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

REPORT OF THE

ANNUAL MEETING OF DIRECTORS OF METEOROLOGICAL SERVICES

St. George's, GRENADA

9 NOVEMBER 2016

INTRODUCTION

1.1 At the kind invitation of the Government of Grenada and its Dependencies, the 2016 Meeting of Directors of Meteorological Services was held at the Radisson Hotel, Grand Anse, Grenada, on Wednesday 9 November 2016 under the Chairmanship of Mr Tyrone Sutherland, Coordinating Director of the Caribbean Meteorological Organization (CMO).

1.2 The Meeting fixed its hours of work and determined the order in which it would conduct its business.

1.3 A list of participants and observers attending the Meeting is attached as **ANNEX I** and the Agenda adopted by the Meeting is attached as **ANNEX II** to this Report.

STATUS OF ACTIONS FROM THE PREVIOUS MEETING
(Agenda Item 2)

2.1 The CMO Headquarters produced a single document containing an ***Action Sheet*** that allowed the Meeting to follow-up on the actions taken to implement the decisions of its previous meeting, and to discuss any further actions if required.

2.2 In this regard, a summary of the decisions of DMS2015 (Belize, 2015) was prepared by the CMO Headquarters. The Science and Technology Officer gave the status of actions taken to implement the decisions to the Meeting.

2.3 Under Agenda Item 3 at the 2015 Meeting of the Directors of Meteorological Services, there was an action concerning aptitude of the students attending the CIMH and their inability to consistently achieve a passing grade in mathematics and physics. This matter would be again addressed under Item 3 of the 2016 Meeting. It was also stressed that Members needed to nominate their focal points for WIS and WIGOS, which would allow for the management of their metadata on OpenWIS, managed by Global Information System Centre (GISC) Washington and OSCAR/Surface. Finally, all Members needed to complete and sustain their Quality Management Systems (QMS) for the provision of meteorological service to aviation. The inability to reach the required level of QMS is classified as a serious deficiency against the ICAO requirements.

TRAINING
(Agenda Item 3)

3.1 Ms Kathy-Ann Caesar, Chief Meteorologist, Caribbean Institute for Meteorology and Hydrology (CIMH), gave a presentation on the "*Training Report 2016-2017*." The presentation provided information on the courses, which were completed by the Meteorological Section, the certificates, which were obtained by the participants, the number of conditional passes, failures and incomplete courses. Meteorological Services of CMO Member States were again exhorted to ensure that their candidates were well prepared before coming to CIMH or the University of the West Indies, Cave Hill Campus, therefore ensuring a return on their investment.

3.2 The presentation also provided information on the Meteorological and Hydrological courses which were on-going at the time of the Meeting. The Meeting was informed of the failure rate of meteorological courses, which are provided at the UWI, Cave Hill Campus. The failure rate ranged from a low of 26.7% for a first-year course on Oceans and Climate, to a high of 60% for some third-year courses. It was stated that after analysis, the following were the reasons for the failure rate:

1. Poor writing skills: - students were unable to clearly articulate their thoughts on paper especially during years 2 and 3 of the BSc degree;
2. Poor knowledge of fundamental mathematical and scientific concepts: - fundamental mathematical concepts taught at CXC and CAPE level had long been forgotten. Over the past few years, fewer students were entering the 3-year degree program. Most struggled to gain the mathematics and physics pre-requisites to actually start doing Meteorology courses;
3. Poor study habits and poor work ethics: - Students were not prepared to work; there was a heavy reliance on the lecturer's PowerPoint notes. Few students take notes and fewer read the required text.

3.3 Further, the Meeting was informed that UWI Cave Hill Campus had mandated that all faculties would have to transition from a 4-credit course system to that of a 3-credit system, which means that there would be a loss of one lecture hour per week per meteorological course, which would have the ability to increase the workload on both lecturers and students.

3.4 Information was provided to the Meeting on the various courses which will be held during 2017/2018. The courses include:

- Meteorology course for regional Geography Teachers: - A short online course intended for primarily CAPE-Level secondary school Geography teachers who wish to develop a greater understanding of the fundamentals of meteorology applicable to their CAPE Geography syllabus. Meteorological Services will be asked to advertise the course within their countries.
- Next Generation (NexGen) Satellite imagery: - A series of courses/workshops in the interpretation and use of NexGen satellite imagery, which would be distributed after the launch of the GOES-R satellite by National Oceanographic and Atmospheric Administration (NOAA).
- Senior-Level Meteorological Technician course: - This would be for graduates with a BSc in Mathematics and/or Physics. It was expected to start in 2018 and have a duration of 9 months.
- Courses in Aeronautical Continuing Professional Development (AeroCPD) and Operational Aeronautical Forecasting (OAFC) during 2017.

3.5 The Director of the **Jamaica Meteorological Service** applauded the intent of CIMH to have the shortened SLMT course for BSc Mathematics and Physics graduates. The Director of the **Antigua and Barbuda Meteorological Service** asked if the shortened course would accept a person who has an engineering degree. The Principal of the CIMH indicated that it would be acceptable since the prerequisite mathematics courses are taught in year 1 and 2 of the engineering degree. However, the Director of the **Saint Lucia Meteorological Service** indicated that funding had already been sourced for two persons to attend the traditional SLMT course, which should start during 2018 and was expected to last for 19 months and not having the traditional course would affect the training plans of the Saint Lucia Meteorological Service.

3.6 The **Acting Chief Meteorologist** in the **National Meteorological Service of Belize (NMSB)**, indicated that there were three (3) Members of staff that wanted to be part of the OAFC during 2017. However, it was noted from the presentation that the course was already full. The Meeting was informed that despite the fact that the course was fully subscribed, there were a further 5 persons that Directors would like to be part of the 2017 course.

3.7 The **Department Head** of the **Sint Maarten Meteorological Service** indicated that Meteorological Services needed to have a training plan for at least a duration of five (5) years which could inform CIMH of the training needs within the Member States. The **Chairman** indicated that both CIMH and WMO have requested that information from their Member States in the past with few replies. The Principal stated that the training plans should be part of a Service's strategic plan which would enable succession planning.

3.8 The Meeting was informed about the recommendations which emanated from the WMO RA III/RA IV Coordination Group on Satellite Data Requirements-Training Task Team (SDR-TTT). The SDR-TTT recommended that:

1. National Meteorological Services must create a National Satellite Training Plan to identify their training needs and timeframe for completion;
2. The National Satellite Training Plan must be submitted to the SDR-TTT, if assistance was required in developing and/or identifying further training courses;
3. Regional Services were to ensure that their forecasters and other relevant stakeholders (identified for specific training) complete the Foundation Online Training courses. This would be a prerequisite to participate in face-to-face courses;
4. Services to nominate a Focal Point who would be provided with the necessary satellite interpretation and manipulation training to provide in-house training within their respective services;
5. IT training needs to be identified based on the user needs and priorities.

OPERATIONAL MATTERS

(Agenda Item 4)

4.1 The Meeting was made aware of a number of matters which were particularly related to the operations and the services delivered by Meteorological Services in the Caribbean.

(a) WMO Annual Global Monitoring

4.2 The Meeting noted that some Meteorological Services of the Member States that have stations in the Regional Basic Synoptic Network (RBSN) did not participate in the World Meteorological Organization (WMO) Annual Global Monitoring (AGM), which monitors the data disseminated over the Global Telecommunication Service (GTS). There are ten (10) Members States of the Caribbean Meteorological Organization whose National Meteorological Service (NMS) are RBSN stations. These are Antigua and Barbuda, Barbados, Belize, the Cayman Islands, Dominica, Grenada, Guyana, Jamaica, Saint Lucia and Trinidad and Tobago. A perusal of the 2016 monitoring folder on WMO's FTP server on 9 November, where digital results were posted, indicated that only Belize and Dominica had posted results at that time.

4.3 The Meeting was also presented with the results of the 2015 AGM from WMO's data archive at **ftp://ftp.wmo.int/GTS_monitoring/AGM/To_WMO/201510**/ which showed only Dominica, Jamaica and Trinidad and Tobago submitted results of their monitoring for the AGM. The results which were presented for the monitoring of SYNOP, TEMP and CLIMAT reflected for the most part, the reports from the RTH and MTN centres and the results showed that for the SYNOP code from the thirteen (13) offices reporting from the Member States, nine (9) were within the 90-100% range, four (4) were in the 45-90% range and Barbados was silent.

4.4 The upper-air station in the Cayman Islands was the only station within the 45-90% range. No CLIMAT reports from Barbados, Belize, Cayman Islands and Guyana were received during the AGM period in 2015 and they were deemed to be silent.

(b) Satellite Matters - Post GOES-R Launch

4.5 The Meeting was informed about the various methodologies, which would be available to a Meteorological Service of CMO Member States to access satellite data and imagery after the launch and testing period for the satellite from the GOES-R series, which could be stationed at 75°W longitude.

1. Satellite data as a Service via the Internet

4.6 A *Comprehensive Large Array-data Stewardship System* (CLASS) was developed by the National Oceanic and Atmospheric Administration (NOAA) as an information technology system designed to support long-term, secure preservation and standards-based access to environmental data collections and information.

4.7 CLASS was not a real-time or near real-time data retrieval system. It was more of a data archive where data could be retrieved for use for case studies or research. Care must be taken in the retrieval of large datasets because it may incur a cost. If the preferred data format for retrieval was raw, area and NetCDF, then the Meteorological Service would need to provide a computer for visualization and visualization software. However, images cloud be also delivered in GIF and JPEG formats.

4.8 The purpose of the *Production Distribution and Access* (PDA) system was to serve as a distribution system of satellite data for near real-time users. Users of the data would need a visualization system to view the data. Access to the PDA would be based on the following general consideration since the maximum number of users that would have access to the PDA was 400:

- The affiliation of requesting organization, and
- Type of application for which the satellite data or products was required.

4.9 Higher priority access would be given to organizations with:

- Mission and statutory authority that supports the requirement for data access;
- Signed NESDIS cooperative agreements or other legislative authorities; and
- A demonstrated timeliness requirement for near-real time satellite data and products to support operational user applications

4.10 There was one vendor that was offering "data as a service" whereby the vendor would provide all Level 1b data files and transfer them to the user within five minutes of acquisition from the GOES satellite. The user would have to provide the hardware and software for visualization.

4.11 The Meeting was informed that, at the 2nd Meeting of the Coordination Group on Satellite Data Requirements, which was held in Curaçao from 5-8 September, it was reported that commercial systems such as VisualWeather, SmartMet and Terrascan could visualize satellite imagery from satellite data in NetCDF format. There was free open source visualization software which was also available for use without any license restrictions, such as:

a) McIDAS V: - available from **https://www.ssec.wisc.edu/mcidas/software/v/download.html**
b) Pytroll : - available from **http://www.pytroll.org/**
c) CSPP-Geo: - available from **http://download.ssec.wisc.edu/sys/login/form/csppgeo**
d) AWIPS II: - available from **http://unidata.github.io/awips2/docs/install/install-cave.html**

2. **GOES ReBroadcast (GRB) Systems**

4.12 A typical complete GRB system consisted of ground station receiving equipment, data acquisition and processing equipment and a visualization system. The Meeting was informed that the GRB system would be broadcasting at 1686.6MHz and Services which intend to purchase a GRB system should seek to have the frequency assigned to the Service. It was also informed of the possibility of receiving GRB systems (a) without the ground station receiving equipment, compressed data (~30Mb in size) would be transmitted via the Internet, (b) without the ground station receiving equipment, the data acquisition and processing equipment, the uncompressed data (~330Mb in size) would be transmitted via the Internet. Services making use of the last two options must have the Internet bandwidth to download the size of the data within five (5) minutes.

3. **GEONETCast-Americas**

4.13 The Meeting was informed that, at that time, all of the data on the GIFS server was also streamed via satellite to GEONETCast-Americas broadcast receivers. The meeting the 2nd Meeting of the Coordination Group on Satellite Data Requirements decided on the satellite data which would be sent directly from PDA to GEONETCast-Americas with a latency of one minute: McIDAS V could be used to visualize the satellite and other data formats on GEONETCast-Americas.

4. **HRIT/EMWIN**

4.14 The Emergency Managers Weather Information Network (EMWIN) was a service that provides users with weather forecasts, warnings, graphics, and other information directly from the US National Weather Service (NWS) in near real time. The GOES EMWIN relay service was one of a suite of methods to obtain data and display the products on the user's personal computer.

4.15 The GOES-R series would continue the current broadcast services of LRIT (Low Rate Information Transmission) and EMWIN but would do so at a significantly higher data capacity. This would be accomplished by combining the two services into a single service with a data relay capacity of 400Kbps. The new service would be called HRIT/EMWIN—HRIT for High Rate Information Transmission. The HRIT/EMWIN service would require a new antenna and receiver hardware as well as a receiver frequency shift to 1694.1 MHz from 1692.7 MHz (EMWIN) and 1691.0 (LRIT).

4.16 The Director-General of the **Cayman Islands National Weather Service** indicated that it would be helpful if costing could have been provided, but noted there was some information provided in the documentation for the Meeting. The Director, **Trinidad and Tobago Meteorological Service** stated that it would be helpful if the CMO would provide recommendations on systems which could be used by Meteorological Services of CMO Member States providing differing types of services. In order for such recommendations to be made, the **Chairman** stated that there must be communication between the Service and the CMO on the level of services being provided at present and the future aspirations of the Service.

4.17 The Director of the **Saint Lucia Meteorological Service** sought clarification on the two types of GEONETCast-Americas systems available. The Director was informed about the turn-key GEONETCast-Americas and the systems which could be built by the Service. The **CIMH Principal** related the problems encountered by the CIMH when they built their system using an old satellite antenna which was on-site.

C. Telecommunications in RA IV

4.18 The Meeting was informed that during late 2015 and the first quarter of 2016, file transfer protocol secure (FTPS) replaced SSL-VPN for all synoptic and climate observations transmitted to RTH Washington.

4.19 Further, it was also informed of changes which would be made to the Email Data Input System (EDIS) system for the transmission of observations in text and binary format to RTH Washington. The changes to EDIS would improve the security of the system and would require the assignment of a Personal Identification Number (PIN) to the Meteorological Service. The PIN would be changed every ninety (90) days to control access to the system.

D. WIS and WIGOS in RA IV

4.20 The Meeting was reminded of one of the outcomes of a workshop for the creation of WMO Information System (WIS) Metadata, which was held at the CIMH from 11-13 August 2015. The specific outcome was the requirement for Meteorological Services to nominate a WIS Focal Point to WMO. Most of the Meteorological Services had not nominated a Focal Point; neither had they changed their metadata at Global Information System Centre (GISC) Washington.

4.21 The Meeting was informed about an RA IV WIGOS Workshop for English-speaking countries, which was held in Willemstad, Curaçao from 1 to 3 December 2015. Participants who were the nominated WIGOS Focal Points from the English-speaking RA-IV Members, Haiti, Guyana and Suriname attended the workshop. Participants were introduced to OSCAR/Surface tool through the portal **http://oscar.wmo.int/surface**.

4.22 These two 2015 workshops showed that a Meteorological Service's ability to update and edit the metadata in the GISC portal and OSCAR/Surface resided in the hands of the Focal Points for WIS and WIGOS. However, not all Meteorological Services had nominated focal points and even for those that had Focal Points, they had not updated or edited their country's metadata.

4.23 The Meeting therefore stressed that Permanent Representatives with the WMO must nominate WIS and WIGOS Focal Points and ensure that the Focal Points complete the review and update of the country's metadata on the GISC portal and OSCAR/Surface; otherwise, the observations, forecast and other information would be undiscoverable as WIS and WIGOS continued their evolution.

OUTCOME/HIGHLIGHTS OF THE SIXTY-EIGHT MEETING OF WMO EXECUTIVE COUNCIL
(Agenda Item 5)

5.1 The Meeting was made aware of a number of matters which were discussed at the Sixty-eighth Session of the Executive Council (EC) of the World Meteorological Organization (WMO), held in Geneva, Switzerland, from 15 to 24 June 2016.

A. Meteorological Services for Aviation

5.2 The Meeting was informed that there were about 120 Members of WMO who were fully QMS certified; about 10 Members had not started QMS implementation, while the rest of the Members were in different stages of implementation. The competency assessment for aeronautical meteorological observers (AMO) and aeronautical meteorological forecasters (AMF) had been completed or was in progress by the majority of WMO Members. At that time in 2016, a new WMO Guide on Competencies was being developed with the active participation of the ET-ETC in collaboration with the WMO Education and Training (ETR) Panel. The entry into force of the WMO standard on required qualifications for AMF was 1 December 2016.

B. Country Profile Database

5.3 The presentation made by Mr Robert Masters, Director, Development and Regional Activities Department of the WMO (Kingston, Jamaica, 22 November 2014) on WMO's Country Profile Database (CPDB) was recalled. At the request of EC66 (2014), version 2.0 of the CPDB was launched in May 2016.

5.4 The Chairman pointed out the errors which were contained in the Composition of WMO (WMO Publication No. 5) as it pertained to the CMO Member States. The Director, **Trinidad and Tobago Meteorological Service** informed the Meeting of correspondence which had been sent to WMO to have the publication updated, but without success. The Meeting was informed that it was only through the efforts of the Office North America, Central America and the Caribbean that the publication had been recently updated.

5.5 The **WMO Representative** stated that WMO wanted the Member States to update their own country's profile in the CPDB and provided the Meeting with correspondence from WMO dated 17 June 2016 announcing the launch of version 2.0 CPDB, requesting that a CPDB Focal Point be named and indicating that a username and password could be provided to the Focal Points for the updating of country's records.

C. Competency for Climate Service

5.6 It was recalled that the 2015 Meeting of Directors of Meteorological Services, held in Belize City on 11 November, was presented with the WMO Cg-XVI recommendation that all WMO Technical Commissions make the definition of competency requirements for the core tasks in meteorology and hydrology a high priority activity and incorporate this task into their work programmes.

5.7 During the 68th Meeting of the WMO Executive Council, a draft resolution on *Competencies for Provision of Climate Services* was debated and adopted. The resolution stated inter alia:

Recognizes that:

(1) The provision of climate services within a country or region, either by one or several National Meteorological and Hydrological Services (NMHSs) or other institutions, might be accomplished by a variety of skilled personnel;

(2) The provision of climate services can be done by meteorologists and climatologists, engineers, oceanographers, geographers, statisticians, mathematicians, economists, computer scientists and science communicators, among others;

Observes that:

(1) Climate services provision involves the transformation of climate data (including in situ, remotely sensed, reanalysis and model output) into climate products and services;

(2) Such services involve professionals at the managerial level, trainers, information technology specialists, communicators and administrators, and those specifically involved in climate services delivery;

(3) The competencies framework for climate services is built to help the NMHSs and other institutions to deliver high-quality climate services in compliance with WMO standards and regulations, specifically those defined by WMO's Commission for Climatology (CCl) and the Global Framework for Climate Services (GFCS).

THE IMPACTS OF WEATHER DURING 2016

(Agenda Item 6)

6.1 The Directors of Meteorological Services provided the impacts of weather on their countries during 2016.

6.2 The presence of the El Niño phenomena in the Pacific Ocean during 2015, which led to below normal rainfall for most of the year and widespread drought conditions in Member States, continued during the first quarter in 2016. **Guyana** reported **drought** conditions, especially in its southern areas during the first quarter of 2016. **Trinidad and Tobago** and **Saint Lucia** reported below normal rainfall condition in the first quarter of 2016, which lead to water shortages, loss of agricultural productivity and forest fires.

6.3 During the 2016 Hurricane Season, two cyclones affected Member States. **Earl** was the first cyclone to impact a Member State. It made landfall as a **hurricane** on **Belize** on 3 August, producing wind gusts reaching 90 kts, storm surge of 3-5 feet and torrential rainfall, which lead to inland flooding. There was infrastructure damage on homes, public buildings and roads.

6.4 The second cyclone to affect Member States was Matthew. Matthew provided torrential rainfall as a tropical storm to Barbados, Saint Lucia and St. Vincent and the Grenadines during 28-29 September. **Tropical Storm Matthew's** rainfall over **Barbados** produced flooding, the wind speed downed trees, power lines and produced power outages. In **Saint Lucia**, Matthew produced tropical storms sustained winds and higher gusts, especially in southern areas of the island. Hewanorra Airport measured sustained winds of 40 kts with gusts of 48 kts. Rainfall in southern areas was in excess of 300 mm in places which lead to flooding and landslides. In St. Vincent and the Grenadines, rainfall and the wind speed was less than Saint Lucia; however, there were still floods, landslides and fallen rocks. There was **one death** in St. Vincent associated with the passage of Matthew.

6.5 By 1 October, **Matthew** was a category 5 hurricane approximately 440 miles to the south-southeast of Kingston, **Jamaica** and forecast to make a right turn towards Jamaica and Haiti. The centre of Matthew passed approximately 159 miles to the east of Kingston, Jamaica on 3 October. There was some **flooding in Jamaica** associated with the passage of Matthew. Due to the slow movement of **Hurricane Matthew** during the period 1-3 October, long fetch waves were generated which impacted on **Saint Lucia** on 5 October and produced **coastal flooding**.

6.6 **Nicole** became stalled approximately 400 miles to the north of San Juan, Puerto Rico during the period 6-10 October as it slowly intensified from a tropical depression to a hurricane. During that period, Nicole generated long fetch waves, which impacted as far south as the north coast of Trinidad during the period of 17-22 October.

6.7 There were **localized flooding and landslides** associated with low-level troughs and localized convection in **St. Vincent and the Grenadines** and **Trinidad and Tobago**. However, early on the morning of 9 November, an **upper-level trough** to the west of the Eastern Caribbean produced torrential rainfall on **St. Vincent,** especially in its southern areas, producing flash floods and landslides. Unfortunately, the flash floods resulted in the **deaths of two children**. The flash floods also swept through the E.T. Joshua Airport, flooding the ground floor of the airport terminal.

PRESENTATION
Developing a Digital Observation Register
(Agenda Item 7)

7.1 Mrs Kareen Gourzong, Quality Manager of the Meteorological Service of Jamaica, gave a presentation on the reasons why the Meteorological Service of Jamaica embarked on the development of a digital observation register. It was stated that the preservation of paper registers was a tedious and time-consuming task which was relegated to summer interns.

7.2 While paper registers were still in use, paper does not last forever. It was recognized that the errors may not be corrected in a timely manner, the cost of the printing of the registers was increasing and because of quality control checks, the registers may not be delivered to its end user for months, which could delay the delivery of climate products to users. A solution was needed which was easily retrievable, compact for storage, unambiguous and secure.

7.3 It was decided to use Visual Basic for Applications (VBA) in Microsoft Excel environment to develop macros, which can automate tasks and create Graphical User Interfaces for the user to input their observations and measurement of meteorological elements and their initials which is then posted by the user into a password protected Excel workbook that mimics the SYNOP and METAR code forms. The user could only make changes to the last observation entered into the protected workbook. At the end of each month, CLIMAT message could be generated automatically.

7.4 The programme received its first beta testing in February 2016 in the office in Montego Bay, where both the written and digital register were used. Staff suggestions were used to modify the programme. Further beta testing was completed by entering six (6) months of observations, after which the programme was again modified based on user comments. The final programme was reviewed by the Climate Branch and it was awaiting Management's decision on implementation.

7.5 The presentation was well received by the Meeting. The **WMO Representative** offered congratulations on the presentation and the programme and indicated there could be many users of the programme, not only in the Caribbean among CMO Members States, but also in Central and South America. The WMO Representative offered the services of the Office North America, Central America and the Caribbean when the programme was finalized for distribution.

OTHER MATTERS
(Agenda Item 8)

8.1 **Mr Hubert Whyte, Manager of Meteorology at the Maurice Bishop International Airport in Grenada,** spoke on instrumentation and the need to stop using mercury in glass instruments, based on the **Minamata Convention** on Mercury, which is an international treaty designed to protect human health and the environment from anthropogenic emissions and releases of mercury and mercury compounds. He expressed a concern about the instruments proffered by meteorological equipment manufacturers as replacements for mercury-in-glass instruments and how that would affect QMS procedures already in place. It was suggested that the CIMH take the lead in reviewing the instruments and advising Services on which should be purchased.

8.2 The Meeting was also informed that the Grenada Meteorological Service intended to upgrade its wind system. It was indicated that Munro Instruments had phased out the old system and the new system which was offered could not be adjusted for magnetic north. Hence, any airport which uses a wind system to satisfy both Civil Aviation and the Meteorological Service would have problems, since Civil Aviation requires the data for magnetic north while the Meteorological Service requires the wind to be measured from true north.

8.3 The Director, **Antigua and Barbuda Meteorological Service** informed the meeting of a discussion between the Antigua and Barbuda Meteorological Service and the Barbados Meteorological Service on back-up arrangements between the services to satisfy QMS requirements.

8.4 **Mr David Robertson**, former head of the Grenada Meteorological Services indicated to the Meeting that although he had retired, he still had an interest in meteorology as practiced in the Caribbean. He pointed out some of the discrepancies which had occurred between the Aerodrome Forecast (TAF) and the forecast issued to the general public and the need to ensure that the TAF reflected some subset of the public weather forecast.

8.5 The Meeting inquired about the damage to the mast of an automatic weather station which occurred with the passage of tropical storm Matthew over Saint Lucia and what was the wind speed measured to cause the mast to fall. The Director, **Saint Lucia Meteorological Service** informed the Meeting that the automatic weather station was installed by the Caribbean Community Climate Change Centre (5Cs) and that the Meteorological Service had no access to the data. The Director, **Trinidad and Tobago Meteorological Service** indicated that similar automatic weather stations were installed in Trinidad and Tobago but the Meteorological Service had access to data. The Meeting requested that the Director of the Trinidad and Tobago Meteorological Service provide information which can be used by other Meteorological Services to access to similar stations within their country.

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

ANNUAL MEETING OF DIRECTORS OF METEOROLOGICAL SERVICES

St. George's, GRENADA, 9 NOVEMBER 2016

AGENDA

1. INTRODUCTION AND ADOPTION OF AGENDA
2. STATUS OF ACTIONS FROM THE PREVIOUS MEETING
3. TRAINING
4. OPERATIONAL MATTERS
   - (a) WMO Annual Global Monitoring
   - (b) Satellite Matters- Post GOES-R Launch
   - (c) Telecommunications in RA IV
   - (d) WIS and WIGOS in RA IV
5. OUTCOME/HIGHLIGHTS OF THE SIXTY-EIGHT MEETING OF WMO EXECUTIVE COUNCIL
   - (a) Meteorological Services for Aviation
   - (b) Country Profile Database
   - (c) Competency for Climate Services
6. THE IMPACTS OF WEATHER DURING 2016
7. PRESENTATION
8. OTHER MATTERS

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ANNUAL MEETING OF DIRECTORS OF METEOROLOGICAL SERVICES

ST. GEORGE'S, GRENADA

9TH NOVEMBER 2016

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