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OPEN PROGRAMMME AREA GROUP ON INTEGRATED OBSERVING SYSTEMS

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REVIEW OF Cg-XIV AND CBS-EXT.(02); RECOMMENDATIONS FOR EVOLUTION OF SURFACE AND SPACE-BASED COMPONENTS OF THE GOS

Cg-XIV Recommendations on the GOS issues

(Submitted by the Secretariat)

Summary and Purpose of Document

The purpose of the document is to inform the Expert Team of the decisions by the Fourteenth WMO Congress with regard to the GOS issues.

ACTION PROPOSED

The meeting is invited to review the decisions of Cg-XIV on the GOS issues and consider follow-up actions related to the activities of ET-ODRRGOS.

DISCUSSION

1. Fourteenth Congress (Geneva, May 2003), through adoption of Resolution 2 (Cg-XIV) - World Weather Watch Programme for 2004-2007, confirmed that the World Weather Watch has the highest priority as the basic WMO Programme on which nearly all other programmes of the Organization depend. With regard to the GOS, Congress expressed its satisfaction that progress has been made in the further improvement of the operation of the WWW during the period 2000-2003, through:

(a) A generally stable, or slightly increasing, global output of the surface and upper-air observation networks;

(b) A significant increase in the generation and distribution of observational data from certain platforms such as aircraft, ships and buoys; and an overall strengthening of the GOS through the inclusion of the R&D satellites in the space-based sub-system of the GOS; and an increase in the number of operational geostationary and polar-orbiting satellites and in the number of ground receiving stations;

(c) An improved understanding of the impact of various observing systems on Numerical Weather Prediction and development of coordinated recommendations on the near- and longer-term development of cost-effective components of the GOS;

(d) Improved coordination and performance of the GOS contribution to GCOS;

2. Along with the other basic components of the WWW, Congress made a comprehensive review of the GOS operations and provided the guidance for its further evolvement and improvement. In particular, Congress noted with appreciation that in the past four years, the overall implementation of surface and upper-air observational programme in the RBSNs had shown increasing stability and that the most recent monitoring results confirmed those encouraging trends compared to those of the years 1995 to 1999. While varied from region to region, the globally averaged availability in 2002 of surface and upper-air reports on the MTN was 75 and 63 per cent, respectively, of the reports expected from RBSN stations. Congress was pleased to note that recent improvements in data coverage of the upper-air network was due primarily to the successful replacement of obsolete OMEGA-based systems in certain regions, and the continued individual and international efforts of Members to reactivate RBSN performance in the central and northern part of Region II.

3. Congress, however, noted with concern that deficiencies in surface and upper-air data coverage over certain areas in Regions I, II, III and V continued to be caused to a large degree by inadequate funds to rehabilitate and operate both observational and telecommunication equipment, especially at remote stations. The lack of trained staff continued to be a serious problem in RA I. Financial difficulties resulted in some regions also in the lack of, equipment and consumables. Congress also noted that in spite of developed infrastructure, some countries in RA III were forced to have very a limited observational programme and silent stations because of continued financial constrains. Congress strongly encouraged individual and multilateral efforts of Members, including VCP support to rehabilitate and improve RBSN operation in regions concerned.

4. In that connection, Congress supported the proposals of CBS related to the redesign of the GOS, which could potentially contribute to alleviating deficiencies in the surface and upper-air data coverage specifically of the RBSNs. Furthermore, Congress welcomed the development of a strategic plan for implementation and improvements of the WWW Basic Systems in RAs I and II. It noted, in particular, that special fact-finding missions had analysed the problems in the implementation of GOS in Region I and had developed

achievable solutions. Congress urged that they be translated into fundable projects as soon as possible. Congress also noted with appreciation the activities to optimize data coverage over Europe carried out by EUMETNET's EUCOS programme and recommended use of the experience gained in cooperation and joint funding schemes in other regions. Congress also encouraged improved links between surface-based and space-based components in RA VI established by EUCOS and EUMETSAT. Congress noted a valuable input to the GOS performance provided by some countries in RA II through deployment and operation of a large number of AWSs and windprofilers.

5. Congress noted with appreciation the improvements in the availability of data produced by other components of the GOS. In particular, it noted with satisfaction that marine networks had recovered from the loss of reporting stations and were at the level achieved in 1996. It noted that the total number of ship reports was about 160 000 per month, that the number of monthly pressure reports provided by drifting buoys had increased from 40 000 to 200 000, and that 535 Argo floats were operational in August 2002. The greatest achievement had been the significant increase in the number and quality of reports transmitted over the GTS. Those positive results were attributable to the continued efforts of Members and to the excellent interaction between CBS and JCOMM.

6. Congress noted that the number of AMDAR observations exchanged daily on the GTS was at about 140 000 in 2002 and was expected to increase to 200 000 over the next few years. Although, a large proportion of those AMDAR data were obtained over Europe and North America, and to a lesser extent over Australasia, Asia, South America and southern Africa, it was noted with particular appreciation that work was proceeding to develop new operational programmes, and programmes of targeted observations in data-sparse regions, as recommended by Thirteenth Congress.

7. Congress reaffirmed the importance of the AMDAR Programme including the work carried out by the AMDAR Panel, and the significant contribution AMDAR continued to provide to the GOS. It agreed with the recommendation of CBS that AMDAR should be more fully integrated into the WWW Programme, and requested the Executive Council to consider the appropriate measures including the desirability of funding AMDAR activities in developing and coordinating the AMDAR Programme. Congress also encouraged WMO Members to contribute to the AMDAR Trust Fund on a voluntary basis.

8. Congress noted with satisfaction the challenging work being continued by CBS on the redesign of the GOS, which so far had resulted in updated observational requirements of all WMO Programmes and a first assessment of the evolution of the surface- and space-based components of the GOS. It noted, in particular, that:

(a) User requirements and observing system capabilities were elaborated in 10 application areas, the rolling requirements review was pursued and Statements of Guidance were issued in those areas which were now available in several WMO technical documents;

(b) Several OSEs were pursued to test possible re-configurations of the GOS;

(c) Candidate observing systems (space-based and ground-based) for the coming decade were studied and a WMO Technical Document was published;

(d) Recommendations for evolution of the space- and surface-based components of GOS were developed which summarized the most pressing observational needs and recommendations for the most cost-effective actions for meeting them in the near term and the next 10-15 years;

(e) A vision for the GOS in 2015 and beyond had been developed and endorsed by CBS-Ext.(02);

(f) Targeted observations in NWP sensitive areas would be important in addressing the future needs of NWP.

9. Furthermore, Congress supported the following views and conclusions of CBS on redesign issues:

(a) The rolling requirements review was readily applied to a diversity of application areas, provided the database of user requirements and observing system capabilities was accurate;

(b) Hypothetical changes to the GOS could be explored in OSEs with NWP centre assistance, provided data assimilation procedures were well understood and impact studies were conducted in a statistically-significant way. Present weaknesses and possible future improvement of data assimilation systems and NWP should also be taken into account when assessing the results of OSEs. Furthermore, it was made apparent that the OSSEs required huge human and computer resources and were beyond the available resources;

(c) The future GOS should build upon existing components, both surface and space based, and capitalize on existing and new observing technologies not presently incorporated or fully exploited; each incremental addition to the GOS would be reflected in better data, products and services from the NMHSs;

(d) The impact of the changes to the GOS in the next decades was anticipated to be so massive that new revolutionary approaches for science, data handling, product development, training and utilization would be required. There was an urgent need to study comprehensive strategies for anticipating and evaluating changes to the GOS. That should take into account the possibility of adapting the observing programmes to prevailing atmospheric conditions.

10. Congress reiterated the view of the Executive Council that the structure of the future GOS and the implementation of new technologies should be driven by Members' requirements rather than by technological opportunities. It reaffirmed that new technologies should be implemented as soon as practical to replace older, more costly observing systems with a view to reducing the expenditures. Congress also recognized the value of the inclusion of R&D satellites as a new component into the GOS. Congress noted the importance for the future GOS, of the organization and implementation of observing systems envisaged by THORPEX. It stressed that CAS and CBS should coordinate their efforts in this experiment especially in carrying out the associated data management and data dissemination functions. It noted the comprehensive revisions developed to the GOS regulatory material. Congress requested CBS to continue vigorously its efforts in the redesign of the GOS, as a part of overall modernization of WWW systems.

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