



FINAL REPORT OF THE FIFTY-FIFTH MEETING OF THE CARIBBEAN METEOROLOGICAL COUNCIL



CHAIRPERSON:

Mrs Allison Jean, Permanent Secretary, Ministry of Infrastructure, Port Services and Transport, **SAINT LUCIA**

VENUE AND DATE:

Radisson Fort George Hotel and Marina
Belize City
BELIZE
12-13 NOVEMBER 2015

1. OPENING OF THE SESSION AND ELECTION OF CHAIRPERSON

1.1 At the kind invitation of the of the Government of Belize, the Fifty-Fifth Session of the Caribbean Meteorological Council was held at the Radisson Fort George Hotel and Marina in Belize City on 12-13 November 2015. The Caribbean Meteorological Council is the Governing and policy-making body of the Caribbean Meteorological Organization (CMO).

1.2 *Mr Dennis Gonguez*, Director of the National Meteorological Service of Belize, commenced the Opening Session of the Meeting by extending words of welcome, after a prayer by *Mr Dwayne Scott* of the Meteorological Service of Belize.

1.3 *Mr Oscar Arango*, the World Meteorological Organization's Representative for North America, Central America and the Caribbean, addressed the Council on behalf of the WMO Secretary-General. Mr Arango spoke about the complementary aims of CMO and WMO that have resulted in a long and fruitful relationship between the two Organizations for many years. He referred to the number of Member countries of CMO that are also active Members of WMO, and noted that several Directors and senior officials have served and continued to serve on various WMO constituent bodies, including its Executive Council. In particular, he mentioned Mr Tyrone Sutherland, Coordinating Director of CMO, who has served on the Executive Council diligently and continuously for many years.

1.4 He also referred to the work being done in the region to support several of the major WMO Programmes and activities approved for priority implementation within the Caribbean region. In particular, he made mention of the *Global Framework for Climate Services (GFCS)*, Disaster Risk Reduction, the *WMO Integrated Global Observing System (WIGOS)*, the *WMO Information System (WIS)*, Aviation and Marine issues, as well as capacity development and the transfer of research technology, products and services to small island developing states and least developed countries.

1.5 *Ms Anya Thomas*, Senior Project Officer in the Sustainable Development Programme of the CARICOM Secretariat, delivered remarks on behalf of the Secretary-General of CARICOM. She provided an overview of the major global conferences for 2015 which had placed the international community resolutely on a path toward sustainable development, including providing the resources for its achievement. She indicated that the region must take advantage of this, and focus attention on strengthening the building blocks that will allow achievement of its sustainable development goals. In this regard, she indicated that the region's meteorological systems form one such building block, since these systems sit at the core of a country's ability to adapt to climate change, to mitigate against the deleterious effects of natural disasters and to plan for economic growth and development. She was therefore also of the opinion that the region needed to recognize that, in prioritizing an issue, the requisite resources must be identified to finance such priorities, as well as the institutional mechanisms that will deliver on these priorities, both at the national and regional levels. This, she indicted, was even more urgent for Caribbean SIDS whose economies were threatened by Climate Change, since it made delivery on the sustainable development agenda more difficult due, inter alia, to the mounting cost of building resilience.

1.6 *Mr Tyrone Sutherland*, Coordinating Director of the CMO, delivered remarks that focussed on the role played by the Caribbean Meteorological Council, from its inception in 1962, in guiding the development of the Meteorological and Hydrometeorological Services in the English-speaking Caribbean. This included the development of a very effective regional severe weather warning system to protect against weather-related natural disasters that severely affect regional societies and economies.

1.7 He referred to the special challenges for the organs of the CMO, often under challenging budgetary and staff constraints, which required them to design and deliver programmes and services that continued to support its Members States for their core meteorological services, but which also addressed the increasing influence of climate variations and climate change on our societies. He made special mention of the close connection between the policies, programmes and activities of the CMO and WMO, many of which would be discussed during the session, including the regional implementation of the very critical new 2015 WMO policy resolution on the international provision of climate data.

1.8 The feature address was delivered by *Mrs Allison Jean*, Permanent Secretary, Ministry of Infrastructure, Port Services and Transport of **Saint Lucia**. Mrs Jean noted the sterling contribution of the CMO, through its Port-of-Spain Headquarters and the *Caribbean Institute for Meteorology and Hydrology* (CIMH) in Barbados, to the meteorological and hydrological needs of the Caribbean community and in enhancing economic development in the region. She also highlighted the importance of meteorological and climate data and products, especially in respect of the frequent severe weather events experienced in the region and in connection with issues of climate change and variability being manifested in the Caribbean. Mrs Jean called on Governments of the region to ensure support of critical institutions such as the CMO.

1.9 Dr Kenrick Leslie, the first Executive Director of the Belize Meteorological Service and current Director of the Caribbean Community Climate Change Centre (CCCCC) located in Belmopan, made a very interesting historical presentation on the development of the Meteorological Service of Belize.

1.10 The Meeting elected *Mrs Allison Jean* as the Chair of the Caribbean Meteorological Council for its 55th session and the intercessional period until the next annual meeting of the Council.

1.11 After the feature address, a vote of thanks was given by *Mr Esworth Reid*, Permanent Secretary in the Ministry of Agriculture, Food, Fisheries and Water Resource Management of Barbados and Chairman of the Board of Governors of the Caribbean Institute for Meteorology and Hydrology. He particularly thanked the Government of Belize, through Honourable Mr Edmund Castro, Minister of State in the Minister of Works, Transport and National Emergency Management of Belize for hosting the session and for the excellent facilities, arrangements and hospitality that would contribute to a successful Council session.

2. ADOPTION OF AGENDA AND PROCEDURAL MATTERS

2.1 The Agenda adopted by the Meeting is shown in **ANNEX I** of this Report. The Meeting fixed its hours of work and determined the order in which it would conduct its business. The list of Delegates attending the Meeting is attached as **ANNEX II** to this Report.

3. CMO EXECUTIVE REPORTS

3(a) Coordinating Director's Report

3.1 The CMO Coordinating Director presented his report on the activities and issues concerning the CMO Headquarters Unit since the previous session of the Council. The Council first engaged in a brief review of the impacts of weather in the region in 2015, notably the general deficit in rainfall in most parts of the region, coupled with a number of severe weather events in some areas, including the passage of tropical storms across the Caribbean Islands, with special mention of *Tropical Storm Erika* that had a devastating impact on the Commonwealth of Dominica.

3.2 The Council discussed the CMO Headquarters activities in 2015, noting that several were aimed at laying the groundwork for regional implementation of many global programmes and initiatives, particularly those that emanated from the 17th Congress and Executive Council of the World Meteorological Organization in 2015 as they relate to the Caribbean region in general and CMO Member States in particular. This included the implementation of the *Global Framework for Climate Services* (GFCS), regional and global Disaster Risk Reduction (DRR) activities, integrating weather observing systems, and improving meteorological services for the safety of aviation operations, including support for St. Vincent and the Grenadines. Council noted that in 2015, a considerable amount of time was spent by the CMO Headquarters contributing to the development of a Five-Year *Strategic Plan for the Caribbean Community 2015-2019 "Repositioning CARICOM"* on a Caribbean Community Strategic Implementation Plan, being developed under the coordination of the CARICOM Secretariat during 2015.

3.3 Council noted that in 2015, the level of financial contributions from Member States was comparable to 2014. However, there were still five Member States that failed to meet their obligations, compared to six in 2014.

3.4 The Coordinating Director briefed the Council on some of the scientific, technical and training events in which technical staff of the CIMH and the Services participated. Council noted that the schedule of activities undertaken by the CMO Headquarters had been quite heavy, particularly in a year that included a Congress of the WMO, as well as several follow-up activities from the WMO Congress that began immediately afterwards and especially those related to new activities scheduled to commence early in 2016.

3.5 Council welcomed to the staff of the CMO Headquarters, its new Finance and Administrative Officer, *Mrs Natalie Araujo-O'Brien*, noting her significant background and wealth of experience in finance and administration from both the private and public sectors. Council was also very pleased to congratulate the Acting Chief Hydrometeorological Officer of Guyana, *Dr. Garvin Cummings*, on obtaining his Doctorate from the University of Genoa in Italy in April 2015.

3.6 **The Council:**

Noted the activities and issues concerning the CMO Headquarters in 2015, particularly those emanating from the 2015 Congress of the WMO, regional aviation matters and issues concerning the institutions of the CMO within the wider Caribbean Community, which would be presented in greater details under substantive agenda items;

Discussed the weather-related impacts on the region in 2015, which was a mixture of a general deficit in rainfall, coupled with a number of severe weather events on some Member States;

Also Noted the difficulties faced by the CMO Headquarters in fulfilling all the programmes approved by Council as a result of the continuing deficit contributions by some Member States to the Organization;

Welcomed the new Finance and Administrative Officer, *Mrs Natalie Araujo-O'Brien*, to the staff of the CMO Headquarters and congratulated one of the region's leaders, *Dr. Garvin Cummings* of Guyana, on obtaining his Doctorate in 2015.

3(b) CIMH Principal's Report

3.7 The Principal of the Caribbean Institute for Meteorology and Hydrology (CIMH) presented his report to the Council on the activities of the CIMH since the last session in 2014. In keeping with the Principal's Report for 2014, this report demonstrated the value of the CIMH to the economic well-being of the CMO Member States, as stipulated in the Institute's mandate. The report showed that the CIMH was increasing its effectiveness in the delivery of products and services to Member States and highlighted the critical role the CIMH plays in building the region's resilience to climate change, increasing climate resilience and extreme weather events.

3.8 The Principal indicated to Council that in future reports, a better representation would be used that would provide information on the human resources allocated to the various activities at the Institute, in order for Member States to appreciate how contributions were utilized.

3.9 Despite the recognized high return on investment that many Member States receive from the CIMH, payment of subventions remained a sore point which constrains in many ways, the development and productivity of the Institute. The poor level of subventions had resulted in CIMH not being able to fill some positions and this was having a negative impact on the training programme. To offset the reduced subventions, CIMH had slowed the delivery of the Aeronautical Continuing Professional Development Course and the On-the-job Aeronautical Forecasters Course, offered to persons graduating from the UWI programme who had not previously completed the competency requirements to function as an Aeronautical Forecaster.

3.10 The Principal informed the Council that CIMH's contribution to building climate resilience in CARICOM Member States was recognized in the decisions of the Council for Trade and Economic Development (COTED) in 2015. The achievements of CIMH's climate programme, inclusive of the performance of the WMO Regional Climate Centre for the Caribbean located at CIMH, were also noted.

3.11 Council also noted the CIMH's work in the area of disaster management, which included the expansion and improvement of its contributions to the regional early warning programme through the modernization of the region's weather and climate observation networks and expansion and improvements to its numerical weather and satellite products. CIMH also provided informational products to the regional and international Disaster Risk Reduction (DRR) community to inform their planning scenarios prior to, during and post events; and the Institute participated on technical advisory committees and bodies to support short-, mid- and long-term recovery efforts.

3.12 Council was informed about the work that the CIMH was doing in monitoring Saharan Dust. Sahara dust was rapidly becoming an area of focus for the CIMH due to documented human and environmental health concerns. During 2015, the CIMH launched its first Sahara Dust forecasting initiative, which would form a core component of the region's Sahara Dust early warning system that would provide critical information to risk inform the region's health sector. An initiative which evolved in 2015 directly related to the dust modeling initiative, was the proposal from the international community to establish the Pan American *Sand and Dust Storm Early Warning Advisory and Assessment* (SDS-WAS) Centre at CIMH.

3.13 Development of the region's next generation of weather, climate and hydrological scientists remained critical to the aspirations of the CIMH and, as such, the CIMH internship and mentorship programme was essential. Interest in the CIMH capacity development programmes continued to grow both from within the region and externally. In this regard, CIMH would provide two tuition-fee waivers to students from the South Pacific as part of its South-South SIDS partnership initiative.

3.14 **The Council:**

Noted the progress made by the CIMH with regards to the internationalization of its programme and its growing leadership internationally;

Also Noted the significant benefit that the CIMH brings to the Member States and the region;

Recognized the challenges sustaining the programmes, including the training programme, caused by under-funding;

Approved the Principal's Report.

3(c) **CIMH Board of Governors' Report**

3.15 The Chairman of the CIMH Board of Governors presented the Board of Governors' Report to the Council. The Chairman stated that the Board took the following decisions:

1. The currency of subventions owed to the CIMH would be quoted in US Dollars, as this would reduce exchange rate risk;
2. The Summary of Conclusions of the Board's Report would be standardized to state only position titles when referencing Board members;
3. For the purpose of the Board of Governors' meeting, both power point and report format would be used in the delivery of Principal's Report;
4. Sub-committees would be created by the Board of Governors to assist decision-making at the Institute during inter-sessional periods between Board of Governors meetings. When required, Board meetings would ratify these decisions. The Terms of Reference for these Sub-committees would be developed and approved by the Board. It was also agreed that the Principal would continue to visit Member States to assist local authorities with making their case for funding the CIMH;
5. It was agreed that the Principal would review the syllabus of the Senior Level Meteorological Technicians course to determine if the level of effort and the breadth of work were too much for the eighteen (18) months of the course.

3.16 The Board noted the number of projects being undertaken by the CIMH that provided significant benefit to the CIMH. It was agreed that a copy of the presentation made on Project Funding and its Beneficiaries, which documented the investment made by CIMH in Member States through its various programmes and projects, would be made available to all Members to assist in their efforts at building a case for addressing arrears. Other substantial contributions to Member States would also be documented and reported in the future.

3.17 Council was informed by the Chairman about the significant demands which was being placed on the staff of the Institute by regional and international stakeholders. The future staffing needs identified by the CIMH was noted, including the need for a social scientist. CIMH had identified a candidate for the Agrometeorologist position and would hire the individual in early 2017 when the Building Regional Climate Capacity in the Caribbean (BRCCC) programme had ended.

3.18 **The Council:**

Noted the decisions emanating from the Fifty-second Meeting of the Board of Governors.

3(d) Membership of the Caribbean Meteorological Organization

3.19 Council was informed by the Coordinating Director of CMO that during the course of 2014 and again in 2015, he had received informal communication from the Directorate of the Meteorological Service of Suriname, indicating that Suriname was interested in and was considering joining the CMO. Information requested from the CMO Headquarters by Suriname included the procedure for joining, the financial consequences and the benefits.

3.20 Council was informed of the consultations that were undertaken with the CARICOM Secretariat, specifically the Directorate for Foreign and Community Relations, the General Counsel, and the Finance Directorate, on as many of the issues involved if Suriname decided to make a formal application to join the Organization. Council was presented with a document that allowed it to have an advanced discussion and examination of the procedures, should an application for membership actually materialize. In its deliberation, Council recognized the fact that Suriname had become a *Member State of the Caribbean Community (CARICOM)* in July 1995. It noted that consideration of membership to the Organization had to be based on the basic document entitled "*Agreement establishing CMO*", upon which all the various *Acts of Parliament* in the individual Member States were based. In its deliberation on this policy matter concerning a possible increase in membership of the Caribbean Meteorological Organization (CMO), Council carefully examined:

- (i) The Articles specifying which States can apply for membership of the CMO;
- (ii) The Instrument of Accession;
- (iii) The possible benefits to Suriname in joining CMO and the benefits of Suriname's membership to existing Members of CMO;
- (iv) The Financial Implications for Suriname and the Impact on other CMO Member States;
- (v) The Diplomatic and Legal Processes for Joining CMO.

3.21 Taking into account that this information was being discussed well before an actual application may be received in the future, **Council:**

Approved, in principle, the processes to be followed by each Member State and the applying State towards accession;

Provided a mandate to the Coordinating Director, in consultation with the Chairman of Council and the CARICOM Secretariat, to modify the process leading to accession, depending on the timing of receipt of an application, in relation to a session of the Council;

Requested Member States to respond positively and in a timely manner, in accordance with the agreed procedures, if and when an application for membership would be received.

4. STATUS OF ACTIONS FROM THE PREVIOUS SESSION

4.1 Following every session of the Council, the CMO Headquarters produces a single document containing an **Action Sheet** that would allow the Council to follow-up on the actions taken on the decisions of its previous session, and to discuss any further actions if required. A summary of the decisions of CMC54 (Jamaica, 2014) was prepared, giving the status of actions taken to implement these decisions of Council, and to indicate areas where action as proposed had not materialized.

4.2 The Council was reminded of the discussions at CMC54 under Item 4 on the ICAO-mandated *Quality Management System* (QMS), which was also discussed at CMC53. This matter was still outstanding and States that had been unable to reach the required level of compliance with the QMS requirements, can be classified as having a serious deficiency against the ICAO requirements.

4.3 Further, the 54th session of the Council requested the CMO Headquarters to develop a regional strategic plan for the meteorological community that would be linked to the Caribbean Community Strategic Implementation Plan. The Draft Strategic plan was presented under Item 10.

4.4 **The Council:**

Noted the Report on the actions from the previous session.

5. SPECIAL CMO AND WMO ISSUES

5.1 The Coordinating Director briefed the Council on the following special CMO and WMO-related issues designed to keep the Council informed on significant regional or international issues of special interest to the CMO. Some of these, in connection with the following topics, required decisions or actions by Council to ensure that CMO Member States understood their roles and could adhere to commitments and requirements:

- (A) Outcome/Highlights of the 17th ***World Meteorological Congress***, 2015 and the 2015 Executive Council (EC) of the World Meteorological Organization
 - (1) New Strategic Plan and Priority Areas for the 2016-2019
 - (2) Election Results
 - (3) Budget and Financing for 2016-2019
 - (4) The Executive Council
- (B) The Global Framework for Climate Services (GFCS)
 - Governance: *The Intergovernmental Board for Climate Services (IBCS)*
 - Status of RCCs & RCC Barbados “in demonstration phase”
 - GFCS Projects
 - WMO Policy for the International Exchange of Climate Data and Products to Support the Implementation of the GFCS
- (C) WMO Integrated Global Observing System – Implementation Phase
- (D) Aeronautical Meteorological Services – Priority Activities
 - (i) Progress in the Implementation of Quality Management Systems (QMS)
 - (ii) Staff Competency Standards and Training
 - (iii) Cost Recovery Issues
- (E) Disaster Risk Reduction and Regional Severe Weather Forecasts and Warning Systems
 - Tropical Cyclone Programme
 - Regional Coordination and Severe Weather Demonstration Projects
 - Impact-based Weather Forecasts and Warnings.

5(A): Outcome/Highlights of the 17th World Meteorological Congress in 2015 and the 2015 Executive Council (EC) of the World Meteorological Organization

5.2 The Coordinating Director presented to the Council, the outcomes and highlights of the 17th Congress of the World Meteorological Organization, which took place in Geneva, Switzerland from 25 May to 12 June 2015 under the chairmanship of the incumbent President, *Mr David Grimes* of Canada. Council noted that the CMO Member States that were represented at the Congress were Barbados (*Mr Hampden Lovell*), Jamaica (*Mr Jeffery Spooner*) and Trinidad and Tobago (*Mr Marlon Noel*), along with the British Caribbean Territories (BCT). This was four less than the 2011 Congress, although Saint Lucia had proxy-representation for a portion of the session. The Coordinating Director of the CMO, as the *Permanent Representative of the BCT with WMO*, led a strong BCT delegation to the Congress, comprising *Dr. David Farrell*, Principal of the CIMH, *Mr Glendell De Souza* of the CMO Headquarters and *Ms Kathy-Ann Caesar* of the CIMH. The involvement of this team, as part of the CMO contribution to WMO on behalf of CMO Member States, was designed to increase the regional input into the session and to facilitate the critical follow-up actions. In this regard, Council was pleased to note the special in-session contribution from regional personnel with the Delegate from Trinidad and Tobago serving as a member of the *Drafting Group on Climate Data and Exchange*, and the CMO Coordinating Director serving on the *Credentials Committee* and as Chairman of the *Committee on Strategy and Budget 2016-2019*.

5.3 Council noted that the Congress adopted a new strategic plan and related budget, which set the directions and priorities for the post 2015 global agenda. These were designed to guide the activities of Member States and Territories and the WMO constituent bodies to enable all Members to improve their core information, products and services, maintain necessary infrastructures, and to directly benefit from advancements in science and technology. The Plan emphasized the following strategic priorities:

- Disaster Risk Reduction: Major focus on extreme events;
- The Global Framework for Climate Services (GFCS): A UN-led initiative, spearheaded by WMO and involving many international partners;
- WMO Integrated Global Observing System (WIGOS): The implementation of WIGOS goes hand-in-hand with the WMO Information System (WIS);
- Aviation meteorological services: Improve services to air transport worldwide;
- Polar and High Mountain regions;
- Capacity Development;
- WMO Governance.

5.4 Council was informed of the very critical activity at every Congress of the election and appointments of the Officers of the Organization. Every four years, the Congress elects the President and three Vice-Presidents, along with 27 other members of the WMO Executive Council; and also appoints the Secretary-General of the WMO. Officers of the WMO are elected by the Congress to serve in their *personal capacities* for the benefit of the entire Organization. Congress then re-elected unopposed for their second consecutive term, **Mr David Grimes** of Canada as the WMO President, **Dr. Antonio Divino Moura** of Brazil as the First Vice-President, **Prof. Mieczyslaw Ostojki** of Poland as the Second Vice-President, and **Mr Abdalah Mokssit** of Morocco as the Third Vice President.

5.5 In electing the 27 other members of the WMO Executive Council, the Coordinating Director of the CMO, who has been an elected member of the WMO Executive Council since 1999 and served the maximum two four-year terms as the Second Vice-president of the WMO from 2003 to 2011, was again *re-elected* unopposed to the Executive Council, with responsibilities on five Executive Council Panels and Committees. In addition, the Executive Council accepted the nomination of *Dr. David Farrell* as the BCT representative on the important *Executive Council Panel of Experts on Education and Training*.

5.6 After a long process, the Congress selected **Professor Dr. Petteri Taalas** of Finland as the *new Secretary-General* from 2016, while the outgoing Secretary-General, **Mr Michel Jarraud** of France, who led the Organization for three consecutive terms from 2004, was recognized for his outstanding services rendered to the Organization and accorded the honorary title of “*Secretary-General Emeritus*” effective 31 December 2015. At the same time, Congress decided to reduce the number of terms for the Secretary-General from a maximum of three to a maximum of two four-year terms.

5(B): Implementation of the *Global Framework for Climate Services (GFCS)*

5.7 The Council discussed in some detail, the implementation of the ***Global Framework for Climate Services*** (GFCS), which is a UN-led initiative, spearheaded by WMO to guide the development and application of science-based climate information and services in support of decision-making. Council recalled that the governing structure for the GFCS is an *Intergovernmental Board on Climate Services* (IBCS), which is accountable to the WMO Congress. The Management Committee of the IBCS is determined by the various WMO Regional Associations. Membership for North America, Central America and the Caribbean (WMO Region IV) is through the British Caribbean Territories (BCT), Canada, Costa Rica and the USA. *Dr. David Farrell* is the BCT/CMO representative on the Management Committee with *Mr Adrian Trotman* as the alternate.

5.8 Council noted that the GFCS was, at the moment, being implemented through eight global projects, many with an emphasis on developing countries and Small Island Developing States. It also noted that several of these GFCS Projects involved or would involve the CIMH.

5.9 Council once again discussed the fact that very important contribution to the implementation of the GFCS will be the global network of WMO *Regional Climate Centres* (RCC). In this regard, Council recalled that since 2013, the CIMH had been functioning as a *WMO Regional Climate Centre “in demonstration phase”* for the Caribbean, as the CIMH would have a very important role in supporting CMO Member States in their implementation of the GFCS. Council discussed the fact that, after a series of reviews by Expert Teams, it was expected that the operational status and formal recognition of CIMH as a WMO RCC would take place in the second half of 2016.

5.10 Council discussed the fact that a very important aspect with regard to the GFCS implementation was a WMO policy resolution on climate data, which was considered by the 17th Congress, to ensure better unfettered access to climate data, information and products, recognizing its value for sustainable communities, but also its cost-benefit considerations, in particular with respect to issues of cost-recovery and long-term investments in climate-related infrastructure. The complete resolution adopted by the WMO Congress, entitled “***Resolution 60 (Cg-17) – WMO policy for the International Exchange of Climate Data and Products to Support the Implementation of the Global Framework for Climate Services***” is provided as **ANNEX III** to this Report.

5.11 **Council** therefore:

Expressed its continued strong support for the *Global Framework for Climate Services* and **urged** Member States to actively participate in GFCS projects and activities as appropriate;

Noted the formal application to WMO for the designation of the CIMH as a WMO Regional Climate Centre (RCC), and **urged** as many CMO Member States as possible to attend the *WMO Commission for Basic Systems (CBS)* in 2016 when the approval of the RCC designation was anticipated;

Urged Member States to publicize internally and implement **Resolution 60 (Cg-17)** – the *WMO Policy for the International Exchange of Climate Data and Products to Support the Implementation of the GFCS*;

Also Urged the CMO Member States that were not Members of WMO to study and formally indicate to the CMO Headquarters, their acceptance of *Resolution 60 (Cg-17)*.

5(C): WMO Integrated Global Observing System – Implementation Phase

5.12 Council held substantial discussions on the *WMO Integrated Global Observing System (WIGOS)*, which is an all-encompassing approach to the improvement and evolution of WMO's global observing systems, and which is needed in all countries to consolidate progress in meteorological research, numerical modelling, and computer and communication technologies. Closely tied to WIGOS is the implementation of the new *WMO Information System (WIS)*. WIGOS, together with WIS, would be the basis for the provision of accurate, reliable and timely weather, climate, water and related environmental observations and products by all Members and WMO Programmes, which would lead to improved service delivery. Both WIGOS and WIS were very essential to all technical and scientific activities of Meteorological Services in the Caribbean and worldwide.

5.13 Council was informed that the WIGOS Framework was considered to have approached a high level of maturity with the key initial building blocks of the WIGOS Framework expected to be in place by the end of 2015. Congress had thus decided that WIGOS would move into a *Pre-operational Phase from 2016 to 2019*. Council noted the decision to shift the emphasis from the global level toward implementation activities at the regional and national levels. The goal therefore was to have WMO Member States and their partners benefit from a fully operational system from 2020.

5.14 **Council** therefore:

Emphasized the mandatory nature of WIGOS and WIS implementation; and

Urged CMO Member States to ensure that their NMHSs actively participate in the Pre-Operational Phase of WIGOS in the 2016-2019 period.

5(D): Aeronautical Meteorological Services – Priority Activities

5.15 Council recalled that, for several years, it had examined the vital issue of Meteorological Services for the aviation sector. Aeronautical meteorology has always been vital for the efficiency, safety and environmental sustainability of civil aviation, and a major or even prime focus for many National Meteorological and Hydrometeorological Services around the world, including the Caribbean. A fundamental factor in the provision of meteorological services to the aeronautical sector was the implementation of a **Quality Management System (QMS)** for all types of service to civil aviation, imposed by the *International Civil Aviation Organization* (ICAO), in collaboration with the *World Meteorological Organization* (WMO). Closely tied to a QMS for aeronautical meteorological services was the requirement for **Staff Competency Standards and Training**.

5.16 Council discussed, with concern, the overall pace of progress towards implementation of a QMS within the CMO Member States and the various types of difficulties experienced by these Member States in reaching their goal of compliance with the requirements.

5.17 **Council** therefore:

Urged Member States to complete any outstanding procedures with regards to implementation of the ICAO-mandated *Quality Management System (QMS)*;

Also Urged NMHSs in CMO Member States to review all their recent QMS preparatory work to meet the new *International Organization for Standardization (ISO)* standard 9001:2015, which became effective from September 2015; and

Encouraged Members to conduct analyses of existing business models with respect to cost recovery mechanisms for the provision of meteorological services to aviation, and to seek guidance from ICAO and WMO if necessary.

5(E): Disaster Risk Reduction and Regional Severe Weather Forecasts and Warning Systems

5.18 Council reviewed various aspects of disaster risk reduction, noting in particular that the reduction of disaster risks from hydrometeorological hazards, such as strong winds and severe storms, tropical cyclones, flash floods, storm surges, droughts, wild fires and landslides, would always be the primary priority areas for any National Meteorological and Hydrometeorological Service (NMHS). Council discussed the outcomes of the *Third United Nations World Conference on Disaster Risk Reduction (WCDRR)*, as well as a WMO Symposium on “*MultiHazard Early Warning Systems and Services*”, both held in Sendai, Japan in March 2015.

5.19 Council was pleased to note that the importance of the WMO *Tropical Cyclone Programme (TCP)* to the Caribbean and other tropical basins was recognized by the WCDRR, in which people-centred early warning systems of tropical cyclones and related activities were essential to further reduce the disaster risk associated with the tropical cyclones. In this regard, it was pleased to note the availability of an updated *Global Guide to Tropical Cyclone Forecasting* issued by WMO and posted through <https://www.wmo.int/cycloneguide/>. At the same time, the occurrence and impact of other types of severe weather not necessarily associated with tropical cyclones were also recognized as having major socio-economic impacts on those affected.

6.3 The amounts shown in paragraph 6.1 were first calculated for accounting and auditing purposes. However, as the BCT contribution to WMO was included in the individual CMO Member State's contribution to the CMO Headquarters, there was only a disbursement in cases where countries made contributions on a regular basis, so that the actual amount available for drawdown by those States was linked to their level of arrears to the Organization. In keeping with a decision made during the 47th session of the Council (2007), each session of the Council is provided with the actual amount of refundable balance that was available for use by each Member State, as shown in the table below:

<u>BCT</u>		<u>CMO MEMBERS OF WMO</u>	
Anguilla	52,362.73	Antigua & Barbuda	00.00
Br. Virgin Is.	70,636.77	Barbados	3,228.53
Cayman Is.	373,055.31	Belize	00.00
Montserrat	16,125.94	Dominica	00.00
Turks & Caicos Is.	126,034.31	Guyana	6,513.37
		Jamaica	15,000.00
		Saint Lucia	1,662.21
		Trinidad & Tobago	114,327.79
St. Kitts & Nevis	83.74		

6.4 **The Council:**

Noted the status of the Refundable Balances Account, as presented.

6(b) **CMO HQ Auditor's Report**

6.5 The 2014 audited accounts of the CMO Headquarters Unit were presented to Council by the Coordinating Director. The accounts for fiscal 2014 were audited by the Auditor General's Department during June - July 2015.

6.6 The Council enquired as to the feasibility of standardizing the currency used across the arms of the CMO for the presentation of the financial documents. It was accepted that the audited financial statements should be reported in the functional currency of the various arms of the CMO. However, commencing from 2016, all reports for Council and invoices to Member States should be presented in United States dollars.

6.7 **The Council:**

Noted, Reviewed and Accepted the audited Statement of Accounts for 2014.

6(c) **Statement of Contributions and Arrears (CMO HQ & CIMH)**

6.8 The *Caribbean Meteorological Council* (CMC), as the Governing Body of the Caribbean Meteorological Organization (CMO), had been making annual appeals to Member States for the rectification of the state of arrears of contributions to both main arms of the CMO, namely the *Headquarters Unit* and the *Caribbean Institute for Meteorology and Hydrology* (CIMH). The CMO Headquarters and the CIMH continued to operate under very difficult circumstances because of the large arrears of contributions by Member States. The Council had constantly urged Member States to make regular payments to the current budget estimates and to establish a plan to pay off arrears.

6.9 The Council recalled that, for a number of years, the Auditor General of Trinidad and Tobago had constantly made reference to the state of arrears in the Report on the Financial Statements of the CMO Headquarters Unit, as discussed under Agenda Item 6(b). Some Member States routinely made their full annual contributions in a timely manner whilst other Member States may also make their full annual contribution, though payments may be sporadic and often very late in the year. On the other hand, there continued to be some States that failed to make their full annual contribution, as well as those States that failed to make any contribution at all.

6.10 There had been some improvement in the payment of annual contributions in 2014 compared to 2013, when contributions received were only 57.6% of the total due for 2013. Ten Members paid their full contributions for 2014 which accounted for 82.4% of the total, while five Members made advance payments towards 2015. As at 22 October, 2015 total contributions received for the current year was 75.4% of the total due. There had also been some improvement in the timing of remittances, as by the end of the first half of 2015, some 52.2% of contributions had been received by CMO Headquarters.

6.11 The **Representative of Jamaica** queried the amount registered as paid by Jamaica due to correspondence which indicated that Jamaica had made full payment to CMO during 2013, 2014 and 2015 but the records indicated that only half of the payment was received by CMO in 2013. The Financial and Administrative Officer, CMO, explained that funds from Jamaica were received in two tranches and the second tranche was received in January 2014. In keeping with the decision of Council whereby contributions received are to be applied to the current period, the second tranche was applied to contributions due for 2014 and excess received in 2014 was applied to reduction of arrears.

6.12 The Principal of the CIMH informed the Council about the level of contributions received by CIMH for 2015 up to 30 September 2015, in which the overall arrears in contributions owed to the CIMH continued to grow. Council was particularly concerned that, as a result of the growing arrears, there was no easing of the amount that CIMH owed the Government of Barbados for the non-payment of pay-as-you-earn (PAYE) taxes from April 2006.

6.13 The Council:

Reiterated an earlier call for Member States to make every effort to pay their full contribution for the current year, while setting up an internal mechanism to pay off arrears.

7. CMO BUDGETS (Headquarters Unit, CRN and Radar, CIMH)

7(a) CMO HQ Budget Estimates for 2016

7.1 The Council recalled that over the previous six years, 2010 – 2015, it had made budgetary provisions for the implementation of some of its earlier decisions that had been held in abeyance because of the prevailing economic situation in the Caribbean. The aim of the Council was to ensure that the CMO Headquarters remained in a position to guide the region's involvement in the increasing number of international weather and climate activities that impact Member States.

7.2 Council noted that despite some improvement in the remittance of contributions by some Member States, the overall level of contributions in 2015 continued to be well short of the approved budget target until quite late in the year. Council was informed that although the Headquarters Unit aimed to place its priority on first meeting the essential staff commitments and basic programmes, it felt that it could no longer delay the implementation of new initiatives aimed at improving the exchange of technical knowledge and the level of cooperation, not only among Member States, but also among other countries in the region.

7.3 In this regard, Council was reminded that the staff structure for the CMO Headquarters includes two professional staff positions, an **International Affairs Officer** and a **Project Development Officer**, that the Council had approved several years earlier but that the Headquarters had not yet been able to fill due to fiscal difficulties in the region. The budget proposal to Council included the recruitment of the **International Affairs Officer** by July 2016. In addition, the Headquarters proposed to set up a *CMO Operational Radar Working Group*, comprising representatives from each of the six weather radar centres in the region in an effort to improve the technical operations of the weather radar network in the region. The Headquarters Unit therefore provided the Council with its total budget estimates for 2016, upon which **the contributions from Member States are based**, at **TTD X,XXX,XXX.00**, representing an increase of 4.0 percent in comparison to the 2015 figure of **TTD X,XXX,XXX.00**.

7.4 After much deliberation, Council considered that the financial situation within the CMO Member States could not allow it to approve the request for a 4% increase, even though it recognized the importance of filling the post of *International Affairs Officer* and the formation of *CMO Operational Radar Working Group*. Council therefore decided that the CMO Headquarters should seek areas in the budget estimates to cut expenditure, while proceeding with the new post and Working Group, and that for the long-term operation of the Group, it should explore extra-budgetary sources for that purpose.

7.5 Council also considered that it would be more appropriate for both the CMO Headquarters and the CIMH to issue their invoices to Member States in United States dollars, rather than in Trinidad and Tobago dollars and Barbados dollars, thereby eliminating losses to the Member States or to the two Organs due to currency fluctuations and bank charges.

7.6 **Council therefore:**

Approved a budget of **TTD X,XXX,XXX.00** which was an increase of 2.0 percent over the approved 2015 budget and as detailed in **ANNEX IV**, with Member contributions as indicated in **ANNEX V**;

Urged Members to give priority to meeting annual contributions, through quarterly, bi-annual or more frequent part-payments if necessary, and to make every effort to pay off arrears to the Organization;

Requested the Headquarters to send its invoices for contributions to Member States only in United States dollars;

Also Urged Members to inform the CMO Headquarters of their transfer of funds, including the date and amount, in order to overcome difficulties in properly identifying the origin of funds within the banking system; and

Agreed that the CMO Headquarters would postpone a draft revision of the CMO Contribution Formula for the time being, pending issues of increased membership of the CMO, as described under Agenda Item 3(d).

7(b) CIMH Budget Estimates for 2016

7.7 The Chairman of the Board of Governors informed the Council that CIMH presented the Estimates of Expenditure for the financial year 2016 to the Board of Governors for endorsement. The original total amount requested was **BBD X,XXX,XXX.00**. This represented an increase of 2.6% over the estimates approved for FY2015. The Board recalled that the 2015 CIMH budget had been frozen at the approved 2014 level. Considering the importance of the work that the CIMH had been doing on behalf of Member States, the Board decided to recommend to Council that the requested budget estimates be approved.

7.8 The Chairman of the Board therefore presented the Council with Estimates of Expenditure of the CIMH for 2016 of **BBD X,XXX,XXX** for its approval.

7.9 **Council** held further deliberations on the proposal from the Board and:

Approved the Estimates of Expenditure for 2016 of **BBD X,XXX,XXX.00** for the CIMH, as presented by the Board of Governors. Member States' contributions based on that figure are indicated in **ANNEX V**.

8. ANNUAL MEETING OF THE DIRECTORS OF METEOROLOGICAL SERVICES

8.1 The Caribbean Meteorological Council considered the Report of the Annual Meeting of Directors of Meteorological Services, held on 11 November 2015, presented by the Science and Technology Officer of the CMO Headquarters. The Report provided the Council with the following summary of the deliberations and recommendations of the Directors on a wide range of technical and scientific topics, which would have an impact on future costs, policy decisions, training opportunities and service delivery. Some of the following were also separately addresses by the Council.

1. Satellite Matters

8.2 The new Geostationary Operational Environmental Satellite - R Series (GOES-R), which is the next generation of geosynchronous environmental satellites which would provide atmospheric and surface measurements of the Earth's Western Hemisphere for weather forecasting, severe storm tracking, space weather monitoring and meteorological research, was scheduled to be launched in October 2016.

8.3 GOES-R would mark a technological advance in geostationary observations. Compared to the current GOES system, the advanced instruments and data processing would provide:

- Three times more spectral information
- Four times greater spatial resolution
- Five times faster coverage
- Real-time mapping of total lightning activity
- Increased thunderstorm and tornado warning lead time
- Improved hurricane track and intensity forecasts.

8.4 Due to the data volume, faster coverage and a change in broadcast frequency, all Meteorological Services which had an existing direct readout satellite system would need to replace the complete system. Three pathways were explored to receive satellite data and/or imagery, namely:

1. Via the Internet;
2. Imagery via GEONETCast-Americas - the western hemisphere component of a near real-time, global network of satellite-based data dissemination systems;
3. Direct readout from the GOES ReBroadcast (GRB).

A Meteorological Service would have to make its choice of system to access the satellite data and/or imagery on the cost of the system, latency and resolution of the data.

2. Progress in the implementation of QMS

8.5 It was recalled that, as of 15 November 2012, the Quality Management System (QMS) requirement, mandated by the International Civil Aviation Organization (ICAO), became a standard practice, supplemented by a set of recommendations on the conformity of the QMS with the *International Organization for Standardization (ISO) 9000* series of quality assurance standards.

8.6 QMS would bring tangible benefits to the NMHSs through optimized processes and procedures, accountability and continuous improvement culture and it was further noted that the ISO 9000 certification required a continuous resource-consuming maintenance effort through regular checks and re-certification audits. In this regard, the link between the sustainability of the QMS and the cost recovery of services provided to the aviation community was emphasized.

8.7 It was noted there were still a number of CMO Member States that had not yet reached the required level of compliance with the QMS requirements. Such a situation could be classified as a serious deficiency against the ICAO requirements, which could result in economic sanctions against a Member State being imposed.

8.8 There was a call for greater assistance from the CMO to the Meteorological Services of Members in order that they become compliant with QMS requirements. It was suggested that the CMO should better coordinate to have the Services which were further ahead in QMS implementation assist those which were behind. In this regard, the *Director of the Meteorological Service of Jamaica* offered to assist other Services in implementation of QMS.

8.9 It was further noted that there was an increasing number of new international standards which National Meteorological Service needed to implement. However, it was felt that, at the national level, the standards were not always understood or implemented in a cohesive fashion. Therefore, it was suggested that a technical team be formed to assist all of the Meteorological and Hydrological Services of CMO Members in order that they can be compliant with the required standards.

8.10 The Council:

Reviewed and accepted **Amendments** to the Report of the 2015 Meeting of Directors of Meteorological Services;

Noted the changes to the satellite constellation over the region and the ways available to access satellite data post 2016;

Further Noted the lack of sufficient progress in the implementation of a Quality Management System by Meteorological Services of Member States;

Urged Member States to provide the necessary resources to implement a compliant Quality Management System;

Commended Jamaica on its offer to assist other Services in QMS implementation; and

Discussed the formation of a Technical Team to assist all of the Meteorological and Hydrological Services of CMO Members in order that they can be compliant with the required standards.

9. CMO WEATHER RADAR NETWORK

(a) Status of CMO Radar Network Operations

9.1 Council was informed that 2015 was a mixed year for the operations of the radar network, very much like 2014. The radars in Jamaica and Grand Cayman operated quite steadily throughout the year, with only short maintenance stoppages. The Belize and Trinidad radars also worked fairly steadily during 2015 in which periods of maintenance stoppages were not considered very long. Unfortunately, like 2014, Barbados and Guyana radars again had very significant periods of “down-time” for unscheduled maintenance or other technical work. The most noticeable issue in most of these cases was that the lengthy periods of “down-time” ran well into the hurricane or rainy seasons, when the need for the radar data was most critical.

9.2 The 54th session of the Council (2014) had been informed that a project was underway in Jamaica, within which consideration was being given to replacing the existing radar with a new unit or acquiring an additional radar to cover difficult sectors. The CMO provided some preliminary technical assistance to assist in its decision-making at that time. The CMO Headquarters was informed that the radar component of that project was likely to take place in 2017, although other preparatory work would be required in the interim. The CMO Headquarters remained committed to assisting if required and if feasible. The **Representative of Jamaica** commended the CMO for remaining committed to assist Jamaica and indicated that the assistance would be welcomed.

9.3 At every Council session for the previous few years, a discussion had taken place about the availability – or lack thereof - of radar imagery on the webpages of the Meteorological Services in CMO Member States. The Council noted that the webpages of the States that operate radars carry their own radar imagery. However, the Council referred to the fact that radar information from all radars in CMO Member States were for the use of all States and not just for the States that operate them. It pointed out that the radars, in almost all cases, cover several neighbouring States and that the entire Eastern Caribbean island chain, for example, was covered by several radars. Council had thus requested the Meteorological Services in those States that are covered by a neighbouring radar to provide links on their own Websites to the imagery from the radar or radars that cover their States.

9.4 Council was informed that the use of regional radar imagery was still not widespread by television stations and other media, even in the States where the radars are located or in neighbouring States. As was the case in 2014, an informal check in 2015 of television stations in the Caribbean continued to show that radar loops form part of the weather presentations only in the Cayman Islands, Jamaica, Antigua and Barbuda and Dominica. The Trinidad and Tobago Meteorological Service had prepared a special package of radar imagery for the television stations. However, to date, it had never been used.

b). Operations of the Regional Radar Composite and other Regional and International Obligations

9.5 Council was briefed on the considerable effort made by the CMO Headquarters during 2015, in collaboration with the radar sites and WMO's *Global Telecommunications System (GTS) Internet File Service (GIFS)* server in Washington, DC, to ensure that data from all the radar sites were in the correct format and transmitted in a timely manner for ingestion into regional radar composites. In the last two years, there had been two regional radar composites in operation. The composite system generated at the French Meteorological Service (Météo-France) centre in Martinique had been developed through a *Memorandum of Understanding (MOU)* between Météo-France and CMO. A second composite was developed separately by Mr Sabu Best of the Barbados Meteorological Service.

9.6 It was noted that operational access to the Barbados composite was through the website of the Barbados Meteorological Service. Operational password-driven access to the Météo-France Composite was available through Météo-France's SHERPA Extranet site <http://www.meteo.fr/extranets/> or without password through <http://www.meteofrance.gp/>. Individual radars for Guadeloupe, Martinique and French Guiana were now only available via the SHERPA site. Council was reminded that there was also an international obligation for regional radar data to be available to the US National Hurricane Center (NHC) as part of the regional *Hurricane Operational Plan*.

9.7 The MOU between Météo-France and CMO was signed in 2009 for a period of five years, thus ending in 2014. The 54th session of the Council had endorsed the principle of a new MOU between CMO and Météo-France to be concluded following input and agreement by the CMO Member States operating the radars. It was evident that the second radar composite developed by the Barbados Meteorological Service would need to be incorporated into any new MOU. However, the Barbados composite had not yet been the subject of any formal arrangement or long-term commitment by Barbados, which would be necessary in this regard. Council was informed that efforts would be made towards ensuring attaining this formality.

9.8 In addition to the CMO-Météo-France composite arrangements, the WMO Regional Association for North America, Central America and the Caribbean had already decided to implement a basin-wide radar composite as a major regional element of the **WMO Integrated Global Observing System (WIGOS)**. Council recognized that reliability and long-term sustainability of the CMO-Météo-France and Barbados composites were thus critical in this exercise.

(c) Training Issues

9.9 Council noted that during the course of 2015, the CMO Headquarters continued to examine ways to organize a tailored training scheme for the staff at as many of the six radar locations as possible. The original CMO idea of carrying out some of the training at the CIMH and some at the radar sites themselves had been put temporarily on hold because of the level of funds currently made available. The Finland-funded SHOCS-II Project had agreed to the CMO request to fund some training for meteorologists at selected radar sites. Some restrictions on recipient States would be likely due to foreign assistance guidelines of the Government of Finland, which are linked to economic and development indices of the *Organization for Economic Co-operation for Development* (OECD). It was hoped that training under the current phase of the SHOCS-II project could take place before the start of the 2016 hurricane season. Further radar training could also be considered in a proposed final phase of the SHOCS-II project, including some training for radar technicians, if possible.

(d) Operational Radar Working Group

9.10 Council was informed that CMO Member States operating radars could benefit from a working consultative process that would enable radar technicians and related IT personnel to share experiences and technical information, in order to minimize individual radar down-time that would keep network operations at an optimum. Such a mechanism would also assist management in planning preventative and other maintenance issues, and would enable management to be in a better position to meet their current and future regional and international obligations with regards to the provision of radar data.

9.11 The CMO Headquarters proposed to Council that it would establish a **CMO Operational Radar Working Group**, under the direction of CMO Headquarters, to carry out these tasks. The Coordinating Director had recently discussed this matter with Météo-France officials in Martinique, who again expressed strong support for the idea and their willingness to participate if the Working Group was established. CMO and Météo-France also agreed that such a Working Group could play a role in current and future radar studies, such as those on radar calibration.

(e). Dual Polarization of Radars

9.12 Council was reminded that all the radars in CMO States, with the exception of the Cayman Islands radar, operate with a horizontally polarized beam. These radars were equipped with a specific software filter to eliminate the clutter signals. However, the performance of these filters can be insufficient, especially in case of heavy clutter from the sea surface. On the other hand, the Cayman Islands radar, which operates with a dual horizontally and vertically-polarized beam, has been producing virtually clutter-free data. The CMO proposed to initiate a review of the data from the CMO Radar Network to determine which radars, if any, would benefit from an upgrade to dual-polarization in the future. Preliminary examination of the data suggests that the Belize radar could be one for future consideration after further study.

9.13 The Council:

Noted the status of the weather radars in the CMO Member States, including Jamaica's plan for radar modification;

Reiterated its call for the Meteorological Service operating radars to fully publicize their Websites; for all Services to provide a link on their Websites to relevant radars and composite loops, and to work towards the greater use of live radar data by regional television stations;

Urged Barbados to make a formal long-term commitment to the regional radar composite that it developed and to ensure its availability for contribution to the regional components of the *WMO Integrated Global Observing System (WIGOS)*;

Urged the urgent resolution of all technical issues for the proper operations of the regional radar composite and the access to radar data by special users, such as the US National Hurricane Center;

Supported the Headquarters' efforts to organize radar training under the SHOCS-II project;

Considered and **approved** the CMO Headquarters' proposal to establish an *Operational Radar Working Group*; and

Noted progress to determine which radars, if any, would benefit from an upgrade to dual-polarization in the future.

10. **CMO STRATEGIC AND OPERATIONAL PLANNING PROCESS**

10.1 The Council was informed that from mid-2014, the Secretariat of the Caribbean Community had been actively engaged in developing a Five-Year *Strategic Plan for the Caribbean Community 2015-2019 "Repositioning CARICOM."* The Strategic Plan for the Community 2015 - 2019 was in direct response to the need to target "...a narrow range of specified outcomes within specified timeframes, focusing on a few practical and achievable goals" in relation to the regional development agenda. This was particularly important given the Community's limited resources.

10.2 The CARICOM Plan identified seven Strategic Priorities for the Community over the five-year period, 2015-2019, and key areas of intervention for each. The Strategic Priorities are:

- Building Economic Resilience;
- Social Resilience;
- Environmental Resilience;
- Technological Resilience;
- Strengthening the CARICOM Identity and Spirit of Community;
- Strengthening Governance within CARICOM; and
- Enabling Resilience: Coordinated Foreign and External Relations and Research and Development and Innovation.

10.3 The CMO Headquarters and the CIMH were contributing to an agreed Framework and Implementation Plan to accompany the Strategic Plan, which included an attempt to link internal Strategic Plans and/or Work Programmes with Community Strategic Implementation Plan. The CMO headquarters and CIMH contributed primarily to "*Environmental Resilience*", as well as to "*Building Economic Resilience*" priorities.

10.4 Council recalled that, at its 54th session (Jamaica, November 2014), it requested the CMO Headquarters to develop a regional strategic plan for the meteorological community that would be linked to the Caribbean Community Strategic Implementation Plan. In parallel to the efforts led by the CARICOM Secretariat on the Community Plan, therefore, the CMO Headquarters developed its "**Operational Programme 2016-2019 - For the Enhancement of Meteorological and Hydrometeorological Services in CMO Member States**".

10.5 Council was informed that developing the Caribbean Community Strategic Implementation Plan was a time-consuming process, which was determined by the collective effort of all Caribbean Community institutions, including the CMO Headquarters and the CIMH, led by the Caribbean Community Secretariat. Due to the number of and sometimes diverse Community institutions, it was expected that regional consultations in connection with the Community Plan would take more than one year to be completed.

10.6 The Council:

Discussed the draft of the CMO Headquarters **Operational Programme 2016-2019**; and

Requested Members to **provide** guidance on any areas it deems necessary by mid-2016.

11. RELATIONS WITH OTHER BODIES

11.1 Council held a discussion on the fact that the Caribbean Meteorological Organization had a long history of collaborative relationships with meteorological agencies in non-CMO States within the region. It recognized that, for the most part, these had been ad-hoc based on specific activities of common interest. The CMO Headquarters presented a document to Council with a proposal to increase, improve and formalize the relationship and collaboration between the *Caribbean Meteorological Organization* and the *Meteorological Service of France* (Météo-France), through agreed Working Arrangements.

11.2 In its deliberation, Council looked closely at the past and existing collaboration and arrangements between Météo-France and the CMO. It noted that in the early 2000s, in arrangements with CMO, Météo-France funded and installed some automatic weather stations in a few CMO Member States. Météo-France collaborated quite extensively with CMO in the development phases of the current **CMO radar network**, culminating with the creation and operation of *regional weather radar composites*, which was based on a *Memorandum of Understanding* (MoU) between the two Organizations. Under that MoU, the six radars in CMO Weather Radar Network; namely, radars in Belize, the Cayman Islands, Jamaica, Barbados, Trinidad and Guyana, combined with French radars in Guadeloupe, Martinique and French Guiana to form the basic Caribbean radar composite.

11.3 Council recalled that CMO and Météo-France also collaborated, along with other French agencies, in the Caribbean Islands Component of the major **World Hydrological Cycle Observing System** Project of the WMO. The Caribbean Islands Component, called **Carib-HYCOS**, which was implemented between 2008 and 2012, involved CMO Members *Antigua and Barbuda, Barbados, Dominica, Jamaica, Saint Lucia* and *Trinidad and Tobago*, along with Guadeloupe and Martinique. The aim of Carib-HYCOS was the development of water resources information systems to assist Member countries to improve their water management, mitigate the impact of water-related disasters, such as floods and droughts, and contribute to regional and global studies of the impact of climate change on water resources. The CMO Headquarters and the Caribbean Institute for Meteorology and Hydrology (CIMH) supported Carib-HYCOS, particularly to ensure that the Hydrological Services of its Member States played an integral part in this important activity.

11.4 Council noted that more recently, collaboration between Météo-France and CMO had been going on under the **Carib Risk Cluster project** of the General Council of Martinique, funded by the European Union, under which a major component was the implementation of Météo-France's "**SHERPA intranet**" initiative. The collaboration between Météo France, CMO and the General Council of Martinique allowed National Meteorological Services in CMO Member States in the Eastern Caribbean access to and use of Météo-France's **SHERPA** as an operational monitoring and forecasting tool. In October 2013, Météo-France conducted a SHERPA workshop at the CIMH in Barbados, which was attended by staff of eight NMHSs in the region.

11.5. Council noted that, as discussed under Agenda Item 5, it was anticipated that Météo-France and the Meteorological Services in CMO Member States would be required to increase and improve operational collaboration through a WMO *Severe Weather Forecasting Demonstration Project*, which was being considered for the WMO Regional Association IV for North America, Central America and the Caribbean.

11.6 With that background, Council was informed that the CMO Headquarters and the Meteorological Service of France had been engaged in discussions and had agreed on the need to significantly strengthen and formalize regional collaboration and coordination in the many areas of common interest, for the mutual benefit of CMO Member States and the French West Indies and French Guiana. Both parties decided to seek the endorsement of their own Governing bodies to strengthen this collaboration through a set of formal Working Arrangements. Specifically, the Working Arrangements were intended to enable CMO and Météo-France, through their various operational organs, such as the CMO Headquarters in Trinidad and Tobago, the Caribbean Institute for Meteorology and Hydrology (CIMH) in Barbados, and the Inter-regional Directorate of Météo-France (Direction Interrégionale de Météo-France) in Martinique with its operational centres in Guadeloupe, French Guiana and Martinique, to collaborate closely on matters leading to improving the effectiveness of regional weather forecast and warning coordination, regional weather radar operations and other observing networks, and climate-related applications. Council recalled that a similar Working Arrangement was also the basis of the ongoing formal relationship between the CMO and WMO. Council was therefore asked to consider and endorse the formal Working Arrangements being proposed by the CMO and Météo-France, the text of which is shown in **ANNEX VI** to this document. A coordinated French language version is also shown in the **ANNEX**.

11.7. The Council discussed in detail the benefits of strengthening and formalizing regional collaboration and coordination between CMO and the Meteorological Service of France (Météo-France). **Council** therefore:

Endorsed the formal Working Arrangements being proposed by the CMO and Météo-France, as shown in the **ANNEX VI** to this document or subject to agreed modifications if necessary;

Authorized the Coordinating Director to formalize the agreed Working Arrangements, on behalf of the CMO, with the managing Directorate of Météo-France, through an exchange of letters between the President and Director-General of Météo-France and the Coordinating Director of CMO, or, if appropriate, with the joint signing of a single document; and

Requested the CMO Headquarters to make the concluded Working Arrangements available to the National Meteorological Services in CMO Member States and the CIMH.

12. OTHER PROJECTS AND PROPOSALS

(a) **Finland Initiative - Strengthening Hydrometeorological Operations and Services in the Caribbean (SHOCS-II)**

12.1 Council recalled that between the years 2001 and 2004, the Government of Finland funded the SIDS-Caribbean Project titled “*Preparedness to Climate Variability and Global Change in Small Islands States, Caribbean Region*”. This was followed by a *needs assessment and feasibility study project* entitled “**Strengthening Hydrometeorological Operations and Services in the Caribbean (SHOCS)**”. The Project was implemented by the Finnish Meteorological Institute (FMI) under the direction of the *Association of Caribbean States (ACS)*, in collaboration with WMO and CMO. The CMO served as a member of the Project Board, along with the ACS, WMO, the Caribbean Disaster Emergency Management Agency (CDEMA) and FMI.

12.2 The feasibility phase of SHOCS, called Phase I, was implemented between 2010 and 2012. A Phase II, called SHOCS-II, was formulated in 2013 as a two and a half-year project, with a budget of one Million Euros. The CMO Member States that participated in SHOCS-II were Antigua & Barbuda, Belize, Dominica, Grenada, Guyana, Jamaica, St. Kitts & Nevis, Saint Lucia and St. Vincent & the Grenadines. The other participating States were Cuba, the Dominican Republic, Haiti and Suriname. Council recalled that, regrettably, Barbados and Trinidad & Tobago, which participated in the early phases of SHOCS-I, were no longer eligible for assistance in SHOCS-II due to their development ranking by the *Organisation for Economic Co-operation and Development (OECD)*, which was used by the Government of Finland. The beneficiaries of the Project had been the National Meteorological and Hydrological Services (NMHS) and Disaster Management Agencies of the above States, along with the CIMH as a regional institution.

12.3 The Council noted that the SHOCS-II Project phase was officially due to close at the end of 2015. The Key outcomes of this project could be summarized as follows:

- Increased Capacity in the Caribbean on the development of methods for Multi-hazard Early Warning Systems and Disaster Risk Reduction:
 - The network of SmartMet weather forecast workstation and production systems was established, by installing systems in eight (8) new countries in the region;
 - A SmartAlert tool for issuing and disseminating weather warnings was piloted in three (3) countries.
- Increased capacity in developing Quality Management Systems (QMS):
 - Two inter-linked training workshops on QMS for Aeronautical Meteorological Services were organized in May and December 2013 with participation from altogether nineteen (19) Caribbean SIDS Meteorological Services/Offices.
- Increased capacity in communicating the weather to large audience and TV weather presentation:
 - Introduction to modern TV weather presentation technology was accomplished by the installation of TV weather presentation software in INSMET Cuba;
 - A TV weather presentation workshop was held in Havana in June 2015 for some forty (40) participants from sixteen (16) countries.
- Increased amount and quality of the observation data:

- Spares for non-working and old weather observation sensors were provided to eleven (11) countries.

12.4 Council was informed that a final meeting of the SHOCS-II Steering Committee, combined with a workshop with representatives of participating countries, had been scheduled take place in Barbados on 18 November 2015. The aim was to focus on drawing conclusions from the results of the SHOCS-II phase of the Project and to discuss the identified priorities for capacity building during a continuing SHOCS-III phase, which was expected to begin in 2016.

12.5 In this regard, Council noted that there would be approximately 160,000 Euros available for a Phase III. Council recalled that attempts had been made to undertake some radar training under the SHOCS-II Project. Logistical considerations made this difficult to achieve in 2015. However, discussions had taken place between the CMO Headquarters and the SHOCS-II project team to see if this activity could be carried out under SHOCS-III. Part of the consideration could be to combine radar training funded by SHOCS with other radar training. As an example, Belize had informed the CMO Headquarters of a NOAA-funded training event for radar-technicians, with training experts from the German radar supplier. Belize had offered to open the training to technicians from the other radar sites in the CMO Radar Network.

(b) Other CMO Project Proposals/Involvement

(i) Regional component of the WMO Integrated Global Observing System (WIGOS)

12.6 Under *Agenda Item 5*, Council was provided with the latest plans for implementation of the Region's component of the *WMO Integrated Global Observing System (WIGOS)*. WIGOS is an all-encompassing approach to the improvement and evolution of WMO's global observing systems. The implementation of WIGOS remains very closely related to the **WMO Information System (WIS)**, both of which were essential to all technical and scientific activities of Meteorological Services in the Caribbean and worldwide. Council recognized that the CMO Headquarters had a major regional and international role in the implementation of WIGOS and WIS. *Mr Glendell De Souza* of the CMO Headquarters was the regional Task Team leader. In this regard, CMO Headquarters activities in 2016 would be increased as WIGOS would be entering its **Pre-operational Phase (2016–2019)**.

(ii) Severe Weather Demonstration Project

12.7 Under *Agenda Item 5*, Council was also informed of WMO plans within the region to introduce a *Severe Weather Forecasting Demonstration Project (SWFDP)* for the region. The CMO Headquarters was already involved in the development of the conceptual phase of SWFDP. It was anticipated that, as described under *Agenda Item 11*, the ongoing collaboration between CMO and the Meteorological Service of France (Météo-France) under the **Carib Risk Cluster Project**, would involve the use of the Météo-France's "SHERPA" Intranet facility in the development by WMO of an SWFDP for the Eastern Caribbean, in the first instance. Council noted that the Management Group of the WMO Regional Association IV (North America, Central America and the Caribbean) was expected to approve the development of the SWFDP in early 2016.

12.8 The Council:

Noted the updated information on:

The Finland-funded Project for the *Strengthening Hydrometeorological Operations and Services in the Caribbean (SHOCS II)*, and

Other projects involving the CMO Headquarters.

13. ANY OTHER BUSINESS

Report of the Human Resource Committee

13.1 Council recalled that an ad-hoc Human Resource Committee was created by CMC54 (Jamaica, 2014). The Committee comprised Mr Denzil Jones (Montserrat, Chairman), Ms Vidiah Ramkhelawan (Trinidad and Tobago) and Mrs Corsel Robertson (St. Vincent and the Grenadines), with a mandate to look at the administrative procedures and processes at both CMO Headquarters and CIMH, particularly in relation to the recruitment, employment and retention of key post holders, such as the Co-ordinating Director of CMO and the Principal of the CIMH.

13.2 The Chairman presented the report of the Committee, which indicated that decisions taken in the past was unclear with respect to the Principal's employment terms and as such clarity should be sought.

13.3 **The Council:**

Mandated the Coordinating Director to refer the matter of the Principal's employment terms to the General Counsel of the CARICOM Secretariat for a legal opinion.

Representation at Council

13.4 The **Representative of Barbados** raised the issue of whether a person attending a meeting of the Caribbean Meteorological Council had the authority to enter into a binding decision which had implications for respective Governments, especially when that person's substantive position does not have that authority.

13.5 The **Representative of the CARICOM Secretariat** indicated that in the Secretariat, here were new rules which stated at the level of Caribbean Community Council, the representative of a country will be a Minister. If a Minister was unable to attend, then another representative can attend. However, the representative must have a Letter of Credentials provided by the Ministry of Foreign Affairs of the country. The Coordinating Director informed the Council that the directives in the past from the CARICOM Secretariat on this matter indicated that a country's official representative was whomever was officially designated to attend by the relevant ministry and that letters of credentials from the Ministries of Foreign Affairs were not necessary.

13.6 **The Council:**

Requested the CMO Coordinating Director to officially seek further clarification on the matter of Representation and Letters of Credentials from the CARICOM Secretariat.

14. DATE AND VENUE OF CMC56 (2016)

14.1 Council invited Member States to indicate their willingness to host the next session in 2016, after which Grenada made a tentative offer to host CMC56.

14.2 **The Council:**

Thanked the Government of Belize for hosting this 55th session and related meetings and for the warm hospitality extended and the excellent arrangements put in place for the conduct of the business of CMC55;

Expressed its thanks to the Chairs for their excellent conduct of the sessions.

Close of Meeting

14.3 There being no other business, the Meeting ended with an exchange of courtesies.

AGENDA

1. OPENING OF SESSION AND ELECTION OF CHAIRMAN
2. ADOPTION OF AGENDA AND PROCEDURAL MATTERS
3. CMO EXECUTIVE REPORTS
 - (a) Coordinating Director's Report
 - (b) CIMH Principal's Report
 - (c) CIMH Board of Governors' Report
 - (d) Membership of the CMO
4. STATUS OF ACTIONS FROM PREVIOUS SESSION
5. SPECIAL CMO AND WMO ISSUES
 - (a) Outcome/Highlights of the 17th **World Meteorological Congress**, 2015 and the 2015 Executive Council (EC) of the World Meteorological Organization
 - (1) New Strategic Plan and Priority Areas for 2016-2019
 - (2) Election results
 - (3) Budget and Financing for 2016-2019
 - (b) The Global Framework for Climate Services (GFCS)
 - Governance: *The Intergovernmental Board for Climate Services (IBCS)*
 - Status of RCCs & RCC Barbados "in demonstration phase"
 - GFCS Projects
 - WMO Policy for the International Exchange of Climate Data and Products to Support the Implementation of the GFCS
 - (c) WMO Integrated Global Observing System – Implementation Phase
 - (d) Aeronautical Meteorological Services – Priority Activities
 - (iv) Progress in the Implementation of Quality Management Systems (QMS)
 - (v) Staff Competency Standards and Training
 - (vi) Cost Recovery Issues
 - (e) Disaster Risk Reduction and Regional Severe Weather Forecasts and Warning Systems
 - Tropical Cyclone Programme
 - Regional Coordination and Severe Weather Demonstration Projects
 - Impact-based Weather Forecasts and Warnings

6. FINANCIAL REPORTS
 - (a) Status of Refundable Balances
 - (b) CMO HQ - Auditor's Report
 - (c) Statement of Contributions and Arrears (CMO HQ & CIMH)
 7. CMO BUDGETS (Headquarters Unit, CRN and Radar, CIMH)
 - (a) CMO HQ Budget Estimates for 2016
 - (b) CIMH Budget Estimates for 2016
 8. ANNUAL MEETING OF THE DIRECTORS OF METEOROLOGICAL SERVICES
 9. CMO WEATHER RADAR NETWORK
 - (a) Status and operations of CMO Radar Network Operations
 - (b) Operations of the Regional Radar Mosaic and other International obligations
 10. CMO STRATEGIC AND OPERATIONAL PLANNING PROCESS
 11. RELATIONS WITH OTHER BODIES
 12. OTHER PROJECT UPDATES AND PROPOSALS
 - (a) Finland Initiative - Strengthening Hydrometeorological Operations and Services in Central America and the Caribbean (SHOCS II) – Final Phase
 - (b) Other CMO Projects/Proposals
 13. OTHER MATTERS
 14. DATE AND VENUE OF CMC56 (2016)
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ANNUAL MEETING OF THE CARIBBEAN METEOROLOGICAL COUNCIL

BELIZE CITY, BELIZE

11TH -12TH NOVEMBER 2015

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WMO Resolution 60 (Cg-17)

WMO POLICY FOR THE INTERNATIONAL EXCHANGE OF CLIMATE DATA AND PRODUCTS TO SUPPORT THE IMPLEMENTATION OF THE GLOBAL FRAMEWORK FOR CLIMATE SERVICES

THE WORLD METEOROLOGICAL CONGRESS,

Noting:

- (1) Resolution 40 (Cg-XII) – WMO policy and practice for the exchange of meteorological and related data and products including guidelines on relationships in commercial meteorological activities,
- (2) Resolution 25 (Cg-XIII) – Exchange of hydrological data and products,
- (3) Resolution 16 (Cg-XVI) – Climate data requirements,
- (4) Resolution 48 (Cg-XVI) – Implementation of the Global Framework for Climate Services,
- (5) Resolution 1 (Cg-Ext.(2012)) – Implementation Plan of the Global Framework for Climate Services,
- (6) Resolution 2 (Cg-Ext.(2012)) – Establishment of the Intergovernmental Board on Climate Services,
- (7) Resolution XXII-6 – IOC Oceanographic Data Exchange Policy, adopted by the Assembly of the Intergovernmental Oceanographic Commission of the United Nations Educational, Scientific and Cultural Organization at its twenty-second session,
- (8) The *Abridged Final Report with Resolutions of the Sixty-fifth Session of the Executive Council* (WMO-No. 1118), Annex II – The role and operation of National Meteorological and Hydrological Services – A Statement by the World Meteorological Organization,

Recalling:

- (1) That the World Meteorological Congress at its extraordinary session in 2012 had adopted the Implementation Plan of the Global Framework for Climate Services (GFCS) for the subsequent consideration of the Intergovernmental Board on Climate Services,
- (2) That the vision of the Framework is 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,
- (3) That of the eight principles for the implementation of the Framework, principles 2, 4, 5 and 6 state that:
 - (a) The primary goal will be to ensure greater availability of, access to and use of enhanced climate services for all countries,
 - (b) Climate services must be operational and continuously updated,
 - (c) Climate information is primarily an international public good provided by governments, which will have a central role in its management,
 - (d) It will promote the free and open exchange of climate-relevant data, tools and scientifically based methods while respecting national and international policies,

- (4) That WMO, and its constituent bodies, play an essential role in the establishment and maintenance of systems for the rapid exchange of meteorological and related information,
- (5) That Resolution 1 (Cg-Ext.(2012)) urges governments to strengthen national, regional and global capabilities to collect, rescue and exchange data and products, to generate climate information and products, and to provide climate services to enhance decision-making through implementation of a framework for climate services at the national level,
- (6) That WMO Resolution 40 (Cg-XII) recognizes:
 - (a) The basic responsibility of Members and their National Meteorological or Hydrometeorological Services (NMSs) to provide universal services in support of safety, security and economic benefits for the peoples of their countries,
 - (b) The dependence of Members and their NMSs on the stable, cooperative international exchange of meteorological and related data and products for discharging their responsibilities,
 - (c) The continuing requirement for Governments to provide for the meteorological infrastructure of their countries,
 - (d) The continuing need for, and benefits from, strengthening the capabilities of NMSs, in particular in developing countries, to improve the provision of services,
 - (e) The dependence of the research and education communities on access to meteorological and related data and products,

Recalling further the terminology defined in Annex 4 to WMO Resolution 40 (Cg-XII):

- (1) “Free and unrestricted” means non-discriminatory and without charge,
- (2) “Without charge”, in the context of Resolution 40 (Cg-XII) means at no more than the cost of reproduction and delivery, without charge for the data and products themselves,
- (3) Products are developed from geophysical (meteorological, oceanographic and so forth) observational data acquired and produced by Members to support WMO programme requirements,

Considering:

- (1) That the present resolution will apply only to meteorological, hydrological and climatological data and products, including related environmental data and products, developed or acquired under WMO auspices and required to support the implementation of the Framework, hereinafter referred to as GFCS relevant data and products,
- (2) The fundamental importance of the free and unrestricted exchange of GFCS relevant data and products among Members to facilitate the implementation of the Framework and 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,

- (3) That the role of the WMO World Data Centres (WDCs), Global Producing Centres for Long-range Forecasts (GPCLRFs), Regional Climate Centres (RCCs), Regional Climate Outlook Forums (RCOFs) and the International Council for Science (ICSU) World Data System (WDS) in the provision of consolidated global and regional GFCS relevant data and products, as well as the framework of the Global Climate Observing System (GCOS) Essential Climate Variables (ECVs) (Atmospheric, Oceanic and Terrestrial), results in a substantial contribution of WMO to the Framework, in particular through the GFCS Climate Services Information System (CSIS),
- (4) The WMO Statement on the role and operation of National Meteorological and Hydrological Services (NMHSs) in relation to their role in the provision of national GFCS relevant data and products in furthering applications of meteorology, climatology and hydrology and water resources management to all human activities, and in their role in the Framework at the national, regional and, in some cases, global levels,
- (5) The importance of the contribution of other GFCS partner organizations and the role these organizations can play in support of the goals and objectives of the Framework,
- (6) The priority areas (health, disaster risk reduction, agriculture and food security, water and energy) for the implementation of the Framework and the GFCS relevant data related requirements of these priority areas as identified in the annexes to the Implementation Plan of the Global Framework for Climate Services,

Recognizing:

- (1) The need for increased access to different types of GFCS relevant data and products to support the GFCS Implementation Plan, in accordance with Resolution 1 (Cg-Ext. (2012)),
- (2) The importance of access to reliable, relevant and timely data and products in supporting resilience to climate variability and change and underpinning sustainable development as espoused at various international forums, such as the United Nations Conference on Sustainable Development (Rio +20), and the meetings of the Conference of the Parties of the United Nations Framework Convention on Climate Change, the Third United Nations World Conference on Disaster Risk Reduction and the planned General Assembly of the United Nations that will adopt the post-2015 sustainable development goals,
- (3) That increased availability of, and access to, GFCS relevant data, especially in data-sparse regions, can lead to better quality and will create a greater variety of products and services,
- (4) That increased use of reliable climate products and stronger collaboration between providers and users can lead to improved climate-smart decisions, including those decisions relevant to climate change issues,
- (5) The successful experience gained by Members in the development and implementation of Resolutions 40 (Cg-XII) and 25 (Cg-XIII),

Recognizing further:

- (1) The rights of governments to choose the manner by and the extent to which they make their GFCS relevant data and products available domestically and for international exchange, taking into consideration relevant international instruments and national policies and legislation,
- (2) The obligation of users of GFCS relevant data and products to respect the conditions of use set by the owners of the data and products, such as attribution or compensation, to facilitate access to the data and products,

- (3) That different NMHSs have different business models and that some of these are predicated on cost recovery from the users, including the private sector, of data and products as a means of supporting the costly infrastructure necessary for generating such data and products,
- (4) The significant and increasing levels of resources being allocated internationally for implementation of activities consistent with, and supportive of, the objectives of the GFCS,

Decides:

- (1) To adopt the policies and practices, including the guidelines, of Resolution 40 (Cg-XII) and Resolution 25 (Cg-XIII) for the exchange of GFCS relevant data and products to enable the achievement of the goals and objectives of the Framework;
- (2) That the climate data and products covered by Resolution 40 (Cg-XII) and the GFCS relevant data and products subsumed under Resolution 25 (Cg-XIII) will continue to be governed by these resolutions;
- (3) That the GFCS relevant data and products from the WMO WDCs, GPCLRFs, RCCs, RCOFs and the ICSU WDS, as well as from the framework of the GCOS ECVs (Atmospheric, Oceanic and Terrestrial), will constitute an essential contribution to the Framework and therefore should be made accessible among Members, in particular through the GFCS CSIS, on a free and unrestricted basis;

Urges Members:

- (1) To provide the additional GFCS relevant data and products that are required to support and sustain the operational climate services as the core element of the Framework and WMO initiatives at the global, regional and national levels and, further, as mutually agreed, to assist other Members to enhance access to GFCS relevant data and products and in the provision of climate services in their countries; such additional GFCS relevant data and products are listed in the annex to the present resolution and could have conditions associated with their use, such as restrictions on their use for commercial purposes, attribution of their source or licensing;
- (2) To establish funding mechanisms, including new investments, for sustaining the network of stations and sensors needed for the global observing systems for climate, and also the maintenance and operation of the data preparation and management systems necessary to support the implementation of the present resolution;

Further urges Members:

- (1) To strengthen their commitment to the free and unrestricted exchange of GFCS relevant data and products;
- (2) To increase the volume of GFCS relevant data and products accessible to meet the needs for implementation of the Framework and the requirements of GFCS partners;
- (3) To make use of the WMO Information System (WIS) for the exchange of GFCS relevant data and products among Members;
- (4) To promote the central role that NMHSs play at the national, regional and, in some cases, global levels in the provision of information, in particular to the WIS;
- (5) To provide the related metadata as defined by WIS and WMO Integrated Global Observing System standards;

- (6) To strengthen their support to the WMO WDCs, GPCLRFs, RCCs, RCOFs, the ICSU WDS, as well as the framework of the GCOS ECVs, in the collection and supply to and by these centres of GFCS relevant data and products on a free and unrestricted basis;
- (7) To implement the practice on the international exchange of GFCS relevant data and products, as described in Decides (1) to (3) above;
- (8) To inform all third parties of any terms and conditions associated with the additional GFCS relevant data and products, including their related metadata, such as ownership and attribution;
- (9) To make best efforts to ensure that users and subsequent users are aware of the conditions of use of the additional GFCS relevant data and products, particularly regarding their redistribution;

Requests the Intergovernmental Board on Climate Services:

- (1) To apply the present resolution in the context of the implementation of the Framework;
- (2) To consider the GFCS relevant data and products that are needed under the auspices of WMO to contribute to the Framework and make recommendations in this respect to the Executive Council for its consideration;
- (3) To strengthen effective coordination with GFCS partners, including the Food and Agriculture Organization of the United Nations, the World Food Programme, the World Health Organization, the United Nations Office for Disaster Risk Reduction, the United Nations Educational, Scientific and Cultural Organization including its International Oceanographic Commission, the United Nations Development Programme, the United Nations Environment Programme, and other relevant international organizations;
- (4) To encourage GFCS partners to adopt similar policies and practices concerning the free and unrestricted exchange of their relevant data and products in support of GFCS implementation;
- (5) To consider and recommend to the World Meteorological Congress how third-party data and products could be treated in the context of the implementation of the present resolution;

Requests the Executive Council:

- (1) To invite the president of the Commission for Climatology and the president of the Commission for Basic Systems, in collaboration with other technical commissions, to provide advice and assistance on the technical aspects of implementation of the present resolution and ensure that appropriate standards are identified, implemented and maintained;
- (2) To task the technical commissions, as appropriate, to regularly review and update the GFCS relevant data and products to be provided by the global and regional climate centres, with a view to increasing the access to and availability of GFCS relevant data and products;
- (3) To take into consideration the views of the Intergovernmental Board on Climate Services with respect to the issues that may arise with the implementation of the present resolution;
- (4) To monitor the implementation of policies and practices of the present resolution and, if necessary, make proposals in this respect to the Eighteenth World Meteorological Congress;

- (5) To take into consideration the recommendations by the Intergovernmental Board on Climate Services with regard to its needs for GFCS relevant data and products developed or acquired under WMO auspices and, if necessary, make proposals to the World Meteorological Congress for changes to the annex to the present resolution;
- (6) To foster initiatives:
 - (a) That enhance the capabilities of Members, especially least developed countries and developing countries, to provide, deliver and improve access to GFCS relevant data and products to adequately respond to user needs and to enable their use in decision-making by all relevant societal sectors;
 - (b) That support Members in the implementation of the present resolution, especially those that are most vulnerable to climate-related hazards;

Requests the Secretary-General:

- (1) To undertake a global survey, to the extent possible within the resources available, and analysis of the various data policies and models of service provision of Members, for example, cost recovery and public services, identifying successful strategies and best practices that can assist NMHSs in making the case to their governments and partners for establishing funding mechanisms, including new investments, for sustaining the network of stations and sensors needed for the global observing systems for climate, and also the maintenance and operation of the data preparation and management systems, necessary to support the implementation of the present resolution;
- (2) To promote and fully disseminate this policy to all Members to facilitate the exchange of GFCS relevant data and products among related national institutions responsible for meteorological or hydrological activities to enhance the provision of climate services at the national level;
- (3) To bring the present resolution to the attention of Members, WMO WDCs, RCCs, GPCLRFs, the ICSU WDS, GFCS partners and other international organizations and entities involved in supporting and financing GFCS implementation;
- (4) To make known to all Members those GFCS relevant data and products that have conditions on their use;
- (5) To implement a process for monitoring the accessibility and exchange of GFCS relevant data and products under the present resolution.

Annex to WMO Resolution 60 (Cg-17)

GLOBAL FRAMEWORK FOR CLIMATE SERVICES RELEVANT DATA AND PRODUCTS THAT SHOULD BE EXCHANGED AMONG MEMBERS TO SUPPORT THE IMPLEMENTATION OF THE FRAMEWORK

Purpose

The purpose of this listing of GFCS relevant data and products is to identify a set of data and products which Congress considers necessary to enable society to manage better the risks and opportunities arising from climate variability and change for all nations, especially for those who are most vulnerable to climate-related hazards.

Contents

In addition to the climate data and products provided under Annex 1 to Resolution 40 (Cg-XII), as well as the GFCS relevant data and products subsumed within the general designation of hydrological data and products in Resolution 25 (Cg-XIII), and in addition to all data and products that are already available on a free and unrestricted basis, the following types of data and products are considered necessary for the implementation of GFCS:

- (1) Historical climate time-series from the Regional Basic Climate Networks (RBCNs), the GCOS Upper-Air Network and GCOS Surface Network at a temporal and spatial resolution necessary to resolve the statistics of climate, including trends and extremes;
 - (2) Essential climate variables for the ocean (full depth) (as defined by the GCOS Implementation Plan);
 - (3) Climate relevant coastal interface data, in particular sea level, waves and storm surges;
 - (4) Data on the composition of the atmosphere including aerosols;
 - (5) Climate relevant satellite data and products;
 - (6) Climate relevant cryospheric data, in particular snow cover, snow depth, glacial monitoring, permafrost and lake and river ice.
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THE CARIBBEAN METEOROLOGICAL ORGANIZATION (CMO)
AND
THE METEOROLOGICAL SERVICE OF FRANCE (METEO-FRANCE)
HAVE AGREED UPON THE FOLLOWING WORKING ARRANGEMENT:

- (1) CMO and Météo-France agree to act in close cooperation and to consult with each other regularly with regard to matters of common interest within the Caribbean area and the Guianas area of South America in the field of meteorology and climate.
- (2) Such cooperation shall be set up particularly for the purpose of effective coordination of activities and procedures relating to meteorological programmes of CMO and Météo-France within the areas of interest. This is with a view to ensuring optimum benefits for meteorological and hydrological operations and research, and maximizing the benefits from the application of these programmes in areas such as weather forecasts, early warnings, natural disaster reduction, climate, agriculture, water resources management, air, land and sea transportation, tourism, and environmental protection.
- (3) CMO and Météo-France will consult each other and collaborate closely in the implementation of regional aspects of programmes of the World Meteorological Organization (WMO) in such areas where a common interest has been demonstrated.
- (4) Specifically, CMO and Météo-France, through their various operational organs, such as the CMO Headquarters in Trinidad and Tobago, the Caribbean Institute for Meteorology and Hydrology (CIMH) in Barbados, and the Inter-regional Directorate of Météo-France (Direction Interrégionale de Météo-France) in Martinique with its operational centres in Guadeloupe, French Guiana and Martinique, will collaborate closely on matters leading to improving the effectiveness of regional weather forecast and warning coordination, regional weather radar operations and other observing networks, and climate-related applications.
- (5) Météo-France and CMO agree to keep each other informed concerning all new programmes of work and projected activities in which there may be mutual interest.
- (6) Météo-France and CMO agree to invite the participation of each Organization, as observers, in the sessions and meetings of the other Organization which relate to items of common interest.
- (7) Météo-France and CMO will keep, as appropriate, their respective governing bodies informed of cooperative activities undertaken pursuant to this working relationship.

The above points set out the general framework of the Working Arrangement between CMO and Météo-France, the details of cooperation in specific fields and cases being left to further agreement.

This Working Arrangement shall enter into force upon the last date of signature of the parties and may be amended or terminated by mutual agreement of the Governing bodies of the Organizations.

PROJET

**L'ORGANISATION METEOROLOGIQUE DE LA CARAÏBE (CMO)
ET
LE SERVICE METEOROLOGIQUE FRANCAIS (METEO-FRANCE)
SONT CONVENUS DES MODALITES DE TRAVAIL SUIVANTES:**

- (8) La CMO et Météo-France conviennent d'agir en étroite coopération et de se consulter régulièrement sur des sujets d'intérêt commun concernant la région Caraïbe et les régions guyanaises d'Amérique du sud dans le domaine de la météorologie et du climat.
- (9) L'instauration de cette coopération visera tout particulièrement à établir une coordination efficiente des activités et des procédures relatives aux programmes météorologiques de la CMO et de Météo-France dans les régions concernées. Elle aura pour objectif, de permettre aux deux entités de tirer le meilleur parti et bénéfices possibles dans les domaines météorologiques opérationnels et des études et de la recherche appliquée. Elle favorisera également la maximisation des avantages résultant de l'application de ces programmes pour les prévisions météorologiques, les systèmes d'alertes précoces, la mitigation des risques naturels, le climat, l'agriculture, la gestion des ressources en eau, les transports aériens, maritimes et terrestres, le tourisme et la protection de l'environnement.
- (10) CMO et Météo-France se consulteront et collaboreront étroitement dans la mise en œuvre, à l'échelle régionale des programmes de l'Organisation Météorologique Mondiale (OMM), dans les domaines d'intérêt commun.
- (11) Plus spécifiquement, la CMO et Météo-France, par l'intermédiaire de leurs différents organismes opérationnels, tels que le siège de la CMO à Trinité-et-Tobago, l'Institut de météorologie et d'hydrologie des Caraïbes (CIMH) à la Barbade et la Direction Interrégionale de Météo-France Antilles-Guyane à la Martinique, travailleront en étroite collaboration sur des sujets destinés à améliorer l'efficacité des prévisions météorologiques, de la coordination des alertes, du fonctionnement des réseaux d'observations tels que les radars ou autres équipements et des applications dans le domaine du climat.
- (12) Météo-France et la CMO conviennent de se tenir mutuellement informés de tout nouveau programme de travail et de tout projet d'activité susceptibles de présenter un intérêt mutuel.
- (13) Météo-France et la CMO conviennent d'inviter chaque organisation à participer, en tant qu'observateur, aux sessions ou réunions de l'autre organisation lorsqu'il s'agit de sujets d'intérêt commun.
- (14) Le cas échéant, Météo-France et la CMO tiendront leurs organismes dirigeants respectifs informés des activités menées en coopération et entreprises dans le cadre de cette relation de travail.

Les points mentionnés ci-dessus précisent le cadre général des modalités de travail établies entre la CMO et Météo-France, les détails de la coopération dans des domaines et dans des cas spécifiques devant faire l'objet d'accords ultérieurs.

Ces modalités de travail entreront en vigueur dès la dernière date de signature par les parties, et pourront être modifiées ou résiliées par accord mutuel des organismes dirigeants de ces organisations.

