The entire practical experience acquired from this programme is necessary to my research. This programme was opened opportunity for me to exposure and exchange views with the expertise in various fields especially scientists and oceanographer from PML, University of Liverpool, and University of Southampton. Therefore, this programme is likely provide the future research collaboration and advice from UK environmental science community to me and my parent institution, as there are not many Malaysian researchers who was involved in nutrients analysis in open ocean in Malaysia. Overall, I highly recommend this programme to graduate students that looking for the most amazing and enriching experience of their lives. I can confidently say it will have been worth it to join OTP by POGO.

Signature

AZYYATI ABDUL AZIZ

Date
16 April 2018

Section B

(To be completed by host supervisor)

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

Azyyati was an excellent Fellowship student, it was a pleasure to work with her. She was extremely keen to learn and to take on new ideas and concepts. She was always willing to be involved with different facets of the cruise programme, not only carrying out her main roles of dissolved oxygen analysis in order to calibrate the sensors on the CTD frame, and in assisting with the nutrient analysis, but she was helping other scientists where she could and had time. All the other scientists who were on the cruise, who I spoke to, were very impressed with her enthusiasm and work ethic, plus the detail and quality of her work.

She also integrated fully into the FRidge cruise team and made good friends with many of the scientists on board, this being very important when you are away at sea for 6 weeks with a small group of people.

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.

Azyyati and I discussed this during the cruise and I would be very happy to help with future training and collaboration with her Institute in Malaysia. We did not discuss anything in detail and this would need to be a more formal arrangement but I think we need to investigate funding opportunities, for example the UK 'Newton Fund' which often has funds to aid collaborations and training for certain countries. I would like to help build the knowledge and capacity in Malaysia if possible and hopefully we can investigate funding options over the next few months.

3) Please provide your comments on the Fellowship Programme.

I strongly support these POGO programmes which provide the opportunities for scientists form developing countries to come along and collaborate alongside scientists like myself and to learn new analytical techniques and find out more about all aspects of working in the UK, not only the science but experience life outside of their home countries. But more importantly is that these scientists take back home the new ideas, concepts and knowledge to their home laboratories to share with their colleagues. Being able to pass on my knowledge and skills to scientists who are so very willing to learn new things is a pleasure, and I look forward to hopefully helping to train future early career scientists through the POGO Fellowship programme.

Signature

DR MALCOLM WOODWARD

Date

17th April 2018

SECTION C
(To be completed by parent supervisor)

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

Azyyati is motivated researcher. Her education has principally been in Malaysia, but she has taken every possibly to extend her horizons and gain valuable international experience, as demonstrated by her successfully application of POGO fellowship. I'm totally agree with the comments from Dr Malcolm and Azyyati. The training that she received from POGO proved to be successful, as she not only demonstrated new sampling and analytical skills to her colleague, but also able to improve the performance of our continuous flow autoanalyzer (CFA) in laboratory.

The study area of Azyyati's PhD is the southern South China Sea, an area with a rather limited history of environment research and hence as a current research focus area for INOS. Therefore, collaboration with established marine institute like PML, especially with Dr Malcolm is extremely important. I really grateful that Dr Malcolm willing to help us here and I will try to figure out to get the funding for training workshop on nutrient analysis in our institute (INOS), in order to improve the quality of nutrient research in Malaysia.

POGO programme is more than a learning system and an excellent platform to provide new scientific skills and knowledge from the experts that would help students in the context of planning for their research in future. And I hope the networking with UK environmental scientist will provide channels of communication between Malaysia and UK for exchange of views to promote greater joint-research in the field of mutual interest.

Signature

DR SUHAIMI SURATMAN

Date
25/4/2018