POGO-1 Summary Report

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 programs. 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 was reviewed. The objectives of the meeting were presented.

Goal for POGO-1 Meeting: Establish a common understanding among participants of what POGO can and should be:

* create a forum for discussion of implementation issues,
* look at the state of international, national, and regional GOOS planning and see where POGO might help,
* 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 coordination 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, noting that this would be revisited on the last day of the meeting. He pointed out that there has been much recognition recently in national governments, in the United Nations, and elsewhere, on the importance 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 observations. POGO is not meant to preclude consideration of coastal issues, as they are intimately connected to global processes. However, POGO's primary initial focus is global ocean observations. The director of CLIVAR emphasized that POGO can make a significant contribution to implementation, because its institutions have 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 a 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. Participants recognized the need to interact with the private sector early and extensively. The head 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 nongovernmental 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. For example, new European Commission policies that open their programs 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 global observation (see Action 1).

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

OceanObs99: The main outcomes from the OceanObs '99 Conference, held in Saint Raphael in November 1999, under the auspices of the GCOS/GOOS/GCOS Ocean Observing Panel for Climate, and the Upper Ocean Panel of CLIVAR, were summarized by Dr. Neville Smith. He noted that the Members of POGO would likely be involved at one level or another in most activities related to the sustained observing system. However, there were some areas where the specialist capabilities of POGO would be particularly beneficial, including:

* Argo
* Multidisciplinary fixed-point measurements
* Deep measurements (research vessels)
* Development of an Indian Ocean observing system
* Data and information networks using modern information technology

Dr. Smith suggested contributions by POGO should be selective and focused on areas where the unique capabilities of POGO are exploited. POGO institutions will play an important role in the transition of experimental systems into pilot and sustained observational arrays.

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: Dr. 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 cosponsored. 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 programs; 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 programs, such as SOLAS and IGBP were mentioned, and the possibility was mentioned that perhaps POGO could help in bringing together representatives of the different programs to improve coordination.

GODAE: The GODAE project was presented. Because of the common interest in global integrated networks, GODAE will benefit from many of the activities of POGO, such as advocacy of global sustained observations and improvements in data exchange. Dr. Smith specifically mentioned Argo, data and information systems and a project to develop high-resolution SST products.

Argo: The Argo Pilot Project is an initiative of CLIVAR and GODAE. Dr. Roemmich noted that development of such a capability was fundamental to the development of a global ocean observing system. It was an effective solution for climate research as well as for operational requirements. Many of the conclusions from OceanObs '99 are founded on the premise that a global array of profiling floats will be in place by around 2004. POGO has already helped Argo by providing funding to create an Argo website.

Roemmich suggested several ways that Argo might benefit from the formation of a POGO. While the prospects for deploying the required number of profiling floats remains good, there is increasing concern that the geographic distribution will be severely distorted. This is because each contributing country prefers to deploy floats in areas of direct national interest, which leaves some parts of the ocean severely undersampled. This is a particular concern for climate research since such gaps compromise the ability to delineate low-frequency, global scale modes. POGO could be a forum for advocacy and action for global coverage, particularly since several of the participating organizations are likely to be members.

Argo would benefit from continued advocacy by POGO for broader support including encouraging support for floats from the float-providing nations; encouraging broader international participation; and providing support for an international coordinator 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 recognized that Argo was as an essential element 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 report was requested at the exploratory meeting for POGO. Subject to scientific endorsement of the plan (effectively provided by OceanObs '99), several members saw this as an area where POGO might demonstrate its effectiveness and relevance for sustained observations.

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

POGO was asked to provide coordinated advocacy of the global network and coordination 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.

The meeting agreed that, based on the plan outlined by Send and Weller, the POGO Members should initiate actions toward implementation through their respective institutions. At the suggestion of Smith (Chair OOPC) and Koblinsky (CLIVAR UOP), these actions would be undertaken within a OOPC/UOP Pilot Project steered by a Scientific Team constituted as a sub-group of the OOPC and UOP. Because of the multidisciplinary nature of the Project, sponsorship will also be sought from SCOR.

Since the POGO Members represent a considerable part of the scientific and technical expertise in this area, it was also understood that it would be appropriate for POGO to undertake specific actions in support of the Project. Technological innovation, multidisciplinary measurements, telemetry and optimization of resources and logistics were seen as the particular opportunities for POGO.

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, Columbia, Peru, and Ecuador has been partly supported by the Global Environment Facility 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. (See Action 3.)

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 and involves a lot of bureaucracy. 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: A presentation was given on the Dynamics of Earth Ocean Systems (DEOS) program. This underwater observatory concept includes infrastructure (energy and communications) that could be used for other types of observations besides its primary geophysics 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 programs. 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 programs, once approved. (See Action 4.)

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. Prior to the meeting, background information was made available to the POGO participants. 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 where its efforts 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 now casts, 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 from a GOOS perspective:

* Assistance with overall design and coordination of GOOS elements
* Assistance with coordination of satellite system needed for GOOS
* Assistance with coordination 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 (see Attachment 15). 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 SCOR summarized SCOR's programs 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 programs. The support and encouragement of POGO institution directors for their people to participate in such programs would be strongly appreciated. (See Action 8.)

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 institutions. 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 programs 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. (See Action 5.)

Concerns about the role of POGO were also raised. 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 programs, and those by individual institutions, small groups met to develop specific action plans for POGO. Dr. Gagosian also reviewed a generic list of the types of things that directors of institutions can and cannot do, as a form of guidance for what kinds of actions POGO realistically can and cannot be expected to undertake.

What Directors Do

* Advocate and secure support
* Promote institutional relations
* Strategic planning
* Create organizational framework
* Develop human resources
* Communicate with the public
* Manage the institution

What We Can Commit

* To use our influence to secure support
* Our own discretionary funds
* Contributions "in kind"
* To work with our constituents

What Should POGO Do?

1. Focus on advocacy of global ocean observations
2. Promote communication and exchange
3. Promote public awareness
4. Promote education and capacity building

Based on this discussion, the POGO action plan development was organized into observing systems, data and information management, public awareness and outreach, education, private sector interactions, and capacity building.

Observing Systems: The group discussed national and international advocacy. Consistent

with the suggestions of the GOOS SC Chair, the group concluded it should be careful not to be seen to be setting priorities: this is the remit of various existing international groups. Rather POGO would respond to such prioritization and determine actions consistent with its collective expertise and the vision of POGO.

There was a consensus that an immediate priority for POGO is for it to be an advocate for the global ocean observing system. Of the many requirements that have already been defined, Argo and fixed-point measurements have the strongest synergy with the capabilities of POGO and have thus been assigned high priority in the identified Actions. This does not, of course, lessen the importance that POGO attaches to development of a comprehensive, global integrated global ocean observing system.

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.

Action 1: 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 mid-January.

Action 2: POGO institutions will support and participate in several observing system Pilot Projects in order to catalyze the needed research and development for successful transition to sustained elements of the observing system. These Projects are identified as high priority through international consensus and are ready for immediate implementation. They are also enabling in the sense of raising the value of the total integrated global observing system. The specific actions include:

Action 2A: Argo: POGO institutions, to the extent possible in light of available resources and other constraints, will support, participate in, and provide advocacy for, the global profiling float array, Argo. They will work toward international consensus and agreements that ensure global, sustained coverage and open data sharing including:

* Recognizing the full, globally complete, and sustained implementation of the profiling float array, Argo, is essential. POGO will help ensure the global implementation of Argo through strong and consistent advocacy.
* Provide a means to coordinate float deployments, toward the end of achieving global coverage, and making the most effective use of research vessels and supply ships in use by POGO institutions.
* Provide a focus for scientific and technical discussion of the intercalibration of floats and for discussion of possible additions to the sensor suite of the Argo floats.
* Assist in work toward quick, effective quality control methods and the provision in near-real time of float data to operational and climate users.
* Provide a focus for technical developments that reduce the cost and size of floats, increase their payload and longevity.
* Lead: SIO/Roemmich and the Argo ST, with support from POGO Executive Director

Action 2B: Time series stations: POGO institutions, to the extent possible in light of available resources and other constraints, will support and participate in the implementation of a global network of long time series stations. Actions include:

* Work with OOPC and UOP to complete the implementation plan put forward at the St Raphael OceanObs '99 meeting for a global network of multi-variate, fixed point (time series) observatories.
* Develop a position of common advocacy of this plan and work to develop the funding base to add the long time series network to the sustained observing system of GOOS and research programs such as CLIVAR.
* Provide a focus for scientific and technical discussion of the fixed point measurement approach, through the proposed Science Team.

* 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.
* Work together to ensure the data flow from the time series sites is shared with the modeling and remote sensing centers and the relevant research communities in near real time, and that it is integrated into the GOOS data stream.
* Lead: Bob Weller, Uwe Send, with support from the POGO Executive Director.

Action 3: The POGO Executive Director 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. The goal is to have templates developed and vetted by June 2000, and initial content by October 2000. The Executive Director will report to the next POGO meeting on the progress of this project. Lead: POGO Interim Executive Director (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. A report should be given at the POGO-2 meeting. 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 institutions 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 will 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 recognized that it was important to have a media and outreach group comprising the communications experts within each POGO institution. They will form a network to cooperate 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 media and outreach strategy to explain what POGO is, and to promote the objectives of the group. The media and outreach group will also provide the technical infrastructure (such as an internal website).

Action 6: Create global oceans communications group. Each institution is invited to designate a point of contact to participate in this group. Email your contacts to Don Michel by January 15. Lead: CSIRO/Don Michel.

Action 7: Develop media and outreach strategy for ocean observations and report on it at the next POGO meeting. Lead: Bray/Gagosian to coordinate with the media and outreach group.

The Media and Outreach 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 programs; 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. 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 as well as the supply side.

Action 8: Education and capacity building: POGO will work with IOC and SCOR to develop a plan and seek resources to promote educational exchanges among institutions and capacity building and report at the next meeting. 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. 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 on the Draft Terms of Reference (attachment 4) by January 30 to Dr. Shaffer. Lead: Interim Executive Director (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 Director who 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 Director functions and the secretariat process can be re-examined.

Action 10: A brief job description for a POGO Executive Director 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 Director may be hired. Lead: Interim Executive Director (SIO/Shaffer)

Action 11: Each POGO participant to designate a point of contact for the Secretariat and send the name to Wendy Hunter by January 15.

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: SIO 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 Sao Paulo offered to host the next POGO meeting at his institution in November 2000. This was gratefully accepted. Dr. Weber subsequently provided the following alternatives for the next meeting dates:

Action 13: Participants to indicate any serious schedule conflicts and their preferences for the POGO-2 meeting dates to Wendy Hunter by January 15. The final date will be determined and participants will be informed by January 30.

With thanks to the organizers, presenters, and other participants, the meeting was adjourned.

Acronym List

Argo - Array for Real-time Geostrofic Oceanography

CEOs - Committee on Earth Observation Satellites

CLIVAR - Climate Variability and Prediction Research Programme

DEOS - Dynamics of Earth Ocean Systems program

EEZ - Exclusive Economic Zone

GCOS - Global Climate Observing System

GEF - Global Environment Facility

GODAE - Global Ocean Data Assimilation Experiment

GOOS - Global Ocean Observing System

GTS - Global Telecommunications System

IGBP - International Geosphere-Biosphere Programme

IGOS - Integrated Global Observing Strategy

IOC - Intergovernmental Oceanographic Commission

JCOMM - Joint Technical Commission on Oceanography & Marine Meteorology (WMO/IOC)

NGO - Nongovernmental Organization

OOPC - Ocean Observing Panel for Climate

POGO - Partnership for Observation of the Global Oceans

SC - Steering Committee

SCOR - Scientific Committee on Oceanic Research

SOLAS - International Convention for the Safety of Life at Sea

SST - Sea Surface Temperature

ST - Science Team

UOP - Upper Ocean Panel (CLIVAR)

Attachment List

1: Attendance List

2: Agenda

3: POGO Concept Diagram

4: Terms of Reference

5: Report from OceanObs99 Saint Raphael Meeting &emdash;Smith & Koblinsky

Reports from Relevant Bodies and Projects: How can POGO help?

6: CLIVAR -- Gould

7: GODAE -- Smith

8: Argo -- Roemmich

9: GEO (time-series observatories) &emdash; Send and Weller

10: Grupo Mixto COI/OMM/CPPS (South America) &emdash; Bernal and Rogers

11: Census of Marine Life -- Ausubel

12: DEOS -- Delaney

13: IGOS Partnership -- Lindstrom

14: GOOS/IOC/JCOMM Presentation -- Nowlin

15: EuroGOOS -- Johannessen

Presentations by members of national initiatives and their implications for POGO

16: SCOR -- Gross

17: China/SIO -- Zhao

18: India/NIO -- Zingde

19: Japan/ORI -- Taira

20: Germany/Kiel -- Send (Institutional presentation only)

21: Australia/CSIRO -- Bray

22: Japan/JAMSTEC -- Hotta

23: France/Ifremer -- David

24: UK/Met-O -- Cattle

25: Norway/Nansen -- Johannessen

26: US/CORE -- Winokur

27: UK/SOC -- Guymer