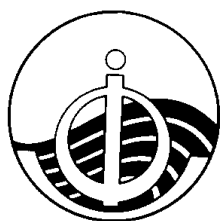


Intergovernmental Oceanographic Commission
Reports of Governing and Major Subsidiary Bodies



**IOC-WMO-UNEP Intergovernmental
Committee for the Global Ocean
Observing System
(I-GOOS-IX)**

Ninth Session

10–12 June 2009

Paris, France

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ABSTRACT

The 9th session of the Intergovernmental Committee for GOOS (Paris France, 10-12 June 2009) reviewed progress of GOOS over the past biennium and discussed implementation and sustainability strategies, and reviewed the GOOS National Reports. The Committee also reviewed Regional GOOS Implementation and noted the inauguration of the GOOS Regional Council by the GRAs at the 4th GRA Forum. The committee heard from, and discussed, a number of partner programs including the IOC/WMO Joint Commission on Marine Meteorology (JCOMM), the International Oceanographic Data and Information Exchange (IODE) and the Global Climate Observing System (GCOS). The Committee elected an I-GOOS Chairperson and Vice-Chairpersons to serve for the 2010-2011 biennium. The Committee reviewed the work programme and budget for the GOOS Project Office. It recognized the financial constraints and lack of human resources at the GPO and urged IOC Member States to increase their financial contribution to the GOOS coordination and outreach, as well as to support their regional activities through active support of their GOOS Regional Alliance.

*Translated into French, Spanish and Russian

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1 OPENING AND WELCOME

- 1 The Chairman of I-GOOS, François Gérard, called the session to order at 9h30 on June 10, 2009. The Chairman welcomed the delegates and thanked them for their interest and efforts on behalf of the Global Ocean Observing System and the Intergovernmental Oceanographic Commission. The Chairman expressed the regrets of Patricio Bernal, Executive Secretary of IOC, who was unable to deliver the customary welcome on behalf of IOC and UNESCO to the session.

2 ADMINISTRATIVE ARRANGEMENTS

2.1 ADOPTION OF THE AGENDA

- 2 The Chairman suggested the addition of agenda items for the ABE-LOS, 6.3, and IODE, 6.4. Discussion periods for the reports of sections 4, 5 and 6 will be delayed until after all reports of the sections have been delivered. Thus Discussion agenda items 4.6, 5.5, and 6.5 have been added. Committee adopted the Revised Provisional Agenda as the Agenda of the 9th Session; it is given in Annex I.

2.2 DESIGNATION OF RAPPORTEUR

- 3 The Committee designated Kouadio Affian (Côte d'Ivoire) Rapporteur for the session, under IOC Rule of Procedure No. 25(3).

2.3 CONDUCT OF THE SESSION AND FORMATION OF WORKING GROUPS

- 4 The Committee decided to form a sessional Nominations Committee to oversee the election of the new officers of I-GOOS. Trevor Guymer (United Kingdom) was nominated and seconded, and agreed to serve as Chairperson of the Nominations Committee.
- 5 The Committee decided to form a sessional Resolutions Committee to oversee the drafting of resolutions on the behalf of I-GOOS. Gregorio Parrilla Barrera (Spain) was nominated and seconded, and agreed to serve as Chairperson of the Resolutions Committee.

3 REPORTS

3.1 REPORT OF THE I-GOOS CHAIRPERSON

- 6 The chairman of the I-GOOS, François Gérard, gave an account of the action carried out over the last four years by the I-GOOS Board, which was officially established by the Assembly of the IOC at its 23rd session in 2005. The principles of a GOOS implementation strategy based on regional networks were presented: the development of GOOS rests on the establishment of Regional Ocean Observing Systems (ROOS); all ROOS are implemented according to the GOOS development principles; each ROOS is run by one or more GOOS Regional Alliances (GRA). Regional Alliances form the “bottom up” development process of GOOS. It was during the Fourth Forum of the GOOS Regional Alliances (25–27 November 2008, in Guayaquil, Ecuador) that GOOS Regional Council was officially created and EuroGOOS and MedGOOS agreed to serve as the initial co-chairs of the council. Noting that progress of GOOS requires that rules of technical standards and governance be followed; the chair requested the Committee to take action to validate these principles for the development of GOOS.

- 7 TOWS-WG – run jointly by IOC Vice-Chairman Dr Neville Smith, and the Chairman of I-GOOS – has met on two occasions since its creation by the 24th session of the IOC Assembly. One of the principal recommendations from GOHWMS and TOWS-WG is to entrust the Global Sea-Level Observing System (GLOSS) with the overall coordination of sea-level observation including real-time applications.

- 8 At the end of 2008, the GOOS climate module, the subsystem dedicated to oceans of the UNFCCC mandated Global Climate Observing System (GCOS), was estimated to have achieved 60% of its overall

objectives. Some *in situ* systems reached their complete deployment goals in the last biennium, Argo and Surface Drifters. However continuing maintenance is not guaranteed, and data processing, coastal observations, satellite systems, and observation of the chemical and biological parameters of oceans and polar seas face uncertain future prospects due to questionable sustainable financial commitments.

3.2 REPORT OF THE GSSC CHAIRPERSON

9 Ralph Rayner, Chairman of GOOS Scientific Steering Committee, GSSC, reported to the I-GOOS-IX a summary of the GSSC-XII (25–27 February 2009, Perth, Australia) and presented the recommendations made by the GSSC-XII for I-GOOS IX. The GSSC chairman pointed out the importance of JCOMM to the operational status of GOOS and urged the committee to consider the current levels of support for JCOMM and to consider methods to enhance contributions to JCOMM. The GSSC-XII considered the new equation of state of sea-water and recognized its importance to ocean science and urges the I-GOOS to endorse the TEOS-10 proposal if feasible. Discussions at the GSSC-XII about the GEOSS stressed that improved coordination of the GOOS response to the GEO and GEOSS is necessary. The workshop held alongside GSSC-XII produced an important step forward in linking global/basin scale operational systems to regional and local applications. An outcome of the GSSC-XII and the associated workshop was an agreement regarding pilot projects connecting BlueLink to IO-GOOS and SEA-GOOS.

10 The GSSC has undertaken coordination of the GOOS outreach activities, and had many successes the past year. The GSSC Outreach and Advocacy group is coordinating, with partners, several workshops this year to press the GOOS outreach messages to industrial supporters and governmental entities. GSSC requests I-GOOS Member States to support the outreach efforts to create a clear and recognizable image of GOOS by identifying target outreach audiences and adopting the common GOOS “branding” and core messages. The chairman of GSSC presented actions requested by the GSSC of the I-GOOS.

11 Recognizing the importance of JCOMM to GOOS implementation, I-GOOS Member States should endeavour to enhance resource contributions (human and financial) to JCOMM programme activities. The I-GOOS agreed to conduct the following actions.

Action 1. Member States to improve GOOS participation in the GEO/GEOSS process by exploring opportunities to provide funding support, including personnel secondments, for more coordination and active engagement of the GOOS in GEO.

Action 2. Member States to inform GSSC of national needs and priorities for GOOS outreach and advocacy activities. (next GSSC)

3.3 REVIEW OF PAST I-GOOS ACTIONS

12 The GOOS Project Office (GPO) director, Keith Alverson, summarized the review of past action items, noting that all are indicated as done or partially achieved. Action items referring to improving reporting on GOOS implementation through National reports by Member States and GOOS Regional Alliances will be further considered under agenda item 4.

I-GOOS-VIII Action 1	The Member States, through the I-GOOS Board, and with the assistance of the GPO, to develop a mechanism to regularize national reporting and make routine the gathering of information on observation networks. The need is most pressing in the area of coastal networks.	Climate module: GOOS report 174. Reported to UNFCCC in 2009. No progress on coastal module reporting. Partially achieved.
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I-GOOS-VIII Action 2	The I-GOOS Board, through the GSSC and the GPO, to develop a “Summary for Policy Makers” of major achievements in GOOS over the last decade and the outlines of the business for additional participation and investment.	In draft form, currently under review by the Board. Partially achieved.
I-GOOS-VIII Action 3	GRAs to develop a synopsis of observation networks, products and capacity development (“GRA Reports”), beginning from the National Reports, but enhanced to better represent regional engagement and plans for regional development, particularly with respect to coastal systems and products and involvement in pilot projects.	Most GRAs presented reports at GRA Forum. No synthesis of reports was performed. Partially achieved.
I-GOOS-VIII Action 4	(For the 24th Assembly). Highlight the significant progress in the development of the system and the several major impact areas (e.g., IPCC 4AR). Highlight emerging trends, e.g. in hazards and the impacts of, and adaptation to climate change.	Done.

3.4 DISCUSSION OF REPORTS

- 13 **Tunisia** and other Member States spoke about the need to develop observation programmes focusing on other than climate and risk prevention. National needs for coastal management, fisheries, and coastal pollution are very important. GOOS must identify needs within these areas and GOOS must rely upon the GRAs to carry the message to the IOC Member States.
- 14 **U.S.A.** stated that the initial implementation of GOOS (Global and Coastal modules) cannot be met with the level of resources presently being provided. Resources are even insufficient to sustain those components of the global module that have attained their initial deployment objectives. The membership of I-GOOS needs to be able to make commitments and generate support at the national level in order for GOOS to succeed.
- 15 Member states focused discussion on the GOOS Gap, the problem of connecting the open-ocean climate module with the coastal module, or micro scales vs macro scales. All modules should identify sets of essential variables, which need not be restricted to module. Physical and bio-chemical data can be identified as global attributes if technical coherence and consistency are applied from regional scales to global scales. This underpins the GOOS strategy.
- 16 African and other developing countries indicated a lack of participation in GOOS strategy and coherence of capacity building, from help with National committees to identification of local user needs. The GOOS governance structure has not fulfilled its mission, a clear mandate to promote capabilities, in particular for Africa. ODIN Africa and other IOC training do benefit GOOS, but within the IOC, Capacity Development could be much better integrated across IOC programmes. National committees are not uniformly accessible or active across GOOS Member States. It may be necessary that GOOS play a more active role in the development of National Committees.
- 17 Member states expressed appreciation for the outreach efforts of the GSSC and emphasized that outreach should be considered a priority by the whole IOC Assembly. However some pointed out that the emphasis upon trade and industry might be undervaluing the main users in many countries, which are the government and public sector. Outreach is based on an identification of target audience and their needs. The GOOS needs active involvement of Member States, perhaps through National Committees, to identify these target audiences and users of GOOS. Outreach on the behalf of GOOS cannot be restricted to the secretariat or GSSC, it requires participation by all GOOS Member States. We should use all available channels to promote GOOS, including GEO, UN, UNEP, etc. as well as outreach to target the public.
- 18 **U.S.A.** would like I-GOOS to recommend that the IOC Assembly address the issue of broader GOOS outreach including the Summary for Policy Makers to work with all nations to build on the efforts of

the GSSC and advance GOOS outreach. The U.S.A. noted that this would be particularly timely as part of the efforts to celebrate the IOC's 50th Anniversary.

19 **U.K.** added that policy makers are increasingly interested in assessment of the seas for national ocean policies. These required coordinated reporting, assessments and measures of the marine environment are areas which GOOS should be supporting and emphasizing.

20 The I-GOOS Chairman informed the Committee of the existence of the D. James Baker's report on "Planning and Implementation for GOOS: A Consultant Study prepared for the Intergovernmental Oceanographic Commission and the World Meteorological Organization." The I-GOOS Chairman informed the Committee that the I-GOOS Board has requested the IOC Executive Secretary to mention the Baker Report in his speech to Member States, inform them that it can be provided to any of them on request, and ask for their comments on it to be sent to Keith Alverson at IOC and Geoff Love at WMO by September 1. The Executive Secretary should emphasize in presenting this plan to IOC Member States that this is an informal process and that it is parallel to the process being carried out at WMO.

4 **GLOBAL GOOS IMPLEMENTATION AND SUSTAINABILITY**

4.1 **OOPC CHAIRPERSON REPORT AND RECOMMENDATIONS**

21 The OOPC Chairman, Dr Ed Harrison, reported on the recommendations and concerns of the Ocean Observations Panel for Climate (OOPC) for the GOOS. The Climate Module of GOOS supports a wide range of societal benefits and continues to inform the UNFCCC on climate issues. Modest engagement, guidance or support by the IOC Member States has frustrated further development and even basic reporting efforts. OOPC calls upon the I-GOOS Member States to provide advocacy for the observing system, provide information on national observing system activities, and mobilize national resources in support of GOOS agreed activities. Calls to expand the Climate Module to coastal processes must be responded to with a clear Coastal Implementation Plan, based on national commitments, channeled through the GOOS Regional Alliances. Evaluation metrics, have greatly aided the success of the Climate Module of GOOS, and should form the basis of an effective Coastal Implementation Plan.

Action 3. Member States to report to PICO on national priority activities in support of the Coastal Implementation Plan.

4.2 **NATIONAL CONTRIBUTIONS TO GOOS**

22 The GOOS secretariat reported on the status of the reports on national implementation of the global observing system for climate as requested by the Parties to the UN Framework Convention on Climate Change, UNFCCC. The Subsidiary Body for Scientific and Technological Advice (SBSTA) under UNFCCC requested at its 23rd session (Montreal, December 2005) the GCOS secretariat to provide, at SBSTA-30 (June 2009), a comprehensive report on progress with the GCOS implementation plan. The SBSTA also noted that the preparation of such a report would be heavily dependent upon obtaining timely information on national implementation activities. Therefore, the SBSTA invited Parties to submit to the secretariat, by 15 September 2008, additional information on their national activities with respect to implementing the plan.

23 SBSTA 27 (Bali, December 2007) recalled its request to the GCOS secretariat to provide the above-mentioned comprehensive report at SBSTA-30 and its invitation to Parties to submit to the secretariat, by 15 September 2008, information on their national activities with respect to implementing the plan. It further encouraged Parties to use the revised UNFCCC reporting guidelines on global climate change observing systems adopted at COP-13 ([FCCC/CP/2007/6/Add.2](#)) when providing that information.

24 National contributions to the climate module of GOOS are known through the reporting mechanisms developed by the *in situ* observing networks under the Joint WMO-IOC Technical Commission for Oceanography and Marine Meteorology (JCOMM), and through coordination of space-based observing networks under the Committee on Earth Observation Satellites (CEOS).

25 National contributions to GOOS for the climate module of GOOS and International coordination via the IOC were summarized.

4.3 ESTABLISHMENT OF GOOS NATIONAL COMMITTEES

26 Kouadio Affian, Vice-Chairman of I-GOOS Board, reported on the role of National Committees within GOOS. I-GOOS-VIII proposed to establish National GOOS Committees, whose role, amongst other things, would be to act as a relay between the GOOS Project Office and countries worldwide and to strengthen the relationship between partners working in the field of Ocean Science within each country. After several years of practice, unfortunately, one realizes that many countries have not yet created their National GOOS Committees. The consequence of this situation is the weak participation of these countries in GOOS activities. For example, in 2006–2007, few countries filled in the questionnaire sent out by the I-GOOS Board. In addition, in most developing countries, especially in Africa, there are only weak relationships between the institutions in charge of marine activities within these countries. The result is that only those oceans close to developed countries are well studied, while those bordering developing countries are not well studied at all.

Decision 1. The committee notes the necessity of setting up National GOOS Committees, so as to gain the benefits of their establishment and full participation in the GOOS Programme.

4.4 UNFCCC 2009 ADEQUACY REPORT AND SIDE EVENTS

27 Albert Fischer, Technical Secretary for OOPC, reported on the role of the GOOS in the UNFCCC process. The Ocean Observations Panel for Climate (OOPC) and the GOOS Secretariat have prepared a draft report on progress in implementing the climate module of GOOS as an integral part of a GCOS report on progress in implementing the global observing system for climate in support of the UNFCCC (GOOS Report No. 173, GCOS Document No. 129). The GCOS and GOOS Secretariat participated in a side event and exhibit at the UNFCCC Subsidiary Body Meetings in Bonn, 1–12 June 2009, focused on progress in implementing the global observing systems for climate in support of the UNFCCC, including its ocean, atmospheric, and terrestrial components. Text from the GCOS Secretariat's report was inserted in the UNFCCC Conclusions proposed by the Chair, acknowledging the need for systematic climate observations and noting the need for enhanced commitment of Parties to the GCOS Mechanisms.

4.5 TOWARDS ADOPTION OF A NEW EQUATION OF STATE

28 The Director of the GOOS Project Office, Keith Alverson, provided an overview of the history of development of a new Equation of State of Seawater (TEOS-10 – Thermodynamics and Equation of State of Seawater) and its technical advantages over the existing UNESCO standard (EOS-80). The SCOR/IAPSO Working Group 127 developed this new standard. Several IOC primary subsidiary bodies and scientific guidance panels have considered its suitability for adoption by the 25th Assembly to replace the widely used existing UNESCO standard. The 25th Assembly will be invited to resolve to adopt the new standard (paragraph 13), to ensure this resolution is carried out at the national level (paragraph 15) and to commit sufficient extra-budgetary resources to allow the secretariat to carry out an active outreach campaign including contracting the writing of, publishing, in all of the official languages of the IOC and WMO, and widely distributing a summary report of the TEOS-10 standard (paragraph 17).

4.6 GENERAL DISCUSSION OF GLOBAL GOOS IMPLEMENTATION AND SUSTAINABILITY

29 The Committee acknowledged with appreciation Ed Harrison's open and frank discussion of the implementation of GOOS.

30 The Committee strongly agreed with the request that Member States mobilize at the national level in support of the GOOS objectives. Member States should help represent GOOS as an essential attribute of climate change science, in particular at World Climate Conference 3 and the UNFCCC COP-15.

31 **Senegal** and **Côte d'Ivoire** noted that GOOS Africa is supported by the African Union, and proves to be an effective mechanism to promote North-South cooperation. However developing States count on the UN system to support these countries in their national efforts. The UNESCO has highlighted support of African States in these endeavours, and IOC should likewise continue to support GOOS Africa activities.

32 Several members noted that the concept of “transition of research to operations” is not a useful model for the way forward for GOOS. Rather cooperative oceanography should be emphasized wherein research needs and observational needs are addressed simultaneously, and allowed to coherently support one another. GOOS implementation should break the dichotomy between researchers and observers. GOOS community should promote the inclusion of matters related to Operational Oceanography as a complementary subject in some of the courses on oceanography in universities and colleges.

33 Member States expressed concerns about methods for achieving support for GOOS. Too often decision makers do not understand the need, until they can be persuaded of the impact upon economy and society. The IOC and GOOS should continue to develop more outreach materials to help convince decision makers to support GOOS goals. Coordinating bodies at the national level have the greatest impact on the success of achieving support for GOOS objectives. Sustained support for operational oceanography has been achieved in several Member States (Brazil, Australia) by effective use of national coordinating bodies, by convincing decision makers that it is in their national self interest, and by combining it with national research priorities.

34 Some Member States expressed concern that the peer-review process for the TEOS-10 be better explained. Peer review certainly exists in the form of over 100 peer-reviewed scientific publications and 17 articles with the equations themselves. The manuals will be subject to appropriate peer review as well. It was also pointed out that the new equation expands the temperature range, particularly in the range of the ice-water interface, a range which was not adequately addressed by the older standard. The committee agreed that the IODE statement on the TEOS-10 and the I-GOOS position should be coherent.

35 The committee notes the necessity of setting up National GOOS Committees, so as to gain the benefits of their establishment and full participation in the GOOS Programme.

Decision 2. I-GOOS recommends adoption of the formulation for the thermodynamics and equation of state for seawater TEOS-10 and endorses the related recommendation of IODE-XX.4.

5 GOOS COASTAL NETWORK

5.1 PICO CHAIR REPORT AND RECOMMENDATIONS

36 Thorkild Aarup, Technical Secretary of PICO, provided a progress report on behalf of the co-chairs of PICO – Paul DiGiacomo and Jose Muelbert.

37 PICO is a sub-committee of the GSSC set up to provide technical advice needed for scientifically sound implementation of the Implementation Strategy for the Coastal Module of GOOS (GOOS Report No. 148). The Terms of References are given on <http://www.ioc-goos.org/content/view/172/92/>

38 PICO held its first session on 10–11 April 2008 (Paris, France) back-to-back with the GSSC XI. The aim of the first session was to foster an open discussion along PICO's Terms of Reference. Action plans and recommendations from the meeting are summarized in the meeting report, and separated into the following categories: (i) Coastal System of Systems [the Global Coastal Network]; (ii) Regional GOOS/GRAs; and (iii) Mechanisms: coordination of existing activities, pilot projects, workshops and capacity building. More information about the PICO-I session is provided in GOOS Report No. 172.

39 PICO held its second session on 24–26 February 2009 (Perth, Australia) in association with the GSSC-XII session. The primary goal of the session was to develop an outline and schedule for a prioritized Implementation Plan for the Coastal Module of GOOS. The implementation plan will be centered on phenomena of interest (GOOS Report No 125, page 34) to build an end to end system. A draft outline of the

plan has been developed with an initial focus on six phenomena of interest have been identified coastal flooding, pathogens, ocean acidification, habitat loss, hypoxia, marine resources. The plan will map the phenomena versus the user communities, available observation systems and models, capacity building efforts and maturity of systems.

40 The working schedule for delivery of PICO Implementation Plan: (i) Initial draft framework/outline of Plan will be sent to GSSC, GRAs and other interested partners and parties by July/August 2009 for feedback and comments; (ii) Based on above feedback, and other community inputs such as from the OceanObs'09 Conference (21–25 September 2009, Venice, Italy; a PICO White Paper on Coastal Module of GOOS has been submitted titled “Building a Global System of Systems for the Coastal Ocean: A *Strategic Action Plan for Implementing the Coastal Module of GOOS*”), intent is to have complete internal draft by GSSC-XIII (~March 2010; (iii) the complete draft will be circulated to appropriate parties in March/April 2010 for community review, with final plan for initial priority Phenomena of Interest to be completed by end of 2010, then submitted to GSSC in early 2011.

Action 4. GOOS Regional Alliances to report on regional observation priorities and participate actively in the development and review of the Coastal Module Implementation Plan.

Action 5. GSSC and PICO to prioritize a step-wise implementation list of variables to be observed within Coastal GOOS.

5.2 OUTCOMES FROM GRF-IV AND GRC REPORT

41 Hans Dahlin, Chairman of Euro-GOOS and Co-Chairman of the newly formed GOOS Regional Council presented the outcomes of the IVth Regional GOOS Forum. GRF-IV was held in Guayaquil, Ecuador, 25–28 November 2008; all twelve of the GOOS Regional Alliances participated. Discussions covered the role of the GRAs in furthering the goals of coastal GOOS, the governance of the GRAs by the IOC and GOOS Project Office, interactions of GRAs with Large Marine Ecosystem programmes and other programmes. Reports summarizing the achievements of the individual GRAs were presented. A wide variety of systems are moving successfully ahead across the globe under GRA programmes. However the presentations revealed a discontinuity and lack of communication between GRAs. The GOOS Regional Council was discussed and formed by six of the GRAs (joined by two more in January 2009, and another May 2009) under the co-chairmanship of MedGOOS and EuroGOOS.

5.3 SUSTAINED ARCTIC OBSERVING NETWORK (SAON)

42 GOOS Secretariat, Keith Alverson, presented a report on the Sustained Arctic Observing Network (SAON). Following the success of the IPY the need to find a method to sustain the observation base put in place by the research programmes has led to the formation of the SAON Initiating Group. The group has concluded that the present Arctic observing sites do not adequately cover the Arctic region, and the value of the observations could be enhanced by better coordination. The SAON Initiating Group (SAON-IG) was formed by the Arctic Council and other programmes to carry this work forward. Through workshops and other activities the SAON-IG is soliciting input from relevant people and agencies in the Arctic and non-Arctic countries. The SAON-IG prepared a report delivered to the Arctic Council Ministerial Meeting, April 2009, outlining next steps: an inventory of existing networks and programmes; development of long-term data management systems; encourage commitments for sustained coordination and funding of observations and establish an organization to continue the work of SAON-IG or AOF.

5.4 SOUTHERN OCEAN OBSERVING SYSTEM (SOOS)

43 Mike Sparrow, Executive Officer of Scientific Committee on Antarctic Research, recalled that at the Forty-first Session of the Executive Council of the Intergovernmental Oceanographic Commission (Paris 2008) several IOC Member States recommended that IOC should play a major role in the Antarctic Treaty Consultative Meeting, particularly in the development of a Southern Ocean Observing System, under GOOS, and that the IOC Executive Council decided that further consideration of the legacy of the IPY would occur at the 25th Session of the IOC Assembly (Paris, 2009). The I-GOOS Committee was invited to comment upon and support this initiative to the IOC Assembly.

5.5 GENERAL DISCUSSION OF GOOS COASTAL NETWORK

- 44 The I-GOOS Chairman opened the floor to discussion of the issues of all agenda items presented under the heading of “GOOS Coastal Network”.
- 45 **Oman** and **Madagascar**, following queries about Indian Ocean oceanography and observations, were invited to increase participation in future Indian Ocean GRA activities, which were comprehensively described.
- 46 **Senegal** observed that many dangerous coastal and regional seas phenomena are poorly observed along its coasts. Data to validate models are a pressing need, which GOOS must address to gain support of decision makers for coastal oceanography.
- 47 The Committee expressed satisfaction with the establishment of the GOOS Regional Council at the fourth GOOS Regional Forum. The GRC provides an important single voice for the GRAs that is now represented at the I-GOOS Board meetings by the chairperson of GRC. Participation in the GRC by different GRAs depends upon the GRA’s governance and capabilities. PI-GOOS is in transition as its previous very active executive officer is stepping down.
- 48 **China** pointed out that the NEAR-GOOS is just considering observer status at present time and requires additional consultation with Member States of NEAR-GOOS in the next CC meeting of this year and will then make a final decision regarding their involvement with the GRC.
- 49 **Brazil** reported that the OCEATLAN has provisionally accepted membership in the GRC subject to further evaluation on the GRC funding mechanism.
- 50 The GRC has not solved all problems. The GOOS is not the I-GOOS, GSSC, PICO, GRC or other committees, the GOOS is the sum of the participation of the Member States and the activity of the national committees. GOOS is not here to create committees, GOOS is to take action. To assure that the action is coordinated the GOOS provides forum for interaction and organizes committees. However the system needs refinement to eliminate redundant reporting requirements, which as Spain pointed out, now includes an additional layer with the demands made upon Member States for participation in the GEO/GEOSS.
- 51 **Spain** noted that the GEO Ocean reporting requirements can be addressed by relying upon the GOOS participation in GEOSS.
- 52 **Russian Federation** suggested that the Global Marine Assessment process should not be neglected when outlining the possible users of the coastal GOOS data and products.
- 53 The mobilization on the regional level allows a focus on specific problems. Climate observations must be supplemented by regional activities and perspective. To understand the regional issues we need a regional view, a global view and the planetary overview. Focus on the regional development of GOOS will require a sharper focus on a short list of essential coastal themes and essential variables. The PICO list should be modified and reconciled with existing themes in IOC, such as risk reduction and climate planning. Evaluation of the implementation of coastal GOOS depends upon the identification of a small number of parameters that can be compared to discrete benchmarks.
- 54 At the last IOC Assembly a resolution (XXIV-7, para. 1(iv)) called upon GOOS to develop plans and commitments to support observation networks in the Polar regions, based on achievements of the International Polar Year. GOOS support the SAON and SOOS initiatives. For these programmes to be identified as contributors to GOOS, we should assure that the programmes address the GOOS core variables and data policy.
- 55 **Norway, Canada, Russian Federation and Australia** indicated that they are active participants and supporters of the Polar observation initiatives. The co-Presidents of JCOMM reported that JCOMM would be able to provide support of many aspects of the Polar observatories.

56 Regional representation in aspects of GOOS was questioned by several Member States.

57 **Tunisia** and **Senegal** questioned the regional representation in the PICO, which is making important policy about coastal GOOS with little representation of the concerns of developing countries.

58 **Madagascar** indicated that Polar initiatives should not be confined to participation by adjacent States alone. Tropical and sub-tropical States are affected by climate change issues of the Polar regions and could provide useful participation in Polar science activities.

6 GOOS PARTNER PROGRAMME RECOMMENDATIONS FOR CONSIDERATION

6.1 IODE

59 Peter Pierserssens, IODE Secretariat, reported upon activities of the International Oceanographic Data and Information Exchange, IODE, in support of GOOS goals over the past biennium. Progress of the IODE on a broad suite of fronts was reported at the IODE-XX, held in Beijing, China, 4–8 May 2009. Opportunities for cooperation with GOOS are greater than the breadth of interactions undertaken. An improvement of interactions is called for.

60 The I-GOOS Chairman opened the floor to discussion of the issues of Cooperation between GOOS and IODE.

61 **Tunisia** queried the status of IODE activities in Africa. The ODINAFRICA-IV has been approved and will start soon. Twenty-five African countries have participated in ODINAFRICA with a range of success.

62 **Australia** suggested that IODE support enhanced collaboration with GOOS, including an active role advising the GSSC on data management issues.

63 **Greece** noted the need for interoperability and data standardization. Progress has been made between JCOMM and IODE, but JCOMM is closer on requirements for observations, while IODE may be closer to scientific requirements. IODE and JCOMM are collaborating on best practices manuals that will greatly enhance progress on this issue.

64 **Madagascar** noted that data sharing and adherence to IOC data policy is not universal. Data sharing should not be a one-way process and recognition of the source of data is important. The policy is adhered to rigorously for the IODE Ocean Data Portal, but some oceanographic data remains in the province of ownership, copyright, registration and licenses.

6.2 JCOMM

65 Jean-Louis Fellous, co-president of the Joint WMO-IOC technical Commission for Oceanography and Marine Meteorology (JCOMM), reported to the I-GOOS-IX the work of JCOMM over the past intersessional period, as well as the priority issues to be addressed in the third session of JCOMM that is to be held from 4 to 11 November 2009, Marrakech, Morocco.

66 The JCOMM co-president emphasized the JCOMM's role as an implementation mechanism for global GOOS and *in situ* marine component of the WMO Global Observing System, bridging between meteorology and oceanography toward the operational oceanography. JCOMM has been making efforts to address priorities defined by the IOC High Level Objectives and WMO Expected Results, through activities and new initiatives under each Programme Area of the Observations, Data Management, and Services.

67 Priority issues for JCOMM to be discussed at its third session are identified as following:

- Full implementation of operational ocean observing system, and its maintenance
- Data management modernization, pilot projects and integration with WIGOS, WIS and IODE

- Standards and best practices for operational ocean data, products and services
- Support ocean-related hazard early warning systems, including support for coastal GOOS implementation
- Better coordination with Regions
- Strategic Development, including Strategy Document and Implementation plan, and communications plan

68 The JCOMM co-president noted with concerns the shortfall of resources to implement required activities. He urged Member States to commit sufficient national resources, both direct and in-kind, to allow JCOMM to address the IOC High Level Objectives. JCOMM co-president recalled that the I-GOOS, along with the implementation of the Regional Ocean Observing Systems (ROOS), stressed the importance of the coordination between JCOMM and GOOS regions. In response to this request, it was recommended that each GRA designate a JCOMM rapporteur to ensure each region would implement IOC policy principles and JCOMM data standards/guidelines in observation of essential ocean variables and data dissemination.

6.3 GCOS

69 Carolin Richter, Global Climate Observing System, GCOS, Director, on behalf of John Zillman, Chairman of the GCOS, reported upon the GCOS implementation and the role of GOOS. The GCOS is a joint undertaking of the World Meteorological Organization (WMO), the Intergovernmental Oceanographic Commission of the UN Educational, Scientific and Cultural Organization (UNESCO), the UN Environment Programme (UNEP), the International Council for Science and, in respect of its terrestrial observing components, the UN Food and Agriculture Organization (FAO). The goal of GCOS is to provide comprehensive information on the total climate system, involving a multidisciplinary range of physical, chemical and biological properties, and atmospheric, oceanic, hydrologic, cryospheric and terrestrial processes. The Ocean Observations Panel for Climate (OOPC) and the GOOS Secretariat have prepared a draft report on progress in implementing the climate module of GOOS as an integral part of a GCOS report on progress in implementing the global observing system for climate in support of the UNFCCC (GOOS Report No. 173, GCOS Document No. 129). IOC Member States are invited to comment on this report by 20 June 2009, directly to the GCOS Secretariat. [The GCOS progress report].

6.4 IOC/ABE-LOS

70 Francois Gérard, Chairman of I-GOOS, presented a summary of the issues pertinent to GOOS that were discussed by the IOC Advisory Body of Experts of the Law of the Sea (IOC/ABE-LOS). The chairman reviewed the IOC/ABE-LOS deliberations about procedures having led to Resolution EC-XLI.4 asking for notification of States when Argo floats enter a Member State's exclusive economic zones. He called for Argo operators and Member States to implement strictly these guidelines, as a condition for the smooth development of the Argo programme.

6.5 GENERAL DISCUSSION OF GOOS PARTNER PROGRAMME RECOMMENDATIONS FOR CONSIDERATION

71 The I-GOOS Chairman opened the floor to discussion of the issues of agenda items for JCOMM, GCOS and IOC/ABE-LOS presented under the heading of "GOOS Partner Programme Recommendations for Consideration".

72 **Senegal** and **Tunisia** questioned methods to access the Argo data. After being informed of the locations of the web sites, the issue remained, that accessing Argo data is not the same as using Argo data. USA informed that several training courses were planned for coming the intersessional period, including a training course for Francophone African countries (jointly supported by NOAA/USA and IFREMER/France), and invited interested Member States to participate in these activities.

73 **The Russian Federation** informed the committee that domestic legislation could influence a country's ability to share data from the EEZ, such as that collected by Argo profilers.

74 **U.K.** clarified its position to fully support free and open access to Argo data collected within any U.K. territorial waters. The UK policy would be to not request any specific notification on any floats entering into UK waters. The issues will be further discussed the IOC Assembly at its 25th session.

75 The WMO secretariat reminded the committee of the strong ties that bind the IOC and WMO through the mutual support of the JCOMM, and commitment to engage with IODE, GOOS and GCOS. The WMO Executive Council recognized that the wide scope and complexity of the WMO Integrated Global Observing System, WIGOS, requires close consultation with partners to assure utility for, and integration of co-sponsored systems.

76 **Belgium** noted that the complexity and sheer numbers of IOC programmes, systems, organizations, committees and apparently overlapping mission statements have made participation in the global systems a bewildering experience. Belgium suggested that the apparent lack of resources may be due to the multiplication of initiatives and the dilution of resources for interaction.

77 **U.S.A.** recognized the advances the JCOMM has made in providing technical services the past few years, but noted that the global component has reached a development plateau, far short of its initial implementation plan. **U.S.A.** urges Member States to show their support of JCOMM by endeavouring to second competent personnel to support IOC JCOMM activities.

7 **CAPACITY BUILDING**

7.1 CO-OPERATION WITH IOC CAPACITY DEVELOPMENT PROGRAMMES

78 Ehrlich Desa, IOC Secretariat, reported on progress and accomplishments of the IOC Capacity Development Programmes. The capacity development programme emphasizes leadership workshops, which are not the usual training workshops. The purpose is to work with individuals at institutional levels to empower institutions, as well as individuals. Content and purpose of capacity building should be dictated by the recipients, and not assumed by the providers. This assures relevance and sustainable benefit.

79 The I-GOOS Chairman opened the floor to discussion of the issues of the agenda item presented under the heading of “Co-operation with IOC Capacity Development Programmes”.

80 **Côte d’Ivoire** endorses the approach that strengthens capacity, but dissents that training could ignore the desires and needs of scientists to work within the world system of state-of-the-art research.

81 **Senegal** observed a need for capacity on the operational aspect and the capacity building needs of end-users. The secretariat answered that the IOC training programme does not come with preconceived ideas. There is no poor science or rich science; there is the science which is right for the country. The content of the training will be dictated by the people’s own priorities. If they need cutting edge training or methods to work within limited physical capacities, the content of training is the people’s choice, not the IOC programme.

82 **Madagascar** greeted the presentation with satisfaction and indicated a readiness to host this type of training session.

8 **PROGRAMME AND BUDGET**

83 Keith Alverson, Director of the GOOS Project Office, presented the budget and programme document. The GOOS budgets from 2006–2007 and 2008–2009 are recalled from I-GOOS-VII (2005) and I-GOOS-IX (2007), and compared against the proposed budget for the 2010–2011 biennium. The overall budget envelope for the 2010–2011 biennium is taken from three relevant lines in the UNESCO draft 35 C/5 that is expected to be adopted by UNESCO Member States in October 2009: \$527k for GOOS and JCOMM (of which 80k is earmarked for regional activities in the Asia Pacific), \$55k for GLOSS, and \$196k for IODE and OBIS. Allocations by programme were outlined in the preliminary budget. During previous

biennium the regions have been supported through hiring staff for regional offices. In the current biennium these staff obligations have been taken into the UNESCO regular budget for the GOOS Africa coordinator position in Paris and by extra budgetary contributions from Brazil and Australia for the Rio and Perth office heads respectively. As a result of these staff costs savings GOOS intends to support regions through funds for activities overseen by these same staff. Extra-budgetary funds received in the 2008–2009 biennium consisted of approximately \$550k/year, all earmarked by donors, provided in the context of GOOS and JCOMM programmes. Member States provided the majority of these funds through the GOOS co-sponsors, UNEP and WMO, also contributed small amounts.

84 The I-GOOS Chairman opened the floor to discussion of the issues the programme and budget.

85 **Australia** and **UK** requested additional information for budgets of UNESCO staff assigned to GOOS Project Office support. The Secretariat responded that exact accounting of staff time is difficult to ascertain, as all work on multiple programmes within IOC. The IOC Assembly will review the IOC budget.

86 **U.S.A., Federation of Russia** and other Member States questioned whether an accounting of the level of extra-budgetary funding could be amended to the programme budget. The Secretariat noted that extra-budgetary funding overview was provided in the meeting document on Programme and Budget, and anticipates similar extra-budgetary funding for the next biennium. But emphasized that extra-budgetary funds are committed to particular projects by the donor Member States and cannot be included in discretionary planning.

87 Member states expressed concern that several activities will be under funded the next biennium and commented on the potential impact on GOOS visibility. Several activities funded in the past, such as the GOOS Regional Council development, cannot be budgeted, as the ToRs explicitly require extra-budgetary sources.

88 **Côte d'Ivoire** noted that the large IOC increase in budget for Tsunami Warning Systems, appears to be at the expense of other hazard warning issues, which in many countries pose just as urgent risks.

89 **Brazil** announced that it has managed to find the appropriate resources for covering the salary of the Rio GOOS office person in charge and therefore regular budget can now finally be converted into regional activities in the OCEAN region, which Brazil would like to ask the Executive Secretary of IOC to have it well reflected in the new Memorandum of Understanding to be signed soon.

90 The I-GOOS chairman noted that while the budget appears to be reduced, there are in actuality, few changes from the previous biennium. The transfer of costs from the support of activities in Rio and Perth regional offices, has been offset equally by the contribution of UNESCO personnel now supported under UNESCO regular budget. The chairman urged Member States to support GOOS through extra-budgetary means where possible. The chairman recognized that the support of regional activities such as the GRC, GOOS Regional Alliance and national programmes lay at the base of the GOOS and contribute to the international visibility of GOOS.

Decision 3. I-GOOS considered the budget and programme document, provided the secretariat with guidance on improving and refining it, and approved the proposed programme and budget for the 2010–2011 biennium.

9 ELECTIONS TO THE I-GOOS BOARD FOR 2010–2011

91 A Nominations Committee was formed at the start of the I-GOOS-IX; it was chaired by Trevor Guymer (United Kingdom).

92 In accordance with the Terms of Reference for the I-GOOS, in IOC Resolution XXIII-5, the Board of I-GOOS consists of the Chairperson and the four Vice-Chairpersons of I-GOOS.

93 The Nominations Committee had received five nominations for the board. They were:

Ms Shaohua Lin, (China), for Chairperson

Prof. Kouadio Affian, (Côte d'Ivoire), for Vice-Chairperson

Dr Margarita Conkright Gregg, (USA), for Vice-Chairperson

Dr Alexander Postnov, (Russian Federation), for Vice-Chairperson

Admiral Hector Soldi, (Peru), for Vice-Chairperson

94 The Nominations Committee examined the nominations received and found they were valid and in accordance with the IOC rules of procedure.

Decision 4. Shao Hua LIN was elected as Chairperson of I-GOOS by acclamation. Furthermore Prof. Kouadio AFFIAN, Dr Margarita CONKRIGHT GREGG, Dr Alexander POSTNOV and Admiral Hector SOLDI were elected Vice-Chairpersons of I-GOOS by acclamation.

10 ADOPTION OF DECISIONS AND RECOMMENDATIONS

10.1 ADOPTION OF DRAFT RESOLUTIONS FOR CONSIDERATION BY 25TH IOC ASSEMBLY

95 The Committee considered the draft resolution prepared by the Resolutions Committee. I-GOOS decided to table this Draft Resolution for consideration by the IOC Assembly after minor revisions to be carried out by the secretariat with the approval of the board. The Draft Resolution is included in Annex III.

10.2 ADOPTION OF ACTION ITEMS AND DECISIONS FOR INCLUSION IN THE REPORT OF THE 9TH SESSION

96 The Committee considered the Draft Summary of Action Items and Decisions of the present session, prepared by the GPO and reviewed by the Rapporteur. The Committee accepted the Action Items and Decisions for inclusion in the Report.

10.3 ADOPTION OF THE I-GOOS 9TH SESSION REPORT

97 The Committee considered the Draft Report of I-GOOS-IX. The Committee accepted the Draft Report.

11 ANY OTHER BUSINESS

11.1 NEXT SESSION OF I-GOOS (I-GOOS-X)

98 The Committee decided in principle to hold its 10th Session in Paris during the week preceding the 26th Session of the IOC Assembly which will begin 10th June 2011. However the secretariat was given flexibility to seek alternative arrangements as required. The Committee noted that UN Oceans Day will be celebrated, on June 8th.

12 CLOSURE OF THE SESSION

99 The Chairman closed the 9th Session of I-GOOS at 12:50 Friday 12th June 2009.

ANNEX I

AGENDA

1 OPENING AND WELCOME

2 ADMINISTRATIVE ARRANGEMENTS

- 2.1 ADOPTION OF THE AGENDA
- 2.2 DESIGNATION OF RAPPORTEUR
- 2.3 CONDUCT OF THE SESSION AND FORMATION OF WORKING GROUPS

3 REPORTS

- 3.1 REPORT OF THE I-GOOS CHAIRPERSON
- 3.2 REPORT OF THE GSSC CHAIRPERSON
- 3.3 REVIEW OF PAST I-GOOS ACTIONS
- 3.4 DISCUSSION OF REPORTS

4 GLOBAL GOOS IMPLEMENTATION AND SUSTAINABILITY

- 4.1 OOPC CHAIRPERSON REPORT AND RECOMMENDATIONS
- 4.2 NATIONAL CONTRIBUTIONS TO GOOS
- 4.3 ESTABLISHMENT OF GOOS NATIONAL COMMITTEES
- 4.4 UNFCCC 2009 ADEQUACY REPORT AND SIDE EVENTS
- 4.5 TOWARDS ADOPTION OF A NEW EQUATION OF STATE
- 4.6 GENERAL DISCUSSION OF GLOBAL GOOS IMPLEMENTATION AND SUSTAINABILITY

5 GOOS COASTAL NETWORK

- 5.1 PICO CHAIR REPORT AND RECOMMENDATIONS
- 5.2 OUTCOMES FROM GRF-IV AND GRC REPORT
- 5.3 SUSTAINED ARCTIC OBSERVING NETWORK (SAON)
- 5.4 SOUTHERN OCEAN OBSERVING SYSTEM (SOOS)
- 5.5 GENERAL DISCUSSION OF GOOS COASTAL NETWORK

6 GOOS PARTNER PROGRAMME RECOMMENDATIONS FOR CONSIDERATION

- 6.1 IODE
- 6.2 JCOMM
- 6.3 GCOS
- 6.4 ABE-LOS
- 6.5 GENERAL DISCUSSION OF GOOS PARTNER PROGRAMME RECOMMENDATIONS FOR CONSIDERATION

7 CAPACITY BUILDING

7.1 CO-OPERATION WITH IOC CAPACITY DEVELOPMENT PROGRAMMES

8 PROGRAMME AND BUDGET

9 ELECTIONS TO THE I-GOOS BOARD FOR 2010-2011

10 ADOPTION OF DECISIONS & RECOMMENDATIONS

**10.1 ADOPTION OF DRAFT RESOLUTIONS FOR CONSIDERATION
BY 25TH IOC ASSEMBLY**

**10.2 ADOPTION OF ACTION ITEMS AND DECISIONS FOR INCLUSION
IN THE REPORT OF THE 9TH SESSION**

10.3 ADOPTION OF THE I-GOOS 9TH SESSION REPORT

11 ANY OTHER BUSINESS

11.1 NEXT SESSION OF I-GOOS (I-GOOS-X)

12 CLOSURE OF THE SESSION

ANNEX II

LIST OF ACTIONS AND DECISIONS

- Action 1:** Member States to improve GOOS participation in the GEO/GEOSS process by exploring opportunities to provide funding support, including personnel secondments, for more coordination and active engagement of the GOOS in GEO.
- Action 2:** Member States to inform GSSC of national needs and priorities for GOOS outreach and advocacy activities. (next GSSC)
- Action 3:** Member States to report to PICO on national priority activities in support of the Coastal Implementation Plan.
- Decision 1:** The committee notes the necessity of setting up National GOOS Committees, so as to gain the benefits of their establishment and full participation in the GOOS Programme.
- Action 4:** GOOS Regional Alliances to report on regional observation priorities and participate actively in the development and review of the Coastal Module Implementation Plan.
- Action 5:** GSSC and PICO to prioritize a step-wise implementation list of variables to be observed within Coastal GOOS.
- Decision 2:** I-GOOS recommends adoption of the formulation for the thermodynamics and equation of state for seawater TEOS-10 and endorses the related recommendation of IODE-XX.4.
- Decision 3:** I-GOOS considered the budget and programme document, provided the secretariat with guidance on improving and refining it, and approved the proposed programme and budget for the 2010–2011 biennium.
- Decision 4:** Ms Shao Hua LIN was elected as Chairperson of I-GOOS by acclamation. Furthermore Prof. Kouadio AFFIAN, Dr Margarita Conkright GREGG, Dr Alexander POSTNOV and Admiral Hector SOLDI were elected Vice-Chairpersons of I-GOOS by acclamation.

ANNEX III

**DRAFT RESOLUTION
PROGRAMME OF ACTION FOR GOOS, 2010–2011**

The Intergovernmental Oceanographic Commission,

Recalling:

- I. Resolution XVI-8 establishing the Global Ocean Observing System (GOOS)
- II. Resolution XXIII-1 recognizing GOOS as the ocean component of the Global Earth Observing System of Systems (GEOSS)
- III. Resolution XXIV-3 The Past, Present and Future of Africa within the IOC Programmes
- IV. Resolution XXIV-7 describing the programme of action for GOOS 2008-9,

Noting:

The Global Ocean Observing System (GOOS) is a priority for the IOC;

The progress in the implementation of the GOOS Climate module as reported in the GCOS progress report to the UN Framework Convention on Climate Change (Bonn, June, 2009, GOOS No. 173);

The establishment of the GOOS Regional Council by the Fourth GOOS Regional Forum (Guayaquil, Ecuador, November 2008)

Paragraph 36 of the Johannesburg Plan of Implementation (World Summit on Sustainable Development 2002) which called for expanded observation of the global ocean and coastal seas¹

Considering:

- I. That progress in the implementation of the GOOS climate module has in the last few years plateaued at around 60% of its design goal.
- II. That observations of the oceans are critical to understanding and forecasting the global climate system and climate change; and in understanding and forecasting the local coastal impacts of climate change, with differentiated regional impacts;
- III. That, while climate monitoring and forecasts remain the main drivers for GOOS development, the system shall be developed to address other applications and societal needs, especially in the coastal areas;
- IV. The need to increase the number of Member States active in GOOS implementation,
- V. That the written priority in the IOC Strategy given to developing regions in general, and Africa in particular, has not substantially emerged in terms of concrete results;
- VI. That the transition of observing activities from research to sustained operational system elements requires specific capacities within Member States;
- VII. The proposal of I-GOOS IX to develop a stepwise implementation strategy relying on the coordinated integrated development of the GOOS coastal network and of the global GOOS module;

Anticipating:

- I. The importance of sustained oceanographic observations to the planned future improved delivery of climate services as one outcome of the World Climate Conference 3, (31 August-3 September 2009, Geneva);

- II. The future continued importance of the United Nations Framework Convention on Climate Change (UNFCCC) as a platform for enhancing GOOS visibility and ensuring Member State participation in sustaining the GOOS;

Having Considered: the Draft Report from I-GOOS-VIII (doc ref here) and the related report to the 25th Assembly by the Chair of I-GOOS

Decides to focus the GOOS program of work for the 2010-2011 biennium on (1) sustaining the climate module of GOOS, (2) Implementation of GOOS in coastal areas through GOOS national programs and Regional Alliances, (3) GOOS outreach and (4) Africa, as follows:

1. Sustaining the climate module of GOOS

- I. **Instructs** the IOC Executive Secretariat to ensure strong participation of GOOS in the follow-up to the World Climate Conference 3, (WCC-3, 31 August-3 September 2009, Geneva) in particular in the area of delivering climate services.
- II. **Instructs** the Executive Secretary to ensure continued visibility of GOOS in the United Nations Framework Convention on Climate Change Conference of Parties (COP) and its subsidiary body for scientific and technical advice (SBSTA) in close cooperation with GCOS.

2. Implementing the coastal module of GOOS

- I. **Urges** Member States to commit themselves to stepwise global implementation of a reduced, priority set of coastal ocean variables, following the recommendations of the GOOS Scientific Steering Committee (GSSC) and its subsidiary Panel on Integrated Coastal Observations (PICO),
- II. **Urges** Regional Groups and Member States, with the support of the Executive Secretary, to establish Regional Operational Oceanographic Centers in developing regions;
- III. **Urges** Member States to designate GOOS national contact points, (as called for in IOC Circular letter 2199), and where appropriate, national GOOS committees and to reinforce national inter-agency cooperation required to full implementation of national ocean observing systems

3. GOOS outreach

- I. **Requests** that the sponsoring agencies of GOOS draft an inter-agency declaration on the critical needs for enhanced and sustained oceans observing systems
- II. **Instructs** the Executive Secretary to produce and widely disseminate information materials for public awareness on the importance of sustained and enhanced coastal and open ocean observations;
- III. **Instructs** the Executive Secretary to conduct presentations about GOOS, especially as it relates to understanding climate processes and climate change, at relevant major international conferences, including UNFCCC, regional fora, and in developing countries.
- IV. **Urges** Member States to participate actively in these same events, and make the case for sustained ocean observations as a crucial component of climate monitoring, research and prediction.

4. Africa as a priority for GOOS

- I. **Instructs** the IOC Executive Secretary to take adequate measures for the implementation of the past Resolutions regarding the Priority Africa and the reinforcement of GOOS-AFRICA.

ANNEX IV

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ANNEX V

LIST OF DOCUMENTS*

Document Code	Title	Responsible	Agenda item
		Secretariat	All
I-GOOS-IX/2 prov	I-GOOS-IX Provisional Agenda and Timetable	Secretariat	All
I-GOOS-XI/4	Provisional list of Documents (this document)	Secretariat	All
I-GOOS-XI/5	Provisional List of Participants	Secretariat	
I-GOOS-IX/6	Report of I-GOOS-Chairperson	F. Gérard	3.1
I-GOOS-IX/7	Report of the GSSC Chairperson to I-GOOS-IX: Annotated list of recommendations from the GSSC for consideration by I-GOOS	R. Rayner	3.2
I-GOOS-IX/9	Report of the Ocean Observations Panel for Climate (OOPC) chair	E. Harrison	4.1
I-GOOS-IX/10	National contributions to GOOS	A. Fischer	4.2
I-GOOS-IX/11	National GOOS Committees as a vital tool for the implementation of the GOOS programme	K. Affian	4.3
I-GOOS-IX/12	GCOS Progress report to the UNFCCC and side event/exhibition	A. Fischer	4.4
I-GOOS-IX/13.1	Proposed adoption of a new formulation for the Thermodynamics and Equation of State of Seawater	K. Alverson	4.5
I-GOOS-IX/13.2	Thermodynamic Manual	K. Alverson	4.5
I-GOOS-IX/13.4	Recommendation IODE-XX.4 on TEOS-10	P. Pissierssens	4.5
I-GOOS-IX/16.1	UNESCO Arctic Report	Working Doc.	5.3
IOC-XXV/2 Annex 5	Considerations regarding the possible adoption of a new formulation of the Equation of State for Seawater	Secretariat	4.5
I-GOOS-IX/16.2	SAON Report	Working Doc.	5.3
I-GOOS-IX/17.1	ATCM-XXXII Resolution 2009-1	GRASP	5.4
I-GOOS-IX/17.2	Washington Declaration on the International Polar Year and Polar Science	Working Doc.	5.4
I-GOOS-IX/20	GCOS and Ocean Observations for Climate	J. Zillman / W. Westermeyer	6.2
I-GOOS-IX/23	Programme and Budget : Report of the GPO Secretariat Director	K. Alverson	8
Document Code	100 Background Documents	Responsible	Agenda item
GOOS-173	Progress Report on the Implementation of the Global Observing system for Climate in Support of the UNFCCC 2004-2008	F. Gérard	4.4
GOOS-174	IV GRA Forum Report	T. Gross	5.2
	IODE-XX Executive Summary (Draft)		4.1
I-GOOS-VIII/11	GOOS Regional Council (GRC) - Terms of Reference	F. Gérard	5.2

* This list is for reference only. No stocks of these documents are maintained.

ANNEX VI

LIST OF ACRONYMS

ABE-LOS	IOC Advisory Body of Experts of the Law of the Sea (IOC/ABE-LOS)
AOF	Arctic Observing Forum
AOML	Atlantic Oceanographic and Meteorological Laboratory
API	Application Programming Interface
ASPeCt	Antarctic Sea Ice Processes & Climate
BS-GOOS	Black Sea GOOS Regional Alliance
CAML	Census of Antarctic Marine Life
CASO	Climate of Antarctica and the Southern Ocean
CDIAC	Carbon Dioxide Information Analysis Center
CEOS	Committee on Earth Observation Satellites
CGMS	Coordination Group for Meteorological Satellites
ChloroGIN	Chlorophyll Globally Integrated Network
CIIFEN	Centro Internacional para la Investigación del Fenómeno de El Niño
CLIVAR	Climate Variability and Predictability
CMA	Caribbean Marine Atlas
CoML	Census of Marine Life
COOP	Coastal Ocean Observation Panel
COP-15	Conference of the Parties conference, (UNFCCC)
CPPS	Comisión Permanente del Pacifico Sur
CPR	Continuous Plankton Recorder
CZCP	Coastal Zone Community of Practice
DART	Deep-ocean Assessment and Reporting of Tsunamis
DBCP	Data Buoy Cooperation Panel
DCPC	Data Collection and Production Centres
DIF	Data Integration Framework
ECOOP	European COastal-shelf sea OPerational monitoring and forecasting system
EEA	European Environment Agency
EG-Ocean	SCAR/SCOR Expert Group on Oceanography
ESA	European Space Agency
ETOOFS	Expert Team on Operational Ocean Forecasting Systems
EUCOCUS	EU Carbon Observing System Coordination
EUEPOCA	EU European Project of Ocean Acidification
EuroGOOS	European GOOS Regional Alliance
FAO	Food and Agriculture Organization of the United Nations
FIEEE	Fellow of the Institute of Electrical and Electronics Engineers
GAW	Global Atmosphere Watch

GCN	Global Coastal Network
GCOS	Global Climate Observing System
GCOS IP	Global Climate Observing System Implementation Plan
GCRMN	Global Coral Reef Monitoring Network
GEF	Global Environment Facility
GEO	Group on Earth Observations
GEOSS	Global Earth Observation System of Systems
GHR SST	Global High-Resolution Sea Surface Temperature
GIS	Geographic Information System
GLOBEC	Global Ocean Ecosystem Dynamics
GLOSS	Global Sea-Level Observing System
GMES	Global Monitoring for Environment and Security
GODAE	Global Ocean Data Assimilation Experiment
GOHWMS	Global Ocean related Hazards Warning and Mitigation System
GOOS	Global Ocean Observing System
GOOS-Africa	Africa GOOS Regional Alliance
GOS	Global Ocean Sampling expedition
GO-SHIP	Global Ocean Ship-based Hydrographic Investigations Panel
GOSIC	Global Observing Systems Information Center,
GOV	GODAE OceanView
GPS	Global Positioning System
GPO	GOOS Project Office
GRACE	Gravity Recovery and Climate Experiment
GRAs	GOOS Regional Alliances
GRAND	GOOS Regional Alliances Network Development
GRASP	GOOS Regional Alliance for the South Pacific
GRC	GOOS Regional Council
GRF	GOOS Regional Alliance Forum
GSOP	Global Synthesis and Observations Panel
GSSC	GOOS Scientific Steering Committee
GTOS	Global Terrestrial Observing System
GTS	Groupe de Travail Scientifique
GTS	WMO Global Telecommunications System
HYCOS	Hydrological Cycle Observing System
IAPSO	International Association for the Physical Sciences of the Oceans
ICES	International Council for the Exploration of the Sea
ICPC	Interagency Coordination Panel for Earth Observations
ICSU	International Council for Science
IEEE	Institute of Electrical and Electronic Engineers

IGBP	International Geosphere-Biosphere Programme
I-GOOS	Intergovernmental Committee for GOOS
IGOS	Integrated Global Observing Strategy
IGSG	ICES GOOS Steering Group
IMarEST	Institute of Marine Engineering, Marine and Technology
IMBER	Integrated Marine Biogeochemistry and Ecosystem Research
IOC	Intergovernmental Oceanographic Commission (of UNESCO)
IOCCP	International Ocean Carbon Coordination Project
IODE	International Oceanographic Data and Information Exchange
IO-GOOS	Indian Ocean GOOS Regional Alliance
IOOS	Integrated Ocean Observing System (NOAA)
IPCC	Intergovernmental Panel on Climate Change
IPY	International Polar Year
JAMSTEC	Japan Agency for Marine-Earth Science and Technology
JCOMM	Joint WMO-IOC Technical Commission for Oceanography and Marine Meteorology
JCOMM-MAN	JCOMM Management Committee
JCOMM TT	JCOMM Task Team
JGOFS	Joint Global Ocean Flux Study
J PICO	Joint GOOS GTOS Coastal Panel
KML	Data encoding standard for Google Earth
LAS	Live Access Server
LME	Large Marine Ecosystem
MarBIN	SCAR Marine Biodiversity Information Network
MERSEA	Marine Environment and Security for the European Area
MedGOOS	Mediterranean GOOS Regional Alliance
MOA	Memorandum of Agreement
MOU	Memorandum of Understanding
NASA	National Aeronautics and Space Administration (USA)
NCDC	National Climatic Data Center
NEAR-GOOS	North-East Asian GOOS Regional Alliance
NESDIS	National Environmental satellite, Data and Information Service
NetCDF	Data file format
NIES	National Institute for Environmental Studies
NOAA	National Oceanic and Atmospheric Administration (USA)
NODC	National Oceanographic Data Center (USA)
NSF	National Science Foundation (USA)
NWP	Numerical Weather Prediction centers
OCEATLAN	Southeast Atlantic Ocean GOOS Regional Alliance, Aliança Regional para a Oceanografia no Atlântico Sudoeste Superior e Tropical

OceanDIVA	Ocean Data Inter-comparison and Visualization Application
OCB	Ocean Carbon and Biogeochemistry
ODIN	Ocean Data Information Network
ODINAFRICA	Ocean Data Information Network Africa
ODINCARSA	Ocean Data Information Network Caribbean and South America regions
ODP	Ocean Data Portal
OGC	Open Geospatial Consortium
OGP	Oil and Gas Producers
OOPC	Ocean Observations Panel for Climate
OSE	Observing System Experiment
OSSE	Observing System Simulation Experiment
PICES	North Pacific Marine Science Organization
PICO	Panel for Integrated Coastal Observations
PI-GOOS	Pacific Islands GOOS Regional Alliance
PIRATA	Pilot Research Moored Array in the Tropical Atlantic
PMEL	Pacific Marine Environmental Laboratory
POGO	Partnership for Observation of the Global Ocean
POM	Princeton Ocean Model
PP	Pilot Project
PP-WET	Pilot Project for Wave measurement Evaluation and Test from moored buoys
PSU	Practical Salinity Unit
RCOOS	Regional Coastal Ocean Observing System
R&D	Research and Development
ROMS	Regional Ocean Modelling System
ROOS	Regional Ocean Observing System
SAHFOS	Sir Alister Hardy Foundation for Ocean Science
SAON	Sustaining Arctic Observing Networks
SASSI	Synoptic Antarctic Shelf-Slope Interactions
SBSTA	Subsidiary Body for Scientific and Technological Advice (UNFCCC)
SCAR	Scientific Committee on Antarctic Research
SCOR	Scientific Committee on Oceanic Research
SEA-GOOS	Southeast Asian GOOS Regional Alliance
SEPRISE	Sustained, Efficient Production of Required information Services
SERead	Scientific Educational Resources and Experience Associated with Deployment of Argo floats in the Pacific
SGGOOS	Steering Group for GOOS
SIF	Standards and Interoperability Forum
SOLAS	Surface Ocean-Lower Atmosphere Study
SO	Southern Ocean

SOCAT	Surface Ocean CO2 Atlas
SOOP	Ship-of-Opportunity Programme
SOOS	Southern Ocean Observing System
SPINCAM	Southeast Pacific data and Information Network in support to Integrated Coastal Area Management
SST	Sea Surface Temperature
TEOS-10	Thermodynamic Equation Of Seawater 2010
ToR	Terms of Reference
TOWS-WG	Working Group on Tsunamis and Other Hazards Related to Sea-level Warning and Mitigation Systems
UN	United Nations
UNDAF	United Nations Development Assistance Framework
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNEP	United Nations Environment Programme
UNFCCC	United National Framework Convention on Climate Change
UOR	Undulating Oceanographic Recorder
US-GOOS	United States GOOS Regional Alliance (IOOS)
WCC3	World Climate Conference-3
WCRP	World Climate Research Programme
WESTPAC	IOC Sub-Commission for the Western Pacific
WIGOS	WMO Integrated Global Observing System
WIS	WMO Information System
WMO	World Meteorological Organization

In this Series	Languages
Reports of Governing and Major Subsidiary Bodies , which was initiated at the beginning of 1984, the reports of the following meetings have already been issued:	
1. Eleventh Session of the Working Committee on international Oceanographic Data Exchange	E, F, S, R
2. Seventeenth Session of the Executive Council	E, F, S, R, Ar
3. Fourth Session of the Working Committee for Training, Education and Mutual Assistance	E, F, S, R
4. Fifth Session of the Working Committee for the Global Investigation of Pollution in the Marine Environment	E, F, S, R
5. First Session of the IOC Sub-Commission for the Caribbean and Adjacent Regions	E, F, S
6. Third Session of the <i>ad hoc</i> Task team to Study the Implications, for the Commission, of the UN Convention on the Law of the Sea and the New Ocean Regime	E, F, S, R
7. First Session of the Programme Group on Ocean Processes and Climate	E, F, S, R
8. Eighteenth Session of the Executive Council	E, F, S, R, Ar
9. Thirteenth Session of the Assembly	E, F, S, R, Ar
10. Tenth Session of the International Co-ordination Group for the Tsunami Warning System in the Pacific	
11. Nineteenth Session of the Executive Council, Paris, 1986	E, F, S, R, Ar
12. Sixth Session of the IOC Scientific Committee for the Global Investigation of Pollution in the Marine Environment	E, F, S
13. Twelfth Session of the IOC Working Committee on International Oceanographic Data Exchange	E, F, S, R
14. Second Session of the IOC Sub-Commission for the Caribbean and Adjacent Regions, Havana, 1986	E, F, S
15. First Session of the IOC Regional Committee for the Central Eastern Atlantic, Praia, 1987	E, F, S
16. Second Session of the IOC Programme Group on Ocean Processes and Climate	E, F, S
17. Twentieth Session of the Executive Council, Paris, 1987	E, F, S, R, Ar
18. Fourteenth Session of the Assembly, Paris, 1987	E, F, S, R, Ar
19. Fifth Session of the IOC Regional Committee for the Southern Ocean	E, F, S, R
20. Eleventh Session of the International Co-ordination Group for the Tsunami Warning System in the Pacific, Beijing, 1987	E, F, S, R
21. Second Session of the IOC Regional Committee for the Co-operative Investigation in the North and Central Western Indian Ocean, Arusha, 1987	E, F
22. Fourth Session of the IOC Regional Committee for the Western Pacific, Bangkok, 1987	E only
23. Twenty-first Session of the Executive Council, Paris, 1988	E, F, S, R
24. Twenty-second Session of the Executive Council, Paris, 1989	E, F, S, R
25. Fifteenth Session of the Assembly, Paris, 1989	E, F, S, R
26. Third Session of the IOC Committee on Ocean Processes and Climate, Paris, 1989	E, F, S, R
27. Twelfth Session of the International Co-ordination Group for the Tsunami Warning System in the Pacific, Novosibirski, 1989	E, F, S, R
28. Third Session of the Sub-Commission for the Caribbean and Adjacent Regions, Caracas, 1989	E, S
29. First Session of the IOC Sub-Commission for the Western Pacific, Hangzhou, 1990	E only
30. Fifth Session of the IOC Regional Committee for the Western Pacific, Hangzhou, 1990	E only
31. Twenty-third Session of the Executive Council, Paris, 1990	E, F, S, R
32. Thirteenth Session of the IOC Committee on International Oceanographic Data and Information Exchange, New York, 1990	E only
33. Seventh Session of the IOC Committee for the Global Investigation of Pollution in the Marine Environment, Paris, 1991	E, F, S, R
34. Fifth Session of the IOC Committee for Training, Education and Mutual Assistance in Marine Sciences, Paris, 1991	E, F, S, R
35. Fourth Session of the IOC Committee on Ocean Processes and Climate, Paris, 1991	E, F, S, R
36. Twenty-fourth Session of the Executive Council, Paris, 1991	E, F, S, R
37. Sixteenth Session of the Assembly, Paris, 1991	E, F, S, R, Ar
38. Thirteenth Session of the International Co-ordination Group for the Tsunami Warning System in the Pacific, Baja California, 1991	E, F, S, R
39. Second Session of the IOC-WMO Intergovernmental WOCE Panel, Paris, 1992	E only
40. Twenty-fifth Session of the Executive Council, Paris, 1992	E, F, S, R
41. Fifth Session of the IOC Committee on Ocean Processes and Climate, Paris, 1992	E, F, S, R
42. Second Session of the IOC Regional Committee for the Central Eastern Atlantic, Lagos, 1990	E, F
43. First Session of the Joint IOC-UNEP Intergovernmental Panel for the Global Investigation of Pollution in the Marine Environment, Paris, 1992	E, F, S, R
44. First Session of the IOC-FAO Intergovernmental Panel on Harmful Algal Blooms, Paris, 1992	E, F, S
45. Fourteenth Session of the IOC Committee on International Oceanographic Data and Information Exchange, Paris, 1992	E, F, S, R
46. Third Session of the IOC Regional Committee for the Co-operative Investigation in the North and Central Western Indian Ocean, Vascoas, 1992	E, F
47. Second Session of the IOC Sub-Commission for the Western Pacific, Bangkok, 1993	E only
48. Fourth Session of the IOC Sub-Commission for the Caribbean and Adjacent Regions, Veracruz, 1992	E, S
49. Third Session of the IOC Regional Committee for the Central Eastern Atlantic, Dakar, 1993	E, F
50. First Session of the IOC Committee for the Global Ocean Observing System, Paris, 1993	E, F, S, R
51. Twenty-sixth Session of the Executive Council, Paris, 1993	E, F, S, R
52. Seventeenth Session of the Assembly, Paris, 1993	E, F, S, R
53. Fourteenth Session of the International Co-ordination Group for the Tsunami Warning System in the Pacific, Tokyo, 1993	E, F, S, R
54. Second Session of the IOC-FAO Intergovernmental Panel on Harmful Algal Blooms, Paris, 1993	E, F, S
55. Twenty-seventh Session of the Executive Council, Paris, 1994	E, F, S, R
56. First Planning Session of the IOC-WMO-UNEP Committee for the Global Ocean Observing System, Melbourne, 1994	E, F, S, R
57. Eighth Session of the IOC-UNEP-IMO Committee for the Global Investigation of Pollution in the Marine Environment, San José, Costa Rica, 1994	E, F, S
58. Twenty-eighth Session of the Executive Council, Paris, 1995	E, F, S, R
59. Eighteenth Session of the Assembly, Paris, 1995	E, F, S, R
60. Second Session of the IOC-WMO-UNEP Committee for the Global Ocean Observing System, Paris, 1995	E, F, S, R

61.	Third Session of the IOC-WMO Intergovernmental WOCE Panel, Paris, 1995	E only
62.	Fifteenth Session of the International Co-ordination Group for the Tsunami Warning System in the Pacific, Papete, 1995	E, F, S, R
63.	Third Session of the IOC-FAO Intergovernmental Panel on Harmful Algal Blooms, Paris, 1995	E, F, S
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65.	Second Planning Session of the IOC-WMO-UNEP Committee for the Global Ocean Observing System, Paris, 1995	E only
66.	Third Session of the IOC Sub-Commission for the Western Pacific, Tokyo, 1996	E only
67.	Fifth Session of the IOC Sub-Commission for the Caribbean and Adjacent Regions, Christ Church, 1995	E, S
68.	Intergovernmental Meeting on the IOC Black Sea Regional Programme in Marine Sciences and Services	E, R
69.	Fourth Session of the IOC Regional Committee for the Central Eastern Atlantic, Las Palmas, 1995	E, F, S
70.	Twenty-ninth Session of the Executive Council, Paris, 1996	E, F, S, R
71.	Sixth Session for the IOC Regional Committee for the Southern Ocean and the First Southern Ocean Forum, Bremerhaven, 1996	E, F, S,
72.	IOC Black Sea Regional Committee, First Session, Varna, 1996	E, R
73.	IOC Regional Committee for the Co-operative Investigation in the North and Central Western Indian Ocean, Fourth Session, Mombasa, 1997	E, F
74.	Nineteenth Session of the Assembly, Paris, 1997	E, F, S, R
75.	Third Session of the IOC-WMO-UNEP Committee for the Global Ocean Observing System, Paris, 1997	E, F, S, R
76.	Thirtieth Session of the Executive Council, Paris, 1997	E, F, S, R
77.	Second Session of the IOC Regional Committee for the Central Indian Ocean, Goa, 1996	E only
78.	Sixteenth Session of the International Co-ordination Group for the Tsunami Warning System in the Pacific, Lima, 1997	E, F, S, R
79.	Thirty-first Session of the Executive Council, Paris, 1998	E, F, S, R
80.	Thirty-second Session of the Executive Council, Paris, 1999	E, F, S, R
81.	Second Session of the IOC Black Sea Regional Committee, Istanbul, 1999	E only
82.	Twentieth Session of the Assembly, Paris, 1999	E, F, S, R
83.	Fourth Session of the IOC-WMO-UNEP Committee for the Global Ocean Observing System, Paris, 1999	E, F, S, R
84.	Seventeenth Session of the International Coordination Group for the Tsunami Warning System in the Pacific, Seoul, 1999	E, F, S, R
85.	Fourth Session of the IOC Sub-Commission for the Western Pacific, Seoul, 1999	E only
86.	Thirty-third Session of the Executive Council, Paris, 2000	E, F, S, R
87.	Thirty-fourth Session of the Executive Council, Paris, 2001	E, F, S, R
88.	Extraordinary Session of the Executive Council, Paris, 2001	E, F, S, R
89.	Sixth Session of the IOC Sub-Commission for the Caribbean and Adjacent Regions, San José, 1999	E only
90.	Twenty-first Session of the Assembly, Paris, 2001	E, F, S, R
91.	Thirty-fifth Session of the Executive Council, Paris, 2002	E, F, S, R
92.	Sixteenth Session of the IOC Committee on International Oceanographic Data and Information Exchange, Lisbon, 2000	E, F, S, R
93.	Eighteenth Session of the International Coordination Group for the Tsunami Warning System in the Pacific, Cartagena, 2001	E, F, S, R
94.	Fifth Session of the IOC-WMO-UNEP Committee for the Global Ocean Observing System, Paris, 2001	E, F, S, R
95.	Seventh Session of the IOC Sub-commission for the Caribbean and Adjacent Regions (IOCARIBE), Mexico, 2002	E, S
96.	Fifth Session of the IOC Sub-Commission for the Western Pacific, Australia, 2002	E only
97.	Thirty-sixth Session of the Executive Council, Paris, 2003	E, F, S, R
98.	Twenty-second Session of the Assembly, Paris, 2003	E, F, S, R
99.	Fifth Session of the IOC Regional Committee for the Co-operative Investigation in the North and Central Western Indian Ocean, Kenya, 2002 (* Executive Summary available separately in E, F, S & R)	E*
100.	Sixth Session of the IOC Intergovernmental Panel on Harmful Algal Blooms, St. Petersburg (USA), 2002 (* Executive Summary available separately in E, F, S & R)	E*
101.	Seventeenth Session of the IOC Committee on International Oceanographic Data and Information Exchange, Paris, 2003 (* Executive Summary available separately in E, F, S & R)	E*
102.	Sixth Session of the IOC-WMO-UNEP Committee for the Global Ocean Observing System, Paris, 2003 (* Executive Summary available separately in E, F, S & R)	E*
103.	Nineteenth Session of the International Coordination Group for the Tsunami Warning System in the Pacific, Wellington, New Zealand, 2003 (* Executive Summary available separately in E, F, S & R)	E*
104.	Third Session of the IOC Regional Committee for the Central Indian Ocean, Tehran, Islamic Republic of Iran, 21-23 February 2000	E only
105.	Thirty-seventh Session of the Executive Council, Paris, 2004	E, F, S, R
106.	Seventh Session of the IOC-WMO-UNEP Committee for the Global Ocean Observing System, Paris, 2005 (* Executive Summary available separately in E, F, S & R); and Extraordinary Session, Paris, 20 June 2005	E*
107.	First Session of the Intergovernmental Coordination Group for the Indian Ocean Tsunami Warning and Mitigation System (ICG/IOTWS), Perth, Australia, 3-5 August 2005	E only
108.	Twentieth Session of the Intergovernmental Coordination Group for the Tsunami Warning System in the Pacific, Viña del Mar, Chile, 3-7 October 2005 (* Executive Summary available separately in E, F, S & R)	E*
109.	Twenty-Third Session of the Assembly, Paris, 21-30 June 2005	E, F, S, R
110.	First Session of the Intergovernmental Coordination Group for the Tsunami Early Warning and Mitigation System in the North Eastern Atlantic, the Mediterranean and Connected Seas (ICG/NEAMTWS), Rome, Italy, 21-22 November 2005	E only
111.	Eighth Session of the IOC Sub-commission for the Caribbean and Adjacent Regions (IOCARIBE), Recife, Brazil, 14-17 April 2004 (* Executive Summary available separately in E, F, S & R)	E*
112.	First Session of the Intergovernmental Coordination Group for the Tsunami and other Coastal Hazards Warning System for the Caribbean Sea and Adjacent Regions (ICG/CARIBE-EWS), Bridgetown, Barbados, 10-12 January 2006	E only
113.	Ninth Session of the IOC Sub-Commission for the Caribbean and Adjacent Regions (IOCARIBE), Cartagena de Indias, Colombia, 19-22 April 2006 (* Executive Summary available separately in E, F, S & R)	E S*

114.	Second Session of the Intergovernmental Coordination Group for the Indian Ocean Tsunami Warning and Mitigation System (ICG/IOTWS), Hyderabad, India, 14–16 December 2005	E only
115.	Second Session of the WMO-IOC Joint Technical Commission for Oceanography and Marine Meteorology, Halifax, Canada, 19–27 September 2005 (Abridged final report with resolutions and recommendations)	E, F, R, S
116.	Sixth Session of the IOC Regional Committee for the Western Indian Ocean (IOCWIO), Maputo, Mozambique, 2–4 November 2005 (* Executive Summary available separately in E, F, S & R)	E*
117.	Fourth Session of the IOC Regional Committee for the Central Indian Ocean, Colombo, Sri Lanka 8–10 December 2005 (* Executive Summary available separately in E, F, S & R)	E*
118.	Thirty-eighth Session of the Executive Council, Paris, 20 June 2005 (Electronic copy only)	E, F, R, S
119.	Thirty-ninth Session of the Executive Council, Paris, 21–28 June 2006	E, F, R, S
120.	Third Session of the Intergovernmental Coordination Group for the Indian Ocean Tsunami Warning and Mitigation System (ICG/IOTWS), Bali, Indonesia, 31 July–2 August 2006 (*Executive Summary available separately in E,F,S & R)	E*
121.	Second Session of the Intergovernmental Coordination Group for the Tsunami Early Warning and Mitigation System in the North Eastern Atlantic, the Mediterranean and Connected Seas (ICG/NEAMTWS), Nice, France, 22–24 May 2006	E only
122.	Seventh Session of the IOC Intergovernmental Panel on Harmful Algal Blooms, Paris, France, 16–18 March 2005 (* Executive Summary available separately in E, F, S & R)	E*
123.	Fourth Session of the Intergovernmental Coordination Group for the Indian Ocean Tsunami Warning and Mitigation System (ICG/IOTWS-IV), Mombasa, Kenya, 30 February-2 March 2007 (* Executive Summary available separately in E, F, S & R)	E*
124.	Nineteenth Session of the IOC Committee on International Oceanographic Data and Information Exchange, Trieste, Italy, 12–16 March 2007 (* Executive Summary available separately in E, F, S & R)	E*
125.	Third Session of the Intergovernmental Coordination Group for the Tsunami Early Warning and Mitigation System in the North Eastern Atlantic, the Mediterranean and Connected Seas, Bonn, Germany, 7–9 February 2007 (* Executive Summary available separately in E, F, S & R)	E*
126.	Second Session of the Intergovernmental Coordination Group for the Tsunami and other Coastal Hazards Warning System for the Caribbean Sea and Adjacent Regions, Cumaná, Venezuela, 15–19 January 2007 (* Executive Summary available separately in E, F, S & R)	E*
127.	Twenty-first Session of the Intergovernmental Coordination Group for the Pacific Tsunami Warning and Mitigation System, Melbourne, Australia, 3–5 May 2006 (* Executive Summary available separately in E, F, S & R)	E*
128.	Twenty-fourth Session of the Assembly, Paris, 19–28 June 2007	E, F, S, R
129.	Fourth Session of the Intergovernmental Coordination Group for the Tsunami Early Warning and Mitigation System in the North Eastern Atlantic, the Mediterranean and Connected Seas, Lisbon, Portugal, 21–23 November 2007 (* Executive Summary available separately in E, F, S & R)	E*
130.	Twenty-second Session of the Intergovernmental Coordination Group for the Pacific Tsunami Warning and Mitigation System, Guayaquil, Ecuador, 17–21 September 2007 (* Executive Summary available in E, F, S & R included)	E*
131.	Forty-first Session of the Executive Council, Paris, 24 June–1 July 2008	E, F, R, S
132.	Third Session of the Intergovernmental Coordination Group for the Tsunami and other Coastal Hazards Warning System for the Caribbean Sea and Adjacent Regions, Panama City, Panama, 12–14 March 2008 (* Executive Summary available separately in E, F, S & R)	E*
133.	Eighth Session of the IOC Intergovernmental Panel on Harmful Algal Blooms, Paris, France, 17–20 April 2007 (* Executive Summary available separately in E, F, S & R)	E*
134.	Twenty-third Session of the Intergovernmental Coordination Group for the Pacific Tsunami Warning and Mitigation System, Apia, Samoa, 16–18 February 2009 (*Executive Summary available separately in E, F, S & R)	E*
135.	Twentieth Session of the IOC Committee on International Oceanographic Data and Information Exchange, Beijing, China, 4–8 May 2009 (*Executive Summary available separately in E, F, S & R)	E*
136.	Tenth Session of the IOC Sub-Commission for the Caribbean and Adjacent Regions (IOCARIBE), Puerto La Cruz, Bolivarian Republic of Venezuela, 22–25 October 2008 (*Executive Summary available separately in E, F, S & R)	E, S*
137.	Seventh Session of the IOC Sub-Commission for the Western Pacific (WESTPAC-VII), Sabah, Malaysia, 26–29 May 2008 (*Executive Summary available separately in E, F, S & R)	E*
138.	Ninth Session of the IOC-WMO-UNEP Committee for the Global Ocean Observing System, Paris, France, 10–12 June 2009 (* Executive Summary available separately in E, F, S & R);	E*