
Global

Ocean

Observing

System



Intergovernmental Oceanographic Commission
Reports of Meeting of Experts and Equivalent Bodies

I-GOOS ad hoc Group of Experts Meetings on GOOS-UNCLOS

2 - 3 October 2001

Paris, France

26 October 2001

London, UK

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IOC-WMO-UNEP/GE-GOOS-UNCLOS/3

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TABLE OF CONTENTS

SUMMARY	page
1. ORGANIZATION OF THE MEETING	1
2. UNCLOS AND GOOS	1
3. THE DEVELOPMENT OF AGREEMENTS.....	2
4. THE WAY FORWARD	3
5. GOOS ECONOMICS AND INDUSTRY LINKS	4
6. LONDON MEETING	5

ANNEXES

- I. RATIONALE for the I-GOOS ad hoc GROUP OF EXPERTS on GOOS-UNCLOS
- II. AGENDA, PARTICIPANTS, AND BACKGROUND DOCUMENTS FOR OCTOBER MEETINGS
- III. LIST OF ACRONYMS

1. ORGANIZATION OF THE MEETING

The Intergovernmental Committee for the Global Ocean Observing System (I-GOOS) is concerned that the requirements of the United Nations Convention on the Law of the Sea (UNCLOS) for permission separately for each observation in Exclusive Economic Zones (EEZs) could impede progress in the development of GOOS. For instance it will be difficult to fully implement the Global Ocean Observing System (GOOS) without unrestricted observations (and data exchange). At its fifth session (Paris, 28-30 June 2001), I-GOOS therefore encouraged the participant countries to address the legal framework for observations in the EEZ and exchange of data, and agreed that experts were needed to advise the Chair on the implications of the UNCLOS for GOOS. Annex I gives the rationale for the creation of an I-GOOS *ad hoc* Group of Experts on GOOS-UNCLOS to meet this need. The *ad hoc* advisory Group of Experts, selected by the I-GOOS Chair to meet specific requirements, met on 2-3 October 2001, in Paris, with follow-up discussions in London on October 26th. The Agenda for the Paris meeting, the list of participants, and the background documents, are given in Annex II, along with the names of the participants in the London meeting.

The deliberations of this *ad hoc* group of experts are intended to be complementary to the considerations of the implications of UNCLOS for the work of the Intergovernmental Oceanographic Commission (IOC) by the IOC's Advisory Body of Experts on the Law of the Sea (ABE-LOS), and will be carried forward in full consultation with that group, through its Chairman and Technical Secretary.

2. UNCLOS AND GOOS

Under Article 56 of UNCLOS all activities within the EEZ (excluding specific activities like navigation and over-flight, and the laying of submarine cables and pipelines) require permission, which could be taken to mean that permission is required for both operational oceanography and scientific research activities. Currently operational activities, like the voluntary observing ships (VOS) run by the World Meteorological Organization (WMO) are treated as outside this provision; however, this tacit acceptance may in fact have no legal standing. Although there has been no legal challenge concerning ocean observations in the 20 years since UNCLOS was negotiated, in the long run it would be better to have a legal instrument that covers operational activities in such a way as to respond to the requirements of present and future programmes of IOC and WMO.

UNCLOS also includes functional rights, such as the conservation of marine mammals, which are not tied to boundaries. These rights are likely to grow; leading to the likelihood that UNCLOS may be re-negotiated over the next 20 years. However, many Member States would prefer not to see the Convention re-negotiated.

Measurements for operational oceanography are not mentioned in the provisions of UNCLOS. Many of the measurements currently being made during the current preparatory phase of GOOS are in fact funded through research budgets – they are in effect quasi-operational activities, performed mainly for scientific research, but having practical applications. The Argo profiling float project is a good example.

GOOS will not be a fully operational system before 2020. In the meantime much of what is being carried out under GOOS is pre-operational research, like the Global Ocean Data Assimilation Experiment, GODAE, of which the Argo project is an integral part. Thus it would appear more appropriate to consider the Argo project under the provisions of Article 247. It is different from the WMO's VOS programme, which is fully operational. It appears therefore that the opportunities offered by Article 247 should be fully and actively explored by IOC in consultation with WMO.

In future the potentialities of Article 247 should be widely used in the implementation of international projects under the banners of IOC and other appropriate organizations such as WMO. Once Member States approve a project (such as GOOS) in the framework of a competent organization like IOC and WMO, and following agreed specifications, in accordance with Article 247, consent is implied for

operations by one State within these EEZ of another State provided that no disagreement is voiced within 4 months; this is the simplified procedure for an international organization intending to carry out marine scientific research in the EEZ of its Member States. If a coastal State is not a member of, or does not have a bilateral agreement with, the international organization (IOC or WMO), then consent is implied (under Article 252) if there is no objection after 6 months. It needs to be borne in mind that some countries have a difficulty with the automatic consent regime. The sensible way forward is to try to clarify the procedures for the use and application of Article 247. In this context, ABE-LOS is working to provide a road map for IOC to use to get its programmes accepted under Article 247.

3. THE DEVELOPMENT OF AGREEMENTS

In dealing with these matters it may be useful to consider the development of regional agreements, instruments or protocols encouraging the acceptance of GOOS activities, and that can be applied under Article 247 or other specific arrangements aiming at facilitating marine scientific research. Such agreements might be addressed at two levels: (i) a broad Memorandum of Understanding regarding the importance of widespread data collection and exchange for the achievement of a better knowledge of the oceans and for the achievement of the objectives of GOOS, in the common interest, supported by (ii) detailed protocols specifying specific projects, most of which would be likely to be regional.

In designing such instruments it might be useful to identify and document the existing instruments that already exist outside UNCLOS and that call for 'best scientific findings' to be used by States in the management of marine living resources in specific ocean areas. Examples include the Convention on the Conservation of Antarctic Living Marine Resources (CCAMLR); the Agreement for the implementation of the provisions of UNCLOS relating to the conservation and management of straddling fish and highly migratory fish stocks; the various Conventions and Action Plans of UNEP's Regional Seas Programme; and the agreements underpinning the work of the Helsinki Commission (HELCOM) in the Baltic and the Oslo-Paris (OSPAR) Commission in the northeast Atlantic. These instruments should be examined to exemplify how the 'best scientific findings' are dependent on the quality and availability of required data, including the relevant oceanographic and environmental data. The information may prove helpful in inspiring future instruments or agreements targeted on regional activities.

Action 1: GPO to provide a listing of the existing instruments that already exist outside UNCLOS and that call for 'best scientific findings' to be used by States in the management of ocean areas, and to determine what States have already agreed to in the sense of 'best scientific findings'.

Acceptance of new regional agreements or instruments might be most readily achieved if they were linked to the acquisition of privileges by the cooperating States, for instance through fast track access to initial data and products, plus training to build the capacity of those States to utilize the data and information to support sustainable development and the management of ocean areas. This will help all countries use GOOS and its outputs.

In devising such agreements it might be appropriate to specify in broad terms: (i) the kinds of platforms envisaged for making observations, like drifting buoys (surface and sub-surface), moored buoys, ships, and roving autonomous underwater vehicles (AUVs), like AUTOSUB; and (ii) the kinds of sensors likely to be used, such as acoustic sensors (e.g. Acoustic Doppler Current Profiler, or ADCP), optical sensors (e.g. LIDAR), radio-frequency sensors (e.g. RADAR), and those that make contact with the water or the air. Such agreements would need to cover in addition the concept of re-deployable platforms (like AUVs) whose activity is triggered by some event, such as the change of an ocean current, or the arrival of a storm. The protocols would also have to indicate what measurements will be made, what data and products will be generated by the activity, what benefit they would bring, and to whom they should be distributed. IOC could provide a clearing-house mechanism for disseminating information about activities undertaken under any regional agreement on ocean activities and information exchange. IOC could also be used as a clearing-house through which to discuss and negotiate agreements on

regional activities or exchanges. Any protocol should be consistent with IOC's data policy (yet to be finalized).

In accordance with IOC Assembly Resolution XIX-19, which establishes the ABE-LOS terms of reference, and Resolution XXI-2 on IOC and UNCLOS, ABE-LOS is setting up two sub-groups to consider the establishment of an IOC internal procedure for the appropriate use of Article 247 on the one hand, and to redraft the IOC Draft Principles on the Transfer of Marine Technology on the other hand. These Sub-groups should discuss the question of what data are required from EEZs by different projects, including GOOS.

The message that the successful functioning of a GOOS for the general benefit of humankind, as called for by UNCED's Agenda 21, would benefit from generally accepted rules and procedures on the collection and exchange of data from the EEZ, and that these may need to be made under Article 247, and submitted in a generic way in the deliberations of the Third Session of the UN Open-Ended Informal Consultative Process, New York, April 2002), and in the deliberations of the World Summit on Sustainable Development (WSSD, Johannesburg, September 2002).

Action 2: I-GOOS Board, GPO and UNCLOS Expert Group to work on a possible modification to the IOC document prepared for the WSSD, regarding the need for Member States to work together through Article 247 or by other means to enable the collection and exchange of data from EEZs by third parties in the context of the GOOS project. This modification to be drafted by end October latest, so as to be translated for approval by the Extraordinary Session of the IOC Executive Council (December 10-11, 2001).

To get agreement on observations in the EEZ, a three-pronged approach is recommended in the context of GOOS components and projects:

- (i) to develop a set of scenarios under which observations would be made by country A in the EEZ of country B;
- (ii) to develop one or more demonstrator projects in a test area (at particular locations in which several adjacent countries have an interest: e.g., the Mediterranean or Caribbean);
- (iii) to construct a 'simulation deal' of the type in which country A makes observations in the EEZ of country B, in exchange for which country B gets products tailored to meet its needs, plus training and capacity building to enable it to use the products. This is generically similar to the current functioning of the World Weather Watch of WMO.

In taking this approach, it should be emphasized that while some current GOOS subsystems are fully operational, like the WMO's Voluntary Observing Ship programme, and the Tropical Atmosphere Ocean (TAO) array of buoys in the equatorial Pacific), others are not, like the Pilot Research Array (of buoys) in the Tropical Atlantic (PIRATA), the Global Ocean Data Assimilation Experiment (GODAE) and its associated activities including the Argo float programme, even though the data from these research activities feeds through in real time to operational centres. For the next decade GOOS observations will to a large extent follow this parallel track, being pre-operational activities undertaken for scientific research and development motivated by the ultimate goal of operational implementation, and at the same time in many instances underpinning or enhancing operational products.

4. THE WAY FORWARD

To take this initiative forward:

- (i) an expert should be engaged to prepare a list of observing scenarios for GOOS, expressed in generic terms covering:

1. platforms;
2. observing-tools;
3. observations;
4. data and products; and
5. benefits.

Scenarios for the future might take into consideration (a) the vision of instrumenting the surface of the planet; (b) recognition that in order to provide the observations needed by GOOS a massive increase in data gathering is required, which will come about through such means as a proliferation of drifters and extensive deployment of AUVs (like AUTOSUB). AUV's should be considered not only as mobile data gathering systems, but also as re-activatable from a 'rest' position at times when observations are needed (purposeful conditional sampling). Here the scenario could be that an operational centre provides a forecast and identifies where lack of observations degrades the skill of the forecast, whereupon an appropriately located 'drifting' AUV is activated by satellite and deployed to collect the missing data;

- (ii) The next step is to have an expert on International Law of the Sea to examine our GOOS requirements document [4 (i), above] to see whether it is possible to frame a draft legal instrument that would permit those GOOS observations to be made as part of an IOC-WMO sponsored scientific project, carried out under UNCLOS Article 247. If such a procedure seems feasible in principle, it could then be tried out in limited areas, such as the Mediterranean, to see how it works out in practice. This item would need further discussion with ABE-LOS, which has a sub-group dealing with this issue.
- (iv) the scenarios from 4 (i), and possibly the draft instrument to facilitate implementation of GOOS projects [from 4 (ii)] could be prepared for consideration by the I-GOOS Regional Forum in autumn 2002, for subsequent endorsement by the sixth session of I-GOOS in March 2003, and by the IOC Assembly in July 2003. If a legal instrument were prepared it would require agreement and then signature by the individual Member States.

Action 3: I-GOOS *ad hoc* Group of Experts on GOOS-UNCLOS, with assistance of GPO to arrange preparation of a list of observing scenarios, and in consultation with ABE-LOS to consider the possibility of developing an initial draft of an instrument/agreement on implementing the collection and exchange of data under the umbrella of GOOS, for presentation to the first I-GOOS Regional Forum (September 2002).

While the development of regional agreements, instruments or protocols encouraging the acceptance of GOOS activities may work for most Member States engaged in I-GOOS, it might not work for all, especially given that for the moment the majority of GOOS regional components are not intergovernmental.

5. GOOS ECONOMICS AND INDUSTRY LINKS

Industry is being required to comply with increasingly tough environmental standards, and will require environmental observations to establish its compliance. It is also increasingly evident to industry that environmental observations can be used to improve efficiency, cut costs, and so improve profits. For both reasons, industry may be persuaded to become an ally in persuading governments not to use the provisions of UNCLOS in such a way that they are a stumbling block to the development of GOOS.

Industry input is needed for the GOOS design, but public sector money is needed to build a GOOS that industry will benefit from. Industry has to be persuaded to call for this investment.

The IOC is working with Science Applications International to analyse the relation of marine environmental data streams (from GOOS) to different parts of the value chain (e.g. upstream production, downstream processing, marketing, sales, storage and distribution) of different major industrial sectors

(e.g. energy, water, agriculture, communications, finance, tourism), so as to gain support for GOOS from this community.

In order to sensitise governments and industry to the value of GOOS, a comprehensive update is needed of previous estimates of the actual costs of ocean observations (*in situ* and from space), as well as the cost of personnel involved in these activities. Such an analysis should indicate where new money has been added to the system to enable its growth.

Action 4: GPO to update estimates (from John Woods) of the costs of ocean observations.

6. LONDON MEETING

The I-GOOS Chair met with Peter Ryder, John Woods and Ralph Rayner (member of the GOOS Steering Committee) in London on October 26th, 2001, to discuss further developments, including the possibility that a contract may be developed to take forward the development of a statement on GOOS observing scenarios called for in 4 (i) above.

The group discussed the nature of privileges for coastal States in exchange for observation in the EEZ, and the provision of marine data. Specifically the group discussed the need to value the participation of developing countries in the implementation of the GOOS, taking into account the economics of unrestricted access to marine information and observations.

The view of the commercial sector on exchange of marine information was presented and compared with the view of public research and operational agencies. The group discussed the possibility of joining forces with the commercial sector in preparing a document to provide I-GOOS with a review of:

- (i) technologies available for observations (to include satellite and aircraft-borne systems, coastal radars, ship borne systems, LIDAR, fixed platforms, surface and sub-surface drifters, and AUVs), including the possibilities of adaptive sampling;
- (ii) options for management and communication of data, to be conducted under the auspices of the IOC;
- (iii) the need for and possibility of capacity building;
- (iv) descriptions of scenarios emphasising the key points based primarily, but not exclusively, on the Mediterranean region (taking advantage of the development of the EC funded project MAMA - Mediterranean network to Assess and upgrade the Monitoring and forecasting Activity in the region), and possibly on the Caribbean.

It was agreed that Peter Ryder would present a proposal for drafting a paper to be submitted to the I-GOOS Board meeting in June 2002. The final version will be delivered for the GOOS Regional Forum in September 2002.

ANNEX I

RATIONALE for the I-GOOS ad hoc GROUP OF EXPERTS on GOOS-UNCLOS

The Intergovernmental Committee for the Global Ocean Observing System (I-GOOS) is concerned that the requirements of the United Nations Convention on the Law of the Sea (UNCLOS) for permission to make observations in Exclusive Economic Zones (EEZs) could impede progress in the development of GOOS. For instance it will be difficult to fully implement the Global Ocean Observing System (GOOS) without freedom of observations (and data exchange). At its fifth session (Paris, 28-30 June 2001), I-GOOS therefore encouraged the participant countries to address the legal framework for observations in the EEZ and exchange of data, and agreed that experts were needed to advise the chair on the implications of the UNCLOS for GOOS. An I-GOOS *ad hoc* Group of Experts on GOOS-UNCLOS has been created to meet this need.

At the time the *ad hoc* group was created, one possible ultimate goal was considered to be a protocol to UNCLOS to ensure the freedom to make and exchange observations. Another was the creation of the machinery to handle such exchange, for example by using I-GOOS as an appropriate discussion/agreement forum. Under such a protocol, States would be encouraged to permit unrestricted operations of GOOS observing systems in their EEZs, and to allow data from these observing systems to be forwarded with no delay to the GOOS Operational Data System. In return signatories would be provided with unrestricted access to the GOOS Operational Data System in real time; assisted in establishing and managing local GOOS operational now-cast and forecast systems; and provided at no cost with primary data and information (now-casts and forecasts). The advice from the group of experts would be assimilated and considered by I-GOOS, in consultation with the IOC's Advisory Body of Experts on the Law of the Sea (ABE-LOS), before reformulation in a manner acceptable for higher levels within IOC (Assembly), UNESCO (General Conference), WMO (Congress), and, eventually, the United Nations General Assembly.

ANNEX II

**AGENDA, PARTICIPANTS, AND BACKGROUND DOCUMENTS
FOR OCTOBER MEETINGS**

1. AGENDA

- (i) rationale ;
- (ii) action plan ;
- (iii) expected output (a working document for I-GOOS Board meeting, March 2002).

2. PARTICIPANTS

Participants

Patricio Bernal (IOC Executive Secretary)
Dienaba Beye (IOC Secretariat/ABE-LOS Technical Secretary)
Peter Dexter (WMO Secretariat)
Mario Ruivo (Portugal)
Colin Summerhayes (GOOS Project Office) (IOC Secretariat)
Silvana Vallergera (Italy) (Chair I-GOOS)
John Woods (UK)

Unable to Attend

Elie Jarmache (France) (ABE-LOS Chair)
Peter Ryder (UK)

3. BACKGROUND DOCUMENTS

- (i) Cook, P.J., and Carelton, C.M., (eds.), 2000, Continental Shelf Limits; the Scientific and Legal Interface. Oxford Univ. press, 363 pp.
- (ii) WMO Papers on UNCLOS.
- (iii) Report of 1st Meeting of the IOC Advisory Body of Experts on the Law of the Sea (ABE-LOS-I) (draft), 11-13 June 2001.
- (iv) Roach, J.A., 2001, Access to Clearance for Marine Scientific research in the Exclusive Economic Zone and on the Continental Shelf. IOC/ABE-LOS-I/11.

4. PARTICIPANTS IN LONDON MEETING

Silvana Vallergera (Chair I-GOOS)
John Woods (UK)
Peter Ryder (UK)
Ralph Rayner (UK)

ANNEX III

LIST OF ACRONYMS

ABE-LOS	Advisory Body of Experts on the Law of the Sea
ADCP	Acoustic Doppler Current Profiler
Argo	Global Array of Profiling Floats (not an acronym)
AUVs	Autonomous Underwater Vehicles
CCAMLR	Convention on the Conservation of Antarctic Living Marine Resources
EC	European Community
EEZ	Exclusive Economic Zones
GODAE	Global Ocean Data Assimilation Experiment
GOOS	Global Ocean Observing System
GPO	GOOS Project Office
HELCOM	Baltic Marine Environment Protection Commission (Helsinki Commission)
I-GOOS	Intergovernmental Committee for GOOS
IOC	Intergovernmental Oceanographic Commission (UNESCO)
LIDAR	Optical sensors Light Detection and Ranging
MAMA	Mediterranean Network to Assess and Upgrade the Monitoring and Forecasting Activity in the Region
OSPAR	Commission established by Article 10.1 of the Convention for the Protection of the Marine Environment of the North-east Atlantic (1992)
PIRATA	Pilot Research Array (array of buoys) in the Tropical Atlantic
RADAR	Radio-frequency Detection and Ranging
TAO	Tropical Atmosphere Ocean (array of buoys)
UNCED	United Nations Conference on Environment and Development
UNCLOS	United Nations Convention on the Law of the Sea
UNEP	United Nations Environment Programme
VOS	Voluntary Observing Ships
WMO	World Meteorological Organization
WSSD	World Summit on Sustainable Development