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INTERGOVERNMENTAL OCEANOGRAPHIC COMMISSION (of UNESCO)

WORLD METEOROLOGICAL ORGANIZATION

UNITED NATIONS ENVIRONMENT PROGRAMME

INTERNATIONAL COUNCIL FOR SCIENCE

Ninth Session of the Global Ocean Observing System Scientific Steering Committee (GSSC-IX)
Paris, France, 6 – 8 March 2006

Joint IOC-WMO Technical Commission for Oceanography and Marine Meteorology (JCOMM)

Joint IOC-WMO Technical Commission for Oceanography and Marine Meteorology (JCOMM)

4.1 Results of JCOMM-II

The second session of the Joint WMO-IOC Technical Commission for Oceanography and Marine Meteorology (JCOMM) took place in Halifax, Nova Scotia, Canada, 19 to 27 September 2005, hosted by the Canadian Government. It was preceded by a scientific conference – Operational Oceanography and Marine Meteorology in the 21st Century. The session was attended by around 125 participants from 42 Members/Member States and a number of international organizations and programmes. The draft report is available (http://ioc.unesco.org/jcomm/jcomm2/draft-jcomm2-report.doc), with highlights summarized below.

Scientific Input and External Interactions

The relationship and interactions between JCOMM and both GOOS and the Global Climate Observing System (GCOS) (and the Ocean Observations Panel for Climate, OOPC) in deep ocean physical oceanography and climate are now well-established and effective, with the ocean component of the GCOS Implementation Plan (GCOS 92) having been adopted by JCOMM as the scientific basis for its operational ocean observing system. The ocean component is now 55% complete; however it is recognized that without additional resources full implementation would not be achieved. An historic milestone was achieved just prior to the JCOMM-II session with the launching of the 1250th drifting buoy, thus marking the first GOOS component to be completed. The interaction of JCOMM with the non-physical and coastal components of GOOS, however, is less clear. While it was generally agreed that JCOMM can and should take on the implementation of the major physical components of the GOOS Coastal Implementation Plan, when the requirements for these are clearly defined and established (e.g., through pilot projects), the same is not necessarily true for non-physical elements, which may be better suited to implementation through the GOOS Regional Alliances (GRAs). To help with this overall process, it was agreed to set up an ad hoc task team, comprising representatives of JCOMM, the GOOS Scientific Steering Committee and the GOOS Regional Alliances, to address both coastal GOOS implementation and the general interaction between JCOMM and the GRAs (see para 4.1 and 4.4, below).

The Commission emphasized the importance of the unique contribution of JCOMM to both natural disaster prevention and mitigation, specifically related to tsunami and other marine multi-hazard warning systems; and GEOSS. It was recognized that JCOMM should contribute to tsunami warning mechanisms, but at the same time ensuring that there was no duplication of and full coordination with existing projects and mechanisms now in place in IOC and WMO. It was recognized that the existing JCOMM expertise in services (e.g., storm surges and waves), observing systems (sea level, ocean data buoys), and warning dissemination mechanisms (marine meteorological warning services) could best be utilized in the context of a comprehensive marine multi-hazard warning system. **In response to a specific Recommendation, a small group of experts met (February 2006) to propose a set of actions that JCOMM could contribute to the development and maintenance of multi-hazard marine warning systems. These actions are given in Annex I for information.**

While JCOMM has already achieved some recognition within GEOSS, in the context of being an implementation mechanism specified in the GCOS Implementation Plan, the Commission felt the need to enhance this recognition, both in GEO and at national level. There was an understanding that GEOSS holds potential benefits for JCOMM and its programme, for resources but more importantly in standardization, coordination and data exchange.

Programme Areas

The core business of JCOMM takes place within the Programme Areas, and there was a clear recognition that the work is progressing well, with broad satisfaction with past achievements and ongoing activities. Highlights included:

(i) The GMDSS (Global Maritime Distress and Safety Systems) Marine Broadcast System is operating smoothly, with the new web site increasingly utilized. There are some ongoing technical issues, including in particular the possible transmission of graphics over Inmarsat, as a part of the GMDSS services;
(ii) The MPERSS (Marine Pollution Emergency Response Support System) is now operational, a new standing Expert Team established, and an embryo web site developed;
(iii) Outline of a guide to storm surge forecasting has been prepared. The finalization of this guide is a priority for the new intersessional period;
(iv) The Sea Ice Team is preparing a substantial input to the IPY (International Polar Year)
(v) The surface buoy network is now essentially complete. Overall, the ocean in situ observing system is some 55% implemented, with the JCOMM plan driving to full implementation, in principle by 2010 (with new resources);
(vi) There is close ongoing interaction with pilot projects and experimental systems such as Argo, OceanSITES, International Ocean Carbon Coordination Project, etc;
(vii) A successful integration of ship-based observations is taking place under the new Ship Observations Team;
(viii) JCOMM has agreed to a re-engagement with the concept of bulk purchase of consumables for ocean observations, initially XBTs, but with possible extensions to other types;
(ix) The value and further development of JCOMM operational centre (JCOMMOPS) as a major technical information and support portal for in situ ocean observing systems is clearly recognized;
(x) The SEACAMP (South-East Asia Centre for Atmospheric and Marine Prediction) Project is finally operational.

Intersessional Period 2005-09

Priority issues for the next four years include:

(i) The further development of oceanographic products and services, and the transition to operational oceanography;
(ii) An enhanced involvement in and support for natural disaster prevention and mitigation and marine multi-hazard warning systems;
(iii) Full implementation of the ocean observing system and its long-term maintenance on an operational basis, including existing pilot projects such as Argo and the key ocean satellite missions;
(iv) An active engagement with the GOOS community in the implementation of the GOOS Coastal Implementation Plan;
(v) Substantial enhancement of JCOMM data management and its integration with IODE and WIS;
(vi) A greater involvement of smaller maritime countries, in particular, in the work of the Commission;
(vii) An engagement with the private sector in support of the implementation of the JCOMM work programme and of operational oceanography in general.

4.2 Joint JCOMM – GOOS/GSSC Activities

4.2.1 Interactions with the private sector

JCOMM-II noted that both IOC and WMO had many long-standing working relationships with some organizations representing industrial and commercial marine-related activities and companies, including those involved with commercial shipping, the offshore oil and gas industry, equipment manufacturers and vendors, and providers of marine telecommunications systems. There remain, however, considerable potential benefits to both sides through enhanced interactions. Such involvement could take many forms, including the design, manufacture and sale of observing system equipment, the operation of observing systems and the supply of data and the use of data and products.

JCOMM-II recommended the establishment of an *ad hoc* task team to enhance interactions with the private sector. The discussion during the session focused on the importance both of being able to better understand the requirements of industry for the data and products that JCOMM could deliver, and also to engage industry more directly in the work of JCOMM and GOOS (Global Ocean Observing System). Draft terms of reference and possible membership are attached (Annex II) for consideration and action under agenda item 4.4.

A preliminary *ad hoc* meeting was held on this subject 3-4 March 2006 in Paris; results will be presented to GSSC-IX, and subsequently to the IGOOS Board for review and ratification.

4.2.2 Coastal GOOS coordination and implementation

JCOMM-II noted the endorsement by I-GOOS-VII of three recommendations of particular relevance to the work of the Commission:

(a) Incorporate the coordinated implementation of the physical variables of the coastal module of GOOS into its work programme;

(b) Prepare options for the inclusion of relevant "non-physical" common variables, products and services;

(c) Consider modalities of interaction between the JCOMM global implementation and the various regional implementation mechanisms [...].

The Commission re-stated its willingness to consider, as appropriate, coordinating the implementation of non-physical observations and data products required by the coastal module of GOOS on a global basis. It noted that, as with the global (basin-scale) module of GOOS, the specifications of techniques and protocols for the observations, data management and products should be demonstrated by pilot projects. Such projects might be carried out independently by the GRAs or jointly with JCOMM.

The Commission recommended the establishment of a joint *ad hoc* JCOMM Management Committee/GOOS Scientific Steering Committee (GSSC) task team to work intersessionally in collaboration with GRAs and national GOOS programmes to

- Recommend a process for taking on the common geophysical variables measured by the GCN;
- Recommend options for managing the “non-physical” common variables, products and services;
- Recommend mechanisms for (a) coordinating the development of RCOOSs and the GCN as an integral part of GOOS & the GEOSS and (b) coordinating development of the coastal modules of GOOS and GTOS;
- Recommend procedures for implementing pilot projects as recommended in the Strategic Implementation Plan for the coastal module of GOOS; and

- Recommend procedures for building capacity based on priorities established by GRAs and National GOOS programmes.

Draft terms of reference and possible membership are attached (Annex III) for consideration and action under agenda item 4.4.

4.3 Capacity Building

The importance of capacity building activities has been acknowledged both within the JCOMM and GOOS communities. Capacity building is needed to ensure the growth, development, sustenance and evolution of operational marine meteorology and oceanography within GOOS, and thereby improving and expanding operational marine data and products available to marine management and services world wide and directly contributing to the objectives of JCOMM. JCOMM-II expressed the view that capacity building activities should be best implemented on a regional basis, taking advantage of, and collaborating with the GRAs. In particular, the Commission emphasized the use of regional bodies and GRA's Secretariats to coordinate and facilitate common requirements in a region, from training through to establishment of operational systems.

A limitation to capacity building is the severely limited regular budget funds available through both WMO and IOC, to support short-term training courses, long-term fellowships and expert missions related to JCOMM and GOOS. External funding support must be sought. In this context, the Voluntary Cooperation Programmes of WMO and IOC could, in principle, support a number of JCOMM and GOOS requirements, including training events, fellowships and the supply of both hardware and software. In addition, the work of the task team on resources (TTR) was of great potential value to both JCOMM and GOOS, in identifying potential external funding sources and in the preparation of project documentation likely to be attractive to such sources.

To meet these objectives for capacity building, the session recommended the establishment of a joint JCOMM – GOOS Task Team for Resources, and charged the JCOMM Management Committee to select, in consultation with GSSC:

(a) three Capacity Building Rapporteurs to be members of the Observations, Services and Data Management Coordination Groups respectively, and one of the three to be a member of the Management Committee;
(b) a chairperson of the Task Team for Resources.

Resolution 5 of JCOMM-II on Capacity Building is attached as Annex IV; proposed CB rapporteurs are listed in agenda item 4.4 for action.

4.4 Action items

(i) Interactions with private sector

(a) Agree to co-sponsorship of *ad hoc* JCOMM-GOOS task team to enhance interactions with the private sector;
(b) Review and propose new/additional GOOS members, for ratification by the IGOOS Board

(ii) Coastal GOOS and GRAs

(a) Agree to co-sponsorship of *ad hoc* JCOMM/GSSC/GRA task team on coastal implementation;
(b) Select GSSC members

(iii) Capacity building

(a) Provide advice regarding the possible selection of the following JCOMM CB rapporteurs:
- Miriam Andrioli (Observations Programme Area)
- Johannes Guddal (Services Programme Area)
- Rudy Hermann (Data Management Programme Area)

(b) Provide advice on establishment of a joint JCOMM – GOOS Task Team on Resources

ANNEX I

Action plan for JCOMM contribution to the development and maintenance of marine multi-hazard warning systems

Action	Responsibility	Timeline	Result of action
WILL DO NOW			
Tsunamis, cyclones and storm surges			
Work with all ICGs for TWSs to develop CREX code for SL data transmission in real-time on the GTS	DMPA in coordination with OPA (GLOSS)	May 2006 (for approval by CBS)	Code form published and in operation
Develop and publish QC standards for real-time GTS transmission of SL data	DMPA in coordination with OPA (GLOSS)	May 2006	Published QC form in operation
Cooperate with IHO and IMO to coordinate the provision of maritime safety information (MSI) related to tsunami warnings	SPA (ETMSS)	Late 2006	Update JCOMM, IHO and IMO guidance and regulation materials to incorporate tsunamis related to tsunamis
Contribution to OceanTeacher (include module on applications of data to marine hazards)	DMPA in coordination with IODE, SPA, OPA	2006	Local capacity building
Maintenance of guides on wave and storm surges	SPA (ETWS)	Ongoing	Input to JCOMM NDPM and other relevant programmes guidance materials related to marine hazards
Maritime safety and others			
Review and develop linkages with ongoing IPY projects	Co-presidents	2006-07	Improvement of observations, data delivery and ensurance of marine safety during and after IPY
Update guidance material related to maritime accidents	SPA (ETMAES)	Late 2006	Improve provision of services in response to marine accidents
Update guidance and regulation materials related to MSI	SPA (ETMSS, ETWS)	Ongoing	Improve description of sea state in MSI
Update guidance and regulation materials related to MSI in polar regions (including improved coordination, dissemination, information content, guidance material)	SPA (ETMSS, ETSI)	Ongoing	Enhance provision of MSI in polar regions
In cooperation with IMO and IHO, define boundaries for new Metareas covering the Arctic Ocean; define responsibilities for dissemination of Metocean MSI for all polar regions	SPA (ETMSS, ETSI)	Late 2006	Enhancement of marine safety operations in polar regions; contribute to update of IMO regulations
Develop standards for ice hazard warning in text bulletins	SPA (ETMSS, ETSI)	Late 2006	Update of JCOMM guidance and regulation materials
Development of web-portal for polar operational information, including warnings (possibly on the basis of Polarview proposal)	SPA (ETSI, ETMSS)	Prior to IPY and follow-up	Single-point access for MSI for IPY participants and ongoing applications (post-IPY)
Develop presentation and dissemination models for sea ice and icebergs; update and extend existing guidance material for sea	SPA (ETSI)	Ongoing	Update to WMO Publications

Action	Responsibility	Timeline	Result of action
ice			
Definition of objects (including graphical presentation) for met-ocean parameters within ECDIS (and future open formats) in liaison with IHO and ISO	SPA (ETSI, ETMSS), co-presidents	May 2006 for sea ice; ongoing for other parameters	Update to IHO catalogue; provision of JCOMM documentation
OFFER TO DO (subject to requirements and resources)			
Archive of data of extreme wave events	DMPA (ETMC) in collaboration with IODE and SPA	Long-term (2007+)	Improve way models handle extreme wave events; input to risk assessments
Archive of data of storm surge events	DMPA (ETMC) in cooperation with SPA, OPA	Long-term (2007+)	Partly for risk analysis (frequency of occurrence); model validation
E2EDM - implementation of prototype in a multi-hazard environment (perhaps as work with WIS)	DMPA	2007	Demonstration project
DBCP offer to support DART Consortium (issues include real-time GTS data reporting, deployment, potential multi-purpose buoys, code format, QC)	OPA (JCOMM co-president to provide Consortium contact details)	May 2006	Integration into global ocean observing system; increased efficiency of deployment facilities; evolution towards multi-use platforms
Observational network analysis (what assets are available) of data to contribute to marine hazard warnings	OPA	2006-07	Interactive data base sortable by application
Upgrade and expansion of GLOSS stations for real-time multi-hazard warnings	OPA (GLOSS)	2006-07	Enhancement of multi-hazard warning systems
Work with IPY participants to identify requirements for sustained marine polar observing systems	OPA	2007-09	Enhancement of multi-use observing system; improved global coverage
Long-term maintenance of required marine polar observing systems	OPA	2009	Enhancement of multi-use observing system; improved global coverage
Continued SL training including maintenance of gauges and use of data (archiving, access and multi-hazard applications)	OPA (GLOSS)	ongoing	Local ability to use SL data; long-term health of GLOSS network
Training for applications of ocean data to multi-hazard warning systems	OPA, SPA	Ongoing	Enhance local capacity to use ocean data
Improve coordination with IMO/MEPC	SPA (ETMAES)	Ongoing	Metocean support to IMO Regional Response Centers such as REMPEC
Integrate MAES capabilities into RSMCs framework	Secretariat	Ongoing	Creation of MAES RSMCs
Develop project to provide information (including improved reception) to non-SOLAS vessels and coastal users	SPA	2007-09	Improved MSI dissemination systems for non-SOLAS vessels (especially off West Africa and Bay of Bengal)
Provide climatology on sea ice hazards (iceberg propagation, sea ice/old ice boundaries) and other marine hazards	SPA (ETSI and others), DMPA (ETMC)	2007	Improve model validations; input to risk assessments

Action	Responsibility	Timeline	Result of action
Ensure capacity building elements on storm surges are incorporated into existing projects (e.g., SEACAMP, WIOMAP, MILAC); liaise with TCP regarding CB (especially with RSMCs)	SPA (ETWS)	2007	Enhance local capacity through MILAC, WIOMAP, SEACAMP
Continuation of workshops in collaboration with WMO/TCP (work with TCP RSMCs to extend and expand to all tropical cyclone areas)	SPA	2006 then ongoing	Enhance local capacity in storm surge, sea state and wind wave analysis and forecast

ANNEX II

Draft Terms of Reference for Industry/GOOS/JCOMM Task Team

Recognizing:

- The need to develop better understanding of GOOS and JCOMM by the private sector;
- The need to better identify industry requirements for GOOS and JCOMM observations, products, and services;
- That industry has strengths which could and should be brought to bear in GOOS and JCOMM development;
- That industry could be a powerful advocate for GOOS and JCOMM; and
- That some components of the private sector are and will be major intermediate or end users of GOOS and JCOMM data and products.

GOOS and JCOMM establish an Industry/GOOS/JCOMM Task Team with the following terms of reference:

- Raise the profile of GOOS in political, public and private sectors and clarify the role and benefits of GOOS to society and to commercial enterprises;
- Recommend to the JCOMM Management Committee and the GOOS, avenues for enhancing awareness and understanding of GOOS and JCOMM by the private sector companies likely to be stakeholders;
- Recommend approaches to and assist with identification of industry requirements for GOOS and JCOMM data and products; and
- Recommend and assist in the selection of private sector experts for GOOS and JCOMM sub groups such as expert teams and task teams.

Membership shall consist of:

- Representatives of JCOMM with expertise in observations, data management, products and services, and education and outreach;
- Representatives of key private sectors such as marine transportation, offshore service providers, petroleum industry, communications, meteorological forecasting and media, insurance/reinsurance, spacecraft providers/operators, and fisheries; and
- Representatives of GOOS.

Proposed Membership

Representatives from Industry

- Ralph Rayner - offshore service
- Cort Cooper - petroleum industry
- Jeremy Hindle - re-insurance industry
- Mike Webb - meteorological forecasting/media
- Antoine Lecroart - communications sector
- Jerzy Graff - marine transportation
- Ray Steedman - coastal ocean consulting
- Jay Pearlman – aeronautics
- Mary Feeley – petroleum industry

Representatives from JCOMM

- Johannes Guddal
- Wang Hong
- Worth Nowlin
- Peter Dexter

Representatives from GOOS

- Worth Nowlin
- Tom Malone
- Mary Altalo

ANNEX III

Draft Task Team on JCOMM-GRA Coordination and Coastal GOOS Implementation

Terms of Reference

(i) Propose a long-term coordination mechanism or mechanisms between JCOMM, GSSC and the GRAs, to address all areas of mutual interest and avoid overlap and duplication of effort

(ii) Based on the COOP IP, and in the light of existing expertise and structures, propose possible immediate and specific actions for GSSC, JCOMM and the GRAs to further the implementation of coastal GOOS

(iii) Consider and make proposals concerning possible longer-term actions by GSSC, JCOMM and the GRAs for the implementation of coastal GOOS, e.g. where additional expertise and/or subsidiary mechanisms may need to be developed.

(iv) Recommend what observations should be taken on by JCOMM and what should be left to the GRAs. It is important to remember that before a measurement or product can be turned over to JCOMM for regulation and coordination it must be in pre-operational phase with agreed standards and protocols for measurement, data management and product production, and it must have a group that is currently responsible for the measurement or product.

The TT should report to the JCOMM co-presidents and Management Committee, the GSSC and the GOOS Regional Forum or equivalent. The TT will work primarily by email, with an occasional meeting if convenient and necessary. Such a meeting is suggested tentatively to take place in association with the planned third GOOS Regional Forum, September 2006 in Cape Town.

Proposed Membership

GRAs: Hans Dahlin (EuroGOOS), K. Radhakrishnan (IOGOOS), Geoff Brundrit (GOOS-Africa)
GSSC: Tom Malone and Ed Harrison
JCOMM: Bob Keeley, Johannes Guddal and Philippe Dandin.

ANNEX IV

Resolution 5 (JCOMM-II): Capacity Building

The Joint WMO/IOC Technical Commission for Oceanography and Marine Meteorology,

Noting:

(i) Resolution 5 (JCOMM-I) –Education, Training and Capacity Building Programme Area,

(ii) The IOC, JCOMM and GOOS Capacity Building Strategies,

(iii) The report of the chairperson of the Capacity Building Coordination Group to the session,

Considering:

(i) The need to develop and provide oversight for the implementation of the JCOMM and GOOS Capacity Building Strategies,

(ii) The need to review and update as necessary existing training and guidance material, and generate new material where required,

(iii) The value of coordinating support to Members/Member States in marine observing systems, data management and services on a regional or sub-regional basis,

(iv) The need to coordinate closely with other JCOMM programme areas, other programmes and bodies of WMO and IOC and external programmes and bodies in the implementation of integrated specialized training and support activities,

(v) The need to identify and harness the resources necessary to support JCOMM and GOOS capacity building,

(vi) The need to foster capacity building within Programme Areas,

Decides:

(i) To appoint Capacity Building Rapporteurs within the Observations, Services and Data Management Programme Areas, forming a cross-cutting team.

(ii) To establish a joint JCOMM-GOOS Task Team on Resources.

(iii) That the terms of reference for the Capacity Building Rapporteurs and Task Team on Resources shall be as given in the annex to this resolution.

(iv) To entrust the Management Committee, in consultation with the GOOS Scientific Steering Committee, with selecting, in accordance with WMO General Regulation 32 :

(a) three Capacity Building Rapporteurs to be members of the Observations, Services and Data Management Coordination Groups respectively, and one of the three to be a member of the Management Committee;

(b) a chairperson of the Task Team for Resources.

Requests the Secretary-General of WMO and the Executive Secretary IOC to invite relevant external international and national donor agencies to nominate representatives to participate on the Task Team on Resources, as appropriate.

Annex to Resolution 5 (JCOMM-II)

TERMS OF REFERENCE OF THE JCOMM CAPACITY BUILDING RAPPORTEURS AND TASK TEAM ON RESOURCES

Rapporteurs

Terms of Reference

(a) The Capacity Building Rapporteur for each JCOMM Programme Area shall be responsible for the assembly of capacity building requirements of that Programme Area as brought forward from groups, countries and regions through close liaison with the Coordinator, Coordination Group, and other teams and groups within that Programme Area.

(b) The Capacity Building Rapporteurs for the three Programme Areas will regularly liaise and integrate the capacity building requirements of their respective Programme Areas.

(c) The Capacity Building Rapporteur assigned to the Management Committee shall transmit the integrated capacity building requirements via the JCOMM co-presidents to WMO ET/TCO, IOC-TEMA, IODE, GCOS, IGOS, GEF, IMF or other relevant organizations and bodies involved in Capacity Building.

(d) Develop mechanisms for measuring the impact and success of capacity building activities, and a system for regular review and evaluation.

Membership

The Rapporteurs are selected to ensure an appropriate range of expertise and to maintain an appropriate geographical representation.

Task Team on Resources

Terms of Reference

The Task Team on Resources shall:

(a) Monitor the existence, fields of interest and procedures of international and national aid programmes, foundations and all other possible sources of funding and advise on proposal development; and

(b) Where possible, develop links and contacts to funding sources and to assist potential capacity building recipients in developing contacts with potential donors and in proposal development.

Membership

Chairperson of the Task Team on Resources
Donor agency representatives