

PROGRESS WITH THE IMPLEMENTATION OF THE GLOBAL FRAMEWORK FOR CLIMATE SERVICES (GFCS)

In response to Action 41.01

In July 2013, the first session of the Intergovernmental Board on Climate Services (IBCS-1) approved the GFCS Implementation Plan with a compendium of initial GFCS projects for immediate implementation. It also established a Partners Advisory Committee (PAC) and the IBCS Management Committee. EUMETSAT, FAO, IFRC, IUGG, UNEP, WBCSD, WFP, and WMO have formally applied to the PAC, and EU, World Bank, UNDP have indicated their intention to join. The first PAC session is expected before IBCS-2 in November 2014.

The GFCS has now entered into an implementation phase. National and regional consultations are being conducted to identify gaps in the various components of the GFCS in the four priority areas. They also prepare the development of guidelines for frameworks for climate services at national level.

There are key gaps related to inadequate gathering of high quality data including:

- Shortcomings in atmospheric observations by climate stations;
- Coverage of oceanographic observations by moored buoys;
- Uncertainties regarding the continuity of satellite monitoring by microwave sensing, high precision altimetry, and LIDAR and SAR coverage of sea ice parameters;
- Gaps in terrestrial observing networks, and uncertainty regarding the continuity of land cover monitoring satellite missions;
- Need for complementary biological, environmental, and socio-economic data ;
- Data policies, data management, data rescue and access to historical data;
- Need to improve monitoring systems, and perform re-analysis operationally.

The “Executive Council Task Team on WMO Policy for International Exchange of Climate Data and Products to Support the Implementation of the GFCS” developed a draft resolution complementing resolutions 40 (Cg-XII) and 25 (Cg-XIII) and identifying a set of data and products to be exchanged in a free and unrestricted manner.

Data rescue activities are underway in several countries. Early efforts to showcase partnerships in the development and application of climate services are taking place through specific activities. Various actors or stakeholders can contribute to these by: (a) contributing resources to the GFCS Trust Fund; (b) selecting activities of their interest from the implementation plan and the compendium of initial GFCS projects; and (c) designating activities they are implementing as contributing to the GFCS.

PROGRESS WITH THE IMPLEMENTATION OF THE GLOBAL FRAMEWORK FOR CLIMATE SERVICES (GFCS)

1 INTRODUCTION

The Global Framework for Climate Services (GFCS) was established with the aim to enable society to manage better the risks and opportunities arising from climate variability and change, especially for those who are most vulnerable to climate-related hazards. Effective climate services will facilitate climate-smart decisions that will reduce the impact of climate-related disasters, improve food security and health outcomes, and enhance water resource management, among other societal benefits. All countries will benefit, but in the initial stages priority shall go to building the capacity of developing countries vulnerable to the impacts of climate variability and change. The GFCS aims to bridge the gap between those that need to know the climate and those that have such knowledge, thus empowering, in particular, the vulnerable.

The GFCS identified four initial priority areas : agriculture and food security, water, health, and disaster risk reduction. To ensure that the entire value chain for the production and application of climate services is effectively addressed in support of effective decision-making in the four priority areas, the GFCS is built on five interrelated components or pillars:

- The User Interface Platform — to provide ways for climate services users and providers to interact to identify needs and capacities and improve the effectiveness of the Framework and its climate services;
- The Climate Services Information System — to produce and distribute climate data, products and information according to the needs of users and to agreed standards;
- Observations and Monitoring – to generate the necessary data for climate services according to agreed standards;
- Research, Modelling and Prediction — to harness science capabilities and results and develop appropriate tools to meet the needs of climate services;
- Capacity Development — to support the systematic development of the institutions, infrastructure and human resources needed for effective climate services.

The Observation and Monitoring component will considerably benefit from the availability, access to, and use of satellite data.

2 OUTCOMES OF THE FIRST SESSION OF THE INTERGOVERNMENTAL BOARD ON CLIMATE SERVICES (IBCS-1)

The first session of the Intergovernmental Board on Climate Services was held in Geneva 1-5 July 2013. As part of the session, a one-day workshop on “Operational Climate Services: a dialogue on practical action” was held on 1 July (see details at: <http://gfcs.wmo.int/content/operational-climate-services-dialogue-practical-action>).

The workshop demonstrated the value of an organized and coordinated system to maximize synergies in addressing the entire value chain for the production and application of climate services and provided examples of concrete activities from the global to the national levels.

The major outcomes of IBCS-1 were the following (See: http://library.wmo.int/opac/index.php?lvl=notice_display&id=15878):

- (a) Approval of Implementation Plan of the GFCS and a Compendium of initial GFCS projects for immediate implementation;
- (b) Establishment of a Partners Advisory Committee (PAC) as a stakeholder engagement mechanisms, and;
- (c) Establishment of the Management Committee of the IBCS. Dr Anton Eliassen (Norway) was elected chair of the IBCS, and Dr Linda Makuleni (South Africa) and Dr Laxman Singh Rathore (India) the Co-Vice-Chair. It also selected the Members forming the Management Committee as follows:
 - RA I (Africa): Cameroon, Cote d'Ivoire, Egypt, Guinea Bissau, South Africa (Co-Vice-Chair), United Republic of Tanzania;
 - RA II (Asia): China, India (Co-Vice-Chair), Islamic Republic of Iran, Japan, Republic of Korea;
 - RA III (South America) : Argentina, Brazil, Peru;
 - RA IV (North and Central America): British Caribbean Territories, Canada, Costa Rica, United States of America;
 - RA V (South West Pacific): Australia, Fiji, Indonesia, Philippines;
 - RA VI (Europe): Germany, Italy, Norway (Chair), Russian Federation, Switzerland, Turkey.

The Management Committee was entrusted with the following responsibilities:

- Draft recommendations to be submitted by the IBCS to the Seventeenth Congress of WMO in 2015 on appropriate interaction mechanisms between the IBCS and WMO constituent bodies, including the technical commissions as well as constituent bodies of partner institutions;
- Review and update the "Principles and Criteria" for funding projects and activities from the GFCS Trust Fund;
- Design a monitoring and evaluation criteria and process for the implementation of the GFCS;
- Review the composition and criteria for membership of IBCS;
- Establish a process to capture the various contributions made by Members at the global, regional and national levels, which support the implementation of the GFCS.

3 IMPLEMENTATION OF THE GFCS

With the approval of the Implementation Plan and governance structure of the IBCS, the GFCS has entered into an implementation phase. To ensure effective

engagement with stakeholders in the implementation of the GFCS, partners have been invited to integrate the Partners Advisory Committee (PAC). As of 30 April 2014, EUMETSAT, Food and Agriculture Organization of the UN (FAO), International Union of Geodesy and Geophysics (IUGG), United Nations Environment Programme (UNEP), World Business Council for Sustainable Development (WBCSD), World Food Programme (WFP), World Meteorological Organization (WMO) and International Federation of Red Cross and Red Crescent Societies (IFRC) had replied formally as requested. European Commission, World Bank, UN Office for Disaster Risk Reduction (UNISDR), United Nations Development Programme (UNDP) have indicated their willingness to become GFCS Partner and PAC members. The PAC is expected to hold its first session before the second session of the IBCS which is scheduled for 10 – 14 November 2014.

A number of countries are conducting their national consultations intended to identify gaps and needs and to establish the internal coordination mechanisms needed to ensure effective implementation of the Framework (see <http://gfcs.wmo.int/events>). Regional consultations are also being conducted. These consultations allow the identification of key gaps in the various components of the GFCS that need to be addressed to support the development and application of climate services in the four priority areas. They also facilitate the identification of critical elements required for the development of guidelines for the establishment of frameworks for climate services at national level.

A key gap identified in the consultations relate to inadequate systematic gathering of high quality data with the required spatial density and temporal frequency using standardized, well maintained instruments with standardized and sustained observing practices, and the exchange and sharing of as much of this data as is needed for the development of effective climate services. In addition, rescue and recovery of data archived on paper and other media not integrated in current databases was indicated as a major limiting factor for the development of climate services.

Specific gaps identified in the Observations and Monitoring component of the GFCS include the following:

- Shortcomings in atmospheric observations that include non-reporting by some climate stations (due to inability to sustain observational networks, lack of training and capability, inadequate communication systems or other factors), limited space and surface-based remote sensing capabilities, and the absence of operational monitoring of some important air quality, radiation, and other variables;
- Weaknesses in observational coverage of important oceanographic variables that include incomplete moored buoy networks for monitoring ocean currents, mass flux, ocean salinity, and sea ice parameters; uncertainties regarding the continuity of satellite monitoring programmes such as microwave sensing, high precision altimetry, and Light Detection and Ranging (LIDAR) and Synthetic Aperture Radar (SAR) coverage of sea ice parameters;
- Gaps in terrestrial observing networks, such as for river discharge, ground water, lake levels, permafrost, glaciers and ice caps; the absence of designated networks for soil moisture, Leaf Area Index (LAI), Fraction of

Absorbed Photo-synthetically Active Radiation (FAPAR) and above ground biomass; and uncertainty regarding the continuity of satellite missions that monitor land cover;

- Need for complementary biological, environmental, and socio-economic data (e.g., records of disease incidence, crop yield, energy demand, and disaster losses) to enable the production of indices and other products that assist user communities in planning and management;
- Data policies and information infrastructures that need to be enhanced to improve data management as well as access to historical observational and other relevant data and derived products;
- Continuing need to improve local, regional, and global monitoring systems to enhance efficiency and improve data management, including careful attention to minimizing data losses and inhomogeneities when observational systems change or are upgraded;
- Need to rescue, digitize, and develop (e.g., time series quality control and homogenization) historical climate and sectorial user data that are currently held in perishable paper formats or available only on obsolete or degrading media, and placing re-analysis, which is a substantial technical as well as scientific undertaking, on a firmer operational footing.

To improve data access and application, data rescue activities are underway in five countries in West Africa as part of the West Africa Climate Assessment and Data Rescue (WACA-DARE) and in the Pacific Islands as part of a project supported by Australia. In addition, the GFCS is supporting Burkina Faso, Chad, Mali, Niger and Senegal with the development of action plans that address among other elements observation networks.

GCOS organized in February 2013 a workshop on Observations for Adaptation to Climate Variability and Change, which considered observation requirements for adaptation, linking these with the needs of the GFCS. The workshop was aligned with the implementation plan of the GFCS in that it addressed the requirements of the priority areas of the GFCS (agriculture and food security, water, health and disaster risk reduction) as well as data rescue, data management and observations for research, modelling and assessment that are highly relevant to the User Interface Platform and the Research, Modelling and Prediction pillars of the GFCS.

The Executive Council Task Team on WMO Policy for International Exchange of Climate Data and Products to Support the Implementation of the GFCS developed a draft resolution for the consideration by the 66th Session of the Executive Council prior to submission to the WMO Seventeenth Congress in 2015. The resolution reiterates and complements Resolution 40 (Cg-XII) – WMO policy and practice for the exchange of meteorological and related data and products including guidelines on the relationships in commercial meteorological activities and Resolution 25 (Cg-XIII) – Exchange of hydrological data and products. It proposes the application of the policy and practices from these resolutions and, in an Annex, identifies a set of data and products that should be exchanged in a free and unrestricted manner.

Early efforts to showcase partnerships in the development and application of climate services are taking place through specific activities. With funding from Norway (10 million USD), the GFCS Adaptation Programme in Africa was launched in October

2013. This programme aims at co-designing and generating information and knowledge to support decision-making in food security and nutrition, health and disaster risk reduction with Malawi and Tanzania as the two focus countries. The project is hinged on multi-agency collaboration involving the following agencies:

- CGIAR Research Program on Climate Change, Agriculture and Food Security (CAAFS)
- Centre for International Climate and Environmental Research – Oslo
- Chr. Michelsen Institute
- International Federation of Red Cross and Red Crescent Societies (IFRC) including Norwegian Red Cross and Red Cross/Red Crescent Climate Centre
- World Food Programme
- World Health Organization
- World Meteorological Organization

With the support from Canada (6.2 million USD), a Programme for Implementing the GFCS at regional and national scales is under formulation. The programme will support Pacific Island countries, countries in the Caribbean and South Asia, including Arctic and Polar Regions. Other programmes supported by various donors are being designed.

Early implementation will also be effected through activities contained in the Implementation Plan (including its Annexes and Exemplars) and the compendium of initial GFCS projects approved by IBCS-1. Various actors or stakeholders can contribute to the implementation of these activities by (a) contributing resources to the GFCS Trust Fund, (b) selecting from the implementation plan and the compendium of initial GFCS projects activities of their interest for implementation (Implementation Plan documents available at <http://gfcs.wmo.int/final-implementation-plan>), and (c) designating of activities they are implementing as contributing to the GFCS should these comply with the criteria for designation of projects approved by IBCS (final report of IBCS available at http://library.wmo.int/opac/index.php?lvl=notice_display&id=15878).

4 CONCLUSION

The contribution of meteorological satellites for collection of data in addition to Essential Climate Variables (ECV) is critical for the provision of climate services. While the Observation and Monitoring component of the GFCS identifies gaps in observations, more specific climate requirements need to be defined with the involvement of all key stakeholders. The CGMS should be engaged in this process as appropriate.