Restricted distribution

IOC/INF - 1139
28 February 2000
English only

INTERGOVERNMENTAL OCEANOGRAPHIC COMMISSION
(of UNESCO)

PARTNERSHIP FOR OBSERVATION OF THE GLOBAL OCEAN SUMMARY REPORT OF THE POGO INAUGURAL MEETING La Jolla, California, USA, 1 - 3 December 1999

In the last two decades of the 20th century, as the task of ocean observation became increasingly more complex, the demand for ocean observation and study became increasingly global, and the cost of ocean instrumentation increased several-fold, major oceanographic institutions began to develop bilateral agreements between themselves to share the costs of major activities, and to increase efficiency. With the rapid growth of the demand for global observation, understanding and forecasting of the ocean and its effects on climate, these institutions feel increasingly that there is now a need for an overarching multi-lateral agreement. This is the background to POGO, the Partnership for Observation of the Global Ocean.

POGO is meant to assist in the development of GOOS, as well as providing a forum within which the directors of major oceanographic institutions from all parts of the world can interact. POGO carries within it the potential to enhance the IOC's capacity building programme. The attached document, provided for information to the 33rd session of IOC Executive Council, June 2000, is the report of the first full scale POGO meeting that took place at Scripps Institution of Oceanography in La Jolla, California (USA), Dec. 1-3, 1999. IOC and GOOS were represented at the meeting, and will be involved in the follow-up. The next meeting will be in São Paulo, Brazil, in November 2000.

Inaugural Meeting
PARTNERSHIP FOR OBSERVATION OF THE GLOBAL OCEANS (POGO)
Scripps Institution of Oceanography
La Jolla, California, USA, December 1-3, 1999

OPENING AND INTRODUCTIONS:

Dr. Charles Kennel, Director of Scripps Institution of Oceanography (SIO) welcomed the participants who represented 17 institutions in 12 countries and 7 international organizations and programmes (see attendance list, Annex I). Dr. Kennel acknowledged the support provided by the Alfred P. Sloan Foundation and the Lounsbery Foundation, thanks to the efforts of Dr. Jesse Ausubel. The agenda for the meeting (see Annex II) was reviewed. The objectives of the meeting were presented:

GOALS FOR POGO-1 MEETING:

Establish a common understanding among participants of what POGO can and should be:

(i) create a forum for discussion of implementation issues;
(ii) look at the state of international, national, and regional GOOS planning and see where POGO might help;
(iii) identify immediate next steps based on the needs and views of the December meeting participants and the St. Raphael OOPC/UOP results and IGOS Oceans Theme paper.

Dr. Kennel then reviewed a series of diagrams showing the types of actors and their roles in *in situ* global ocean observations (national governments, implementing institutions, international planning groups, intergovernmental organizations, and the IGOS partnership process). He presented* a concept of where and how POGO might fit into the existing institutional framework.

Dr. Kennel then turned the chair over to Dr. Howard Roe, Director of Southampton Oceanography Centre, who filled in the background of POGO, reviewing the planning meeting held in Paris in March 1999 for the benefit of those who had not participated. He suggested what POGO is and what it is not.

POGO IS:

- A group of directors of major oceanographic institutions able to commit their organizations;
- A group of entities willing to serve the broader oceanographic community in their countries;
- A group of institutions that have the capability to undertake global or basin scale operations;
- A forum for improving the co-ordination of implementation;
- A forum for improving public outreach, awareness, and education;
- A forum for regular meetings between directors and institutions.

POGO IS NOT:

- A replacement for any national or international group;
- A large and complex bureaucracy;
- A major source of funding.

Dr. Roe then reviewed the draft POGO Terms of Reference and Mission/Charter statement, noting that these would be revisited on the last day of the meeting. He pointed out that there has been much recognition recently in the U.S. Government, in the United Nations, and elsewhere, on the importance

* The presentations are not reproduces in this document

of global ocean observations. This suggests that the ideas and concepts that stimulated the POGO initiative are consistent with thinking elsewhere.

Participants were invited to express their views on POGO, and to raise any questions they had. The group discussed and explored the possible contributions POGO could make in global observations.

One issue that received attention was coastal research. It was decided that POGO is not meant to preclude consideration of coastal issues, as they are intimately connected to global processes. The director of CLIVAR emphasized that POGO can make a significant contribution to implementation, because it has the unique combination of technical and scientific expertise and the ability to do the implementation. The group reaffirmed its intention to address all disciplines including biology, and not to limit its deliberations to physical oceanography or to climate applications. One of POGO's special contributions is the high-level interdisciplinary view that institution directors can bring to ocean observing.

The Executive Director of SCOR noted that POGO could play an important role in supporting the training and capacity building necessary for an integrated, international observing system. Facilities should be made available for interdisciplinary work. Even though different disciplines are at different stages of maturity, institutions need to nurture them all and push for deeper integration and openness. The group recognized that integration and openness come with associated costs that are often at the margins of available funding; POGO can be a constituency to speak for that need.

The Chairman of the GOOS Steering Committee asked how POGO might interact with the private sector. This was viewed as an important topic, and one in which the broader international community could learn from the successes of EuroGOOS. The private sector represents a significant component of the user community for ocean data and services, both directly and as intermediaries in serving end user constituents. Their input and contributions are essential to a successful long-term sustained observing capability. POGO participants recognized the need to interact with the private sector early and extensively. The Executive Secretary of the IOC noted that IOC is working on the demand side as well as the supply side of ocean observations. The private and public sectors both are critical to the success of a global observing system. All agreed that POGO could play an important role, due to its flexibility and non-governmental nature, in building on local and regional relations with the private sector to achieve a global perspective.

On the subject of data and information, participants agreed that POGO can contribute to implementation of data exchange, but that policies and regulations concerning data and information are the responsibility of governments.

Another area where POGO can make a contribution is in making known opportunities for cooperation, such as new European Commission policies that open their programmes to international partnerships.

With regard to public information and communications/outreach, the group was reminded of the complexity and difficulty of the task. POGO clearly will make an important contribution if it increases public awareness and appreciation for global ocean observations, and if it helps each institution improve its advocacy for the needed funding and political support. All the institutions will benefit from sharing the experiences and expertise of the others in this area.

The meeting then turned to reports from relevant groups and programmes. Presenters were asked to consider the role POGO can play to help achieve the objectives of their programmes.

OCEANOBS '99:

The Ocean Obs '99 Conference, held in Saint Raphaël in November 1999, under the auspices of the Ocean Observing Panel for Climate of GCOS and GOOS, and the Upper Ocean Panel of CLIVAR, was summarized by Dr. Neville Smith. The contributions of POGO should be selective and focused on areas where POGO's uniqueness can be most beneficial. POGO does not need to address operational structures. POGO could be very helpful in methodologies and the transition from experimental systems to operational capabilities. One area of particular attention for POGO is with respect to Fixed-Point Time-Series stations.

The meeting agreed that, on the basis of the plan outlined by Send and Weller, summarized below, and which received consensus support of the OceanObs '99 Conference, the Participants should initiate actions toward implementation in their respective institutions and governments. At the suggestion of Smith (Chair OOPC) and Koblinsky (CLIVAR UOP), these actions would be undertaken within a Pilot Project steered by a Scientific Team constituted as a sub-group of the OOPC and UOP. Since the POGO members provide the bulk of the scientific and technical expertise it was also agreed that it would be appropriate that POGO be explicitly included as a sponsor of the Pilot Project. Technological innovation, multi-disciplinary measurements, telemetry and optimization of resources and logistics were seen as the particular opportunities for POGO. Because of the multi-disciplinary nature of the Project, sponsorship will also be sought from SCOR.

Progress will be reported to OOPC and UOP and to the regular meetings of POGO. The degree to which this Pilot Project also embraces TAO/TRITON and PIRATA will be determined in consultation with the sponsors of those initiatives.

POGO can contribute to the shift to a new, open data-sharing paradigm by encouraging such practices, recognizing that formal data policy is not within the purview of POGO. POGO could also focus attention on the need for more coverage in the Indian Ocean. Drawing attention to critical gaps in observing technologies and creating innovative ways to meet these needs, such as salinity, use of gliders, and other examples, are ways in which POGO can help.

CLIVAR:

John Gould presented a summary of CLIVAR. CLIVAR can benefit from POGO's advocacy for long-term ocean observations as described by the OceanObs presentation, which CLIVAR co-sponsored. POGO institutions are essential to CLIVAR's success and can contribute by continuing to support first rate science and technology development; strengthening the relationship between ocean and atmospheric research and operational programmes; providing a flexible, non-governmental forum in which to work out issues and resolve problems; and demonstrating to funding agencies and the public the value of sustained observations.

The inadequacies of the global telecommunications system (GTS) were discussed, and consideration given to how POGO might help find better ways to get data into the hands of users both in real-time and off-line.

Participants noted that while CLIVAR is limited to climate, POGO has a broader focus, including biology and other disciplines. There was discussion of the links between climate and biology, particularly in studying the carbon cycle. Several other programmes, such as SOLAS and IGBP were mentioned, and the possibility was mentioned that perhaps POGO could help in bringing together representatives of the different programmes to improve co-ordination.

GODAE AND ARGO:

The GODAE project was presented. GODAE will benefit from all the efforts discussed for POGO, such as advocacy of sustained observations and improvements in data exchange. One important element of GODAE is the Argo float programme. POGO has already helped Argo by providing funding to create an Argo website. Several ideas were presented for ways POGO could further contribute to Argo.

The number of floats might be sufficient, but the geographic distribution is inadequate. This is because each contributing country prefers to deploy floats in areas near their territory, which leaves some parts of the ocean very undersampled. POGO perhaps could be a forum to persuade participating organizations to optimize the geographic distribution of the floats.

In addition, Argo would benefit from continued advocacy by POGO for full funding; encouraging support for floats from the float-providing nations; encouraging broader international participation; and providing support for an international co-ordinator to oversee operations and help with notification to nations when floats approach their EEZs. With limited funding for hardware, any supplemental funds for administrative support helps maximize the number of floats actually deployed.

The group saw Argo as an essential backbone of an integrated observing system. Information exists to consider costs and performance tradeoffs from adding additional sensors to Argo floats. Work still needs to be done on data management arrangements, although the policy of fully open access to all data is well established. The capacity of existing telecommunications services is a limiting factor on the ability to get Argo data back to data centers.

TIME SERIES OBSERVATORIES:

POGO heard a presentation on Time Series Observatories. This provided additional background leading to action 2 described below.

POGO was asked to provide co-ordinated advocacy of entire network and co-ordination of institutional commitments to sustain particular sites; to develop a mechanism to share resources, experience, data, calibration, formats, etc. between institutions involved in time series observations; and to find a way to identify mechanisms to provide transition, funding, and logistics for longer-term operation.

There was discussion of data management for fixed time-series stations. Operational stations are co-ordinated through the WMO. Research facilities have no co-ordinated data management arrangements. There is also no mechanism for possible sharing of the infrastructure among research groups.

SOUTH AMERICAN PROJECT:

David Rogers and Patricio Bernal, on behalf of representatives unable to attend POGO, gave a presentation about operational ocean monitoring for climate in western South America. Cooperative work among Chile, Colombia, Ecuador, and Peru has been supported by WMO and IOC in a partnership that was stimulated by discussions at the Paris POGO planning meeting. No formal POGO action was defined, but members were asked to consider providing expertise to help partners develop and sustain observational capabilities in areas such as guidance in mooring technology; maintenance of

instrumentation; quality assurance of data; use of data in models; data interpretation; and regional climate applications. POGO members were also encouraged to develop active partnerships with organizations in developing nations and help develop human capacity in these institutions through educational exchanges and joint research ventures. The POGO clearinghouse should be a useful resource in carrying out some of these actions.

While it was recognized that institutions such as the World Bank and the GEF have substantial resources, there is also a high cost of obtaining such funding because it takes a lot of time and effort. There was hope expressed that POGO might help find funds in a more flexible and unbureaucratic way.

CENSUS OF MARINE LIFE:

The discussion then turned to the Census of Marine Life. This project is an enormous undertaking that will require a lot of resources and hence will need strong public support. POGO could be extremely useful in stimulating a dialog among communities involved in understanding the ocean environment and the biological activity therein, and in helping generate public interest.

DEOS:

The Dynamics of Earth Ocean Systems (DEOS) programme was presented. This underwater observatory concept includes infrastructure (energy and communications) that could be used for other types of observations besides the primary geological research mission. There is also tremendous potential for advancing our understanding of biological processes in the deep ocean. POGO could be useful in making these opportunities known to the broadest communities.

IGOS:

The next presentation was on the Ocean Theme of the IGOS. In February, an analysis will be available presenting the compilation of *in situ* and space-based ocean observing requirements identified by the major observing programmes. CEOS is planning a "commitments meeting" during the year 2000 for the space-based observing systems. The IOC has offered to take the lead in organizing a commitments process for the *in situ* observations. POGO was asked to help the IOC to ensure that substantive progress is achieved in this process during the coming year. There was explicit recognition of the fact that commitments must involve governments and funding institutions, and thus were not within POGO's scope, but the POGO organizations can be instrumental in advocating for the needed funding and in implementing the programmes, once approved.

The participants noted the amazing breadth and scope of international oceanographic activities represented by the presentations, and were mindful of the need to focus POGO's efforts in a few well-defined areas where success was achievable.

GOOS:

The second day began with a presentation by the Chairman of the GOOS Steering Committee. He was supportive of the POGO initiative and identified several areas in which POGO could be helpful, and a few areas where POGO activity might not be appropriate. Dr. Nowlin noted that while GOOS has broad and diverse participation, POGO represents a special subset of GOOS participants. This implies the need to focus POGO efforts where it can be most effective. These areas include:

- Education: assisting with the training of scientist & technicians who are experienced in assimilation of data into models and other analysis techniques required to produce operational products, such as nowcasts, forecasts, warnings, etc.
- Research and development: continuing the development of improved understanding, methods of analysis, models, and technology to increase quality, efficiency, cost-effectiveness, etc. This must include institutional commitments and the encouragement of scientists.
- Public awareness: POGO could really help get the word out that GOOS is user-requirements based and will provide useful products.
- User surveys: POGO could assist with the assessment of user requirements (as EuroGOOS has done) including all sectors in the nations represented in POGO.
- Political persuasion/advocacy: POGO could encourage academic institutions, NGOs, governments at all levels, and industry to assist directly in carrying out the sustain observing system elements approved as a part of the GOOS design.
- Capacity building and outreach: POGO could be working to help nations and regions become full GOOS partners through the development of their own national and regional capabilities. This could include training and fund raising.

There are some areas where POGO involvement does not appear to be needed:

- assistance with overall design and co-ordination of GOOS elements.
- Assistance with co-ordination of satellite system needed for GOOS.
- Assistance with co-ordination of *in situ* observations needed for GOOS – JCOMM will be working with this, and there are already a number of structures in place.

EuroGOOS:

A brief summary was presented of EuroGOOS. EuroGOOS has benefited from the close relationship with the European Commission as a source of funding. Work is underway in many areas, including studies of Arctic sea ice. A data products group was recently established. The organizational structure and dues mechanism within EuroGOOS was described as a possible model for POGO.

SCOR:

The Executive Director of the Scientific Committee on Oceanic Research summarized SCOR's programmes and interests. POGO can contribute particularly well in the area of training and scientist/faculty exchanges. SCOR and its partners are working to enhance local training opportunities in developing countries by bringing outside experts to local institutions for limited periods of time to conduct specialized training programmes. The support and encouragement of POGO institution directors for their people to participate in such programmes would be strongly appreciated.

SCOR would like to work with POGO in making the scientific argument for the time series stations discussed above. SCOR also strongly supports the interdisciplinary use of such platforms, which is another area of common interest with POGO.

The meeting then turned to presentations by individual. Each presenter included suggestions as to what POGO might do. These were discussed and incorporated into the agreed actions. There were several mentions of the value of enhanced information exchange about technologies, research programmes and educational opportunities. Support and advocacy for sustained observations was another common theme. One area where POGO can help is in making the international case clear in

each country – to bolster individual institutions by showing the extensive international backing for their efforts. POGO should also be useful in anticipating problems and finding strategies to fix them in a flexible, informal way.

The issue of real-time data communications, the limitations of GTS, and the increasing use of the internet is an area where POGO might be able to contribute. This was one of the stimuli for the POGO data exchange pilot project described below.

Concerns were also raised as to the role of POGO. Participants felt that a clear and strong justification is needed to justify a new organization, and there must be benefits for those who do participate as well as for the broader community.

Based on the presentations by international groups and programmes, and those by individual institutions, small groups met to develop specific action plans for POGO. These were organized into observing systems, data and information management, public awareness and outreach, education, private sector interactions, and capacity building.

OBSERVING SYSTEMS:

The group talked about national and international advocacy. There is sensitivity about declaring priorities because as integrated system needs all its elements. Nonetheless, there was agreement that the highest priority in the immediate future for POGO is as an advocate of the observing system, with emphasis on priorities of Argo and the Eulerian observations, mindful of the sensitivities and the need for a balanced, integrated approach. Participants noted the need for attribution within the scientific community for the contributions made to the observing system (in the merit systems of institutions) and recognized that each institution and country has unique relationships and constraints that must shape its advocacy efforts. Nonetheless, we share a common set of goals that can benefit from concerted action. For this reason, the group agreed to the following actions.

Action1: *Articulate common interests, concerns, and priorities for global, integrated, interdisciplinary ocean observing efforts, and advocate for the needed resources. Lead: Gagosian, Roe, Kennel to develop draft and circulate to everyone by [DATE]*

Action 2: *POGO institutions will support and participate in an observing system Pilot Project which will run for four years, or shorter if success was demonstrated earlier. The specific actions include:*

- *Develop an implementation plan, and oversee implementation, of a global network of multi-variate, fixed-point (time-series) observations.*
- *Provide a focus for scientific and technical discussion of the fixed-point measurement approach, including co-ordination of interested participants.*
- *Seek to optimize resources (moorings, instruments) and logistical support for the fixed-point network.*
- *Encourage and evaluate related innovative technology, particularly with respect to the platforms and telemetry, with a view to enhancing sustainability.*
- *Develop a methodology for assembly and distribution of fixed-point data and its integration into the GOOS data stream.*
- *Develop guidelines for the evaluation of this approach (measures of success) with a view toward long-term, operational support. Lead: Bob Weller, Uwe Send, Neville Smith*

Action 3: *The POGO Secretariat will establish a clearinghouse for sharing information among POGO institutions and the outside community in the areas of education; technology inventory; cruise opportunities; user/demand side studies; advocacy strategies; and other topics of interest. Templates will be developed for each component and provided to members so they can submit information on their resources and needs. Lead: POGO Secretariat (SIO/Shaffer).*

Action 4*: POGO to work with IOC in supporting the IGOS oceans theme and in securing substantive commitments to the identified* in situ *observations. Lead: SIO/David Rogers with IOC/Summerhayes*

Data and Information Management: several ideas were discussed in this area, in terms of their importance and their maturity and appropriateness for possible POGO action. POGO was seen as a grassroots forum where individual institutions can examine and demonstrate ways of working together in a flexible approach. For this reason, the group agreed to a pilot project as described above.

Action 5: *POGO will develop and conduct a data exchange pilot project, focussed on research requirements, involving a small number of site (nodes), at least one characterized by observations, one by model/assimilation work; one specializing in data management; and at least one external user site. The project would attempt to freely exchange data, metadata, model output, and to use the data and models in a variety of ways. The group will report at the next POGO meeting with recommendations for subsequent POGO work to expand on the experience gained in the pilot. Lead: WHOI/Weller*

The issue of telecommunications capacity and affordability for relay of remotely acquired data is very important, but the requirements are not well enough defined and it was felt that this should be a second priority for POGO. The agreed action can be an important step toward the vision of full access by researchers and service providers anywhere to the complete integrated suite of ocean observations regardless of where they were collected or where the user is located.

OUTREACH:

POGO participants agreed that it was important to have a communications group comprising the communications experts within each POGO institution. They will form a network to co-operate informally to address issues that arise, and to support the various other activities of POGO, such as advocacy and education. Based on the guidance of institution directors and the POGO dialog, they will develop a communications strategy to explain what POGO is, and to promote the objectives of the group. The communications group will also provide the technical infrastructure (such as an internal website).

Action 6: *Create global oceans communications group. Lead: CSIRO/Don Michel.*

Action 7: *Develop communications strategy for ocean observations. Lead: Gagosian to co-ordinate with the communications group.*

The communications group plans to meet early in 2000 to begin developing their relationships and plans.

Education: A number of aspects of education were discussed, including full degree-granting programmes; short courses; graduate student exchanges; specialized training through hands-on research involvement; and training for other sectors such as industry officials and decision-makers. It was

agreed that POGO could provide a useful information exchange function through the clearinghouse (see action). IOC's interest in education was also noted, and Dr. Bernal indicated his willingness to seek funding for some education and training activities cooperatively between POGO and IOC.

Capacity Building: Dr. Bernal noted that capacity building includes increasing societal demand through improving the awareness and capability of less developed countries to use environmental information to the benefit of their societies. It needs to be examined from the demand side (governments/users) as well as the supply side (science).

Action 8: *Education and capacity building: POGO will work with IOC to develop a plan for workshops, training courses for specific needs, and other cooperative activities. Lead: SOC/Howard Roe working with IOC/Bernal and SCOR/Gross.*

The meeting began its final day with a review of actions and discussion of administrative arrangements for POGO.

The group reviewed the proposed Terms of Reference and Mission/Charter statement. After some discussion, it was agreed that the special focus of POGO is as a forum for *in situ* data providers, and the phrase "*in situ*" was inserted into the definition of membership. No extensive discussion was possible, but the group agreed in principle to the proposed text as the interim basis for POGO proceeding. Participants took an action to provide any specific detailed comments within the next month and the Secretariat will attempt to establish consensus on final language.

Action 9: *All POGO participants to provide comments to the Secretariat on the Draft Terms of Reference and the Draft Mission and Charter statements (*Annex III contains a consolidated version of the ToRs and the Statements*) by January 30. Lead: Secretariat (SIO/Shaffer).*

The discussion then turned to the POGO structure and secretariat. Dr. Kennel explained that there is a 2- to 4-year plan, an interim period for which Scripps and Woods Hole have raised funds from foundations to pay for an initial organizational arrangement. The proposal that was used to obtain these funds was circulated to Paris participants some months ago. The plan is to hire a full-time Executive Secretary who would be based initially in Washington, DC, in office space provided by the University of California. This person would work closely with a group (the "Secretariat") made up of points-of-contact from each interested POGO participating organization. Once formal terms of reference are adopted and organizations begin paying dues to cover the costs of POGO, the Executive Secretary functions and the secretariat process can be re-examined.

Action 10: *A brief job description for a POGO Executive Secretary will be circulated to all participants by December 17 for their consideration and comments by January 30. Based on the consensus achieved, an interim Executive Secretary maybe hired. Lead: Secretariat (SIO/Shaffer).*

Action 11: *POGO participants to designate a point of contact for the Secretariat by January 30.*

The meeting concluded with an action for the meeting summary to be distributed in draft to all participants for their comments, with the goal of having a final report available by mid-February.

Action 12: *Secretariat to distribute draft report by December 17. Participants to provide comments by January 30. Final report to be distributed by mid-February.*

Dr. Weber of the University of São Paolo offered to host the next POGO meeting at his institution in November 2000. This was gratefully accepted. The meeting was adjourned.

ANNEX I

POGO-1 Attendance List
1-3 December 1999
La Jolla, California, USA

AUSTRALIA

Dr. Nan BRAY
Director, Division of Marine Research
CSIRO
GPO Box 1538
Hobart, Tasmania 7001
Australia
Tel: 61-3-62 325 210
Fax: 61-3- 62 325 123
Email: nan@hba.marine.csiro.au

Mr. Don MICHEL
CSIRO Division of Marine Research
GPO Box 1538
Hobart, Tasmania. 7001
Australia
Email: Don.Michel@marine.csiro.au

BRAZIL

Dr. Rolf R. WEBER
Director, Instituto Oceanográfico
Universidade de São Paulo
191 Cidade Universitária
05508-900, São Paulo
Brazil
Tel: 0055-11- 818-6501/02
Fax 55-11- 210-3092
Email: rorweber@usp.br

CHINA

Dr. ZHAO Jinping
Deputy Director
Second Institute of Oceanography
State Oceanic Administration
P.O. Box 1207
Hangzhou, Zhejiang 310012
China
Fax: 86-571-807 1539
Email: jpzhao9@yahoo.com

FRANCE

Dr. Pierre DAVID
Director, Ifremer
155 rue Jean-Jacques Rousseau
92138 Issy-Les-Moulineaux
France
Tel: 331-4648-2286
Fax: 331-4648-2248
Email: pierre.david@ifremer.fr

Mr. Elie JARMACHE
International Relations, Ifremer
155 rue Jean-Jacques Rousseau
92138 Issy-Les-Moulineaux
France
Tel: 331-4648-2181
Fax: 331-4648-2188
Email: elie.jarmache@ifremer.fr

Dr. Daniel VIDAL-MADJAR
Assistant Scientific Director, INSU-CNRS
3 rue Michel Ange
B.P. 687
75766 Paris CEDEX 16
France
Tel: 331-4496-4380
Fax: 331-4496-4978
Email : daniel.vidal-madjar@cnrs-dir.fr

GERMANY

Dr. Uwe SEND
Institute für Meereskunde and der Universität Kiel
Düsternbrooker Weg 20
D-24105 Kiel
Germany
Tel: 49-431-5973890/91
Fax: 49-431-565876
Email: usend@ifm.uni-kiel.de

INDIA

Dr. Mahesh D. ZINGDE
Deputy Director
National Institute of Oceanography
Regional Centre
Sea Shell Bldg, 7 Bungalows
Versova, Andheri (West)
Mumbai- 400 061
India
Tel: 91-022-6335549/6326419
Fax: 91-022-6326426
Email: maheshz@eudoramail.com

JAPAN

Prof. Keisuke TAIRA
Division of Physical Oceanography
Ocean Research Institute
University of Tokyo
Minamidai 1-15-1, Nakuno-ku
Tokyo 164
Japan
Tel: 81-3-5351-6415
Fax: 81-3-5351-6418
Email: taira@ori.u-tokyo.ac.jp

Dr. Hiroshi HOTTA
Executive Director, JAMSTEC
2-15 Natsushima-cho
Yokosuka 237
Japan
Tel: 81-468-67-5524
Fax: 81-468-66-3061
Email: hottah@jamstec.go.jp

Dr. Masahiro ENDOH
Director of Ocean Research Department
JAMSTEC
2-15 Natsushima-cho
Yokosuka 237
Japan
Tel: 81-468-67-3870
Fax: 81-468-65-3202
Email: endoh@jamstec.go.jp

Dr. Susumu HONJO
JAMSTEC
c/o Woods Hole Oceanographic Institution
Clark 1, MS #23
Woods Hole, MA 02543
USA
Email: shonjo@whoi.edu

Mr. Yoshifumi KURODA
Assistant Manager of Research Support
Department
JAMSTEC
2-15 Natsushima-cho
Yokosuka 237-0061
Japan
Tel:
Email: kuroday@jamstec.go.jp

KOREA (Republic of)

Dr. Moon-Sik SUK
Director of Physical Oceanography Division
KORDI
Ansan POB 29
Seoul 425-600
Korea
Tel: 82-345-400-6100/6123
Fax: 82-345-408-5829
Email: mssuk@kordi.re.kr

NORWAY

Prof. Ola JOHANNESSEN
Director
Nansen Environmental and Remote Sensing
Center
Edvard Greigs vei 3a
5037 Solheimsviken-Bergen
Norway
Tel: 47-5529-7288
Email: ola.johannessen@nrsc.no

RUSSIAN FEDERATION

Dr. Serguei S. LAPPO
Director, P.P. Shirshov Institute of Oceanology
Russian Academy of Sciences
36, Nakhimovsky Prospect
117851 Moscow
Russia
Tel: 7-095-124-59-96
Fax: 7-095-124-59-83
Email: lapp@gulev.sio.rssi.ru

UNITED KINGDOM

Dr. Howard ROE
Director, Southampton Oceanography Centre
Empress Dock, European Way
Southampton, SO14 3ZH
U.K.
Tel: 44-1703-595105
Fax: 44-1703-595107
Email: H.Roe@soc.soton.ac.uk

Dr. Trevor GUYMER
Room 256/26
Southampton Oceanography Centre
Empress Dock, European Way
Southampton, SO14 3ZH
U.K.
Tel: 44-1703-596430
Fax: 44-1703-596204
Email: T.Guymer@soc.soton.ac.uk

Dr. Howard CATTLE
Room 245
Meteorological Office
London Road
Bracknell Berkshire RG12 2SZ
U.K.
Tel: 44-1344-856209
Fax: 44-1344-854499
Email: hcattle@meto.gov.uk

UNITED STATES OF AMERICA

[on behalf of CORE]
Dr. Charles KENNEL
Director,
Scripps Institution of Oceanography
9500 Gilman Drive
La Jolla, CA 92093-0210
USA
Tel: 858-534-2826
Fax: 858-453-0167
Email: ckennel@ucsd.edu

Dr. Robert GAGOSIAN
Director
Woods Hole Oceanographic Institution
Woods Hole, MA 02543
USA
Tel: 508-289-2502
Fax: 508-457-2190
Email: rgagosian@whoi.edu

Mr. Robert WINOKUR
Vice President
Consortium for Oceanographic Research & Education
1755 Massachusetts Ave, NW, Ste. 800
Washington, DC 20036-2102
USA
Tel: 202-232-3900 x218
Fax: 202-797-5979
Email: rwinokur@brook.edu

[on behalf of NOPP]
Dr. David L. EVANS
Assistant Administrator
Oceanic and Atmospheric Research , NOAA
1315 East West Highway
SSMC-3, R, #11602
Silver Spring, MD 20910
USA
Tel: 301-713-2458
Fax 301-713-0163
Email: david.evans@noaa.gov

Dr. Steven E. RAMBERG
Department Head
Ocean, Atmosphere, and Space Science & Technology (OAS S&T)
Office of Naval Research
800 North Quincy Street
Arlington, VA 22217-5660
USA
Tel: 703-696-4358
Email: rambers@onr.navy.mil

Dr. Mike REEVE
Head, Ocean Sciences Research Section
National Science Foundation
4201 Wilson Boulevard
Arlington, VA 22230
USA
Tel: 703-306-1582
Fax: 703-306-0390
Email: mreeve@nsf.gov

Dr. W. Stanley WILSON
National Oceanographic and Atmospheric Association (NOAA)
Office of the Chief Scientist
HCHB Room 5224
14th St. & Constitution Ave., NW
Washington, DC 20230
USA
Tel: 202-482-3385
Fax: 202-482-5231
Email: stan.wilson@noaa.gov

[on behalf of SIO]
Dr. David ROGERS
Director, JIMO (Joint Institute for Marine Observations)
Scripps Institution of Oceanography
9500 Gilman Drive
La Jolla, CA 92093-0210
USA
Tel: 858-534-6412
Fax: 858-534-8045
Email: drogers@ucsd.edu

Dr. Dean ROEMMICH
MLRG
Scripps Institution of Oceanography
9500 Gilman Drive
La Jolla, CA 92093-0230
USA
Tel: 858-534-2307
Fax: 858-534-9820/0704
Email: droemmich@ucsd.edu

Ms. Cindy CLARK
Scripps Institution of Oceanography
9500 Gilman Drive
La Jolla, CA 92093-0233
USA
Tel: 858-534-1294
Fax: 858-534-5306
Email: cclark@ucsd.edu

[on behalf of WHOI]
Dr. Robert WELLER
MS 29
Woods Hole Oceanographic Institution
Woods Hole, MA 02543
USA
Tel: 508-289-2508
Fax: 508-457-2163
Email: rweller@whoi.edu

Ms. Shelley LAUZON
Media Relations Director
WHOI
Mail Stop #16
Woods Hole, MA 02543-1050
USA
Email: slauzon@whoi.edu

[on behalf of POGO Secretariat]
Dr. Lisa SHAFFER
Director of International Relations
Scripps Institution of Oceanography
8620 Discovery Way
La Jolla, CA 92037
USA
Tel: 858-822-2489
Fax: 858-453-0167
Email: lshaffer@ucsd.edu

Ms. Wendy HUNTER
Scripps Institution of Oceanography
2301 M Street, NW, 5th Floor
Washington, DC 20037
USA
Tel: 202-466-1196
Fax: 202-466-1194
Email: whunter@ucsd.edu

Dr. Jesse AUSUBEL
Program Director
Alfred P. Sloan Foundation, Suite 2550
630 Fifth Avenue
New York, NY 10111-0242
USA
Tel: 212-649-1649
Fax: 212-757-5117
Email: ausubel@rockvax.rockefeller.edu

INTERNATIONAL ORGANIZATIONS

CLIVAR

Dr. W. John GOULD
Director
International CLIVAR Project Office
Southampton Oceanography Centre
Southampton SO14 3ZH
UK
Tel: 44.(0)2380.596777 (596208-direct)
Fax: 44.(0)2380.596204
Email: john.gould@soc.soton.ac.uk

Dr. Chet KOBLINSKY
NASA
Goddard Space Flight Center
Mailstop 971.0
Building 33 Room A205
Greenbelt, MD 20771
USA
Tel: 301-614-5697
Fax: 301-614-5644
Email: koblinsky@gsfc.nasa.gov

DEOS

Dr. John R. DELANEY
School of Oceanography
University of Washington
Seattle, WA 98195
USA
Tel: 206-543-4830
Fax: 206-543-0275
Email: jdelaney@u.washington.edu

GOOS

Dr. Worth D. NOWLIN, Jr.
Chairman of the GOOS Steering Committee
Texas A&M University
Department of Oceanography
College Station, TX 77843-3146
USA
Email: wnowlin@tamu.edu

Dr. Colin SUMMERHAYES
Director
GOOS Project Office
Intergovernmental Oceanographic Commission
of UNESCO
1, rue Miollis
75732 Paris Cedex 15
France
Tel: 331-4568-4042
Fax: 331-4568-5812
Email: c.summerhayes@unesco.org

IGOS

Dr. Eric LINDSTROM
NASA Headquarters
Physical Oceanography
Code YS
Washington DC 20546-0001
USA
Tel: 202-358-4540
Fax: 202-358-2770
Email: elindstr@mail.hq.nasa.gov

IOC

Dr. Patricio Bernal
Executive Secretary
Intergovernmental Oceanographic Commission
of UNESCO
1, rue Miollis
75732 Paris Cedex 15
France
Tel: 33-1-4568-3983
Fax: 33-1-4568-5810
Email: p.bernal@unesco.org

OOPC

Dr. Neville SMITH
Bureau of Meteorology
GPO Box 1289K
Melbourne VIC 3001
Australia
Tel: 61-3-9669 4434
Fax: 61-3-9669 4660
Email: N.Smith@bom.gov.au

SCOR

Ms. Elizabeth GROSS
Executive Director
Department of Earth and Planetary Sciences
Olin Hall, San Martin Drive
The Johns Hopkins University
Baltimore, MD 21218
USA
Tel: 410-516-4070
Fax: 410-516-4019
Email: scor@jhu.edu

ANNEX II

Proposed AGENDA
PARTNERSHIP FOR OBSERVATION OF THE GLOBAL OCEANS (POGO)
Scripps Institution of Oceanography
Hubbs Hall Conference Room
La Jolla, California, USA
December 1-3, 1999

Tuesday evening, November 30**:** Cocktail reception, welcome at the Hotel: 6:00 – 8:00 pm

Day 1: (Wednesday, December 1)

8:30 Registration, coffee
9:00 Welcome, Introductions, Logistics, (**C. Kennel**)
Overview of Meeting, Review of Agenda
9:30 The POGO Concept (**H. Roe**)
10:30 COFFEE BREAK
11:00 Report on POGO Exploratory Meeting
POGO Vision Statement
Goal and Mission Statement
Proposed Terms of Reference
Discussion of POGO Framework by all Participants
12:30 LUNCH
13:30 The Context for POGO (**R. Gagosian**)
Report from OceanObs99 Saint Raphael meeting
Implications for POGO
14:00 Reports from Other Relevant Bodies and Projects: How can POGO help?
15:30 COFFEE BREAK
16:00 [in alphabetical order]
Argo
Census of Marine Life
CLIVAR
DEOS
Globec
GODAE
GOOS
Grupo Mixto COI/OMM/CPPS (South America)
IGOS Partnership
IOC
WMO
17:30 Adjourn, Transportation back to Hotels
19:00 DINNER/RECEPTION
Birch Aquarium

Day 2: (Thursday, December 2)

9:00 Optional brief presentations by members of national initiatives and their implications for POGO
10:00 POGO Plan of Action (**K. Taira**)
10:30 COFFEE BREAK
11:00 Observing Systems
Data and Information Management
Public Understanding and Outreach
12:30 LUNCH
13:30 POGO Plan of Action (continued)
Education
Capacity Building
Other
15:30 COFFEE BREAK
16:00 Optional Walking Tour of Scripps Facilities
17:00 Adjourn [Possible Small Group working session in the evening]
18:30 DINNER FOR PARTICIPANTS

Day 3: (Friday, December 3)

9:00 The Future of POGO (**C. Kennel**)
POGO Structure and Membership
Charter & Mission Statement
Terms of Reference, Secretariat, Dues
10:30 COFFEE BREAK
11:00 Review of Action Items from Exploratory Meeting; New Action Items
12:00 Conclusions, Next meeting (if/when/where)
13:00 ADJOURN
LUNCH

ANNEX III

Terms of Reference
Partnership for Observation of the Global Oceans
(POGO)

Preamble

A group of marine research institutions met in Paris in March 1999 to discuss ways in which they could work together more effectively in support of global oceanography. The result was a proposal to establish the Partnership for Observation of the Global Oceans (POGO), whose terms of reference are provided below.

Objectives

The objective of POGO is to make a major contribution to the attainment of sustained *in situ* observations of the global ocean that meet the requirements of international research and operational programmes.

As a means of attaining this objective POGO will:

- Initiate key actions to enable effective coordination, integration, and implementation of international ocean observing strategies in close collaboration with the Global Ocean Observing System (GOOS);
- Establish collective agreements among institutions to promote timely developments in ocean science;
- Develop and promote coordinated views of ocean institutions concerning ocean observation and science to governments, international bodies, and others;
- Facilitate linkages between oceanographic research and operational institutions in relation to their goals, plans, and programmes;
- Exchange policy and technical information;
- Coordinate the education and outreach programmes of its Members;
- Encourage responsiveness to user communities;
- Promote capacity building;
- Promote sharing of facilities and infrastructure;
- Encourage interdisciplinary use of observing infrastructure.

The Partnership will actively work to inform and communicate with the broader community interested in global oceanographic observations and research.

Individual Members of POGO will use their best efforts to implement POGO recommendations in their respective programmes.

Participants

Members: Members shall be institutions or consortia which have demonstrated capability to undertake global or basin-scale *in situ* oceanographic observations and research or are capable and willing to make substantial contributions in other forms to the POGO objectives.

Where multiple institutions in the same country are eligible for membership, they are encouraged to coordinate so that there are not more than three Members per country. The addition of new Members will be with the consensus of current Members.

Members should seek to share with other POGO organizations the data and research results from their organizations, consistent with applicable policies and procedures, and to work toward the broadest possible dissemination of such data and research results.

Affiliates: Affiliated organizations may be national, international or non-governmental organizations concerned with ocean science or operational oceanography, with which it is mutually beneficial that the Partnership maintains collaborative relationships. Organizations must be invited by the Partnership to become affiliates and such affiliation will be with the consensus of the Membership.

Affiliates may participate fully in POGO meeting and other activities; however approval by Affiliates will not be required to establish consensus.

Organization and Procedures

Plenary Meetings: POGO will convene at least once every year in plenary session. Each Member and Affiliate will designate a point-of-contact for coordination between meetings. Attendance at plenary meetings of the Partnership shall be open to all Members and Affiliated Organizations. Representatives should be at the level of directors of institutions or equivalent position with authority to commit the resources of the institution.

At each meeting of POGO, the time, place, and host for at least the next two meetings will be established.

Chairman, Executive Committee, and Secretariat: The chairmen of the past, upcoming, and subsequent POGO meetings will form the Executive Committee, providing guidance to the organization between meetings. The Directors of Scripps Institution of Oceanography, Woods Hole Oceanographic Institution, and Southampton Oceanography Centre shall serve as the interim POGO Executive Committee. As POGO advances, the interim members will be replaced on the Executive Committee by the designated incoming chairmen.

The Executive Director of the Partnership for Observation of the Global Oceans (POGO) is responsible for the day-to-day management and operation of the organization, under the direction of the POGO Executive Committee. The Executive Committee shall appoint the Executive Director.

Each POGO member may designate a representative to serve on the POGO secretariat; to be involved in overseeing the activities of the organization; and to guide the work of the Executive Director of POGO between plenary meetings. The secretariat group will consult as needed, via teleconferences, email, and other means.

Funding: Initial funding for the Executive Director position will be sought from external sources. After a start-up period, expected to be approximately three years, the Members shall bear the costs of maintaining the secretariat of the Partnership (estimated at $150,000 per year total) on an equitable basis, taking into account the GNP of the home country and the budget of the institution or institutions represented.

The Executive Director will prepare and present a budget and cost-sharing plan for approval by Members. Members and Affiliates will bear their own costs for attending meetings and participating in activities of POGO. Members are invited to share the costs of other Partnership activities through voluntary contributions, which may be financial or in-kind (such as hosting meetings, organizing workshops, conducting pilot projects, financing publications, employing consultants, providing for their own costs of communications, and other such activities.) POGO members are also encouraged to pursue opportunities for securing funds from private sources on behalf of POGO, in consultation with the full POGO membership.

Working Groups: POGO may establish, as mutually agreed, working groups on a continuing basis or on an ad hoc basis, as appropriate, to investigate specific areas of interest, cooperation, and coordination and to report at subsequent plenary meetings. Representatives of each Member and Affiliate are invited to participate in any working groups. The continuation of working groups will be reviewed and approved at the annual plenary meetings. Wherever possible POGO will work through existing international mechanisms and will establish its own working groups only where either a) the topic is entirely contained within the POGO objectives and activities or b) no adequate forum presently exists.

A list of Members and Affiliates will be maintained and included as an Appendix to these Terms of Reference.

Adoption and Amendment
These Terms of Reference were drafted at the exploratory meeting of POGO in Paris in March 1999. They were reviewed and modified at the first meeting of POGO in December 1999 in La Jolla, California and adopted by correspondence in January 2000.