

**WORLD METEOROLOGICAL ORGANIZATION**

**COMMISSION FOR BASIC SYSTEMS**

**MANAGEMENT GROUP**

**FIFTH SESSION**

**GENEVA, 26 - 29 APRIL 2005**



**FINAL REPORT**

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## **AGENDA**

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- 1.1 Opening remarks
- 1.2 Adoption of the agenda
- 1.3 Working arrangements

### **2. REVIEW OF THE THIRTEENTH SESSION OF CBS**

### **3. CBS WORK PROGRAMME**

- 3.1 OPAG on Integrated Observing Systems
- 3.2 OPAG on Information Systems and Services
- 3.3 OPAG on Data Processing and Forecasting System
- 3.4 OPAG on Public Weather Services

### **4. CBS WORKING STRUCTURE**

### **5. ARRANGEMENTS FOR THE EXTRA-ORDINARY SESSION OF THE COMMISSION FOR BASIC SYSTEMS CBS-EXT (06)**

### **6. TECHNICAL CONFERENCE IN CONJUNCTION WITH CBS-EXT (06)**

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## Executive Summary

The fifth session of the CBS Management Group (MG) was held in Geneva, Switzerland from 26 to 29 April 2005.

The CBS-MG reviewed the actions needed as follow-up to the outcome of the Thirteenth Session of the Commission for Basic Systems. It also reviewed and defined the membership of all the expert teams and their deliverables for the work period until the next extra-ordinary session of CBS in November 2006 (CBS-Ext.(06)). The CBS-MG also considered the development of GEO and of the WMO Disaster Prevention and Mitigation Programme and agreed upon its way to interact with these programmes. It agreed to collaborate with GCOS in addressing the issues related to climate data availability.

The CBS-MG discussed the new developments of conducting sessions of WMO constituent bodies and the documentation associated to them and their relevance to CBS. It planned to have changes in the type and format of documentation for CBS-Ext.(06).

Preparations for CBS-Ext. (06) were initiated and it was agreed that a two-day technical conference on the [Future] WMO Information System ([F]WIS) be held in association with CBS-Ext.(06). The conference will be organized by a conference committee assisted by the Secretariat.

## GENERAL SUMMARY OF THE WORK OF THE MEETING

### **1. ORGANIZATION OF THE SESSION** (agenda item 1)

#### 1.1 Opening of the Session (agenda item 1.1)

1.1.1 The fifth session of the CBS Management Group (MG) was held in Geneva, Switzerland from 26 to 29 April 2005. The session was chaired by the president of CBS, Mr A. Gusev. The list of participants is given at the end of this report.

1.1.2 The WMO Deputy Secretary-General, Mr Hong Yan, welcomed the participants to the WMO Headquarters and wished them a productive meeting and an enjoyable stay in Geneva. He pointed out that the OPAG structure needed to remain dynamic in order to adapt to the evolving tasks it has to address.

1.1.3 Mr Gusev welcomed the participants. He hoped that the new composition of the Management Group would give the opportunity to handle new issues of interest, such as the new WMO cross-cutting projects and GEOSS. He thanked the participants for coming and wished everyone a fruitful and productive meeting.

#### 1.2 Adoption of the agenda (agenda item 1.2)

1.2.1 The MG adopted the agenda for the session, which is reproduced at the beginning of this report.

#### 1.3 Working arrangements for the session (agenda item 1.3)

1.3.1 The working hours and tentative timetable for the session were agreed upon.

### **2. REVIEW OF THE THIRTEENTH SESSION OF CBS** (agenda item 2)

2.1 The MG took note of the list of actions stemming from CBS-XIII.

2.2 Concern was raised as to the participation of CBS in the International Polar Year (IPY). In this context questions were raised regarding the role of WMO in general in IPY and the discussion of this topic was deferred to agenda item 7.

### **3. CBS WORK PROGRAMME** (agenda item 3)

3.0.1 For each OPAG, the MG reviewed the composition of all expert teams and inter-programme teams, of their deliverables and defined the meetings that should take place in the inter-session period, which would be quite short given the date of CBS-Ext.(06) in November 2006. The MG recalled that CBS-XIII invited the chairpersons of the OPAGs and respective teams, in co-operation with the Secretariat, to develop targets for deliverables, and adequate working mechanisms to ensure that all experts could actively participate and contribute to the work programme and assist the respective teams. This work was carried out taking the budget limitations into account.

3.0.2 On various occasions, the topic of the geographical balance in the expert teams was addressed. Generally, the teams were built taking into account the expertise of the participants, while trying to maintain a regional balance. In many cases, the problems associated with geographical balance were due to a lack of expert nominations from some Regions. The Secretariat was asked to raise this issue at Regional Association meetings. It was recalled that it is not possible to nominate experts who have not been proposed. However, it was also noted that it is always possible and beneficial to have invited experts in expert team meetings.

#### **3.1 OPAG on Integrated Observing Systems**

3.1.1 The CBS-MG noted that the overall structure of the OPAG-IOS as approved by CBS-XIII comprised the following:

- **Implementation/Coordination Team on Integrated Observing System (ICT-IOS)**
- **Expert Team on Evolution of the Global Observing System (ET-EGOS)**
- **Expert Team on Evolution of Satellite System Utilization and Products (ET-SSUP)**
- **Expert Team on Satellite Systems (ET-SAT)**
- **Expert Team on Requirements for Data from Automatic Weather Stations (ET-AWS)**
- **Rapporteur on AMDAR activities**
- **Rapporteur on GCOS matters**
- **Rapporteur on Regulatory Material**
- **Co-rapporteurs on scientific evaluation of OSEs and OSSEs**
- **Co-rapporteurs on impacts of new instrumentation on the GOS**

It also noted that the Commission had designated the chairs, co-chairs and rapporteurs of the above working structure and that this, therefore, constituted part of the membership of the *Implementation/Coordination Team on Integrated Observing System (ICT-IOS)*. As regards the newly established posts of rapporteurs on Impacts of New Instrumentation on the GOS, the Group discussed the proposals presented by the OPAG-IOS chair and agreed to nominate Mr Alan Douglas (UK) and Mr William Nyakwada (Kenya) as co-rapporteurs on this issue. The MG requested the OPAG-IOS chair to finalize the terms of reference of co-rapporteurs and activate their work in accordance with recommendations given by CBS-XIII. The MG endorsed the amended membership of the ICT-IOS as given in Appendix I.

3.1.2 The OPAG-IOS chair further informed the MG that, in accordance with the CBS recommendation, all ETs chairs had been requested to review the Members' replies to the WMO circular letter (Ref.13067-04/W/CBS-XIII of 3 November 2004) containing nominated experts for all CBS areas of activities and propose the composition of their Expert Teams. In the selection process, the level of expertise, input and effectiveness provided by each candidate during the previous work of the ETs were taken into account. The MG reviewed the proposed composition of the ET-EGOS, ET-SSUP, ET-SAT and ET-AWS. There was considerable discussion concerning the regional representation in the ETs. In this context, the Group felt that composition of the ET-EGOS should be more balanced and include experts from RA I and III. In the absence of any relevant nominations from these regions and taking into account the valuable expertise and input to the activities of the ICT-IOS provided by the rapporteurs on the Regional Aspects of the GOS in RA I and III, the MG agreed to include them into the membership of the ET-EGOS. Finally, the MG endorsed the amended composition of ET-EGOS, ET-SSUP, ET-SAT and ET-AWS that is given in Appendix I. Taking into account the special role of Regional Associations in the overall modernization process of the WWW, the Management Group stressed that there should be closer interaction and coordination between rapporteurs on regional aspects of WWW systems and planned activities of relevant CBS Expert Teams. It requested the Secretariat to ensure that this recommendation be brought to the attention of the Working Groups on Planning and Implementation of WWW in all Regions.

3.1.3 The OPAG-IOS chair informed the session that following the recommendation of the Commission, the work plans and deliverables for each ET established under OPAG-IOS have been developed, based on the proposals agreed by the third session of the ICT-IOS (Geneva, 6-10 September 2004). The MG reviewed and endorsed the proposed deliverables and their deadlines for each ET of the OPAG-IOS with minor amendments. The deliverables together with TORs for ICT-IOS, ET-EGOS, ET-SSUP, ET-SAT and ET-AWS are given in Appendix II. The MG also agreed to the OPAG-IOS chair proposal to meet the following requirements for the meetings during 2005-2006:

- ICT-IOS: one full session (2006);
- ET-EGOS: one full (2006) and one reduced (2005) sessions;
- ET-SSUP: one full (2006) and one reduced (2005) sessions;
- ET-SAT: two full sessions (2005, 2006);

- ET-AWS: one full session (2006).

3.1.4 The MG was informed of the study undertaken by GCOS, which focused primarily on the activities of Global Data Archive and Monitoring Centres associated with the GCOS baseline networks providing in situ atmospheric Essential Climate Variables (ECVs). The results of this study were published as WMO Technical Document (WMO/TD No. 1255). The MG noted that appropriate parts of the TD are directly related to the OPAG-IOIS and OPAG-ISS activities. With a view to coordinate efforts in addressing problems and challenges encountered in data acquisition and exchange in GCOS atmospheric networks, the MG decided to bring this TD to the attention of relevant ETs. As regards the OPAG-IOIS, it was agreed to task the rapporteur on GCOS matters to review and comment on the relevant results and proposals contained in the TD, and also invite ET-EGOS and ET-SAT to collaborate with GCOS in addressing the issues related to the climate data availability.

3.1.5 The MG was pleased to note that following the decision of CBS-XIII, the Implementation Plan for Evolution of Space and Surface-based Sub-Systems of the GOS was published as WMO Technical Document (WMO/TD No. 1267) and being distributed by the Secretariat to all Members. Taking into account the strategic importance of this guidance material for all NMHSs, the Group agreed that there is an urgent need to develop also a descriptive version of the Plan which, through relevant tables and graphics, would illustrate major challenges and expected results of the evolution of the GOS. The MG felt that this material would greatly facilitate understanding and acceptance of recommendations contained in the Plan by all concerned, including policy-makers. In this connection, the Group welcomed the initiative of OPAG-IOIS chair to provide a comprehensive PowerPoint Presentation of the Implementation Plan which should be posted on the WMO website.

## **3.2 OPAG on Information Systems and Services**

3.2.1 The following OPAG Teams Structure were adopted by CBS-XIII:

- **Implementation-Coordination Team on Information Systems and Services (ICT-ISS)**
- **Coordination Team on Migration to Table Driven Code Forms (CT-MTDCF)**
- **Expert Team on Data Representation and Codes (ET-DRC)**
- **Inter-Programme Expert Team on Metadata Implementation (IPET-MI)**
- **Rapporteur on the WMO Guide on Data Management**
- **Expert Team on WIS-GTS Communication Techniques and Structure (ET-CTS)**
- **Expert Team on WIS GISCs and DCPCs (ET-WISC)**
- **Steering Group on Radio-Frequency Coordination (SG-RFC)**
- **Rapporteur on WWW Monitoring**
- **Expert Team on GTS-WIS Operations and Implementation (ET-OI)**

3.2.2 The MG reviewed and endorsed the proposal for the membership of the ETs of the OPAG-ISS, and the respective deliverables and work plan and schedule, which were developed by the chair, Mr Peiliang Shi and the co-chair, Dr Stephen Foreman with the assistance of the Secretariat.

3.2.3 The MG agreed that the proposed membership of the ETs was assembling a valuable and adequate expertise, while keeping a satisfactory geographical balance. It noted that a few experts were still to be identified to adequately provide the expertise from particular areas that was needed. It also noted that the designation of experts from other WMO Programmes/ Technical Commissions required in the ETs addressing inter-Programme activities (CT-MDCF, ET-DRC, IPET-MI) was not fully completed; it requested the OPAG-ISS chair and co-chair to arrange for the appropriate designations, with the assistance of the Secretariat. The MG recalled that the membership's expertise of ETs could also be complemented, on a case by case basis and within the available financial resources, by an invited expert (or consultant) to provide the specific expertise that might be required on a particular topic; this possibility was particularly noted with respect to the development of the use of XML for meteorological information representation (ET-DRC). The MG also confirmed that the OPAG chair might also participate in some ET meetings, through coordination with the Secretariat, in view of the

importance of particular developments. The agreed membership of the ICT and ETs of the OPAG on ISS is provided in the Annex to this paragraph (see Annex III).

3.2.4 The MG agreed upon the proposed work plan, the general meetings schedule as well as the respective deliverables for the ISS ICT and ETs, which would adequately address the development issues and tasks identified by CBS-XIII. It highlighted that all the ETs were expected to carry out a substantial part of their work by correspondence (e-mail), and that meetings were focusing on the consolidation of the respective contributions. It particularly noted that the Rapporteurs (WMO Guide on Data Management and WWW Monitoring) as well as the Expert Team on GTS-WIS Operations and Implementation (ET-OI) was tasked to carry-out the respective activities essentially by correspondence. It noted with appreciation that an Implementation-Coordination Meeting on the MTN was planned for 2006 that would facilitate the work of the ET-OI, and would likely be held jointly with the ET-CTS meeting for cost-saving purposes. The agreed work plan and deliverables for the ICT and ETs of the OPAG-ISS is provided in the Annex to this paragraph (see Annex IV).

3.2.5 The MG was informed of the recent developments related to the establishment of a Tsunami Warning System in the Indian Ocean, and noted the prominent role that the GTS, and eventually the [F]WIS, and the NMHSs should take in supporting the collection, exchange and distribution of TWS related information, within a multi-hazard approach, in the Indian Ocean and for other areas at risk (see Annex V). It was specially made aware that the TWS and the related multi-hazard approach is a unique opportunity to strengthen GOS and more specifically GTS. It tasked the ISS-OPAG to timely address the requirements for specific GTS/WIS procedures for Early Warning Systems, and in particular for TWS, as the need might arise. In this respect, it included an additional task and deliverable to the ET-OI as regards urgent operational matters (message format for acknowledgment of receipt of a bulletin, and operational tests).

3.2.6 The following meetings of the teams and related events are planned to take place before the CBS extra-ordinary session (2006):

- ICT-ISS Q3 2006
- CT-MTDCF Q4 2005 and another meeting in 2006 before ICT-ISS meeting
- ET-DRC Q4 2005 (jointly with training seminar)
- IPET-MI Q3 2005 (jointly with workshop on Metadata)
- ET-CTS Q2 2006
- ET-WISC Q4 2005 (jointly with workshop on GISC) and another meeting in Q2/3 2006
- SG-RFC 2006 (and a Workshop on Radio Frequencies Q4 2005)
- ICM on the GTS-WIS MTN (ET-OI): Q2 2006
- ET-OI 2006

### **3.3 OPAG on Data Processing and Forecasting System**

#### **Teams Structure for OPAG on DPFS**

3.3.1 The following OPAG Teams Structure were adopted by CBS-XIII, including the Emergency Response Activities programme:

- **Implementation Coordination Team on DPFS**
- **Coordination Group for Nuclear Emergency Response Activities (CG-ERA)**
- **Expert Team on Modelling of Atmospheric Transport for Non-nuclear ERA (ET-ERA)**
- **Expert Team on Ensemble Prediction Systems (ET-EPS)**
- **Expert Team on Infrastructure for Long-range Forecasting (ET-LRF/I)**
- **Expert Team on Standardized Verification System for Long-range Forecasting (ET-LRF/V)**

- **Rapporteur on the Impact of Changes to GOS on NWP**
- **Rapporteur on the Application of NWP to Severe Weather Forecasting**

3.3.2 The Chairpersons and members of the Teams and Rapporteurs are given in the annex to this paragraph. (Annex VI)

3.3.3 The MG agreed that a representative from THORPEX would be invited to attend the meeting of the ICT on DPFS, and that as well a representative of the ICT on DPFS, its Chairperson or its delegate (e.g., Chair of the ET on EPS), participate in the most appropriate working group of THORPEX, in order to improve the linkage and communication between DPFS and the developments in the THORPEX research programme.

3.3.4 The MG suggested that coordination is required between the DPFS Rapporteur on the Impact of changes in GOS on NWP and the OPAG on IOS to avoid duplication of effort. The two Chairs of the OPAGs on DPFS and IOS will discuss this matter.

#### **Activities and Deliverables**

3.3.5 Further work is required to develop, refine or provide guidance on standards and practices for weather forecasting, and to maintain as an up-to-date guide for the full range of forecasting functions and processes, including guidance on performance measurement systems. In particular, there is a need to distinguish practices at global, regional, national and local centres to ensure there are no overlaps. Guidance on performance measurement systems was also noted as useful for NMHSs. The MG noted that under the Quality Management Framework initiative, the current priority is given to the area of the GOS, while QM work would continue on weather forecasting.

3.3.6 The applications of EPS products are potentially many, however, those that provide enhanced guidance for severe and high impact weather forecasting are of a high priority. The MG agreed that the developments under TIGGE (Multi-Model Ensemble, THORPEX) should be reviewed by the ET on EPS, to ensure effective implementation of new technologies and products within the GDPFS.

3.3.7 The WMO standardized verification system for EPS is being implemented by EPS-producing centres. The experimental exchange of verification data has been established by JMA who provided a data server and Web site. CBS-XIII recommended that the general responsibilities for a Lead Centre for verification of EPS be added to the *Manual on the GDPFS* (WMO-No.485) and that its President designate RSMC Tokyo as this Lead Centre.

3.3.8 The MG agreed with the goals and general terms of a Demonstration Project on severe weather forecasting and that it should possibly consist of two types of projects: one that is aimed at improving the forecasting of the severe weather associated with Tropical Cyclones, and another project focusing on improving heavy precipitation/strong wind forecasts (not associated with Tropical Cyclones). The Secretary-General would circulate the proposal to the NMHSs to seek voluntary participation in the demonstration projects and called upon the OPAG-DPFS chair, in consultation with the Rapporteur on Severe Weather Forecasting, to select participating centres. Once the participating centres were determined, implementation details of the demonstration project(s) would be developed with the direct involvement of these centres. Preparatory work, including the request for nominations and the selection of participating centres could be completed in 2005, and one demonstration project could be initiated in 2006. A second project could be considered for initiation in 2007. An expert would be identified (contractor) who could be well suited to assist in the designing and organizing of the specific project. It was noted that South Africa is prepared to participate in a demonstration project as a regional centre.

3.3.9 The Global Producing Centres (GPCs) for Long-Range Forecasts (LRF) will be officially designated. For this purpose, a formal minimum list of LRF products to be made available by GPCs, endorsed by CBS-Ext.(02), was now recommended by CBS-XIII to be included in Appendix II-6 in the *Manual on the GDPFS* and form part of the criteria for the designation of GPCs for LRF:

- Fixed production cycles and time of issuance;
- Provide a limited set of products as determined by the revised Appendix II-6 of the *Manual on the GDPFS*;
- Provide verifications as per the WMO SVSLRF;

- Provide up-to-date information on methodology used by the GPC;
- Make products accessible through the GPC Web site and/or disseminated through the GTS and/or Internet.

3.3.10 The Global and Regional Arrangements for nuclear ERA are functioning well under the close cooperation between WMO and IAEA, and will be exercised during the major international Convention Exercise named "ConvEx-3" this May. It is anticipated that ongoing matters related to these activities during this work period could be handled by correspondence or by a small focused expert meeting.

3.3.11 The priority for the ERA programme during this period is to continue to advance the work on the specialized applications of atmospheric transport modelling for non-nuclear environmental emergency response, and will be carried out by a new Expert Team, considering as input the results of the Workshop on Development of Scope and Capabilities of the Emergency Response Activities (Dec. 2004).

3.3.12 While the ET on non-nuclear ERA embarks on its work, CBS-XIII recommended that, with respect to the provision of meteorological support for chemical incidents, the NMHSs that have expressed the willingness to support capacity building through the survey (2004) should be invited to provide an interim contact point to the WMO Secretariat that could be forwarded to those NMHSs that have expressed an immediate need for such support.

3.3.13 The Deliverables and Expected Deadlines are given in the annex to this paragraph. (Annex VII)

3.3.14 The ET on Infrastructure for Long-range Forecasting was requested to contact GCOS to address the issues related to climate observing systems.

3.3.15 The following meetings of the teams are planned to take place before the next extra-ordinary session of CBS:

- |                                |                       |
|--------------------------------|-----------------------|
| • ICT-DPFS                     | June 2006             |
| • CG-ERA                       | May 2006              |
| • ET-ERA (non-nuclear)         | September 2005        |
| • LRF Global Producing Centres | October 2005          |
| • ET-EPS                       | January/February 2006 |
| • ET-LRF/IV                    | Q2 2006               |

### 3.4 OPAG on Public Weather Services

3.4.1 The following OPAG Teams Structure were adopted by CBS-XIII:

- **Implementation-Coordination Team on Public Weather Services (ICT)**
- **Expert Team on Services and Products Improvement (ET-SPI)**
- **Expert Team on PWS in Support of Disaster Prevention and Mitigation (ET-DPM)**
- **Expert Team on Communication Aspects of PWS (ET-COM)**

3.4.2 The membership of the teams was reviewed and agreed upon. Their composition is given in the annex to this paragraph. (Annex VIII)

3.4.3 The deliverables of the teams are given in the annex to this paragraph (Annex IX). The following meetings of the teams are planned to take place before the next extra-ordinary session of CBS:

- |   |      |
|---|------|
| • ET Service and Product Improvements   | 2005 |
| • Coordination Team on PWS              | 2005 |
| • ET Communication Aspects of PWS       | 2006 |
| • ET Disaster Prevention and Mitigation | 2006 |

3.4.4 Chairs of PWS ET/SPI and ET/COM should coordinate with the DPFS chair of ET/EPS on the use of EPS outputs for product and service development for the communication of those outputs to the public. Similarly the Coordinator on DPM should coordinate with the Chair of PWS ET/DPM to ensure efficiency in issues dealing with disaster prevention and mitigation

#### **4. CBS WORKING STRUCTURE (agenda item 4)**

4.1 CBS-XIII had decided to establish two Co-coordinators on GEOSS<sup>1/</sup>. It had agreed that one of them should be from RA III, but did not formally nominate somebody. The MG decided to designate Dr Divino Moura (Brazil) as Co-coordinator for GEOSS within the CBS-MG. The CBS President was requested to send a circular letter to the CBS members to inform them on the formal designation of the GEOSS Co-coordinator. He was requested to inform them in the same letter of the nomination of the Co-rapporteurs on Impacts of New Instrumentation on the GOS.

4.2 While establishing new rapporteurs/coordinators on GEOSS, NDPM and on the Quality Management Framework, CBS-XIII did not specify how they should work. Therefore, the MG discussed their roles and their way of interacting within CBS.

#### **GEO**

4.3 Dr Hinsman, in his capacity as WMO GEO<sup>2/</sup> Focal Point, briefed the participants on the present state of implementation of the GEO Secretariat and on its expected developments until 2006, on the GEO 10-year implementation plan (GEO 10Y-IP) and goals. At present, little is known about the planned internal working mechanisms of GEO. It was pointed out that the GEO 10Y-IP provides good background information on how it is planned to interact with existing systems. In the first week of May 2005, a GEO meeting will be held. As a follow-up of EC strongly supporting GEOSS, each Regional Association and Technical Commission would have GEOSS Coordinators. As the GOS would be an important contribution to GEOSS, GOS and GEOSS would have to interact and be informed on what they are respectively doing. An investigation will be needed to determine if the WMO 6LT plan and the GEO implementation plan are in agreement and compatible. The GEO implementation plan was cut into more than 100 work packets, which include many expectations to CBS.

4.4 The MG recalled the decision of EC-LVI that the WMO constituent bodies should have a proactive approach with respect to collaboration with GEO. The MG discussed how CBS could interact with GEO and respond to it in order to keep up to pace with the GEO's extremely fast development. It recognized that GEO's political visibility would help to enhance WMO's programme visibility.

4.5 The MG decided that the two GEOSS Co-coordinators should chair a group of experts from the OPAGs, which will have to produce a proposal on how CBS could best interact with GEO. This proposal will be submitted to the MG for endorsement. It is expected that more information on the expected working mechanism of GEO will be available after the GEO meeting scheduled to take place next week. The members of the expert team will be expected to have studied the GEO 10Y-IP and the proposed GEO working mechanisms prior to the meeting, which is planned to take place in the last week of August 2005 so that the proposed interaction mechanism can be submitted to GEO timely for their December Meeting.

4.6 Mr P. Dubreuil will be attending the GEO meetings on behalf of his country. He agreed to be the official representative of CBS at the GEO Meeting and to forward any issue of interest to CBS.

#### **Disaster Prevention and Mitigation**

4.7 Dr Maryam Golnaraghi, Chief of Natural Disaster Prevention and Mitigation Programme (DPM), briefed the MG on DPM's activities, including i) Coordination of WMO activities for the World Conference on Disaster Reduction including organizing jointly with the Japan Meteorological Agency a full-day Public Forum Workshop, entitled, "Reducing Risks of Weather, Climate and Water extremes

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1 Global Earth Observation System of Systems

2 Group of Earth Observation

through Advanced Detecting, Monitoring, Early warnings and Opportunities of Information Society.”, ii) Development of promotional materials for WMO activities in Disaster Reduction, including a pamphlet, a brochure and the new WMO DPM website (<http://www.wmo.int/disasters>), iii) Coordination and development of WMO’s strategy and three proposals in response to the Asian Tsunami Disaster and related resource mobilization , iv) Initiation of the Coordination activities of DPM within WMO Secretariat, v) evaluation of potential partnerships among international and regional organizations, initiatives and programmes, and vi) organization of the first meeting of the EC Advisory Group on Disaster Prevention and Mitigation and initiative to get preliminary assessments of the information gaps and capacity needs related to WMO's core capabilities in different regions. Dr Golnaraghi indicated that an implementation plan was being prepared for consideration by EC-LVII. She indicated that as part of priorities of DPM, assessments of WMO's core capabilities, gaps and needs would be carried out to identify needs for improvements and coordinated concrete activities that can address the gaps.

4.8 The following activities will be carried out by the Secretariat who will share these results with the CBS NDPM Coordinator:

- 1) Conducting preliminary and more detailed surveys of capabilities, gaps and needs related to Observing systems, modelling and forecasting of hazards, warnings (development and dissemination), telecommunication mechanisms on regional level. This will be done through compilation of surveys (which have been or are being carried out) by WMO Programmes, and additional DPM surveys to fill in the information gaps
- 2) Based on the outcome of the surveys identify areas of gaps and needs, common globally and those high priority areas relevant to specific regions and identification of specific areas.

The outcome of the above activities will help the CBS NDPM Coordinator to address the following issues:

- Work with the Secretariat (Chief DPM) and, based on her perspective from a whole DPM program perspective of the issues, challenges and deficiencies (including through survey results), identify areas that can be addressed effectively by CBS;
- Identification of examples of past disasters where there were failures and weaknesses in our systems (through request of the post disaster assessments and other information that might be shared through the regional centres and countries);
- Identify those areas where CBS can contribute to addressing the gaps and deficiencies;
- Consult with OPAG Chairs to highlight when CBS has actions in progress or planned to address the gaps and deficiencies and where future actions are needed;
- Identify any areas where additional cross-OPAG co-ordination might contribute to improving the effectiveness of CBS activity, e.g. through improved standardization or communication;
- Assist OPAG Chairs in drawing attention to achievements or needs in respect of NDPM;
- Work with the Secretariat (Chief DPM) to promote CBS achievements on NDPM.

The Chair PWS ET/DPM and the CBS-NDPM Coordinator should coordinate and consult closely to avoid redundancies in their respective activities.

### **Quality Management Framework**

4.9 The MG discussed the topic of quality management and how it could contribute to it. It was recognized that for the certification of NMHSs a full description of the processes is needed, but the development of such standard descriptions by CBS, which would be used by all NMHSs was a major effort and may not even be feasible.

4.10 In view of the activities planned by the PTC 2005 to review WMO technical standards to remove inconsistencies, duplications, etc., the MG requested all OPAGs to ensure that their manuals are consistent, up-to-date and where there is overlap with other OPAGs to ensure no inconsistencies remain. The MG consequently agreed to invite JCOMM to designate a rapporteur who would work together with the CBS rapporteur on QMF to ensure, as a first step, that consistency is achieved

between the GOS manual and guide and the JCOMM documentation pertaining to ocean observations. The MG requested the Secretariat to approach JCOMM on behalf of the president of CBS.

### **Evolving role of WMO**

4.11 The MG was informed on the new evolving role and enhancement of WMO and discussed its relevance for and possible application to CBS. The Executive Council recognized the importance and urgency of developing a strategy for action to address the various issues of concern, particularly relating to WMO's leadership role and rendering the Organization more responsive, proactive and relevant. Consideration should also be given on how constituent bodies can coordinate better in relation to the provision of relevant information, including to the general public and the media, relating to issues of interest such as prevention and mitigation of natural disasters, climate change and water resources. The MG considered this information, specifically with respect to the ideas relating to an increased efficiency of CBS sessions, the style of documentation and the conduct of the CBS sessions.

4.12 The MG recognized that the shortening of the CBS session and specially spending less time on secondary issues to invest the time saved in matters of high importance would be very valuable. It recognized that the tasks of EC and Congress are of a different nature than the tasks of the technical commission. It was recognized that CBS could not be seen as a corporate entity focused on decisions, but it had to carry its members and give them reasons for the choices it made in order to promote ownership. Therefore, the MG found that the new EC documentation concept could not be translated one to one to CBS since the background information, which led to decisions is of great importance for the work of CBS. However, it agreed, that the description of past activities did not deserve long discussions on the appropriate wording. Significant time could also be gained at session by streamlining the documentation so that non-controversial papers could be directly turned into PINK.

4.13 The MG agreed that there is no real need to establish a Committee of the Whole and that the CBS session should be conducted in plenary only in order to allow for the possible adoption of a document as PINK to be made at any time during the session.

4.14 The MG decided to assume that the type of documentation will be changed for the next CBS session and that the documentation will be separated in two types of documents. The first type will consist of reports presenting the past activities with the choices, which were made and their reasons. The second type of documents will be short and describe the future actions and the decisions to be taken at the session. All the documents will be presented at the session and will be published in the report of the session. The report documents will not be formally adopted at the session. They will be posted on the internet at least three weeks prior to the session so that members can propose corrections in case some errors are present in them (this will need to have a mechanism to track the versions and the changes made to them). The second type of documents will contain action plans, recommendations and resolutions. They will be thoroughly discussed at the session. If no significant changes are requested they may be adopted directly as PINK. A new document listing all the actions agreed upon by CBS, the expected performance indicators and their current status will be developed.

4.15 Depending on the experience made at the EC session and other constituent body sessions, it may be worthwhile to investigate the possibility of having both paper and electronic access to the documents at CBS-Ext.(06).

## **5. ARRANGEMENTS FOR THE EXTRA-ORDINARY SESSION OF THE COMMISSION FOR BASIC SYSTEMS CBS-EXT.(06) (agenda item 5)**

5.1 The MG, considering the experience and outcome of previous sessions, provided guidance for the planning of the extra-ordinary session to be held in November 2006. It agreed on a provisional agenda for the session as given in Annex X.

5.2 Considering that no election of officers would take place at that session, the CBS MG felt that the maximum length of the session should be seven working days. Considering the need for time to provide translation of the working papers or PINKs, it decided that a weekend would be included in the session and that at least two working days of the session would take place after the weekend.

5.3 In view of the lack of experience concerning the time to be gained by the new style of documentation and other uncertainties, it could not be decided at this time if the session length could even be reduced to six days. The MG requested the president and vice-president to consult with the Secretariat to examine the experience which would be made at EC and with the estimated time saving which could be expected from the new document type and to decide whether the session should last six or seven days.

## **6. TECHNICAL CONFERENCE IN CONJUNCTION WITH CBS-EXT.(06) (agenda item 6)**

6.1 Following the practice of holding a technical conference in conjunction with a Commission session and the fact that such conferences were considered to have improved participation of experts from developing countries as well as to have provided useful input, the MG agreed that a conference on the WMO Information System be held in association with the Extraordinary session of CBS in 2006. It noted that the proposal had been supported by the Intercommission Coordination Group on FWIS (Geneva, January 2005) and by CBS-XIII.

6.2 The conference should be held, as usual, during the two days preceding the Extra-ordinary session of the Commission (November 2006). The chair of the ICG-FWIS (also CBS vice-president) with the OPAG-ISS chair would consult with the members of the ICG-FWIS and the ICT-ISS to develop the detailed programme of the conference, which should highlight the crosscutting functionalities of the WIS and the involvement of all WMO Programmes.

6.3 The conference would be organized by a conference committee, headed by a conference director and co-director and including the session chairs, and assisted by the Secretariat. The MG agreed that the chair of the ICG-FWIS and CBS vice-president, Prof. G.-R. Hoffmann, and the OPAG-ISS chair, Mr P. Shi, serve as the conference director and co-director respectively, the other members of the committee would be the session chairs.

6.4 The MG agreed upon the following session topics for the conference committee to consider and further develop as necessary:

- Structure, components and general functions of the WMO Information System, supporting information exchange requirements for all WMO programmes
- WIS in the framework of the GEOSS
- Information and Communication Technology (ICT) standards for the WIS
- GISCs: Functions and specifications; related pilot projects
- DCPCs: Functions and specifications; related pilot projects
- NCs: Functions and specifications; "bridging the gap" and benefit for developing countries
- Metadata, data catalogues and data portals
- Data communication techniques and services for the WIS; related pilot projects
- Migration and mapping of current information functions of WMO Programmes into the WIS

6.5 The MG recalled that, with respect to the EOS initiative, CBS-XIII emphasized that the FWIS, in particular the WWW GTS, should be an initial component as well as an important backbone building block within the GEO system of systems (GEOSS) for achieving a greater interoperability and connectivity among individual component observing systems. CBS-XIII agreed that the participation of the FWIS as a critical component of the GEOSS was a unique opportunity as well as a challenge. The MG, therefore, emphasized the importance of the involvement of the GEO Secretariat in the Technical Conference on WIS; it requested the GEOSS rapporteurs and the Secretariat to undertake coordination and action with a view to this cooperation.

6.6 The MG noted that there was not at present any budgetary allocation to support the conference, and sources of funding should be sought from outside of the Secretariat. The director and co-director of the conference would work with the Secretariat to coordinate efforts to seek sponsors and donors for support.

## **7. OTHER BUSINESS (agenda item 7)**

7.1 Prof. G.-R. Hoffmann presented a report on his participation to the IPY-ITG. He recalled that CBS was asked to participate in its Integrated Observing Component. CBS was asked to advise JC concerning the chairperson for the IPC JC sub-committee on observations and to co-ordinate the request for additional information to be provided by the Space Programme. It was also asked to propose an expert to be a member of the Data Policy and Management Strategy Sub-committee of IPY.

7.2 It was noted that there was some confusion as to whether CBS was asked to nominate a member to the IPC JC subcommittee on Observations or whether JC had already nominated somebody. The MG found that this way of proceeding was not satisfactory and it asked the Secretariat to raise its concern to JC. The MG decided to nominate Mr Al Kellie (USA) as member of the Data Policy and Management Strategy Sub-committee of IPY.

7.3 With respect to the development of the WWRP, it was recognized that the OPAG-DPFS of CBS and CAS should collaborate and that it would be useful that the DPFS be represented at WWRP meetings. This is especially necessary to ensure that results obtained in forecast demonstration programmes, and developments undertaken in the area of model verification, are efficiently transferred to the operational DPFS. The OPAG-DPFS chair should participate in the meetings of the scientific steering committee of WWRP. To strengthen the link between PWS and THORPEX as requested by CBS, the OPAG-PWS chair would participate in the Working Group on Societal and Economic Applications within THORPEX.

7.4 The MG felt that it would be very beneficial to have a MG meeting in 2006 and requested the Secretariat to identify the necessary financial resources and arrange for the venue of a MG meeting to take place in the first quarter of 2006.

7.5 The MG discussed how the CBS and WWW activities could be better promoted to the general public and whether some kind of brochure should be developed for that purpose. It was recognized that one would first have to define which precise audience had to be reached in order to address it properly. Currently, it appeared that the most adequate topic would be a brochure promoting NMHSs. However, NMHSs have needs of very different natures. Therefore, more thinking needed definitely to be done before the preparation of such a document was undertaken. In particular, the MG members needed to review the documentation available in their home countries and within WMO.

7.6 Dr J. Purdom offered to prepare a pilot brochure on the evolution of the GOS for next MG-Meeting.

## **8. CLOSURE OF THE SESSION (agenda item 8)**

The session was closed on Friday, 29 April 2005, at 12:15 hours.

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**List of participants**

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**ANNEX I**

**Annex to Paragraph 3.1**

**OPAG on Integrated Observing Systems (OPAG-IOS): Teams structure**

**Implementation/coordination team on integrated observing system (ICT-IOS)**

1. Dr James Purdom (USA), chair
2. Dr Susan Barrell (Australia), co-chair
3. Dr Paul Menzel (USA), ET-EGOS chair
4. Mr Jérôme Lafeuille (France), ET-SSUP chair
5. Dr Wenjian Zhang (China), ET-SAT chair
6. Mr Rainer Dombrowsky (USA), ET-AWS chair
7. Mr Jochen Dibbern (Germany), rapporteur on AMDAR activities
8. Dr Matthew Menne (USA), rapporteur on GCOS matters
9. Dr Alexander Vasiliev (Russian Federation), rapporteur on GOS regulatory material
10. Dr Jean Pailleux (France), co-rapporteur on scientific evaluation of OSEs and OSSEs
11. Mr Ko Koizumi (Japan), co-rapporteur on scientific evaluation of OSEs and OSSEs
12. Mr Alan Douglas, co-rapporteur on impacts of new instrumentation on the GOS (RA VI)
13. Mr William Nyakwada, co-rapporteur on impacts of new instrumentation on the GOS (RA I)

**Expert team on evolution of the global observing system (ET-EGOS)**

1. Dr Paul Menzel (USA), chair
2. Dr John Le Marshall (USA)
3. Mr Russell Stringer (Australia)
4. Dr Florence Rabier (France)
5. Dr Horst Boettger (representing ECMWF)
6. Mr Herbert Pümpel (representing CAeM)
7. Dr Johannes Schmetz (representing EUMETSAT)
8. Dr John R. Eyre (UK, representing CAS)
9. Dr Raino Heino (representing CCI)
10. Mr Jeff Stickland (representing AMDAR Panel)
11. Dr Jim Caughey (representing EUMETNET)
12. Rapporteur on Regional Aspects of the GOS (RA I)
13. Rapporteur on Regional Aspects of the GOS (RA III)

**Expert team on Satellite systems utilization and products (ET-SSUP)**

1. Mr Jérôme Lafeuille (France), chair
2. Mr Jeffrey Wilson (Australia)
3. Dr David Griersmith (Australia, alternate)
4. Dr Luis Augusto Toledo Machado (Brazil)
5. Mr Xiaoxiang Zhu (China)
6. Mr Wolfgang Benesch (Germany)
7. Dr Paolo Pagano (Italy)
8. Mr Ryoji Kumabe (Japan)
9. Dr Alexander Nerushev (Russian Federation)
10. Mr Sory Diallo (Senegal)
11. Dr Volker Gaertner (representing EUMETSAT)
12. Mr Anthony Master (USA)
13. Dr Vilma Castro (Costa Rica)

**Expert team on Satellite systems (ET-SAT)**

1. Dr Wenjian Zhang (China), chair
2. Dr E. Oriol-Pibernat (ESA)
3. Mr Lorenzo Sarlo (EUMETSAT)
4. Mr Yoshiaki Takeuchi (JMA)
5. Mr James Gurka (NOAA)
6. Ms Anna Khoklova (Russian Federation)
7. Dr P.C. Joshi (ISRO, SAC India)
8. Dr Tsuguhiko Katagi (Japan (JAXA))
9. Dr Michael King (NASA)
10. Expert Representing CNSA

**Expert team on requirements for data from automatic weather stations (ET-AWS)**

1. Mr Rainer Dombrowsky (USA), chair
  2. Mr Jorge Emilio Rodriguez (Brazil)
  3. Mr Karl Monnik (Australia)
  4. Mr Igor Zahumensky (Slovakia)
  5. Mr Michel Leroy (Representing EUMETNET)
  6. Dr Jitze P. van der Meulen (Representing CIMO)
  7. Expert representing CAgM
  8. Expert representing CAeM
  9. Mr Zhou Heng (China)
-

## **ANNEX II**

### **Annex to Paragraph 3.1**

#### **OPAG on Integrated Observing Systems (OPAG-IOS): Teams work plan and deliverables for 2005-2006**

##### **Expert Team on Evolution of the Global Observing System (ET-EGOS)**

1. Post on ET web page (a) members, (b) final reports from meetings, (c) Rolling Requirements Review (RRR) process description, (d) updated SoGs, (d) WMO TDs written by ET, (e) Implementation Plan for GOS Evolution, and (f) six monthly progress reports on action list and work plan (2005-2006).
2. Update CEOS/WMO data bases of user requirements and observing system capabilities and include user reviewed R&D expected performances (regularly during 2005-2006, upon receiving information from data users and data producers).
3. Continue Rolling Review of Requirements for ten application areas and expand to new areas as advised by CBS (2006).
4. Work with application area Points of Contact to update Statements of Guidance (during 2005-2006).
5. Review with Rapporteurs and NWP experts the progress concerning OSE guidance for evolution of GOS, taking into account EUCOS, African AMDAR studies and other related studies (2006).
6. Initiate actions, monitor and assure progress on the Implementation Plan for Evolution of Space and Surface- Based Sub-systems of the GOS and coordinate this activity with the Rapporteurs/Coordinators on the Regional aspects of the GOS (2005). Prepare a summary of implementation aspects (2006).
7. Interact with IPY and THORPEX (during 2005-2006, in accordance with planned IPY and THORPEX activities).
8. Follow up on CBS approved recommendations for the evolution to the GOS with particular attention to the developing countries, develop a summary of these activities (2006).

##### **Expert Team on Satellite System Utilization and Products (ET-SSUP)**

1. In following the Rolling Review for the Strategy to Improve Satellite System Utilization, analyze the 2005 biennial questionnaire, compile a list of recommended actions based on that analysis and prepare a new TD, including a summary analysis from the Virtual Laboratory for Satellite Data Utilization's Centres of Excellence;
2. Extend the regional Advanced Dissemination Methods (ADM) concept and principles to an Integrated Global Data Dissemination Service (IGDDS) for operational and R&D satellites, in close coordination with the Co-ordination Group for Meteorological Satellites' (CGMS) standing Working Group on this issue and with WMO Information System (WIS) activities aimed at harmonizing the services to the maximum extent possible;
3. Review present and future R&D satellite data and products including their availability and applications in view of better utilization by WMO Members;
4. Represent WMO Member needs to the CGMS/WMO Virtual Laboratory for Satellite Data Utilization (VL) in relevant areas, including:
  - Training events, in particular the high profile global training event, aiming at further increasing the number of staff and their skills in full utilization of satellite data, from both operational and R&D satellite data.

- Help ensure Members have access to training materials and courses, as well as provide advice on ways to access data, products, and algorithms from both operational and R&D satellites.
  - With the VL Focus Group, evaluate the success and needs of the VL components and suggest strategies for improving VL performance.
  - Begin preparation for global high profile global training event to take place in 2006 or 2007.
5. Prepare documents to assist Members, summarizing the results from the above activities.
  6. Initiate actions, monitor and assure progress on the Implementation Plan for Evolution of Space- and Surface-based sub-systems of the GOS and coordinate this activity with the ET-EGOS.

#### **Expert Team on Satellite Systems (ET-SAT)**

1. Review both operational and R&D environmental satellites present capabilities and plans and provide input to relevant OPAG IOS and OPAG ISS ET and ICT meetings to assist in the integration of WMO-coordinated observing systems;
2. Review CM-5 and CM-6 recommendations and guidance for relevance and provide input to OPAG IOS ET and ICT work programmes;
3. Review SOGs and plans for GOS evolution and provide input to ET EGOS towards improvements of system capabilities, particularly with respect to developing countries;
4. Evaluate regional workshop recommendations with respect to the transition of relevant R&D instruments to operational environmental satellites and advise CBS;
5. Provide input to other WMO sponsored expert groups' meetings, e.g. GCOS discipline panels, JCOMM, GCOS, WCRP and GAW with regard to satellite system capabilities and their requirements.
6. Initiate actions, monitor and assure progress on the Implementation Plan for Evolution of Space- and Surface-based sub-systems of the GOS and coordinate this activity with the ET-EGOS.

#### **Expert Team on Requirements for Data from Automatic Weather Stations (ET-AWS)**

1. Develop, jointly with CCI, JCOMM, CIMO, GCOS and AMDAR, the guidelines for AWS quality control procedures for future publication to all appropriate WMO documents; July 2006
  2. Develop, jointly with CCI, JCOMM, CIMO, GCOS and AMDAR, the standards for a basic set of variables to be reported by AWS installations; December 2006
  3. Develop practical examples based on the standards for AWS metadata; December 2005
  4. Develop, jointly with HMEI and CIMO, a procedure whereby users can access information on how various AWS parameters are computed. This development will be addressed as part of the metadata needs and the Future WMO Information System, July 2006
  5. Review and document the need for updating and maintaining related AWS performance and quality control standards, as well as, all related AWS code templates and descriptor tables, March 2006.
  6. Initiate actions, monitor and assure progress on the Implementation Plan for Evolution of Space- and Surface-based sub-systems of the GOS and coordinate this activity with the ET-EGOS.
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## **ANNEX III**

### **Annex to Paragraph 3.2.3**

#### **OPAG on Information Systems and Services (OPAG-ISS): Teams structure**

##### **1. Implementation-Coordination Team on Information Systems and Services (ICT-ISS)**

- Chair: Peiliang SHI (China)
- Chair of CT-MTDCF
- Chair of ET-DRC
- Chair of IPET-MI (also OPAG Co-Chair)
- Co-Chairs of ET-CTS
- Co-Chairs of ET-WISC
- Chair of SG-RFC
- Regional Coordinators or Rapporteurs

##### **2. Coordination Team on Migration to Table Driven Code Forms (CT-MTDCF)**

- Chair: Fred BRANSKI (USA)
- Dieter SCHROEDER (Germany)
- Vladimir ANTSYPOVICH (Russian Federation)
- Fang ZHAO (China)
- Waldenio Gambi ALMEIDA (Brazil)
- Chouaibou GUEYE (Senegal)
- Peter GIGLIOTTI (Australia)
- Atsushi SHIMAZAKI (Japan)
- Dick BLAAUBOER (Netherlands)
  
- Neil HALSEY (ICAO)
- Xxx (IOC/JCOMM)
- Milan DRAGOSAVAC (ECMWF), Chair ET-DRC

##### **3. Expert Team on Data Representation and Codes (ET-DRC)**

- Chair: Milan DRAGOSAVAC (ECMWF)
- Vladimir SHAIMARDONOV (Russian Federation)
- Eva CERVENA (Czech Republic)
- Jeffrey ATOR (USA)
- William Amos CHILLAMBO (Tanzania)
- Sibylle KREBBER (Germany)
- Charles SANDERS (Australia)
- Yves PELLETIER (Canada)
- Motoo HAYASHI (Japan)
- Stan KELLETT (UK)
  
- Simon ELLIOTT (EUMETSAT)
- Neil HALSEY (ICAO)
- Xxx (IOC/JCOMM)

**4. Inter-Programme Expert Team on Metadata Implementation (IPET-MI)**

- Chair: Stephen FOREMAN (UK)
- Guofu WANG (China)
- Alexander BESPROZVANNYKH (Russian Federation)
- Luca CINQUINI (USA) (USA)
- Juergen SEIB (Germany)
- Baudouin RAOULT (ECMWF)
- Atsushi SHIMAZAKI (Japan)
- Charles SANDERS (Australia)

Metadata Rapporteurs from other Commissions & Programmes:

- Henry HAYHOE (Canada) CAgM
- David MURPHY (Ireland) CAeM
- Joerg KLAUSEN (Switzerland) CAS
- J. Robert KEELEY (Canada) JCOMM

**5. Rapporteur on the WMO Guide on Data Management**

- José Mauro DE REZENDE (Brazil)

**6. Expert Team on WIS-GTS Communication Techniques and Structure (ET-CTS)**

- Co-chair Enhanced use of Data Communication Techniques (EUDCT): Jean-François GAGNON (Canada)
- Co-chair Data Communication Structure (DCS): Hiroyuki ICHIJO (Japan)
- Ilona GLASER (Germany)
- Dominique ANDRE (France)
- Xiang LI (China)
- Kevin ALDER (New Zealand)
- Mina JABBARI (Iran)
- Matteo DELL'ACQUA (ECMWF)
- Hugues AYINA (ASECNA)
- Phil CHAMBERLAIN (UK)
- Ian SENIOR (Australia)
- Allan DARLING (USA)
- Cemal OKTAR (Turkey)
- Wai-man MA (Hong Kong, China)
- Xxxx (Argentina or Brazil)
- Meteorological Satellite Operator expert (WMO Space Programme)

**7. Expert Team on WIS GISCs and DCPCs (ET-WISC)**

- Co-chair Global Information System Centre (GISCs): Heinrich KNOTTENBERG (Germany)
- Co-Chair Data Collection and Product Centre (DCPCs): AI KELLIE (USA)
- Gil ROSS (UK)
- Jacques ROUMILHAC (France)
- Dong-il LEE (Korea, Rep)
- Alfred HOFSTADLER (ECMWF)
- Edward CORMIER (USA)
- Md. Zuki ZABANI (Malaysia)
- Peter GIGLIOTTI (Australia)
- Peiliang SHI (China)
- Toshikazu NISHIO (Japan)
- Leonid BEZRUK (Russian Federation)

**8. Steering Group on Radio-Frequency Coordination (SG-RFC)**

- Chair: Philippe TRISTANT (France)
- Jianguo ZHANG (China)
- Hans RICHNER (Switzerland)
- Michael BERECHREE (Australia)
- Hiroaki OTA (Japan)
- Roger CARTER (UK)
- Boris DOSHKOV (Russian Federation)
- David FRANC (USA)
- Markus DREIS (EUMETSAT)
- Wilson Giometti SANDOVAL (Brazil)
- Xxxx (India)

**9. Rapporteur on WWW Monitoring**

- Bernd RICHTER (Germany)

**10. Expert Team on GTS-WIS Operations and Implementation (ET-OI)**

- Co-chair: Kelvin WONG (Australia)
- Co-chair: Leonid BEZRUK (Russian Federation)
- ET-DRC chair
- CT- Migration to TCDF chair
- Rapporteur on WWW Monitoring
- Rapporteur on the WMO Guide on Data Management
- Focal points of RTHs located on the MTN:
  - Mr M. Adimi Algiers, Algeria
  - Mr J.M. Afonso Buenos Aires, Argentina
  - Mr Kevin Wong (Co-chair) Melbourne, Vic. 3001, Australia
  - Mr J. Mauro de Rezende Brasilia DF, Brasil
  - Ms M. Grueva Sofia, Bulgaria
  - Mr Peiliang Shi Beijing, China
  - Mr L. Keller Prague, Czech Republic
  - Mr A.N. Eldin Cairo, Egypt
  - Ms M. Céron Toulouse Cédex, France
  - Mr B. Richter Offenbach, Germany
  - Mr K. Pangasa New Delhi, India
  - Mr T. Saito Tokyo, Japan
  - Mr G.M. Kibiru Nairobi, Kenya
  - Mr Kevin Alder Wellington, New Zealand
  - Mr L. Bezruk (Co-chair) Moscow, Russian Federation
  - Mr Mohammed Ibrahim Al-Shareef Jeddah, Saudi Arabia
  - Mr M. Sonko Dakar, Senegal
  - Mr C. Little Exeter, United Kingdom
  - Mr D. Starosta Washington, USA

## **ANNEX IV**

### **Annex to Paragraph 3.2.4**

#### **OPAG on Information Systems and Services (OPAG-ISS): Teams work plans and deliverables**

##### **Implementation-Coordination Team on Information Systems and Services (ICT-ISS)**

- (a) One meeting of the ICT-ISS is planned in Q3 2006 to review and consolidate all the proposals and recommendations to CBS from the ISS/ETs and rapporteurs.

##### **Coordination Team on Migration to Table Driven Code Forms (CT-MTDCF)**

- a. Accomplishing real coordination task and providing necessary assistance (mostly in the form of information) when requested by the various regional rapporteurs and groups concerned. It is also fundamental that the CT on MTDCF coordinates with the regional rapporteurs dealing with Codes and Data Management matters (or ISS). Information should be systematically sent to the Permanent representative of all the countries, in addition to the 100 focal points on Code matters, to help countries for the migration including developing a national migration plan.
- b. An important task stems from the implications on the Manual on Codes of the Migration to Table-Driven Code Forms. CBS reasserted the need to separate and update reporting practices from the Traditional Alphanumeric Codes (TAC). Additional work would need to consider what would be the best order for BUFR template parameters both from a migration standpoint and a coding standpoint. CBS noted that national coding practices for TDCF that are not recorded in the Manual on Codes would make migration to TDCF more difficult. Consultancy work supervised by the CT will be necessary to finalize these tasks.
- c. One meeting of the CT-MTDCF in 2005 (last quarter) and another one in 2006 prior to the ICT on ISS in 2006 will be appropriate to monitor and mitigate adequately the migration process and the related difficulties encountered by the WMO Members.
- d. Training on MTDCF will be organised for East RA VI and West RA II countries in 2005. It will be organised for Russian speaking RA VI countries in 2006. East RA V and again RA I should also receive training in 2006 or 2007 subject to financial resources.

##### **Expert Team on Data Representation and Codes (ET-DRC)**

- a. CBS agreed to consider the use of XML, more and more used within the Internet community, for the presentation of WWW data and products to users outside the WMO community. Knowledgeable experts and consultants should be used for developing standards to exchange meteorological data in XML. A consultant will compile information on the use of XML by WWW centres by end of October 2005.
- b. Constant cooperation with the CT - MTDCF is required for defining new descriptors to fit templates for migration traditional data in BUFR, as well redefining the regulations of the Manual to adapt them for BUFR/CREX representation, and also in the near future XML data representation.
- c. Coordination of WMO request to ICAO to seriously consider for the future, to bring into phase the implementation date of WMO code changes and the corresponding Annex 3 amendments. ICAO indicated its firm intention to ensure, in co-ordination with WMO, that the applicability dates of future amendments to ICAO Annex 3/Technical Regulations [C.3.1] related to aeronautical meteorological codes and of the corresponding changes to the WMO codes would coincide.
- d. Importance of streamlining the approval of code changes, for example by striving to adapt the calendar of the meetings on code matters with a view to meeting the target dates for code changes. For that purpose a meeting in the fourth quarter of 2005 will be appropriate for

considering necessary changes for the next amendments of ICAO/Annex 3, which will have to be examined by CBS in November 2006 for implementation in November 2007.

#### **Inter-Programme Expert Team on Metadata Implementation (IPET-MI)**

- a. To finalise the draft version 1.0 of the WMO Core Profile of the ISO Metadata Standard, including an XML representation, taking into account the results of the test of the draft version by WMO Programmes and the development of a Core Feature Catalogue compliant with ISO 19110;
- b. To review the requirements for the extensions of the WMO Core Profile of the ISO Metadata Standard specific to the WMO Programmes and prepare relevant draft extensions for tests;
- c. To develop a reference implementation of the Profile so that it can be used as a guide by implementers; develop or provide references to tools to facilitate the manual creation of metadata and for applications to maintain metadata in the standard Profile;
- d. To develop proposals for the establishment and the maintenance of operational information catalogues required for WIS;
- e. To identify mechanisms for users to search globally amongst metadata catalogues;
- f. To present the draft version 1.0 of the WMO Core Profile of the ISO Metadata Standard to the ISO Technical Committee (TC) 211 responsible for the series 19100 of ISO standards.
- g. To develop proposals for the possible application of the ISO 1900 series of standards for the implementation of WIS;
- h. To draft the parts of the WMO Guide on Data Management, that the team is responsible for;
- i. To organise a workshop on metadata and hold a meeting of the team in the third quarter of 2005.

#### **Rapporteur on the WMO Guide on Data Management**

- a. To liaise with the OPAG chairs for sharing the responsibilities for the edition of the guide between the OPAGs (reference: [Annex to paragraph 7.13 of the report of ICT-ISS 2004](#));
- b. To compile the contributions of the OPAGs to the guide and incorporate them in a draft guide.

#### **Expert Team on WIS-GTS Communication Techniques and Structure (ET-CTS)**

- a. Finalize the Guide on use of FTP and FTP servers at WWW centres, the Guide on Information Technology Security (ITS) at WWW centres and review the Guide on Internet Practices as necessary (End of 2005).
- b. Finalize the general new file naming convention, in collaboration with the ET-OI (End of 2005).
- c. Finalize a new IP address scheme and migration plan to resolve the issue of IP addresses for GTS links, in close association with the centres that are the main users of the current IP addresses (mid 2005). Study IPv6 and the possibility of registering IPv6 addresses for WMO purposes (End of 2006). Update and refine as required the current Guide on Virtual Private Networks (VPN) via the Internet between GTS centres.
- d. Draft recommended practices for data-communication and data access procedures, in particular OPeNDAP, NetCDF and HDF (Q3 2006).
- e. Draft Organization and Design principles for the WIS data communication structure (Q3 2006); promote/coordinate related pilot projects, including the WIS VPN pilot project in Regions II and V.
- f. Proposed updates to the organization and design principles for the GTS, especially the MTN, taking benefits from ICT development (e.g. MPLS), including its evolution towards the core communication component of WIS (End of 2006).

- g. Promote and facilitate with operating NMSs and organizations the integration of satellite-based data-distribution systems into the GTS/WIS as coordinated components for the distribution of large volume of information, including the new WMO Space Programme Integrated Global Data Dissemination Service (IGDDS).
- h. Guidance (consolidation, update and new development) on technical, operational and administrative/financial aspects of data-communication services for WIS implementation, especially for the GTS-WIS at global, regional and national levels, including dedicated and public services (e.g. satellite-based telecommunications, managed data-communication network services, the Internet) (Q3 2006).
- i. A session of the ET-CTS is planned for Q2 2006.

#### **Expert Team on WIS GISCs and DCPCs (ET-WISC)**

- a. Draft technical and operational specifications for different components of the WIS GISCs,
- b. Initial draft technical and operational specifications for different components of the WIS DCPCs (End of 2005), and consolidated specifications (mid 2006).
- c. Initial criteria for interoperability and certification for actual GISC and DCPC implementation (End of 2005).
- d. Identification and Coordination of pilot projects related to GISCs and DCPCs, including VGISC, Roshydromet CliWare (CCI), the European SIMDAT project, the End-to-End Data Management Project -E2EDM (JCOMM), the US-GOOS DMAC and foreseen projects in the framework of GTN-H and WHYCOS (CHy), GAW and THORPEX (CAS) and WAMIS (CAgM).
- e. Coordination of related contributions to the CBS-Ext. 06 Technical Conference on WIS (Q4 2006).
- f. A workshop on GISC development, jointly with a CBS/ET-WISC session, is planned for Q4 2005. Note: The 2<sup>nd</sup> session of the ICG-FWIS is planned from 24-28 October 2005, Boulder, USA, with the recommended participation of the chairs of the most relevant TCs' Teams as experts, including CBS/ IPET-Metadata, ET-CTS and ET-WISC.
- g. Another CBS/ET-WISC session, is planned for Q2/3 2006.

#### **Steering Group on Radio-Frequency Coordination (SG-RFC)**

- a. Organize, with the assistance of the Secretariat, a Workshop on Radio Frequencies for meteorology, including sharing aspects between Met Aids and Met Sat in common bands (3rd quarter 2005).
- b. Contributions to issues on radio frequencies for meteorology, in particular related to the protection of space-borne passive sensing bands. Close collaboration with CIMO as well as with the OPAG on IOS on radio-frequency matters pertaining to instruments. Promote/facilitate (by providing information and guidance) Members' participation in national, regional and global (i.e. ITU-R) activities regarding radio frequencies.
- c. Finalize updates of the joint ITU-WMO publication "*Handbook on use of radio spectrum for meteorology*" in coordination with the ITU-R (mid 2005)
- d. Guidance and information for Members on relevant issues for the next World Radiocommunication Conference 2007 (end 2006).
- e. One meeting of the SG-RFC is planned in 2006, in conjunction with ITU-R/WP 7C meeting, to coordinate WMO's participation and contribution to relevant ITU-R work. (One meeting was also held from 2-4 March 2005)

#### **Rapporteur on WWW Monitoring**

- a. To submit proposals for the extension of the current WWW monitoring (AGM, SAM, SMM) required for the migration to TDCF in liaison with RTH focal points;

- b. To organise an operational trial of the Integrated WWW Monitoring (IWM), based on the use of PCs (e.g. use of DWD METDATA software) and involving an RTH in Region I, and to make a report on the impact on RTHs and NMCs;
- c. To develop proposals for the WIS monitoring scheme, in particular the monitoring tasks of the WIS GISCs, DCPCs and NCS

#### **Expert Team on GTS-WIS Operations and Implementation (ET-OI)**

- a. In coordination with ET-CTS assess the status of GTS operational procedures at RTH centres and their respective NMCs with respect to their ability to receive, handle and relay binary messages, and the maximum message length that is possible in their Message Switching system (End of 2005).
- b. In coordination with ET-CTS examine the use of the International Alphabet No.5 (8 bits) with a view to allow a more flexible usage in meteorological messages containing plain text, in particular the use of upper and lower case characters (Q4 2006)
- c. Examine and review the present and future requirements for the allocation of abbreviated headings TTAaii CCCC YYGGgg (BBB) to facilitate the migration to table-driven code forms, to distribute "migrated data" encoded in BUFR and CREX (On-going).
- d. Maintain and update a comprehensive and coherent set of Tables in Attachment II-5 of the Manual on GTS (WMO No. 386) and to develop extensions of the Tables to cover the requirements including the "migrated data", the ensemble prediction GRIB data issued by numerical weather prediction centres and BUFR messages issued by the WAFCs (On-going).
- e. Develop jointly with ET-CTS as a matter of urgency a mechanism and common approach for assigning unique identifiers in a wide range of activities, including documents, file names and station identifiers based on a sequence of delegating authority to generate identifiers (End 2005).
- f. Consolidate operational procedures for the exchange and distribution of bulletins related to the IO-TWS, including message format for acknowledgment of receipt of a bulletin, and provide for the general coordination of operational tests.
- g. An Implementation-Coordination Meeting on the MTN (GTS-WIS) is planned for 2006 for coordinating implementation and planning of techniques, procedures and systems for the MTN and MTN centres, including towards the core communication component of WIS.

## **ANNEX V**

### **Annex to Paragraph 3.2.5**

#### **Development of the Tsunami Warning System in the Indian Ocean**

WMO, in coordination with US/ISDR and UNESCO/IOC, and NMHSs actively promoted and took action for ensuring the most effective use of the GTS for the immediate support of the Interim Tsunami Advisory Information service as well as for the longer-term support of the Tsunami Warning System in the Indian Ocean, within a multi-hazard approach. The WMO Multidisciplinary Workshop followed by an Expert Meeting (Jakarta, 14-18 March 2005) endorsed the WMO Action Plan and developed technical plan and actions for making GTS fully operational in all Indonesian-rim countries to support the Tsunami Warning System, including Operational procedures and arrangements, Use of WMO/GTS satellite-based data-distribution systems, Data-collection and exchange via Data Collection Service missions of Meteorological Satellites. Operational tests of the distribution of IO Tsunami Watch messages, generated by the Pacific Tsunami Warning Centre (Hawaii) and by the Japan Meteorological Agency (Tokyo), over the GTS that were carried out on 7<sup>th</sup> and 8<sup>th</sup> April were very positive.

The Expert meeting considered that current GTS operational procedures are adequate for meeting the TWS requirements, in particular:

- Use of “WEIOii” bulletins that are relayed with the highest priority (Priority 1) according to GTS procedures;
- Acknowledgment procedures from NMCs to the originating centre complying with standard GTS addressed messages, as very urgent administrative messages transmitted as a service message. In this respect, the CBS/OPAG on ISS was requested to develop, as a matter of urgency, a format for the content of an addressed message for acknowledgment of receipt of a bulletin, especially EWS related bulletins; an initial proposal was developed.

The documents and report of the Expert meeting is available under: <http://www.wmo.int/web/www/TEM/EMEEW-IO/documents.html>

The WMO action plan includes upgrading/strengthening of NMHS centre equipment and GTS links to meet TWS requirements of developing and less-developed Indian-rim countries, including: Bangladesh, Maldives, Myanmar, Sri Lanka and Yemen; Comoros, Djibouti, Kenya, Madagascar, Seychelles, Somalia and Tanzania. Roving expert missions are planned to for fact-finding and developing relevant national projects. WMO has submitted to ISDR and donors a request for funding these activities, including the procurement and installation of equipment and facilities at the NMHSs centres concerned.

The same strategy will be pursued on a global basis for covering other areas at risk (Caribbean, Mediterranean rim, Atlantic).

## **ANNEX VI**

### **Annex to paragraph 3.3.2**

#### **Membership of ICT, ETs and Rapporteurs for OPAG on DPFS**

OPAG Chairman : Mr Bernard Strauss (France)

OPAG Co-Chairman : Mr Nobuo Sato (Japan)

#### **Implementation / Coordination Team on Data Processing and Forecasting System (ICT-DPFS)**

- Bernard Strauss (France), OPAG Chairman
- Nobuo Sato (Japan), OPAG Co-Chairman
- Ken Mylne (UK), Chair ET EPS
- Normand Gagnon (Canada), Chair ET LRF/V
- Willem Landman (S.Africa), Chair ET LRF/I
- René Servranckx (RSMC Montréal, Canada), Chair CG ERA
- Christopher Ryan (Australia), Chair ET ERA
- Rapporteur on the Impact of Changes of GOS to NWP
- Corinne Mithieux (France), Rapporteur on Application of NWP to Severe Weather Forecasting
- Regional Coordinators for DPFS

#### **Expert Team on Ensemble Prediction Systems (ET-EPS)**

- Ken Mylne (UK), ET Chair
- Louis Lefavre (Canada)
- Jean Nicolau (France)
- Abdalah Mokssit (Morocco)
- Woo-Jin Lee (Rep. of Korea)
- Pierre Eckert (Switzerland)
- Zoltan Toth (USA)
- Jiandong Gong (China)
- Masayuki Kyouda (Japan)
- Pedro Leite Silva Dias (Brazil)
- François Lalaurette, (ECMWF)

#### **Expert Team on Standardized Verification System for Long-Range Forecasts (ET-VSLRF)**

- Normand Gagnon (Canada), ET Chair
- Richard Graham (UK)
- Andrew Watkins (Australia)
- Peiqun Zhang (China)
- Robert Livezey (USA)

- Shuhei Maeda (Japan)
- Laura Ferranti, (ECMWF)

**Expert Team on Infrastructure for Long-range Forecasting (ET-ILRF)**

- Willem Landman (S.Africa), ET Chair
- Jean-Guy Desmarais (Canada)
- Tomoaki Ose (Japan)
- Simon Mason (IRI, CCI rep.)
- Dmitriy Kiktev (Russian Fed.)
- M. Rajeevan (India)
- Mike Davey (UK)
- ??(Australia)
- H. Bottger, (ECMWF)

**Coordination Group for Nuclear Emergency Response Activities (CG-ERA)**

- René Servranckx (RSMC Montréal, Canada), CG Chair
- Roland Draxler (RSMC Washington)
- Stewart Wortley (RSMC Exeter)
- Laurent Perron (RSMC Toulouse)
- Paul Stewart (RSMC Melbourne)
- Keiichi Katayama (RSMC Tokyo)
- Zhenxin Song (RSMC Beijing)
- V. Shershakov, or M. Novitsky (RSMC Obninsk)
- Ingo Jacobsen (RTH Offenbach)
- IAEA, CTBTO, ICAO

**Expert Team on Modelling of Atmospheric Transport for non-nuclear ERA (ET-ERA)**

- Christopher Ryan (Australia), ET Chair
- Jens Sorensen (Denmark)
- Michel Jean (Canada)
- Zhenxin Song (China)
- Roland Draxler (US)
- Stewart Wortley (UK)
- Laurent Perron (France)
- Vyacheslav Shershakov (Russian Fed.)
- Ingo Jacobsen (Germany)
- H. Hathwar (India)
- Keiichi Katayama (Japan)
- WHO, ICAO, UNEP/OCHA

**Rapporteur on the Impact of Changes of GOS to NWP**

- Expert USA (pending)

**Rapporteur on Application of NWP to Severe Weather Forecasting**

- Corinne Mithieux (France)

**ANNEX VII****Annex to paragraph 3.3.13****Deliverables and Expected Deadlines for OPAG on DPFS**

Year/Quarter/Month/Date	Event/Deliverable	Notes
<b>2005</b>		
18-23 April	EPS Training Seminar RA II and V (Shanghai)	
3-4 May	Interagency meeting on Application of CTBTO IMS Data/Information for Early Warning of Airborne Volcanic Ash (Montréal)	
Q2	Commence organization of Severe Weather Forecasting Demonstration Project, including expert planning meeting for participating centres/NMHSs, and contractor	Target project commencement for 2006
May/June	ERA Nuclear ConvEx-3 Exercise; evaluation to be assisted by contractor	Participation, evaluation and reporting, follow-up by CG-Nuclear ERA
September	ET meeting on non-nuclear ERA	
September	Meeting of NWP Centres of RA I	
October	Meeting of LRF GPCs	
November/December	Regional Seminar on GDPFS RA I	Regional budget
Q4	Regional Seminar on Early Warnings for DPM, joint DPFS and PWS (Region to be determined)	Regional budget

<b>2006</b>		
January/February	ET on EPS	Exeter
Q1	Commencement of Severe Weather Demonstration Project, with contractor	
Q1	Regional Seminar on Early Warnings for DPM, joint DPFS and PWS (Region to be determined)	Regional budget
May	Expert meeting on nuclear ERA	As required
June	ICT DPFS	CBS-Ext.(06) November
Q2	ET LRF Infrastructure	Possibly joint with LRF Verification
Q3/Q4	Training Workshop on ERA	
Q3/Q4	EPS Training for Eastern RA VI NMHSs (English)	Joined with other subjects related to GDPFS products

## **ANNEX VIII**

### **Annex to Paragraph 3.4**

#### **OPAG on Public Weather Services (OPAG-PWS): Teams structure**

##### **Implementation / Coordination Team on Public Weather Services (ICT-PWS)**

- Gerald Fleming (Ireland), OPAG Chair
- Mnikeli Ndabambi (South Africa), Co-Chair
- John Guiney (USA)
- Dr Ming-Chung Wong (Hong Kong, China)
- Jon Gill (Australia)
- Ms Hilda Lam Kwong (Hong Kong, China)
- Wolfgang Kusch (Germany)
- Emmanuel Moolchan (Trinidad and Tobago)
- José Rubiera (Cuba)

##### **Expert Team on Services and Products Improvement (ET-SPI)**

- John Guiney (USA), Chair
- Keith Groves (United Kingdom)
- Axell Thomalla (Germany)
- Edwin Lai (Hong Kong, China)
- Alan Sharp (Australia)
- Nadia Zyncenko (Argentina)

##### **Expert Team on Disaster Prevention and Mitigation (ET-DPM)**

- Dr Ming-Chung Wong (Hong Kong, China), Chair
- Charles Dupuy (France)
- Jim Davidson (Australia)
- Ms Christine Alex (USA)
- Nick Grahame (United Kingdom)
- Ms Hwang Yung Fong (Malaysia)
- Baogui Bi (China)

##### **Expert Team on Communication Aspects of PWS (ET-COM)**

- Jon Gill (Australia), Chair
- Ivan Cacic (Croatia)
- Ms Claire Martin (Canada)
- Ms Elena Cordoneanu (Romania)
- José Rubiera (Cuba)
- Samuel Muchemi (Kenya)

- Roman Vilfand (Russian Federation)
- Liz Walker (United Kingdom)

## ANNEX IX

### Annex to Paragraph 3.4

#### OPAG on Public Weather Services (OPAG-PWS): Teams deliverables

The deliverables proposed under the Terms of Reference of each team for the period 2005 – 2006 are given below (*with some preliminary plans for 2006-2008 in italics*).

#### Deliverables for the ICT on PWS

- (a) Reports of PWS activities to sessions of EC and CBS as appropriate.
- (b) Guidance on the needs of Public Weather Services as input to the design and implementation of THORPEX based on ideas and views from within the PWS community.
- (c) Surveys for assessing the effectiveness of national PWS programmes and activities.
- (d) Report on the potential contribution of the private sector to the work of the PWS programme and its constituent teams.
- (e) Report on the coordination of activities of the PWS programme on the cross-border exchange of weather warnings with other initiatives in this field, notably the European EMMA project.
- (f) Guidance on the (1) essential and (2) recommended components of a national PWS programme.
- (g) A definitive template for weather broadcast training in the context of PWS, developed and established in conjunction with ET-COM.
- (h) A document defining the meteorological support required for Olympic Games.
- (i) Advice and guidance to CBS on the possible involvement of WMO in accreditation schemes for weather broadcasters.
- (j) *An international conference on the application of economics to meteorology, to be organised with the support of other relevant WMO programmes (06-08).*

#### Deliverables for the ET/SPI

- (a) Users' guide on the World Weather Information Services (WWIS) Internet site for distribution to NMHSs.
- (b) Survey to assess the PWS needs of NMHSs in developing countries with a focus on identifying opportunities within PWS to improve products and services.
- (c) Workshop (jointly with ET/DPM) to identify PWS product and service opportunities/links between DPM and PWS.
- (d) Expanded WWIS Internet site to include additional hydro-meteorological information and other languages.
- (e) *Survey to identify the emerging needs for new and improved PWS products and services with the emergency management community and media partners (jointly with ET/COM) (06-08).*
- (f) *Participate in THORPEX International Conference on Decision Making and Decision Support in the Era of Probabilistic Weather Forecasting (06-08).*
- (g) *Workshop on the applicability of probabilistic forecasts products and services facilitated by ensemble prediction systems on PWS (to include forecasters and representatives from the emergency management community) (06-08).*

### **Deliverables for the ET/DPM**

- (a) Regional roving seminars on natural disaster management in the context of the PWS programme.
- (b) Booklets for school children on DPM, preferably using cartoon figures to help them understand the threats of natural hazards and protective actions to be taken.
- (c) Publish "Guidelines on Integrating Severe Weather Warnings into Disaster Risk Management".
- (d) Survey on natural hazard warning systems in operation in various countries with a view to publishing a handy reference on such systems.
- (e) Survey to assess the vulnerability of developing countries, including LDCs, to natural disasters and their needs, followed by a workshop to identify the areas where vulnerability can be reduced in the context of national PWS programmes.
- (f) Publication of success stories showing how disaster prevention and preparedness, in particular, effective warning systems, reduce vulnerability.
- (g) *Prepare guidance material on best practices in early warning systems (06-08).*
- (h) *An international conference on PWS in support of DPM to provide a forum for professionals of various disciplines (meteorologists, media and communications experts, social scientists, engineers etc.) to discuss early warning systems in support of DPM, effective warning dissemination and disaster communication (06-08).*
- (i) *Workshop on advances in nowcasting and applications in early warnings of meteorological and hydrological hazards, involving system developers, forecasters as well as disaster management experts (06-08).*
- (j) *Enhanced SWIC Website to include multi-hazard warning pages, multiple language versions and more participation by Members. The ultimate objective is to develop the SWIC into a multi-hazard information & resource centre (06-08).*

### **Deliverables for the ET/COM**

- (a) Workshops for NMHS staff to enhance communication and presentation skills, focussing on interactions with the media and disaster managers during routine events as well as during natural disasters.
- (b) A set of 'best practice' examples for circulation amongst NMHSs of effective methods of weather information presentation through all media.
- (c) Promotional information about the WWIS and SWIC websites, to be distributed by NMHS to relevant organisations (e.g. the media, tourism and travel organisations) in order to enhance the use and profile of official weather information from NMHS.
- (d) Report on the effectiveness of the WWIS and SWIC websites, including an analysis of website usage statistics.
- (e) *Advisory material on how NMHSs may work with the media to ensure effective attribution of the role of NMHSs in the provision of basic services and infrastructure to support weather presentation to the public (06-08).*
- (f) *Guidelines on the effective use of confidence and uncertainty information in PWS (06-08).*

**ANNEX X**

**Annex to Paragraph 5.1**

**Draft Provisional Agenda for CBS-Ext. (06)**

- 1 OPENING OF THE SESSION**
  - 2 ORGANIZATION OF THE SESSION**
    - 2.1 Consideration of the report on credentials
    - 2.2 Adoption of the agenda
    - 2.3 Establishment of committees
    - 2.4 Other organizational questions
  - 3 REPORT BY THE PRESIDENT OF THE COMMISSION**
  - 4 REVIEW OF DECISIONS OF EXECUTIVE COUNCIL RELATED TO THE COMMISSION**
  - 5 STATUS OF WORLD WEATHER WATCH IMPLEMENTATION AND OPERATION**
  - 6 WORLD WEATHER WATCH PROGRAMME, SUPPORT FUNCTIONS AND PUBLIC WEATHER SERVICES, INCLUDING THE REPORTS BY THE CHAIRS OF THE OPEN PROGRAMME AREA GROUPS**
    - 6.1 Integrated Observing Systems (IOS)
    - 6.2 Information Systems and Services (ISS)
    - 6.3 Data Processing and Forecasting System (DPFS)
    - 6.4 Public Weather Services (PWS)
  - 7 CROSS-CUTTING ACTIVITIES**
    - 7.1 WMO Space Programme
    - 7.2 Group on Earth Observations
    - 7.3 Disaster Prevention and Mitigation
    - 7.4 Quality Management Framework
    - 7.5 THORPEX
    - 7.6 IPY
    - 7.7 WIS
  - 8 LONG-TERM PLANNING RELEVANT TO THE COMMISSION**
  - 9 FUTURE WORK PROGRAMME**
  - 10 OTHER BUSINESS**
  - 11 DATE AND PLACE OF THE FOURTEENTH SESSION**
  - 12 CLOSURE OF THE SESSION**
-