



CARIBBEAN METEOROLOGICAL ORGANIZATION

CARIBBEAN METEOROLOGICAL COUNCIL
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TORTOLA, BRITISH VIRGIN ISLANDS, 21-22 NOVEMBER 2024

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THE COORDINATING DIRECTOR'S REPORT - 2024 ON CMO HEADQUARTERS UNIT ACTIVITIES (Submitted by the Coordinating Director)

1. This document highlights activities of the CMO Headquarters since the 65th Regular Session of the Council, held on 17-18 November 2023, and hosted by the Government of the Republic of Trinidad and Tobago. Factors affecting operational aspects at the Headquarters and other matters of interest are also mentioned for information and guidance where appropriate. Details of some activities and developments, where necessary, will be dealt with under separate agenda items.

High Impact Tropical Weather Events

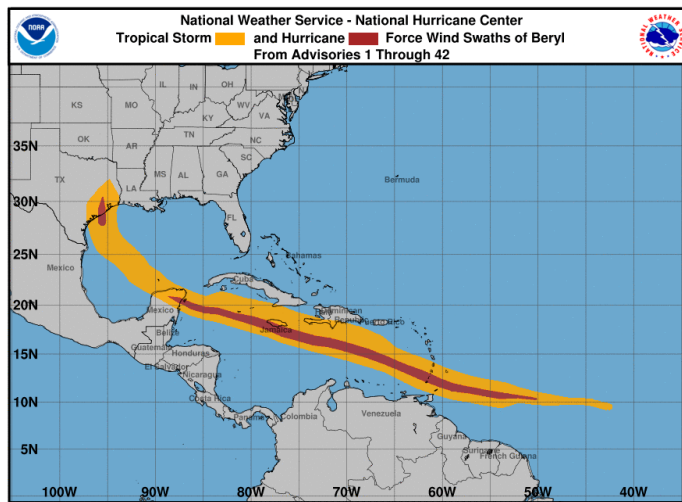
2. Since the last regular session of the Caribbean Meteorological Council in November 2023, the major weather impacts in our region for 2024 were hurricanes, tropical storms, strong tropical waves, upper-level troughs, and other tropical disturbances.

3. In the Caribbean/Atlantic basins, this hurricane season was forecasted to be above normal, because of warmer than normal sea surface temperatures in the Atlantic Ocean and the switch to La Nina conditions, which is normally associated with an increased in major hurricane development.

4. The season in the Caribbean began with record-breaking Hurricane Beryl, the earliest major hurricane to form in the tropical Atlantic, which brought catastrophic destruction to Grenada (Carriacou and Petit Martinique); St Vincent & the Grenadines (Union Island, Canouan, Mayreau); and Jamaica.

5. **Strong performance of tropical cyclone forecasting by the National Meteorological Services and early warning systems saved lives**, with only 11 fatalities in the Caribbean. Death toll could have been far worse without early warnings and appropriate response.

6. A preliminary summary of the 2024 Atlantic tropical cyclone activity to 29 October, is shown in **ANNEX I**. After Beryl, the eastern Caribbean Basin was largely unaffected by tropical storms and hurricanes in 2024. However, during October to November, the frequency of storms increased in the western Caribbean and Gulf of Mexico. Hurricane Helene went on to bring deadly storm surge and inland flooding, with more than 200 fatalities to the United States. Through coordination with the US National Weather Service Weather Prediction Center's International Desk, the region and CMO Headquarters received excessive rainfall outlooks associated with the systems. The rainfall outlooks are supplementary information that is also shared with the NHC and critical for understanding and preparing for heavy rainfall impacts.



Grenada bishop visits communities traumatized, devastated by Hurricane Beryl



Debris lies around the foundation of a destroyed house on the island of Carriacou, Grenada, July 3, after Hurricane Beryl. Bishop Clyde Harvey of St. George's in Grenada traveled by boat to visit the island of Carriacou July 12. (DSV News/Reuters/Arthur Daniel)

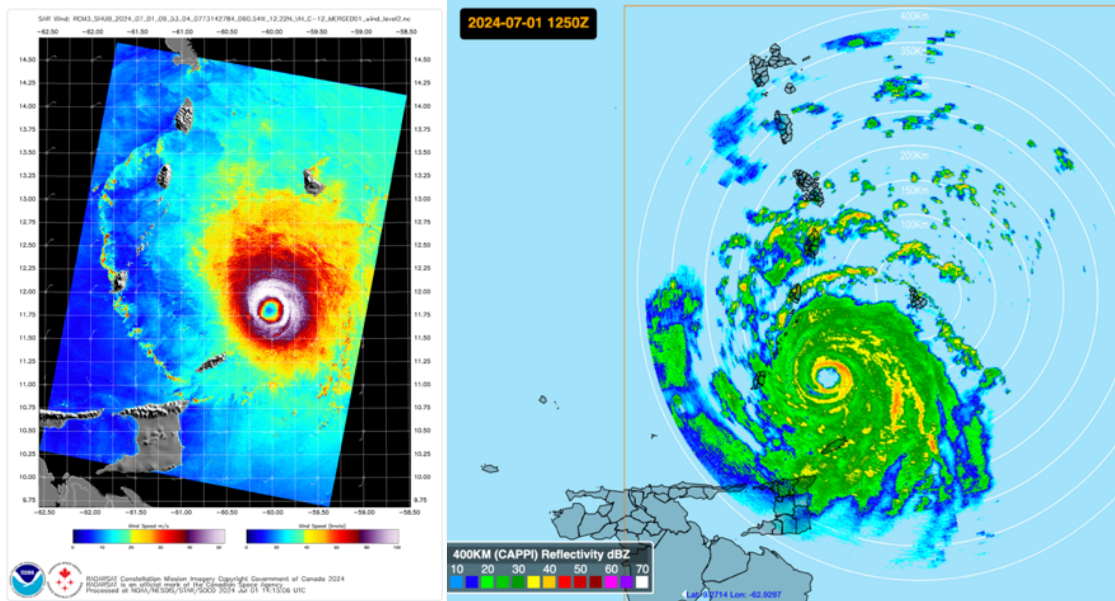


Figure 1. Hurricane Beryl, wind history, damage in Grenada, wind speeds as observed by the Synthetic Aperture Radar (NOAA/NESDIS, Gov of Canada), radar reflectivity from Barbados radar (courtesy of Barbados Meteorological Service).

7. To remind us that other types of weather systems, other severe weather, can be damaging and cumulatively costly. For example, during early February, a strong cold front and mid-latitude trough in brought strong winds and waves to the Greater Antilles and Leeward Islands, with the Virgin Islands, Anguilla, St Kitts and Nevis experiencing flooding and rough seas. In early-mid November, the Windward Island experienced flash flooding and Trinidad and Tobago experienced heavy rainfall, flash flooding. Several flooding events were due to tropical waves and an active Inter Tropical Convergence Zone (ITCZ), particularly over the Windward Islands and Guyana. The reports of the Annual Meeting of the Directors (DMS2024) provide details of the weather, climate, and the impacts experienced in the Member States.

8. Frequent episodes of significant Saharan dust also occurred. Members noted the importance of increasing monitoring and prediction capability in the region to support integrated health services and the Global Atmospheric Watch (GAW).

Early Warnings for All – Selected Activities

9. To aid in strengthening the capacity for global and regional early warning initiatives to be implementing at the national level, the CMO Headquarters will be implementing the CREWS Caribbean 2.0, by agreement with WMO, with funding \$583K. Details will be provided under Agenda Item 11. The Coordinating Director was invited to participate in the recently established Americas and the Caribbean EW4All Regional Coordination Mechanism. At the 46th Hurricane Committee, the Coordinating Director was a panelist for a special session on the Role of the CMO in delivering Early Warnings for All. Additionally, CMO Headquarters was invited to contribute to a special issue of the WMO Bulletin, where the following was reviewed, and accepted after revision:

“All-Members Approach to Project Coordination on Early Warnings in the Caribbean” by Arlene Laing, Kenneth Kerr and Haley Anderson, Caribbean Meteorological Organization, WMO Bulletin, Vol. 73 (1) – 2024.

10. To build capacity in operational, high-resolution numerical weather prediction (NWP) at the scale of small islands, CMO HQ and WMO organized the workshop, entitled, "**The Caribbean NWP Capacity Development and Operational Readiness Workshop in Support of Early Warnings for All**". The workshop was held from 5 to 9 August 2024 in Trinidad and Tobago. The workshop aimed to deliver the implementation of in-house NWP capability, using the WMO-developed Plug and Run WRF-based Tool (PN-Tool), and practical application of the PN-Tool to facilitate real-time operational forecasting. All Member States left the workshop with an NWP PN-tool configured to national circumstances that they can plug and run for real-time operations or historical case studies and research. All the participants had the opportunity to present a case study of the PN-Tool run over their country and interacted well with each other and the facilitators.

Showcasing the work of National Meteorological Services

11. Council is asked to note that in an effort to showcase the excellent work of the National Meteorological Services, **CMO Headquarters submitted five abstracts** on behalf of Member States to the 2025 Annual Meeting of the American Meteorological Society. This continued a tradition started in 2022.

12. The Council is asked to join the CMO Headquarters in thanking the US Permanent Representative with WMO, the NOAA National Weather Service, for sponsoring experts from CMO Member States to participate in the Annual AMS Meeting in 2024, where three oral presentations were given by CMO HQ. The CMO contingent include:

- Dr. Arlene Laing, Coordinating Director, CMO Headquarters Unit and Permanent Representative of the British Caribbean Territories with WMO
- Mr Kenneth Kerr, Science and Technology Officer, CMO Headquarters Unit
- Mr Haley Anderson, Project Development Officer, CMO Headquarters Unit
- Mr Deanesh Ramsewak, Assistant Professor in Practice, Centre for Maritime and Ocean Studies, The University of Trinidad and Tobago (UTT)
- Mr Vishal Mohan, Geospatial Technician, Institute of Marine Affairs, Trinidad and Tobago
- Mr Darion Mahadeo, Ph.D. student, University of the West Indies, St. Augustine, Trinidad and Tobago

Visits of Strategic Partners and Stakeholders

13. On 23 January, CMO Headquarters received a delegation from the **Embassy of the Federative Republic of Brazil** for discussion on disaster risk reduction and early warnings, preparedness and response. CMO HQ also welcomed the Regional Director of *International Civil Aviation Organization (ICAO)* for North and Central America & the Caribbean, **Mr Christopher Barks**, on 26 January 2024. In March, CMO HQ was visited by the Finnish Meteorological Institute, for discussion about SOFF implementation as a Peer Advisor for a number of CMO Member States. In September, CMO HQ was

pleased to have another visit from the *UN World Food Programme*, this time to meet the new multi-country programme coordinator, **Mr Brian Bogart**.

WMO Matters

14. Many of the activities of the CMO Headquarters were aimed at regional implementation of global programmes and initiatives, particularly those emanating from the **World Meteorological Organization** (WMO) as they related to the Caribbean, generally, and CMO Member States, in particular. As one of the pillars of its mandate, the CMO actively participates in WMO activities at the highest possible level in order to ensure that the interests of small developing states are accounted for and to guide and advise the CMO Member States in their own related activities.

15. The outcomes of the WMO Executive Council, Technical Commissions, and Research Board will be covered in detail under Agenda Item 5. Nevertheless, it is useful to mention a few major issues that the CMO Headquarters and the CIMH have been involved in that will have immediate impact on CMO Member States. Among these is the implementation of the **Early Warnings for All Executive Action Plan**; the **Global Basic Observation Network** (GBON), which will help to improve global weather prediction and climate services; and the **Systematic Observations Financing Facility** (SOFF), which will allow SIDs to be able to implement and sustain their contribution to GBON; and the **Hydrological Status and Outlook System (HydroSoS)**. The CMO Headquarters has continued to be active in supporting WMO regional activities and guiding national action for the **WMO Integrated Global Observing System (WIGOS)** and **WMO Information Systems** (WIS). CMO is hosting a Caribbean node of WIS2.0. Members are reminded of the compulsory implementation of the WIGOS, which became operational in 2020. Disaster Risk Reduction and early warning systems to build resilience to climate change remain as major issues for the Congress.

16. The Coordinating Director, as a member of the **WMO Executive Council** (EC), participated in its 78th session (EC-78) on 10-14 June 2024, along with advisors, Dr David Farrell, Principal of CIMH, and Mr Kenneth Kerr, Science and Technology Officer, CMO Headquarters.

17. The Coordinating Director continues to serve as the RA IV representative to the **WMO Research Board** (RB), having been selected as the RA IV Research and Modelling Focal Point at the 18th Session of RA IV in February 2021. In that capacity, she has advanced activities that support the research priorities of North America, Central America and the Caribbean. She co-chairs the RB *Task Team on Early Warnings for All* and serves on the *Data Exchange for the Research Sector Task Team*.

18. She also serves on the WMO *Panel on Socio-economic Benefits* and the WMO *Staff Pension Committee* and attended UN Joint Staff Pension Board meetings in 2024 as the Governing Body representative for the WMO.

19. In June 2023, CMO Headquarters hosted the WMO WIS2.0 in a Box Workshop for 19 participants from 15 countries, where participants learnt how to install and configure the software to **enable ease of local and international data exchange**. CMO and WMO have signed a Letter of Agreement whereby WMO will provide cloud services to support a CMO Node of WIS for four years. The CMO is among the first regions to pilot this new technology.

20. CMO Headquarters is ensuring the availability, accuracy, and timeliness of weather, climate, and water observations and related data and information from National Meteorological and Hydrometeorological Services. CMO Headquarters and Trinidad and Tobago Meteorological Service will be responsible for the data quality management system for the English-speaking Caribbean as components of virtual **Regional WIGOS Centre** in Regional Association IV (North America, Central America and the Caribbean) (RA IV). The centre is a collaboration with the United States National Weather Service, Environment Canada, Costa Rica, the CMO Headquarters Unit, and the Trinidad and Tobago Meteorological Service, and was endorsed by the RA IV Management Group in January 2020. An updated RWC review was conducted under the RA IV Infrastructure Committee and approved by the

31st RA IV Management Group meeting. The Coordinating Director and the Science and Technology Officer (STO) participated in a training workshop on the Regional WIGOS Centres in Costa Rica on 12-15 December 2022. The STO attended the RWC Global Workshop in July 2023. The RWC is scheduled to start functioning in pilot mode in the last quarter of 2023.

21. Council Members are urged to enact draft national legislation and policy developed through the Implementing Arrangements between WMO and CMO Headquarters with financing from the CREWS Initiative. The National Meteorological and Hydrological Services will then have the legal mandate for enhancement of Multi-Hazard Early Warning Systems; developing partnerships with multiple sectors; uptake of science and technology advancement; adapting operating models; developing capacities and other key aspects that will influence evolving roles and responsibilities of National Meteorological and Hydrometeorological Services in the Caribbean (NMHSs), especially with the new initiatives such as *Early Warnings for All*.

Development of National Meteorological Services in CMO Member States

22. In 2024, CMO Headquarters continued to provide guidance to the Director of Meteorology of the Turks and Caicos Island (TCI) Airport Authority, **Dr Holly Hamilton**, on the development of their National Meteorological Service, and on capacity development of their meteorological technician in operational numerical weather prediction through the WMO workshop held in August 2024.

23. CMO HQ continued to assist the capacity development of the meteorological services in BVI by working to aid their compliance with WMO requirements for observation timeliness and quality. CMO HQ also coordinated with CIMH on the provision of appropriate operational training for the meteorologist at the Department of Disaster Management (DDM).

CMO Radar Network and the CMO Operational Radar Group (CORG)

24. CMO Headquarters is working with the **Caribbean Development Bank** on a project to upgrade the CMO radar network to dual-polarization systems, which is the current standard for operational meteorology. Details of the project, which is budgeted at **~\$25million USD**, are provided under Item 11. CMO HQ continued to support the operations of the CMO Radar Network through the collection and disbursement of funds to radar host countries. Additionally, CMO HQ hosted three virtual meetings of the CORG since CMC65. Council is reminded that the CORG comprises radar technicians and IT personnel from radar host countries and CIMH, and is co-chaired by Mr Brian Murray of the Barbados Meteorological Service and Dr Ashford Reyes of CIMH. A presentation on the CORG, as a community of practice to support early warnings, was well-received at the *2024 Annual Meeting of the American Meteorological Society*, Baltimore, Maryland USA. Details of the radar network and CORG are presented under Agenda item 10.

Marine Meteorology, Ocean Science, and Services

25. In CMO Headquarters continues to coordinate with the WMO in support of capacity development for marine meteorological service delivery in the Caribbean, including facilitating the participation of the BCT and non-WMO Members in the second and final phase of the marine service delivery course for the English-speaking Caribbean.

26. Additionally, CMO Headquarters continues to advocate for the Global Basic Observation Network (GBON) to include marine observations and thus become eligible for support through the UN Systematic Observations Financing Facility (SOFF). The result is that at the third WMO Infrastructure Commission session, the SOFF was requested to considered the addition of marine observations for Members.

27. CMO Headquarters was invited to participate as a panelist in the 2nd Symposium of the International Maritime Organization (IMO) and WMO on Extreme Maritime Weather: Bridging the Knowledge Gap towards Safer Shipping, 23-26 September 2024, Exeter, United Kingdom. The Organization was represented by the Science and Technology Officer, **Mr Kenneth Kerr**.

Disaster Risk Reduction (DRR), Climate Change Adaptation

28. Council will note that CMO Headquarters was invited to present at the *Understanding Risk Global Forum* in Japan, June 2024. The STO presented on the “*Caribbean - Harnessing Seeds of Innovations to support Early Warning Systems*”.

29. Council will recall that a major responsibility for the CMO Headquarters with regard to DRR is the **Severe Weather Forecast Programme (SWFP) Eastern Caribbean**, which focuses on severe weather (heavy rain, strong winds, rough seas/swells) that can occur at any time of year. The Regional Subprogramme Management Team is co-chaired by *Météo-France-Martinique* and CMO Headquarters and supported by CIMH. The SWFP Eastern Caribbean is in pre-operational phase, with global and regional model forecasts being used to monitor potential severe weather by the *Regional Forecast Support Facility (RFSF)*–Martinique.

30. In addition to the activities reported above, the CMO Headquarters Unit continues to advance disaster risk reduction in cooperation and coordination with CDEMA, CIMH, and other regional institutions. Through the Regional Early Warning System (REWS) Consortium led by CDEMA, CMO HQ aided in advancing Multi-Hazard Early Warning Systems. Other related activities are described under Agenda Items 5 and 11.

WMO: Protecting Radio Frequencies for weather, climate and earth observations

31. Council is reminded that CMO Headquarters continues to support the efforts of WMO and others to [protect radio frequencies that are vital for earth observations, weather forecasting, and climate services](#). In February 2024, CMO HQ collaborated with WMO on a pioneering training workshop on radio frequency coordination in Port of Spain, Trinidad and Tobago, held in conjunction with the WMO 5th Meeting of the Expert Team on Radio Frequency Coordination. The events were held in the training room of the Caribbean Telecommunications Union (CTU) and the Secretary General provided feature remarks to both events.

32. The CMO is grateful to the Caribbean Telecommunications Union (CTU) and its Members for previously supporting proposals to promote safety and safety-related services, including meteorological and related earth observations. In 2024, CTU invited CMO to join the **Spectrum Management Task Force**.

33. CMO HQ is encouraging Members to work with their spectrum management authorities to ensure that adequate protection is maintained for radiocommunication allocated to meteorological and related earth observation services. CMO HQ presented on the matter at the ITU Regional Radiocommunication Seminar 2024 for the Americas Forum on Satellite Systems: Challenges and Opportunities for the Region in July 2024.

34. A priority for the WMO during the World Radio Conference 2023 was the [impact on sea-surface temperature measurements](#) of a new spectrum allocation for the future development of International Mobile Telecommunications (IMT). Studies show that intended new IMT spectrum identification will interfere with sea surface temperature measurements up to 2000 km from the coast, thereby degrading the data. *Why do we care about satellite observations of sea surface temperature?* Because **sea surface temperature measurements help to predict where tropical storms and hurricanes are likely to form**, that is, where the sea-surface temperature reaches or exceeds 26°C. Additionally, rapid **intensification of storms has been observed when they move over warm currents and eddies**.

35. *For the vast areas of the Atlantic Ocean and the Caribbean Sea, the primary observations of the air and sea are from satellites*, which measure earth observations at particular frequencies. These vital earth emissions are weak signals, which have no alternatives. This is why the CMO is seeking the protection of the radio frequencies used for earth observations and those used for the provision of satellite links to relay data from science and earth observation missions.

Lightning monitoring and safety awareness

36. Lightning is the most commonly experienced weather hazard and it poses a danger to wind turbines and solar farms. Lightning safety promotion was one of the motivating factors for the CMO Headquarters and the WMO to organize the first ever Symposium on Lightning and Lightning Safety Awareness in May 2021, with attendance of 130 participants from 28 countries.

For the 2014 International Lightning Safety Day, the Coordinating Director presented on the “*Strengthening Capacities in Lightning Detection and Awareness Building at the Regional Level*”, which is one of the activities to be implemented under CREWS Caribbean 2.0, in collaboration with regional stakeholders. Lightning is one of the multiple hazards under Pillar 2 of Early Warning for All.

CARICOM-CARIFORUM Related Activities

37. Council is asked to note that the Coordinating Director and the STO participated in various CARICOM related activities in 2024 including Meetings of the *Council for Trade and Economic Development (COTED) - Environment and Sustainable Development*, and preparatory meetings for the 4th UN SIDS conference. CMO Headquarters also participated in and provided briefs for Preparatory Meetings for COP29 of the UNFCCC.

38. Council is asked to further note that CMO Headquarters received training (virtual) on Caribbean Community Administrative Tribunal (CCAT) in June 2024 and also participated in the in-person seminar of CCAT that was held in Port of Spain. The CMO Headquarters Finance and Administrative Officer, **Mrs Natalie Araujo-O’Brien**, continues to serve on the CARICOM RBM Leadership Group and the Finance Committee of the CCAT.

Headquarters Matters: Staff Terminal Benefit Fund

39. An update on the registration of the Fund with the Central Bank of Trinidad and Tobago will be presented until agenda item 8.

Status update on Strategic Objectives

40. An update on the Status of the Strategic Planning of the CMO Headquarters and CIMH will be presented in Agenda Item 12. Council is asked to note that the planned activities will be helping to strengthen the National Meteorological and Hydrometeorological Services; enhance early warning systems and disaster risk reduction; support the implementation of the WMO Integrated Global Observation System (WIGOS); contribute to establishing regional priorities for operationally-directed research, marine meteorology and ocean services; contribute to the framework for the Global Basic Observation Network and the free exchange of core and recommended data.

Spanish Language Course, University of Chile

41. Council is asked to express its gratitude to the Embassy of Chile in Guyana and the University of Chile for providing free Spanish language course to three of the officers of the CMO Headquarters during April to July 2024.

UK Met Webinar

42. The Coordinating Director as the PR of the British Caribbean Territories with WMO was invited to present a webinar on the history of the British Caribbean Territories and the operations of its National Meteorological Services. The Coordinating Director invited the Cayman Islands National Weather Service and the Turks and Caicos Island National Weather Service to be co-presenter of the webinar, which was very well received.

Other Matters

43. Council is asked to note that, by 15 October 2024, the level of financial contributions received from Member States stood at 77%. Details will be discussed under Agenda item 6(c).

44. The CMO Headquarters continues supporting the CIMH in its implementation of the Intra-ACP Climate Services and Related Applications (ClimSA) Programme, on behalf of the CMO by serving on the Project Steering Committee and participating in the related workshops and similar activities. ClimSA is an initiative of the Organisation of the African, Caribbean and Pacific States (OACPS) funded under the 11th European Development Fund (EDF) to strengthen the climate services value chain. See the Principal's report for further details.

45. **ANNEX II** to this document indicates meetings and other events attended (or scheduled attendance) by officers of the CMO Headquarters since the 65th Council Session in November 2023. This schedule of activities undertaken by the CMO Headquarters to-date was relatively heavy this year, comprising of a mix of CMO, WMO, and UNDRR regional implementation activities. Several regional meetings were related to disaster risk reduction and Multi-Hazard Early Warning Systems in the Caribbean. The Headquarters Unit formally congratulated newly-appointed Ministers and Permanent Secretaries, who oversee the National Meteorological Services; introducing each to the CMO and its role in supporting Member States

46. The CMO Headquarters continues to promote the participation in as many scientific, technical and training events as possible by the National Meteorological and Hydrometeorological Services and the CIMH, particularly those sponsored by the WMO and its partners that have a special relevance to the region. The list in **ANNEX III** shows the events that the Coordinating Director was able to facilitate from November 2023 to November 2024.

47. The Council:

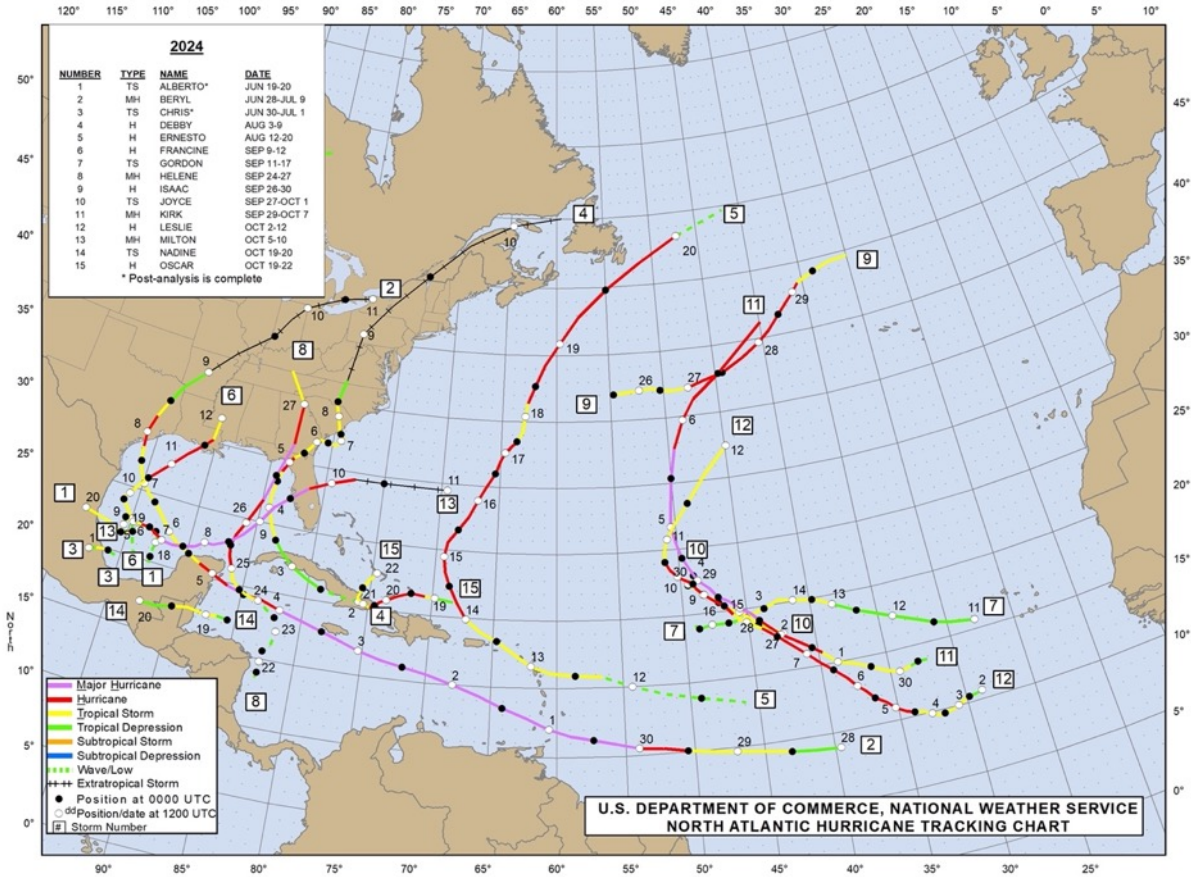
- (i) **Noted** the activities and issues concerning the CMO Headquarters in 2024, in particular, the engagement with disaster risk reduction and early warning systems; radio frequency coordination to protect meteorological observations and their transmission, and applications; as well as those issues concerning the wider Caribbean Community;
- (ii) **Discussed** the impact of the 2024 hurricane season, other high impact weather, on the region and, in particular, the impact on CMO Member States;
- (iii) **Noted** the progress on the development of the CMO Headquarters Strategic Planning for 2024-2029.

CMO Headquarters
November 2024

High Impact Hazardous Events of 2024

Preliminary Atlantic Tropical Cyclone Tracks

Figure A1. Atlantic Tropical Cyclone Tracks for 2024, up to 29 October 2024



2023/2024 CMO HQ Missions
(Not related to the CMC meetings)

Nov 28	Risk-informed Early Action Partnership (REAP) Secretariat Meeting [CD]
Nov 28- Dec 1	Caribbean Regional Climate Outlook Forum (CARICOF), Dominica, [STO]
Dec 1	WMO, RA IV, Aviation Workshop, hybrid, San Jose Costa Rica [PDO]
Dec 13	WMO Severe Weather Forecasting Programme Eastern Caribbean Management Team Meeting, Virtual Platform, Chaired [CD]
Dec 12-14	National Consultation Workshop, EW4All, Antigua & Barbuda [CD]
Dec 19	CRFM Webinar on Building Resilience to Climate Change, Ocean Acidification, and Disaster Risk Management in Fisheries & Aquaculture [CD]
Dec 19	WMO RA IV, Regional webinar: Progress, Good Practices and Challenges on Regional Approaches to Weather Research and Forecasting (WRF) Modelling [CD, STO]
Jan 17-19	Collaboration of GCF-SAP-CREWS CDB/CMO Caribbean Project, Write-shop Workshop, <i>Strengthening Hydro-Meteorological & Early Warning Services in the Caribbean</i> , Trinidad & Tobago, [CD, STO, PDO]
Jan 22-23	Meeting with Antigua & Barbuda Meteorological Service and Air Safety Support International (ASSI) [STO]
Jan 24	WMO, Extraordinary Session of WMO Executive Council, Virtual, [CD]
Jan 27-1 Feb	104 th American Meteorological Society (AMS) Annual Meeting, Baltimore Maryland [CD, STO, PDO]
Jan 30	33 rd RA IV Management Group Meeting [CD & STO]
Jan 31	AMS Meeting Oversight Committee (AMOC) Meeting [CD]
Feb 19 & 23	WMO, Training workshop on Radio Frequency (RF) matters – Port of Spain, Trinidad & Tobago [CD, STO, PDO]
Feb 20-22	WMO , 5 th Meeting of the Expert Team on Radio Frequency & Radio Frequency Coordination Training Workshop, Port of Spain, Trinidad & Tobago [STO, PDO]
Feb 21	CCRIF - 2024 Caribbean Regional Workshops, Development Partner Roundtable and Conference, virtual [CD]
Feb 25	CARICOM – Opening Session, 46 th Regular Meeting of the Conference of Heads of Government of the Caribbean Community, Guyana [CD]

Feb 26	Courtesy visit to Guyana Hydro-Meteorological Service and the Ministry of Agriculture, Guyana [CD]
Feb 26 – Mar 1	2 nd Weather and Society Conference hosted by the Societal and Economics Research Application (SERA) Working Group of the World Weather Research Programme (WWRP), virtual [CD, PDO]
Feb 27 & 28	Systematic Observations Financing Facility (SOFF) Multi-Country Workshop, Barbados, [STO]
Mar 4-9	WMO , SERCOM-3, 3 rd Session of the Commission for Weather, Climate, Hydrological, Marine and Related Environmental Services & Applications and Gender Conference, Geneva [CD, STO]
Mar 5 & 6	Environmental Management Authority (EMA) Climate Vulnerability Stakeholder Consultation Workshop, Trinidad & Tobago [CD, STO]
Mar 8	UNESCO, CaribWave & Intergovernmental Oceanographic Commission (IOC) collaboration, Training on the GEONETCast Americas System – A Tsunami Training, virtual [STO]
Mar 11-12	International Telecommunications Union / Caribbean Telecommunications Union/Trinidad and Tobago Telecommunications Authority, Setting Priorities for Accessible Communications at Sea for Small-scale Fishers Workshop, Smart Seas Project, [PDO]
Mar 12	Courtesy Visit of the Finnish Meteorological Institute to the CMOHQ, SOFF [CD, STO]
Mar 13	SOFF & Finnish Meteorological Institute Workshop, virtual [CD]
Mar 13	WMO RA IV Webinar: Introduction to WRF-MOSIT - A Modular and Cross-platform Tool for Configuring and Installing the WRF Model [CD, STO]
Mar 13	CCRIF in collaboration with the Cayman Islands Government, CDEMA and UWI, launched Ivan+20: Remembering the Past, Reflecting on the Present, and Visioning for the Future: 20 Years Since Ivan, virtual [CD]
Mar 18 – 22	WMO , RA IV 46 th Hurricane Committee Meeting, Panama [CD, STO]
Mar 20-22	CMO/CIMH Regional Workshop on National Frameworks for Climate Services in the Caribbean, Barbados [PDO]
Mar 28	USAID and the International Federation of Red Cross (IFRC) Global Summit on Extreme Heat, virtual [CD]
Apr 4	WMO , Technical Webinar on WMO Energy Demonstration Products in Chile and Costa Rica [CD]
Apr 4	WMO , 2 nd Meeting of the RA IV Expert Team on Marine Meteorological and Oceanographic Services, virtual [STO]
Apr 4	WMO , 3 rd Session of the Commission for Observation, Infrastructure, and Information Systems (INFCOM-3) on Cryosphere, virtual [STO]
Apr 5, May 3, Jun 5	WMO , RA IV Research and Earth-system Modeling (REM), virtual [CD]

Apr 12	EMA , Existing Financiers and Donors Bilateral Meeting - Elaboration of Climate Vulnerability Analysis for the identified Adaptation Priority Sectors (Health, Water and Agriculture), virtual [STO]
Apr 15-19	WMO , 3 rd Session of the Commission for Observation, Infrastructure, and Information Systems (INFCOM-3) [CD, STO]
Apr 24	IFRC Pre-Hurricane Conference 2024 - Invited Panelist, Panama [CD]
Apr 25 & 26	UN , 77 th Session of the UN Joint Staff Pension Board, virtual [CD]
Apr 30 & May 15	112 th Special Meeting of the Council for Trade & Economic Development (COTED) – Environment & Sustainable Development, virtual [CD]
May 1	Caribbean Telecommunication Union (CTU)’s 35 th Anniversary Open House and Exhibition, Trinidad & Tobago, [CD, STO, PDO]
May 2	EMA , Climate Vulnerability Stakeholder Validation Workshops - Agriculture, Water and Health Sectors, virtual [STO]
May 3	WMO , RA IV Expert Team on Climate Services – Leadership, virtual [STO]
May 7-9	CARICOM , First Caricom Meeting Preparatory to the 29 th Session of the Conference of the Parties (Cop29) of the United Nations Framework Convention on Climate Change (UNFCCC), virtual, [CD]
May 8	WMO , State of the Climate in Latin America and the Caribbean 2023, virtual [STO, PDO]
May 9	WMO , Webinar on the use of the WMO Community Platform, virtual [CD, STO]
May 13, Jul 17	WMO , Caribbean GBON requirements and SOFF implementation, virtual [CD, STO]
May 14 & 21	WMO , Webinar- Training sessions for CAP Implementation in Caribbean Countries, virtual [STO]
May 16	Ministry of Public Utilities, Water Resources Authority, Brainstorming Session for the Community Hydrological Observers Programme, Trinidad & Tobago [PDO]
May 21	Trinidad & Tobago Meteorological Service (TTMS) 2024 Wet Season – Sixteenth National Climate Outlook Forum (NCOF XVI), Trinidad [STO]
May 23-24	Caribbean Climate Outlook Forum (CARICOF) 2024 Wet/Hurricane Season, Guyana, [STO]
May 27-30	WMO , 4 th International Conference on Small Island Developing States (SIDS4), Antigua & Barbuda [CD]
May 29	CTU , 2 nd SIDS Internet Governance Forum (IGF), panelist, Antigua & Barbuda [CD]
May 31- 1 Jun	Courtesy visit to Montserrat

Jun 4-7	Collaborative workshop NOAA / WMO RA IV, CIMH, Météo-France Antilles-Guyane, the United States National Hurricane Center (NHC) , virtual- “An Interactive Analysis of Tropical Storm Philippe, [CD]
Jun 10-14	WMO , 78 th Session of the Executive Council (EC-78), Geneva [CD, STO]
Jun 13	WMO , 35th Meeting of the RA IV Management Group, Geneva [CD, STO]
Jun 17-21	Global Facility for Disaster Reduction and Recovery (GFDRR) in collaboration with the World Bank Tokyo Disaster Risk Management (DRM) Hub, The Understanding Risk Global Forum 2024, Himeji City, Japan [STO]
Jun 17	WMO , 35th RA-III-IV-Satellite Data Requirements (SDR) Group, [STO]
Jun 26	WMO Regional Association RA IV Services Committee, webinar, “Climate Services in RA IV: good practices and contribution to adaptation and risk management” [STO]
Jun 28	CMO-WMO Webinar: International Lightning Safety Day 2024, “ <i>Empowering Nations, Saving Lives from Lightning</i> ”, virtual [CD]
Jul 6	Ministry of Public Utilities & Trinidad and Tobago Meteorological Service, Recommissioning of the Trinidad Doppler Weather Radar, Trinidad & Tobago [PDO].
Jul 12	WMO & UN International webinar - Celebration of the International Day on Combating Sand and Dust Storms, virtual [CD]
Jul 18	WMO RA IV webinar “ <i>Machine Learning (ML)/Artificial Intelligence (AI) in Weather Prediction</i> ”, virtual [CD, STO]
Jul 23	Maynooth University of Ireland, “ <i>Tropical Cyclone Ocean-Coupled Potential Intensity Model (TOPIM)</i> ”, virtual [CD]
Jul 24	EMA , Training Workshop, “ <i>Strengthening Trinidad and Tobago's capacity in transparency for climate change mitigation and adaptation</i> ”, Claxton Bay, Trinidad [STO]
Jul 29 – Aug 2	UN , 78th session of the United Nations Joint Staff Pension Board, United Nations Conference Centre, Bangkok City, Thailand [CD]
Sep 17-19	CARICOM , 2 nd CARICOM Meeting Preparatory to the 29 th Session of the Conference of the Parties (COP 29) to the United Nations Framework Convention on Climate Change (UNFCCC), Miami USA [STO, CD]
Sep 20	Americas and the Caribbean EW4All Regional Coordination Mechanism
Oct 2-5	Courtesy visit to Belize, National Meteorological Service, CRFM, CCCCC
Oct 7-9	WMO Research Board (RB, 7 th -8 th) and Joint RB and Scientific Advisory Panel (9) – Virtual participant
Oct 14	Commissioning of the GOES Satellite Receiver System, Trinidad and Tobago Meteorological Service and the Ministry of Public Utilities

Oct 22	The 12th Global Dialogue Platform on Anticipatory Humanitarian Action , Invited Panelist (Virtual)
Oct 21-25	WMO Technical Meeting on Severe Weather Forecasting Programme Central America, Costa Rica [CD]

Nov 25-27	WMO Regional WIGOS Centre Global Workshop, Cape Town [Virtual Participation by CD and STO]
Nov 26-29	CariCOF and EWISACTS Consortium Meeting, Saint Lucia
Dec 2-6	Early Warnings for All (EW4All) and Disaster Risk Reduction in St Kitts and Nevis [PDO]
Dec 18	Severe Weather Forecasting Programme Management Team Meeting, Virtual Platform [CD Co-Chairs]

Technical Activities of Member States and CIMH facilitated by the Coordinating Director

YEAR	TRAINING/COURSES/MEETING/CONFERENCES	NAME	PARTICIPATING COUNTRY/ORGANIZATION
2023	WMO RA IV Aviation Workshop, San Jose, Costa Rica, 27 November to 1 December 2023	Billy Jeffers	St Vincent and the Grenadines
2024	WMO Fellowship (International Training Desk, National Weather Service Weather Prediction Center, April to July 2024)	Shamal Clarke	Cayman Islands
	WMO Fellowship (University of Reading, M.Sc. in Applied Meteorology and Climate with Management, September 2024 to September 2025)	Billy Jeffers	St Vincent and the Grenadines
	Common Alerting Protocol Webinar Series, 14 and 21 May 2024 (collaboration of WMO, CMO HQ and CIMH)	Multiple participants	CMO Members
	Caribbean Climate Heat & Health Workshop, April 2024	Fimber Frank Elmo Burke	Grenada St Kitts & Nevis
	Hurricane Forecasting & Warning Workshop, April 2024	Dr Holly Hamilton	Turks & Caicos Islands
	46th Session of RA IV Hurricane Committee (HC-46), March 2024	Kerry Powery	Cayman Islands
	104 th American Meteorological Society (AMS), Baltimore, 27 January – 1 February 2024	Deanesh Ramsewak Vishal Mohan Darion Mahadeo	Trinidad & Tobago Trinidad & Tobago Trinidad & Tobago
	NOAA/WMO RA IV Virtual Workshop- An Interactive Analysis of Tropical Storm Philippe, 4-7 June 2024	Shamal Clarke	Cayman Islands
	Caribbean Climate: Detection and Attribution Science Workshop, The University of the West Indies (Mona), 10-14 June 2024	Multiple Participants	CMO Members

Caribbean Numerical Weather Prediction Workshop for EW4ALL Initiative, August 2024 (WMO workshop, organized in collaboration with CMO Headquarters)

Johnathon Pryce	Grenada
Wayne McGreary	CIMH
Anwa Springer	St Kitts & Nevis
Gregory Cato	St Vincent & the Grenadines
Joshua Daniel	Turks & Caicos Islands

Marine Services Course for Caribbean English-Speaking Member States of WMO – Phase II (October to December 2024)

Allan Ebanks	Cayman Islands
Kassia Johnson	Grenada
Trisha Miller	Grenada
Elmo Burke	St Kitts & Nevis
Dr. Holly Hamilton	Turks & Caicos Islands

2024 Regional Early Warnings for All (EW4All) Multi-Stakeholder Forum (MSF) for Latin America and the Caribbean (2-6 December 2024)

Kenrick Bedeau	Grenada
Denel Dixon	St Kitts & Nevis