

WORLD METEOROLOGICAL ORGANIZATION

COMMISSION FOR BASIC SYSTEMS

MANAGEMENT GROUP

SECOND MEETING

FINAL REPORT

FINAL DRAFT



SYDNEY, 10 - 13 DECEMBER 2001

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Executive Summary

The second meeting of the CBS Management Group (MG) was held in Sydney, Australia 10-13 December 2001.

The CBS-MG reviewed the work of the teams and rapporteurs to date and agreed that, although some minor adjustments might be warranted, most teams had made satisfactory progress.

The group suggested that workshops on studies of the impact of changes to observing systems should be organized and a small committee should be formed for this purpose with representation of all the regions, different types of expertise, and both CAS and CBS.

Recognizing that a problem had occurred concerning lack of awareness of some recent code changes, the group recommended that Members be invited to appoint focal points on code matters, who will be alerted to proposed changes in codes and code tables. The group also felt that the current procedures for approval of code and table changes, particularly fast-track procedures, were not satisfactory and suggested that alternative procedures be investigated.

The group considered reports on total quality management and suggested that development of further quality management processes within the existing framework of the WWW procedures and practices, would be the most appropriate way to proceed. Under such an approach documentation would be developed that describes the quality management procedures and practices to be followed, and resources to be allocated in the provision of WWW functionality that would enable the overall quality of the WWW outputs to be monitored and continuously improved. Through this process the WWW could further advance the implementation of a quality monitoring system without committing to the expense and bureaucratic overheads which appear to be present with the ISO 9000 system and would meet stated ICAO requirements. The integration of quality management procedures and processes within the WWW manuals and guides will also benefit those Members that choose to implement ISO 9000.

The group agreed that a two-day technical conference on data processing and forecasting systems be held in association with the extraordinary session of CBS in 2002. The conference will be organized by a six-member conference committee assisted by the Secretariat. Papers will be solicited through a call for papers, which should be issued by February 2002.

The group agreed that WMO Publications No. 9 (excluding Volume B) and No. 47 should continue to be made available via the WMO Internet server and should also be distributed to NMHSs on a CD-ROM. Members, who still prefer to receive the paper format, should continue to receive a paper copy if they so request. It agreed that the distribution of these publications on diskette was no longer necessary. The meeting also agreed that the Manuals on the GDPS, GOS and GTS and Manual on Codes should be posted on the WMO Server and also made available on CD-ROM in PDF. The group agreed that the WWW Operational Newsletter should be disseminated via electronic mail.

GENERAL SUMMARY OF THE WORK OF THE MEETING

1. ORGANIZATION OF THE MEETING (agenda item 1)

1.1 Opening of the meeting (agenda item 1.1)

1.1.1 The second meeting of the CBS Management Group (MG) was held in Sydney, Australia 10-13 December 2001. The meeting was chaired by the president of CBS, Dr G. Love. The list of participants is given at the end of this report.

1.1.2 In his opening remarks, Dr Love, on behalf of Dr Zillman, Permanent Representative of Australia to WMO, welcomed the participants to Sydney and Australia and wished them a productive meeting and an enjoyable stay in Sydney.

1.1.3 Mr Dieter Schiessl welcomed the participants on behalf of the Secretary-General. He thanked Australia for their generous offer to host the meeting and congratulated them for the excellent facilities they had arranged. He thanked the participants for coming, outlined the main objectives for the week 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 meeting, which is reproduced at the beginning of this report.

1.3 Working arrangements for the meeting (agenda item 1.3)

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

2. CBS WORK PROGRAMME (agenda item 2)

2.1 At its twelfth session the Commission defined the OPAG expert and implementation/coordination teams and rapporteurs and their corresponding terms of reference. The CBS-MG reviewed the work that the teams and rapporteurs had accomplished to date.

OPAG-IOS

2.2 Dr Purdom, the chairman of the OPAG-IOS presented his report. He noted that reports received from three expert teams (ETs) and four rapporteurs of the OPAG IOS reflect that they have been actively involved in completing the various tasks as described in their terms of reference. The ability of two of the ETs to accomplish their tasks was enabled through meetings sponsored by the CGMS, including: a Virtual Laboratory for Satellite data Utilization focus group, the International Precipitation Working Group, a Workshop on Evolution of Satellites within the GOS, and CGMS plenary where issues relevant to current and future satellite activities and planning were addressed. The OPAG-IOS Implementation Coordination Team (ICT) will meet during the second quarter 2002.

2.3 Although yet to meet, some ICT activities are underway as parts of the OPAG Chair, ET's and rapporteurs' activities. They include studying hypothetical changes to the GOS, addressing GSN and GUAN issues, standardized high-quality observing practices, and satellite operator contingency plans. The ET on Observational Data Requirements and Redesign of the GOS has detailed the satellite and in-situ observing system technologies planned for the next decade in: "Observing Systems Technologies and Their Use in the Next Decade, 2001, WWW-20, Technical Document WMO/TD No. 1040." The third iteration of Rolling Requirements Review (RRR) process for several application areas is reflected in "Statement Of Guidance Regarding How Well Satellite And In Situ Sensor Capabilities Meet WMO User Requirements In Several Application Areas, 2001, Sat-26, Technical Document WMO/TD No. 1052." JCOMM and CCI have been invited to participate in the RRR process. The ET hosted the CGMS workshop mentioned above, with a report posted on the WMO web-site <http://www.wmo.ch/hinsman/long-ter.htm>. In conjunction with the rapporteurs on OSE and OSSEs they are coordinating with NWP centres to carry out specific OSEs. Both the ET and rapporteurs pointed out that OSEs were favoured over OSSEs for a number of reasons.

2.4 The OPAG Chair presented several items of concern to the meeting that dealt with R&D satellites, GPS, WindSat data availability, and satellite data monitoring. The Rapporteur on GCOS Matters has been active on CLIMAT and CLIMAT TEMP issues and has also been involved in GCOS discussions within COP's Subsidiary Body for Scientific and Technological Advice (SBSTA). The ET on Satellite Utilization and Products has been very active in reviewing the new cycle of the Questionnaire and Progress Reports on the Application of Satellite Technology. Among other things, that information will feed into the Virtual Laboratory for Satellite data Utilization, which this ET was instrumental in forming (July, 2001, WMO Bulletin article on the Virtual Laboratory Focus Group). Based on analyses of the questionnaire, new application areas for satellite data and needs for new satellite data products will be identified and provided to Members, the Virtual Lab, and science groups such as the newly established International Precipitation Working Group that was developed in coordination with CGMS. The ET has developed two documents: "Technical Document: SAT-27, Migration of Satellite Receiving Stations to the New Meteorological Satellite Digital Data Broadcast Services, 2001 (WMO/TD No. 1057); and, "A description of a standard ground station for use by WMO Members", (WMO/TD-No. 660 (SAT-13)). An important area being investigated is the development of guidelines for alternative dissemination schemes for satellite data distribution in the context of an evolving satellite component of the GOS that will incorporate data from both research and operational satellites.

2.5 The ET on Requirements for Data from Automatic Weather Stations (AWS) has reviewed the functional requirements for Automated Weather Observing Systems and proposed specifications were submitted to all WMO Technical Commissions for review and validation. The document "Draft Functional Specifications," was also submitted and presented at the session of CIMO WG on Surface Measurement (Geneva, 27-31 August 2001). Dr Purdom informed the meeting that there have been, or may be further possible, changes in the availability of critical members of the ET on Requirements for Data from AWS. Consequently, the group recognized that the membership of this team must be reconsidered.

2.6 The CBS-MG was pleased to note that, since in situ observations are required for calibration and validation of satellite data, there has been an indication that satellite operators might be willing to provide support for some GSN or GUAN stations. The group agreed that the next steps were for the OPAG chair to work with the chair of the GCOS AOPC to define the set of stations necessary to meet this requirement, determine the status of these stations, and then see where possible support could be used most effectively.

2.7 Dr Purdom pointed out that there were a number of ongoing efforts to retrieve information via radio occultation techniques. It was noted that this effort could benefit from further coordination of these activities on a global scale.

2.8 The group noted that a mechanism has been developed to review the planning, the execution and the evaluation of studies of the impact of changes to observing systems. This subject is an important preoccupation of two existing working groups: the ET on Observing Data Requirement and Redesign of the Global Observing System and the Scientific Evaluation Group (SEG) working under the auspices of the Coordinating Group for COSNA. It was suggested that for the organization of workshops on impact studies, a small committee be formed representing: all the regions, different types of expertise, and both CAS and CBS interests. The president agreed to contact the president of CAS to seek his opinion concerning the creation of such a committee.

2.9 The CBS-MG noted the importance of the 2002 Consultative Committee on High-level Policy on Satellite Matters, in which the context of including appropriately identified R&D satellite missions as part of the space-based components of the GOS would be addressed.

2.10 The group was pleased to note that the development of an updated Manual on the GOS was progressing. The new draft is expected to be completed and made available for access via the Internet in April 2002. The CBS-MG agreed that once the draft is available, the Secretariat should announce this and seek comments from Members. A printed copy should be provided to Members that request it. The draft Manual and Member comments should be presented to the Commission at its extraordinary session in 2002.

2.11 Dr Mike Manton, chairman of the GCOS Atmospheric Observation Panel for Climate (AOPC) made a brief presentation on the GSN and GUAN networks, monitoring and analysis centres. He noted that GCOS had defined an end-to-end system in principle but that the authority and coordination to tie it all together into an effective whole were still needed. Further steps must be taken to precisely define the operational requirements, mechanisms and procedures. Once defined, these procedures would be refined through a trial implementation.

2.12 The group noted that the upcoming coordination meeting on the implementation of the GSN and GUAN provided an excellent opportunity to tackle some of these issues. Dr Love and Dr Manton agreed to develop a set of specific objectives for this meeting in coordination with the responsible directors in the Secretariat and to invite a representative of CGMS to attend.

2.13 The meeting noted the complexity associated with monitoring satellite data and products. This will become especially relevant with respect to the growing volume anticipated over the next several years. The CBS-MG suggested this issue should be brought to the attention of the February meeting of the Consultative Committee on High-level Policy on Satellite Matters.

OPAG-DPFS

2.14 Ms Simard, chair of the OPAG on Data Processing and Forecasting Systems (DPFS) presented her report. She noted that the OPAG-DPFS has made progress in a number of areas.

2.15 The meeting was pleased to note that there had been good working relations between the collaborating agencies (IAEA, CTBTO, ICAO) with respect to emergency response matters. These organizations, the relevant RSMCs and several NMHSs are involved in testing and improving the operational arrangements and procedures. The CBS-MG noted that the use of web-based technology for exchange of information for emergency response had been successfully demonstrated during many regional and international exercises. As a result, the ERA Coordination Group had agreed to develop standards and a framework for improved operational exchange and distribution of RSMC products using web-based technology. However, the CBS-MG suggested that reliance on the Internet during emergencies needed to be carefully considered. Experience indicates that during real emergencies the Internet may become overwhelmed and may not provide the reliable communications that are essential. The group noted that many emergency services have dedicated communication facilities and recommended that use of these facilities be investigated. The group also noted the need for backup communication channels as well as alternatives to the Internet.

2.16 There is growing interest in ensemble prediction system (EPS). The trend is to apply EPS to a wide range of applications including tropical phenomena and severe weather, and to explore a number of approaches, some being more complex than others. There is a tendency to increase the number of members, the resolution of members, and the frequency of runs, all which have potential impacts on the telecommunications bandwidth required to disseminate these products. GRIB2 is considered to be the most practical format for exchanging direct model output, whereas text, graphics and other derived products are being exchanged using standard Internet formats. The ET recommended that seminars of 1-2 week duration, entirely devoted to EPS, be organized with at least one or two seminars per year. The CBS-MG also noted the need for easily accessible, high quality guidance for forecasters, on the use of EPS products.

2.17 The group noted that the development of standard procedures for the exchange of long-range forecasts (seasonal to inter-annual forecasts), and recommendations regarding the establishment of appropriate operational infrastructure is a complex undertaking as it requires involvement of other Commissions (e.g. CCI) and agencies (IRI, MPI, etc.) outside of WMO. While the development of these procedures proceeds, exchange of model output and products is taking place on an ad-hoc basis.

2.18 Some information is being gathered from a number of NMHSs Internet sites with respect to the methodology used in forecasting severe weather. The rapporteur is preparing a survey that will be used to further advance the work of the OPAG in this area.

OPAG-ISS

2.19 Prof. Hoffmann presented his report on the activities of the OPAG-ISS and reported that the work of the OPAG had started well. There has been some promising progress in the most important areas, namely:

- the plan for the migration to table-driven codes;
- the establishment of a metadata standard to be used for the Future WMO Information System;
- the implementation of an improved MTN;
- the definition of the Future WMO Information System, in particular with regard to less developed countries;
- the co-ordination of radio-frequencies.

2.20 In the coming year, these initial steps have to be followed up with actions, in particular the plans for the improved MTN have to be implemented and the Future WMO Information System has to be co-ordinated with other on-going efforts in the environmental community aiming for a similar goal, especially the UNIDART¹ project in Europe and the Earth System Grid² in the USA.

2.21 The CBS-MG noted the problem that had occurred concerning the implementation of recent changes to METAR, SPECI and TAF codes. It recalled that, although the proposed changes had nominally followed prescribed procedures, the coordination necessary to implement these changes at all centres had evidently not been carried out effectively. To minimise the probability of a similar problem in the future, the group recommended that Members be invited to appoint focal points on code matters, who will be alerted to proposed changes in codes and code tables via e-mail.

2.22 During its deliberations on the activities of the ET on Data Representation and Codes, the group agreed that the timing of the meetings of this team and the consequent timing of the submission of its proposed changes to Executive Council or the President of WMO were not optimal. It recognized that requesting the President to approve changes via fast-track procedures shortly after EC had met was not appropriate and should not occur in the future.

2.23 The group, noting that the fast-track mechanism should be reserved for urgent operational problems, agreed that fast-track requests should be accompanied by documentation justifying the urgency of the requirement. The majority of changes to the codes and code tables should follow normal procedures, i.e. should be submitted for approval by EC no later than February with later submissions being deferred to the following year.

2.24 Recognizing that applying this process to all updates to the code tables would seriously delay their implementation, the CBS-MG agreed that a two step process should be used. Table changes would first be approved for experimental use by the president of CBS and would be made available as a digital file (i.e. not published in printed form). Once they had been used experimentally for one year they could be submitted for official adoption through existing formal procedures. The group requested the ET DR&C to further develop these ideas and present a proposal to the president.

2.25 Noting that XML representation of meteorological data is an issue of growing importance, the CBS-MG requested that the ET DR&C prepare a report on how XML could be used, as a matter of urgency. A sample implementation of XML for meteorological data should be included in this report.

2.26 The group considered the issue of the strategy for migration to table-driven codes. Recognizing that the availability of standard software is central to this strategy, the group was pleased to note that some centres had offered to provide such software. However, it was likely that long-term external funding might be required if a software support centre were to be established and maintained. Noting that encoders and decoders are not stand-alone systems that can be delivered as complete applications but are instead components of larger applications, the group expressed some doubt as to the actual requirements to be satisfied by a software support centre. It requested that an effort be made to better define these requirements, particularly those of developing countries and suggested a case study of

1 <http://www.dwd.de/UNIDART>

2 <http://www.earthsystemgrid.org>

what was needed to implement table-driven codes in a representative NMHS be undertaken. The CBS-MG also recommended that the capability to encode and decode BUFR, GRIB and CREX be included as a requirement in the specification for any future workstation tenders in both developed and developing country NMHSs.

2.27 The meeting noted the work achieved by the Inter-programme Task Team on Future WMO Information Systems and was pleased with the attention it had given to the requirements and capabilities of less developed versus more developed NMHS. The CBS-MG, recognizing that the successful implementation of the Future WMO Information System is extremely important to the future of WMO, urged the team to demonstrate the feasibility of the proposed concept through trials as a matter of urgency.

2.28 The CBS-MG noted that the requirement for the delivery of products to end users should not be overlooked and requested the task team on FWIS to consider this issue and ensure that the delivery of services is integral to the design and implementation of the FWIS.

2.29 During its discussions on the activities of the OPAG-ISS, the group noted that there are meetings that are held outside the formal CBS structure. Recognizing that these meetings served a useful purpose and had accomplished significant work, the group recommended that these meetings, particularly the Implementation Coordination Meeting on the MTN, be formally incorporated into the CBS structure in the future.

OPAG-PWS

2.30 Mr O'Loughlin presented his report on the activities of the OPAG-PWS. He noted that the work of the OPAG is progressing well so far. Of the three ETs on PWS, two have met and the third is planned for early 2002. The ET on Media Issues had a productive meeting in June 2001 in Minneapolis in conjunction with the AMS Conference on Broadcast Meteorology. A series of guidelines on media issues and weather information on the Internet is being developed. The ET on Product Development and Service Assessment had only just met in the week prior to the MG meeting. The ET on Warnings and Forecast Exchange, Understanding and Use (ET-WFEU) (due to meet in February 2002) has achieved considerable progress out of session on the development of pilot Web sites for the collection of warnings and cities forecasts. This Team is also examining the issue of standardized formats for exchange of weather forecasts as requested by EC LIII. The Implementation Coordination Team is due to meet in the 2nd quarter of 2002.

2.31 The group discussed the pilot web site for dissemination of warnings and felt that there needed to be an effort to ensure the site contained only the very small subset of warnings that would be of international interest. It recommended that the ET-WFEU develop criteria to determine which warnings are of international significance and to define a mechanism to apply these criteria.

2.32 The OPAG-PWS Chair also reported on his involvement as the CBS representative in the work of the Scientific Steering Committee of the World Weather Research Programme. This interaction has been useful and identified a number of areas of relevant coordination including forecast demonstration projects such as the Sydney 2000 project, and other planned projects involving matters such as improved observing systems, more effective use of satellite data and improvements in NWP. The planned hemispheric experiment THORpex was an example. The CBS-MG requested that in his interactions with the WWRP, Mr O'Loughlin stressed that data collected during research experiments should be made available for operational use whenever practicable.

2.33 Noting that a forecast demonstration project is planned to be held during the 2004 Athens Olympics, the CBS-MG recommended that an expert from Greece be invited the next meeting of the ICT-PWS.

2.34 The key issues for the PWS program can be summarized as development of the warnings and cities forecasts Web sites, standardized forecast formats for international exchange of weather forecasts, the role of the Internet in delivery of public weather services, the role of the international media, and training. The OPAG would also begin to address emerging issues such as the possible demand for air quality forecasts.

Rapporteurs reporting to the MG

2.35 CBS-XII agreed that a study should be undertaken to investigate existing cooperative arrangements and agreements and agreed that Ms R. Patton, the Rapporteur on Innovative Collaboration, should undertake a study and report the results to the CBS-MG. The meeting reviewed the outcome of the rapporteur's work to date and looked forward to receiving a copy of the completed report in early 2002.

2.36 CBS-XII specified terms of reference for Mr P. Van Grunderbeeck, the Rapporteur on Total Quality Management, and at its last meeting the CBS-MG provided some additional direction and advice on the work plan proposed by the rapporteur. The group also noted that EC had also considered this issue and: *"Council requested CBS to carry out a study of ISO 9000, to advise on appropriate measures of quality as applied to the WWW, and to report its findings to the Council at its next session"*. EC had also requested that the rapporteur's report consider the ISO 9000 process and point out the likely impacts and consequences of adopting ISO 9000 procedures within a NMHS, including feasibility, costs (in terms of staff and financial resources), benefits, and the implications for the WWW and WMO Programmes.

2.37 The CBS-MG also noted that ICAO Amendment 72 to Annex 3 of the Chicago Convention requires that

"2.2.2 In order to meet the objective of meteorological service for international air navigation, the Contracting State shall ensure that the designated meteorological authority referred to in 2.1.4 establishes and implements a properly organized system comprising procedures, practices and resources necessary to provide for the quality control and management of meteorological information to be supplied to the users listed in 2.1.2"

2.38 The CBS-MG reviewed the rapporteur's preliminary report and also reviewed an additional report, prepared by Dr C. Richter, on the applicability of total quality management to NMHSs in developing countries. It expressed its appreciation for the work that the authors had put into their reports and noted they contained much useful information.

2.39 Both reports provided estimates of the cost, and the figures in each report were of the same order of magnitude. Taken together these cost estimates were considered to provide the sort of range of direct cost an NMHS might have to incur when implementing ISO 9000. It was noted that indirect costs, such as staff time and the like, which must be provided to support specialist implementation teams, were not included in these estimates. Based on these estimates, it was clear that the costs for achieving ISO 9000 certification would be prohibitive for many NMHSs.

2.40 In relation to ISO 9000 it was noted:

- The group was informed that two Members have received ISO 9000 certification for a significant part of their Services (New Zealand and Brazil) and that a few others are working towards this end;
- the process has a strong client-focus element which helps improve overall service levels in organisations where this is deficient;
- implementation is expensive, both in the initial stages and in its maintenance (with six monthly external audits and re-certification every three years);
- the bureaucratic overheads of operating a complete ISO 9000 system are substantial;
- many of the outcomes sought from the implementation of ISO 9000 (eg. to continuously improve services, to engender confidence in the organisation's ability to deliver quality services,..) were those sought by all good management systems, and that there are ways, other than through ISO 9000, to achieve these ends.

2.41 With regard to the WWW system it was noted that:

- there is already in place a comprehensive system of thoroughly documented WMO

procedures and practices which must, or should be, followed by Members;

- that there is in place a variety of WMO systems for monitoring the performance of the elements of the WWW (that is, the GOS, GTS and GDPS) and for following up defects so as to continuously improve the overall performance of the system;
- that there are WMO standards in place for the training of professionals operating the elements of the WWW; but,
- there is currently no definition of procedures, processes and resources in place for the WWW which, together, could be taken as a complete quality management system.

2.42 The group considered all the options that appeared to be relevant to the WWW in connection with ISO 9000. In essence they were:

- a) Do nothing. Recognizing that each NMHS is responsible for making its contribution to the WWW in the way it sees fit the CBS-MG could recommend the development of comprehensive guidance on the costs and benefits of implementing ISO 9000 for the WWW elements of a Service, and let each Member choose according to what is most appropriate to meet their national requirements and international commitments.
- b) Noting the overall costs of implementation, and the lack of demonstrated quantified benefits to NMHSs at this stage, the CBS-MG could recommend the delay of consideration of ISO 9000 for implementation in the WWW until the benefits could be properly demonstrated.
- c) Noting the benefits that are expected to flow from the implementation of ISO 9000, the CBS-MG could recommend implementation of the ISO 9000 system, by Members, in respect of those elements of their systems which contribute to the WWW.
- d) Noting the benefits of quality management systems, the CBS-MG could recommend the implementation of procedures, processes and the identification of resources for the WWW, which, together, could be taken as a complete quality management system. This development to be within the framework of existing WWW procedures, and while drawing from the attributes of ISO 9000, not require certification through the ISO 9000 processes.

2.43 After considerable discussion the CBS-MG considered that option (d), that is, the development of quality management processes within the existing framework of the WWW procedures and practices, would be the most appropriate. Under such an approach the OPAGs responsible for the GOS, GTS and GDPS would develop documentation that describes the quality management procedures and practices to be followed, and resources to be allocated in the provision of WWW functionality that would enable the overall quality of the WWW outputs to be monitored and continuously improved. This documentation, to be adopted by WMO Members, would be a part of the implementation of all activities that contribute to the delivery of the WWW.

2.44 The group considered that through this process the WWW could further advance the implementation of a quality monitoring system without committing to the expense and bureaucratic overheads which appear to be present with the ISO 9000 system and would meet stated ICAO requirements. The integration of quality management procedures and processes within the WWW manuals and guides will also benefit those Members that choose to implement ISO 9000.

Other issues

2.45 The group noted that every ICT includes the relevant regional rapporteurs as members. It recommended that an effort be made to ensure these rapporteurs are actively involved in the activity of the parent OPAG. The rapporteurs should also be requested to provide input to the ICT on the requirements and priorities of their region well in advance of the meeting of the ICT.

2.46 The CBS-MG also noted that the current monitoring reports provided by the Secretariat and the lead centres contained a wealth of information. However, they contain too much detail to be easily used by managers and decision makers. The group agreed that further efforts must be made to provide summaries or alternative presentations that highlight the critical information and asked the Secretariat to investigate ways of refining the presentation of these data.

2.47 The group considered the future work programme of the OPAGs. Recognizing that the meeting of the ET on Requirements of Data from AWSs will probably be postponed from the planned April dates, it agreed that the provisional schedule of meetings was, for the most part, appropriate. The provisional schedule of meetings is provided in the annex to this paragraph. The group noted the kind offer of the Russian Federation to host some meetings in Moscow between May and October of 2002.

3. ISSUES ARISING FROM EXECUTIVE COUNCIL, REGIONAL ASSOCIATIONS AND PRESIDENTS OF TECHNICAL COMMISSIONS SESSIONS RELEVANT TO CBS (agenda item 3)

3.1 The outcome of the discussions at EC-LIII, XIII-RA III, XIII-RA IV and the 2001 meeting of the Presidents of Technical Commissions relevant to CBS were reviewed with particular emphasis on actions that may need to be initiated and the corresponding responsibilities. During its deliberations of document 3(1) the group noted that there were additional important items within the EC report, particularly those detailed in paragraphs 3.3.13 - 3.3.15 and paragraph 12.1.19 of the general summary of EC-LIII. The CBS-MG ensured that all relevant items were reflected in its work programme.

3.2 The CBS president reported on the latest meeting of the Presidents of Technical Commissions. He pointed out that two issues were foremost: the WMO budget for the next financial period and natural disaster reduction. The group noted that the zero nominal growth budget and reducing the nominal WMO vacancy rate will have a significant impact on the funds available to support the WWW Programme. Unless the proposed budget is amended there will be a significant cut in programme activities in the new financial period (beginning 2004).

3.3 The response of WMO to mitigate the effects of natural disasters will clearly be an activity that extends across the existing technical commissions. The CBS-MG recognized that the administrative and financial arrangements necessary to facilitate this, and other, cross-commission activities were yet to be defined. So far, these issues have been successfully resolved on a case by case basis. However, it was felt that more well-defined responsibilities should be developed.

4. ARRANGEMENTS FOR CBS-Ext.(02) (agenda item 4)

4.1 The meeting, considering the experience and outcome of the twelfth session, provided guidance for the planning of the extraordinary session to be held in December 2002. It agreed on a provisional agenda for the session as given in the annex to this paragraph.

5. CONFERENCE ON DATA PROCESSING AND FORECASTING SYSTEMS (agenda item 5)

5.1 At its first meeting, the CBS-MG agreed that holding a conference in conjunction with a Commission session significantly improved participation of experts from developing countries and recommended a conference on data processing and forecasting systems be held in association with the extraordinary session of CBS in 2002. The group considered a proposal on this topic prepared by the chair of OPAG-DPFS.

5.2 It was agreed that the conference be held during the two days preceding the next CBS session to be held in December 2002. The chair of the OPAG did a small survey with ICT members (which includes representatives from Regional Associations, Expert Teams and rapporteurs) to get some ideas for the conference. The favoured approach is to have the first day devoted to ensemble forecasting and the second day devoted to severe weather forecasts.

5.3 The conference will be organized by a six-member conference committee, headed by a conference director, and assisted by the Secretariat. The CBS-MG recommended that the chair of the OPAG-DPFS, Ms Simard (Canada), serve as the conference director and other members of the committee will be the five session chairs.

5.4 The CBS-MG suggested five sessions as follows for the conference committee to consider and further develop as necessary.

1. Ensemble forecasting - the scientific approach
2. Application of ensemble forecasting systems to real situations: a user perspective
3. User requirements for severe weather forecasting
4. Approaches used in forecasting severe weather
5. Use and interpretation of forecast guidance in severe weather situations

5.5 The group considered arrangements for organizing the conference and agreed on the following activities and schedule.

- a. The Secretariat, assisted by the conference committee, should draft and issue a call for papers before 1 February 2002. The call for papers should be directed to a wide audience including Members, all members of CBS, members of other Technical Commissions, representatives of related international programmes, the environmental research community and the private sector. The conference and call for papers should also be announced via the WMO Bulletin and the WMO web site.
- b. Abstracts of papers should be received by 1 May 2002.
- c. The conference committee should review the abstracts and select papers to be presented at the conference by 1 July 2002.
- d. Final papers should be provided to WMO Secretariat by 1 October 2002 and published on a conference web site created on the WMO server. Contributors could provide papers in any of the four official WMO languages, with the papers posted on the conference web site in the language in which they are received.
- e. Interpretation should be provided for the conference in at least four languages.

5.6 Recognizing that the budget available to support the meeting might not be sufficient to meet all expected requirements, the group agreed that additional sources of funding should be sought. The chair of the OPAG-DPFS will work with the Secretariat to coordinate efforts to seek sponsors and donors for additional support.

6. WMO LONG-TERM PLANS AND BUDGET (agenda item 6)

6.1 The Secretary-General is preparing input on the Sixth WMO Long-term Plan, including strategies, associated goals and key performance indicators as agreed by EC-LIII. The group reviewed the sections of the input pertaining to the WWW and also reviewed material on the monitoring of the implementation of the Fifth WMO LTP. The CBS-MG felt that more time was needed to consider the performance indicators relevant to the work of the OPAGs, and that they should review the "expected results" and "key performance indicators" and provide any specific comments they might have to the Secretariat.

7. EXPERIENCE WITH THE CBS WORKING STRUCTURE (agenda item 7)

7.1 The group discussed its experiences with the implementation of the CBS working structure. It noted that most teams have performed well and satisfactory progress had been made on most assigned tasks. It noted that the organizational arrangements concerning the operation of the ET on Requirements for Data from AWS had not been optimal and suggested that ways to improve these arrangements needed to be investigated.

7.2 The CBS-MG stressed that the continued success of CBS depends upon the contributions of the rapporteurs and team members. It expressed its appreciation to Members for allowing these experts the time to work on CBS business and looked forward to their continued cooperation and support.

7.3 The group noted that the ETs within an OPAG often work on inter-related topics but that the chairs of these teams, in most cases, did not have an opportunity to meet one another, nor meet the chair of the OPAG. It recognized that this lack of personal contact makes it more difficult to ensure effective coordination and cooperation in carrying out the CBS work programme and suggested that creative ways be found to build a spirit of camaraderie between these experts.

8. OTHER BUSINESS (agenda item 8)

8.1 The group recalled that the objective of the Operational Information Service (OIS) was to collect from, and distribute to, WMO Members and WWW Centres detailed and up-to-date information on facilities, services and products made available in the day-to-day operation of the WWW. This Service includes WMO Publication No. 9, Vols. A, B, C1, C2 and D as well as WMO Publication No. 47, METNO messages and the Operational Newsletter. Several elements of the operational information related to the WMO Publication No. 9, Volumes. A and C1, WMO Publication No. 47 and RBSN lists are available on the Internet via the WMO home page.

8.2 The group noted that CBS had agreed that the objective of the OIS should be to provide improved interactive on-line access services. The use of information technology makes it possible for the WMO Secretariat to quickly receive updates from the WWW centres and update WMO Publications No. 9 and No. 47 in an electronic format. These publications are currently distributed to Members in a paper format. The group, recognizing that the production and dispatch of these Publications on CD-ROMs would be more cost effective, agreed that WMO Publications No. 9 (excluding Volume B) and No. 47 should continue to be made available via the WMO Internet server and should also be distributed to NMHSs on a CD-ROM as from 2002. However, it noted that WMO Members, who still prefer to receive the paper format, should be provided with the paper copy upon request.

8.3 Parts of the WWW operational information have been dispatched to subscribers on diskettes with a view to satisfying the requirements of users to receive the information in an electronic format. As the requirements of the subscribers of the diskette service can be best satisfied through direct access to the WMO server, backed-up by an annual CD-ROM, the group agreed that the distribution of these publications on diskette was no longer necessary.

8.4 The Manuals on the GDPS, GOS and GTS and Manual on Codes, which are annexes to the WMO Technical Regulations, are currently not made available in electronic format. This makes it difficult for experts to work on changes to the Manuals, including experts from CBS and Regional working groups. The CBS-MG agreed that the Manuals on the GDPS, GOS and GTS and Manual on Codes should be made available in Portable Document Format (PDF). The PDF copies should be posted on the WMO Server and also made available on CD-ROM. Word Processor-compatible versions should be made available to experts who have a substantiated requirement.

8.5 The group agreed that the WWW Operational Newsletter should be distributed via electronic mail, preferably as an announcement that the latest edition is available on the WMO Internet Server.

9. CLOSURE OF THE SESSION (agenda item 9)

9.1 The session closed on 13 December 2001.

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Annex to Paragraph 2.44**Proposed meetings of CBS teams for 2002**

<u>Meeting</u>	<u>Date/Location</u>	<u>Remarks</u>
Integrated Observing Systems		
ET meeting on observational data requirements and redesign of the GOS	28 Jan -1 Feb, Geneva	
ET on Satellite Data Utilization and Products	29 April - 3 May	
ET meeting on observational data requirements and redesign of the GOS(reduced session)	1-5 July Oxford, UK	
ET meeting on requirements of data from AWSs	18-23 March Place to be decided (TBD)	
ICT meeting on Integrated Observing Systems	8-12 July Place TBD	
Information Systems and Services		
Steering Group on Radio-Frequency Coordination	6-8 February, Geneva	Tied to ITU-R WP 7C,11-15 February
ET on Enhanced Utilisation of Data Communication System combined with ET on the Improved MTN and GTS	1-5 April (tentative) Montreal	
ICT on ISS	1-5 July (tentative) Geneva	
Task Team on Future WMO Information Systems - IV	Sep., South Africa	
ET on Integrated Data Management - II	May, UK?	
ET on data representation and codes	22-26 April, Prague	
ET on migration to table-driven code forms	13-17 May, Washington	
Data Processing and Forecast Systems		
Expert meeting on GDPS solutions for data quality monitoring procedures	May, TBD	
ET on Development of a Verification System for Long-range Forecasts	March/April, Australia (tentative)	
ICT on DPFS	May/June, TBD	
Expert Meeting on Applications requirements and delivery matters	September, Geneva	
CBS Technical Conference on DPFS	December, Australia	Precedes CBS
Public Weather Services		
Expert team on Warning and Forecast Exchange, Use and Understanding	25 Feb-1 Mar Hong Kong, China	
ICT on PWS	Third quarter, TBD	

Annex to Paragraph 4.1

Draft Provisional Agenda for CBS-Ext.(02)

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 THE EXECUTIVE COUNCIL RELATED TO THE COMMISSION
5. STATUS OF WWW IMPLEMENTATION AND OPERATION
6. ACTIVITIES OF THE OPEN PROGRAMME AREA GROUPS, INCLUDING REPORTS BY THE CHAIRPERSONS
 - 6.1 Integrated Observing Systems
 - 6.2 Information Systems and Services
 - 6.3 Data Processing and Forecasting Systems
 - 6.4 Public Weather Services
7. DEMONSTRATION OF REGIONAL SPECIALIZED METEOROLOGICAL CENTRE (RSMC) CAPABILITIES
8. LONG-TERM PLANS
 - 8.1 Monitoring and evaluation of the Fourth and Fifth WMO Long-term Plans
 - 8.2 Preparation of the Sixth WMO Long-term Plan
9. FUTURE WORK PROGRAMME
10. REVIEW OF PREVIOUS RESOLUTIONS AND RECOMMENDATIONS OF THE COMMISSION AND RELEVANT RESOLUTIONS OF THE EXECUTIVE COUNCIL
11. OTHER BUSINESS
 - 11.1 Operational Information Service
12. DATE AND PLACE OF THE THIRTEENTH SESSION
13. CLOSURE OF THE SESSION