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CARIBBEAN METEOROLOGICAL COUNCIL **Doc. 11**
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GRACE BAY, PROVIDENCIALES, TURKS AND CAICOS ISLANDS, 12-13 NOVEMBER 2025

PROJECT UPDATES AND PROPOSALS

(Submitted by the Coordinating Director)

Background

1. Council will recall that the *Caribbean Meteorological Organization Headquarters Unit* (CMO HQ) continues to advance several initiatives aimed at strengthening the institutional, technical, and operational capacities of National Meteorological and Hydrometeorological Services (NMHSs), improving the delivery of weather, water, and climate services, and enhancing Multi-Hazard Early Warning Systems (MHEWS) across Member States. These include:

- the ***Climate Risk and Early Warning Systems*** (CREWS) Caribbean Project Phase 2 (CREWS Caribbean 2.0);
- the ***Green Climate Fund*** (GCF) Simplified Approval Process (SAP) proposal for Scaling Up Hydrometeorological and Multi-Hazard Early Warning Systems in Belize and Trinidad and Tobago;
- the implementation of **Quality Management Systems** (QMS) for meteorological services; and
- The International Relations of Tropical Storms in the Caribbean
- A project to implement a regional Emergency Alert System through cell broadcast technology, in five Eastern Caribbean countries

CMO HQ has also continued to engage in collaborative initiatives with regional and international partners in support of meteorological services and disaster risk reduction.

2. Council was previously informed that CMO HQ entered into an Implementing Arrangement (IA) with the ***World Meteorological Organization*** (WMO) in November 2024 to support the implementation of CREWS Caribbean 2.0. The project forms part of a broader regional initiative, with an approved budget of approximately US$7 million, aimed at strengthening MHEWS and advancing the objectives of the United Nations *Early Warnings for All Initiative* (EW4All). Under the IA, with funding of US$583,150, CMO HQ is supporting interventions to strengthen national governance arrangements, operational forecasting and warning capabilities, observational and information systems, warning communication, and institutional coordination among NMHSs, National Disaster Risk Management Organizations (NDRMOs), and other stakeholders.

3. At its 69th Session (CMC69[1]) in November 2025, Council was updated on progress under CREWS Caribbean 2.0, including the development of national strategic plans and frameworks for weather, water, and climate services; arrangements for strengthening cooperation between NMHSs and NDRMOs through Standard Operating Procedures (SOPs); capacity development under the Severe Weather Forecasting Programme – Caribbean (SWFP-C); lightning detection and awareness initiatives; and preparations for regional training in observing systems, data exchange, and early warning communication. Since that Session, implementation has advanced through regional and national capacity-development interventions, technical cooperation, and strengthened institutional arrangements to improve the effectiveness of meteorological and early warning services.

4. Council will also recall that CMO HQ collaborated with the ***Caribbean Development Bank*** (CDB) on the development of the GCF-SAP proposal to upgrade Doppler Weather Radar systems in Belize and Trinidad and Tobago and strengthen national and regional MHEWS. The approved GCF investment, of US$24.93 million, is intended to enhance meteorological observation, monitoring, forecasting, and warning capabilities, while strengthening institutional arrangements and preparedness for hydrometeorological hazards. The initiative is expected to benefit the two participating Member States directly and contribute to improved early warning capabilities across the wider Caribbean region.

5. With respect to Quality Management Systems, Council will recall its guidance at CMC63[2] concerning the implementation of QMS by meteorological service providers, consistent with the requirements of the International Civil Aviation Organization (ICAO). Subsequent Sessions endorsed CMO HQ's efforts to assess the status of QMS implementation across Member States and pursue funding for a regional programme of capacity development and technical assistance. These efforts have progressed through the mobilization of resources under the WMO Voluntary Cooperation Programme (VCP) and CREWS Caribbean 2.0 to support specialized training and the development of regional competencies in quality management and auditing.

Actions Emanating from Previous Sessions

6. At previous Sessions, Council noted and supported CMO HQ's efforts to develop and implement projects aimed at strengthening NMHS operational and management capacities, enhancing MHEWS, and supporting climate resilience and sustainable development in Member States. In particular, the 67th and 69th Councils supported the implementation of CREWS Caribbean 2.0, including initiatives to strengthen forecasting and warning capabilities, national governance arrangements, institutional coordination, and the professional development of NMHS personnel. Council also encouraged Member States to participate in and support the implementation of these regional initiatives.

7. Council further approved the CMO Headquarters Unit as the Executing Entity for the GCF-SAP-CREWS Scaling Up Project, which includes the proposed upgrades to Doppler Weather Radar systems and strengthening of MHEWS in Belize and Trinidad and Tobago.

8. Council also supported the pursuit of grant funding and technical assistance for QMS implementation across Member States. In response to this guidance, CMO HQ has continued to mobilize resources and collaborate with WMO and other regional and international partners to implement capacity-development interventions, including specialized QMS training supported jointly

[1] https://www.cmo.org.tt/docs/CMC69/CMC/CMC69_Doc_11.pdf
[2] CMC63 Final Report, Item 9.2 (https://www.cmo.org.tt/docs/CMC65/CMC63_FINAL_REPORT_web.pdf)

through WMO VCP and CREWS Caribbean 2.0. Progress in advancing these initiatives is presented in the following sections.

Updates on Projects and Proposals

9. The present report updates Council on the implementation of these initiatives since CMC69, highlighting progress in strengthening the technical competencies of NMHS personnel, institutional and interagency coordination, and operational capabilities for meteorological and early warning service delivery. Attention is given to the **results** of capacity-development interventions, their **benefits to Member States**, and the contribution of CMO HQ and its partners to **regional development priorities**.

a) Climate Risk and Early Warning Systems (CREWS) Caribbean Project Phase 2 (CREWS Caribbean 2.0)

10. Progress and Key Results by Sub-Project Area

(i) Governance: National Strategic Plans and Frameworks for Weather, Water, and Climate Services

i. Following competitive procurement, individual consultant Ms Yvette Ramos was engaged (effective 31 October 2025) to assist five beneficiary Member States (Antigua and Barbuda, Belize, Saint Lucia, St. Kitts and Nevis, and Trinidad and Tobago) in formulating National Strategic Plans (NSPs) and Frameworks for Weather, Water, and Climate Services (FWWCSs). The consultancy inception phase was formally concluded in December 2025.

ii. CMO HQ coordinated virtual baseline briefings and in-country multi-stakeholder consultations across all target States: Saint Lucia (24 November 2025), St. Kitts and Nevis (23 February 2026), Antigua and Barbuda (25 February 2026), Belize (23 March 2026), and Trinidad and Tobago (20-21 May 2026, including Tobago). These sessions convened representatives from NMHSs, National Disaster Risk Management Offices (NDRMOs), water resource management agencies, sector ministries, civil society, and academia to systematically evaluate operational mandates, service gaps, and user requirements.

iii. Comprehensive draft Baseline Assessments were completed for all countries and are nearing finalization. Notably, the Belize baseline assessment successfully integrated the findings of a Socioeconomic Benefit Analysis (SEBA) of the National Meteorological Service and National Emergency Management Organization (NEMO), establishing a quantitative evidence base on the economic return of hydrometeorological investments. These assessments form the technical foundation for draft NSPs, FWWCSs, and Action Plans aligned with WMO National Framework for Climate Services (NFCS) guidelines and EW4All Pillar 1 governance objectives. Work has also started on the preparation of the National Strategic Plans.

(ii) Severe Weather Forecasting: Severe Weather Forecasting Programme-Caribbean (SWFP-C)

i. The SWFP-Caribbean Regional Subprogramme Management Team (RSMT), co-chaired by the CMO Coordinating Director and the Regional Director of Météo-France Antilles-Guyane, convened in Mexico City on 6-7 March 2026 alongside the *48th Session of the WMO RA IV Hurricane Committee*. CMO HQ supported the participation of RSMT Members and CREWS Caribbean 2.0 beneficiary countries. The RSMT reviewed the Regional Severe Weather Operational Plan, approved the formal inclusion of The Bahamas in the RSMT, shared information about national severe weather forecasting processes in the SWFP-C National Meteorological Centres, and mandated the rollout of a regional operational testbed.

ii. CMO HQ co-organized the **SWFP-C Operational Testbed Workshop** in Barbados from 15-17 June 2026, in collaboration with CIMH, Météo-France, and WMO. The intervention brought together **26 operational forecasters and technical** officers (10 female, 16 male) representing **14 Caribbean NMHSs** (12 CMO Member States, the Dominican Republic, and Sint Maarten) and forecasting entities.

iii. Participating forecasters developed practical competencies using and applying Météo-France Extranet products, Regional Forecast Support Facility (RFSF) guidance, severe weather alert thresholds, and event entry into the regional Severe Weather Case Database. The **SWFP-C Operational Coordination WhatsApp Group** was initiated as an active, real-time operational bridge connecting national forecasting desks directly with the RFSF. Participating NMHSs drafted National Implementation Plans integrating SWFP-C guidance, Impact-Based Forecasting, and Common Alerting Protocol (CAP) workflows.

iv. Following the Operational Testbed Workshop, CMO HQ, CIMH, and Météo-France convened a **Virtual Regional Discussion** on 23 September 2026 with National Focal Points and operational forecasters from participating NMHSs. The meeting served as an operational checkpoint to transition the SWFP-C from capacity building to routine daily application. Technical partners highlighted enhancements to regional forecasting guidance hosted on the Météo-France Extranet, including a new impact-evaluation guidance tool, twice-daily synoptic map broadcasts, instructional video modules, and upcoming in-country practical training workshops proposed for Jamaica, Antigua and Barbuda, and Grenada.

v. Participating NMHSs presented country-level progress in operationalizing SWFP-C guidance, including the review and submission of revised multi-hazard SOPs to national disaster management agencies, the refinement of impact-based warning thresholds and hazard advisories, and the expansion of surface observation networks and CAP alerting workflows. The discussion confirmed the operational value of the real-time SWFP-C WhatsApp coordination platform, and set priority follow-up actions requiring NMHSs to finalize their National Implementation Plans, refine local hazard thresholds, advance forecast verification and severe weather event databases, and strengthen interagency briefing mechanisms with disaster management authorities ahead of the Council's Seventieth Session.

(iii) Observational Quality & Data Systems: WIGOS & WIS 2.0 Implementation

i. Regional WIGOS Centres (RWC) Capacity Building: CMO HQ collaborated with WMO, the Instituto Meteorológico Nacional (IMN) of Costa Rica, and regional partners to deliver the hybrid **Training Workshop on Regional WIGOS Centres Functions and Tools** in San José, Costa Rica, from 9-11 February 2026. Funded through CREWS 2.0 and CLIMSA, the workshop brought together **40 participants** (unable to disaggregate), with 24 in person and 16 online, representing **20 RA IV Members** (12 English-speaking and 8 Spanish-speaking NMHSs) and all 5 pilot RWC nodes (USA, Canada, Costa Rica, Trinidad & Tobago, and British Caribbean Territories). Participants developed practical skills in station registration via OSCAR/Surface, quality monitoring through the WIGOS Data Quality Monitoring System (WDQMS), and incident tracking using the Incident Management System (IMS). The workshop recommended updating distributed RWC governance by granting equal "Co-Lead Node" status across all operational facilities.

ii. WIS 2.0 Operationalization & COWET Launch: CMO HQ hosted the **Caribbean WIS 2.0 Complementary Training Workshop** in Port of Spain, Trinidad and Tobago, from 9-12 June 2026. The workshop trained **24 information technology specialists and operational staff** (6 female, 18 male) from **16 Caribbean NMHSs** in standalone WIS 2.0 node configuration, automated AWS data ingestion, WIS 2 Downloader integration, and legacy GTS.

iii. A primary outcome was the formal launch of the **Caribbean Operational WIS Execution Team** (COWET) as a sustained regional community of practice, which had been approved by the 69th Council. Participants considered and accepted a COWET regional implementation framework with time-bound targets, including automated 24-hour AWS data publication, metadata updates across 75% of NMHSs by December 2026, IWXXM aviation data exchange, and the establishment of a centralized GitHub code repository.

(iv) Impact-Based Forecasting (IBFWS), CAP, and Multi-Hazard SOPs

i. Following the conduct of national Common Alerting Protocol (CAP) implementation workshops in Dominica, Saint Lucia and Grenada during January-February 2025, which trained **64 participants** (30 female, 34 male), CMO HQ continued to support the operationalization of CAP through technical assistance and the deployment of dedicated instances of the WMO CAP Composer on the regional CMO WIS 2.0 Node. The workshops also produced preliminary national CAP implementation plans, identifying actions to strengthen standardized warning dissemination and interagency coordination.

ii. Council is reminded that unused balances from the CAP activity were reallocated, with WMO's agreement, to support the participation of the Directors of Meteorological Services from Grenada and St. Vincent and the Grenadines, which are not WMO Members, in the *47th Session of the WMO RA IV Hurricane Committee*, held in El Salvador in March 2025. Their participation provided an opportunity to share national experiences and lessons from Hurricane Beryl (2024), gain practical insights into the Committee's operational arrangements and the RA IV Hurricane Operational

Plan, and strengthen their engagement in regional tropical cyclone forecasting and warning coordination.

iii. Additional project resources supported participation in the WMO-CMO Leadership and Management Capacity Building Workshop, held in Trinidad and Tobago in December 2025, further contributing to leadership development and institutional capacity strengthening among participating NMHSs.

iv. National CAP Implementation Workshops: CMO HQ further supported WMO in conducting and facilitating four national CAP workshops in August 2026 in Antigua and Barbuda (**37 participants**: 22 female, 15 male), Jamaica (**31 participants**: 10 female, 21 male), St. Kitts and Nevis (**22 participants**: 5 female, 17 male), and St. Vincent and the Grenadines (**28 participants**: 5 female, 23 male). Collectively, the workshops engaged **118 participants** across four Member States. The workshops strengthened practical competencies in preparing and disseminating standardized, impact-based warnings using the WMO CAP Composer. Through hands-on exercises and multi-agency simulations, participants examined warning workflows, authorization procedures, institutional responsibilities, and coordination arrangements among NMHSs, disaster management agencies, and other stakeholders.

v. The workshops identified priorities for strengthening national CAP implementation, including the development or refinement of Standard Operating Procedures (SOPs), warning templates, authorization and dissemination procedures, and interagency coordination mechanisms. CMO HQ also deployed dedicated instances of the WMO WIS 2.0 CAP Composer on the regional CMO Node to support national CAP implementation. These interventions have strengthened the technical and institutional foundations for operationalizing CAP and improving the consistency and effectiveness of multi-hazard early warning dissemination.

vi. Familiarization Missions: The national CAP workshops also provided an opportunity to facilitate familiarization missions for personnel from Anguilla, the British Virgin Islands, Montserrat, and St. Kitts and Nevis to Antigua and Barbuda. These missions enabled participants to obtain first-hand exposure to the Antigua and Barbuda Meteorological Service (ABMS) and National Office for Disaster Service's operational arrangements and the ABMS's forecasting and warning procedures, strengthening their understanding of sub-regional forecasting arrangements and promoting closer operational coordination among the participating NMHSs. Complementing these missions, a meteorologist from ABMS participated in the national CAP workshop in St. Kitts and Nevis to gain practical insights into the country's meteorological and disaster management operational arrangements. This reciprocal exchange facilitated knowledge sharing and strengthened mutual understanding of the respective operational roles, procedures, and coordination mechanisms within the sub-region.

vii. Regional Workshop on Impact-Based Forecasting and Warning Services (IBFWS) and Common Alerting Protocol (CAP): CMO HQ, in collaboration with WMO, coordinated a **Regional Workshop on IBFWS and CAP** from 26-29

May 2026 in Port of Spain, Trinidad and Tobago, under the CREWS Caribbean Project Phase 2. The workshop brought together **37 participants** representing **17 Caribbean countries**, spanning NMHSs, National Disaster Risk Management Organizations (NDRMOs), the *International Federation of Red Cross and Red Crescent Societies* (IFRC), *International Telecommunications Union* (ITU), *United Nations Office for Disaster Risk Reduction* (UNDRR), and *Caribbean Telecommunications Union* (CTU).

viii. Through country case studies and practical exercises, participants strengthened their competencies in assessing potential hazard impacts using exposure and vulnerability information, developing impact-based warnings, and communicating appropriate protective actions using CAP. Participants also developed and presented preliminary national implementation roadmaps, identifying priorities for strengthening institutional coordination, SOPs, impact thresholds, data availability, and warning dissemination.

ix. A key outcome was the initiation of a **Caribbean Community of Practice for IBFWS and CAP**, coordinated by CMO HQ, to facilitate continued technical cooperation, peer learning and the exchange of implementation experiences and resources. Participating countries also identified priority actions to advance national implementation, including validating their roadmaps, refining impact-based warning procedures, strengthening interagency coordination and improving access to exposure and vulnerability data. The workshop established a foundation for more consistent, actionable and people-centred early warning services, with further national implementation and operational testing required to translate the strengthened capacities into sustained improvements in warning effectiveness.

x. Multi-Hazard Standard Operating Procedures: While formal SOP review write-shops faced schedule adjustments due to staffing turnover and emergency response commitments at co-implementing partner, the *Caribbean Disaster Emergency Management Agency* (CDEMA), following Hurricane Melissa, technical inputs were harvested during the May 2026 workshop. Participants evaluated CREWS 1.0 model SOPs and formulated six priority operational recommendations, including standardized warning escalation triggers, risk matrix integration, and CAP workflow embedding.

(v) Early Warning Communications & Emerging Technology

i. Regional NMHS-NDRMO-Media Workshop: CMO HQ collaborated with WMO, UNDRR, CDEMA, and the *Caribbean Broadcasting Union* (CBU) to convene the *pioneering* **Regional Workshop on Strengthening Knowledge Exchange and Mutual Understanding between NMHSs, NDRMOs, and the Media**, held in Port of Spain, Trinidad and Tobago, from 20-21 January 2026. A total of **60 individuals** were registered for the workshop, representing NMHSs, NDRMOs, government information services, and public and private media organizations from across the Caribbean.

ii. Through facilitated discussions and scenario-based exercises, participants examined institutional roles and responsibilities, mapped early warning information flows, and identified operational bottlenecks affecting the timely

verification and dissemination of warnings. Practical exercises also explored the development of adaptable broadcast templates, clearer warning escalation procedures, and communication approaches that account for public behaviour and the needs of vulnerable communities.

iii. The workshop produced **13 recommendations for strengthening early warning communication (Annex I)**, including coordinated multi-channel dissemination mechanisms, national communication frameworks, stronger institutional partnerships, pre-approved warning templates, and regular joint exercises. Particular emphasis was placed on recognizing media organizations as operational partners in early warning systems and integrating behavioural science into communication strategies to encourage timely protective action. These recommendations provide a framework for subsequent national interventions to strengthen coordination among NMHSs, NDRMOs, and the media and improve the consistency, accessibility, and effectiveness of multi-hazard early warning communication.

iv. The lessons from the early warning communication workshop are supporting the WMO RA IV Hurricane Committee's efforts to improve communication of tropical cyclone forecasts and warnings, with the CMO HQ's Project Development Officer, the focal point for

v. Public-Private Partnership on Artificial Intelligence: CMO HQ partnered with Varysian Ltd. to co-host the **Caribbean Regional Workshop on Artificial Intelligence for Forecasting, Climate Services, and Disaster Preparedness** (22-23 January 2026). A total of **48 participants** (21 female, 27 male) from meteorological services, disaster management agencies, technology providers, and regional and international organizations attended to explore the application of artificial intelligence (AI) and machine learning in strengthening forecasting, climate services, and disaster preparedness. Varysian covered participant DSAs and workshop costs directly, delivering significant public-private co-financing at zero cost to the CREWS grant.

vi. Through technical presentations, live demonstrations, and practical exercises, participants explored AI-enabled forecasting models, emerging satellite observation capabilities, automated monitoring and alerting platforms, and applications for disaster preparedness and decision support. Hands-on sessions provided opportunities to examine the configuration of location-specific monitoring dashboards, rainfall and wind thresholds, and automated alerts and reports.

vii. The workshop strengthened participants' exposure to emerging AI technologies and identified opportunities for regional cooperation, technical capacity development, and practical testing of AI-enabled forecasting and decision-support tools. Discussions highlighted important considerations for operational adoption, including data quality and availability, model validation, data sovereignty, institutional governance, technical infrastructure, and the sustainability of public-private partnerships. Participants also explored opportunities for voluntary technical working groups and collaborative testing arrangements to facilitate continued knowledge exchange and capacity development. The workshop reinforced the importance of adopting AI as a

decision-support capability that complements established forecasting methods and professional meteorological judgement, while preserving the authoritative role of NMHSs in issuing official warnings.

viii. National Early Warnings Communications Workshop: Building on the outcomes of the January 2026 Regional NMHS-NDRMO-Media Workshop, CMO HQ, in collaboration with WMO and national partners, supported the conduct of a national workshop on **Strengthening Knowledge Exchange and Mutual Understanding between the Meteorology Department, Department of Disaster Management and Emergencies (DDME), and the Media**, held in Providenciales, Turks and Caicos Islands, from 5-7 May 2026. The workshop brought together **16 representatives** (10 female, 6 male) from the TCI National Weather Service, DDME, Communications Directorate, local media, and regional partners, to strengthen coordination and improve the effectiveness of multi-hazard early warning communication. The workshop was greatly supported by the Director of the ***Bahamas Department of Meteorology***, Mr Geoffrey Greene.

ix. Through practical exercises, communication audits, and regional case studies, participants mapped national warning information flows, examined institutional roles and responsibilities, and identified operational bottlenecks affecting the timely verification, approval, and dissemination of warnings. Particular attention was given to communication arrangements for lower-level and evolving hazards, where existing procedures were found to be less clearly defined, as well as the need for consistent, actionable, and inclusive warning messages.

x. The workshop generated communication flow maps, identified priority operational improvements, and initiated the development of hazard-specific broadcast guidance and message templates. Participants also identified actions to strengthen direct communication channels between technical agencies and media organizations, formalize operational arrangements, clarify warning escalation and approval procedures, and conduct regular interagency simulations. Additional priorities included improving multilingual and accessible warning communication, strengthening misinformation management, and incorporating audience behaviour into communication strategies. These outputs provide a practical foundation for strengthening national warning communication procedures and institutional coordination, with further technical support and operational testing required to implement the recommended improvements.

xi. International Knowledge Dissemination: Project methodologies, outcomes, and recommendations for communication frameworks were presented globally at the *3rd Weather and Society Conference* of the WMO *World Weather Research Programme* (WWRP, February 2026) and via a keynote address delivered by the Coordinating Director at the *Trinidad and Tobago Disaster Risk Management Conference* (June 2026).

xii. Building on the experiences and lessons learned from the regional and national NMHS-NDRMO-Media workshops, an abstract examining advances in early warning communication and institutional collaboration in the Caribbean was

accepted for presentation during the *43rd Environmental Information Processing Technologies* session on the UN Early Warnings for All, at the *107th American Meteorological Society Annual Meeting*, from 10-14 January 2027, in Denver, Colorado. The presentation will provide an opportunity to share practical Caribbean experiences, operational challenges, and recommendations for strengthening coordinated, people-centred multi-hazard early warning communication with the wider international meteorological and disaster risk reduction communities.

(vi) Sub-Regional Lightning Detection Network and Lightning Safety Awareness

i. CMO HQ advanced the conclusion of activities stemming from the 2025 Caribbean Lightning Safety Awareness Contest by disbursing cash awards to winning schools in Belize, Dominica, Jamaica, Trinidad and Tobago, and The Bahamas. Six donated Automatic Weather Stations (AWS) were delivered to schools in The Bahamas, Belize, and Dominica. Technical site assessments and Sensor Hosting Agreements were completed for Manzanilla Secondary School (Trinidad and Tobago) and Camperdown Primary School (Jamaica) to host donated AccuWeather lightning sensors. Private sector co-financing mobilized totaled **USD 25,150** (USD 22,150 in hardware from AccuWeather; USD 3,000 in cash sponsorships from Campbell Scientific, Stevens Water, and Vaisala).

ii. The initiative achieved international recognition, being featured in the WMO/UNICEF publication **COPE Disaster Champions: Lightning** (launched 30 June 2026) and presented at the 106th Annual Meeting of the American Meteorological Society. Physical copies of the book will be distributed among the winning schools and to primary interested parties such as the Ministry of Education.

iii. Procurement of an additional five lightning detection sensors under CREWS 2.0 experienced administrative delays because the estimated value exceeds the delegated procurement threshold under the IA, requiring direct WMO procurement.

b) GCF-SAP-CREWS Scaling up Hydrometeorological and Multi-hazard Early Warning Systems in Belize and Trinidad and Tobago Project

11. Council is reminded that the GCF approved **US$ 24 million** to scale up multi-hazard early warning systems in Belize and Trinidad and Tobago, at the 43rd meeting of the Board of the GCF in October 2025. The proposal, which was presented by the **Caribbean Development Bank** (CDB), as the Accredited Entity with GCF, is the second proposal to be advanced under the GCF-SAP-CREWS Scaling up Framework.

12. The 69th Council approved the CMO Headquarters Unit as the Executing Entity for the GCF-SAP-CREWS project, *"Scaling up Hydrometeorological and Multi-hazard Early Warning Systems in Belize and Trinidad and Tobago"*, to be implemented on behalf of the CMO, with oversight by the Caribbean Development Bank as the Accredited Entity with the GCF

13. Council is advised that following approval by the Caribbean Development Bank's Board of Directors in June 2026, the CDB and the GCF have made significant progress in finalising

implementation arrangements. The GCF is expected to provide a draft Funding Activity Agreement (FAA) shortly for negotiation.

14. In parallel, the CDB has prepared a draft grant agreement with the Caribbean Meteorological Organization (CMO) and will share it shortly for review. Discussions have also advanced on procurement, staffing of the Project Management Team, and other implementation readiness requirements.

15. Subject to the successful conclusion of FAA negotiations, the Bank expects the FAA to be signed in early December 2026. Project start-up activities will then be finalised, with implementation anticipated to commence during the first quarter of 2027.

16. Council is asked to note that the CDB remains committed to working closely with the CMO and other stakeholders to ensure a timely launch of this important investment in regional hydrometeorological and multi-hazard early warning services.

c) Quality Management Systems (QMS) Implementation

17. To support the implementation of the QMS training programme and maximize regional participation, the CMO HQ adopted a complementary co-financing approach, leveraging resources from the WMO Voluntary Cooperation Programme (VCP) and the CREWS Caribbean 2.0. Under an Implementing Arrangement signed with WMO in February 2026, CMO HQ secured a VCP grant allocation of USD 22,300.00, of which USD 21,972.06 was expended on training tuition, Daily Subsistence Allowance (DSA), and air travel. To expand participation beyond the initial VCP funding allocation, CMO HQ secured an additional USD 12,930.69 under CREWS Caribbean 2.0 to cover accommodation, catering, and supplementary travel expenses. This brought the total direct financial investment in the training to USD 34,902.75.

18. CMO HQ also provided in-kind contributions through project management, technical programme design, and the provision of training facilities. This complementary funding arrangement enabled CMO HQ to maximize available resources and broaden access to specialized QMS training for personnel from Caribbean National NMHSs.

19. Building on these funding arrangements, CMO HQ organized and hosted the **Quality Management Skills Development Training Programme for Caribbean National Meteorological and Hydrometeorological Services** (NMHSs) from 9-13 March 2026 in Port of Spain, Trinidad and Tobago. The five-day programme was delivered by the Caribbean Institute for Quality Limited (CIQ Ltd.) and brought together **ten (10) senior operational meteorologists, quality managers, and technical officers** (5 female, 5 male) from Caribbean NMHSs. The participating services represented Antigua and Barbuda, Barbados, Belize, the Cayman Islands, Dominica, Guyana, Jamaica, Saint Lucia, Sint Maarten, and Trinidad and Tobago.

20. The training was designed to strengthen the technical competencies required for the implementation, maintenance, and continual improvement of Quality Management Systems (QMS) within NMHSs. The programme comprised two complementary components. The first focused on internal quality auditing, covering the requirements of ISO 9001:2015, auditing principles under ISO 19011:2018, risk-based thinking, identification and reporting of nonconformities, and corrective action processes. The second component addressed quality assurance in meteorological service delivery, including metrology, calibration, forecast verification, measurement traceability, and relevant International Civil Aviation Organization (ICAO) and World Meteorological Organization (WMO)

requirements. Practical sessions on forecast verification and aviation meteorological competency assessment were facilitated by CMO HQ and the CIMH, respectively.

21. The training achieved a **100% examination pass rate**, with all ten (10) participants completing the assessment and receiving internationally recognized certification as ISO 9001:2015 Internal Quality Auditors from Exemplar Global Incorporated. Post-training evaluations, completed by all participants, indicated that the programme was highly relevant to their professional responsibilities, with 100% rating the training as "Very Useful." Participants particularly highlighted the practical application of competencies in process mapping, root-cause analysis, internal auditing, and forecast verification.

22. An important outcome of the training initiative was the initiation of a **Regional Pool of QMS Auditors**, comprising the ten (10) newly certified personnel. Participation in the programme was linked to the formal nomination of personnel by their respective NMHSs and their inclusion in a CMO-coordinated regional mechanism for technical cooperation and peer support. The initiative is intended to facilitate the sharing of specialized expertise among Member States through peer audits, pre-certification assessments, technical mentoring, and support for continual improvement of QMS processes.

23. The Regional Pool represents a strategic approach to strengthening institutional capacity and promoting the sustainability of QMS implementation across Caribbean NMHSs. By developing a network of qualified internal auditors within the region, CMO HQ is proposing the establishment of a mechanism through which Member States can access specialized technical assistance, share good practices, and potentially reduce their dependence on external auditing services if there is support for the peer-to-peer support mechanism. The initiative is also expected to support greater consistency in quality management practices and strengthen the capacity of NMHSs to meet applicable ICAO and WMO requirements.

d) The International Relations of Tropical Storms in the Caribbean

24. Council is reminded that the project was introduced to the 67th Council, as a collaboration between King's College London (KCL) and The University of the West Indies (UWI-Mona), funded by the UK Economic and Social Research Council. The project has been examining barriers to international cooperation on hurricanes and tropical storms in the Caribbean, the impacts of climate change and global dynamics on meteorological collaboration, and historical factors contributing to regional vulnerabilities. The 67th Council noted the participation of the Coordinating Director, **Dr Arlene Laing**, on the project's advisory board, which includes experts such as **Dean Michael Taylor** (UWI), and **Professor Amanda Lynch** (Chair of the WMO Research Board). The project is led by **Dr. Nicholas Michelsen** (KCL) and co-led by **Dr. Suzette Haughton** (UWI-Mona).

25. The project has been analysing how expert practices, institutional processes, and international relations influence cooperation on tropical storms, through interviews with persons from organizations involved in prediction, early warning, disaster response, and resilience-building. Those interviews have helped the researchers to identify some challenges to international cooperation, and highlighted best practices and strategies to improve collaboration.

26. Council is reminded that the research team participated as presenters at the *2025 Annual Meeting of the Directors of Meteorological Services* and as observers to the 69th Council session.

27. Council is asked to note that the research team conducted face-to-face interviews with the Directors of National Meteorological Services, aimed at identifying factors about the cooperation

challenges and opportunities that those working with the CMO see as most salient around tropical storms and hurricanes. A subset of interviewees participated in a **regional policy workshop** held in Kingston, Jamaica on 18-20 May 2026**.**

28. The research team will share with the Council **a policy report** exploring the needs and challenges faced by Caribbean meteorologists in strengthening cooperation. They have also developed a set of **policy recommendations** that will provide guidance on strengthening international relations around tropical cyclones and enhancing the **visibility of the vital role played by the CMO** in regional and global meteorological governance.

e) Support to other regional projects focused on early warnings

29. Council is asked to note that the CMO Headquarters is supporting the implementation of a project entitled, "***Building Resilient Early Warning and Risk Communication Capacity Through Cell Broadcast Technology in Five Eastern Caribbean Countries (2026–2030)***", which is being implemented by the *World Bank* and the *International Telecommunication Union* (ITU). The *Caribbean Telecommunications Union* (CTU) is the regional lead institution for the project.

30. The aim of the project is the strengthening of last-mile early warning dissemination in the Eastern Caribbean through the design, deployment, and operation of a regional Emergency Alert System (EAS), primarily based on Cell Broadcast technology aligned with the Common Alerting Protocol (CAP). The pilot countries for implementation are: the Commonwealth of Dominica, Grenada, Saint Lucia, St. Kitts and Nevis, and St. Vincent and the Grenadines.

31. Council is reminded that since 2023, CMO Headquarters has been leading training and implementation of CAP in CMO Member States, including the five countries in which the cell broadcast emergency alert system will be implemented. Further, the Coordinating Director participated in the project's Inception meeting held virtually in February 2026 and the regional Validation Workshop, held in Grenada on 9-10 June 2026. Outcomes from this project will support regional and global replication and expand the means of early warning communication.

ACTION PROPOSED TO COUNCIL

32. The Council is invited to:

(i) **Note** the substantial progress achieved in the implementation of the CREWS Caribbean Project Phase 2 (CREWS Caribbean 2.0) across MHEWS governance, severe weather forecasting, WIGOS/WIS 2.0 operationalization, early warning communications, and lightning safety.

(ii) **Note** the preparation being made towards the implementation of the GCF-SAP-CREWS, *"Scaling up Hydrometeorological and Multi-hazard Early Warning Systems in Belize and Trinidad and Tobago"* by the GCF, CDB, and CMO.

(iii) **Commend** the ten (10) NMHS practitioners from eight (8) Member States who achieved 100% examination success and were certified as Exemplar Global ISO 9001:2015 Internal Quality Auditors.

(iv) **Endorse** the establishment of the **Regional Pool of QMS Auditors** as an emerging regional peer-support mechanism for advancing QMS compliance in CMO Member States, subject to appropriate governance, resources, and operational arrangements.

(v) **Urge** Member States to support the sustainability of these project-based interventions by:

a. Finalizing and submitting outstanding Severe Weather Forecasting Programme Caribbean (SWFP-C) National Implementation Plans to the CMO HQ and CIMH;

b. Reviewing and updating national severe weather hazard thresholds (for localized heavy rainfall, strong winds, hazardous seas, and excessive heat) and multi-hazard Standard Operating Procedures with National Disaster Risk Management Offices;

c. Ensuring operational forecasters utilize Météo-France Extranet guidance daily and participate in the real-time SWFP-C operational coordination;

d. Enabling certified QMS auditors and COWET technical personnel to contribute to regional peer-auditing missions and WIS 2.0 implementation targets.

(vi) Note the progress being made on the study of the International Relations of Tropical Storms in the Caribbean, including the recommendations in the policy report produced by the research team.

(vii) Note CMO Headquarters support to a regional Cell Broadcast Emergency Alert System project in five Eastern Caribbean CMO Member States being implemented by the World Bank and ITU and regional partners led by the CTU.

CMO Headquarters
November 2026

ANNEX I

RECOMMENDATIONS FOR EARLY WARNING SYSTEMS COMMUNICATION

Caribbean Regional Workshop on Strengthening Knowledge Exchange and Mutual Understanding between National Meteorological and Hydrometeorological Services (NMHSs), National Disaster Risk Management Offices (NDRMOs), and the Media
20-21 January 2026, Port of Spain, Trinidad and Tobago

Purpose of workshop

To enhance National Meteorological and Hydrometeorological Service, National Disaster Risk Management Office, and Media collaboration for more effective and coordinated weather, climate, and disaster risk information communication.

Participants: 60 participants from NMHSs, NDRMOs, government Information services and private sector media from across the Caribbean.

Recommendations from the workshop

1. Establish and operationalize coordinated multi-channel communication mechanisms (e.g., structured WhatsApp groups and other rapid dissemination platforms) to ensure the timely transmission of official warnings and updates across NMHSs, NDRMOs, and media partners.
2. Develop and implement a coordinated national communication framework that enables NMHSs, NDRMOs, GISs, and media partners to deliver a consistent and unified warning message, supported by planning, monitoring, evaluation, and behavioural impact metrics.
3. Institutionalize structured partnerships between NMHSs, NDRMOs, and media organizations during non-emergency periods to build trust, clarify roles, and improve operational coordination through regular engagement and simulation exercises.
4. Integrate social science approaches into hazard communication strategies to ensure that early warning messages are culturally appropriate, socially informed, and designed to encourage behavioural response rather than one-way information transmission.
5. Strengthen institutional engagement with key decision-makers within media organizations (e.g., Heads of News, Programme Managers) to ensure sustained operational collaboration despite high turnover among journalists and presenters.

6. Design cooperation agreements (e.g., MoUs) that empower institutions to act operationally, with clearly defined responsibilities, decision authorities, and mechanisms for implementation during hazard events.
7. Develop nationally agreed warning activation criteria and pre-approved messaging templates for broadcast and digital platforms, enabling media partners to disseminate clear and timely information without requiring technical interpretation during crises.
8. Strengthen the adoption of Impact-Based Forecasting and implement global alerting standards such as the Common Alerting Protocol (CAP) to improve accessibility, interoperability, and the usability of early warning information.
9. Design forecasts and warning products to maximize public understanding, including transparent communication of uncertainty and the use of simple, non-technical language.
10. Shift national communication approaches from a preparedness-response paradigm toward sustained early-action messaging embedded within development planning, ensuring continuity and consistency in risk communication.
11. Integrate service-linked recommended actions into early warning messages to guide decision-making and reduce behavioural barriers that prevent individuals and communities from acting on warnings.
12. Strengthen public education programmes on early warning systems through coordinated engagement of NMHSs, NDRMOs, media organizations, and relevant hazard-specific agencies.
13. Engage senior national leadership and trusted public voices, including social media influencers and community figures, to reinforce official warning messages and promote behavioural change during high-risk situations.