Report on the Nippon Foundation-POGO Alumni pre-Meeting
October 20 - 22 2010
Royal Society, London, UK

Format

The meeting consisted of plenary talks, plenary discussions and themed discussions in small groups (from eight to ten people per group). In addition, there were several events intended to build cohesiveness of the group, such as group dinners, an excursion and a concert of classical music in a famous church. The venue was also chosen to be inspiring for young scientists, and a tour of the Royal Society building was arranged at the end of the last day. This year, the Royal Society is celebrating its 350th anniversary.

Purpose

The Nippon Foundation wants to maximize the return on its joint programme of capacity building with POGO by establishing a network of former scholars. The world-scale network will maintain active contact and will conduct joint research activities on themes relating to the training the scholars have received.

As a first (public) step in this direction, an NF-POGO Alumni meeting will be held in Tokyo in 2011. But it was considered expedient to hold a planning meeting first, at which many of the issues involved could be debated thoroughly in private. This was the purpose of the London meeting.

There were three main objectives

1. To establish a structure for the network

2. To discuss particular research topics that might be developed for execution by the network

3. To plan the Alumni meeting for 2011, including structure and speakers.
Opening statements were made by Dr Shubha Sathyendranath (POGO Secretariat); Mr Makoto Wada (Nippon Foundation) and Dr Kiyoshi Suyehiro (POGO Chairman).

In her words of welcome, Dr Sathyendranath noted that the participants represented a cross-section of people who had benefited from NF-POGO capacity building efforts as well as those who had contributed to the delivery of the training programmes. Almost all the invitees had been able to attend the meeting, which was very fortunate. Participants were selected from both the NF-POGO Visiting Professorship Programme and from the NF-POGO Centre of Excellence Programme. Many of the participants had already demonstrated leadership in their fields, and some of the younger participants were selected for their potential for being future leaders. So far NF-POGO initiatives had focussed on training, however the next stage will be to build capacity so that people who have been trained can become “part of the solution”. Although NF-POGO intends to increase the number of trained people globally, trained personnel can equally be involved in finding solutions to our global problems and monitoring the global oceans. She further emphasized that good scientists are also good citizens, have cultural and social responsibilities, and that young people are the leaders of tomorrow.

Dr. Kiyoshi Suyehiro, Chairman of POGO, was present at the meeting, indicating the commitment at the highest level within POGO, to the NF-POGO activities. Shubha thanked Mr. Mitsuyuki Unno, Mr. Makoto Wada for their continued support of the NF-POGO capacity-building efforts over many years, and Mr. Kentaro Ogiue for his contributions more recently. The NF-POGO initiatives were particularly important for the emphasis that was placed on the follow-up to the training provided. The meeting was a milestone, in that it represented a beginning of an increased emphasis on facilitating the further development of past NF-POGO trainees. A large number of people had already been trained under NF-POGO initiatives, and now the question at the meeting was: How can the former trainees make a difference to ocean observations and ocean studies?

Mr. Makoto Wada said that NF is the largest grant funding ocean-related training activities in Japan. The NF has provided more than 600 scholarships since the late 1980’s. However, most fellows or beneficiary have:

1. lost contact with NF,
2. some do not remember NF and/or
3. do not even care about NF.
Therefore the main concern of NF is losing contact with its trainees. To provide a solution to this, is the call for the NF-POGO Alumni Meeting to be held in Tokyo with the hope that Alumni will propose research or academic projects to be carried out by the network and enhance communication within the network of young scientists or scholars. Mr Wada explained that with this venture, the Nippon Foundation was entering into new territory.

Dr Suyehiro expressed sincere gratitude to the NF for their continued, generous support. He explained that POGO is made of Directors from different Oceanographic institutions around the world. POGO aims to expand capabilities of scientific research around the world and to encourage networking. He said that the importance of ocean science can only be realized unless we engage the public and advocate for ocean science at all levels of society. The idea of the network is to engage the public, decision-makers etc. He expressed confident in the Alumni present at the meeting in drafting a very good proposal.

Dr. Trevor Platt in his welcome said that the Royal Society was selected as the venue for the Alumni Meeting since it a special place for science, the oldest scientific academy in the world, celebrating its 350th anniversary this year. He said that in this world, there is a shortage of expert or trained people to monitor the oceans. He cited examples such as the emergency response to the oil spill in the Gulf of Mexico as a result of inadequate observing systems, major flooding in Pakistan and unusual monsoons. He said that in an ideal world these phenomena ought to be predictable. It is to address this problem that NF and POGO set up the NF-POGO Visiting Professorship and the NF-POGO Centre of Excellence Programmes. The number of people who have been trained is increasing, therefore there is an increasing need to connect people who have been trained and those who will be trained in the future. A major problem is the difficulty some NF-POGO trainees face in securing a position in academia/research in their home countries, and these may become lost from the system. It is hoped that the NF-POGO network will help to address this problem.

Dr Platt outlined to the group the goals of the meeting. Like Mr Wada, he also stated that something completely new was being tried. There was no precedent, so we would have to design the operating procedures as we went along. Attendees should be aware that they were participating in a landmark event which in the future might be seen as a key milestone in the development of international coordination in ocean observing.
**Background**

Summaries of the scope of POGO capacity building (Sophie Seeyave, POGO Secretariat) and related efforts by other agencies (Marie Racault, PML) were presented. These presentations are shown in Appendix 2.
The Network

The following draft prospectus was developed for the network:

*Draft Statement on Structure and Function of the NF-POGO International Network for Oceans (NINO ……Provisional Acronym).*

We envision a global network of past and present NF-POGO scholars participating in a structure held together by a common interest in, and commitment to, ocean science, and by the common will to communicate the results of their work to the general public, so that they can be applied for the benefit of Society-at-Large.

The guiding vision for the Network would be "Integrated Observations of a Changing Ocean".

The core of the global network would be managed by the POGO Secretariat, which would maintain a website and oversee the production of a science Magazine-cum-Newsletter. It would maintain a database of former NF-POGO Scholars. It would be an entity that could request support from funding bodies.

Whereas the NF-POGO Alumni Association would be limited to NF-POGO Scholars (from both the BIOS Centre of Excellence and the Visiting Professorship Programme), the network will, over time, be expanded to include related initiatives such as the POGO-SCOR Visiting Fellowship Programme, and the additional scientists trained through NINO initiatives.

In addition, there would be a series (initially, perhaps three) of Regional Coalitions, each fully-coupled to the Global Network, and each managed by a Regional Coordinator. The activities of the Regional Coalitions would include regional co-ordination, workshops, information exchange and assistance with placement for prospective graduate students. In particular, the Regional Coalitions would be eligible to apply to funding bodies for support of initiatives, including research projects. Where possible, the post of Regional Coordinator would be facilitated by dedicated administrative support.

Activities of a similar nature to the above, but with a multi-regional scope would be dealt with at the level of the POGO Secretariat.

It is expected that:
- There will be a free and vigorous exchange of information between the Regional Coalitions;
- There will be meetings of the Regional Coalitions when possible;
- There will be meetings of the Global Network from time to time; and that
- Regional proposals for research (which may require use of national infrastructure) would be written with due regard for local culture and customs, engaging senior managers in the Region from the outset.
Structure

An organization chart for the network was developed, as shown in Figure 1.

Dissemination of knowledge: Advertise NF-POGO to academic (training opportunities, sharing data) and governmental (funding) targets – regional level

Workshops: Integrate results of research groups – regional level. Making it available to global network and other branches

Figure 1. Potential structure of the NF-POGO Integrated Network for the Oceans
Regional Working Groups

The first set of working groups was arranged according to region (Latin America, Asia, and Africa). Their reports are given in Appendix 3.

Later, it was decided that the African continent would be divided into two sub-regions, due to the more natural lines of communication within the Northern and the Sub-Saharan African regions. In this way, the North-African countries would be associated with Mediterranean and Eastern European countries, as there are already many existing collaborations between these countries. A Regional Coordinator will be required for both of these sub-regions. Dr George Wiafe (University of Ghana) was suggested as a nucleus for the North African region. When subsequently approached by Lailah, he agreed to take on this role.

As a result of this meeting, a Regional Coordinator has been appointed for the Latin American Region. Lilian Krug, a former student from the NF-POGO Centre of Excellence in Bermuda (year 2) has been awarded a 1-year fellowship to work with Dr Milton Kampel at INPE, Brazil, on regional coordination, to help develop the NF-POGO Network of Alumni in Latin America, in conjunction with the existing Antares network. This fellowship will be funded using residual monies in the budget for the Pre-Alumni Meeting.

Discipline Working Groups

The second set of working groups was arranged by discipline (Physical, Biological and Physical-Biological interactions). Their reports are given in Appendix 4.

Specific-project Working Groups

A final set of working groups considered specific examples of projects that might be carried out. These were arranged on regional lines (Latin America, Asia and Africa). Their reports can be found in Appendix 5.

Synthesis of Working Group Discussions

Considerable commonality was found between the conclusions of the various working groups. A preliminary synthesis of these discussions follows.
Possible projects to be undertaken by the future network

Projects will focus on global and regional monitoring of biological, chemical and physical changes in the ocean, aiming at better understanding of interactions and feedbacks in the ocean. A suite of key variables are identified to provide systematic information on the marine environment and allow monitoring of the changes. These projects are to be run in collaboration with existing projects and to contribute to, rather than compete with, existing research programmes in developing countries.

The concept is to observe locally at selected time series stations around the global ocean, and network the time series stations to obtain a global vision. The projects to be carried out at existing time series stations may utilise moored buoys, gliders and repeat visits of research vessels. The in situ observations will be supplemented by satellite observations to provide lateral vision and modelling efforts to improve understanding and interpretation. One of the goals of the in situ observations is to gather data that would lead to improved parameterisations of models. The global vision will be achieved through combination of in situ observations, satellite measurements and modelling. The plans will be executed in collaboration with existing efforts in the region, thereby avoiding duplication of efforts, and maximising the return from investment.

A regional and global oceanographic database will be promoted by regional collection of existing data and dataset integration through alliances with supporting organisations and links to existing networks of time-series (e.g. ChloroGIN, Antares, OceanSITES).

Protocols need to be standardised to achieve consistent methodology in sampling and measurements of the key parameters to be shared/provided within the network and global database. Operational aspect of the project will be assessed: specifically, the available infrastructure (ships, instruments, facilities) will be evaluated in the following way: (1) establish a link with existing networks of time-series stations in the region; (2) determine whether that network has a time-series station in the relevant geographical area for the NINO project, or if it will be necessary to establish a new one; (3) evaluate whether the identified station has all the necessary infrastructure (ships, instruments, facilities) and estimate the costs of operations, personnel and maintenance of regional time-series will be estimated.

Details of the main objectives and detailed components of the projects are provided below.

- Main drivers
- Global and regional monitoring of biological, chemical and physical changes in the ocean
- Understanding of interactions and feedbacks between abiotic (physical and chemical) and biotic (different trophic levels) components of the ecosystem.

- **Specific objectives**
  - Monitor (harmful) algal blooms
  - Assess ocean dynamics
  - Assess variability in marine ecosystems and fisheries resources
  - Understand marine biodiversity in relation to its function
  - Determine properties and distribution of ecological provinces
  - Develop climate indices
  - Validate models.

- **Key variables**
  - Temperature
  - Salinity
  - Pressure
  - Wind
  - Sea Level
  - Currents
  - Waves
  - Alkalinity
  - pH
  - pCO₂
  - DIC
  - Oxygen
  - Nutrients
  - Trace and heavy metals
  - Organic and non-organic pollutants
  - Chlorophyll
  - Pigments
  - Community structure (phytoplankton and zooplankton)
  - Primary and secondary biomass (i.e. microbial, phytoplankton, zooplankton, jellyfish)
  - Primary and secondary production
- Carbon export
- Optical properties (i.e. light attenuation, backscattering, reflectance…)
- Fluorescence

**Data mining**
- Regional collection of existing data and dataset integration through alliances with supporting organizations
- Scholars action
- Support of POGO (with a declaration) to encourage data exchange
- Supervisor support
- Links to existing networks of time-series (e.g. ChloroGIN, Antares, OceanSITES), and with the institutions taking part in these networks

**Defining common methodology for the projects of the NINO network**
- Standardization protocols in conjunction with those of existing time-series networks.

**Assessment of existing time-series stations and creation of new ones**
- Evaluation of available infrastructure (ships, instruments, facilities): POGO affiliated institutions and other institutions
- Estimation of costs, operability, personnel involved
- Maintenance of regional time-series
- Regional data delivery through integrated system (e.g. website) for global picture
- Inter-calibration
- Co-operation between personnel, groups, institutes.
The nature of the NF-POGO Scholar contributions (oral or poster presentations) to the Alumni meeting was discussed. A preliminary list of possible topics, and names of speakers, is given in Appendix 6.

The provisional dates for the meeting are 27-30 September 2011. The meeting will be held in the Nippon Foundation building in Toranomon, Tokyo. A small organizing committee will be formed and will meet in Tokyo towards the end of March to finalize details of the meeting.

Summary

This was a very successful meeting, with a high degree of positive energy. It was an excellent group of participants who worked well together and who shared a common will to make the future network something that all can be proud of.

Budget

This is shown in a separate document.
Appendix 1

Agenda

Wednesday 20 October

08:40  Registration
09:00  Welcome (Shubha Sathyendranath)
09:10  Introduction and background to the meeting (Trevor Platt)
09:30  Planning the 2011 Alumni meeting:
      - The Nippon Foundation’s expectations (Makoto Wada)
      - POGO’s expectations (Kiyoshi Suyehiro)
10:00  POGO capacity building programmes (Sophie Seeyave).
10:10  Other marine capacity building programmes (Marie Racault)
10:20  The goals of the NF-POGO Centre of Excellence Programme, with respect to the future, or post-training phase (Gerry Plumley/Tony Knap?).
10:30  Coffee
11:00  The need for a continuing network of former scholars

Discussion of how to maintain and develop capacity built through NF-POGO initiatives.

Articulation of the requirement for a continuing network among the former scholars, working on a specific joint project or projects.

11:30  Break-out session: Regional discussions of possible ways and means to develop and maintain the NF-POGO network of scholars.

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12:30  Lunch

14:00  Structure and operating procedure of the future network
Reports from break-out session

Solicit views of the scholar-participants on the structure and function of the future network (round table, 5 min each).

Continue discussion of possible operating structures for the continuing network.

15:30  Coffee
16:00  Create a draft statement on the future network, its goal, structure and operating procedure.

17:00  End of Day 1
18:00  Group dinner at Cavendish Hotel, 81 Jermyn Street SW1Y 6JF
Thursday 21 October

09:00  Projects to be undertaken by the future network

Group discussion of ocean observations that are required to serve society.

09:30  Break-out session (grouped by discipline): discussion of possible joint projects to be undertaken by the future network.

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10:30  Coffee

11:00  Reports from break-out session

11:30  NF-POGO Alumni Meeting, 2011

Solicit suggestions on how to maximize the benefits from the Alumni Meeting (round table, 4 min each).

13:00  Lunch

14:00  Excursion (meet in hotel lobby at 14:15)

17:30  Group dinner at Med Kitchen, 50-51 St Martin’s Lane WC2N 4EA
Friday 22 October

09:00  Projects to be undertaken by the future network of scholars

Draft short list of joint projects that might be undertaken by the future network, with brief description and proposed timelines.

10:30  Coffee

11:00  Programme for the NF-POGO Alumni Meeting, 2011

Define scientific themes
Identify speakers, including 3 scholars to give a presentation for each theme
Public lectures
Cultural programme.

12:30  Lunch

14:00  Programme for the NF-POGO Alumni Meeting, 2011

Draft set of recommendations for the form and content of the NF-POGO Alumni Meeting, 2011.
Draw up participants’ list?
Set dates?

15:00  Meeting wrap-up

Draw up list of action items.
Closing remarks (Trevor Platt).

16:00  Coffee

End of meeting.

16:15  Tour of the Royal Society building

Evening: Group dinner for those staying in London (TBC).
Appendix 2.1

Presentation on POGO Capacity Building (Sophie Seeyave)
Partnership for Observation of the Global Oceans

http://ocean-partners.org

Secretariat hosted by Plymouth Marine Laboratory

Sophie Seeyave
Scientific Coordinator for POGO

POGO Remit:

Build links world-wide among oceanographic institutions to promote long-term cooperation in comprehensive global ocean observations.

• Promote observations
• Improve scientific knowledge
• Interpret scientific results to policy makers
• Enhance public awareness of oceanic issues
• Provide training and technology transfer, with emphasis on developing countries.
POGO’s Perspective: Global in scope
POGO’s Goal: Global in participation

- 38 Member institutes from 21 countries
- Enhancing the involvement of developing countries is part of the overall strategy.

POGO-SCOR Fellowship Programme
(Initially: POGO-IOC-SCOR Fellowship Programme)

- Supports young scientists from developing countries to visit to oceanographic laboratories for training for a period of 1 to 3 months.
- Funding support from SCOR (and from IOC, until 2005).
- Between 9 and 15 Fellowships awarded every year since 2001 (total 102).
- Programme in high demand (up to 8 times more applications than we have funds for).
- Feedback has been uniformly enthusiastic.
- EAMNet project (led by PML, UK) has initiated fellowships along these lines for African countries.
POGO-AMT Fellowship Programme

Since 2008, supports participation of one trainee from a developing country in the Atlantic Meridional Transect (AMT) cruises from the UK to the Southern Ocean.

Initiated jointly with SCOR; now being continued as a POGO Programme.

Aims:
- For Fellow to transfer new knowledge and skills acquired during the fellowship to the home institution;
- To set up a prolonged collaboration between the host and home institutions.

Programme provides for participation in cruise preparation (one month), in the cruise itself, and in post-cruise data analysis and interpretation (up to 2 months).

Universidad de Concepción Austral Summer Institute

Austral Summer Institute is an initiative of the Universidad de Concepción, with international collaboration and funding support from various sources (including a UNESCO Chair).

- Organized as a series of short, intensive courses on various topics in ocean sciences.
- Invited lecturers of international repute from around the world.
- The program was designed primarily for the benefit of students from Chile.

POGO support allows participation of students from neighbouring countries (about 6-8 students each year). Modest contribution, high impact.
University of Cape Town: POGO Bursary

- Provides bursary for an African student (from outside South Africa) to undertake graduate programme at UCT.
- Started in 2008.
- Seen as a vehicle for African countries to benefit from oceanographic expertise in South Africa and to develop UCT as a regional centre of excellence in oceanography.


Provided unique opportunity for capacity building through visits of eminent scientists to developing countries for training and building facilities.

2004: Prof. Trevor Platt (to NIO-Kochi, India)
    Prof. Motoyasu Miyata (to USP, Fiji)
2005: Dr. Charitha Pattiaratchi (Australia) to NARA, Sri Lanka
    Dr. Robert Frouin (USA) to INPE, Brazil
2006: Dr. Satsuki Matsumura (Japan) to IO, Vietnam
    Prof. Vladimir G. Koutitonsky (Canada) to INSTM, Tunisia

Now continued on a more modest scale as the POGO Visiting Professorship Programme.
Nippon Foundation – POGO Centre of Excellence - 2007

• Provides unique opportunity for training for 10 months at the Bermuda Institute of Ocean Sciences.

• Training programme includes specialised modules of 2-3 weeks each (including guest lecturers from around the world; on-board training on research vessel; project work).

• Some 10 candidates are selected each year, primarily from developing countries, but not exclusively (over 110 applications in 2010).

• Networking is a priority for the programme.

Nippon Foundation – POGO Regional Training Programme - 2007

Part of the activities of the NF-POGO Centre of Excellence in Bermuda.

Uses previous trainees as nucleus for regional programme.

Also a vehicle for identifying suitable candidates for other capacity-building initiatives.

Each year, a regional training course is organised:

In 2009-2010: Brazil (host: Milton Kampel)
In 2010-2011: South Africa (host: Stewart Bernard) (planned)
In 2011-2012: India (host: Srinivas Kumar) (planned)
POGO and GEO

- POGO is a participating Organisation in Group on Earth Observations (GEO).
- Contributes to various GEO activities related to ocean observations, in particular towards capacity building.
- ChloroGIN (Chlorophyll Globally Integrated Network) addresses one of the GEO tasks (building upon existing initiatives to develop a global network of organization-networks for ecosystems, & coordinate activities to strengthen observing capacity in developing countries).
- ChloroGIN aims to promote *in situ* measurement of chlorophyll in combination with satellite-derived estimates & associated products.
- ChloroGIN is conceived as a network of networks, facilitating user access to relevant data.

ChloroGIN:
Chlorophyll Globally Integrated Network

- Conceived during IOC/GOOS/POGO/GEO sponsored workshop in Plymouth, UK (Sept 2006).
- Addresses GEO task EC-06-07: “Build upon existing initiatives to develop a global network of organization-networks for ecosystems, & coordinate activities to strengthen observing capacity in developing countries”.
- ChloroGIN aims to promote *in situ* measurement of chlorophyll in combination with satellite-derived estimates & associated products.
- ChloroGIN is conceived as a network of networks, facilitating user access to relevant data.
DevCoCast

- Extension of GEONETCast, a satellite broadcasting system for environmental data and information products.
- Aims to involve developing countries in the GEONETCast initiative and is setting up a strong user and provider base.
- Broadcasting system particularly useful in developing countries, where downloading EO data is limited by internet capacity.
- Products:
  - Near-real time & archived ocean colour & SST products, including:
  - Standard Case-1 & Case-2 MODIS & MERIS 1 km OC & SST products;
  - 9 km monthly primary productivity, Chl & SST data;
  - Specialised products, i.e. HAB descriptors & frontal maps.

EAMNet (Europe-Africa Marine Network)

EAMNet is an EC “Coordination and Support Action”, starting in 2010 for a 3 year period and coordinated by PML.

Objectives:

- Construct a network linking EO information providers, user networks and centres of excellence in Europe and Africa towards sustainable development in Africa.
- Support capacity building and maintenance, building upon existing infrastructure and expertise in Africa.
- Improve exploitation of EO data for coastal and oceanic monitoring towards an Africa-wide observation system (GOOS-Africa).
POGO Strategic Considerations

• Target capacity building to fill identified gaps in the ocean observing system and to serve society;
• Identify centres in developing countries that have shown drive and initiative in providing training and education at regional levels, and promote their activities;
• Encourage north-south partnerships and initiatives where both the trainer and the trainee benefit from the effort;
• Encourage south-south partnerships to disseminate regional expertise;
• Enable the trainee to become a trainer in the region, so that the knowledge can reach a wider population;
• Encourage the developing countries to take the lead in deciding on the type of capacity building that best serve their needs;
• Make a long-term commitment.

The Office Bearers of POGO

Executive Committee:

Chairman:
Dr. Kiyoshi Suyehiro (Japan)

Committee members:
Prof. Peter Herzig (Germany)
Prof. Tony Haymet (USA)
Dr. Robert Nigmatulin (Russia)
Dr. Jung-Keuk Kang (Korea)

Secretariat:
Dr. Trevor Platt (Executive Director)
Dr. Shubha Sathyendranath (Deputy Director)
Dr. Sophie Seeyave (Scientific Coordinator)
Appendix 2.2
Presentation on other Capacity Building Programmes (Marie Racault)
Other Capacity Building programs

Conference on Developing a Global Strategy for Capacity Building in the Ocean Sciences

Marie-Fanny Racault

Meeting Infos

- **SCOR Meeting** in Bremen, Germany on 16-18 August 2010

- The **purpose of the meeting** was to bring together representatives of organizations interested in capacity building for ocean research and observations, to discuss their experiences with existing activities, to identify new activities, and to discuss how the organizations could work together to create a global strategy for capacity building for ocean research and observations.

- Representatives from IAEA, IFS, IMBER, IOC (HQ, IODE, HAB), IOI, PICES, POGO, SCOR, SOLAS, South Africa, START, and Turkey participated.

- **Meeting Web site** is a good source of CB information from participating organizations: [http://www.scor-int.org/CB_Summit.htm](http://www.scor-int.org/CB_Summit.htm)
Capacity Development Approaches Discussed

- Grants to attend meetings
- Grants for training in ocean observations
- Grants for training in ocean research
- Grants for training in data and information management
- Summer schools
- Training through research
- Training for professionals
- Ship-board experience
- Leadership training activities
- Visiting professorships
- Centers of excellence in oceanography training
- Distance learning
- Internships in international secretariats
- Assistance with accessing publications and data and in the publishing process
- Evaluation of training

Capacity Development Mission

Through international cooperative mechanisms, identify and address capacity-development needs to contribute to improved research, management and decision-making processes, sustainable development, and protection of the ocean and coasts.

Strategy to Fulfil Mission

1. Partnerships
2. Relevance and Sustainability
3. Awareness raising
4. Effectiveness
Participating agencies and organisations

- **MEL-IAEA**: Marine Environment Laboratories of the International Atomic Energy Agency

- **IOC**: Intergovernmental Oceanographic Commission

- **IODE**: IOC International Oceanographic Data and Information Exchange

- **HAB**: IOC Harmful Algal Bloom Programme

Participating agencies and organisations

- **POGO**: Partnership for Observation of the Global Oceans
  [http://ocean-partners.org/](http://ocean-partners.org/)

- **SCOR**: Scientific Committee on Oceanic Research

- **START**: The SysTEM for Analysis Research and Training
  [http://start.org/](http://start.org/)

- **PICES**: North Pacific Marine Sciences Organization
  [http://www.pices.int/](http://www.pices.int/)
Participating agencies and organisations

- **IMBER**: Integrated Marine Biogeochemistry and Ecosystem Research
  
  http://www.imber.info/

- **SOLAS**: Surface Ocean - Lower Atmosphere Study
  
  http://solas-int.org/

- **SAEON**: South African Environmental Observation Network
  
  http://www.saeon.ac.za/

- **INOC**: Inter-Islamic Science and Technology Network on Oceanography
  
  http://web.deu.edu.tr/seislab/eng_denizbilimleri.html

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Participating agencies and organisations

- **IOI**: International Ocean Institute
  
  http://www.ioinst.org/

- **IFS**: International Foundation for Science
  
  http://www.ifs.se/
SCOR Catalog

http://www.scor-int.org/Capacity_Building/index.htm

Continuing Professional Development & Capacity Building Resources in National & International Marine Agencies & Programs

IOC > IODE

International Oceanographic Data and Information Exchange Program

Description

The IOC’s International Oceanographic Data and Information Exchange (IODE) was established in 1981 to enhance marine research, exploration and development by facilitating the exchange of oceanographic data and information between participating Member States and by meeting the needs of users for data and information products.

Main Website

http://www.iode.org

Contact

Mr. Peter Rasmussen, iode-platform@unicentre.org

Activity Summary

Supports ocean data and information management training through regional programs (see below) and regional ocean centres for oceanographic data and information. Also publishes a quarterly newsletter on marine science and technology.

Maintains the IODE platform website, a global online oceanographic data and information exchange platform.

Resources

- ODI/UNDP: Ocean Data and Information Network for Africa
- ODIN/UNESCO: Ocean Data and Information Network for Asia
- ODIN/UNESCO: Ocean Data and Information Network for the Central Indian Ocean
- OceanXplorer: The objective of OceanXplorer is to provide training tools for oceanography data and information exchange. There are six modules that can be used for both training and continuing professional development.
- IODE Project Office in Africa: Regional centers established in Africa, the Americas, and Asia. These centers are responsible for regional training and continuing professional development.
- OceanXplorer: OceanXplorer is a web-based system for ocean data and information exchange.
Appendix 3

Working group reports from regional discussions (20/10)

3.1. Asia

- Emphasize
  - Common working interests
  - Working toward common goals
  - Good commitment
- Propose two possible ways
  - Through electronic communication
  - Establish time series station(s) for each country

Electronic communication:
- Common e-mail group
- Discussion/forum group (moderator (??))
- Quarterly (??) e-journal (an editor is required)
  - academic news letter
  - Progress of their research work, data collection methods, updates of data availability, etc.
  - Report from workshops, seminars, meetings related to the field
  - Report of academic publications by members

Time-series stations:
- Establish or use existing station(s)
- Common protocol, common measurements
- Data sharing (available for all)
- Capital/in kind investment from host country
- International funding for management of data, data base, maintaining website, etc.
- Country-specific additional measurements can be done (data can be used for peripheral studies).

Common Scientific Interests in the Region:

- Monsoons
- Natural Hazards (Typhoons, Floods, Land Slides, Coastal Erosion, Tsunami, etc…)
• HABs
• Fishery resources
• Climate Change
  Sea Level Rise
  Ocean Acidification
  Change in currents
  Coral Bleaching
• Ocean color, primary production

3.2. Africa

Ways to keep the NF-POGO Alumni network alive:

• The science is the catalyst for keeping the network active
• Scientific data can be collected from three different levels:
  – large scale regional cruises,
  – smaller local expeditions on boats
  – moorings/buoys or floats
• Currently in Africa there are a number of regular projects with a cruise component:
  – Benguela Current Large Marine ecosystem (BCLME)- West Coast
  – ASCLME (Agulhas Somali current Large marine Ecosystem) - plus monitoring cruises (South Africa)
  – Guinea Current Large Marine Ecosystem (GCLME), Fjord Nansen
  – GEOTRACES for Mediterranean Sea, RV Hannibal (Tunisia).

Possible research projects/ Key issues in Africa:

• Ocean Health
  – Coastal Pollution (plastics, nutrients, algal blooms, toxic material, air contaminants, heavy metals)
  - In situ measurements for remote sensing validation (chlorophyll, absorption, CDOM)
  - Coastal erosion (in situ tide gauges, measurement of se level beach profiling, currents, sediment transport)
• Climate Change/Ocean Acidification
• Management of Coastal Resources (fisheries, coral reefs, mangroves, sea grasses, population
dynamics etc.)

- Data to be collected – simple and systematic observation programs/time series to measure nutrients, basic physical parameters (CTD), chlorophyll and absorption, tide gauges.
- Cruises rely on funding from local governments as well as international agencies
- Funding would be needed for cruise participation as well as basic instruments (ChloroGIN proposal -A global set of synoptic, calibrated, consistent satellite data for ecosystem studies in coastal waters of developing countries).
- POGO-NF could be a source of funding for cruise participation?
- United Nations University for fisheries training – provide scholarships, IOC/UNESCO, Third World Academy of Science

Keeping the Network Alive:

- Students can hold workshops to discuss data collected
- Inter-Africa exchanges to discuss data
- POGO-SCOR fellowships, EAMNet fellowships could provide funding for students and young professionals to discuss data, techniques, work on joint publications
- Link to Alumni page from POGO website – regional/country representatives plus a coordinator, news bulletins, page for students to inform others of their work/research, link to Google Alumni group, drop-box for data sharing
- Communicating science – public outreach in own country
- POGO alumni involved in research return to Center of Excellence to network/train the new students.

3.3. Latin America

1. Regional discussions of possible ways and means to develop and maintain the NF-POGO network of scholars.
   a. NF-POGO-list group for sharing information (but without attachments, according to Charitha suggestion)
   b. E-learning: material available on the Internet; Visit-View / Moodle / …
c. Website

d. Participation in Regional Workshops (presence)

2. Joint project

a. Time-series station linked to Antares/ChloroGIN networks adding more topics, opening for more collaboration

b. Fellowships for graduate students working with time-series station’s data sets

NF/POGO network of alumni involved in research projects run at already installed time-series for example Antares – ChloroGIN networks. To develop a Masters or PhD programs at the different stations.

The establishment of ‘international scholarships’ for graduate students, or post-docs, to develop their work at different local sites. These students could be co-supervised by a local scientist and a senior expert from a developed laboratory. This will facilitate the insertion of the alumni in the scientific system of the countries, while keeping a close connection with their international partners. At the same time this will help in part to solve the problem of lack of personnel at the site, plus enhancing the exchange of expertise.

3. Other points

a. Letter of Commitment from Organizations (data policy)

b. Infrastructure (should consider donations, to be advertised on the Website)

c. Commitment x Sustainability (decision makers)

d. Hot Research topics

e. Sharing – data policy!

f. Data center – IODE?

Observation + Remote Sensing + Modeling
Appendix 4
Working group reports from discussions by discipline (21/10)

4.1. Biology group

- Global monitoring of biological changes in the ocean
  - Global and regional drivers (i.e. “the glue”)
    - Temperature changes
    - Monsoon, typhoon, regional currents
    - Fisheries
  - Identification of key parameters to be measured:
    - structure/biomass: chlorophyll, community structure, primary and secondary biomass (i.e. phytoplankton, zooplankton, microbial, jellyfish)
    - Rates: primary production, Carbon export
    - Nutrients, temperature, currents, wind
  - Data mining: regional collection of existing data
    - organisation of data expo
    - scholars action
    - support of POGO (with a declaration) to encourage data exchange
    - supervisor support
- Regional compilation and analysis of the data
- Global compilation
- Results from regional studies can then be applied/used in other regions to predict future changes
- As an observing network we can input more data into IPCC report for instance
- Existing data are not incorporated into IPCC report: need for more communication and data accessibility.

4.2. Physics group

Main parameters of interest:
- Temperature
- Salinity
- Wind and wave climate
- Currents
- Sea level
- Alkalinity
- DIC
- pCO2
- pH
- O2
- Nutrients and trace metals
- Heavy metal and POPs
- Plastic debris

First step:

State-or-art review (literature and data mining)
  -> what people are doing, how can we learn from it (coastal and deep ocean)
  -> what resources are available (in situ, paleoceanography, remote sensing and modeling data bases) and by whom (POGO institutions)
  -> making alliances with existing groups
  -> define suite of parameters to be measured (look all stations, what they have in common, what are the important ones), protocol and temporal resolution.

Second step:

Establish local monitoring station (where infrastructure is available)
  -> estimate costs
  -> standardize measurements
  -> supplement the station with other resources: remote sensing and models (large scale approach)
  -> data freely available at NINO website
  -> support for global studies.
4.3. Biological-physical interactions group

*Scientific questions:*

- Influence of eddies, boundary currents and upper ocean dynamics on primary productivity and carbon export;
- Effect of re-suspension of sediments on the underwater light field and on the benthic community;
- Effect of physical processes on algal blooms, higher trophic levels and fisheries resources;
- Influence of the processes on ocean biogeochemistry and air-sea exchange of greenhouse gases;
- How does the vertical stability in the water column determine the temporal and vertical distribution of phytoplankton community at various scales?
- Bio-optical feedbacks on upper ocean dynamics and air-sea exchange of heat and momentum
- Influence of physical processes on zoo-plankton aggregation, migration and carbon export.

*Tools:*

- Links to existing time-series networks (e.g. Antares, ChloroGIN, OceanSITES…)
- Observe locally and network for a global vision
- Local observations of time-series (moorings, repeated visits, lateral vision through satellites)
- Time-series linked to satellites and modelling for extended vision and improvement of understanding
- Optics as key property to link physics and biology
- In-situ observations to improve model parametrization
- Validation of satellite products.

*Practical applications:*

- Monitoring of algal blooms
- Understanding variability in marine ecosystem and in fisheries resources
- Understanding marine biodiversity in relation to its function
- Understanding properties and distribution of ecological provinces in the ocean
- Develop climate indices for the ocean.
Appendix 5
Working group reports from regional discussions of specific projects (22/10)

5.1. Asia

Budget:

Establish a new time series station

Upgrade existing stations

Stipend for Ph. D. students
- local Ph.D
- Conduct research locally (register foreign country)
5.2. Africa

Impacts of climate instability on marine ecosystems

PROJECT 1: Food web dynamics in the upper ocean
PROJECT 2: Marine biodiversity around the coast of Africa
PROJECT 3: Applying/developing ecological indicators for ecosystem-based management

Establish and maintain a baseline (time series):

*Core measurements across all 3 projects:*

- **chlorophyll** (desirable HPLC pigments and species composition)
- **temperature, salinity** (desirable CTD)
- **nutrients** (nitrates, silicates, phosphates) (desirable heavy/trace metals, 
- **zooplankton biomass** (desirable community structure – zooscan)
- benthic invertebrates (biomass, composition, population dynamics
- weather station (wind speed, direction, tidal gauges)
- **ensure collaborative distribution of satellite data** (ocean colour, SST, via EAMNet)

**Timeline:**

- Sampling frequency for core measurements: ideally monthly, minimum twice/yr
Sampling sites wherever students are located: Tunisia, Ghana, South Africa, Namibia, Angola, Ivory Coast, Tanzania, Nigeria, Mocambique (shore, boats, moorings, ships etc.)
Regional coordinator to collect data
Workshops of opportunity, regional meeting once every 2 years.

**Budget:**

- Core measurements per site (assuming 4 sites, N,S,E,W Africa)
  - instruments, consumables, sea time, assistants ($20K per site per year)
$80K
- one M.Sc/PhD student per site ($15K each) $60K
  • Regional workshop every 2 years ($50k) $25K

TOTAL per year $165K
5.3. Latin America

Main question:

Assessing long-term ecosystem changes around Latin America.

This is an important topic in the context of global change, in order to be able to provide information about ecosystem vulnerability. Decision makers should rely on this information to take the most appropriate mitigation and adaptation strategies.

Relevant specific scientific questions:

- Influence of eddies, boundary currents and upper ocean dynamics on the primary productivity and carbon export;
- Effect of re-suspension of sediments on the underwater light field and on the benthic community;
- Effect of physical processes on algal blooms, higher trophic levels and fisheries resources;
- Influence of the processes on ocean biogeochemistry and air-sea exchange of greenhouse gases;
- How does the vertical stability in the water column determine the temporal and vertical distribution of phytoplankton at various scales;
- How does the structure of the phytoplankton community (bio-diversity) varies with time at different sites. Identify possible groups or species working as ecosystem indicators;
- Bio-optical feedbacks on upper ocean dynamics and air-sea exchange of heat and momentum;
- Influence of physical processes on zoo-plankton aggregation, migration and carbon export.

Approach:

These different oceanic properties and processes should be studied with frequent temporal observations to detect anomalies from the understood basic situation at different sites.

Geographical location for time series stations:

Propose to link the NF/POGO network with the existing Antares network in the region, through participants of former and future NF/POGO initiatives at all levels (scholars, lecturers and hosts).
Existing Time series in Antares:

- Make a reference of the projects and measurements already running
  Need and potential of incorporating an NF/POGO scholar working in a one the here suggested research proposals
- Possibilities of new ones
  Short term ones
  Potential ones
Appendix 7

List of Attendees

1. Milton Kampel (Brazil)
2. Tony Knap (Bermuda)
3. Sebastian Krieger (Brazil)
4. Lilian Krug (Brazil)
5. Meena Kumari (India)
6. Margareth Kyewalyanga (Tanzania)
7. Vivian Lutz (Argentina)
8. Lailah Gifty Lartey-Antwi (Ghana)
9. Kentaro Ogiue (Japan)
10. Charitha Pattiaratchi (Australia)
11. Trevor Platt (UK)
12. Gerry Plumley (Bermuda)
13. Marie Racault (UK)
14. Suriyan Saramul (USA/Thailand)
15. Shubha Sathyendranath (UK)
16. Sophie Seeyave (UK)
17. Olga Shatova (Ukraine)
18. Kathleen Silvano (Taiwan/Philippines)
19. Houssem Smeti (Morocco/France)
20. Venetia Stuart (Canada)
21. Kiyoshi Suyehiro (Japan)
22. Kentaro Suzuki (Japan)
23. Hoang Cong Tin (Vietnam)
24. Kanthi Yapa (Sri Lanka)
25. Makoto Wada (Japan)
Appendix 8
List of Action Items

Alumni Meeting

1. Prepare participants list for Alumni Meeting: Send suggestions to POGO Secretariat. Action: All (Deadline: 15 Nov)
2. Prepare list of speakers. Send suggestions to POGO Secretariat. Action: All (Deadline: 15 Nov)
4. Request presentations from alumni. Action: Secretariat (Deadline: 30 November)
6. Advance planning meeting in Tokyo. Action: POGO Secretariat and NF. Proposed date: late March 2011
9. To develop the timeline and relevant deadlines, e.g., for submission of abstracts. Action: Secretariat
10. Discuss potential presentations by scholars on their home country at Alumni meeting.

Network

1. Establish NF-POGO website
2. Establish database of NF-POGO Scholars and trainees at NF-POGO Visiting Professorships
3. Initiate networking and co-ordinating activities within three regions, e.g., Latin America, Africa, Asia
4. Identify Regional Coordinators for Asia, Sub-Saharan Africa and North Africa/Mediterranean.
5. Inform POGO Secretariat of existing on-line databases. Action all
6. Initiate alumni science magazine cum newsletter. Action: Kanthi Yapa, in coordination with POGO Secretariat
7. Establish list of key contacts within various regions.
Research Projects

1. Continue development of research projects, including budgets. Action: All. Leads: Chairs and rapporteurs of regional sessions at London Meeting (Deadline: 20 December).
Appendix 9
Group photograph

Back row (left to right): Suriyan Saramul, Houssem Smeti, Gerry Plumley
2nd row from back: Vivian Lutz, Kiyoshi Suyehiro, Sebastian Krieger, Milton Kampel, Venetia Stuart
2nd row from front: Trevor Platt, Margaret Kyewalyanga, Meena Kumari, Kentaro Suzuki, Hoang Cong Tin, Olga Shatova, Marie Racault