

Intergovernmental Oceanographic Commission
Reports of Meetings of Experts and Equivalent Bodies



**Strategy Sub-Committee (SSC)
of the IOC-WMO-IJNEP
Intergovernmental Committee
for the Global Ocean Observing
System (I-GOOS)**

Second Session

Paris, 25-27 March 1996

In this Series, entitled

Reports of Meetings of Experts and Equivalent Bodies, which was initiated in 1984 and which is published in English only, unless otherwise specified, the reports of the following meetings have already been issued:

1. Third Meeting of the Central Editorial Board for the Geological/Geophysical Atlases of the Atlantic and Pacific Oceans
2. Fourth Meeting of the Central Editorial Board for the Geological/Geophysical Atlases of the Atlantic and Pacific Oceans
3. Fourth Session of the Joint IOC-WMO-CPPS Working Group on the Investigations of 'El Niño' (*Also printed in Spanish*)
4. First Session of the IOC-FAO Guiding Group of Experts on the Programme of Ocean Science in Relation to living Resources
5. First Session of the IOC-UN(OETB) Guiding Group of Experts on the Programme of Ocean Science in Relation to Non-Living Resources
6. First Session of the Editorial Board for the International Bathymetric Chart of the Mediterranean and Overlay Sheets
7. First Session of the Joint CCOP(SOPAC)-IOC Working Group on South Pacific Tectonics and Resources
6. First Session of the IODE Group of Experts on Marine Information Management
9. Tenth Session of the Joint CCOP-IOC Working Group on Post-IDOE Studies in East Asian Tectonics and Resources
10. Sixth Session of the IOC-UNEP Group of Experts on Methods, Standards and Intercalibration
11. First Session of the IOC Consultative Group on Ocean Mapping (*Also printed in French and Spanish*)
12. Joint IOC-WMO Meeting for Implementation of IGOSS XBT Ships-of-Opportunity programmes
13. Second Session of the Joint CCOP/SOPAC-IOC Working Group on South Pacific Tectonics and Resources
14. Third Session of the Group of Experts on Format Development
15. Eleventh Session of the Joint CCOP-IOC Working Group on Post-IDOE Studies of South-East Asian Tectonics and Resources
16. Second Session of the IOC Editorial Board for the International Bathymetric Chart of the Mediterranean and Overlay Sheets
17. Seventh Session of the IOC-UNEP Group of Experts on Methods, Standards and Intercalibration
16. Second Session of the IOC Group of Experts on Effects of Pollutants
19. Primera Reunión del Comité Editorial de la COI para la Carta Batimétrica Internacional del Mar Caribe y Parte del Océano Pacífico frente a Centroamérica (*Spanish only*)
20. Third Session of the Joint CCOP/SOPAC-IOC Working Group on South Pacific Tectonics and Resources
21. Twelfth Session of the Joint CCOP-IOC Working Group on Post-IDOE Studies of South-East Asian Tectonics and Resources
22. Second Session of the IODE Group of Experts on Marine Information Management
23. First Session of the IOC Group of Experts on Marine Geology and Geophysics in the Western Pacific
24. Second Session of the IOC-UN(OETB) Guiding Group of Experts on the Programme of Ocean Science in Relation to Non-Living Resources (*Also printed in French and Spanish*)
25. Third Session of the IOC Group of Experts on Effects of Pollutants
26. Eighth Session of the IOC-UNEP Group of Experts on Methods, Standards and Intercalibration
27. Eleventh Session of the Joint IOC-IHO Guiding Committee for the General Bathymetric Chart of the Oceans (*Also printed in French*)
28. Second Session of the IOC-FAO Guiding Group of Experts on the Programme of Ocean Science in Relation to Living Resources
29. First Session of the IOC-IAEA-UNEP Group of Experts on Standards and Reference Materials
30. First Session of the IOC-IBRIB Group of Experts on Recruitment in Tropical Coastal Demersal Communities (*Also printed in Spanish*)
31. Second IOC-WMO Meeting for Implementation of IGOSS XBT Ship-of-Opportunity programmes
32. Thirteenth Session of the Joint CCOP-IOC Working Group on Post-IDOE Studies of East Asia Tectonics and Resources
33. Second Session of the IOC Task Team on the Global Sea-Level Observing System
34. Third Session of the IOC Editorial Board for the International Bathymetric Chart of the Mediterranean and Overlay Sheets
35. Fourth Session of the IOC-UNEP-IMO Group of Experts on Effects of Pollutants
36. First Consultative Meeting on RNOECs and Climate Data Services
37. Second Joint IOC-WMO Meeting of Experts on IGOSS-IODE Data Flow
36. Fourth Session of the Joint CCOP/SOPAC-IOC Working Group on South Pacific Tectonics and Resources
39. Fourth Session of the IODE Group of Experts on Technical Aspects of Data Exchange
40. Fourteenth Session of the Joint CCOP-IOC Working Group on Post-IDOE Studies of East Asian Tectonics and Resources
41. Third Session of the IOC Consultative Group on Ocean Mapping
42. Sixth Session of the Joint IOC-WMO-CPPS Working Group on the Investigations of 'El Niño' (*Also printed in Spanish*)
43. First Session of the IOC Editorial Board for the International Bathymetric Chart of the Western Indian Ocean
44. Third Session of the IOC-UN(OALOS) Guiding Group of Experts on the Programme of Ocean Science in Relation to Non-Living Resources
45. Ninth Session of the IOC-UNEP Group of Experts on Methods, Standards and Intercalibration
46. Second Session of the IOC Editorial Board for the International Bathymetric Chart of the Caribbean Sea and the Gulf of Mexico
47. First Session of the IOC Editorial Board for the International Bathymetric Chart of the Western Indian Ocean
48. Twelfth Session of the Joint IOC-IHO Guiding Committee for the General Bathymetric Chart of the Oceans
49. Fifteenth Session of the Joint CCOP-IOC Working Group on Post-IDOE Studies of East Asian Tectonics and Resources
60. Third Joint IOC-WMO Meeting for Implementation of IGOSS XBT Ship-of-Opportunity programmes
51. First Session of the IOC Group of Experts on the Global Sea-Level Observing System
52. Fourth Session of the IOC Editorial Board for the International Bathymetric Chart of the Mediterranean
53. First Session of the IOC Editorial Board for the International Chart of the Central Eastern Atlantic (*Also printed in French*)
54. Third Session of the IOC Editorial Board for the International Bathymetric Chart of the Caribbean Sea and the Gulf of Mexico (*Also printed in Spanish*)
55. Fifth Session of the IOC-UNEP-IMO Group of Experts on Effects of Pollutants
56. Second Session of the IOC Editorial Board for the International Bathymetric Chart of the Western Indian Ocean
57. First Meeting of the IOC *ad hoc* Group of Experts on Ocean Mapping in the WESTPAC Area
58. Fourth Session of the IOC Consultative Group on Ocean Mapping
59. Second Session of the IOC-WMO/IGOSS Group of Experts on Operations and Technical Applications
60. Second Session of the IOC Group of Experts on the Global Sea-Level Observing System
61. UNEP-IOC-WMO Meeting of Experts on Long-Term Global Monitoring System of Coastal and Near-Shore Phenomena Related to Climate Change
62. Third Session of the IOC-FAO Group of Experts on the Programme of Ocean Science in Relation to Living Resources
63. Second Session of the IOC-IAEA-UNEP Group of Experts on Standards and Reference Materials
64. Joint Meeting of the Group of Experts on Pollutants and the Group of Experts on Methods, Standards and Intercalibration
65. First Meeting of the Working Group on Oceanographic Co-operation in the ROPME Sea Area
66. Fifth Session of the Editorial Board for the International Bathymetric and its Geological/Geophysical Series
67. Thirteenth Session of the IOC-IHO Joint Guiding Committee for the General Bathymetric Chart of the Oceans (*Also printed in French*)
68. International Meeting of Scientific and Technical Experts on Climate Change and Oceans
69. UNEP-IOC-WMO-IUCN Meeting of Experts on a Long-Term Global Monitoring System
70. Fourth Joint IOC-WMO Meeting for Implementation of IGOSS XBT Ship-of-Opportunity programmes
71. ROPME-IOC Meeting of the Steering Committee on Oceanographic Co-operation in the ROPME Sea Area
72. Seventh Session of the Joint IOC-WMO-CPPS Working Group on the Investigations of 'El Niño' (*Spanish only*)
73. Fourth Session of the IOC Editorial Board for the International Bathymetric Chart of the Caribbean Sea and the Gulf of Mexico (*Also printed in Spanish*)
74. UNEP-IOC-ASPEI Global Task Team on the Implications of Climate Change on Coral Reefs
75. Third Session of the IODE Group of Experts on Marine Information Management
76. Fifth Session of the IODE Group of Experts on Technical Aspects of Data Exchange
77. ROPME-IOC Meeting of the Steering Committee for the Integrated Project Plan for the Coastal and Marine Environment of the ROPME Sea Area
78. Third Session of the IOC Group of Experts on the Global Sea-level Observing System
79. Third Session of the IOC-IAEA-UNEP Group of Experts on Standards and Reference Materials
80. Fourteenth Session of the Joint IOC-IHO Guiding Committee for the General Bathymetric Chart of the Oceans
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I-GOOS/SSC-II/3
Paris, 26 April 1996
English only

The report of the First Session of the Strategy Subcommittee of the Intergovernmental Committee for the Global Ocean Observing system (Geneva, 27-30 March 1995) has been published by the World Meteorological Organization.

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1. ORGANIZATION OF THE SESSION

1.1 OPENING OF THE SESSION

1 The Second Session of the Strategy Sub-committee (S SC) of the Intergovernmental Committee for the Global Ocean Observing System (I-GOOS) was called to order by the chairman of I-GOOS, also chairman of the Sub-committee, at 10.00, on Monday 25 March 1996, at UNESCO headquarters in Paris. The chairman welcomed the participants and requested them to introduce themselves.

2 A list of participants in the session is given in Annex V.

1.2 ADOPTION OF THE AGENDA

3 The agenda as adopted by the session is given in Annex I.

1.3 WORKING ARRANGEMENTS

4 Under this agenda item, the session decided on its working hours and other working arrangements necessary for the conduct of the session, The Secretariats introduced the documentation.

2. REVIEW OF DEVELOPMENTS OF INTEREST TO GOOS SINCE SSC-I

5 Under this agenda item, the Sub-committee decided to review only those developments that might impinge upon its work at the present session. Discussions raised by this review relate to GOOS strategy. Their conclusions are included within agenda item 7, whereas their immediate outcome is given at the end of the present item.

2.1 SECOND SESSION OF THE JOINT IOC-WMO-ICSU SCIENTIFIC AND TECHNICAL COMMITTEE FOR GOOS (J-GOOS-II) (Paris, 24-26 April 1995)

6 The Sub-committee was presented with the review of the status of planning of the five GOOS modules made by J-GOOS-II. It noted that more detailed briefing would have been possible if the chairman of J-GOOS was present.

2.2 SECOND SESSION OF THE INTERGOVERNMENTAL COMMITTEE FOR GOOS (I-GOOS-II) (Paris, 6-9 June 1995)

The chairman highlighted two outputs of I-GOOS-II:

The GOOS initial Priorities Agreement meeting

8 This meeting, implying the recognition of GOOS necessity and intended to convene heads of national agencies together, was proposed to seek agreement on initial implementation priorities, representing an actual starting of GOOS. It was initially planned to be held just prior to I-GOOS-PS-II in Washington DC, by mid-May 1996, and was eventually postponed upon a recommendation by the *ad hoc* Working Group in charge of its preparation, on the grounds that (i) the Coastal module was not yet clearly defined, whereas it was of interest to many, and (ii) it needed a lot of previous discussions/negotiations which take time. The meeting was presently planned to be held sometime during the first half of 1997. The final dates will be agreed upon at I-GOOS-PS-II.

The capacity building question

9 As foreseen at, and prepared by, I-GOOS-PS-I (Melbourne, April 1994), I-GOOS-II decided to take action on this difficult issue. The sub-committee noted that the way of actually tackling the question was

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unclear due to the state of development of GOOS plans and that more thoughts should be devoted to it [see agenda item 7]. It nevertheless concurred with the basic approach suggested by Dr. Jan Stel: capacity building needs to be carefully planned and depends largely On existing marine capabilities in the countries concerned. Different “levels” of capacity building activities can be envisaged:

- (i) the level of individual scientists (training, appropriate qualifications, external contacts, motivation, salary etc);
- (ii) the level of institutions (development of qualified management, networks of contacts, access to information, training programmes of scientific and supporting staff, equipment, transfer of results to decision-makers, industry and the public at large etc.);
- (iii) the level of countries (obtain support at a political level, develop science plans, socio-economics, professional environment etc);
- (iv) and, in some cases, the regional level (networks, equipment pools, joint training and research programmes etc),

The approach should be broad, integrated and based on the coherence amongst the various” levels” and elements of capacity building as well as tailored to national requirements and priorities.

2.3 REGIONAL ACTIVITIES

10 The Sub-committee was informed about some regional activities of relevance to GOOS, as follows:

North-East Asian Regional GOOS (NEAR GOOS)

11 Prof. Keisuke Taira presented a brochure prepared On NEAR GOOS by the Ocean Research Institute of the University of Tokyo. He highlighted the definition of the NEAR GOOS area, located between the Asian continent and the Japanese isles, and the two data flows (“real-time” and “delayed-mode”) foreseen in the pilot project. The IOC sub-commission for WESTPAC, at its third session (Tokyo, 26 February -1 March 1996), agreed to establish a NEAR GOOS Co-ordinating Committee, and NEAR GOOS would be operational during the second half of 1996. Prof. Taira expressed the view that the pilot project, once implemented and having proved satisfactory, might expand to a larger area, possibly covering the overall WESTPAC area, He made clear that the intention was for the data to be freely exchanged amongst all interested, provided that, for security reasons, they register with the managers of the data bases.

EuroGOOS

12 In the absence of Dr Nick Flemming, the chairman reported that EuroGOOS, made up of a consortium of European agencies, was fitting in well with the European Community policy as defined by the Marine Science and Technology (MAST) programme. An EuroGOOS Strategic Plan would be published sometime in 1997 and several “test cases” (including small scale field activities) were planned for the foreseeable future in five oceanic regions (Baltic Sea, Arctic Sea, “North-East Shelf Area” - viz roughly the North Sea -, Mediterranean Sea and the Atlantic Ocean - including the Caribbean). He finally informed the Sub-committee that a large EuroGOOS Conference would be held in Den Hague, Netherlands, from 7 to 11 October 1996.

Pilot Research Moored/Array in theTropical Atlantic (PIRATA)

13 Ms. Janice R. Trotte reported on the preparation for implementing the PIRATA programme, a co-operative undertaking between Brazil, France and the USA. The goal is to implement a pilot moored array in the tropical Atlantic for climate studies Such an observing system should be designed as the early beginnings of an Atlantic expansion of the TAO array which is now integrated to the CLIVAR-GOALS programme. The field phase of the programme is scheduled to begin in 1997 and to last for 3 years, and would

encompass the deployment of up to 10 moorings, All data would be available in real-time through System Argos, with a sub-set of the measurements (winds, air temperature, SST and sub-surface temperature) transmitted over the GTS for operational purposes.

2.4 RELEVANT DECISIONS OF THE GOVERNING BODIES OF THE CO-SPONSORING ORGANIZATIONS

14 Under this agenda item, the Sub-committee noted the following:

UNEP input

15 Dr Arthur Dahl, Deputy Assistant Executive Director, Division of Environment Information and Assessment of UNEP, unable to attend the session, had sent a message informing the Sub-committee of the progress of the Global Terrestrial Observing System (GTOS). UNEP had decided to concentrate on specific activities for the establishment of GTOS and on the coastal module of GOOS, which they believed should also be the coastal component of GTOS and developed by a joint GOOS-GTOS panel. The Sub-committee acknowledged the imitation and commended this approach [see also agenda item 7].

Position of the Director of the GOOS Support Office

16 The Sub-committee noted with appreciation that UNESCO was now advertising the permanent position for the Director of the GOOS Support Office, as requested by I-GOOS and the IOC governing bodies, as Deputy Secretary IOC. Candidatures would be received till 18 June 1996 and the Sub-committee urged that the position be filled as soon as possible.

2.5 OTHER RELEVANT ACTIVITIES (e.g. IGOSS, IODE, etc.)

17 Under this agenda item, the Sub-committee noted that not only IGOSS and IODE, but also the DBCP, GLOSS, and other existing systems/bodies such as SEAWATCH, which all expressed readiness to respond as far as they could to GOOS demands, were of an outmost importance as "building blocks" of GOOS.

* * *

18 These reports led to some discussions which were considered as part of the more general discussion on GOOS strategy [see agenda item 7]. As a practical outcome of this and further agenda items (3 through 6), a series of questions was identified to be tackled under agenda item 7, as follows:

How to define a strategy for the SSC?

How to ensure the Priorities Agreement meeting would be successfull?

How to deal with the capacity building question?

How to deal with GOOS regional development?

What are the impacts on GOOS development of the possible commercialization of data exchange?

How to precise the relationship with the other global observing system and the co-sponsoring organizations?

How to precise the relationship with existing systems/bodies?

What should be the content of the coastal module?

What should be the role of the services module?

Where do we stand with regard to the preparation of the GOOS Strategic Plan?

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3. PRELIMINARY ANALYSIS OF DATA REQUIREMENTS FROM OPERATIONAL MET/OCEAN SERVICES

19 The Sub-committee recalled that I-GOOS, through Resolution I-GOOS-II. I, had established an *ad hoc* working group on services, chaired by Mr J, Guddal (Norway), essentially to prepare a report on existing marine meteorological and oceanographic operational services, user requirements, perceived deficiencies, and future trends, with a view to assessing where and how GOOS could assist in improving and expanding these services. The Sub-committee therefore noted with interest and appreciation a preliminary report on the subject presented by Mr Guddal.

20 The Sub-committee recognized that some form of service, ranging from methodological approach through data and information delivery to actual analysis and prediction products, would eventually be the endpoint of all the other GOOS modules. In addition, GOOS had a potentially important role to play in assisting existing WMO and IOC service co-ordination and support programmes and activities, in particular in raising political awareness of these programmes, as well as in enhancing data availability for service provision.

21 The Sub-committee there fore requested the chairman of the *ad hoc* group to continue working towards the preparation of his full and final report, for eventual presentation to I-GOOS-III. It considered that the format adopted for the preliminary report was appropriate, but that the. information data base for the report should be expanded as much as possible, bearing in mind that similarities were already apparent in the information submitted by different countries. To that end, the Sub-committee suggested that the group could target specific countries and individuals with the existing report, seeking endorsement and/or additional information as appropriate, It also suggested that use should be made of existing metadata bases on services maintained by WMO and IOC, and that a copy of the preliminary report and questionnaire might be posted on the GOOS homepage, as a way of encouraging enhanced input.

4. GOOS SPACE PLAN

22 The Sub-committee recalled that the outline GOOS Strategic Plan calls for the preparation of a GOOS Space Plan, based on the model of the GCOS Space Plan as the first articulation of GOOS needs for the climate module, but covering the needs of all the GOOS modules. The Sub-committee also noted with interest the work of the CMM/IGOSS/IODE Sub-Group On ocean satellites and Remote Sensing, in particular in reviewing and analysing existing and planned ocean satellite missions, as well as in reviewing the feasibility of existing expressed requirements for ocean satellite data.

23 In the context of these existing activities, and recognizing that the GCOS Space Plan already adequately covers GOOS requirements for physical ocean variables, the Sub-committee agreed that the GOOS Space Plan should be developed primarily as an extension of that of GCOS, specifically to include requirements for non-physical ocean variables as expressed by the relevant GOOS modules. It further agreed on the value of approaching space agency bodies such as CEOS with co-ordinated, well-formulated requirements presented jointly by several bodies and programmes, as the most effective way of influencing future space missions and obtaining appropriate responses to these requirements.

24 The Sub-committee therefore requested the GOOS Support Office to continue with its proposed approach; i.e. that the GOOS Space Plan should be developed as an extension of the GCOS Space Plan, to include also non-physical variables. Requirements for these variables should be provided by a small number of individuals representing the relevant J-GOOS panels, who were now being identified by the GSO. In addition, the sub-committee stressed that GOOS space requirements included data collection and distribution capabilities. Such capabilities existed already on a number of different space platforms, and were expanding rapidly. It therefore requested that the GOOS Space Plan should also include a component relating to this data collection requirement.

5. GOOS DATA MANAGEMENT PLAN

25 The Sub-committee recalled that, at its first session (Geneva March 1995), it had recognized the urgent need to begin preparation of a comprehensive GOOS data management plan to be compatible with other data management plans being prepared for WWW, GCOS and IGOSS/IODE, and that it had included this as an action item in the outline GOOS Strategic Plan.

26 In this context the Sub-committee reviewed with interest a draft IGOSS/IODE Data Management Strategy document. This had been prepared at the request of the Committees for IGOSS and IODE and was presented by them as an example of the combined, end-to-end, data management capabilities of the two systems in support of GOOS objectives. The Sub-committee further noted that IGOSS and IODE are developing a strategy based on the principle of compatibility with the data management systems of GCOS and the WWW. It suggested certain minor amendments and improvements to the draft strategy, and agreed that it provided an excellent basis for the development of a GOOS data management strategy. The Sub-committee further agreed that the data management capabilities of IGOSS and IODE together, when developed as proposed in the strategy, would provide an essential basis for the future management of GOOS data.

27 The Sub-committee therefore commended and thanked IGOSS and IODE for their efforts on behalf of GOOS. It requested that the draft strategy document should be amended as proposed and presented as a formal document for the consideration of I-GOOS-PS-II. It further noted the importance of the decision of IODE-XV to prepare an information document on skills and capabilities of IODE to be submitted to I-GOOS-PS-II. This document will constitute an important contribution to the IGOSS-IODE data management strategy. The Sub-committee stressed the importance of maintaining momentum in this activity, since although overall GOOS data requirements were not yet well defined, nevertheless GOOS already needed urgent action to prepare its data management strategy, as recognized at SSC-I.

6. OTHER GOOS DOCUMENTATION

6.1 FINALIZATION OF THE DOCUMENT "TOWARDS OPERATIONAL OCEANOGRAPHY: THE GLOBAL OCEAN OBSERVING SYSTEM"

28 As it was requested to do, the Sub-committee reviewed the second draft of the document "Towards Operational Oceanography: the Global Ocean Observing System". Whilst recognizing the document was outdated in some of its parts, the Sub-committee nevertheless agreed it was still useful as the only existing document of this kind. It agreed on some procedures to amend it during the session. Sections 1,2,4.3 and 4.5 were re-written. In addition, the Sub-committee decided to cancel the *Preliminary developments* listed under each of the modules. Editorial amendments should be handled (or transmitted by e-mail) to Yves Tréglos, in order that a final version of the document, approved by the chairman on behalf of I-GOOS, be presented to I-GOOS-PS-II.

6.2 GOOS HANDBOOK

29 The Sub-committee recalled that the outline GOOS Strategic Plan calls for the design of a comprehensive GOOS handbook, and that I-GOOS-II had appointed Dr V. Ryabinin (Russia) to prepare such a design. It therefore noted with appreciation the detailed outline for the Handbook presented by Dr Ryabinin. The Sub-committee agreed that this outline indeed represented an excellent model for what was eventually required of the Handbook, which should be a comprehensive manual containing all information necessary to countries for understanding and participating in GOOS. At the same time, it recognized that the handbook should be constructed in a format that would allow individual sections to be easily expanded, modified, added, deleted, etc., as necessary. The Sub-committee agreed that the primary objective of the Handbook was to act as a manual of operation, to assist involvement in GOOS. As such, it should contain general descriptions but not necessarily be too detailed. Some sections could act simply as directories to other sources and documentation. In this context, the Sub-committee agreed on the importance of eventually making the

Handbook available On the World Wide Web, which would allow direct links to related activities, including such things as the results of user surveys, metadata, products, etc.

30 The Sub-committee identified a number of minor modifications and suggested some restructuring to the proposed outline. The modified outline, which is given in AnnexII, was then accepted as the basis for the GOOS Handbook. The Sub-committee recognized that the drafting of the full Handbook as proposed would be a major task. It agreed that the ideal would be for this to be done by a single appropriate expert, working full-time for several months within the GOOS Support office, but accepted that the necessary resources were not presently available for this to happen.

31 The Sub-committee therefore agreed that the most feasible approach for developing a first draft of the Handbook available on a reasonable timescale was to have various sections or chapters prepared by the GOOS Support Office and other specialists as appropriate, under the guidance of an overall project co-ordinator and Handbook compiler. On this basis, the following allocation of tasks was agreed:

- (i) Co-ordinator: Director, GOOS Support Office.
- (ii) The GSO will prepare those sections for which the required information is already immediately available.
- (iii) The GSO, in consultation with the chairman of I-GOOS, will identify experts to draft the remaining sections, taking into account existing material.

32 The Sub-committee requested that the first draft Handbook should be available for review by SSC-III. Following this review, and additional reviews in the wider community including by J-GOOS, the initial version of the Handbook should if possible be finalized by a single contracted expert. In any case, the finalized initial Handbook should be presented for adoption by I-GOOS and publication in 1998.

6.3 OTHERS

33 No other document was proposed for examination by the Sub-committee,

7. GOOS STRATEGY

34 Under this agenda item, the Sub-committee tackled a number of issues. It decided to record in the report only the conclusions reached.

The "strategy" of the Strategy Sub-committee

35 The SSC recognized that, within its terms of reference, it had a prominent role to play in GOOS planning and in facilitating I-GOOS activities, in both:

- (i) the long term, which is the definition and implementation of a strategy for GOOS development;
- (ii) the medium term, which is to prepare recommendations for I-GOOS.

As a consequence, it appeared essential that representatives of J-GOOS systematically attend its sessions. In addition, specific responsibilities should be given to SSC members for its intersessional periods. This implied a continuity in its membership in the medium term, notwithstanding some "rotation" appeared necessary after a period of some 3 years for a part of its members.

36 The Sub-committee recognized that the periodicity of I-GOOS sessions was probably too high. It therefore decided to recommend the following in principle schedule of events:

- (i) a session of I-GOOS every two years,
- (ii) some 6 months later, a session of SSC which would ensure implementation of I-GOOS decisions;
- (iii) a short (1 day), "briefing" session of I-GOOS, in conjunction with a session of one of the IOC governing bodies;
- (iv) some 6 months later, a session of SSC to review its intersessional activities and prepare for the decisions to be taken by the next full session of I-GOOS;
- (v) go to (i).

37 The Sub-committee in addition expressed the view that, for a smooth running of GOOS, the activities of I-GOOS and that of J-GOOS should be fully harmonized.

The GOOS initial Priorities Agreement Meeting

38 Given: (i) that it is essential that the meeting (which is considered to be the first of a series) be successful; and (ii) its expected audience (high level decision makers), the Sub-committee recognized that careful steps should be taken. In particular, it concurred with the idea that preliminary questions should be:

- (i) *Do you commit to the GOOS concept?*
- (ii) *Are you ready to continue and accommodate, as necessary, your own observing systems?*
- (iii) *Are you ready to expand your capabilities if necessary?*

39 The Sub-committee further decided to review the present preparatory document (draft *Initial Priorities for GOOS*) as follows:

- (i) the chairman and Dr McEwan will draft a new introduction to the document, highlighting the purposes of the meeting and describing as simply as possible what GOOS is [*the proposal was put forward to define GOOS as 'can array of national observing systems, linked by common techniques, protocols and data management'*], as well as a conclusion, indicating clearly what was expected from the participants in the meeting; they would also modify the presentation of the document along with the ideas expressed during the discussion;
- (ii) J-GOOS would be approached to prepare presentations of the GOOS modules;
- (iii) the results of the work described under (i) above should be sent by 10 April 1996 for comments to SSC members, who should respond by 17 April at the latest, and the new version of the document should be reviewed by J-GOOS-III and submitted to I-GOOS-PS-II.

Capacity building

40 The Sub-committee welcomed the work undertaken by Dr. Jan Stel and Mr. B. N. Krishnamurty to prepare for the holding of regional workshops to assess the existing infrastructure and the needs in relation to GOOS development. The proposed workshops should be held in eastern Africa and India during 1996 and South America and western Africa in 1997. Dr. Stel agreed to draft a "position paper", fitting in with the

preparatory document for the Priorities Agreement Meeting and to be submitted to I-GOOS-PS-II. The paper should highlight the connections of GOOS undertaking in the field with existing efforts and the new steps to be made. The deadline for submission of the paper to the GOOS Support Office was 1 May 1996.

Regional development

41 The Sub-committee decided that regional bodies of various kinds should be asked to co-operate to GOOS development, and therefore to invite their representatives to attend I-GOOS sessions, provided they either: (i) were made up of an association of States (e.g. SOPAC), and/or (ii) were running an operational marine observing system.

42 To prevent difficulties in the GOOS development process at the regional level, the Sub-committee considered that the questions of data exchange formats, protocols, etc. should be carefully addressed by knowledgeable experts to be found within the IGOSS and IODE communities, with the assistance of the scientific community (J-GOOS).

Commercialization and data exchange

43 The Sub-committee considered it was not ready to address this question at the present stage. It entrusted Mr Johannes Guddal, in the normal course of his activity as chairman of the I-GOOS Working Group on Marine Meteorological and Oceanographic Services, with noting and highlighting the occurrences where he would find references to commercialization issues and to report on this topic at the next SSC session.

Relationship with the other Global observing systems and the sponsoring organizations

44 As far as the sponsoring organizations were concerned, the Sub-committee expressed the view that the GOOS community should use all available funding mechanisms. It further should not hesitate to raise important issues (such as funding, staffing, etc.) to its co-sponsoring organizations.

45 With regard to the relationship to GCOS, the Sub-committee recognized there was a need to strengthen existing links, e.g. through a dedicated staff member, as that had been the case previously during one year. It requested the Director of the GOOS Support Office, together with the Director of the Joint Planning Office for GCOS, to arrange for better communications between the secretariats.

46 With regard to the relationship to GTOS, the Sub-committee recalled the proposal put forward by the representative of UNEP to establish a joint GOOS-GTOS panel to deal with coastal issues and directed the GSO to respond to the proposal. It considered the proposal should be endorsed by I-GOOS-PS-II and that J-GOOS should be requested to try and define, at least broadly, a possible content for the GOOS coastal module.

Relationship to existing systems/bodies

47 The Sub-committee considered all opportunities should be taken to co-operate with existing systems/bodies which appeared to be in line with GOOS objectives, provided they were issuing products and/or user-oriented. In order to get more acquainted with those systems/bodies, and therefore more able to advise I-GOOS on this topic, it agreed that, at each of its sessions, a short presentation be made on one or more of those systems/bodies.

Coastal and Services modules

48 Action on these modules was taken in the form of the revision of sections 4.3 and 4.5, respectively, of the document "Towards Operational Oceanography: the Global Ocean Observing System" [see agenda item 6.1].

Status of the GOOS Strategic Plan

49 The Sub-committee considered that the Outline of a Strategic Plan for GOOS it had put together at its first session contained both strategy and action elements and was rather of the nature of a temporary plan of action. It decided to prepare two documents:

- (i) a GOOS Strategic Plan *stricto sensu*, using the previous document as a ‘template’. The Strategic Plan should be considered as valid for a certain period of time only, depending upon the pace of GOOS development and other unforeseeable elements;
- (ii) from this Strategic Plan, an Action Plan should be devised and later On updated as necessary.

50 In order to be in a position to practically develop the GOOS Strategic Plan, the Sub-committee decided to entrust various persons with specific drafting tasks, as detailed in Annex III.

8. ACTION ITEMS FOR COOS PLANNING AND WORKPLAN FOR SSC

.51 On the basis of discussions and decisions taken under preceding agenda items, the Sub-committee prepared a comprehensive list of action items relating to GOOS planning, which were for implementation by itself and/or the GOOS Support Office and WMO Secretariat. These items are detailed in Annex IV. The Sub-committee stressed the importance of all concerned adhering to the prescribed action deadlines, if GOOS planning was to advance in a logical and effective way.

9. CLOSURE

52 Before closing the session, the Sub-committee decided to foresee in principle the dates and place of its next session, which were tentatively: 27-30 January 1997, Geneva.

53 In concluding, the chairman expressed satisfaction at the work accomplished and thanked all participants for the excellent “atmosphere” of the session. On behalf of the participants, Dr. Ryabinine thanked the chairman for his wise conduct of the session and the GOOS Support Office for their very valuable support.

54 The Second Session of the I-GOOS Strategy Sub-committee closed at 19,00 hours on Wednesday 27 March 1996.

ANNEX I

AGENDA

1. ORGANIZATION OF THE SESSION

- 1.1 OPENING OF THE SESSION
- 1.2 ADOPTION OF THE AGENDA
- 1.3 WORKING ARRANGEMENTS

2. REVIEW OF DEVELOPMENTS OF INTEREST TO GOOS SINCE SSC-I

- 2.1 SECOND SESSION OF THE JOINT IOC-WMO-ICSU SCIENTIFIC AND TECHNICAL COMMITTEE FOR GOOS (J-GOOS-II) (Paris, 24-26 April 1995)
- 2.2 SECOND SESSION OF THE INTERGOVERNMENTAL COMMITTEE FOR GOOS (I-GOOS-II) (Paris. 6-9 June 1995)
- 2.3 REGIONAL ACTIVITIES
- 2.4 RELEVANT DECISIONS OF THE GOVERNING BODIES OF THE CO-SPONSORING ORGANIZATIONS
- 2.5 OTHER RELEVANT ACTIVITIES (c.g. IGOSS, IODE, etc.)

3. PRELIMINARY ANALYSIS OF DATA REQUIREMENTS FROM OPERATIONAL MET/OCEAN SERVICES

4. GOOS SPACE PLAN

5. GOOS DATA MANAGEMENT PLAN

6. OTHER GOOS DOCUMENTATION

- 6.1 FINALIZATION OF THE DOCUMENT "TOWARDS OPERATIONAL OCEANOGRAPHY: THE GLOBAL OCEAN OBSERVING SYSTEM"
- 6.2 GOOS HANDBOOK
- 6.3 OTHERS

7. GOOS STRATEGY

8. ACTION ITEMS FOR GOOS PLANNING AND WORKPLAN FOR SSC

9. CLOSURE

ANNEX II

LAY-OUT OF THE GLOBAL OCEAN OBSERVING SYSTEM (GOOS) HANDBOOK

Contents

Preface

Glossary

PART I PURPOSE, PLANS AND ORGANIZATION OF GOOS

1. BASICS OF GOOS
 - 1.1 Definition
[to be taken from: "*Towards Operational Oceanography: the Global Ocean Observing System (GOOS)*"]
 - 1.2 Overall benefits and importance
[may be extracted from existing documents - just a general idea of benefits is needed here]
 - 1.3 GOOS general objectives
 - 1.4 Decisions of major international organizations and for a with regard to GOOS
[recommendations and resolutions showing official support at high level]
 - 1.5 International treaties and agreements applicable to GOOS scope
[show which important treaties, etc. GOOS serves to]
2. PRINCIPLES AND POLICY OF GOOS
 - 2.1 Data and product policy
 - 2.2 Technology transfer and capacity building
 - 2.3 Regional development
3. GOOS ORGANIZATION
 - 3.1 GOOS sponsors
[very short description]

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- 3.2 COOS management and development
 - 3.2,1 List of resolutions and recommendations adopted by GOOS sponsoring organizations (IOC, WMO, UNEP and ICSU).
[Only resolutions and recommendations in force are to be given here.]
 - 3.2.2 Terms of reference and composition of main (permanent) GOOS bodies
 - 3.2,3 List of *ad hoc* and temporary Committees, Working Groups, Panels, etc. of GOOS and their terms of reference.
 - 3.2.4 Contacts of major GOOS-related programmes and organizations

- 3.4 COOS strategic plan
[Only brief reference is needed here]

4. GOOS MODULES

[Description of:

- o each module objective(s) and expected economic benefits;
- o current problems (worldwide, regional, local) pertinent to the module;
- o existing ways of module products use for various purposes (e.g. for mitigation of a problem) and socio-economic benefits resulting from GOOS module activities;
- o corresponding requirements in terms of measured (analyzed, predicted) elements including requirements in terms of spatial and time resolution, accuracy, forecast range, way of presentation, real time availability, etc.]

- 4.1 Climate monitoring, assessment and prediction
- 4.2 Monitoring and assessment of marine living resources
- 4.3 Monitoring of the coastal environment and its changes
- 4.4 Assessment and prediction of health of the ocean
- 4.5 Marine meteorological and oceanographic operational services

5. OVERALL GOOS DATA AND PRODUCTS REQUIREMENTS

[List(s) of variables, including observations, hindcasts, analyses, forecasts, model simulation results and their relevance for GOOS modules objectives, This shows what is totally needed to meet GOOS objectives in each module. Important point: GOOS modules (section 4) specify what they need to provide their part of services. Some data requirements and products may overlap among the modules. For example, sea surface temperature may be needed by all modules. So, a joint list of data and products is required. Actual provision of data and products is to be made in GOOS outside the module structure.]

6. INTERRELATION TO OTHER INTERNATIONAL MONITORING PROGRAMMES

[Some GOOS observational requirements may be met by other programmes. So, there is no need for duplication of activities, but there is a need to describe co-operation with such programmes]

- 6.1 World Weather Watch
- 6.2 GCOS
- 6.3 GTOS

- 6.4 Remote sensing programmes
 - 6.4.1 CEOS
- 6.5 Others
- 7. INTERRELATION TO OTHER INTERNATIONAL RESEARCH programmes
[Some GOOS data and product requirements may be met by other programmes. So, there is no need for duplication of activities, but there is a need to describe co-operation with such programmes]
 - 7.1 WCRP
 - 7.2 IGBP
 - 7.3 Others
- 8. DATA EXCHANGE SYSTEMS USABLE FOR GOOS PURPOSES
[Actual code forms and other technical details such as WMO GTS protocols should not be given under this section, otherwise the document will be difficult to handle, However, description of principles is needed with exact references to existing guides and manuals.]
 - 8.1 WMO GTS
 - 8.1.1 Purpose, structure, capabilities
 - 8.1,2 Data exchange formats
 - 8.2 IGOSS Telecommunication Arrangements
 - 8.3 INMARSAT
 - 8.4 ARGOS and Low Earth Orbiting Satellites (LEOS)
 - 8.5 IOC-IODE data management (including GTSP)
 - 8.6 Use of Internet
 - 8.7 Others
- 9. COOS CAPACITY BUILDING
 - 9.1 TEMA
 - 9.2 Others
- 10. LIST OF VALID IMPORTANT PUBLICATIONS ON VARIOUS ASPECTS OF GOOS
[with cross-reference to corresponding sections of the GOOS Handbook]

PART III STATUS OF GOOS IMPLEMENTATION

1. EXISTING INTERNATIONAL SYSTEMS/BODIES THAT CONTRIBUTE TO GOSS

[The section shows which 'components' of GOOS provide data and products listed in part I, sections 4 and 5. *Scientific expert panels are identifying the observations needed, which are not necessarily those presently being taken. Data from well-established operational programmes are incorporated into GOOS to the extent that the data are needed to answer questions addressed by GOOS.*]

1.1 IGOSS Ship-of-Opportunity Programme

1.2 GLOSS

1.3 The TAO Army

1.4 Data Buoy Co-operation Panel

1.5 Others (when implemented and accepted)

1.6 Regional components of COOS

1.6.1 NEAR-GOOS

1.6.2 EuroGOOS

2. NATIONAL GOOS ACTIVITIES

2.1 Countries participating in COOS
[co-ordinating organization or person, national contacts]

2.2 Major national efforts or events of importance to COOS.

3. INFORMATION ON MOST IMPORTANT DEVELOPMENTS IN GOOS-RELATED ACTIVITIES

[new high quality products, results of most important studies of importance to GOOS as a whole]

4. EXAMPLES OF AVAILABLE GOOS PRODUCTS

[list of products with

- o name
- o short description
- o provider
- o mode of access
- o (user) evaluation if available]

5. REFERRED STATEMENTS ON USER NEEDS

[This feedback seems to be important for GOOS development, User requirements are to be placed here along with their evaluation of some existing COOS products. This section should facilitate exchange of important new on GOOS products.]

6. CALENDAR OF COOS RELATED EVENTS

- 6.1 Meetings, symposia
- 6.2 Key recent publications

A N N E X E S

- A1. List of organizations related to GOOS*
- A2. List of programmes and projects of importance to GOOS*
- A3. Acronyms*

ANNEX III

PREPARATION OF THE COOS STRATEGIC PLAN

Time : 19 April 1996: Draft of each participant to GSO
30 April 1996: Full draft to SSC
10 May 1996: Final draft for I-GOOS

Section	Responsible
I. Define GOOS	GSO + B. Erb
II. Assess needs	N. Flemming
III. Design of GOOS ,	A. McEwan
IV. Plan for modules	M.Cole
V. Integration	V. Ryabinin
VI. Data and Information management	J.P. Rebert
VII. Products	J.P. Rebert + V. Ryabinin
VIII. Regional development	B.Erb
IX. Training and Capacity Building	J.Stel
X. Implementation.	M. Cole + K. Taira
XI. Resources	B. Erb + G. Needler + J. Trotte
XII. Management reporting and review of the strategic plan	A. McEwan

ANNEX IV

ACTION ITEMS FOR GOOS PLANNING ARISING FROM SSC - II

Agenda item	Action item	Responsibility	Deadline
3	Analysis report on existing met/ocean services		
	Distribute existing report and questionnaire to specific recipients	J. Guddal	April 1996
	put copy on GOOS Homepage	J, Guddal+D/GSO	April 1996
	Present preliminary report to I-GOOS-PS-II	J. Guddal	May 1996
	Present finalized report to I-GOOS-III	J. Guddal	May 1997
4	GOOS Space Plan		
	Experts to prepare requirements for non-physical variables.	GSO to identify and activate	May 1996
	Experts to prepare section on data collection requirements	GSO to identify and activate	May 1996
	Prepare plan as extension of GCOS Space Plan	GSO	May 1997
5	Data Management Plan		
	amend IGOSS/IODE DM Strategy	SSC	end SSC-II
	present IGOSS/IODE DM Strategy to I-GOOS-PS-II	Secretariats	May 1996
	prepare first draft of GOOS DM Plan	To be identified by GSO	May 1997
6.1	Towards operational oceanography: GOOS		
	amend and finalize	SSC	end SSC-II
	provide editorial amendments	SSC members	10 April 96
	publish	GSO	May 1996
6.2	GOOS Handbook		
	amend outline	SSC	end SSC-II

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Agenda item	Action item	Responsibility	Deadline
	prepare sections from existing material	D/GSO	Dec. 1996
	identify and activate experts for other sections	D/GSO	May 1996
	first draft of other sections	Experts	Dec. 1996
	review by SSC-III	GSO/SSC	Jan. 1997
	other reviews (e.g. J-COOS)	GSO/J-GOOS	May 1997
	identify and activate expert to finalize	GSO	June 1997
	finalized version to SSC-IV	GSO/SSC	Jan. 1998
7	COOS Strategy		
	Ensure C/J-GOOS attends SSC sessions	GSO	ongoing
	Propose I-GOOS meeting schedule to I-GOOS-PS-II	C/I-GOOS	May 1996
	Revise preparatory document for GOOS Priorities Agreement meeting	A. McEwan & C/I-GOOS	10/04/96
	Review and comment on revised document	SSC	17/04/96
	Review revised document	J-GOOS	J-GOOS-III
	Submit revised document to I-GOOS-PS-II	C/I-GOOS	May 1996
	Draft a position paper on Capacity Building	J.Stel	1 May 1996
	Invite external regional bodies to I-GOOS session	GSO	ongoing
	Summarize commercialization issues regarding data and services	J. Guddal	Jan. 1997
	Enhance co-ordination with GCOS	D/GSO + D/JPO	ongoing
	Recommend to I-GOOS to agree proposal of UNEP for joint GO OS-GTOS Coastal Panel	C/I-GOOS	May 1996
	Request J-GOOS to define content of coastal module .	C/I-GOOS	April 1996
	Presentations on existing operational systems and their activities to SSC	GSO + WMO	Jan. 1997
	Revise outline of Strategic Plan and Action Plan	SSC	end SSC-II

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Agenda item	Action item	Responsibility	Deadline
	Draft Strategic Plan	SSC (see Annex III)	May 1996
	Revise Action Plan	GSO	SSC-II
9	Prepare and convene SSC-III	Secretariats	27-30 Jan.97

ANNEX V

LIST OF PARTICIPANTS

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ANNEX VI

LIST OF ACRONYMS AND OTHER ABBREVIATIONS

ARGOS	[Not an acronym; name of a satellite system for data collection and platform location]
CEOS	Committee on Earth Observation Satellites
CLIVAR	Climate Variability and Predictability
CMM	Commission for Marine Meteorology
DBCP	Data Buoy Co-operation Panel
DM	Data management
EuroGOOS	European GOOS
GCOS	Global Climate Observing System
GLOSS	Global Sea-level Observing System
GOALS	Global Ocean-Atmosphere-Land System (of CLIVAR)
GOOS	Global Ocean Observing System
GSO	GOOS Support Office
GTOS	Global Terrestrial Observing System
GTS	Global Telecommunication System
GTSP	Global Temperature-Salinity Pilot Project/Programme
IGBP	International Geosphere-Biosphere Programme
I-GOOS	Intergovernmental Committee for GOOS
I-GOOS-PS	I-GOOS Planning Session
ICSU	International Council of Scientific Unions
IGOSS	Integrated Global Ocean Services System
INMARSAT	International Maritime Satellite Organization
IOC	Intergovernmental Oceanographic Commission (of UNESCO)
IODE	International Oceanographic Data and Information Exchange
IUGG	International Union of Geodesy and Geophysics
J-GOOS	Joint Scientific and Technical Committee for GOOS
JPO	Joint Planning Office (for GCOS)
LEOS	Low Earth Orbiting Satellite
NEAR-GOOS	North-East Asian Regional GOOS
PIRATA	Pilot Research Moored Array in the Tropical Atlantic (Brazil, France and USA)
SOOPIP	Ship-of-Opportunity Programme Implementation Panel
SOPAC	South Pacific Applied Geoscience Commission
SSC	Strategy Sub-committee (of I-GOOS)
TAO	Tropical Atmosphere Ocean Array
TEMA	Training, Education and Mutual Assistance
UNEP	United Nations Environment Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
WCRP	World Climate Research Programme
WMO	World Meteorological Organization
WWW	World Weather Watch

82. Second Meeting of the UNEP-IOC-ASPEI Global Task Team on the Implications of climate Change on Coral Reefs
83. Seventh Session of the JSC Ocean Observing System Development Panel
84. Fourth Session of the IODE Group of Experts on Marine Information Management
85. Sixth Session of the IOC Editorial Board for the International Bathymetric chart of the Mediterranean and its Geological/Geophysical Series
86. Fourth Session of the Joint IOC-JGOFS Panel on Carbon Dioxide
87. First Session of the IOC Editorial Board for the International Bathymetric Chart of the Western Pacific
88. Eighth Session of the JSC Ocean Observing System Development Panel
89. Ninth Session of the JSC Ocean Observing System Development Panel
90. Sixth Session of the IODE Group of Experts on Technical Aspects of Data Exchange
91. First Session of the IOC-FAO Group of Experts on OSLR for the IOCINCWIO Region
92. Fifth Session of the Joint IOC-JGOFS C0, Advisory Panel Meeting
93. Tenth Session of the JSC Ocean Observing System Development Panel
94. First Session of the Joint CMM-IGOSS-IODE Sub-group on Ocean Satellites and Remote Sensing
95. Third Session of the IOC Editorial Board for the International Chart of the Western Indian Ocean
96. Fourth Session of the IOC Group of Experts on the Global Sea Level Observing System
97. Joint Meeting of GEMSI and GEEP Core Groups
98. First Session of the Joint Scientific and Technical Committee for Global Ocean Observing System
99. Second International Meeting of Scientific and Technical Experts on Climate Change and the Oceans
100. First Meeting of the Officers of the Editorial Board for the International Bathymetric Chart of the Western Pacific
101. Fifth Session of the IOC Editorial Board for the International Bathymetric Chart of the Caribbean Sea and the Gulf of Mexico
102. Second Session of the Joint Scientific and Technical Committee for Global Ocean Observing System
103. Fifteenth Session of the Joint IOC-IHO Committee for the General Bathymetric Chart of the Oceans
104. Fifth Session of the IOC Consultative Group on Ocean Mapping
105. Fifth Session of the IODE Group of Experts on Marine Information Management
106. IOC-NOAA *Ad hoc* Consultation on Marine Biodiversity
107. Sixth Joint IOC-WMO Meeting for Implementation of IGOS XBT Ship-of-Opportunity programmes
108. Third Session of the Health of the Oceans (HOTO) Panel of the Joint Scientific and Technical Committee for GOOS
109. Second Session of the Strategy Subcommittee (SSC) of the IOC-WMO-UNEP Intergovernmental Committee for the Global Ocean Observing System (IGOOS)