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5.0 CAPACITY-BUILDING ACTIVITIES

5.1 SCOR Committee on Capacity Building

Ittekkot

The 2006 SCOR meeting approved terms of reference for a SCOR Committee on Capacity Building, whose primary purposes are to oversee all of SCOR's capacity-building activities and to help the SCOR Secretariat manage these activities. The approved terms of reference follow:

- Provide direction for all of SCOR's existing capacity-building activities: participation of scientists from developing countries and countries with economies in transition in SCOR activities, POGO-SCOR Fellowship Program, travel grants, and provision of reports to libraries in developing countries.
- Guide and assist SCOR Executive Director in development of new capacity-building activities, particularly the Regional Graduate Schools of Oceanography activity.
- Assist SCOR-sponsored projects in developing their capacity-building activities.
- Help SCOR arrange funding for existing and new capacity-building activities.
- Assist SCOR in interacting with regional and international groups related to capacity building in ocean sciences, such as the ICSU regional centers, START, IOC regional programs, etc.

The membership of the committee is designed to create a tight linkage with the SCOR Executive Committee. Since several members of the Committee on Capacity Building have rotated off the SCOR Executive Committee, the SCOR Executive Committee will discuss changes in the composition of the committee at the annual meeting.

Chair:

Venu Ittekkot (Germany)

Other Members:

Sükrü Besiktepe (Turkey)

John Compton (South Africa)

Missy Feeley (USA and SCOR Executive Committee)

Ilana Wainer (Brazil)

Jing Zhang (China and IMBER)

Hal Batchelder (PICES)

A subgroup of the committee can now meet in conjunction with annual SCOR meetings at little extra cost to SCOR, making it possible for any committee recommendations to SCOR to be acted on immediately. The committee will meet on 24 November in Wellington, just prior to the SCOR annual meeting, to review all SCOR capacity building activities.

Venu Ittekkot and Ed Urban participated in a meeting funded by the Asia-Pacific Network for Global Change Research (APN) in Shanghai, China in March 2013 to finalize the report to APN from an August 2012 meeting and to work on an article for a peer-reviewed journal about the need for new capacity-building approaches for ocean science projects. The draft article has been

completed and editors at *Marine Pollution Bulletin* are reviewing whether the article would be appropriate for this publication.

A small workshop was held on 5-6 November 2012 at Henties Bay, Namibia to discuss capacity building in southern Africa. Representatives from international organizations (SCOR, IOC, POGO) and from Namibia and South Africa attended to share information about current activities and potential new activities. The meeting was hosted by the University of Namibia, to which SCOR has sent Kurt Hanselmann as a SCOR Visiting Scholar twice. The full report from the meeting is available at http://scor-int.org/Capacity_Building/Regional_Graduate_Network_of_Oceanography_for_Southern_Africa.pdf. The Executive Summary of the report follows.

Executive Summary

A group representing both international organizations, and national and regional organizations, from Namibia and South Africa was hosted by the University of Namibia to discuss the possibilities for cooperation within the southern Africa region for ocean science education. Meeting participants developed the following findings and recommendations, which are presented in greater detail later in the report:

1. Status of Marine Science in the Region

- a. **Finding:** There is a need for more outreach in the region to recruit students to marine science and technology careers (based on needs assessment).
- a. **Recommendation:** Governments should assess their need for more ocean scientists and increase jobs at universities and government agencies, as needed. National institutions should consider conducting more activities to recruit high school and early undergraduate students to marine science careers.
- b. **Recommendation:** National universities and agencies should work together to identify needs for technical staff and ways to fill these needs. Technical training might be best done on a regional basis since the need for staff in any single country is small. The idea of a regional marine instrumentation center should be explored, as a place to train, calibrate equipment, etc.

2. Regional Approach to Ocean Science Education and Facilities

- a. **Finding:** A regional approach to graduate and technical education could improve marine science in the region. Sharing of ocean science facilities in the region could benefit all participating institutions.
- a. **Recommendation:** (1) An assessment of training needs should be conducted for the region by institutions in the region (based on discussions at the regional meeting recommended below). (2) Interested institutions should meet to create a needs assessment (based in part on the IOC needs assessment for Africa) and to discuss a series of steps

and a timetable to implement an RGNO. Contacts should be made with additional institutions in the region, besides the ones represented at the meeting

3. Role of International Organizations in Regional CB&D

- a. **Finding:** CB&D activities of SCOR, POGO, IOC, and development agencies of several countries have been important in southern Africa.
- a. **Recommendations:** SCOR, POGO, and IOC should maintain funding for CB&D activities in southern Africa, and should consider whether more funding could be directed to this region for a limited period, for example, five years. . SCOR, POGO, and IOC should consider new funding proposals to help regional institutions implement their CB&D plan.
- b. **Finding:** UNESCO Chairs could be more effective in regional CB&D.
- b. **Recommendation:** IOC should consider working to increase the UNESCO Chair mandate for CB&D and/or nations in the region should request appointment of an additional UNESCO Chair within southern Africa. The local institutions in which the chair is located should consider providing additional support for the CB&D mission of the chair.
- c. **Finding:** International, multilateral, and bilateral research projects working with scientists in the region have the potential to contribute to capacity building.
- c. **Recommendation:** Future national research projects from outside the region should be more proactive about partnerships with scientists within the region and to contribute to the regional graduate network of oceanography.
- d. **Finding:** Opportunities for CB&D could be enhanced when research vessels from outside the region visit the area. International research vessels use harbors in the region on a regular basis, especially Walvis Bay and Cape Town, for refueling and/or crew changes. On most occasions of ship visits, information on these visits does not reach the scientific community in the region early enough to take advantage of the visits. Valuable CB&D opportunities to local and regional scientists and students are therefore lost.
- d. **Recommendation:** SCOR and POGO should encourage their members to take opportunities to provide ship-board training and on-shore lectures when ships are in the region. Information obtained about ship visits should be made available through the [South African Network for Coastal and Oceanic Research](#) (SANCOR).

4. Funding for Regional CB&D

- a. **Finding:** Increasing CB&D activities in the southern Africa region will require increased funding.

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- a. **Recommendations:** International, regional, and local organizations should seek new funding from local, regional, and international agencies and foundations. National aid agencies should be approached. Joint projects between EU and African countries are one option.

5. The Role of Visiting Scientists

- a. **Finding:** Sabbatical visits by scientists from within and outside the region are highly beneficial.

- a. **Recommendation:** SCOR and POGO should determine interest among institutes in the region (and within countries) to host sabbatical visits and provide a portal for access by potential visitors, and more proactive communication of this information. Return visits are considered to be especially beneficial as the visiting scientists are then familiar with the working conditions and needs of the African countries.

6. Components of a Regional Graduate Network for Oceanography

- a. **Finding:** Internships are valuable opportunities for undergraduates to explore career options, gain practical work experience, make contacts, etc.

- a. **Recommendation:** Institutions and agencies in the region should explore opportunities to expand internship programs.

- b. **Finding:** Libraries in the region need more hard copies of books and reports from international organizations.

- b. **Recommendations:** Distribute publications from international and regional organizations to libraries in the region. Libraries in the region should join IAMSLIC and work through ODINAFRICA.

- c. **Finding:** Electronic communications (bandwidth program) and reception of satellite data can be difficult in the region, both costly and inefficient.

- c. **Recommendation:** [GEONETCAST](#) satellite communication systems should be expanded in the region; institutions in the region should push for greater access.

- d. **Finding:** Short courses/summer schools/refresher courses/continuing education/research camps can provide experience complementary to graduate programs.

- d. **Recommendation:** Short courses/summer schools/refresher courses/continuing education/research camps should be made integral components of the regional graduate network for oceanography. National IODE focal points should be encouraged to disseminate information about the availability of courses. IODE should send information to SANCOR for posting on their Web site.

- e. **Finding:** CB&D activities would be more effective if more ship time were available for training. The research vessels belong to the national agencies and are maintained and run

from their national budgets. Budgetary constraints involved in running the vessels for non-line function work by the Ministry of Fisheries and Marine Resources in Namibia has been a reason for unavailability of the vessels for some proposed research cruises that would potentially involve capacity building. Ship time requests cannot be made at the last minute because of various safety and health requirements that require some time to complete.

- e. **Recommendation:** The necessary ship time should be defined well in advance of the time needed and communicated to the ship managers. Institutions requesting ship time on a regular basis should appoint a designated person to handle the logistics of ship time requests and required certifications/exemptions.

We hope that these ideas will be helpful in better using the existing capacity for ocean science in southern Africa and creating new cooperation among universities, government agencies, inter-governmental bodies, and non-profit organizations in the region. The opinions expressed in the report are the opinions of the individuals involved in the meeting and may not reflect the policies of their organizations.

Kurt Hanselmann is continuing to work with the University of Namibia, including helping to supply university laboratories with equipment gathered in Europe and sent south on German research vessels. An article was published about SCOR's capacity-building activities in Africa in the University of Delaware's Global Magazine (see http://scor-int.org/Capacity_Building/Article%20from%20UD%20Global%20Magazine.pdf). Hanselmann was awarded funding from the Agouron Institute to develop and implement a four-year program of "research camps" at the University of Namibia's Henties Bay facility. The funds from the Agouron Institute are being managed through SCOR.

5.2 SCOR Visiting Scholars

Ittekkot

SCOR began a program in 2009 to enlist the services of ocean scientists from the SCOR community, from both developed countries and developing countries, both recently retired and active, to teach short courses and to provide more extended on-site education and mentorship at developing country institutions. Some countries and/or individual institutions have requirements for their scientists to retire at a given age, sometimes as early as 60 years of age. Many retired ocean scientists are still interested in teaching and mentoring, and are supported by pensions after their retirement, so do not need salary support. Some active scientists can also use some of their already-supported work time to work in a developing country.

Hosting visiting scientists, whether retired or active, can have many benefits to host institutions also, such as inspiring, motivating, and informing students and faculty, and leading to future collaborations between the visiting scientist and the host institution.

The idea of this program is to regularly send ocean scientists interested in short-term visits to developing countries. The program is a partnership, with the host institution providing local accommodation and SCOR finding resources to pay for airfares and other local expenses, as

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necessary. The participating scientists donate their time. The participating scientists might be onsite for as little as two weeks to as long as visa requirements would allow. Applicants may already have selected a host institution or SCOR will help identify hosts. Information about the program is available at http://www.scor-int.org/SCOR_Visiting_Scholars.pdf. The call for applications for 2014 Visiting Scholars will be issued around 1 October 2013. The SCOR Visiting Scholars who are making their visits in 2013 are shown below. Normally, three Visiting Scholarships are awarded each year, but six Visiting Scholars are being deployed in 2013, due to delays in the timing of some of the Scholars' visits from previous years.

2013 SCOR Visiting Scholars

Name	Home Country	Host Country	Dates	Purpose
Geoff Millward	UK	Thailand	21 Jan.-5 Feb. 2013	Development of undergraduate and postgraduate courses in Marine and Coastal Resources and Environmental Sciences
Lisa Beal	USA	South Africa	6-24 March 2013	Teaching on physical oceanography
Alice Newton	Norway/ Portugal	Morocco	10-25 May 2013	Teaching on coastal lagoons
Jacob Larsen	Denmark	Namibia	April 2013	Teaching course on identifying harmful algae
Pauline Ross	Australia	Thailand	September 2013	Experimental design, analysis and communication in the context of the impacts of climate change on marine environments
Michelle Graco	Peru	Argentina	December 2013	Biogeochemical cycles and highly productive systems in the oceans

5.3 POGO-SCOR Visiting Fellowships for Oceanographic Observations

Urban



Report on the 2013 POGO-SCOR Fellowship Programme

This year saw the thirteenth fellowship programme implemented using POGO funds with supplementary financial support from SCOR. The announcement was posted on 7 November 2012, with a closing date of 23 December 2012.

This year saw a total of 42 applications, which was fewer than the previous year but more than the number of applicants in 2011. This was possibly a result of a shorter application period. Applications were received from 22 countries.

Ten candidates were selected hail from around the world, namely Argentina, Brazil, China, Croatia, India, Nigeria and Tanzania. This year's host institutions included GEOMAR (Germany), LOCEAN (France), Plymouth Marine Laboratory (UK), University of East Anglia (UK), University of Maryland (US) and University of South Florida (US).

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.

One successful candidate from India subsequently received an offer of a permanent research position, therefore he was no longer able to accept the POGO-SCOR visiting fellowship so soon into the new post. The POGO Executive decided that by the time that they were informed, it was too late by that stage to offer the fellowship to another candidate.

One candidate who was selected was from a country that since last year has moved on to the World Bank's list of high-income countries, therefore was unable to be supported by SCOR funds, however,

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following discussions between POGO Executives and SCOR, it was decided that the fellowship would still be offered to the applicant, but would be only funded by POGO.

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 fellowships are yet to be completed and their reports are expected to be received by the end of the year, 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.

Furthermore, the POGO-SCOR fellowship scheme is increasingly seen by other organisations as a model in capacity building, and similar schemes have been set up by other programmes based on the success of the POGO-SCOR model (e.g. EU projects, the Europe-Africa Marine Network, EAMNet; and the EUROMARINE consortium of European Networks of Excellence). The POGO Secretariat is often approached for help/advice on setting up similar fellowship schemes, or proposals to partner up with other organisations.

Demography of Fellowships

Parent Institutions of Successful Candidates:

Argentina	Instituto Nacional de Investigación y Desarrollo Pesquero
Brazil	Federal University of Rio Grande
China	Xiamen University
Croatia	Institute of Oceanography and Fisheries
India	Nansen Environmental Research Centre
	National Institute of Oceanography (cancelled)
	Space Applications Centre (SAC) of Indian Space Research Organisation
Nigeria	Nigerian Institute for Oceanography and Marine Research
Russia	Russian State Hydrometeorological University
Tanzania	University of Dar Es Salaam

Host Institutions:

France	LOCEAN, Université Pierre et Marie Curie
Germany	GEOMAR Helmholtz Centre for Ocean Research Kiel
UK	University of East Anglia

USA Plymouth Marine Laboratory (four different supervisors)
University of South Florida
University of Maryland Center for Environmental Science

Gender distribution: Female: 5, Male: 4

2013 Fellows



Smitha Ammamkuzhiyil – India

Parent supervisor and institution: Prof. Ravindranatha Menon – Nansen Environmental Research Centre, India.

Host supervisor and institution: Prof. Trevor Platt, Plymouth Marine Laboratory, UK.

Fellowship period: October 2013 (1 month)

Topic: Satellite data processing, interpretation and the modelling of primary production

Smitha Ammamkuzhiyil is currently working in an EU FP7 programme entitled “Indo-European Research Facilities for studies on marine ecosystem and climate in India (INDO-MARECLIM)”, within which she is involved in the work package “Marine Ecosystem studies including algal blooms”. It comprises the synergistic utilization of ocean color and other EO data to study eddy induced algal blooms and elucidate changes in productivity in relation to climate change by way of ecosystem models. Smitha is part of a team working to design a suitable marine ecosystem model for the coastal and open ocean waters of Indian EEZ to study variations in the marine productivity. The work also includes the modelling of ocean primary production using satellite and in situ data. The candidate needs to learn the processing of satellite data that will be required as input to ecosystem models and be introduced to primary productivity modelling.



Olubunm Nubi – Nigeria

Parent supervisor and institution: Dr Emmanuel Adegboyega Ajao – Nigerian Institute for Oceanography & Marine Research, Nigeria.

Host supervisor and institution: Prof Martin Visbeck – GEOMAR Helmholtz Centre for Ocean Research, Germany.

Fellowship period: 8 April to 5 July 2013 (3 months)

Topic: 1. Analysis and interpretation of Oceanic data (Temperature, Salinity, Dissolved Oxygen, Currents, Nutrients, Chlorophyll Fluorescence, etc.) for full description of Oceanic physical, chemical, and biological conditions, and their interconnectivity. 2. Modern / Advanced techniques for Ocean Observation / monitoring

Olubunm’s present work focuses on the reassessment of the role of Equatorial UnderCurrent (EUC) in the Eastern Equatorial Atlantic upwelling systems using past and recent cruise data from various programs. He is also studying the influence of equatorial upwelling on nutrient variability and its implications on the biological productivity along 10W and 2E in the eastern equatorial Atlantic (EEA). The outline:

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- Study on nutrients and biological productivity in the EEA for years 2005, 2006, and 2007; (Onset and final phase situations) and Seasonal variability along 10W in June and December using EGEE data set.
- Study on nutrients distribution and biological productivity at different longitudes (10W and 2E);
- Inter-annual variability along 10W with respect to the onset of the equatorial upwelling periods between 2005 and 2007.
- Comparison with past data from the region for observable trends linkable to climate change.

Olubunm received training in:

MATLAB on handling NetCDF data: Since most oceanographic data are available in netCDF file, he was extensively taken through the use of MATLAB, ODV, and FERRET in handling netCDF data.

- Accessing ARGO data via CORIOLIS and other websites.
- Analyses and interpretation of ARGO data using MATLAB and OCEAN DATA VIEW (ODV)

The fellow also attended a week ISOS short course on “WRITING LAB” at Christian-Albrechts Universität zu Kiel, Germany. This gave him a better insight into writing and reviewing oceanographic reports/documents. He also attended seminars on SFB 754 projects (particularly on Oxygen Minimum Zone), and also accessed materials on proposals for the project. The fellow took up the opportunity to visit another laboratory within IFM-GEOMAR where the disciplines of chemical oceanography and biogeochemistry are the focus, and with the help of various experts in different fields of oceanography, Olubunm was able to achieve the main goals of the training in line with POGO-SCOR framework: Analysis and interpretation of Oceanic data and their interconnectivity and modern and advanced techniques in ocean observation / monitoring; and using his present research data, was able to produce a manuscript that has been sent out for reviews.

Olubunm also gave a presentation titled “Investigating the hypothesis of surface enrichment due to zonal advection in the eastern equatorial Atlantic” using the application of his newly acquired skills and working data.



Zhiyu Liu – China

Parent supervisor and institution: Dr Hao Wei – Tianjin University of Science and Technology, China.

Host supervisor and institution: Dr Marina Lévy - LOCEAN, Université Pierre et Marie Curie, France.

Fellowship period: December 2013 to January 2014 (3 months) Topic:
The Study of Internal Wave-Submesoscale Eddy Interactions

Since 2004 when Zhiyu started his PhD project on internal waves and turbulent mixing in tidally energetic shelf seas, my research has been focusing on the study of oceanic internal waves. Recent studies suggest that the coupling between internal waves and mesoscale/submesoscale structures are vital to regional ocean dynamics as well as several biogeochemical processes. The South China Sea, where internal waves are among strongest of the world's oceans and mesoscale & submesoscale processes are very energetic, is apparently a perfect natural laboratory for studying the coupling of the two distinct types of processes. However, Zhiyu's research expertise so far is mainly on internal waves, experience on the study of mesoscale and submesoscale processes is largely lacking. The applicant is

to learn the art of ocean dynamics study at submesoscale regime from Dr. Marina Lévy, a world-leading scientist in the field.



Gunjan Motwani – India

Parent supervisor and institution: Ms Mini Raman – Space Applications Centre (SAC) of Indian Space Research Organisation, India.

Host supervisor and institution: Dr Ruth Airs, Plymouth Marine Laboratory, UK.

Fellowship period: 31 May to 29 August 2013 (3 months)

Topic: Phytoplankton pigment analysis by HPLC and its application in the development of phytoplankton functional type (PFT) algorithms.

As a research fellow of SAC-Gujarat University collaborative project on measurement of inherent optical properties (IOP) of coastal-offshore waters of the Arabian Sea for development of satellite based inversion algorithms, Gunjan's main work involves:

1. Measurement of spectral absorption properties of particulate and dissolved organic matter of water samples obtained from various cruises using UV-VIS spectrophotometer.
2. Measurement of Chlorophyll-a concentration using standard protocols for ocean colour validation.
3. Collection, preservation and taxonomic identification of phytoplankton samples obtained from various cruises in the Arabian Sea.
4. Analysis of phytoplankton biodiversity, community structure and its spatial and temporal distribution in the Arabian Sea.
5. Analysis of spectral absorption characteristics of phytoplankton and its relation to phytoplankton composition and community structure in the Arabian Sea.

The candidate requires training in HPLC techniques for separation and quantification of various phytoplankton pigments from sea water samples, calibration of standard pigments, various methods using HPLC for the analysis of pigments, their merits and disadvantages and maintenance and calibration of HPLC system.

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Marina Azaneu - Brazil

Parent supervisor and institution: Prof Rodrigo Kerr Duarte Pereira – Federal University of Rio Grande, Brazil.

Host supervisor and institution: Prof Karen Heywood, University of East Anglia, UK.

Fellowship period: 23 July to 30 September (2 months)

Topic: Using seagliders as an important tool for observing ocean shelf regions.

In Marina's master dissertation the applicant used a Southern Ocean in situ dataset to assess a reanalysis product in representing dense water masses. Part of the in situ data was obtained by the Brazilian Group of Oceanography of High Latitudes (GOAL). The applicant not only analysed the in situ data, but also contributed to obtaining and processing those data. The correct processing and management of hydrographic data is essential for the maintenance of datasets, and the seaglider is a new tool that will expand the GOAL data collection and improve the understanding of the Southern Ocean shelf areas. The study of Antarctic continental shelf regions is extremely important for better understanding of ocean processes, which is essential for the applicant's research.

The training will consist of analysis, processing and the management of data from seagliders obtained in the northwestern Weddell Sea under the GENTOO (Gliders: Excellent New Tools for Observing the Ocean) project, aiming the investigation of physical oceanographic processes occurring in the region. Moreover, a cruise is planned to recover/deploy gliders in the North Atlantic, where the applicant will have the opportunity to be trained in the field how to deal with the equipment. The training will reinforce the ongoing FURG-UEA collaboration, in which is planned to use seagliders to monitoring ocean process in the continental shelf and slope of Brazilian and Antarctic coast. Acquire knowledge of seaglider data processing and management will be an important key in the implementation of this new tool at FURG and highly complement the dataset and studies carried by the GOAL. The data that will be analysed during the training and the data that will be obtained using the training capabilities acquired will contribute to understanding the Southern Ocean process and will possibly contribute to the dataset that will be evaluated in the applicant's PhD thesis.



Žarko Kovač – Croatia

Parent supervisor and institution: Dr Mira Morović – Institute of Oceanography and Fisheries, Croatia.

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

Fellowship period: 4th of August – 4th of November (3 months)

Topic: Modeling primary production of the Adriatic Sea.

Zarko's research topic is modeling of marine primary production. This is a part of the national research project: "Co-oscillations of atmosphere and the sea important for the ecosystem of the Adriatic Sea". The goal of the topic is formulating a dynamic biooptical model of primary production for the Adriatic Sea focusing on the primary production module. Phytoplankton interaction with light, nutrients and zooplankton will be considered, as they determine spatio-temporal dynamics of primary production. Spectral distribution of underwater solar radiation will be taken into account by the optical model and the link will be made to growth rates of phytoplankton. The topology of the ecosystem food web and its structure, which determines the resulting time dynamics of the system will also be studied. The idea is to use measured data of temperature, salinity, solar radiation,

underwater light field, nutrients, phytoplankton and zooplankton biomass and to incorporate them into the dynamic model. This will be performed through optimization of the model parameters on the measured data. Further goals are to establish a connection with the hydrodynamical model and to make a coupled hydrodynamic and ecological model.



Ezequiel Cozzolino – Argentina

Parent supervisor and institution: Dr Vivian Lutz – Instituto Nacional de Investigación y Desarrollo Pesquero, Argentina.

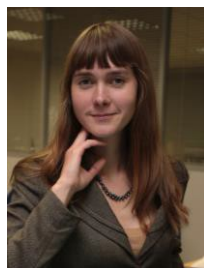
Host supervisor and institution: Prof Frank Müller-Karger – University of South Florida, USA.

Fellowship period: 1 October to 30 November (2 months)

Topic: Advanced training in the processing of remote sensed oceanographic data (e.g., SST and chlorophyll concentration) for the Argentine Sea; for its use in oceanographic and fisheries studies.

Ezequiel is receiving some training with the aim of being incorporated to the Remote Sensing Laboratory at INIDEP. In this period I have learned some basics about the theory of obtaining oceanographic information through remote sensing, and its applications in fisheries research. I collaborate in different projects at my institute which require satellite information to complement fisheries evaluations. I have put together a first report on the kind of ocean remote sensing information available on public internet sites (e.g., NASA, NOAA, ESA, CONAE), providing a tutorial on how to easily download this information for researchers not experts in the subject. At this point it will be extremely valuable to enhance my knowledge about all the detailed steps involved to process raw satellite data to obtain refined products (e.g., SST, Chlorophyll concentration, fluorescence peak height).

The project/training should focus on acquiring the necessary knowledge to process full resolution (1.1 km) daily Level 1A data (sea surface temperature and reflectance) from MODISAqua, and if possible from VIIRS, sensors. Learning how to use SeaDAS software in the most efficient way, getting acquainted with the versions of the algorithms used for the different properties (chlorophyll, PAR, etc.), as well as the best decisions regarding quality control of the pixels taking into consideration possible contaminations (flags due to clouds, negative radiance, sunglint, etc.), to arrive to final products. I would be interested in learning also about the most efficient way to calculate, in order to be incorporated automatically in a web-page, time series of these results. These will be useful to study climatologies and anomalies. These tools will be relevant for environmental studies for fisheries applications, as well as for the long-term monitoring of possible plankton changes at the Antares centers.



Dubrava Kirievskaya – Russia

Parent supervisor and institution: Prof Mikhail Shilin – Russian State Hydrometeorological University, Russia.

Host supervisor and institution: Dr Jacqueline Grebmeier – Chesapeake Biological Laboratory, USA.

Fellowship period: 25 July to 26 October 2013 (3 months)

Topic: The Chukchi Sea benthic data synthesis: contribute to the assessment of a potential vulnerability of the ecosystem.

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Dubrava's PhD thesis is devoted to the assessment of vulnerability of biogeocenosis of the Chukchi Sea. Biogeocenosis is the main indicator of the ecosystem conditions as well as its vulnerability to climate change and anthropogenic influence (Pogrebov et.al, 1994). For completion of this research the applicant is collecting data from the Chukchi Sea such as biological data (taxonomy of benthos, abundance, biomass) and oceanological data (ocean temperature, currents, granulometric and geochemical compositions of the bottom sediments). Synthesis of benthic data and data of physical characteristics of the environment, (especially the sediments) allows us to make the assessment of vulnerability of biogeocenosis (to oil contaminations, particularly). Assessment of the potential vulnerability of such systems is very important for the future sustainable development of the area (e.g., the construction of the oil wells, shipping activities). The proposed assessment is based on special algorithms identified from the literature (WWF, 2011) and specific software being created with a GIS specialist that will map the current status of biogeocenosis of the Chukchi Sea and information about potential vulnerability of biogeocenosis. The main constraint of this research is a deficiency in access of available data sets, especially for the US part of the Chukchi Sea. The proposed collaboration with Dr. Grebmeier in the USA will allow access to both publically-available datasets in the US and ones being organized in her laboratory as part of a multi-institutional synthesis activities she is leading in this complex ecosystem. Drs. Jackie Grebmeier and Lee Cooper at CBL/UMCES (the host institution) have three decades of experience working in the Pacific Arctic and Chukchi Sea, including multiple US-Russian collaborative programs since the 1980s to the present. Interactions during my visit, both in the laboratory at CBL and on an Arctic cruise, will allow me to learn from their long-term efforts in the Chukchi Sea, be training in their laboratory benthic sorting and sediment analysis activities, and exchange data sets for the overall goal of this project.



Joeline Ezekiel – Tanzania

Parent supervisor and institution: Dr Yohana Shaghude – Institute of Marine Sciences, Zanzibar, Tanzania.

Host supervisor and institution: Dr Marie-Fanny Racault, Plymouth Marine Laboratory, UK.

Fellowship period: 29 April to 29 July 2013 (3 months)

Topic: Seasonal and spatial variations of phytoplankton in Rufiji Delta, Southern Tanzania, based on ocean colour remote-sensing and in-situ data.

Joeline is currently working on a dissertation under the title "Assessment of Seasonal and spatial variations of phytoplankton distribution and abundance off Rufiji Delta, southern coast of Tanzania by the use of satellite data". Her objectives are to upgrade her skills with respect of remote sensing data analysis and interpretation and on ecological modelling which eventually will allow the extrapolation of the data in relation to productivity of the ocean. Joeline would also like to further analyse the data using advanced analysis methods so as to reveal in detail the dynamics of phytoplankton in the ocean.

Joeline is interested in the study of phytoplankton productivity comparing in situ, remote sensing data and simulations. Phytoplankton play an important role to marine ecosystem in fixing atmospheric carbon and providing the primary food source for the zooplankton, together forming the base of the oceanic food chain. She would like to be trained in the following areas;

- Creating a seasonal record of ocean color products for my region including Chl-a and Total Suspended Matter (TSM).

- Comparing data from different satellites e.g. MODIS/MERIS
- Comparing different algorithms for Chl-a and Total Suspended Matter to choose an optimal product.
- Extracting information for comparison of in situ data

5.4 NSF Travel Support for Developing Country Scientists

SCOR has received support from the U.S. National Science Foundation (NSF) since 1984 to provide funding for SCOR capacity building activities. Most of the funds are used for travel grants for scientific meetings, although a portion are used for SCOR's contribution to the POGO-SCOR Fellowship Program and the SCOR Visiting Scholars program. Travel grants are awarded to ocean scientists from developing countries and the former Soviet Union, Eastern Europe, and other countries with economies in transition, to enable them to attend international scientific meetings. A current three-year grant runs from 15 July 2011 to 14 July 2014. The renewal proposal will be submitted in early 2014.

The amount of the award from NSF is \$75,000 per year. Recipients of SCOR travel awards are always chosen in consultation with the organizers of meetings that SCOR has agreed to cosponsor; direct applications from individuals are not accepted by the SCOR Secretariat. Priority is given to applicants who are presenting a paper or poster at the meeting or to those who have some special expertise or regional knowledge to bring to a workshop or working group. Preference is also given to younger scientists. In general, care is taken to ensure that the recipients of SCOR/NSF funds are *active* scientists, and that they have not received similar support from SCOR in the previous two years. All travel grant recipients are informed that their support comes from SCOR and that it is made possible through NSF funding.

Requests come in throughout the year and the SCOR Committee on Capacity Building considers new requests between meetings. The following requests have been approved since the 2012 SCOR annual meeting:

Activity Name	Dates	Location	Amount granted
From bloom to gloom - Primary production, food web processes and vertical flux in changing oceans	29 July - 7 August 2013	Hólar University College, Iceland	US\$3000
11th INTECOL Congress, Ecology: Into the next 100 years	18 – 23 August 2013	London, UK	US\$3000
2012 PICES Annual Meeting	11-20 October 2013	Nanaimo, Canada	US\$4900
PICES Summer School on Ocean Observing Systems and Ecosystem Monitoring	19-23 August 2013	Newport, Oregon	US\$5000
2013 SOLAS Summer School on Ocean Observing Systems and Ecosystem Monitoring	23 August-2 Sept.	Xiamen, China	US\$5000
11th International Conference on Paleoceanography	1-6 September 2013	Barcelona, Spain	US\$3000

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International workshop on ocean acidification-consequences on coastal and polar biota	20-21 Sept. 2013	Kolkata, India	US\$3000
9th World Sponge Conference	November 4 – 8 2013	Fremantle, Australia	US\$3000
Ramon Margalef Summer Colloquia	1-13 July 2013	Barcelona, Spain	US\$5000
IMBER IMBIZO	28-31 Jan. 2013	Goa, India	US\$5000
IOCCG Summer Lecture Series	7-19 July 2014	TBD	US\$5000
POGO-SCOR Fellowships	2014	Various	US\$10000
IMBER Open Science Conference	23-27 June 2014	Bergen, Norway	US\$7500
Third World Conference on Marine Biodiversity	12-16 Oct. 2014	Qingdao, China	US\$5000
SCOR Visiting Scholars	various	various	US\$7500

2013/2014 Requests for Travel Grants

The SCOR Committee on Capacity Building will recommend amounts to devote to each of these meetings, based on amount requested (if specified), other grants to the same project/organization, the relevance of the project/organization to SCOR activities, and total amount available to disburse. Some of the requests listed below are for meetings in which SCOR is directly involved in planning, so there is no formal written request. The recommendations will be presented at the meeting.

1	eEOV Workshop	Mar-14	Rutgers University, New Jersey, USA	\$7500
2	SOLAS			\$10000

#1 Identifying Ecosystem Essential Ocean Variables for measuring changes in marine ecosystems

SCOR and the Scientific Committee on Antarctic Research (SCAR) received funds from ICSU for a project on ‘Identifying Ecosystem Essential Ocean Variables for measuring changes in marine ecosystems’. ICSU approved funds in the amount of 30,000 euro for the activity. As part of the proposal, SCOR committed funds for travel of developing country scientists to the workshop. This will be devoted to scientists nominated by ICSU Regional Offices, which provided letters of support for the proposal.

#2 SOLAS Activities

Dr Ed Urban
Executive Officer
Scientific Committee on Oceanic Research
College of Earth, Ocean, and Environment
Robinson Hall
University of Delaware
Newark, DE 19716 USA

12 July 2013

Dear Ed,

In 2014, the following three SOLAS-related events will take place.

- 6th International Symposium on biological and environmental chemistry of DMS(P) and related compounds, 19-23 May 2014, Barcelona, Spain
- A 2-day SOLAS/IGAC workshop on ocean-derived aerosols and climate impacts to be in conjunction with the 13th quadrennial iCACGP Symposium/ 13th IGAC Science Conference, 22-26 Sept 2014, Natal, Brazil. The exact dates are unknown as per today.
- On the road course 'ONTROC', training for students of South America. Plans are underway but the exact locations are not yet fixed and it will take place between February and April 2014.

More detailed information on each of these events will be available shortly.

The first two are directly allowing progresses to be made on two major SOLAS scientific topics. The latter is a new initiative of capacity building in South America, capacity building being close to SOLAS' heart since its inception.

The SOLAS project wishes to engage scientists from developing countries and young scientists in these activities.

With this in mind, SOLAS kindly requests support from SCOR for these events to cover the travel costs for scientists from nations with economies in transition and younger scientists. We expect that 10kUSD will contribute to support the participation of up to 6-8 participants.

I thank SCOR for their continued support of SOLAS and for your consideration in this matter.

Yours sincerely



Dr. Emilie Brévière
Executive Officer, SOLAS
International Project Office

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If these amounts were appropriated, it would leave approximately US\$28,000 in funds to be used for travel support for other meetings in 2014, until the end of the grant.