C A R I B B E A N

M E T E O R O L O G I C A L

O R G A N I Z A T I O N

**CARIBBEAN METEOROLOGICAL COUNCIL** **Doc. 6**

FIFTY-SIXTH SESSION

St. George's, GRENADA, 10-11 NOVEMBER 2016

##### SPECIAL CMO AND WMO ISSUES

(Submitted by the Coordinating Director)

**Introduction**

1. This document is designed to keep the Council informed on significant regional or international issues of special interest to the CMO. Some of these, particularly those emanating from the World Meteorological Organization (WMO) or other relevant organizations, will require decisions or actions by Council to ensure that CMO Member States understand their roles and adhere to commitments and requirements. Some other items will likely be presented verbally. The Agenda item covers primarily the following topics:

1. Outcome/Highlights of the 2016 Executive Council (EC) of the World Meteorological Organization
2. WMO Integrated Global Observing System – Pre-Operational Phase
3. Implications of the new Geostationary Satellites for CMO Member States
4. The Global Framework for Climate Services (GFCS)
5. Important issues for the 16th session of WMO Commission for Basic Systems
6. Aeronautical Meteorological Services – Priority Activities
7. Progress in the Implementation of Quality Management Systems (QMS)
8. Status of Aeronautical Meteorological Forecaster Qualifications
9. Disaster Risk Reduction and Regional Severe Weather Forecasts and Warning Systems

- Tropical Cyclone Programme

- Regional Coordination and Severe Weather Forecast Demonstration Projects

1. The 2017 session of the WMO Regional Association and the Members input into the 2017-2020 Strategic and Operational Plan.

**6(A): Outcome/Highlights of the 2016Executive Council (EC) of the World Meteorological Organization**

2. The 68th session of the WMO Executive Council was held at the Headquarters of the World Meteorological Organization in Geneva from 15 to 24 June 2016. It was chaired by the President of WMO, *Mr David Grimes* of Canada. The Executive Council (EC) is the executive body of the Organization, which meets annually, implements decisions of the supreme body – the WMO Congress - coordinates the Programmes, decides on the allocation of budgetary resources, provides guidance and takes action on recommendations of Regional Associations and Technical Commissions and on matters affecting international meteorology and related activities.

3. The Coordinating Director of the CMO is a member of the WMO Executive Council, having been first elected in 1999 and then serving as the Second Vice-President of the WMO for the maximum two terms between 2003 and 2011. The Coordinating Director was accompanied to this session by a team of advisers and experts, comprising *Dr. David Farrell*, Principal of the CIMH, *Mr Glendell De Souza,* Science & Technology Officer at the CMO Headquarters and *Mr John Tibbetts,* Director General of the Cayman Islands National Weather Service (BCT).

4. This 2016 session of the Executive Council was its first full session since the 17th WMO Congress of 2015. It began the implementation process for the programmes set out by Congress, particularly the seven priorities for the period 2016-2019, which are:

1. Further enhancement of WMO’s ***Disaster Risk Reduction*** (DRR) programmes and activities to improve the accuracy and effectiveness of impact-based forecasts and multi-hazard early warnings of high-impact hazards;
2. Implementation of the **Global Framework for Climate Services** GFCS, particularly for countries that lack adequate climate services;
3. Strengthen the global observing systems through full and mandatory implementation of the **WMO Integrated Global Observing System** (WIGOS) and the ***WMO Information System*** (WIS);
4. Improve the ability of National Meteorological Services to provide sustainable high quality **Aviation Meteorological Services**;
5. Improve operational meteorological and hydrological monitoring, prediction and services in **Polar and high mountain regions** (“Third Pole”);
6. ***Capacity Development*** for developing and least developed countries aimed at the delivery of improved weather, water and climate predictions;
7. Improving the **Governance of WMO** based on a strategic review of WMO structures, operating arrangements and budgeting practices.

5. The WMO Executive Council made several decisions that affect CMO Member States on the seven priorities above and other related matters, with greater details provided on some of these in the sections below. The Executive Council also held a dialogue with senior representatives of private weather enterprises devoted to cooperation between the public and private sectors. In the dialogue, the need to maintain the role of the NMHS in Member States as the single authoritative source of warnings and an official source of weather, climate and hydrological information services was made clear, whilst the public sector was encouraged to collaborate with and harness the innovation and technology of the rapidly growing private weather-services sector.

6. During the 2015 WMO Congress, a new Secretary-General, *Prof Petteri Taalas* of Finland, was elected for the period 2016-2019. At this 68th session of the Executive Council, the composition of the Executive Management structure of the Organization was completed with the appointments of *Dr. Elena Maneankova* of the Russian Federation as the new Deputy Secretary-General and *Dr. Wenjian Zhang* of China as the new Assistant Secretary-General. Dr. Maneankova has been the WMO Assistant Secretary-General since 2010, while Dr. Zhang was previously the Director of WMO’s *Observing and Information Systems Department* and of the *WMO Space Programme*. The new Executive Management is shown in the photo below, with Prof. Taalas in the centre. In addition, a vacancy was created among the Officers of the Organization as *Mr Abdalah Mokssit* of Morocco resigned as the WMO Third Vice-President to take up the appointment as the Secretary of the *Intergovernmental Panel on Climate Change* (IPCC), the Secretariat of which is housed within the WMO building in Geneva.

7. The 17th WMO Congress in 2015 made a decision to organize in 2017, an International Conference on Socioeconomic Benefits of Meteorological and Hydrological Services, a decade after the “International Conference on Secure and Sustainable living: Social and Economic Benefits of Weather, Climate and Water Services” was held in Madrid, Spain in 2007. That Conference produced the Madrid Action Plan (MAP), which set out a comprehensive strategy for enhancement of the applications and benefits of meteorological and hydrological services. It is recommended that CMO Member States take note of this development and make efforts to participate as appropriate.



6(B) WMO Integrated Global Observing System – Pre-Operational Phase (2016-2019)

8. Council will recall its 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.

9. Considering that the key initial building blocks of the WIGOS Framework were all in place by the end of 2015, the WMO Congress decided that WIGOS would move into a *Pre‑operational Phase* from 2016 to 2019. This meant that the global level preparatory work had moved toward implementation activities at the regional and national levels. The goal therefore is to have WMO Member States and their partners benefit from a fully operational system from 2020.

10. A detailed plan for the WIGOS Pre-operational Phase has been developed by the Inter-Commission Coordination Group on WIGOS (ICG/WIGOS) and was approved by the 68th Session of the Executive Council.Training on various WIGOS tools have already been provided to Member States to work for the full implementation of WIGOS. One example, for which CMO Members received training,is the tool called “*OSCAR/Surface*”that isto be used by the Member States to review/update/insert the metadata of their observing systems into the global database. It could also be used as a tool to support their ownnational activities.

11. The concept for regional WIGOS Centres has been developed and endorsed by EC-68. It includes as mandatory functions, the WIGOS metadata management and a WIGOS Data Quality Monitoring System. A draft concept for a virtual Centre has also been developed for regional consideration. The WIGOS framework calls for a more integrated view of WMO observing systems to serve the need of multiple application areas. This implies the need to redefine the Regional Basic Synoptic and Climatological Networks (RBSN, RBCN). The CMO Headquarters participated in aMay 2016 workshop to develop a draft concept for the new Regional Basic Observing Network (RBON)to replace the existing RBSN and RBCN networks. This will be further discussed and elaborated on at the coming CBS-16 session, as well as during Regional Association sessions, before being presented to the Executive Council.

6(C) Implications of the new Geostationary Satellites for CMO Member States

12. Council will recall that, at its 55th session in 2015, it discussed the pending launch of the new Geostationary Operational Environmental Satellite - R Series (**GOES-R**). GOES-R is the next generation of geosynchronous environmental satellites that will provide atmospheric and surface measurements of the Earth’s Western Hemisphere for weather forecasting, severe storm tracking, space weather monitoring and meteorological research. The launch from Cape Canaveral in Florida was set for 4 November 2016, but had to be rescheduled along with all other November launches, due to the passage near the Cape of Hurricane Matthew. The latest date is 16 November.

13. GOES-R will mark a massive technological advance in geostationary observations. National Weather Services will have unprecedented new capabilities that allow for a wide range of forecast improvements.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.

14. The lightning mapping capability will allow forecasters to track lightning over the entire hemisphere, almost instantaneously. This is important because intensification in lightning activity may indicate a storm is becoming increasingly severe.

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

16. 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. Personnel from the CMO Headquarters and the CIMH are part of WMO technical teams specifying the regional system needs and data sets to be provided by the satellite, and have been advising CMO Member States on their procurement and training needs.

6(D) TheGlobal Framework for Climate Services (GFCS)

17. The Council will recall its discussions on 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. 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.

18. The priority areas for the GFCS are (i) Agriculture and food security (ii) Disaster risk reduction, (iii) Energy (iv) Health and (v) Water. The GFCS is, at the moment, being implemented through eight global projects, many with an emphasis on developing countries and Small Island Developing States. One such national project in the Caribbean is "*Climate Services to Reduce Vulnerability in Haiti*". Several of the GFCS Projects involve or would involve the CIMH. For example, the"*Programme for Implementing the Global Framework for Climate Services (GFCS) at Regional and National Scales*" is funded by a grant from Canada to implement GFCS in the Pacific, the Caribbean, South Asia and the Arctic. This will be achieved by providing improved climate information, predictions, products and services to support climate risk management and adaptation strategies, decision making and actions at national and regional levels.

19. A very important contribution to the implementation of the *GFCS* is the global network of WMO *Regional Climate Centres* (RCC). In this regard, Council will recall that since 2013, the CIMH had been functioning as a *WMO Regional Climate Centre “in demonstration phase*” for the Caribbean. The future status of this RCC matter is discussed in section **6(E)** below.

20. At its 55th session, the Council discussed the fact that a very important aspect with regard to the GFCS implementation was a WMO policy resolution on climate data. Council was provided with the full WMO resolution on this matter, in which all CMO Member States are required to comply with.

6(E) Important issues for the 16th session of WMO Commission for Basic Systems (CBS-16)

21. The WMO ***Commission for Basic Systems***(CBS) is the WMO Commission with a leading role in the development, implementation and operation of integrated technical systems and infrastructure in support of all WMO Programmes and priority areas. CBS oversees the global development, implementation and operation of integrated systems for observing, data processing, data communication and data management. CBS guides the work of the World Weather Watch, Public Weather Services and WMO Space Programmes. The sixteenth session of the Commission will take place in Guangzhuo, China from 23-29 November 2016. CBS-16 will make decisions on strategies for future development of these programmes and on its working structure and it will make recommendations for amendments to WMO technical regulations. Key topics that have implication for the National Meteorological Services in CMO Member States include the following, with details of some given separately below:

* *Global Data Processing and Forecasting System (GDPFS) and WMO Regional Climate Centres (RCC)*:

22. The *Global Data-processing and Forecasting Systems* (GDPFS) is set up to prepare and make meteorological analyses and forecast products available to Member States in the most cost-effective way. The design, function, organizational structure and operations of the GDPFS is done in accordance with Members' needs and their ability to contribute to and benefit from the system. CBS, which oversees the GDPFS, will take decisions on the development of the seamless nature of the GDPFS, including recommendations for the Manual and Guide on the GDPFS. CBS, through the GDPFS, strongly supports the implementation of the *Global Framework for Climate Services* (GFCS). An integral component of the GDPFS, in this regard, is a network of WMO-designated ***Regional Climate Centres*** (RCCs).

23. The WMO RCCs are *Centres of Excellence* that create regional products including long‑range climate forecasts that support regional and national activities and thereby strengthen capacity of WMO Members in a given region to deliver the best climate services to national users. RCCs are designated and controlled by the WMO *Commission on Climatology* (CCl) in conjunction with CBS and in close collaboration with the WMO Regional Associations. An important function of CBS sessions is therefore the completion of the process of WMO designation of RCC, after the consideration of CCl.

24. The Caribbean Meteorological Council will recall that since 2013, the CIMH has been functioning as a *WMO Regional Climate Centre “in demonstration phase*” for the Caribbean. The CIMH and the CMO Headquarters are satisfied that the Caribbean RCC in Barbados is ready for full operational designation. A formal application to WMO was made by the CMO Headquarters through the President of the WMO Regional Association IV, for this designation. After a series of reviews by CCl Expert Teams, the matter will be brought to CBS-16 for a decision on the operational status and formal recognition of CIMH as an RCC for the Caribbean. As part of the process, CIMH will have to demonstrate its capabilities to the full CBS-16 session. The CMO Headquarters, the CIMH and the entire region are expecting formal recognition at CBS-16.

* *WMO Integrated Global Observing System (WIGOS) and the WMO Information System (WIS*):

25. In addition to material discussed in section 5(B) above, other key WIGOS Pre-Operational Phase activity areas for CBS-16 will include the review of new WIGOS Regulatory Material, particularly (i) Recommendations on the Manual on WIGOS and the Guide to WIGOS and (ii) Recommendations for the Manual on Codes. In addition to decisions on the technical architecture of WIS and the review of technical documentation, CBS-16 will also undertake major discussions on the emerging trends in big data and their use. Because of the importance of this relatively new topic, CBS-16 will be preceded by a CBS *Technical Conference 2016 on* "*Emerging Trends in Information and its Use*".

* *Election of CBS Officers*

26. The WMO Technical Commissions usually meet once every four years, except for the Commission for Basic Systems, which holds an extraordinary session in between. The President and Vice-President of each Commission areelected at these main sessions. This will be the case at CBS-16. The currentPresident of CBS is *Mr Fredrick Branski*of the USA, who has served the maximum two terms, while the Vice-President of CBS is *Dr. Sue Barrell* of Australia. By October 2016, the only declared candidates were *Mr Michel Jean* of Canada for the post of President of CBS and *Dr. Jochen Dibbern* of Germany and *Ms Meiyan Jiao* of China for the post of Vice-President of CBS. All of these candidates have been active on CBS working groups.

6(F) Aeronautical Meteorological Services – Priority Activities

27. The Caribbean Meteorological Council will recall that, for several years, it has 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 is 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 is the requirement for **Staff Competency Standards and Training.**

28. The National Meteorological Services in most CMO Member States have been making some progress towards implementation of a QMS for aeronautical meteorology, but the overall pace of progress is still somewhat difficult to fully ascertain. During 2016, a number of Meteorological Services reported back to WMO on their compliance with staff competency standards and training for their Aeronautical Meteorological Observers (AMO) and Aeronautical Meteorological Forecasters (AMF). Those that have not yet done so are urged to inform WMO as soon as possible on their status of their implementation of the competency and qualification requirements, noting that the entry into force of the WMO standard on required qualifications for the Forecasters (AMF) is 1 December 2016.

6(G) Disaster Risk Reduction and Regional Severe Weather Forecasts and Warning Systems

29. At its 55th session in Belize, 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, will always be the primary priority areas for any National Meteorological and Hydrometeorological Service (NMHS). Council will be pleased to know that the aims of the *Sendai Framework for Disaster Risk Reduction 2015-2030,* which was adopted at the Third UN World Conference in Sendai, Japan in March 2015, are very much in keeping with regional programmes and activities in disaster risk reduction, not only within the meteorological community, but also with disaster management agencies and related stakeholders. A pdf version of the Sendai Framework can be obtained from *www.preventionweb.net/files/43291\_sendaiframeworkfordrren.pdf.*

30. Council is aware that activities within the WMO *Tropical Cyclone Programme* (TCP) are among the most important to the Caribbean and other tropical basins. This is recognized by the Sendai Framework, 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. The most critical regional activity under the TCP is the WMO *Hurricane Committee*, serving the *North Atlantic and Caribbean Basin*. The Hurricane Committee has at its core, *the US National Hurricane Center*, which is one of WMO’s primary*Regional Specialized Meteorological Centres* (RSMCs) for tropical cyclones. Most Meteorological Services in CMO States are represented on the Hurricane Committee which, along with the relevant regional and national disaster management community, work continuously towards the reduction of disaster risks by tropical cyclones, particularly in terms of loss of lives.

31. The warning system in the North America, Central America and the Caribbean region (WMO Region IV) specifies the areas of responsibility of each Member State in the provision of forecasts and warnings for all types of weather, including tropical cyclones. Therefore, in addition to the provision by the RSMC of guidance tropical cyclone track and intensity forecasts to the NMHSs in Member States and Territories, the Tropical Cyclone Programme has a focus on improving and enhancing regional coordination and collaboration among individual Members to help them deliver improved tropical cyclone forecasting and warning services to their countries.

32. It must be recognized that there will always be areas that could be improved in any warning system. This is particularly true when one considers that many episodes of severe weather and thus potential natural disasters may not always be the result of a tropical cyclone. In November 2015, Council therefore endorsed a proposal being pursued by CMO and partners, to implement a WMO ***Severe Weather Forecasting Demonstration Project*** (SWFDP) in parts of the Caribbean, with an aim, among others, to foster greater collaboration among National Meteorological Services and Disaster Management Agencies.

33. Following the Caribbean Meteorological Council’s endorsement, the CMO Coordinating Director discussed the concept with the WMO Region IV Management Group in January 2016, followed by wide-ranging discussions with the RA IV Hurricane Committee in April, which provided detailed guidance and expert opinions to guide the RA IV Management Group in its future decisions on the SWFDP proposal. In June 2016, the Region IV Management Group met in Geneva on the margins of the 68th session of the WMO Executive Council. The Management Group agreed that the SWFDP should be pursued with WMO, with the focus on the Eastern Caribbean islands and Haiti, in the first instance. The Discussion and decisions of the Region IV Management Group are contained in **ANNEX I** to this document.

34. In August 2016, Mr Juan Carlos Fallas of Costa Rica, President of WMO Regional Association IV, asked the Secretary-General to implement the SWFDP as detailed. Subsequent to the Secretary-General’s endorsement, the WMO Secretariat is working to organize the first meeting of the Expert Group in Martinique in December 2016.

**6(H) The 2017 session of the WMO Regional Association and the Members input into the 2017-2020 Strategic and Operational Plan**

35. The WMO Regional Association IV (North America, Central America and the Caribbean) will meet for its17th Session on 27-31 March 2017 in San José, Costa Rica. Sessions of the Region Associations are held every four years. The Association’s task is to set about the implementation of the regional components of the global programmes set in motion by the WMO Congress.

36. In preparation for the session in 2017, the Region has been asked to consider the following, which is under consideration as the WMO Secretariat and the RA IV *Task Team* on Strategic Operational Planning (SOP TT) begin work on the Regional Operating Plan:

A. Confirm/comment on the **five priority areas** agreed to during and outlined in RA IV-16:

* Global Framework for Climate Services (GFCS);
* Aviation meteorological services;
* Capacity Building for the developing and least developed countries;
* Implementation of the *WMO Integrated Global Observing System* (WIGOS) and the *WMO Information System* (WIS);
* Disaster Risk Reduction (DRR);
* Maritime Meteorology (included by decision of a RA IV MG meeting).

B. Confirm/comment on the **three highest priorities** for the Region:

* Implementation of the WIS/WIGOS and necessary improvement of the GTS as part of WIS;
* Implementation of the GFCS, including but not limited to enhancement and operation of the RA IV RCC network and RCOFs;
* Implementation of aeronautical meteorological services enhancements in coordination with the WMO Commission on Aeronautical Meteorology (CAeM) and upgrading of service delivery capability in other application areas, including marine meteorological services.

37. The President has asked that if Member States have another priority area different from those presented in these listings, they should indicate them to him with the respective justification.

38. The regional governance structures agreed to during RA IV-16 are listed below. Members have been asked to review and comment on them as well. These include the Task Teams and other Expert Teams on:

* Global Framework for Climate Services (GFCS);
* Aviation meteorological services;
* WMO Integrated Global Observing System (WIGOS) and WMO Information System (WIS);
* Disaster Risk Reduction (DRR);
* Working Group on Hydrology;
* Hurricane Committee.

39. In this regard, as discussed in Section 6(G) above, at least one new Expert Team will be added; that is, the *SWFDP Expert Group* as a Task Team reporting to the Management Group. In addition, as discussed in paragraph 11 in Section 6(B) above, the concept for regional WIGOS Centres, which has been developed and endorsed by EC-68, will need to be discussed very carefully by RA IV-17, including the draft concept for a *virtual Centre* that has been developed for regional consideration.

40. The 2017-2020 Regional governance structure will be confirmed or modified during RA IV-17 and will serve to deliver on agreed upon regional priorities. It should be noted that there is a process underway led by the overall WMO Working Group on SOP to re-examine all WMO governance structures, but that is unlikely to affect the RA IV Management Group and Task Team structures. The comments received from Members will allow for the RA IV SOP Task Team prepare draft plan for review during the next Management Group meeting and eventually at the RA IV-17 in 2017.

**ACTION PROPOSED TO COUNCIL**

41. **Council** is asked to:

1. **Note** the key issues emanating from the 2016 session of the Executive Council (EC) of the **World Meteorological Organization**;
2. **Re-emphasize** the mandatory nature of WIGOS and WIS implementation and to **urge** CMO Member States to ensure that their NMHSs actively participate in the Pre-Operational Phase of WIGOS in the 2016-2019 period;
3. **Urge** Member States to take **urgent action** to implement its choice of system to access the data and/or imagery from the new GOES-R weather satellite;
4. **Express** its continued strong support for the *Global Framework for Climate Services* and to urge Member States to actively participate in GFCS projects and activities as appropriate;
5. **Note** the important issues for the 16th session of WMO *Commission for Basic Systems*(CBS-16), **urge** as many CMO Member States as possible to attend;
6. **Also Note** the expected formal designation of the CIMH as a WMO Regional Climate Centre (RCC) for the Caribbean, and to **provide** the CIMH with all the necessary support required to undertake this mandate;
7. **Urge** Member States to review and complete any outstanding matters in their implementation of the ICAO-mandated *Quality Management System* (QMS) for meteorological services to aviation, including matters to do with staff competency and qualification standards;
8. **Strongly support** and **participate in** the implementation of a WMO *Severe Weather Forecasting Demonstration Project* for parts of the region;
9. **Urge** NMHSs of Member States to contribute to the preparation of and to participate in the 2017 meeting of the WMO Regional Association IV for North America, Central America and the Caribbean.

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CMO Headquarters

October 2016

**Developing a**

**Severe Weather Forecasting Demonstration Project (SWFDP) in the Caribbean**

The concept of developing a WMO ***Severe Weather Forecast Demonstration Project*** (SWFDP) for the southern portions of RA IV has been discussed by *RA IV Management Group* on several occasions in 2015 and 2016, the latest being on the margins of the 68th session of the WMO Executive Council. As part of its process, the RA IV Management Group created an Expert Group to provide orientation about this demonstration project. Strong support and guidance was received from the WMO Secretariat throughout that period. On behalf of RA IV, *Mr Juan Carlos Fallas*, President of the WMO Region IV (North America, Central America and the Caribbean), has formally requested that WMO initiate a Severe Weather Demonstration Project in part of RA IV, taking the following information into consideration.

In developing the idea of a SWFDP for the southern portions of RA IV, the *Management Group* has taken a look at the States and Territories that would be most impacted and involved. It recognized that many of these States and Territories had already been reviewing existing components that are promoted under the SWFDP concept, such as (i) the implementation of the *Common Alerting Protocol* (CAP) standard; and (ii) Impact-based Weather Forecasts and Warnings.



**Figure 1**: The southern part of RA IV comprising continental areas and a large number of islands

(Source: wikipedia.org)

However, it is important to stress the point that RA IV is “**not starting from zero**” in providing guidance in terms of severe weather. The Region has a very well organized and effective warning system for tropical cyclones, in which the RA IV *Hurricane Operational Plan* sets out the processes and procedures in the forecast and warning system for tropical cyclones among all States and Territories in the Region. That includes the coordination between the RSMC in Miami (US National Hurricane Center) and individual forecast and warning offices in the Caribbean area. The Hurricane Operational Plan is reviewed by regional experts annually.

 Nonetheless, RA IV recognizes that weaknesses in the warning systems in the region did show up when severe weather occurred that was not related to tropical cyclones; when localized weather on the fringes of tropical cyclones resulted in significant damage or loss of life; or for severe marine conditions on the high seas that adversely affected shipping and coastal zones. The *Management Group* is of the opinion that in such situations, Member States in RA IV could benefit from improved forecast and warning coordination and advice that could be provided by a mechanism emanating from a SWFDP. Even in situations when tropical cyclones were not involved, the RSMC in Miami would still play a guidance/consultative role with whatever facility emerged within the framework of a SWDFP.

 In this regard, the RAIV *Management Group* aims to build on the existing collaboration between the Member States of the *Caribbean Meteorological Organization* (CMO) and Météo-France, particularly those elements that can be built into a SWFDP, such as coordination among Meteorological Services. It was noted that formal "Working Arrangements" between CMO and Météo-France were signed by the two institutions on 21 June 2016 as a side event to 68th session during the WMO Executive Council. In addition, within the last year, the need for a WMO *Severe Weather Forecasting Demonstration Project* in the region had been endorsed by both Météo-France and CMO (which includes three non-WMO Members in the Eastern Caribbean), thereby enabling all States to become fully involved in any SWFDP approved by WMO. In this regard, the Regional Association envisages a key role for the regional arm of Météo-France in Martinique in a SWFDP that would focus on the Eastern Caribbean in the first instance. The Permanent Representative of France with WMO has already indicated to the President of RA IV, France’s willingness to undertake an operational role if so decided by the Region.

 In discussing possible funding issues for a *Severe Weather Forecast Demonstration Project* in the Region, the Management Group expressed some concern that the words “Demonstration” and “Project” gave the impression that there would be a definitive start and end time for this activity, when in fact, the Region was looking for a **sustainable long-term operational mechanism** that could have its genesis in a SWFDP.

 Therefore, Regional Association IV proposed to WMO, the development of a WMO Severe Weather Demonstration Project along the following lines:

(i) The SWFDP in RA IV would cover all the islands from Trinidad in the south to Puerto Rico in the North. Since Haiti is already supported by Météo-France’s operations in Martinique, it will also be included in the SWFDP;

(ii) The Météo-France Centre in Martinique is proposed as the candidate for a sub-regional operational facility. At this point, RA IV proposes that this facility would be labelled as a *Regional Forecast Support Facility*, rather than a “Centre”, since the designation as a “Regional Centre” had to meet certain strict requirements of CBS and to ensure that there would be no confusion with the role of RSMC-Miami;

(iii) The Caribbean Institute for Meteorology and Hydrology (CIMH) which, among other functions, is a WMO Training Centre, a WMO Centre of Excellence for Satellite Meteorology and a WMO Regional Climate Centre (currently in Demonstration Phase),will provide technical support for the SWFDP.

The RA IV Management Group has strengthened its SWFDP Expert Group by including the relevant personnel in the area to be covered by the SWFDP, as well as experts from Canada, the RSMC-Miami and the CIMH. The Expert Group, shown below, will be tasked with working with the WMO Secretariat on the details of the SWFDP proposal, including the Terms of Reference of a *Regional Forecast Support Facility*, as well as recommendations for its interaction with and support from RSMC-Miami.

The RA IV Expert Group on the Severe Weather Forecast Demonstration Project (SWFDP) is as follows:

* *Mr Tyrone Sutherland* (BCT);
* *Dr. Albert Martis* (Curaçao);;
* *Mr Keithley Meade* (Antigua & Barbuda);
* *Mr Jean-Noel Deg*race (Martinique, France);
* *Dr. Lixion Avila* (RSMC Miami);
* *Dr.* ***Véronique*** *Bouchet* (Canada); and
* *Ms Kathy-Ann Caesar* (CIMH).

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