JCOMM MANAGEMENT COMMITTEE
FIRST SESSION

Geneva, Switzerland, 6-9 February 2002

FINAL REPORT

JCOMM Meeting Report No. 10

WORLD METEOROLOGICAL ORGANIZATION

INTERGOVERNMENTAL OCEANOGRAPHIC COMMISSION (OF UNESCO)

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N O T E

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GENERAL SUMMARY OF THE MEETING

1. Opening of the session

1.1. Opening

1.1.1 The first session of the Management Committee of the Joint WMO/IOC Technical Commission for Oceanography and Marine Meteorology (JCOMM) was opened by its co-president for oceanography, Dr Savi Narayanan, at 0930 hours on Wednesday, 6 February, in conference room 7J of the WMO headquarters building, Geneva. Dr Narayanan welcomed the members of the committee and other participants in the meeting. She then invited the Assistant Secretary-General of WMO, Professor Yan Hong, to address the meeting.

1.1.2 On behalf of the Secretary-General of WMO, Professor G.O.P. Obasi, and the Executive Secretary IOC, Dr P. Bernal, Prof. Yan welcomed participants to the meeting, to WMO and to Geneva. He noted that WMO and IOC were now entering into a new era of inter-organizational scientific collaboration, which was at the same time exciting and complicated. It was exciting because, for the first time, there was the opportunity to address important issues, such as the provision of an integrated and stable ocean database for global climate studies and the implementation of operational oceanography, at the intergovernmental level, in a multi-disciplinary and multi-institutional way. At the same time, it was complicated primarily because of this multi-disciplinary approach.

1.1.3 Professor Yan then stressed that the first JCOMM session, in Iceland in June 2001, was only a beginning, and that it was now up to the Management Committee, to provide the ideas, guidance and oversight required for the Commission to achieve its ambitious objectives. In this context, the present session of the Management Committee had been scheduled quite early in the intersessional period, in order both to build on the momentum and enthusiasm generated at JCOMM-I, and also to allow the Committee to review the overall programme and provide guidance to the individual programme areas.

1.1.4 Professor Yan then reviewed briefly a number of other specific priority issues to be addressed during the meeting, which included the need to identify resources for JCOMM management, implementation and capacity building outside the regular budgets of WMO and IOC. He concluded by assuring the meeting of the full and ongoing support of the joint JCOMM Secretariat, both during the present meeting and throughout the intersessional period. He then wished participants a very successful meeting, and an enjoyable stay in Geneva.

1.1.5 Dr Narayanan then noted a number of key issues overall for JCOMM, which included integration, user interactions and support to GOOS implementation. She stressed the importance of the committee working as a team, of prioritizing activities within the comprehensive work plan and assigning responsibilities with deadlines and measurable outcomes. She concluded by recognizing that the implementation of the work plan was a difficult task, in particular in view of the financial constraints, but one which was nevertheless achievable.

1.1.6 The list of participants in the meeting is given in *Annex I.*

1.2. Adoption of the agenda

1.2.1 The Committee adopted the agenda for the session on the basis of the provisional agenda prepared by the Secretariats, which is given in *Annex II*.

1.3. Working arrangements

1.3.1 The Committee agreed its hours of work and other practical session arrangements. The documentation was introduced by the Secretariat.

2. Reports of the co-presidents and Secretariat

2.1 The Committee noted with interest and appreciation the reports by the co-presidents and the joint JCOMM Secretariat on the overall results of JCOMM-I and on actions taken since the session in support of the Commission and its work. From these reports, the Committee noted and/or agreed the following:

(i) The steps already taken to develop cooperation between JCOMM and external bodies and projects such as EuroGOOS and European Union (EU) Projects; the GOOS Coastal Ocean Observations Panel (COOP) and POGO;
(ii) The importance of the co-presidents separately representing JCOMM at sessions of the Executive Councils of WMO and IOC;
(iii) The presentation to be given on JCOMM by Johannes Guddal at the forthcoming Oceanology 2002 conference in London (March 2002). In this context, the Committee stressed the value of such presentations, and agreed that a similar presentation should be made to the forthcoming EuroGOOS Conference in Athens in December 2002. To assist in preparing for and delivering such presentations at other appropriate events, the Secretariat were requested to develop a calendar of such events, to be accessed via the JCOMM web site; **(Action: Secretariat)**;
(iv) Interaction to date with the United Nations Informal Consultative Process on Oceans and the Law of the Sea (UNICPOLOS). It was recognized that such interaction could provide benefits for operational oceanography and JCOMM, both because of its status as an important dialogue within the UN system relating to oceans, especially in the areas of interest to JCOMM, and also because of the opportunity it provided to inform and influence national policy makers on ocean issues;
(v) The interactions with satellite operators, through both the IGOS Partners and also the Coordinating Group for Meteorological Satellites (CGMS), of which IOC was now a member.

2.2 In reviewing the JCOMM meeting plan for 2002/03 prepared by the Secretariats, the Committee agreed that in future this plan should show only those meetings under or directly relevant to or supported by JCOMM **(Action: Secretariat)**. It further agreed that any future proposals for projects, groups or activities to be declared as supporting JCOMM should be thoroughly reviewed by the relevant JCOMM body before being accepted as such **(Action: Co-presidents and Secretariat)**.

2.3 Finally on this item, the Committee requested that future reports by the co-presidents and the Secretariats should, as much as possible, be targeted to specific actions and activities identified in the JCOMM work plan **(Action: Co-presidents)**. It also requested that documents should be made available to Committee members as early as possible, and in this context urged all those responsible for the preparation of documents to submit them according to the prescribed deadlines **(Action: Committee members and Secretariat)**.

3. JCOMM strategy and other organizational issues

3.1 Structure

3.1.1 The Committee reviewed briefly the Commission substructure as adopted at JCOMM-I. It agreed that this remained appropriate to the work of the Commission at the present time, but nevertheless decided to keep it under review as the implementation of the work programme evolved. At the same time, it recognized that a number of key positions and groups had remained unfilled after JCOMM-I, and in this context it:

(i) Endorsed the decision of the co-presidents to appoint Dr Hiroshi Kawamura (Japan) as satellite rapporteur, within the Observations Coordination Group;
(ii) Reviewed the list of nominations for the Expert Team on Data Management Practices, to be chaired by Dr Nic. Mikhailov (Russian Federation). After some discussion, the membership

of this team was agreed as given in *Annex III*. With regard to the one remaining vacant position, the Committee agreed that this should be filled by a person with not only broad, cross-cutting expertise in data management, but also with strong on-going contacts with the scientific community. Committee members were requested to nominate candidates for this position, and to submit the names, CV's and a confirmation of willingness to serve, to the Secretariat by the end of February 2002. The list of candidates would then be circulated to all Committee members for review and a decision on an appointment, to be made by the end of March 2002 **(Action: Committee members, Secretariat and Co-presidents)**;

(iii) Invited Committee members to provide the WMO Secretariat with the names and CV's of possible members of the Task Team on Resources, by the end of March 2002 **(Action: Committee members)**.

3.1.2 The Committee noted with regret that both Dr Wang Hong (Data Management Coordinator) and Admiral Hector Soldi (Capacity Building Coordinator) had been forced to resign their posts because of changed national employment situations. It expressed appreciation to both for the work that they had already undertaken in support of JCOMM. It also expressed its considerable appreciation to Professor Lin Shaohua (China) and Ms Miriam Andrioli (Argentina), who had agreed at very short notice to attend the meeting as acting coordinators for the respective programme areas. The Committee recognized that both were key positions, which should be filled immediately. It therefore was pleased to accept the proposal of the co-presidents that Prof. Lin and Ms Andrioli should be appointed as coordinators for the respective programme areas. The Secretariat was requested to proceed with obtaining the necessary confirmation of these appointments from the respective agencies in Argentina and China **(Action: Secretariat)**.

3.1.3 The Committee recalled that it had been requested by JCOMM-I to assist in the development of coordination at the national level, in particular through the preparation of some guidelines for Members/Member States on the issue. The Committee agreed that this was indeed an important issue, and that JCOMM would be greatly assisted nationally if countries were able to designate (preferably a single) national focal point for JCOMM. In pursuance of this idea, and to guide the work of such coordinators, the Committee drafted some guidelines as proposed, which are given in *Annex IV*. **(Action: Secretariat to distribute)**

Specialized Oceanographic Centres (SOCs)

3.1.4 The Committee was presented with the available information regarding the system of SOCs, established under the former IGOSS structure. It noted in particular that, according to the fifth status report on IGOSS implementation (June 1995), eleven SOCs had been established and accredited so far: in Argentina (for the South Atlantic Ocean, south of 20°S), Australia (for the Indian Ocean and the Pacific Ocean south of 20°N), Canada (for marine environmental data), France (for drifting buoy data), Japan (for the Pacific ocean), Russian Federation (global; for Arctic, Southern Ocean and sea-ice data; for the coastal zones) and the USA (global; for the ISLP-Pac [*IGOSS Sea Level Programme in the Pacific*]; for the ISTP [IGOSS Sub-surface Thermal Structure Programme]), with specific geographical or process areas of responsibility. These centres had the tasks of collecting all data from or relating to their areas of responsibility from the GTS and of delivering processed data sets to the respective IODE RNODCs for IGOSS, for quality control, preparation of products and archiving.

3.1.5 The Committee recognized it was not in a position at this stage to take any decision regarding the furtherance, modification or otherwise of the system. It was in particular unclear if the SOCs question was relevant to the DM/PA or to the S/PA. It was not possible also to precisely determine which had been the activities of the established SOCs as such during the last few years. The Committee agreed that it should take advantage of its wide-ranging composition to report on the exact fate of each of the centres, in order to update the above information.

3.1.6 The Committee further considered it had to prepare concrete proposals regarding the future of the SOCs system. It therefore decided to establish a small *ad hoc* drafting group, made up of Savi Narayanan, Peter Pissierssens, Neville Smith, Worth Nowlin, Philippe Dandin, Yves Tréglos

and a representative of CBS (to provide advice on SMC/RSMC system). The group was tasked with studying the SOCs system and, more generally, to look at JCOMM data management and services infrastructure issues. As a first step, Savi Narayanan would develop specific terms of reference for the group, which would be led and served (from the Secretariat standpoint) by Yves Tréglos. To assist this group, it was agreed that each Management Committee member concerned would provide information, on request, about the status of any existing SOCs within his/her region (see above paragraph 3.1.4) and report on his/her findings to the group. The ad hoc drafting group would begin work (through e-mail) as soon as possible and would endeavour to provide (a) proposal(s) to the DMCG at its first session (May 2002). **(Actions: 1. Savi; 2. Committee members; 3. Ad hoc drafting group; 4. DMCG)**

3.2 Requirements

3.2.1 OOPC

3.2.1.1 This agenda item was opened by Dr. Paul Mason, Chair of the Steering Committee for the Global Climate Observing System (GCOS). He reminded the Committee that in 1998 GCOS worked with the Ocean Observations Panel for Climate (OOPC) to deliver to the Conference of the Parties (COP) to the UN Framework Convention on Climate Change (UNFCCC) a report on the adequacy of the observing system for climate. This report essentially showed that the system was in decline. The Intergovernmental Panel on Climate Change (IPCC) called for the decline to be arrested. The COP responded by calling for Parties to develop national plans for climate observations. It was therefore now up to GCOS, with the assistance of OOPC, to analyse these plans and to use them to update the adequacy report this year. Metrics were needed for the ocean components of the observing system, and he called on JCOMM to assist in their development.

3.2.1.2 The Chairman of the Ocean Observations Panel for Climate (OOPC), Dr. Neville Smith, provided an update on OOPC activities since JCOMM-1, and highlights of those areas where the OOPC had identified key issues arising for JCOMM (document MAN-I/Doc.3.2.1). The key issues had not changed significantly. Top priorities still included the implementation of GODAE and Argo; the refocusing of SOOP activities onto selected lines; the development of the surface reference network (SURFA); and the continuity, quality and expansion of the network of tropical moorings. Efforts were now underway to create a network of time series stations, 23 being funded, and 29 being on the drawing board. Key regional developments were underway in the Indian Ocean, where a regional GOOS was being developed with the help of the IOC/GOOS office in Perth (Bill Erb). A planning meeting for Indian Ocean GOOS was expected in the first week of November. A similar development would be required for the South Atlantic, where the efforts would be led by Ed Campos, with the likely assistance of the new IOC Office in Rio de Janeiro (Janice Trotte). In terms of new technologies, pilot projects to collect ocean pCO2 from ships of opportunity were being established. Dr Smith emphasized the need for a thorough overhauling of the data management infrastructure and practices to meet the requirements of OOPC for faster and timely access to integrated, multidisciplinary data. It was suggested that one of the first priorities of the DMPA should be to develop a JCOMM data management plan, in coordination with IODE. The full report of Dr Smith is in *Annex V*.

3.2.1.3 The Management Committee noted the information provided. JCOMM could help for instance with the development of a real time ocean current data and products database, and with inter-comparison of different model outputs in different ocean basins. Stan Wilson (Chair Observations Group) would attend the Second Time Series Science Workshop in February 2002, and should discuss with them their plans to produce real time data and products, and their plans for data management, in the context of JCOMM, and report back to JCOMM appropriately **(Action: Stan Wilson)**. The Committee requested:

(i) OOPC to consider how the transition of GODAE and Argo from research to operational status under JCOMM should be planned, and how the management of Argo data would evolve **(Action: OOPC)**;

(ii) Bill Erb (Perth IOC/GOOS) to give his views on how to coordinate the operational activities to be developed under Indian ocean GOOS, and how to bring them under the JCOMM umbrella **(Action: Secretariat/Bill Erb)**;
(iii) Ed Campos to give his views on how to coordinate the operational activities to be developed in the South Atlantic, and how to bring them under the JCOMM umbrella **(Action: Secretariat and Ed Campos)**.

The Committee agreed that JCOMM should co-sponsor the Indian Ocean workshop in November 2002. The Committee agreed that JCOMM should also co-sponsor the GODAE Conference in Biarritz (June 15-17, 2002) **(Action: Secretariat)**.

3.2.2 CBS

3.2.2.1 The Committee recalled that the newly appointed JCOMM satellite rapporteur within the Observations Programme Area Coordination Group was Dr Hiroshi Kawamura (Japan). Both Dr Kawamura and the JCOMMOPS coordinator, Mr Etienne Charpentier, participated as JCOMM representatives in the fourth session of the CBS Expert Team on Observational Data Requirements and the Redesign of the GOS (Geneva, 28 January to 1 February 2002). Within the context of this meeting, they had prepared a first draft of a Statement of Guidance relating to the marine component of the GOS and JCOMM requirements for marine observational data. As noted by Dr Kawamura and Mr Charpentier, this draft now needed extensive review, both within JCOMM (the Services and Observations CGs) and outside (GOOS/COOP and GODAE).

3.2.2.2 The Committee expressed its appreciation to Dr Kawamura and Mr Charpentier for the work which they had accomplished on behalf of JCOMM. It reviewed the draft, and made the following suggestions regarding its finalization:

(i) Care should be taken that this statement should not conflict with the Oceans Theme document of the IGOS Partners;
(ii) The preparation of the statement should be used as a mechanism to identify and specify possible deficiencies in the CBS data base as it related to JCOMM, as well as possible inadequacies and incompatibilities in the Oceans Theme document;
(iii) The draft should be reviewed and revised through the JCOMM Services and Observations Coordination Groups, in a similar way to the process adopted with the Seasonal to Interannual Forecasting Statement, through AOPC/OOPC. **(Action: Secretariats, Hiroshi Kawamura and Secretariats)**

3.2.3 GOOS/3.2.4 Non-physical requirements

3.2.3.1 Prof. Worth Nowlin, Chair of the GOOS Steering Committee (GSC) introduced the paper on Requirements for Non-Physical Measurements (MAN-I/Doc.3.2.4), submitted by Drs. Tom Malone and Tony Knap, the Co-Chairs of the GOOS Coastal Ocean Observations Panel (COOP). JCOMM-I had recognized that, as the COOP Implementation Plan emerged, the Commission would have to consider the extent to which the variables included in the COOP Design Plan could be accommodated within the overall work programme of JCOMM. JCOMM-I requested the Management Committee to consider in particular the extent the extent to which JCOMM should be involved in the implementation of programmes of observation and management of non-physical variables.

3.2.3.2 The paper set out the main foci of interest to COOP (Marine Services; Natural Hazards: Public Health; Ecosystem Health; and Living Resources), the main forcings, both natural and anthropogenic, that were being considered, and the preliminary list of common variables identified for measurement as part of the global network. The design plan would be finalized in late 2002 at the 4th session of COOP, following which an Implementation Plan would be devised by late 2003, early 2004.

3.2.3.3 Professor Nowlin reminded the Committee that it was expected to appoint a Rapporteur on this topic, to prepare some concrete proposals for review at the second session of the Committee. The Committee noted the preliminary list of common variables prepared by COOP (Doc 3.2.4, Appendix B) and that the approach to biological and chemical measurements would be the subject of the Rapporteur's study. Among other things the Rapporteur would be expected to provide advice on the development and delivery of services and products to meet COOP requirements, and on the extent to which liaison and interaction was needed with organizations such as the International Council for the Exploration of the Sea (ICES), which operated in the North Atlantic, and its North Pacific counterpart (PICES). After wide consultation it appeared that the most appropriate candidate was one of the Co-Chairs of COOP, Dr. Anthony Knap. The Committee agreed to appoint Tony Knap as the Rapporteur for developing a report on non-physical aspects relevant to JCOMM (12.1.8 to 12.1.12 of JCOMM I). Dr Knap would be expected initially to liaise with the JCOMM observations and services coordination groups, and to participate in their first sessions, before preparing scientific action items for consideration by JCOMM-MAN-2. The Secretariat was asked to make a link to the COOP Design Plan, when published, on the JCOMM web site. **(Actions. Secretariats and Tony Knap)**

3.2.3.4 The Committee noted that COOP was concerned not only with biological and chemical variables but also with standard physical variables (currents, sea surface temperature, surface waves, sea level, surface salinity, and incident solar radiation). The Committee believed that the JCOMM observations coordination group was the appropriate mechanism for overseeing implementation and maintenance of the networks contributing such data. Of these data, and based on the preliminary analysis by COOP, it was likely that requirements for sea surface temperature, wind wave and sea level data could be immediately addressed, subject to resources and various logistical factors. Though not mentioned in document 3.2.4, subsurface temperature also fell within this category. At this time, sea surface (and subsurface) salinity requirements were both more vague and more difficult to satisfy. There were existing operational activities on VOS/SOOP but these fell far short of the requirements of COOP. In a similar vein, ocean current data were recognized as being important for ocean and coastal services, particularly for product validation, but at this time much work was required to develop an integrated and reliable data stream. Incident solar radiation was a requirement shared with climate, though the open ocean aspects of the COOP Plan were likely high relative priority. It was also noted that the assumptions about meteorological fields would need specification of requirements that were specific to COOP, such as higher resolution surface wind fields. It seemed likely that the observations group would need a specialized group or groups to look at both currents and waves. **(Action: OCG)**

3.3 Long-term Plan

3.3.1 The Committee recalled that the WMO Long-term Plan covered a 10-year period, and was updated by WMO Congress every four years, after a lengthy review and revision process coordinated by the Executive Council Working Group on Long-term Planning (WGLTP). The plan was designed to provide an overall purpose and vision for the Organization, its Members and component programmes, as well as detailed programme plans for the first four years of each plan. These more detailed plans are then directly related to the programme and budget for each financial period, and their implementation is to be monitored and evaluated, if possible quantitatively, again for review by Congress.

Monitoring of the 5LTP

3.3.2 The Committee further recalled that Thirteenth WMO Congress (May 1999) adopted the Fifth Long-term Plan (5LTP), and the Executive Council then developed guidelines and directives for its monitoring and evaluation. The Committee then reviewed a draft of the monitoring report on the Marine Programme for the first two years of this plan (2000 and 2001), prepared in accordance with these guidelines. Some proposals for modifications to this draft were made, and the modified draft was then to be submitted by the co-presidents of the Commission to the WGLTP in time for the preparation of a consolidated initial evaluation to be prepared for the Executive Council in 2002.

Preparation of the Sixth Long-term Plan (6LTP)

3.3.3 The WMO Executive Council had agreed that "…the Long-term Plan should be a document which outlined what the Organization was trying to achieve as a whole, with three main purposes:

(a) Serve as a basis for guiding the Secretariat and constituent bodies on the preparation of their programme plans and the monitoring of progress;

(b) For use by Members as a reference point to help guide planning at the national level;

(c) Provide a basis for briefing and informing other organizations/entities which potentially contributed to, and benefited from, the work of WMO and its Members."

3.3.4 The WMO Executive Council had also endorsed proposals from the WGLTP regarding the general approach, period of coverage and overall structure/contents of the 6LTP, as well as its ideas on the vision, strategic goals and wider outcomes to be included in the plan. The Council agreed that the LTP should form the basis for the preparation of the WMO programme and budget as well as the various programme activities. In this context, guidelines for the preparation of the 6LTP had been made available, inter alia to the co-presidents of JCOMM, in late 2000, and a draft of the 6LTP presented to WMO EC-LIII in May 2001. Within the context of this overall outline draft, a first draft of the Marine Programme component had then been prepared by the Secretariat, with input from JCOMM-I (see section 13 of the final report of JCOMM-I).

3.3.5 The Committee then carefully reviewed this draft. A number of both general and specific proposals were made for modifications. The Secretariat was requested to incorporate these and to submit the revised version, on behalf of the co-presidents, for further review by the WGLTP and the Executive Council. Eventually, this final draft will form a part of the full 6LTP, which will be presented to Fourteenth Congress in 2003 for adoption. **(Action: Secretariat)**

3.4 Relationship with other organizations and bodies

POGO

3.4.1 Referring to document MAN-I/Doc.3.4(1), co-president Savi Narayanan made a presentation on possible relations between JCOMM and the Partnership for Observations of the Global Ocean (POGO), a new body that brought together the directors of the major oceanographic institutions around the world that were concerned with basin-scale or global observations. POGO had its Executive Secretary in the Bedford Institute of Oceanography in Canada. The Committee noted that POGO institutions were primarily interested in research. Many of their researchers were actively engaged in some of the research underpinning global observations in GOOS, for example the Argo project. Others were actively promoting the development of the network of time series stations that was likely to become a part of GOOS. In addition to these institutions housing researchers and research projects of interest to JCOMM, they also hold a large part of the infrastructure for deploying equipment – in the shape of research vessels. They could offer capacity building opportunities – e.g. in training people how to deploy deep ocean moorings. Finally, as many of them were educational as well as research institutions, they also had the capacity to offer extensive education and training programmes. Together with SCOR and the IOC and NOAA, POGO had launched a Fellowship programme to provide training for scientists from developing countries for periods of around 3 months per year.

3.4.2 The Committee welcomed the development of POGO, and especially of its activities in support of the development of global observing technologies and projects, as well as of its Fellowship programme. Good liaison should be maintained between JCOMM and POGO, especially in the areas of observations and capacity building. **(Action: Co-presidents and Secretariat)**

ICES

3.4.3 Colin Summerhayes introduced background document MAN-I/Doc. 3.4(2), referring to the possible relationship between JCOMM and the International Council for the Exploration of the Sea (ICES), an organization primarily of national bodies interested in oceanography and fisheries around the North Atlantic, that had been carrying out operational oceanographic activities for about 100 years. He drew attention to the existence of the ICES Standard Sections and Stations, from which hydrographic data were collected on a routine basis, to the existence of the ICES data archives, in Copenhagen, and to the ICES Climate summary reports, which used hydrographic data to establish and examine climate trends throughout the region. The ICES International Bottom Trawl Survey of the North Sea and adjacent areas was already part of GOOS. ICES developments in the GOOS context were being taken forward through the ICES-IOC Steering Committee on GOOS, which had developed a pilot project on an ecosystem-based approach to environmental and fisheries management in the North Sea. ICES was involved with IOC and IODE in a committee on the use of XML for marine data management.

3.4.4 The Committee recognized that the ICES data collections, sections and stations represented a potentially valuable resource for JCOMM, but saw the need to encourage the exchange of these data and to provide them in real time. The Committee requested the Secretariat and the respective Programme Area Coordinators to invite ICES to be involved in the observation and data management programme areas, as appropriate, and to develop web links between the two organizations. **(Action: Secretariat and Observations and Data Management Coordinators)**

PICES

3.4.5 The Committee also noted that there was a North Pacific equivalent of ICES, known as PICES, and that PICES was already engaged in discussions about joint programmes with GOOS and had an active interest in operational oceanography. PICES was also in toe process of establishing, jointly with the DBCP, a regional buoy group for the North Pacific. In due course JCOMM should consider developing a working relationship with PICES, but this could wait until (a) after a close relationship had developed between PICES and GOOS, and (b) after the relationship between JCOMM and ICES had been established.

3.4.6 The Committee requested the Secretariat to produce, by the end of March, details on ICES, PICES, and POGO, including membership, which should be made available on the JCOMM web site. **(Action: Secretariat)**

4. Work programme

4.1 Observations Programme Area

4.1.1 The Committee was presented with a review of summary issues regarding the OPA, prepared by the OPA Coordinator, Dr. Stan Wilson. It was based on thoughts expressed by leaders of each of the five component groups of the Observations Coordination Group. The OCG will have its first meeting (OCG-I) in La Jolla 24-27 April 2002, at which time it will formally begin the process of addressing the observational elements of the JCOMM work plan. The summary report by Dr Wilson is given in *Annex VI*.

4.1.2 Following extensive discussion by the Committee, the following summary actions were agreed:

(i) Based on his participation in the Second Time Series Science Workshop (16-18 February in Honolulu), the OPA Coordinator will report to appropriate PA Coordinators, plans on the part of the Time Series Science Group for data management, including the provision to produce real-time data and products (from 3.2.1.3); **(Action: OPA Coordinator)**

(ii) Dr Anthony Knap, Rapporteur for Non-Physical Observations, will be invited to OCG-I to discuss the status of the development and delivery of products and services needed to meet COOP requirements and the extent to which liaison and interaction was needed with organizations such as the International Council for the Exploration of the Seas (ICES) in the North Atlantic and PICES, its counterpart in the North Pacific (from 3.2.3.3); **(Action: Secretariat)**

(iii) Dr Shubha Sathyendranath, Executive Director of POGO will be invited to OCG-I to explore mutual interests between the OPA and POGO, including planning for the collection of non-physical observations on an operational basis, the feasibility of distribution on the GTS of drifting buoy observations collected by researchers, and the status of capacity building for developing and deploying deep-sea moorings (from 3.4.1); **(Action: Secretariat)**

(iv) The Prospectus for the Workshop on 'Potential Applications of Ocean Observations for the Pacific Islands', being organized on behalf of Argo and the South Pacific Applied geosciences Commission, was presented to the Committee; when requested to co-sponsor this workshop (with no financial obligation), the Committee agreed; **(Action: Secretariat)**

(v) Each of the five component OPA groups will be asked to report on capacity building at OCG-I, and the OPA Coordinator will report the results to his counterpart Capacity Building Programme Area (CPA) Coordinator; **(Action: OPA Coordinator)**

(vi) Each of the five component groups will also be asked to report on the status of efforts to counter vandalism and whether there are any useful 'lessons learned' to be exchanged; **(Action: OPA Coordinator)**

(vii) The Ship Observations Team (SOT) meets for the first time in Goa, India 25 February-2 March 2002 where it will address an extensive set of tasks integrating VOS, SOOP, ASAP, and (when ready) VOSClim;

(viii) The GLOSS Panel will identify any potential for synergy between GLOSS and the International Tsunami Warning System in the Pacific;

(ix) With surface marine observations related to wind/wave forecasts in the Services Programme Area, the OCG and SCG coordinators agreed, and the Committee concurred, that Ms Karen Doublet would be temporarily assigned from the OCG to the SCG to study this issue and propose whether the observational aspects be shifted to the OCG. **(Action: Secretariat and Ms Doublet)**

4.2 Services Programme Area

4.2.1 Mr. Phil Parker (Australia), Coordinator of the Services Programme Area (SPA) and chairman of the Services Coordination Group, presented a progress report on SPA. A summary of this report is in *Annex VII*. After discussions, the following agreements and actions regarding the work programme of the Services Programme area were adopted:

(i) The Committee agreed with the overall strategy and work plans for the Services PA.

(ii) The Committee noted and accepted with appreciation the offer of France to host the proposed second MPERSS workshop in Toulouse. **(Action: France, Services PA Coordinator and Secretariat)**

(iii) The Committee requested the Services Coordination Group to develop some draft definitions and an overview on JCOMM products. This would then provide the necessary background for planning the proposed JCOMM Products Workshop, which itself in turn would lead to the further development of the JCOMM Products Bulletin. **(Action: Services CG)**

(iv) The Committee agreed that the workshop should be delayed until 2004, and accepted the invitation of France to host it in Toulouse. **(Action: France, Yves Tourre, Services PA Coordinator and Secretariat)**

(v) The Committee noted and agreed with the proposal from the Services Coordinator to set up a special Task Team on the "Development of Ocean Services", to include the Services and

Observations Coordinators, plus representatives from the OOPC and major operational centres. This team should work largely by email. **(Action: Services PA Coordinator and Secretariat)**

(vi) The Committee advised the SPA Coordinator to request KMD to prepare a document detailing their proposal and reasons concerning a Preparation Service for Metarea VIII (S), for the consideration of the Expert Team on MSS. It was also agreed that it was important to ensure the participation of Mauritius, Issuing Service for Metarea VIII (S), as well as Kenya, in the forthcoming session of the team. **(Action: Services PA Coordinator, chair ET/MSS, Secretariat)**

4.3 Data Management Programme Area

4.3.1 Professor Lin Shoahua introduced this agenda item. A summary of her report is in *Annex VIII*. She explained that she had very recently been asked to take over from Dr Wang Hong as (acting) Coordinator for the JCOMM Data Management Programme Area, following the re-assignment of Dr Wang Hong to another position. The Committee expressed its appreciation to Dr Lin for accepting, at very short notice, the responsibility as (acting) Coordinator for the JCOMM Data Management Programme Area.

4.3.2 The Committee decided that stronger emphasis should be placed in the DMCG Work Programme on the development of a JCOMM Data Management Strategy. Data management activities under different IOC programme areas are not yet fully integrated. The IODE Committee, during its 16th Session, had made important decisions and recommendations towards enhancing the data management activities to better include biological, chemical and coastal oceanography data, and recognized the increasingly vague boundaries between delayed mode and real time data. These decisions and recommendations urgently need to be translated into actions at the national level (eg through an expanded role and additional resources for the NODCs). The Committee recommended that a Draft Resolution be prepared for the next session of the IOC Executive Council (4-14 June 2002) requesting Member States to take urgent action in this regard. **(Action: Neville Smith and Peter Pissierssens)**

4.3.3 In the same spirit meteorological data centres and oceanography centres would need to improve cooperation and share responsibilities.

4.3.4 The Committee recommended that a Draft Resolution be prepared for the next Session of the IOC Executive Council calling for the development of an IOC integrated data management strategy, encompassing all IOC programmes. In order to assist with this task, the Committee requested IODE to carry out an assessment of data and data product requirements of existing oceanography and marine meteorology programmes/projects, and evaluate whether these were currently met by the various groups of data centres. It was recommended to use the experience gathered in the preparation of the GOOS Data Management Plan (1998-1999) and possibly the GCOS Data Management Plan as examples. **(Action: IODE and Secretariat)**

4.3.5 The Committee noted that the DMCG still has a vacancy for a data flow monitoring expert and requested Committee members to propose possible names to the Secretariat by the end of February 2002. **(Action: Committee members and Secretariat)**

4.3.6 The Committee emphasized that the DMCG will equally cover data management related to oceanography and marine meteorology. Although a work plan for the Expert Team on Marine Climatology was currently not available yet, it would be distributed shortly. It was noted that interaction between the two Data Management Expert Teams would be assisted, *inter alia*, through Volker Wagner, who was a member of both Expert Teams.

4.4 Capacity Building Programme Area

4.4.1 This item was introduced by Ms Miriam Andrioli, acting Coordinator for the Capacity Building Programme Area, referring to document MAN-I/Doc. 4.4. This report is given in *Annex IX*. The document contained a draft strategy for implementing the work programme of the Capacity Building Programme Area, constructed in accordance with the guidelines offered by the JCOMM Capacity Building Strategy (document WMO/TD-No 1063, 2001, JCOMM Technical Report 11). The strategy will be compatible with and implemented in concert with the capacity building programmes of WMO, IOC, GOOS, and GCOS. To facilitate the links with GOOS it was proposed to hold the first meeting of the GOOS Capacity Building panel at the same time as the meeting of the JCOMM Capacity Building Coordination Group, with some shared sessions to avoid duplication and enhance efficiency.

4.4.2 The Committee suggested that the coordinators for the observations and services area panels needed to develop a view of the capacity building requirements for these areas and communicate it to the Capacity Building Coordination group. **(Action: Coordinators, Observations and Services PAs)** To facilitate the development of synergies with the GOOS Capacity Building Panel the Committee advised that it be sent a copy of the meeting document and that a member of the GOOS Capacity Building Panel be appointed as a member of the JCOMM Capacity Building Coordination Group. The name of Dr. Ehrlich Desa, Director of the National Institute of Oceanography in Goa was proposed and accepted. The Secretariat would arrange for him to be approached. **(Action: Secretariat)**

4.4.3 In discussing the question of resources for capacity building, the Committee requested that the Secretariat take steps to appoint members to the Task Force on Resources, and asked Management Committee members to submit names of possible candidates to the Secretariat by the end of February. **(Action: Secretariat and Management Committee members)** The Committee recognized that the demand for resources for capacity building must come from within nations or regions. One means of establishing user requirements for capacity building may be through User Fora. These should be arranged by the observations and services groups, with the results being conveyed to the Capacity Building Group. **(Action: Coordinators, Observations and Services PAs)**

5. The future work of JCOMM

5.1 Under this agenda item, the Committee addressed a number of specific issues of a cross-cutting nature which were of importance to the future work of JCOMM, specifically: integration across JCOMM; JCOMM promotion; new partnerships and projects; and future funding for JCOMM activities.

Integration and cross-cutting activities

5.2 The Committee recognized that, as a first step in addressing integration and cross-cutting issues, and in developing an overall strategic plan for JCOMM, it required a concise summary of the vision and strategy for JCOMM, of perhaps 10-15 pages. An outline of this Vision and Strategy document is given in *Annex X*. The Committee agreed that the summaries for each Programme Area should be prepared by the PA Coordinators, in consultation with their respective Coordination Groups, and would thus be finalized by mid- 2002. It requested that the remaining sections should also be finalized on this time scale, so that the full document would be available for review and adoption by the Committee soon after this date. The document should then receive wide distribution both within and outside JCOMM. **(Actions: Co-presidents, PA Coordinators and Secretariats)**

JCOMM promotion

5.3 The Committee recognized that a small glossy booklet or brochure would be an important tool to explain and promote JCOMM, both within and outside the JCOMM community. It agreed

that the JCOMM Vision and Strategy document discussed in paragraph 5.2 above, and given in outline in *Annex X*, might form the basis of this brochure. It therefore requested the Secretariat, in consultation with the co-presidents, to arrange for the conversion of the Vision and Strategy document, when finalized, into a brochure format, with appropriate illustrations, and for its publication, if possible with the assistance of a Member State. **(Action: Secretariat and Co-presidents)**

New partnerships and projects

5.4 The Committee noted with interest a report on a small informal discussion meeting which had taken place on 5 February 2002, involving some members of the Management Committee, representatives of the European Union (EU), representatives of EuroGOOS, representatives of the International Ocean Institute, and individuals concerned with the preparation of marine project proposals for consideration by the EU. The meeting had addressed, inter alia, the concept of large integrated projects being introduced under the sixth EU Framework Programme (FP6); the developing EU concept of Global Monitoring for Environment and Security (GMES); and the possibility of a large Marine Integrated Project within Europe, as a step towards GMES. The Committee further noted with interest that the EU was considering allowing international organizations, as well as countries outside the EU, to become full partners in projects funded by the EU.

5.5 The Committee recognized the potential value for JCOMM in having some involvement in an integrated marine project under FP6, and in particular in the GMES, which was planned as an operational system. At the same time, it considered that such involvement could only be implemented if it resulted in some return, such as in support for JCOMMOPS, and also if the project adhered to JCOMM principles, such as free and open exchange of data. It therefore agreed that the co-presidents should write:

(i) To the EU, expressing support for FP6/MIP/GMES, and a general interest in JCOMM involvement;
(ii) To EuroGOOS, expressing the same ideas, but with the specific conditions of involvement as noted above. **(Actions: Co-presidents)**

Future funding

5.6 The Committee noted with concern a presentation by the Secretariat on the likely reduced availability of WMO/IOC regular budget funding for JCOMM in the period from 2004 onwards. Essentially for reasons related to severe budgetary constraints in both Organizations, this funding was likely to fall below the levels currently available. This problem was exacerbated by the fact that, for historical and other reasons, the funding for JCOMM management activities was currently shared approximately 70/30% between WMO and IOC. To address this problem, the Committee proposed:

(i) That IOC should move towards an eventual parity with WMO in funding support for JCOMM. Coupled with no further reductions in the WMO support, this would result in an overall increase in the total JCOMM budget, which was highly desirable in view of the large and expanding nature of its programme requirements; the Committee requested the co-presidents to approach the IOC EC in an appropriate manner on this issue; **(Action: Co-presidents)**
(ii) That some budgetary savings might be achieved through a rationalization of the subsidiary bodies of JCOMM, IODE and GOOS, in particular through joint/overlapping meetings and membership. Such a rationalization would also most likely be well received by the IOC/WMO Governing Bodies; **(Action: Secretariat)**
(iii) Proposing strategies for support from external funding sources on the basis of specific JCOMM programmes and activities. **(Action: Secretariat)**

5.7 The Committee requested the Secretariat to follow up on these proposals, and in general to continue to seek new avenues for expanding the funding base for all JCOMM activities, including JCOMMOPS and capacity building. **(Action: Secretariat)**

6. Other matters

The 150th anniversary of the Brussels conference

6.1 The Committee recalled that the year 2003 marked the 150th anniversary of the landmark conference convened in Brussels in 1853 by Lt. Mathew Maury, USN. This conference, which discussed, inter alia, the standardization of meteorological and oceanographic observations from ships at sea, led more or less directly to the establishment, 20 years later, of the International Meteorological Organization, the predecessor of WMO. It was also, in a sense, the precursor of the present operational meteorology and oceanography.

6.2 During 2000, a proposal began circulating for the convening of a major international conference to mark this anniversary. In particular, JCOMM-I "*agreed with the suggestion of the WMO Executive Council that consideration should be given to coordinating or even merging the conference with the proposed second CLIMAR workshop and the proposed second international conference on ocean observations for climate. The Commission requested the co-presidents to assist the Secretary-General of WMO and the Executive Secretary IOC to develop a specific proposal that might highlight the establishment of JCOMM for consideration and approval by the two Executive Councils in 2002. At the same time, and in view of the long lead time needed for preparation of such a conference, the Commission requested the Management Committee to proceed with the establishment of an interim Organizing Committee to begin planning, including preparation of a draft programme and the identification of venue and co-sponsors. In this context, the Commission noted and accepted with appreciation the offer of support and co-sponsorship by the IOI, as well as the offer of Belgium to host the conference in Brussels."*

6.3 After a lively discussion on the topic, the Committee came to the conclusion that there should, in essence, be two distinct conferences:

- during the second half of the first week (e.g. from mid-day of Wednesday up to Friday night), a "commemoration" conference could be held that would describe what was achieved since 1853 and future prospects in operational oceanography/marine meteorology. Such a conference would therefore have an historical component and serve at the same time as a promotional tool for JCOMM;

- during the ensuing week, the planned CLIMAR-II could be held in its own right.

6.4 Such arrangements would require a single local organizing committee and two different scientific organizing committees. JCOMM would assume full responsibility for the CLIMAR-II part, and be associated with, but play a secondary role in the other one, which would most likely attract a number of national and international organizations. The Committee decided that it would be represented in the scientific organizing committee for the first part by Philippe Dandin, Peter Dexter and Stan Wilson. It further agreed that the dates for the conference should be fixed as soon as possible, with September 2003 as a target. Regarding the scientific organizing committee for CLIMAR-II as such, the Committee requested the Secretariat to take the necessary measures in due time, in close consultation with the ET on Marine Climatology and interested national agencies. The Secretariat was requested to convey this decision to both the Belgian Meteorological Institute and other interested individuals and agencies. **(Action: Initially Secretariat)**

Web presence

6.5 Mr Peter Pissierssens gave a brief presentation on the IODE community web portal, which provides several services that could be useful to the JCOMM community, including the ability for

community members to submit content online, an online news service, calendar, discussion fora, content subscription service, community mailing lists, electronic library etc. In addition he demonstrated the IODE OceanPortal (catalogue of ocean data and information related web sites) and its crawler-based search engine. He offered to install these systems, customized for JCOMM and to host it at IOC, Paris. Mr Pissierssens also reported that the domain name www.jcomm.int was now registered and could be used for the new community web.

6.6 The Committee noted the importance of an effective community communication, information exchange, reporting and monitoring system and welcomed the offer made by IOC. The Committee further requested the co-presidents to provide guidance on technical and organizational details to the IODE and JCOMM Secretariats. **(Action: Secretariat and co-presidents)**

JCOMM logo

6.7 The Committee agreed on the value to JCOMM of having an easily identifiable JCOMM logo. It requested the Secretariat to prepare some proposals for such a logo, for review by the Committee, for adoption if possible prior to its second session. **(Action: Secretariat)**

7. Closure

7.1 The Committee accepted the offer of IOC to host its second session in Paris in February 2003. The Secretariat was requested to finalize the exact dates as soon as possible, in consultation with the co-presidents, and inform Committee members accordingly. **(Action: Secretariat)**

7.2 The Committee reviewed and approved the final report of the meeting. In doing so, it recognized that future Committee meetings should deal with major strategic issues regarding the development and operation of JCOMM, rather than detailed programme activities. It requested the co-presidents and the Secretariats to develop the agenda for MAN-II on this basis, and to arrange for appropriate position papers to be prepared relating to these strategic issues, for consideration at the session. **(Action: Co-presidents and Secretariat)**

7.3 In closing the meeting, the co-presidents expressed their appreciation to all participants for the substantial work accomplished so far, both in the period since JCOMM-I and during the meeting. The considered that, although much remained to be done, nevertheless an excellent start had been made on moving the Commission forward. The co-presidents, supported by the whole Committee, offered their thanks and appreciation to the Secretariat. They concluded by wishing everyone a safe trip home and a productive 12 months to MAN-II in Paris.

7.4 The first session of the JCOMM Management Committee closed at 1155 hours on Saturday, 9 February 2002.

ANNEX I

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ANNEX II

AGENDA

1. Opening of the session

1.1. Opening
1.2. Adoption of the agenda
1.3. Working arrangements

2. Reports of co-presidents and Secretariat

3. JCOMM strategy and other organizational issues

3.1. Structure
3.2. Requirements
  3.2.1 OOPC
  3.2.2 CBS
  3.2.3 GOOS
  3.2.4 Non-physical requirements
3.3 Long-Term Plan
3.4 Relationship with other organizations and bodies

4. Work programme

4.1 Observations Programme Area
4.2 Services Programme Area
4.3 Data Management Programme Area
4.4 Capacity Building Programme Area

5. The future work of JCOMM

6. Other matters

7. Closure

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ANNEX III

MEMBERS OF THE EXPERT TEAM ON DATA MANAGEMENT PRACTICES

Nic MIKHAILOV (Russian Federation) chairman
Lee DANTZLER (USA)
Roger DJIMAN (Benin)
Kim FINNEY (Australia)
Catherine MAILLARD (France)
Ricardo ROJAS (Chile)
Volker WAGNER (Germany)
Takashi YOSHIDA (Japan)
One position still to be filled

ANNEX IV

GUIDELINES FOR ENHANCING NATIONAL PARTICIPATION IN AND EXPLOITATION OF THE PROGRAMMES OF JCOMM

JCOMM-I recognized that the success of JCOMM will depend on extensive cooperation and coordination at the national level amongst meteorological and oceanographic agencies and institutions. The JCOMM Management Committee at its first session added to this the need to extend this coordination to other stakeholders with interest in oceanography and marine meteorology. The Management Committee therefore suggests that each Member / Member State appoint (preferably a single) national focal point, or focal points, for JCOMM.

The Management Committee developed the following guidelines to assist Members / Member States in enhancing the effectiveness of JCOMM and optimizing the benefits at the national level. These guidelines will be communicated to existing national contacts and publicized on the JCOMM Web site.

- Provide national contacts to the JCOMM Secretariat, so that the flow of relevant information to and from JCOMM to interested national parties can be optimized.

- Assume a level of responsibility for providing and dispersing JCOMM information (principally through email) to other individuals, groups and stakeholders with an interest in oceanography and marine meteorology (joint or specific).

- Provide national advocacy for the activities of JCOMM, including participation in the work programme, emphasizing the value that can accrue both to JCOMM and at the national level through strong international cooperation and coordination.

- Take advantage of JCOMM material (promotional as well as products), as appropriate, to further cooperation among national agencies and groups.

- Through the exchange of information noted above, identify opportunities for national and regional participation in capacity building including enhanced investment in human skills, technology and infrastructure.

ANNEX V

OOPC REPORT TO JCOMM MANAGEMENT COMMITTEE, FEBRUARY 2002
Neville Smith, chairman of OOPC

Introduction

The GCOS/GOOS/WCRP Ocean Observations Panel for Climate (OOPC) is the primary scientific body for providing advice on requirements for ocean data for climate and related physical ocean systems. The OOPC is the scientific partner of JCOMM in the development of the ocean observing system.

Report to JCOMM I

The report to JCOMM 1 brought five specific issues to the attention of the Commission:

(1) Implementation of a truly global Argo, with commitment and resources sufficient to ensure long-term support;
(2) Transition of SOOP into "line mode", as a complement to Argo and altimetry, and as a unique contribution to the observing system;
(3) Upgrading of selected VOS and surface moorings into a high-quality surface reference network, with agreed practices and standards, for ground-truthing model estimates of air-sea exchange and contributing to other surface flux products (the VOSCLIM and SURFA projects);
(4) Assessment and fine-tuning of the tropical mooring arrays in a way that ensures their continued contribution to the ENSO Observing System;
(5) Development of a JCOMM data management system that maximizes the contribution and impact of the observational network.

Progress Report

This Report to the Management Committee provides an update on activities since JCOMM I and highlights once more those areas where the OOPC sees key issues arising for JCOMM.

On-going Projects

GODAE (Global Ocean Data Assimilation Experiment; http://www.bom.gov.au/GODAE/)

The GODAE Steering Team met in December and excellent progress is evident. GODAE accepts that it has lead responsibility for developing and demonstrating new ocean products and services. Prototype products are available from several groups (see URLs below). An Implementation Plan is due for publication in April 2002. A GODAE Conference will be held in Biarritz in June 2002. Several new projects are being initiated including (a) development of a real-time ocean current data and product base; (b) intercomparison and evaluation of North Atlantic products; (c) intercomparison and evaluation of North Pacific products; (d) intercomparison and evaluation of tropical Pacific Ocean analyses; and (e) data and product service for GODAE. Key URLs are:

- Strategic Plan published: http://www.bom.gov.au/GODAE/Strategic_Plan.pdf)
- High-Resolution SST Pilot Project: http://www.bom.gov.au/GODAE/HiResSST/
  - Draft Implementation Plan: http://www.bom.gov.au/GODAE/HiResSST/plan.zip
- GODAE Conference: http://www.cnes.fr/BIARRITZ2002
- Prototype products and URLs: http://www.bom.gov.au/GODAE/godae_product_urls.htm

Argo (http://www.argo.ucsd.edu/)

The most recent status report for *Argo* (at the GODAE Steering Team) showed 324 floats had been deployed in fiscal year 2000 and 597 were due for deployment in FY 2001. The project deployments over the next 3 years average at 758 per year (825 is currently used as the target rate). For the latest float positions, see http://w3.jcommops.org/website/ArgoMap. Based on results from an Argo Implementation Planning meeting held in Paris, July 10-11, 2000, most of the Atlantic will be covered by end of 2003. Based on a similar meeting held in Hyderabad on July 26-27, 2001, the Indian Ocean north of 20 degrees S will be covered by end of 2004.

The Second Argo Data Management Meeting was held in Brest on November 12-14, 2001. The focus was on finalizing all aspects related to real-time data exchange including the format for data sent to the global servers and the automated tests to apply to real-time data. Smaller working groups are handling other discussions related to the overall design. The target is for all profiling floats to report within 24 hours of surfacing. As of Dec, 2001, about 55% meet the target but this shows a steady increase over the past few months of nearly 10% per month.

Global Ocean Timeseries Observatory System

This Pilot Project is focused on the development of a global network of multi-disciplinary time series stations, providing high-quality fixed-point data sets for testing and developing models and for monitoring change. The project was initiated on the basis of the OceanObs paper and with the leadership of the Partnership for Observation of the Global Ocean (POGO). POGO was seen as a key partner since the technology and expertise for maintaining these sites largely lies in the national laboratories and not operational agencies. POGO also brings technical capacity building potential. This project also involves close collaboration with COOP and the research community. The Science Team for the Project is in the process of drafting an implementation plan. An emerging issue is that of data management and standards for the time series stations, and coordination of measurement practices and standards with other platforms.

Regional initiatives

For some regions (basins), it seems more effective to approach ocean observations on a broader front, embracing research requirements and/or the broader requirements of GOOS. This enables a broader constituency to be brought to the Table, as was done for the initial Indian Ocean Workshop. By implication, there is also a multi-faceted approach to implementation with JCOMM likely to play a key role.

Indian Ocean science and implementation

- A case where we are taking a “whole-of-ocean” approach to the science, design, planning and implementation
    - No one part of GOOS on its own provides sufficient impetus;
    - Science alone is also unlikely to sustain an adequate observing system;
- Building upon the outcomes of the November 2000 SOCIO meeting in Perth;
    - IOC Office in Perth has worked hard to exploit those gains (interested Indian Ocean countries met in India in November 2001);
- Planning has begun for second workshop in November 2002, in Mauritius. This meeting will focus on the implementation of an observing system(s) necessary to predict and forecast and model the Indian Ocean region. It is endorsed by IOGOOS and will be identified as an IOGOOS conference. Like Perth, the plans are to convene several other meetings at the same location in the same period.

South Atlantic

- The plan is to follow the Indian Ocean strategy, bringing together all those parties from the region with an interest in ocean observations.
- A Workshop involving GOOS and CLIVAR has been tentatively planned for October 2002.

Progress with other initiatives

In many of these cases, much of the work is focused within the observational program of JCOMM. The several reviews and the OceanObs Conference (the book "Observing the Oceans in the 21st Century" was published in December and is available through the GODAE Office) provide the scientific foundations and an evaluation of the present status in many cases. OOPC will continue to keep these activities under review. The following provides a brief summary of various activities.

Surface marine fields. Integrated SOOP, ASAP and VOS Programmes are central to the OOPC and AOPC approaches with the belief that the "line mode" of this network complements other elements of the observing system. It is critical that quality be a priority. For VOSCLIM, data transmission procedures are (almost all) in place, a skeleton web site is set up, ships are being recruited, and data should soon start reaching the Data Assembly Centre (NCDC). The data from VOSCLIM lines are now being seen as future reference data sets, and integrated with upper atmospheric and subsurface lines. Strong links are being established into numerical weather prediction groups (for example, the Working Group on Numerical Experimentation) and to the WCRP Group on Surface Fluxes. Data from surface reference moorings are being used at ECMWF to study fluxes beneath the stratus decks. Intercomparisons are being conducted for regions like the Indian Ocean. It is critical that this strategy be recognized and supported within JCOMM. For surface waves and sea-ice JCOMM provides a substantial part of the leadership. With respect to ASAP, the AOPC is reporting significant impact from the WRAP line and is strongly behind the development of coherent (ASAP+VOS+SOOP) high-quality reference lines.

SOOP (Ship-of-Opportunity Program). Efforts are being made to extend the SOOP to "new" observations such as pCO2, using initiatives in Europe as elsewhere to "prove" the approach (this will be reported under Observations). From the OOPC perspective, we believe the extension of the SOOP into non-physical measurements is justified and would view the pCO2 initiative as perhaps the start of a more significant "pilot" activity into measurements related to the carbon cycle.

The tropical mooring network. A review was conducted of the tropical mooring network during September of 2001. With the support of NOAA, a consultant was employed to prepare a background paper that summarized the scientific case for this methodology and presented information on the status of the network. Unfortunately, the final report is yet to be finalized. A meeting was held at Seattle to discuss issues including sampling strategies, expansion of the network into other basins and high latitudes, and the threats posed by vandalism (a report on the contributions from the network will also be included under the Observations agenda item). Not surprisingly, the Review concluded that the tropical mooring approach constituted the most important contribution to monitoring and prediction of ENSO and that, from a scientific perspective, there continued to be a strong case for continuation of the Pacific array in its present form. Some options were considered for different resource scenarios. The PIRATA array in the Atlantic enjoys strong support from its partners. An extension at 16°N has been established in 2001. The array constitutes an important "pilot" contribution to the operational network. Extensions to the Indian Ocean are being discussed. Vandalism poses perhaps the single most important threat to the network, in some cases seemingly reducing the effectiveness beyond a point that makes the approach viable.

The OOPC/AOPC SST Working Group. This group continues to examine the quality and coverage of the SST network in terms of its use in climate. Several studies have been undertaken of problems associated with determination of the sea-ice edge and the interpretation of SST within the vicinity of the ice edge. New analyses that take better account of the way SST data are processed and cloud issues provide more precise assessments of the sampling requirements. The

focus is on climate-quality products and there are strong links with the GODAE High-Resolution SST project.

Surface pressure. The AOPC initiated a small working group to look at mean sea level pressure data and the quality of analyzed fields. They are due to meet soon and probably will work with the SURFA project.

Remote sensing. Remote sensing requirements and implementation were covered in the Oceans Theme paper developed by the IGOS Partners. The Theme paper represents a consensus view, in line with the conclusions of OceanObs. To the extent possible, the Theme Paper embraced likely requirements of Coastal GOOS (eg, ocean colour). GODAE takes the lead for the most part. Recently, under the leadership of the AOPC, a revised Statement of Guidance on satellite and other measurements for seasonal-to-interannual prediction was drafted and this will be communicated to the CBS Expert Team on Redesign of the GOS. Jason-I has been successfully launched and is seemingly providing good data (the SWT meeting just prior to the GODAE Conference will provide the first detailed examination of the data). Debate continues about the merits of terminating T/P data once Jason-I is operational (mainly a resource argument). There is also debate about whether QuikSCAT will be terminated once ADEOS II is launched. The handling of satellite data requirements and coordination with satellite agencies was one of the contentious issues at JCOMM. To this point, the Ocean Theme process and connections through GODAE have been very effective at representing the ocean community's needs, including those of the research community. The APOC is considering providing Statements of Guidance in other areas, for example in climate change.

Carbon cycle. A paper on ocean carbon measurements has been drafted, led mainly by Scott Doney and Maria Hood. OOPC's interests are mainly with the deep hydrographic elements. A Carbon Programme is likely to emerge from IGBP and WCRP and it is through these groups we are likely to seek leadership. Like time series stations, it seems likely implementation will involve groups beyond the operational agencies of JCOMM. However, JCOMM might continue to play the key coordination role.

Other issues

Data and information management. This is likely to be the next big project, perhaps extended GOOS-wide (see http://www.bom.gov.au/OOPC/NVODS_WS/). There has been good progress on some basic elements (uniqueness, etc.). We will work with JCOMM and IODE (and various CBS ETs) and, perhaps in collaboration with PICES, take on a biology test case. The OOPC view remains that data and information management is one of the highest priority issues facing the community at this time. We have a responsibility to ensure that all data that we collect is available and exploited to the maximum extent and that we make greater efforts to open up the riches of the observing system to developing countries and communities beyond oceanography.

The UNFCCC/GCOS Adequacy Report. The Global Climate Observing System is undertaking a review and assessment of the state of the climate observing system, the so-called Second Adequacy Report on the Global Observing Systems. The goals of the Adequacy Report will be to:

- Determine what progress has been made in defining and implementing climate observing networks and systems since the first Adequacy Report prepared for COP-4;
- Determine the degree to which these networks meet with scientific requirements and conform with associated observing principles; and
- Assess how well these current systems, together with planned improvements, will meet the needs of the Convention.

This will be a major undertaking for GCOS and OOPC for 2002-2003, involving the IPCC and climate scientists and, if successful, will raise the profile of such assessments to the level enjoyed by IPCC Assessments. A basis for this Report will be, in part, the National Reports on the status of

climate observing systems. For the future, it seems reasonable to suppose that a good part of this information can be provided routinely through the monitoring systems and Programs of JCOMM.

Conclusions

In addition to the issues raised at JCOMM I (see Section 1) we should add:

(1) The time series network and hydrographic surveys will almost certainly involve collaborations with groups beyond the constituency of JCOMM (e.g., POGO and national labs). JCOMM is however probably the most appropriate coordinator of such activities. How will this be affected? Will there be sharing of data management and/or capacity building requirements? How do we guarantee sustainability (the labs have long lives but specific projects are more susceptible to resource pressures).

(2) Ocean services within JCOMM are just emerging (this was a topic of some debate at JCOMM I). GODAE is one of the strategies for developing innovative and effective ocean services. How should we be planning for the transition to JCOMM? The Workshop being convened by Argo “Potential Applications of Ocean Observations for Pacific Islands” might be a model for evaluating GODAE applications as potential JCOMM services. GODAE is also likely to be working closely with COOP for coastal services.

(3) The broad approach to some regions (e.g., the Indian Ocean and South Atlantic) may solve some “critical mass” problems but can create issues for JCOMM. Not all the observations are required for relevant programs of JCOMM, and some (many) may be driven by research. I-GOOS and the IOC may play a critical role in coordinating this interaction.

(4) The creation of the Observations Programme Area and its associated Coordination Group means there is now another important “player on the block”. While the Group has specific responsibilities, it is inevitable that its agenda will overlap with those of OOPC, the GODAE Steering Team, COOP, the CLIVAR Ocean Observations Panel, and various implementation groups of the research programs. This is not an issue now but it is an area that the Management Committee will need to watch closely; it may be that we now have one more oversight group than is actually required.

ANNEX VI

STATUS OF THE OBSERVATIONS PROGRAMME AREA
Stan Wilson, 9 February 2002

The JCOMM Observations Coordination Group will meet for the first time in LaJolla 24-27 April 2002. Leaders or representatives from each of the five component groups (mentioned separately below) will be in attendance, where they will formally begin the process of addressing their elements of the JCOMM work plan. Much of the work will involve the Ship Observations Team, which meets for the first time in Goa, India 25 February-2 March 2002.

Ship Observations Team (SOT). One of the biggest challenges facing the SOT is the integration and coordination of the ~5,000 VOS, ~100 SOOP, ~20 ASAP, and (when ready) ~200 VOSClim ships. This challenge is exacerbated by the introduction of new ship designs, reduced size of crews, and ships being pulled off one route for another. Overall coordination will be facilitated by having a single SOT point-of-contact for JCOMM.

There is a need to promote standardization of data collection and instrument evaluation. The introduction of automated reporting systems for both meteorological (AWSs) and oceanographic (XBT) observations will lessen the demands placed on ship personnel, as well as help minimize the introduction of human error into the data.

As Argo starts providing broad-scale coverage of the temperature and salinity field of the upper ocean, XBT deployments will begin focusing on fewer SOOP lines, but with higher-density (HRX) and/or more rapid (FRX) repeats. 35,000 XBTs will be required to implement these new lines, but to date the number of XBTs deployed has only reached 28,000; this is due both to insufficient resources and an ~50% increase in the cost of XBTs.

Especially with more AWS-equipped ships, VOSClim will become very important due to risk of systematic errors creeping in as the VOS fleet changes. Good progress is being made: the VOSClim-III Workshop was held 21-23 January 2002 in Southampton, a brochure has been published, the data transmission is almost in place, a skeleton web site is running, ships are being recruited, and data is soon to arrive at NCDC.

There will be a new activity with the potential to become a pilot activity for the SOT: demonstrating the routine collection of in-situ collection of both skin and bulk observations of SST; this is needed in relating satellite-derived skin observations with ship- and buoy-derived bulk observations.

Data Buoy Cooperation Panel (DBCP). The DBCP is a relatively mature panel starting its 17th year of operation; it currently has 7 (soon to be 8) 'Action Groups'. Successful DBCP experience with its Technical Coordinator has directly led to the establishment of JCOMMOPS. Experience with a relatively recent reduction in the number of barometer-equipped Southern Ocean drifting buoys has demonstrated that users of the barometric data can be very effective in correcting the deficiency; such feedback loops are critical in maintaining a watch over essential components of the observing system.

Drifters are one way to fill gaps in global coverage of in-situ observations of SST; however, plans to move in this direction, with an associated increase from ~800 to ~1200 drifters to achieve a 5- to 10-degree spacing, will be faced with a significant funding challenge.

There is one new activity to consider as a potential pilot activity for DBCP: 'Time Series' moorings. This concept will be developed further by the Time Series Science team when it meets for the second time from 16-18 February 2002 in Honolulu.

The Technical Coordinator has largely been responsible for raising to 57% that fraction of the total number of drifting buoys (~1300 overall) reporting on the GTS. However, a broader-based effort is needed to see if this percentage can be raised even further.

The DBCP-XVIII and JTA-XXII, Martinique 14-24 October 2002, will be the next opportunity for the DBCP as a group to meet in addressing its elements of the work plan.

Tropical Moored Buoy Implementation Panel (TIP). There are at present approximately 67 TAO/Triton moorings in the Tropical Pacific, 10 PIRATA moorings in the Atlantic, and 2 Triton moorings plus several others in the Indian Ocean. Vandalism is a severe problem, especially for the western Pacific, eastern Atlantic, and eastern Indian Ocean moorings. Ship time to service the arrays is a significant factor; the Pacific arrays require ~13months of ship time; and it is estimated that if ship time could be found to service the Atlantic arrays at six-month intervals, vice the present one-year, then the data return could be improved by at least 15%.

As a potential counter to vandalism, public outreach efforts are needed to focus on ports where suspicious boats are likely to be based. To have any potential for success, a link must be made between the data that a moored buoy provides, an associated forecast to which the resulting data contribute, and the people in the local area to whom that forecast can have a positive impact.

An evaluation of the Pacific array of moorings was conducted last September. While the written report is still pending, one can say that this array represents the most important contribution to monitoring and prediction of ENSO, and from a scientific perspective there is a strong case for continuation in its present form. However, given the relatively high cost of such arrays, due in part to ship time and vandalism, options for the long-term need to be explored.

While TIP does not yet have a meeting of its own scheduled for 2002, it will be reporting to the DBCP at their annual meeting.

Global Sea Level Observing System (GLOSS). GLOSS was established in 1985, and its first implementation plan was published in 1990. With the advent of satellite altimetry, a complete reassessment was conducted and a new implementation plan was prepared in 1997. The specific elements of GLOSS now include its Core Network, together with stations serving to characterize long-term trends (some with absolute positioning from GPS/DORIS and/or with absolute gravity), calibrate satellite altimeters (GPS needed also), and/or contribute to ocean circulation.

Of the GLOSS Core Network of 287 stations—defined in the 1997 Implementation Plan—2/3rds are operational as defined in terms of data provided to the Permanent Service for Mean Sea Level. Of those, ~1/2 have provided hourly observations to be accessible on the GLOSS web site, of which ~80 provide data accessible in near real time to the GLOSS Fast Center in Hawaii.

GLOSS faces a range of issues from lack of funding (a special GLOSS task team having been recently established to address the difficult funding question) to a plethora of hardware & standards. A well documented example of poor coverage is given in the Position Paper on the Status of GLOSS in Africa (IOC/INF-1165 dated 1 Oct 02), and a recent IOC letter (dated 3 Jan 02) to GLOSS National/Regional contacts is attempting to address the overall situation. GLOSS as a system begs to be modernized, particularly with regard to the provision of 'fast' data.

The potential synergy between GLOSS and the tsunami warning system in the Pacific needs to be explored.

Argo. While still a pilot activity, Argo has grown from ~70 profiling floats funded in 1999 to ~300 in 2000, ~550 in 2001, and ~650 in 2002. A little more than 10% of the proposed 3000-float global array is already in the water and providing data via the GTS in near real time. While ~730 per year are proposed over the next three years, this is still short of the sustained rate of ~825 per year required to establish and maintain the 3,000-float global array.

Having been able to capitalize on the experience and expertise of DBCP's Technical Coordinator, Argo has been able to contribute to and derive benefit from JCOMMOPS by recruiting its own coordinator.

Argo faces two technical challenges. First, new nations wishing to become float providers are finding that, even with the provision of technical assistance, building floats themselves is a very challenging task. And nations with experience in float production are finding the process of maintaining reliability while 'scaling up production' is challenging as well.

There is a political challenge as well -- the issue of float deployment within EEZs. This results in part from the need to characterize the ENSO 'warm pool' in the western Pacific, which requires the deployment of floats within the collective EEZ of the Pacific Islands. As a quid pro quo for being able to deploy floats within their EEZs, the float providers are organizing a 'Potential Applications of Ocean Observations for the Pacific Islands' workshop to link the utility of Argo and associated in-situ observations to address applications of interest to the Islands such as seasonal/interannual prediction, sea-level change, coral bleaching, and pelagic fisheries. To be scheduled later this calendar year, this workshop offers JCOMM an opportunity to demonstrate how to link operational observations and the data system with the provision of consensus products and services tailored to meet the needs of multiple users. It is unclear at the present time what specific products and services would be provided and who would provide them.

The International Argo Science Team next meets next 12-14 March 2002 in Hobart.

Cross-Cutting Issues. There are several cross-cutting issues of interest to the Observations Coordination Group. First, performance measurement needs to be applied across the full system—from the collection of observations through the data system to the provision of services—to provide customer feedback on critical elements.

Second, we need to be able to maximize the contribution and impact of the overall observing system; and at some time in the future, we will need to know the most effective balance between different types of observing systems, based on results of user-driven quantitative evaluations.

Third, agencies involved in JCOMM implementation need to consider ways to provide sustained funding to developing countries to implement critical observational elements in their part of the global observing system. The best possibilities might be found through national and international donor agencies (such as the GEF).

Fourth, JCOMM needs more data transmission capacity, especially for remote platforms; at some point in the future, we should call a special workshop to define future needs.

Finally, surface marine observations related to wind/wave forecasts may need to migrate to the OCG, from their present home within the SCG. The OCG and SCG coordinators agree that Ms Karen Doublet be temporarily assigned from the OCG to the SCG to study this issue and propose whether the observational aspects might be shifted to the OCG.

ANNEX VII

SERVICES PROGRAMME AREA REPORT

A draft strategy for the SPA incorporating a work plan for its Services Coordination Group (SCG) and Expert Teams on Maritime Safety Service, Wind Waves and Storm Surges (ETWS) and Sea Ice (ETSI) has been developed. Several significant short-term tasks are identified in the plan. The strategy includes the mission of the SCG, including development of the JCOMM services strategy to be submitted to the Management Committee; objectives of the three Expert Teams; working relations between the SCG and Expert teams and prioritized work plan for the SCG and Expert Teams. The first meeting of the SCG (SCG-I) is planned to be held in Geneva, 3-6 April 2002.

MPERSS

The SCG chair and the MPERSS Rapporteur, Mr Pierre Daniel, have been discussing the general issues of further developing MPERSS and a plan for the Second MPERSS workshop to be held in France is also being developed. Météo France has offered to host the proposed second MPERSS workshop in Toulouse. Dates for this will be agreed by the Services Coordination Group, with late 2003 or early 2004 suggested.

Expert Team on Waves and Storm Surges

The chairman of ETWS, Mr Val Swail, has commenced detailed planning required to achieve tasks assigned by JCOMM-I and he has been consulting ETWS members to develop a detailed work strategy to be submitted to the SCG-I. The first session of ETWS is planned to be held in March/April 2003.

Expert Team on Sea Ice

The chairman of ETSI, Mr Vasily Smolyanitsky, has been actively following up the tasks, such as revision of WMO Sea Ice nomenclature, assigned by JCOMM-I. The first session of ETSI is planned to be held in Argentina, October 2002.

JCOMM Products Bulletin and Workshop

JCOMM-I requested the Management Committee, in consultation with Dr Yves Tourre, the Editor of the Products Bulletin, to develop a concrete proposal for a workshop on “JCOMM Products in Support of Operational Oceanography and Marine Meteorology”, to take place during the coming intersessional period. The definition of a JCOMM product is not obvious, and JCOMM products and services will need to be more clearly defined. The Services Coordination Group will develop some draft definitions and an overview on JCOMM products. This will then provide the necessary background for planning the proposed workshop, which itself in turn will lead to the further development of the JCOMM Products Bulletin. In view of the long lead time and careful planning required, the workshop will probably be delayed until 2004, with again an invitation of Météo France to host it in Toulouse.

The Services Coordinator proposes to set up a special Task Team on the “Development of Ocean Services”, to include the Services and Observations Coordinators, plus representatives from the OOPC and major operational centres. This team will work largely by email.

Maritime Safety Services

The chairman of the Expert Team on Maritime Safety Services (ETMSS) has already started his tasks including preparation and dissemination of questionnaires on NAVTEX and waves. The first session of the ETMSS (ETMSS-I) is planned to be held in Lisbon in September 2002.

Proposal from Kenya

Kenya proposed to JCOMM-I that the Kenya Meteorological Department (KMD) should be formally designated as a Preparation Service for the GMDSS in Metarea VIII (S). The SCG and the ETMSS had been requested to review this issue. The issue will be discussed at the first session of the ETMSS. In preparation for this, the SPA Coordinator will KMD to prepare a document detailing their proposal and reasons, for the consideration of the team. In this connection, it is important to ensure the participation of Mauritius, Issuing Service of the Metarea VIII (S), as well as Kenya, since ultimately it is the responsibility of the Issuing Service to agree on the addition of a new Preparation Service within their area of responsibility.

ANNEX VIII

TENTATIVE WORK STRATEGY FOR JCOMM DMPA

According to the tasks defined at the First Meeting of WMO/IOC JCOMM (JCOMM-I) for the Data Management Coordination Group (DMCG) and Expert Teams (ET on DMP and ET on MC), tentative working strategy arrangements for the intersessional period of JCOMM-I and JCOMM-II are as follows:

1. Objectives of JCOMM Data Management Programme Area
   Develop JCOMM data management strategy and an implementation plan for JCOMM end-to end data management; accomplish the task of data management defined at JCOMM-I.

2. The mission of DMCG
   Develop JCOMM data management strategy and submitted to the JCOMM Management Committee for approval; accomplish the data management tasks those with high priority; discussion and determine the implementation plan of JCOMM data management and other data management matters raised at JCOMM intersessional period.

3. Objectives of Expert Teams (ET on DMP and ET on MC)
   Develop a JCOMM data management implementation plan based on the JCOMM data management strategy; accomplish the technical matters of priority relevant to data management raised during the JCOMM-I.

4. Working Relations between DMCG and ET
   Through reviewing and analyzing the existing data management mechanism and programmes of IOC and WMO to determine the objectives and principles, frame structures and data flow of JCOMM data management, the requirements of data processing and quality management, as well as the mechanism of user's feedback and system monitoring.

5. Work plan for DMCG

5.1 Assisting, if required, the JCOMM co-chairmen and WMO/IOC Secretariat to select members of Expert Team on Data Management Practice (ET on DMP) by the end of 2001.

5.2 On the preconditions of accomplishing the task at its maximum capacity, priorities should be identified. At present, the work could be arranged for two phases: from present to May 2002, and from June 2002 to December 2002.

5.3 Proposed work plan before the First Meeting of DMCG (May 2002)

(1) Review the mechanism of WMO/IOC oceanographic and marine meteorological data management and exchange, keeping with the general requirements of end-to-end data management, and considering the coordinating procedure and method between JCOMM and DMCG and to solve the existing problems:

- The system of Specialized Oceanographic Centers (SOCs) and of marine monitoring established under IGOSS needed to be reviewed; (Para 7.4.24)
- Establish a Sea Surface Salinity Pilot Project, and to develop procedures for and coordinate JCOMM input to the pilot project; (Para 7.2.5)
- Review the development of Argo data management, with a view towards a full integration into the JCOMM overall observing system at an appropriate time; (Para 7.3.9)
- Possible actions to ensure an appropriate JCOMM participation in the CBS activities related to data exchange; (Para 7.4.18)

- Review the work of Inter-Programme Task Team on Future WMO Information Systems, and take up the issue through assigning an expert to represent JCOMM's interests in the Task Team on Future WMO Information System. (Para 7.4.29)

(2) Key Issues on Integrated JCOMM Data Management

- Review and assessment of the general requirements for end-to-end data management practices; (Para 7.2.11, Para 7.2.6)
- Code and Format. Review the requirement for exchange of new oceanographic data and initiate actions for BUFR encoding and GTS distribution of new oceanographic data at the appropriate time; (Para 7.4.4, Para 7.4.5, Para 7.4.11, Para 7.4.34)
- Develop an integrated strategy for monitoring of data flow and quality; (Para 7.4.25);
- Strategy for JCOMM end-to-end data management.(Para 7.5.1, Para 7.2.6)

(3) Maters to be defined quickly

- Ocean Data Acquisition Systems (ODAS) Metadata Center; (Para 7.
- Assign an expert to represent JCOMM's interests about codes and formats in inter Programme Task Team on Future WMO Information System;
- To assign experts to assist the Commission for Climatology (CCI).

5.4 Work Plan of DMCG for the Period of June 2002 to December 2002

Based on the discussions at JCOMM-I, the above-mentioned tasks should be accomplished one by one, and the summary report should be drafted; report for JCOMM end-to-end data management strategy should be finished; technical arrangement for the JCOMM end-to-end data management implementation plan should be discussed with Expert Teams.

5.5 Working Mechanism of DMCG

Upon reaching the unanimous view on the work plan, the task will be disassembled to expert or to Expert Team. The Chairman of the DMCG will organize, coordinate and monitor the process of the tasks being accomplished.

The work of DMCG will be organized and coordinated through e-communication. If the budget permits, the meeting could be held every six to eight months in the first two years to promote exchange and oversee the implementation of the tasks.

The DMCG will enhance the cooperative relations with IODE and CBS, and establish a routine coordinating mechanism.

6. Work plan of Expert Team on DMP (Proposed by the Chairman of DMCG)

7. Work plan of Expert Team on MC (Proposed by the Chairman of DMCG)

Draft.v.2.

Work plan of Expert Team on Data Management Practices (ET DMP) for 2002

The basic purpose of ET DMP activity in 2002 consist in the following:

(i) definition of key issues of ocean and meteo data management practicies from point of view to establish the end-to-end data management (E2EDM) targeted by JCOMM; (ii) to development of E2EDM implementation strategy and general (principal) technical decisions on the E2EDM practices; (iii) preparation of the plan of actions for intersessional period.

The working plan of ET DMP activity on 2002 includes the following actions:

1. Review and analysis existing marine data and information management practices ((DIM schemes, formats, QC tools, telecommunication means and software, etc) used in international and most advanced national programmes and projects (the IOC/WMO projects, operating regional GOOS projects, etc.)

Responsibility: is defined after final nomination of the experts
Milestones:
first version - March
version for CGDM consideration - May
final version - September

2. Review and analysis existing E2EDM implementation strategies and plans for an estimation of the most common problems and accepted technical decisions (GOOS DM, COOS DM, IODE IOC DM, CBS -Future WMO Information Systems, etc.)

Responsibility: is defined after final nomination of the experts
Milestones:
first version - March
version for CGDM consideration - May
final version - September

3. Specification of the purposes and tasks of an E2EDM establishing and implementation, development of the requirements to E2EDM shape and functions:

Responsibility -Nicolay Mikhailov
Milestones:
preliminary draft for MC-1 consideration - Feb
version for CG DMA consideration
and finalizing after this meeting- May/June

4. Estimation of existing ocean and meteo DM practices status respectively to the E2EDM requirements, development of the strategy of E2EDM implementation:

Responsibility -Nicolay Mikhailov
Milestones:
version for CG DMA consideration - May
version for ET DMP consideration
and finalizing after this meeting- September/October

5. Development of the principal technical decisions (on DM schemes, formats, QC and etc) for DIM improvement on the basis of the E2EDMf requirements and strategy

Responsibility: is defined after final nomination of the experts
Milestones:

version for ET DMP consideration - September
working version - October

6. Development of the decisions on institutional structure and Data Centres functions for an E2EDM establishing and support

Responsibility: is defined after final nomination of the experts
Milestones:
preliminary draft for MC-1 consideration - Feb (Nicolay Mikhailov)
version for CG DMA consideration - May
version for ET DMP consideration - September
working version - November

7. Development of the plan of actions and measures for intersessional period for development of the technical decisions and recommendations of the best practice for E2EDM implementation.

The responsibility: the members of ET DMP
Milestones:
first version for ET DMP consideration - September
working version - November

ANNEX IX

WORK STRATEGY FOR JCOMM CAPACITY BUILDING

The WMO/IOC Joint Technical Commission for Oceanography and Marine Meteorology (JCOMM) has the commitment to improve and expand the availability of operational marine data necessary for monitoring, understanding and forecasting both short and long-term meteorological and oceanographic variations.

Objectives of the Capacity Building Programme Area

The Capacity Building (CB) Programme under JCOMM has the responsibility to increase the capability of countries in the area of marine forecasting and management and to help countries with less capacity in marine activities to become involved in the various JCOMM Programmes through the training, transfer of technology and provision of equipment with the objective to improve operational ocean and meteorological services to the users and the peoples of all countries.

To achieve these aims the JCOMM Capacity Building Programme must operate within, and draw upon, the overall principles of its governing bodies (JCOMM CB Strategy - WMO/TD-N° 1063, 2001- Technical Report N° 11, General Principles); it must be also compatible to, and work with, WMO/IOC programmes, particularly with those devoted to observational objectives such as the World Weather Watch (WWW), the Global Climate Observing System (GCOS) and the Global Ocean Observing System (GOOS).

Objectives of the Task Team on Resources

a) Monitor the existence, fields of interest and procedures of international and national aid programmes, foundations and all other possible sources of funding and advice on proposal development;
b) Where possible, develop links and contacts to funding sources and aid programme management;
c) Develop a plan for obtaining resources for JCOMM Capacity Building, in collaboration with GOOS and GCOS (Res. 16/5).

According to the tasks assigned to the Capacity Building Programme Area by the First Meeting of WMO/IOC JCOMM (JCOMM-I), the following tentative CB working strategy has been developed for the intersessional period JCOMM-I/JCOMM-II:

Implementation of the JCOMM Capacity Building Strategy (Res. 16/5)

In accordance to the Priorities already defined by the JCOMM CB Strategy it is suggested that the plan be arranged in two phases:

Phase A: The maximum efforts should be focused in fulfilling the *Priorities and Actions* addressed in Item 7. of the Document. The tasks assigned in phase A should be accomplished by **early June 2002** and each summary report submitted to the CB Coordinator.

Phase B: This phase is oriented to accomplish other relevant issues to the general principles of the strategy. The tasks assigned in phase B should be accomplished by **late December 2002** and each summary report submitted to the CB Coordinator.

Phase A - Proposed work plan before the First Meeting of the CB Coordination Group (June 2002):

Regional and National Levels

The accomplishment of the following tasks should depict the Regional and National scenarios the CB Programme will confront with. From the analysis of these studies it is expected to determine the CB needs or the requirements to build on and/or improve existing operational systems.

1. Conduct a survey among the maritime countries of the WMO Regional Associations I, II, IV, V and VI, similar to the study already carried out in RA III **(Annex I).**

From the results obtained:

a) Identify the CB needs of each Region country in the areas of Education, Materials, Training, Knowledge, Technical assistance, Hardware and maintenance, Monetary support, Data and Information and Infrastructure in the context of JCOMM CB Strategy.

b) Portray a Regional profile with an analysis of the regional needs.

(Task 1. is assigned as follows: For WMO RA I, **Ms Folorunsho**; WMO RA II, **Mr Peng;** WMO RA IV, **Mr Aparicio;** WMO RA V, **Mr Ragoonaden** and for WMO RA VI, **Ms Ambar).**

Additionally, the following proposed tasks should provide an overview of the on-going capacity building activities performed at national level. The experience already obtained by WMO/IOC Member States and identified by this process will be extremely useful to maximize the resources and focus the future efforts of the JCOMM CB Programme.

2. Identify on-progress *Capacity Building Policies* in the WMO/IOC Member States in the areas of Education, Materials, Training, Knowledge, Technical assistance, Hardware and maintenance, Monetary support, Data and Information and Infrastructure in the context of JCOMM CB Strategy.

3. Identify the *exchange of assistance already in progress* among the WMO/IOC Member States in the areas mentioned above.

4. Identify, existing *monitoring and auditing procedures* that address the accountability and results of the on-going exchange of assistance among WMO/IOC Member States.

(Tasks 2. to 4. are assigned as follows: For WMO RA I, **Ms Folorunsho**; WMO RA II, **Mr Peng;** WMO RA III and IV, **Mr Aparicio;** WMO RA V, **Mr Ragoonaden** and for WMO RA VI, **Ms Ambar).**

The information collected in the above items should be used to:

5. Determine Regional CB priority actions. **(CB Coordinator with CG Group members)**

6. Make an analysis of the Identified needs for Training in marine meteorology and oceanography activities and the proposals for contributions from WMO/IOC Member countries in this aspect. Prepare a project for future Training Events. **(Ms Folorunsho and Ms Ambar)**

7. Address how national educational, observational and information resources can be best used to mutual advantage at the Regional Level. **(CB Coordinator with CG Group members)**

8. Prepare estimates of the resources needed for Capacity Building actions in each Region. **(Mr Peng)**

9. Prepare a project for an integrated audit system oriented to address the results and accountability of the CB activities. This system has to ensure the maintenance and upgrading of the infrastructure created by the CB transfer and the long term participation of receiving countries in JCOMM activities using the information obtained in item 4. **(Mr Peng)**

Task Team on Resources

10. It is expected that the TTR investigate new sources for funding JCOMM training activities (para 11.1.4.). **(TTR)**

Issues to be defined

Assist, if required, the JCOMM co-presidents and WMO/IOC Secretariats in selecting members that should work as Point of Contact with WMO/IOC subsidiary bodies (e.g. GOOS, GCOS, IODE, etc.). **(Ms Andrioli)**

Assist, if required, the JCOMM co-presidents and WMO/IOC Secretariats in determining the guidelines for future User´s Forums. **(Ms Andrioli)**

Phase B - Proposed work plan for the period February- December 2002:

1. Discuss with IODE (International Oceanographic Data and Information Exchange) the possibilities to expand the scope of Ocean Teacher to meet JCOMM training requirements (para 11.2.9). **(Ms Folorunsho and Ms Ambar)**

2. Review the requirements for cooperative projects in ocean regions and sub regions and provide assistance in the development of detailed proposals (para 11.3.5). **(Mr Aparicio and Mr Ragoonaden)**

3. Develop links with GOOS (Global Ocean Observing System) regional alliances oriented to implement mutually supportive CB projects (para 11.3.5). **(Mr Aparicio and Mr Ragoonaden)**

4. Investigate with IODE the possibilities to use ODINAFRICA network as a tool to fulfill relevant JCOMM CB Regional requirements (para 11.3.9). **(Mr Aparicio and Mr Ragoonaden)**

5. Work with GCOS (Global Climate Observing System) and GOOS in the organization of regional workshops in order to include to the maximum extent possible ocean observations and related services (para 12.1.7). **(Ms Folorunsho and Ms Ambar)**

6. Develop, with the Expert Team on Sea Ice, technical guidance material, software exchange, specialized training and CB support with regard to sea ice observations and services (Res. 16/2). Prepare a draft project most preferable by the end of September 2002 **(Ms Folorunsho and Ms Ambar).** It would be advantageous to have this draft project outlined before the Expert Team Sea Ice and Steering Group GDSIDB (SI-1) meeting to be held in Buenos Aires in October 2002.

7. Keep under review existing training and guidance material and advise on the updating and development of new material (Res. 16/5). **(Ms Folorunsho and Ms Ambar)**

8. Review and assess the resources needed for CB actions in light of the resources plan of the Task Team on Resources (Res 16/5). **(Mr Peng)**

Interaction with GOOS

A combination of both WMO and IOC roles will be essential to ensure the complete success of the JCOMM CB Programme. It is therefore, of the utmost importance that the maximum efforts be made to find creative and proactive ways of integration between the meteorological and oceanographic activities in order to achieve the common goals of both disciplines.

In this aspect, the GOOS Capacity Building Programme and its Implementation Strategy will constitute referential documents of remarkable value to the accomplishment of the CB Coordination Group's tasks and to the successful planning and implementation of projects of mutual interest. The following are some suggested actions oriented to enforce such integration:

- Study the compatibilities between the JCOMM and GOOS National, Regional and Global objectives.

- Study possible actions oriented to the implementation of mutually supportive Capacity Building projects.

- Establish possible coordinated actions compatible with Annex 5 of the GOOS Implementation Strategy – GOOS Capacity Building for Developing Countries – when developing Phase A of the present work plan.

- Establish coordinated actions with GOOS, GCOS and IODE when accomplishing Phase B of the present work plan (this include: Training events, Cooperative projects, Regional alliances and priorities, Training and guidance material, etc.).

- Investigate possible future ways of interaction with the GOOS Project Office and National GOOS Coordinating Committees.

- Actively contribute to the current activities involving GOOS-related capacity building through JCOMM and/or WMO (Table 3 of the GOOS Implementation Strategy) in the fields of Direct Training, Building Global Systems and Capabilities, Regional Development Projects and Voluntary Cooperation Programmes.

- Investigate the potential benefits of working through partnerships with GOOS.

- Continuously search for a coordinated interaction with GOOS.

<u>Working Relations between the CB Coordination Group and the Task Team on Resources</u>

The CB Coordination Group will provide any information it might posses on existing funding resources at Regional and National levels as well as on the needs for monetary support to perform the JCOMM programmed activities; the TTR should provide financial solutions by searching and defining sources for funding (e.g. partnerships, international or bilateral funding aids, resources from funding agencies, etc.).

Examples of some coordinated actions between the CB Coordination Group and the TTR:

Establish a close link with the TTR and feed it in with the information collected on financial issues during the surveys conducted by the CB Coordination Group.

Provide the TTR with the estimates of the resources needed for Capacity Building actions in each WMO Regional Association;

Also provide TTR information on the exchange of assistance already in progress among the WMO/IOC Member States identified in item 3. of Phase A.

Provide information on the Identified needs for Training in marine meteorology and oceanography activities and the proposals for contributions from WMO/IOC Member countries in this aspect.

Review and assess the resources needed for Capacity Building actions in light of the resources plan of the Task Team on Resources (Res. 16/5)

Working Relations between the CB Coordination Group and the WMO Education and Training Programme (ET), the Technical Cooperation Programme (TCO) and the IOC Training Education and Mutual Assistance Programme (TEMA)

Establish a liaison with WMO ET/TCO and IOC TEMA and feed it in with the information it might posses on needs of Education, Instructional Material, Training and Transfer of Knowledge at Regional and National levels.

The CB Coordination Group should ask for advice and/or assistance to WMO ET/TCO and IOC TEMA when working on tasks related to the Education and Training areas, including the preparation of Training Events, Workshops, Bibliography (electronic and paper), the reviewing of existing training and guidance material, etc.

Working Relations between the CB Coordination Group and the ET on Sea Ice

The CB Coordination Group should work in conjunction with the Expert Team on Sea Ice of the Services Programme Area when developing guidance material, software exchange, specialized training and CB support with regard to sea ice observations and services.

It is suggested that the Expert Team Sea Ice and Steering Group GDSIDB (SI-1) to be held in Buenos Aires in October 2002 be an informal forum for the exchange of ideas on this topic **(Ms Andrioli)**.

Working mechanism of the CB Coordination Group

Upon reaching unanimous approval of the present work plan, the tasks will be assigned to the Coordination Group members as proposed in this document. The Chairperson of the CB Programme Area will organize, coordinate and monitor the accomplishment of the tasks enunciated and will collect the documentation prepared by the members.

The CB Programme Area should seek for establishing routine coordinating mechanisms and permanent, cooperative relations with the WMO/IOC subsidiary bodies (IODE; GCOS;GOOS, etc.) as well as with other JCOMM Programme Areas.

The CB Coordination Group will use electronic means (e-mail) for their communication and exchange before and after its meeting in late June 2002. However, and if the JCOMM budget allows to do so, it is suggested that the Group meets together every six months to ensure an effective follow-up action of the assignments and implementation of the plan.

ANNEX X

VISION AND STRATEGY FOR JCOMM

Table of Contents

Vision statement	(1 paragraph)	Dexter
What is JCOMM?	(2 pages)	Savi and Johannes
Technical areas: Objectives What will be done Strategy Schedule	(2 pages from each coordinator)	
Cross-cutting strategic issues		Nowlin

Some cross-cutting issues

- Strategic design for enhanced data and information management system.

- Ensure coordination between programme areas.

- Strategy for maintaining awareness of requirements for measurements and services based on non-physical variables and the opportunity for JCOMM to implement.

- Strategy for promotion of JCOMM, including preparations of:
  - this document (Vision and Strategy for JCOMM)
  - web site
  - brochures
  - …..

- Strategy for maintaining clear presentation of activities in each coordinating group, e.g. “where do measurements for sea state fall?”

- Rationalize funding of JCOMM between WMO, IOC and other groups; strategy by programme area.

- Mechanisms for encouraging continuing involvement in JCOMM by national coordinators.

- Mechanisms for liaison with related programmes.

- Criticality of providing metrics (internal and external) to assess success of JCOMM.

- Criteria for JCOMM sponsorship/endorsement of activities/projects. We do not endorse proposals. Activities we endorse must adhere to JCOMM principles.