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Report on the 2010 POGO-SCOR Fellowship Programme

This year saw the ninth fellowship programme implemented using POGO funds with supplementary financial support from SCOR. The announcement posted a little later this year, in March, opened the competition for one month. Even so, this year saw a total of 21 applications, which was just a little under than those for the previous year. It is felt that the response was good considering the competition only being open for one month. Countries of origin of applicants included, Argentina, Iran, India, Chile, China, Mexico, Egypt, Tunisia, Taiwan and Indonesia.

The applications were screened independently by a committee of four, with representation from SCOR and POGO. In making their selection, the committee considered the following factors:

- quality of the application;
- relevance of the application to the priority areas identified in the fellowship announcement;
- evidence that the training will lead to improved sustained observations in the region, or improved applications of such data;
- evidence that the training would lead to capacity-building with potential lasting impact on regional observations, and
- the need to maximise regional distribution of the awards.

We are pleased that again, this year, thirteen fellowships were offered to oceanographers from developing countries and economies in transition. The host institutions include Spain, USA, UK, Germany, Japan, Canada and the Netherlands.

Also, this year, a Special POGO-SCOR visiting fellowship for on-board training on an Atlantic Meridional Transect (AMT) Cruise was again offered, with the selected candidate, from the Czech Republic, having the opportunity to visit Plymouth Marine Laboratory (PML) in the UK prior to the cruise to participate in cruise preparation and planning, to go on the cruise and after the cruise spend up to two additional months at PML, learning to analyse the results statistically and interpret them.

POGO and SCOR commend the efforts from all the supervisors and colleagues at the various host institutions who agreed to devote time and energy required for the training. The programme would not have been viable without such efforts from prominent scientists and their teams.

All the people involved in each fellowship (the fellowship holder, the supervisor at the parent institute and the supervisor at the host institute) were requested to submit short reports at the end of the training period. A number of reports are expected to be received by the end of January, but those received so far have been enthusiastic. They indicate that these exchanges should lead to effective capacity building at the host institute and facilitate longer term collaborations between the institutes concerned. All

conclude that the programme serves a useful purpose.

There is tremendous interest in the fellowship programme at all levels, both in the oceanographic institutions of the developing nations, as well as among leading scientists who are eager to contribute to this initiative. It is seen to be filling a niche in capacity building through specialised training that is not filled by intensive courses or by participation in scientific meetings. It helps improve the *esprit de corps* among oceanographic institutions around the world, and serves as a stepping stone to building collaborations.

Demography of Fellowships

Parent Institutions of Successful Candidates:

Argentina	Centro Nacional Patagónico, (CENPAT-CONICET) University of Buenos Aires
Chile	University of Concepcion Centro de Estudios Avancados en Zonas Aridas (CEAZA), Coquimbo
China	Yantai Institute of Coastal Zone Research, Chinese Academy of Sciences Dept of Oceanography, Xiamen University
Czech Rep	Institute of Microbiology, Trebon
Goa	Department of Marine Sciences
India	National Institute of Oceanography, Goa INCOIS, Hyderabad
Indonesia	IMRO, Bali
Iran	University of Tehran
Mexico	Centro de Investigación Científica y de Educación Superior de Ensenada (CICESE), Baja California

Host Institutions:

Canada	Institute of Ocean Sciences, Fisheries & Oceans
Germany	Coastal Research Laboratory, University of Kiel
Japan	Lab. of Marine Bio Resource & Environ. Sensing, Hokkaido University Dept of Physics & Earth Sciences, University of the Ryukyus
Netherlands	Department of Marine Microbiology, University of Amsterdam
Spain	Centro Tecnológico del Mar-Fundación (CETMAR)
UK	Plymouth Marine Laboratory Dept Pure & Applied Ecology, Institute of Environmental Sustainability, Swansea University
USA	Woods Hole Oceanographic Institute, Massachusetts College of Oceanic & Atmospheric Sciences, Oregon State University Department of Marine Sciences, University of Connecticut National Oceanographic Data Centre, Maryland

Gender distribution

Female: 6 (including POGO-AMT Fellowship)

Male: 8

POGO-SCOR JOINT FELLOWSHIP PROGRAMME

Successful Candidates - 2010

Mohammad Heidarzadeh – Iran

Parent supervisor and institution: Dr. Ali A. Mirghasemi, University of Tehran

Host supervisor and institution: Dr. Belen Martin Miguez, Vigo, Spain

Fellowship period: Oct-Dec 2010.

Topic: 'New technologies for ocean observation as well as analysis of oceanographic data in the framework of the RAIA project (Iberian margin ocean observatory)'

Mohammad is a post-doc researcher at the University of Tehran. He has completed his PhD in ocean engineering with a PhD dissertation on numerical modelling of tsunami waves. He is experienced in working with ocean field data including data obtained from acoustic Doppler velocimeters, bottom pressure sensors and tide gauges. Currently he is working within the Faculty of Engineering to establish an Iranian national tsunami warning system. Following several international coordination meetings organized by Intergovernmental Oceanographic Commission (IOC) of UNESCO in the aftermath of the 2004 Indian Ocean Tsunami, Indian Ocean countries were committed to develop their own tsunami warning systems. In this context, a working group composed of UT and other Iranian organizations has been formed to establish the tsunami warning system. Under the supervision of Dr Miguez he will be looking at new technologies for ocean observation as well as analysis of oceanographic data in the framework of the RAIA project (Iberian margin ocean observatory). This Fellowship is regarded as the best opportunity for Mohammad to be trained in the field of operational oceanography especially in installation and operation of ocean observation networks.

Siby Kurian – India

Parent supervisor and institution: Dr. S.W.A. Naqvi, National Institute of Oceanography, India

Host supervisor and institution: Dr. Daniel Repeta, Woods Hole Oceanographic Institution, USA

Fellowship period: 31 Aug-30 Nov 2010

Topic: 'Studies on photosynthetic pigments in the Arabian Sea with special emphasis on OMZ and training on HPLC-MS'

Siby is currently working at the National Institute of Oceanography, Goa as a Scientist-C. Siby has a PhD in Chemical Oceanography from Cochin University of Science & Technology, Kerala. She has participated in several oceanographic cruises (more than 140 days). Onboard research works involved collection of seawater samples for chemical analysis, sediment cores for organic, geochemical and isotopic analyses. She has been working in the biogeochemistry group for the last seven years and was actively involved in the application of biomarkers as a proxy for reconstructing paleo-environmental conditions. She is also involved in the studies on biogeochemical cycles in the North Indian Ocean. She is setting up the analytical facilities for pigment analysis in the laboratory at the NIO using HPLC and MS. In the proposed study at Dr Repeta's laboratory in WHOI, she will be training on pigment analysis using HPLC/MS and her emphasis will be to understand the occurrence of bacteriochlorophyll pigments in the Arabian Sea. This Fellowship will improve her analytical capabilities, as a similar instrument has already been procured in the laboratory and also this will be the first study of its kind.

Nisha Kurian – India

Parent supervisor and institution: Dr. V.V. Gopalakrishna, National Institute of Oceanography, India

Host supervisor and institution: Dr. T.P. Boyer, National Oceanographic Data Centre, USA

Fellowship period: 10 Sept-10 Nov 2010

Topic: 'Training on data management for research use'

Nisha is a Senior Research Fellow at the National Institute of Oceanography, Goa, currently working towards her doctoral degree on the "Variability of the near surface thermal fields in the Lakshadweep Sea". She has four publications to her credit and all are published in high impact peer-reviewed journals (JGR, JPO, DSR and GRL). This training will help her to understand and gain expertise in the international quality control techniques for the data management and preparation of data for research use.

Aneesh Lotliker – India

Parent supervisor and institution: Dr. Srinivasa Kumar, Indian National Centre for Ocean Information Services, India

Host supervisor and institution: Dr. Shubha Sathyendranath, Plymouth Marine Laboratory, UK

Fellowship period: Feb-Apr 2011

Topic: 'Modelling of Primary Productivity and Inherent Optical Properties'

Aneesh is a Scientist B at INCOIS, Hyderabad, India, having gained his MSc in Marine Sciences and his PhD in Marine Optics and ocean colour satellite remote sensing. He is at the early stage of his research career and his future direction is in the development of value added services with special focus on Primary Productivity Models and Inherent Optical Properties. His experience includes field sampling for the measurement of bio-optical parameters; measurement of optical field using hyperspectral radiometer data; water sample analysis for estimate of chlorophyll, CDOM etc; usage of instruments such as spectrophotometer with integrating sphere, Turner design 10-AU field fluorometer. Dr Shubha Sathyendranath will be helping Aneesh with his training in primary productivity and inherent optical properties modelling using ocean colour satellite data.

Nadin Ramirez – Chile

Parent supervisor and institution: Dr. Oscar Pizarro, University of Concepcion, Chile

Host supervisor and institution: Dr. Jack Barth, COAS, Oregon State University, USA

Fellowship period: 5 Sept-16 Oct 2010

Topic: 'Training on glider preparation and operation, data processing and quality control'

Nadin Ramirez is currently a Research Fellow at the University of Concepcion, Chile. As part of this team he has participated in several oceanographic cruises in charge of the CTD operation and data processing. Furthermore, during 2009, Mr Ramirez has played a major role in all glider activities carried out for the glider team at the University of Concepcion. Later, he also participated in the official training course offered by the company that produces the Slocum gliders (Teledyne Webb Research at Falmouth, MA). He proposes a 1½ month stay at COAS, under the supervision of Dr J Barth, working with the underwater glider team to gain more advanced training on glider preparation and operation, including piloting and diagnosing any problems encountered during a glider mission. More importantly, he will learn about data quality control and processing procedures.

Juan Emilio Sala – Argentina

Parent supervisor and institution: Dr Flavio Quintana, Centro Nacional Patagonico (CENPAT-CONICET)/University of Buenos Aires

Host supervisor and institution: Dr. Rory Wilson, Institute of Environmental Sustainability, Swansea, Wales, UK

Fellowship period: 5 July-20 Sept 2010

Topic: 'Training in the management and analysis of behavioural and environmental data of 2 marine top predators from the southwestern atlantic ocean, obtained from high - resolution electronic recorders'

Juan is currently pursuing a Doctorate degree at the University of Buenos Aires, through a doctoral grant from the National Research Council of Argentina. His doctoral proposal involves the study of the diving and foraging ecology of two top predators of the Argentine Continental Shelf i.e. Magellanic Penguins and Southern Elephant Seals, by means of multi-archival data loggers. This new piece of technology known as the "daily diary" is an animal-attached unit, placed directly on the penguins and seals to monitor their behaviour and local conditions during foraging trips. This unit was recently awarded the prestigious Rolex Award for Enterprise for the contribution that it could make towards animal conservation issues. Besides the theoretical components of Juan's PhD thesis, these studies also include several applications to the conservation of the species and for monitoring the productivity of the wide ecosystem of the south western Atlantic Ocean. These studies represent an opportunity to make a tremendous contribution to effective wildlife and wild seas conservation and monitoring, through the innovative use of technology. This Fellowship will contribute significantly to his doctoral training as a professional in an important field of research and marine top predators conservation in Patagonia, Argentina. Under the supervision of Professor Rory Wilson he will be trained to process data obtained from electronic recorders.

Nutan Sangekar – India

Parent supervisor and institution: Prof. Harilal Menon, Goa University, India

Host supervisor and institution: Dr. Gavin Tilstone, Plymouth Marine Laboratory, UK

Fellowship period: Feb-Apr 2011

Topic: 'Analytical Techniques in Marine Bio-Optics and Optical Remote Sensing'

Nutan is a Senior Research Fellow at Goa University currently working on the Variability of remote sensing reflectance and its implications to colour component analysis – A study in the estuarine and coastal waters of eastern Arabian Sea. As part of the project and research work, she is involved in field work consisting of water sample collection, optical measurements using Satlantic HyperOCR and hydrographic measurements using Aquadopp current meter and CTD in coastal and estuarine waters. She is also involved in laboratory analysis of water samples analyzing the same for chlorophyll, CDOM and TSM. Her work includes processing and analyzing data from radiometers, CTDs and current meters. She has experience in processing satellite data from Ocean Colour Monitor using ERDAS Imagine and she has also undergone preliminary training in use of Sea DAS for processing MODIS data. She also has operational experience with absorption – attenuation meter and VSF meter. Nutan will be trained in the measurement of phytoplankton photosynthesis, primary production and bio-optical techniques.

Luciana Santoferrara – Argentina

Parent supervisor and institution: Dr Viviana Alder, University of Buenos Aires, Argentina

Host supervisor and institution: Dr. George McManus, University of Connecticut, USA

Fellowship period: 10 Aug-10 Oct 2010

Topic: 'Study of the Diversity of Marine Planktonic Ciliates through Molecular Techniques'

Luciana is a Post-doctoral Fellow at CONICET, Argentina, working with Drs Viviana Alder and Hermes Mianzán. She is a co author to several papers. Under the direction of Dr Alder, she has been investigating taxonomy and ecology of protozooplankton (mainly ciliates) since 2003. She has participated in several national and international research projects and presented at national and international scientific meetings. During the fellowship, Luciana will be studying the diversity of marine planktonic ciliates through molecular techniques.

Cheng Tang – China

Parent supervisor and institution: Dr Ping Shi, Yantai Institute of Coastal Zone Research, Chinese Academy of Sciences, China

Host supervisor and institution: Dr. Roberto Mayerle, University of Kiel, Germany

Fellowship period: 1 Oct 2010-11 Feb 2011

Topic: 'Development and application of decision support systems for the sustainable environmental planning of coastal areas'

Cheng is an Associate Professor and Vice Director of the Science and Technology Department of the Coastal Zone Institute, Yantai, China. He has completed his degree in Marine Geology from South China Sea Institute of Oceanology. He is currently working in this new institution and one of its important missions is to develop coastal observation capacity including new technologies, coastal information integration and application. In 2009 he was invited to Germany to gain further understanding of both the natural and human dimensions of the coastal system in global and regional contexts. Also, in 2009, he was awarded the UNITAR capacity programme "Toward a healthy coastal zone based on environmental monitoring techniques – effective science communication", and later he was selected into the kernel team of the national long term ocean Observation Network plan organized by State Oceanic Administration. Under the supervision of Dr Mayerle of the University of Kiel, he will be looking at the development and application of decision support systems for the sustainable environmental planning of coastal areas.

Vladimir-Giovanni Toro Valencia – Mexico

Parent supervisor and institution: Dr. Francisco Javier Ocampo Torres, CICESE, Mexico

Host supervisor and institution: Prof. Yukiharu Hisaki, University of Ryukyus, Japan

Fellowship period: 10 Sept-10 Dec 2010

Topic: 'On the estimation of directional wave spectrum from high frequency radar data'

Vladimir is enrolled in the Physical Oceanography PhD programme at CICESE (Centro de Investigacion Cientifica y de Educacion Superior de Ensenada). He carried out his MSc thesis work in the analysis of wave propagation using numerical models. He has participated in measuring campaigns in the GT, where he performed maintenance work and calibration of the radars and organizing the measured data, in addition to the handling of numerical modelling of wave propagation. His proposed training will allow the Wave Group to improve the analysis of directional wave spectrum wave from HF radar data as well as to consolidate the capacities of CICESE's wave laboratory. The skills obtained during the processing of the data are expected to suggest new methods to improve the already existing algorithm; this is a common challenge of the University of the Ryukyus and CICESE. The algorithm will be used to analyse the data for future

campaigns from GT. Under the supervision of Prof Hisaki, Vladimir will be looking at the estimation of directional wave spectrum from high frequency radar data.

Teja Arief Wibawa – Bali

Parent supervisor and institution: Dr. Berny A. Subki, Institute for Marine Research and Observation, Bali, Indonesia

Host supervisor and institution: Dr. Sei-Itchi Saitoh, Hokkaido University, Japan

Fellowship period: 21 Aug-19 Nov 2010

Topic: 'Oceanographic preferences of bigeye tuna in Indian Ocean Southern Java-Bali, Indonesia, based on oceanographic satellites & Argo floats observation'

Teja is a young researcher who is involved in the ocean remote sensing research team at IMRO, Bali. He has at least four years experience on the application of oceanographic satellite data on fisheries oceanographic field. As part of the ocean remote sensing team, he has been developing utility of oceanographic satellites for the development of a fishing ground prediction system. His current research focuses on the Bali Strait and the Indian Ocean southern Java-Bali, particularly on lemuru and bigeye tuna catchment, which is the subject of his three month Fellowship. His research focuses on the improvement of the scientific fishing ground prediction system. Up to the present day, he has been constructing a statistical model to quantify the influence of oceanographic variables on bigeye tuna distribution. This will be followed to support the development of national operational fisheries oceanography and in a broader scale, it will be to support a global observing system programme. Under the supervision of Prof Sei-Itchi Saitoh, Teja will be learning the advanced techniques and methodologies involved in providing real-time fishery forecast and also species-specific (Bigeye Tuna) potential fishing zone forecast using satellite data and ARGO data.

Beatriz Yannicelli de Olivera Bueno – Chile

Parent supervisor and institution: Dr. Marcel Ramos Quesada, Centro de Estudios Avanzados en Zonas Aridas (CEAZA), Coquimbo, Chile.

Host supervisor and institution: Dr. Angelica Peña, Institute of Ocean Sciences, Fisheries and Oceans Canada

Fellowship period: 24 July-23 Oct 2010

Topic: 'Running coupled hydrodynamic-1D and 3D NPZD type of models to evaluate sub-surface oxygen variability in a coastal upwelling area'

Beatriz is a Biological Oceanographer with a BSc in Biology and a Master on Sciences from the University in Uruguay and a PhD on Oceanography, at the University of Concepcion, Chile. During her PhD, she took a few courses on bio-physical modelling. These courses mainly emphasized coupled physical-individual based type of models. She also spent two months in NOAA, Seattle, USA training on IBM modelling. The first applications were included in her dissertation and the first paper she wrote as first author using the tools acquired during those experiences is actually in review in Progress in Oceanography. She also spent about a year as post-doc in the COPAS Centre of Oceanographic Research, Chile, analysing bio-physical oceanographic data from the Concepcion upwelling area (time series oceanographic station 18) and designing a simple uncoupled NPZD type of model including the relevant elements for the site. She is in charge of bio-physical oceanographic data analysis at CEAZA Centre and she feels she needs to develop a bio-physical modelling group. Her proposed training activity, under the supervision of Dr Angelica Peña at the Canadian Institute of Ocean Sciences of Fisheries and Oceans, includes running coupled hydrodynamic – 1D and 3D NPZD type of models to evaluate sub surface oxygen variability in a coastal upwelling area. Dr Peña believes that, given Beatriz' experience in ecosystem modelling, and that a ROMS circulation model is already developed for the Humbolt Current System (HCS), spending

time together will lead to the development of the first coupled circulation biogeochemical model of the NCS upwelling region.

Run Zhang - China

Parent supervisor and institution: Dr. Min Chen, Department of Oceanography, Xiamen University, China

Host supervisor and institution: Dr. Lucas Stal, Netherlands Institute of Ecology (NIOO-KNAW) and University of Amsterdam

Fellowship period:

Topic: 'Stable isotope probing of marine nitrogen-fixing cyanobacteria'

Run is currently a PhD student in the Department of Oceanography at Xiamen University since 2004. He is experienced with sampling and experimenting skills, both on the sea and in the land laboratory. He has participated in seven cruises personally and finished a large number of sample measurements. He is skilled in stable isotope tracer operations relevant to marine N₂ fixation study. Run has written three papers in English, which are due to be submitted soon. His proposed training will include stable isotope probing of marine nitrogen-fixing cyanobacteria at the Department of Marine Microbiology, Netherlands Institute of Ecology, which is very much interested in the fixation of atmospheric dinitrogen by marine cyanobacteria. The Fellowship will help to further develop stable isotope probing techniques to investigate N₂ fixation in non heterocystous marine cyanobacteria.

SUCCESSFUL AMT FELLOWSHIP CANDIDATE – 2010

Barbora Hoskova – Czech Republic

A year ago Barbora graduated and gained a Masters degree at the Charles University in Prague and is regarded by her supervisor, Dr Ondrej Prášil, as a gifted hardworking and responsible person with her interest in science and algal/phytoplankton biology in particular. Currently she is working on several projects involving the application of advanced optical techniques – fluorescence kinetic microscopy to study heterogeneity in the photosynthetic response of individual algal cells, fluorescence kinetic spectroscopy to study changes in energy distribution and utilisation during photosynthesis induced by various stresses. She is showing excellent experimental skills and ability to analyse and interpret the results. Her training aboard the cruise will improve not only her skills as a qualified technician but will be beneficial for her laboratory by improving the capacity to be involved in future projects in biological oceanography.