GLOBAL CLIMATE OBSERVING SYSTEM

Report to Plenary on item 5.4

REFERENCE:
Cg-XVI/A/WP 5.4

APPENDICES:
A. Draft text for inclusion in the general summary on item 5.4
B. Draft Resolution 5.4/1 (Cg-XVI) – Global Climate Observing System (GCOS)

ACTION PROPOSED:
It is recommended that the draft text given in Appendix A be included in the general summary of the work of the session and that the draft resolution given in Appendix B be adopted.
5.4 **GLOBAL CLIMATE OBSERVING SYSTEM (agenda item 5.4)**

5.4.1 Congress welcomed the report by Professor Adrian Simmons, Chair of the GCOS Steering Committee, on progress with the implementation of the GCOS Programme (as described in the Annex to this paragraph). It expressed particular appreciation to the past Chair, Professor John Zillman, for his outstanding contribution during his tenure.

5.4.2 Congress noted with appreciation the Progress Report on the Implementation of the Global Observing System for Climate in support of the UNFCCC 2004-2008 and the 2010 update of the Implementation Plan for the Global Observing System for Climate in Support of the UNFCCC. Congress welcomed the strong support of the UNFCCC Subsidiary Body for Scientific and Technological Advice (SBSTA) for the implementation and operation of GCOS in support of the research and systematic observation requirements of the UNFCCC.

5.4.3 Congress noted that the continuing requests of the UNFCCC to report on the adequacy and progress of GCOS has led to the establishment of an improvement and assessment cycle of the global observing systems for climate. Congress recommended strengthening this process and adopting this cycle as a priority activity. Congress also recommended studying how this cycle can support climate requirements in addition to the needs of the UNFCCC.

5.4.4 Congress expressed serious concern at the continuing difficulty in establishing adequate sustained climate observing networks, particularly in developing countries. It was pleased, however, to note the significant progress that had been made in tackling implementation, planning and coordination activities throughout all domains and involving all sponsoring organizations and partners.

5.4.5 Congress expressed appreciation for the voluntary contributions of several Members to the Climate Observing System Fund and the GCOS Cooperation Mechanism, which had enabled a number of deficiencies in the functioning of in-situ meteorological networks to be addressed, but stressed the urgent need for additional support to improve the availability and quality of data across the GSN, GUAN, and other networks.

5.4.6 Congress, noting the important role of the satellite component of GCOS, welcomed the update of the report on Systematic Observation Requirements for Satellite-based Products for Climate. It commended the ongoing collaboration with space agencies through the WMO Space Programme and the Committee on Earth Observation Satellites (CEOS) and the Coordination Group for Meteorological Satellites (CGMS) with the objective of establishing, and ensuring continuity of, the space-based climate data record, and of its delivery with improved spatio-temporal resolution.

5.4.7 Congress was pleased to note the continuous support of the Ocean Observations Panel for Climate by IOC in the last years, and in particular, that the 43rd Session of the IOC Executive Council in June 2010 noted the necessity of sustained ocean observations for climate research and services and for national climate adaptation strategies in the coastal zone. The IOC Executive Council urged IOC Member States to address identified priorities and gaps and to ensure the sustained long-term operation of essential *in situ* and space based ocean observing networks. At the 18th session of the GCOS Steering Committee in 2010 (GCOS SC-XVIII), IOC reaffirmed to continue its support to GCOS as an important co-sponsored programme delivering on IOC High Level Objective 2, which concerns mitigation of the impacts of and adaptation to climate change and variability. With regard to UNEP, Congress noted that at GCOS SC-XVIII, UNEP stated that it attached great importance to the work of the GCOS. The actions in the GCOS Implementation
Plan are very relevant to a number of UNEP activities, including environmental observing, monitoring, scientific assessment, and alerts of emerging issues and trends, especially in the areas of climate change and adaptation and early warning. Congress also noted that at GCOS SC-XVIII, ICSU affirmed that it attached great importance to the work of GCOS, including its Secretariat, Panels, and Steering Committee and stressed that the provision of a long time series of in situ and satellite climate observations is fundamental for the advancement of earth system science and its related disciplines.

5.4.8 Congress recognized the vital role of the GCOS Secretariat in facilitating and supporting the work of the Steering Committee and the various WMO and other constituent bodies and agents for implementation in their efforts to achieve the full and successful implementation of GCOS. It commended the Secretariat for its work over the past four years, but concluded that a substantially enhanced effort is needed in support of planning, coordination, communication and implementation if GCOS is to succeed in meeting its objectives and the high expectations of Members. While expressing great appreciation for the significant voluntary resources contributed to date by Members and international organizations in support of GCOS, Congress appealed urgently to Members, GCOS co-sponsors, IOC/UNESCO, ICSU and UNEP, and other international organizations to consider all available means for substantial strengthening all programme activities and the joint Secretariat.

5.4.9 Congress recognized and appreciated the role that GCOS has played in facilitating the launch of the Climate for Development in Africa Programme. More generally, it appreciated the regional activities in which GCOS has been engaged, including its assistance in helping developing regions prepare Regional Action Plans. Noting the importance of observations to broader sustainable development issues, Congress encouraged the GCOS Secretariat to continue its work to improve climate observing networks in developing regions and Small Island Developing States.

5.4.10 Congress recommended that WMO consult with the current Sponsors of GCOS to consider the potential pros and cons of adding the UN Food and Agriculture Organization as a fifth sponsor of GCOS, given its leading role in the GTOS related to the provision of both in situ and space-based terrestrial observations.

5.4.11 Congress requested the Secretary-General to bring the updated scope and objectives of GCOS to the attention of other co-sponsors and revise the MoUs as required.

5.4.12 Congress adopted Resolution 5.4/1 (Cg-XVI) - Global Climate Observing System (GCOS).
ANNEX TO PARAGRAPH 5.4.1 OF THE GENERAL SUMMARY

PROGRAMME DESCRIPTION

GLOBAL CLIMATE OBSERVING SYSTEM (GCOS)

The scope of GCOS

The Global Climate Observing System (GCOS) is a WMO-led co-sponsored programme of WMO, the IOC of UNESCO, UNEP and ICSU. The GCOS is built on existing operational and scientific observing, data management and information distribution systems. It is based upon an improved World Weather Watch Global Observing System, the Global Ocean Observing System, the Global Terrestrial Observing System, the WMO global observing systems and the maintenance and enhancement of programmes monitoring other key components of the climate system, such as the distribution of important atmospheric constituents (including the Global Atmosphere Watch).

The vision of the GCOS programme is that all users have access to the climate observations, data records and information which they require to address pressing climate-related concerns. GCOS users include individuals, national and international organizations, institutions and agencies. The role of GCOS is to work with partners to ensure the sustained provision of reliable physical, chemical and biological observations and data records for the total climate system – across the atmospheric, oceanic and terrestrial domains, including hydrological and carbon cycles and the cryosphere.

Objectives of GCOS

The objectives of GCOS are to ensure that observations are provided that meet the needs for:

- Characterizing the state of the global climate system and its variability;
- Monitoring the forcing of the climate system, including both natural and anthropogenic contributions;
- Supporting the attribution of the causes of climate change;
- Supporting the prediction of global climate change;
- Enabling projection of global climate change information down to regional and local scales; and
- Ensuring the availability of information important in impact assessment and adaptation, and for the assessment of risk and vulnerability, including the characterisation of extreme events.

GCOS Steering Committee

GCOS is directed by a Steering Committee constituted by the four sponsoring partners of the programme and provides guidance, coordination and oversight to the programme. The Steering Committee is supported in its work by its science panels that have been established to define the observational needs required in the domains of the atmosphere, ocean and land.
DRAFT RESOLUTION

Res. 5.4/1 (Cg-XVI) - GLOBAL CLIMATE OBSERVING SYSTEM (GCOS)

THE CONGRESS,

Noting:

(1) The 1998 Memorandum of Understanding between WMO, the Intergovernmental Oceanographic Commission of IOC of the United Nations Educational, Scientific and Cultural Organization (IOC of UNESCO), the United Nations Environment Programme (UNEP), and the International Council for Science (ICSU) concerning the Global Climate Observing System (GCOS),

(2) The Terms of Reference for GCOS National Coordinators (Annex XII of the Summary Report of the Eleventh Session of the WMO-IOC-UNEP-ICSU Steering Committee for GCOS, GCOS-87, WMO/TD-No. 1189),

(3) Resolution 11 (Cg-XV) - Global Climate Observing System,

(4) Decisions 11/CP.9 – Global observing systems for climate, and 5/CP.10 - Implementation of the global observing system for climate, of the Ninth and Tenth Sessions, respectively, of the Conference of the Parties to the UN Framework Convention on Climate Change (UNFCCC),


(6) The report Systematic Observation Requirements for Satellite-based Products for Climate (GCOS-107, WMO/TD-No. 1338),


(8) The Conclusion on Research and Systematic Observations, FCCC/SBSTA/L.6 and Add.1, 30th Session of SBSTA, Bonn 1-10 June 2009,

(9) Decision 9/CP.15 - Systematic climate observations, FCCC/CP/2009/11/Add.1, Fifteenth Session of the Conference of the Parties to the UN Framework Convention on Climate Change (UNFCCC), Copenhagen, December 2009,

(10) The Conclusion on Research and Systematic Observations, FCCC/SBSTA/2010/L.22, 33th Session of SBSTA, 30 November–4 December 2010, Cancún, Mexico,

(11) The GEOSS 10 Year Implementation Plan and the GEO 2009-2011 Workplan,

Considering:

(1) The increasing needs of Members and international organizations for comprehensive, continuous, reliable climate and climate-related data and information in support of:

(a) Climate system monitoring,
(b) Climate change detection and attribution*,

c) Research to improve understanding, modelling and prediction of the climate system,

(d) Operational climate prediction on seasonal-to-interannual timescales,

(e) Assessment of the impacts of, and vulnerability and adaptation to, natural climate variability and human-induced climate change,

(f) Applications and services for sustainable economic development,

(g) Requirements of the UNFCCC and other international conventions and agreements,

(2) The specific observational needs of the World Climate Research Programme (WCRP), the International Geosphere-Biosphere Programme (IGBP), the International Human Dimensions Programme on Global Environment Change (IHDP) and DIVERSITAS; the requirements for comprehensive observations in support of the assessment processes of the Intergovernmental Panel on Climate Change (IPCC),

(3) The objectives of the GCOS as identified in the Memorandum of Understanding to support all aspects of the World Climate Programme and relevant aspects of other climate-related global programmes, and its essential role in underpinning the full range of climate applications and services provided by National Meteorological and Hydrological Services and other organizations,

(4) The deficiencies in the number and availability of systematic observations of climate,

(5) The need to implement and, as necessary, to update the Regional Action Plans developed through the GCOS Regional Workshop Programme,

(6) The need to incorporate climate information into social and economic decision-making, particularly in support of the Millennium Development Goals in developing countries, with a special focus on Africa,

Recognizing:

(1) The importance of efficient coordination and interoperability across the various component observing systems of GCOS and effective integration of in situ and space-based observations in meeting user needs,

(2) The stringent requirements on long-term observations of the climate system to ensure their adequacy for climate applications,

(3) The unique opportunities for coordinated national and international observation of Essential Climate Variables across the atmospheric, oceanic and terrestrial domains provided through the joint sponsorship of GCOS by WMO, IOC, UNEP and ICSU,

(4) The new opportunities for increased international support, enhanced interoperability, and improved integration opened up by the prospect of embedding the GCOS system of systems within the emerging operational structure of the Global Earth Observation System of Systems,

(5) The fundamental importance of the GCOS to the Global Framework for Climate Services.

* Attribution of causes of climate change is the process of establishing the most likely causes for the detected change with some defined level of confidence.
Recognizing with appreciation:

(1) The important contribution of the GCOS Steering Committee and its Panels in providing scientific and technical guidance to WMO and other sponsoring and participating organizations for the planning, implementation and further development of GCOS,

(2) The critical role of the Executive Council, technical commissions and regional associations in coordinating the implementation of the WMO component systems of GCOS,

(3) The substantial achievements of Members in implementing their climate observing systems in support of both national needs and the international objectives of GCOS,

(4) The close collaboration among the co-sponsors of GCOS and with the Steering Committees and Secretariats of their other jointly-sponsored observing systems, the Global Ocean Observing System (GOOS) and the Global Terrestrial Observing System (GTOS),

(5) The support provided by a range of national and international donor organizations for GCOS planning and implementation,

Reaffirms WMO’s continuing strong commitment to the objectives of GCOS and support for its implementation in order to meet the full range of user needs;

Decides to maintain GCOS as a programme of the Organization, in partnership with IOC, UNEP and ICSU and such other international sponsors as might be agreed by the Executive Council;

Adopts the GCOS Climate Monitoring Principles for effective monitoring of the climate system;

Urges Members:

(1) To strengthen their national atmospheric, oceanographic and terrestrial climate observing networks and systems, including networks and systems for the hydrological and carbon cycles and the cryosphere within the framework of GCOS and in support of user needs;

(2) To assist other Members to strengthen their observing networks, to improve their capacity to acquire climate-relevant data, and to enhance their provision of climate services by implementing projects in the ten GCOS Regional Action Plans, and by contributing to the implementation of the ClimDev Africa Programme and to similar initiatives in other regions;

(3) To ensure, to the extent possible, the long-term continuity of the critical space-based components of GCOS, including the generation and dissemination of the satellite-based climate data and products based on the Essential Climate Variables that are required to meet the needs of the UNFCCC, IPCC and other users of climate services;

(4) To establish GCOS National Committees and to identify GCOS National Coordinators in order to facilitate coordinated national action on observing systems for climate, taking into account the joint international sponsorship of GCOS and the evolving international arrangements for GEOSS;

(5) To ensure that their delegations to sessions of the UNFCCC/COP and its subsidiary bodies are properly informed of the key role played by NMHSs in implementing and operating observing systems necessary to meet national obligations under the Convention, for example through the inclusion in national delegations of representatives of NMHSs;
(6) To encourage their NMHSs to provide effective leadership in the preparation of national reports to the UNFCCC on their activities with regard to systematic observation of the global climate system, including the identification of gaps, using revised UNFCCC reporting guidelines on global climate observing systems which reflect the priorities of the GCOS Implementation Plan updated in 2010 and which incorporate reporting on the Essential Climate Variables identified therein;

(7) To enhance their support to the GCOS Secretariat, through secondment of experts and/or through contributions to the Climate Observing System Fund or to specific planning and implementation mechanisms, so as to enable the Secretariat to support the full range of implementation agents in its efforts to establish an effectively-operating GCOS;

Requests the Executive Council:

(1) To keep the progress of GCOS under regular review and to provide support and guidance on its further development and implementation;

(2) To advise and assist Members, sponsoring bodies, and other international organizations in the implementation of global observing systems for climate;

Requests the technical commissions:

(1) To lead the development and implementation of the components of GCOS for which they are responsible in the light of advice from the GCOS Steering Committee;

(2) To contribute to the UNFCCC 5-year ‘Nairobi Work Programme on Impacts, Vulnerability, and Adaptation to climate change’, in particular to the elements of the programme related to data and observations;

Requests the regional associations to foster effective, coordinated implementation of GCOS at the regional level, in close consultation with the regional counterparts of the other international sponsors of GCOS;

Requests the GCOS Steering Committee to continue to provide broadly-based strategic advice to all relevant WMO bodies on the implementation and further development of GCOS;

Requests the Secretary-General, within the regular budget allocation and possible access to external funding mechanisms:

(1) To support the further planning, development and implementation of GCOS, including the actions in response to the needs of the UNFCCC/COP and the recommendations of the 2010 update of the GCOS Implementation Plan;

(2) To encourage and assist Permanent Representatives of Members to take the lead in the establishment of GCOS National Committees and the designation of GCOS National Coordinators;

(3) To articulate, at all appropriate fora, the need for broad support by nations of the observational and resource requirements for implementing GCOS;

(4) To continue to provide support for the work of the GCOS Steering Committee and its Panels.
Note: This resolution replaces Resolution 11 (Cg-XV) which is no longer in force.