5 - 7 May 2025

Kingston, Jamaica

**Closing the basic weather and climate data gaps the Caribbean:** SOFF regional implementation and creating synergies

**Workshop outcome report**

co-hosted by the Climate Risks & Early Warning Systems (CREWS), Inter-American Development Bank (IDB) and Systematic Observations Financing Facility (SOFF) Secretariat

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# Executive Summary

The SOFF Regional Workshop in the Caribbean, held from May 5–7, 2025, in Kingston, Jamaica, co-hosted by SOFF, CREWS and IDB, brought together over 50 stakeholders from national meteorological services, regional institutions, Implementing Entities, peer advisors, and development partners to advance the regional implementation of the Systematic Observations Financing Facility (SOFF). A key focus of the meeting was identifying opportunities for leveraging SOFF investments through coordination of investments in early warning systems and climate information services in the Caribbean.

The workshop highlighted the critical importance of achieving Global Basic Observing Network (GBON) compliance and the existing strong regional engagement and cooperation between Caribbean countries and institutions. The strong role of regional organizations like Caribbean Meteorological Organization (CMO) and Caribbean Institute for Meteorology and Hydrology (CIMH) and opportunities for fostering regional efficiency were identified. Some of the key outcomes of the meeting were as follows:

* **GBON status in the region.** While progress has been made toward GBON compliance in the region since the 2023 baseline, gaps remain in particular with timeliness, as many countries report only during daytime hours. At present, only five surface stations in these countries are fully GBON compliant.
* **Existing cooperation and opportunities for regional approaches in the Caribbean.** The strong cooperative approach between meteorological services was acknowledged by all participants.The new sub-regional GBON design adopted by WMO’s Regional Association IV offers a more resource-efficient pathway for compliance but requires countries to review and align their National Contribution Plans accordingly. The participants called for support to strengthen regional coordination and investments.
* **Marine observation** emerged as a strategic priority for countries, with recommendations for cost-effective, regionally coordinated approaches.
* **Concerns on sustainability of support for the region.** The countries raised uncertainty about the sustainability of support from bilateral partners, including the US, in maintaining their upper-air network. Participants called for sustained support through both international and national funding mechanisms, including the Systematic Observations Financing Facility (SOFF).
* **Importance of synergies and cooperation between SOFF, CREWS, and other partners.** The workshop identified concrete opportunities to sustain the impact of SOFF-supported infrastructure and capacity development through national legislation, strategic planning, and complementary programming from initiatives such as CREWS Caribbean 2.0, EW4All, and other regional hydromet investments.
* **Stakeholder consultations and ensuring countries' voices are reflected in the implementation of SOFF and other regional investments.** Participants provided input on the SOFF compliance phase, highlighting the importance of legal frameworks, flexible financing mechanisms, and the inclusion of civil society and private sector actors.
* **Essential need to enhance capacity development and knowledge sharing as a region**. A shared commitment to regional solidarity, equity, and capacity development was reaffirmed. Participants called for funding mechanisms to support regional initiatives through organizations including CIMH and CMO and emphasized the need to balance donor requirements with national capacity to avoid overburdening technical services.
* **Deepening country leadership and operational ownership.** The Inter-American Development Bank (IDB) underscored that SOFF implementation reinforces a shift toward country-executed approaches. This builds on the leadership already demonstrated by national meteorological and hydrological services (NMHSs), while empowering them with more responsibility over design, procurement, and delivery. Though this may challenge internal capacity in the short term, it is intended to promote long-term institutional resilience and self-reliance.
* **Key outcomes for SOFF implementation and scale-up.** The workshop produced several outcomes directly relevant to SOFF implementation in the Caribbean. These include:
* Agreement on co-financing range (5–25%) during the SOFF compliance phase with requests for clarity on in-kind contributions.
* A call to develop regional procurement and spare parts mechanisms to improve sustainability and efficiency.
* Proposals for new financial channels for regional window of SOFF investment
* Agreement on an approach for calibration and implementation of WIS2.0 in the region
* Recognition of the role of regional centers in compliance monitoring and incident response.
* Recommendations to integrate SOFF with complementary programs (e.g., CREWS, EW4All, GCF) to increase impact and reduce fragmentation.

**Closing the basic weather and climate data gaps in the Caribbean**

Advancing Systematic Observations Financing Facility implementation and creating synergies

# Context

The Caribbean SOFF regional workshop took place from 5-7 May in Kingston, Jamaica. It was co-hosted by the Inter-American Development Bank, CREWS, and the SOFF Secretariat. More than 50 participants from the Caribbean countries, SOFF peer advisors, SOFF Implementing Entities, WMO Technical Authority, multilateral and regional partners and the SOFF Secretariat attended the workshop that was held in a hybrid format. See Annex 1 for participants list.

The objective of the workshop was to advance SOFF implementation and create synergies in the Caribbean region. Figure 1 demonstrates the status of SOFF implementation in the Caribbean. See Annex 2 for workshop concept note and agenda (adjusted/final agenda). Workshop presentations are accessible following this [link](https://www.un-soff.org/private-link/soff-idb-crews-regional-workshop-in-the-caribbean-may-5-7-kingston-jamaica/).

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Country** | **Peer Advisor** | **Implementing**  **Entity** | **Readiness**  **Budget (USD)** | **Implementation Progress** |
| Antigua and  Barbuda | United Kingdom | UNDP | 182,970 | Readiness phase completed |
| Bahamas | Finland | IDB | 131,653 | Readiness phase completed |
| Barbados | Finland | IDB | 129,943 | Undergoing Readiness phase |
| Belize | United Kingdom | IDB | 199,757 | Investment Funding Request approved for USD 864, 543 |
| Cuba | Spain | UNDP | 160,000 | Readiness phase completed |
| Dominica | Austria | WFP | 135,650 | Undergoing Readiness phase |
| Dominican Republic | Spain | WFP | 160,000 | Readiness phase completed |
| Grenada | Spain | N/A | 120,000 | Undergoing Readiness phase |
| Guyana | Austria | IDB | 170,748 | Readiness phase completed |
| Haiti | Switzerland | IDB | 145,000 | Undergoing Readiness phase |
| Jamaica | Finland | IDB | 125,799 | Undergoing Readiness phase |
| Saint Kitts and Nevis | Finland | IDB | 128,463 | Undergoing Readiness phase |
| Saint Lucia | Austria | WFP | 135,650 | Undergoing Readiness phase |
| Saint Vincent and  the Grenadines | Austria | WFP | 135,650 | Undergoing Readiness phase |
| Suriname | Netherlands | UNDP | 150,000 | Readiness phase completed |
| Trinidad and  Tobago | Finland | IDB | 129,745 | Undergoing Readiness phase |

# Workshop outcomes

# Setting the scene – GBON and SOFF in the Caribbean

Session 1 provided context of the regional meteorological and hydrometeorological background, and overview of the Global Basic Observing Network (GBON), and how the Systematic Observations Financing Facility (SOFF) is set to assist Caribbean nations handle ongoing deficiencies. The session featured four speakers:

* Moderator and Speaker: Mr. Rodney Martínez (WMO) on outcomes of the 19th RA IV Regional Conference
* Dr. Arlene Laing (CMO) on hydromet status and coordination in the Caribbean
* Dr. Nir Stav (WMO) on the technical foundation and justification of GBON
* Mr. Daniel Vila (WMO) on regional GBON compliance and network design

The following key messages from the session:

**Major gaps in GBON compliance persist throughout the Caribbean region, particularly as it relates to surface and upper-air observational coverage.** However, Dr. Kenneth Kerr demonstrated that since 2023 there have been improvements, including through support from the U.S. CHUAS programme.

**A new subregional design was adopted by the Regional Association IV (RA IV) as a more resource-efficient way of achieving GBON compliance.** This decision sets a baseline for the amount of data countries can provide, however it was emphasized by WMO that countries are welcome to share additional data as they choose.

**Concerns regarding the apparent exclusion of Belize and Suriname from the design were raised.** WMO reaffirmed that countries could still contribute additional data voluntarily. The design will be reviewed every four years or sooner if deemed necessary.

**An issue raised by countries is that National Contribution Plans (NCPs) reflect evolving regional priorities.** They emphasized the need to potentially revisit NCPs in light of the RA IV decision and the CHUAS programme, and proposed that the matter be raised with the SOFF Steering Committee for possible formal action.

**Discussions on regional procurement revealed differences in priorities.** Implementing Entities placed emphasis on rules and regulations, while WMO and national services emphasized harmonization and sustainability.

**CMO plays a central role in operationalizing GBON and ensuring regional interoperability, through systems such as WIS 2.0.** Arlene Laing emphasized CMO’s leadership in sustaining high-quality, coordinated observations, supporting resilience, and supporting regional decision-making and technical oversight through its governance structure.

A person and person standing at a podium

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***Enhancing the resilience of observations is critical... If you have no foundation, you have no house. So the house will collapse." — Dr. Arlene Laing, CMO***

# Lessons learned through SOFF implementation - opportunities and challenges

Session 2 provided an in-depth look at the Systematic Observations Financing Facility (SOFF), the status of its implementation in the region, and reflections on the Readiness phase. The discussion held looked at achievements, challenges and lessons learned as countries get ready for the transition to the Investment phase. The session covered the following contributions:

Moderator: Dr Ana Heureux (SOFF Secretariat)

* Mr. Mario Peiró Espí (SOFF Secretariat) on the structure of SOFF, its implementation status in the Caribbean, and insights from the First Implementation Period, including financial updates, achievements, and challenges
* Panel discussion on lessons learned from the Readiness phase and next steps toward the Investment phase. Panelists:
  + Mr. Ronald Gordon (Belize PR),
  + Mr. Ali Price (UK Met Office),
  + Mr Chris Squires (UK Met Office)
  + Mr. Gerard P. Alleng (IDB)
* Open Discussion: Reflections on the Readiness phase and Q&A with participants

The following outcomes emerged from the session:

**There is no guarantee for CHUAS continuity beyond the 2025 hurricane season.** Participants emphasised the need to plan for a worst-case scenario and advocated for SOFF to consider its role in accounting for the likely costs of sustaining upper-air observations if the support from the U.S. does decline.

**There was a call for countries to revisit their National Contribution Plans (NCPs)**, considering the RA IV regional decision on upper-air station design was finalized after many Caribbean countries had already completed their readiness phases. Many of these plans were developed with the assumption that CHUAS would continue indefinitely. However, with no long-term guarantee of CHUAS continuity, the Caribbean region is now faced with reassessing its observational infrastructure needs.

**Capacity development amongst personnel must be prioritized.** Belize's experience showcased that, aside from infrastructure, long-term capacity must also be built through the training and retention of qualified personnel. The gap in staffing, particularly in technical and IT personnel, was also highlighted.

**The Readiness phase required mutual learning between implementing partners and met offices – and their respective processes and procedures.** Belize was used as a test case as it was in the early days of SOFF. It revealed wider mismatches between the project development expectations of financial institutions – such as IDB – and met offices and other technical partners. Effective collaboration and early, clear communication helped bridge this gap.

**Delays and coordination challenges were identified in the remote collaboration between peer advisors and met offices**, particularly with the smaller national services.

**Regional techniques were seen as important for future efficiency.** Participants emphasised the significance of breaking down national silos, particularly in areas such as CDMS, WIS 2.0, calibration and maintenance, spare parts, and training.

**Enhanced coordination is required to ensure procurement harmonisation and regional efficiency.** Caribbean states emphasised the significance of harmonised procurement standards to assure interoperability, cost-effectiveness, and ease of maintenance—especially considering the shared usage of regional calibration labs such as CIMH.

# Country Presentations

The third session of the workshop provided a snapshot of national-level readiness across the region and challenges in implementing the Global Basic Observing Network (GBON). Each country representative who presented gave an account of observational capabilities, current infrastructure gaps, and opportunities for strengthening coordination. Each representative from 16 Caribbean countries each offered insight into their contexts, elaborating on the status of surface and upper-air stations, the constraints in staffing, equipment maintenance, and data transmission, and putting forward proposals for leveraging regional cooperation in order to advance GBON compliance.

Moderator: Mr. Kenneth Kerr, Science and Technology Officer at the Caribbean Meteorological Organization (CMO) Headquarters

The session featured country presentations from:

* Mr. Dale Destin (Antigua and Barbuda)
* Mrs. Mary Butler (Bahamas)
* Ms. Semelka Jackman (Barbados)
* Mr. Ronald Gordon (Belize)
* Mr. Orlando Osa Peralo (Cuba)
* Ms. Karen Bazil Lawrence (Dominica)
* Mr. Jenuel Almonte (Dominican Republic)
* Mr. J. Andre Charles (Grenada)
* Dr. Garvin Cummings (Guyana – submitted a presentation)
* Mr. Wilner Polydore (Haiti)
* Mr. Rohan Brown and Mr. Evan Thompson (Jamaica)
* Mr. Elmo Burke (Saint Kitts and Nevis)
* Ms. Vigil Saltibus (Saint Lucia)
* Mr. Gregory Cato (Saint Vincent and the Grenadines)
* Mr. Dewdath Bhaggoe and Ms. Truusje Warsodikromo (Suriname)
* Ms. Saide Shakeer (Trinidad and Tobago)

*All individual country presentations can be accessed via the link provided in Annex 3.*

Below are the key messages and outcomes that emerged from the exchange:

**Support for regional calibration is essential, yet there are gaps in skilled personnel and formalized procedures.** Several countries emphasized that calibration is vital to maintaining GBON compliance, yet many face critical gaps in trained personnel and structured coordination. Elmos Burke of St. Kitts and Nevis highlighted that “even if we have the kits, we won’t be able to do the calibration,” pointing to a shortage of technical capacity rather than tools. Meanwhile, Orlando Osa of Cuba noted that they “are not accredited, but we are providing services,” and that “more or less every two years... equipment should go to the lab in Cuba,” though no standard process exists for how this occurs. In response, Rodney Martínez (WMO) suggested that the region consider “formalizing some kind of terms of reference under CMO coordination,” indicating a clear need for structured regional procedures—such as shared calibration schedules, roles, and funding arrangements—to ensure consistency, efficiency, and sustainability.

**A regional policy for spare parts and pooling of logistics amongst countries are required for maintaining the sustainability of national met services as an institution, GBON compliance, and continuity in data collection and reporting.** Countries repeatedly identified delays and high costs associated with obtaining spare parts. There was a strong call for SOFF to support the development of a regional spare parts policy and shared logistics system.

**SOFF implementation could prioritize national capacity, as a foundation for working on regional cooperation.** Kenneth Kerr (CMO) strongly emphasized that SOFF implementation should first focus on ensuring each country’s individual capacity to sustain and manage its own observational systems.

**Many Caribbean countries still struggle to meet GBON requirements for 24/7 operation**. A practical outcome raised was the need for countries that cannot operate stations 24/7 to formally register exceptions with WMO to avoid being misclassified as non-compliant.

**Regional collaboration in specific areas should be formalised.** There was a concrete recommendation to move beyond informal collaboration and volunteerism by further enhancing the formalisation of mechanisms for regional support—especially for training, calibration, and spare parts logistics.

# Group discussion on SOFF expansion and marine observations

Session 4 explored the current status of marine observations in the region and potential expansion of SOFF to support marine observations in the future. There was a focus on the regional context, technical priorities, and institutional readiness. The session kicked off with a panel discussion on the current status of marine observations in the Caribbean, the regional importance of ocean data, and key recommendations from the Hurricane Committee's Ocean Panel. This was followed by a lightning round discussion that looked back on national experiences, technical challenges, and opportunities for advancing ocean-based observing systems under the SOFF framework.

Moderator: Mr. Haley Anderson (CMO)

Panellists:

* Dr. Nir Stav (WMO) on technical considerations for marine observation systems and their role in global forecasting models
* Mr. Rodney Martínez Güingla (WMO) on the alignment of SOFF’s priorities with regional marine data gaps
* Ms. Semelka Jackman (Barbados Meteorological Service) on Barbados’ marine observations and the practical realities of operating ocean data platforms

A summary of key outcomes and recommendations from the session follows.

**Marine observations are vital for forecast accuracy, yet the region remains underserved.** The Caribbean remains critically undersampled in terms of marine observations, despite recent progress in voluntary observations (Bahamas). Real-time ocean observations are a critical aspect in increasing forecast accuracy during rapid intensification events. Findings underscore the technical urgency of expanding temperature-salinity profile coverage, particularly for assimilation into high-resolution models that support early warning systems.

**A regional approach is the only viable path forward for ocean observation.** Fragmented national efforts lack sustainability and that a coordinated regional system is essential. WMO is promoting coordination and collaboration within and across member states and platforms. Through regional coordination, all stakeholders carrying out observations can be invited to collaborate iteratively. From an investment standpoint, the only way to proceed would be to conduct an inventory of the existing status and have approach investment regionally.

**Feasible, cost-effective solutions need to be prioritized.** Ship-based platforms and mobile systems such as gliders, sea surface drones, and spotter buoys may present more affordable, yet still viable, options for marine monitoring than fixed platforms. The Bahamas introduced that the buoys are needed as they provide a standard for calibration.

**Demonstration projects help secure government buy-in.** Demonstrating the operational value of ocean data is key to securing national investment. The Bahamas gave a clear sample of fishing vessel networks that could be expanded to other member states.

**Barbados experience showcases the need for localized marine observations.**Barbados highlighted how national forecasting capacity can be transformed by even modest investments. Their use of drones and the planned deployment of 30 spotter buoys improved nearshore data coverage, model verification, and local understanding.

**Cross-institutional collaboration is critical for operations and maintenance.**Barbados leverages partnerships with its national Coast Guard, its National Conservation Commission, and its fisheries agency to offset technical and resource limitations.

**Data exchange must be built into system design.** To ensure that local observations contribute to global models, data must be shared through established systems, such as WIS 2.0 and OceanOPS.

# Regional approaches and implementation opportunities in the Caribbean

Session 5 represented a pivotal shift from assessment and planning to active implementation, focusing on regional strategies and mechanisms that would be required in order to ensure GBON compliance and the long-term success of SOFF in the Caribbean. The session started with a panel discussion consisting of the voices of the CMO and CIMH, national representatives, and the WMO. The second half of the session was interactive and participatory in nature. Participants were divided into four breakout groups to identify and prioritize regional implementation strategies across three thematic areas: (1) data sharing infrastructure, (2) calibration and maintenance, and (3) GBON-related capacity development. The three regional priorities were voted on by participants, and then actionable recommendations were developed in the groups through structured prompts.

Moderators: Dr. Andreas Schaffhauser, Geosphere Austria; Dr Arlene Laing, CMO; Greta Aubke, World Food Programme; and Ali Price, UK Met

Panelists included:

* Mr. Marvin Forde, Caribbean Institute for Meteorology and Hydrology (CIMH)
* Mr. Kenneth Kerr, Caribbean Meteorological Organization (CMO)
* Mr. Daniel Vila, World Meteorological Organization (WMO)
* Mr. Orlando Osa, Cuba’s Center for Instruments and Methods of Observation
* Mr Dwayne Scott, Belize (Virtual)

A summary of key outcomes and recommendations from the session follows.

**The WIS 2.0 system requires a shared strategy for implementation across the region.** The implementation of WIS 2.0 nodes across the Caribbean States will require a shifting to new formats, but fundamentally, will require serious consideration of how data is exchanged amongst countries. It requires all Met Services to migrate to this system, in order to be included in the new data distribution system.

**Regional collaboration is already reducing data gaps and driving improved compliance.** Data availability and reliability has improved significantly for countries that are using regional coordination and real-time incident tracking. There is a close linkage between the WIS 2.0 system and the Regional GBON quality assurance mechanisms.

**Streamlined data flow from the observation platform to end users is required, supports regional uptake and meets WMO standards.** Platforms such as the *Surface* application, which has been used in Dominica and Turks and Caicos Islands, demonstrates a scalable model for streamlined data flow. Surface, an open-source platform, was developed to standardize, ingest, quality-control, and transmit meteorological data in real-time, with capabilities to automatically generate SYNOP messages and to push data to the WIS 2.0 box.

**Regional facilities demonstrate possibilities for a regional approach to calibration and maintenance.** Cuba and CIMH showcased robust calibration systems that can be leveraged regionally. Orlando Osa (Cuba) described a stepwise data quality control pipeline, while Marvin Forde (CIMH), while Marvin Forde confirmed CIMH’s regional readiness through its enhanced training capabilities, and storage of spare parts.

**Staffing gaps and underinvestment in ICT capabilities are undermining capacity to implement.** Met Services often lack technical expertise and familiarity with the intricacies of data, often due to poor retention of highly technically trained staff.

**Procurement and spare parts require a coordinated regional approach and a financing mechanism under SOFF to support.** The continued discussions reiterated that procurement challenges are undermining system sustainability. There is a consensus on developing shared procurement strategies and financing mechanisms for equipment and spares across national boundaries.

**Common themes emerging from the group discussions echo the previous discussions:**

* Regional collaboration is key for sharing best practices and ensuring sustainability, achieving economies of scale, and saving costs.
  + WIS 2.0 collaboration is key, including sustainability of the WIS 2.0 Node/SurfaceCDMS, use of common protocols for data sharing, and development of expert ICT resources across the community.
  + There is a need for regional calibration/spares centres, supported by local spares holdings and field calibration in-country.
  + Technical training should be coordinated regionally via existing centres; a forum to meet and a community of practice should be established with expertise spread more widely. Training for PRs for engaging national governments would also be beneficial in showcasing NMS value.
  + On calibration, there was consensus around establishing a structured, tiered framework. This would include two regional calibration centers (CIMH and Cuba), portable national calibration kits to decentralize capacity, and roving teams that can respond to country-specific needs. Participants highlighted the need to calculate the costs for this approach and incorporate it into SOFF investment planning, reinforcing the urgency of developing a mechanism for SOFF to directly fund regional institutions.
* CMO/CIMH and Cuba already provide some regional capability across these requirements.
* Participants consider there to be a role for SOFF in helping to fund regional institutions – they need mechanisms to transfer funds.

# Sustaining SOFF Investments through Project Activities - CREWS Caribbean 2.0

Session 6 turned attention toward the sustainability of SOFF-supported investments by spotlighting the CREWS Caribbean 2.0 initiative. The session introduced CREWS’ regional framework and explored how national governance tools—such as meteorological legislation and strategic plans—can serve as critical enablers for sustaining infrastructure, human resource capacity, and long-term SOFF objectives. The session structure combined interactive polling, panel presentations, and open-floor exchanges.

Moderators: Ms Lina Sjaavik, Head, Project Development and Management Unit, WMO Mr Haley Anderson, Project Coordination Officer, CMO

A summary of key outcomes and recommendations from the session follows.

**National meteorological legislation is essential for authority and sustainability.**  Legal frameworks give meteorological services the statutory authority to operate, manage early warning systems, safeguard data, and engage with international aviation and maritime sectors. Without legislation, countries risk external actors undermining their authority, as seen in the Bahamas, prompting consensus on the urgent need to finalize and enact draft bills across the region.

**Strategic plans anchor infrastructure investments and foster cross-sector collaboration.**  Countries with comprehensive strategic plans, like Jamaica, are better equipped to justify network expansion, prioritize investments, and attract partnerships. These plans provide a structured approach to stakeholder engagement and allow Met Services to negotiate support arrangements, such as maintenance exchanges for data access.

**Governance instruments must protect continuity across political transitions.**  Frequent changes in government can stall progress if meteorological priorities are not legally or institutionally embedded. Binding legislation and inclusive strategies that engage both ruling and opposition entities help to safeguard investments and ensure momentum across political cycles.

**Human resource capacity underpins the sustainability of meteorological operations.**  Staffing challenges remain a key constraint, especially when only one person is responsible for critical systems. Business continuity planning requires redundancy, justified through evidence like workload statistics, to advocate for expanded staffing and ensure uninterrupted operations.

**Strategic advocacy should engage both policymakers and the general public.**  Sustained support for meteorological services depends not only on government buy-in but also on public understanding of their value. Countries are leveraging legislative strategies, like earmarking funds from insurance taxes, and regional advocacy support to institutionalize funding for climate services.

**Regional training institutions must align programs to evolving capacity gaps.**  Institutions like CIMH are ready to adapt their offerings to meet technical needs such as calibration, instrumentation, and WIS 2.0, but require dedicated funding. Multilingual training options are also critical to ensure full regional inclusion, particularly for Spanish- and French-speaking countries.

**WIS 2.0 and CAP training is accelerating regional digital transformation.**  Training delivered by WMO and CMO in 2023 catalyzed rapid implementation of WIS 2.0 across the Caribbean and beyond. This has democratized access to real-time data exchange and enabled the integration of the Common Alerting Protocol (CAP), preparing several members to issue alerts ahead of the hurricane season.

# Creating leverage with other partners – achieving objectives of EW4All through partnership

Session 7 explored how the Systematic Observations Financing Facility (SOFF) can generate leverage by aligning with complementary investments from other climate and development partners. The session emphasized how SOFF’s design as a “T-shaped” climate fund—with a narrow vertical focus on achieving Global Basic Observing Network (GBON) compliance and a broader horizontal aim of enabling climate action—provides a strategic entry point for coordination across the climate finance ecosystem.

Moderators: Mr. David Walters, Consultant to the Inter-American Development Bank (IDB), and Mr. Mario Peiró Espi, Partnerships Officer at the SOFF Secretariat.

Speakers included:

* Neranda Maurice-George (virtual) – Adaptation Fund
* Yves-Robert Personna (virtual) – Caribbean Development Bank (CDB)
* Elizabeth Soomer – United Nations Development Programme (UNDP)
* Nora Guerten – World Food Programme (WFP)
* Lina Sjaavik – WMO/CREWS
* Mario Peiró – SOFF Secretariat

A summary of key outcomes and recommendations from the session follows.

**SOFF formalized a global collaboration framework to reduce fragmentation**A key milestone was the signing of a formal framework with five major climate funds—AF, CIF, CREWS, GEF, and GCF—designed to harmonize efforts and avoid duplicative investments in the meteorological value chain. This structure promotes joint action, simplifies support mechanisms, and enhances the efficiency of climate finance in capacity-constrained countries.

**The Adaptation Fund urged better integration of HydroMet needs into proposals.** Despite significant climate vulnerabilities, HydroMet has been largely underrepresented in Caribbean project pipelines. With only seven CARICOM countries having accessed funding—and just one regional project addressing HydroMet—the Adaptation Fund encouraged NMHS to collaborate with national authorities to better articulate meteorological priorities in funding requests.

**CDB advocated for programmatic, multi-partner investment approaches.**  The Caribbean Development Bank emphasized that SOFF can serve as a catalyst for more integrated regional financing mechanisms. In a context of limited capacity and fragmented efforts, a programmatic approach supported by multiple partners was highlighted as essential to scaling impact and ensuring long-term sustainability.

**UNDP demonstrated how SOFF can be embedded in broader early warning systems.**  SOFF-supported proposals in countries like Suriname and Antigua and Barbuda were shaped by readiness assessments and national priorities. This integration with broader early warning programming enables long-term capacity building and aligns with national climate resilience strategies.

**WFP linked SOFF-enabled forecasting to anticipatory action systems.** Enhanced forecasting capacity through SOFF directly supports early action mechanisms such as social protection and disaster risk financing. Forecast-based interventions—like distributing cash or agricultural inputs—depend on reliable, localized, and timely early warning data.

**WMO/CREWS highlighted opportunities for SOFF to align with regional programs.** Initiatives like CREWS Caribbean 2.0 and upcoming GCF scale-ups offer opportunities to extend the benefits of SOFF investments. Sustaining GBON outputs requires broader capacity development across marine, hydrological, and observational systems, coordinated through regional mechanisms.

# SOFF stakeholder consultations - advancing SOFF operations

*“This is quite a unique element of SOFF… the funding will flow directly to the country for results-based payments… and the responsibility in the compliance phase sits with the NMHS.”* — Dr Ana Heureux, Partnerships Officer, SOFF Secretariat.

Session 8 marked the final regional consultation on the design of the SOFF compliance phase. The session focused on operational, financial, and institutional arrangements needed to ensure long-term sustainability of GBON data sharing, including the co-financing models, payment flows, regional support mechanisms, and access to improved forecasting products.

The session then shifted the spotlight to a critical but often underrepresented set of stakeholders: civil society organizations (CSOs), the private sector, and gender actors. The panel discussion explored how these stakeholders can meaningfully engage in and benefit from the SOFF process, particularly in relation to GBON compliance.

Moderators: Dr. Ana Heureux, Partnerships Officer at the SOFF Secretariat and Mr Anwar Baksh, Regional Consultant, UNDRR

Panelists:

* Dr. Arlene Laing (CMO)
* Mr. Ronald Gordon (Belize Met Service)
* Mr. Yekini Wallen-Bryan (PreLabs Limited, Jamaica)

A summary of key outcomes and recommendations from the compliance segment of the session follows.

**Clarification is needed on co-investment expectations and modalities.**  Countries expressed readiness to contribute 5–25% toward operations and maintenance, though clarity is needed on the eligibility of in-kind contributions. Participants emphasized the importance of fairness in calculating co-investment obligations, especially considering differing service maturity levels and operational contexts.

**Costing models must account for episodic needs and long-term sustainability.**  Concerns were raised about the adequacy of fixed-cost models for covering episodic costs like equipment failures, particularly for high-value upper-air systems. Participants called for flexible planning and questioned whether SOFF would support additional stations installed by countries outside the original scope.

**Flexible payment channels are critical for NMHSs with limited financial autonomy.** In contexts where NMHSs lack legal authority to receive funds directly, regional mechanisms like the CMO Trust Fund were proposed as intermediaries. This would enable more timely disbursement and responsive financial support for meteorological operations and emergencies.

**Regional institutions can play a stronger role in compliance monitoring and support.** Participants urged that WIGOS Regional Centers be empowered to conduct real-time station compliance monitoring. Their technical expertise and proximity make them ideal for verifying data flow integrity and supporting incident response during the compliance phase.

**Access to forecast products must be paired with targeted training.**  Countries highlighted the need for enhanced interpretation skills and contextual understanding of forecast products. ECMWF’s commitment to open data and regional training was welcomed, with regional collaboration encouraged to improve forecasting depth and utilization.

**Capacity building must integrate meteorological and ICT domains.**  Strengthening national capabilities requires training not only for meteorologists but also for ICT personnel supporting data systems and WIS 2.0 infrastructure. Enhanced cross-domain expertise is essential for sustaining modern forecasting and data-sharing operations.

A summary of key outcomes and recommendations from the second segment of the session follows.

**Legal frameworks are essential to define mandates and ensure service accountability.** Without clear legislation, NMHSs struggle to recover costs or establish authority over meteorological services. Legal mandates are necessary to delineate public service responsibilities and regulate private sector participation, including licensing and service standards.

**Structured public-private partnerships (PPPs) can still progress without legislation.** Despite lacking formal legal backing, countries like Belize have successfully pursued partnerships through Memoranda of Understanding (MOUs). These arrangements, especially in sectors like agriculture and energy, demonstrate that interim mechanisms can support collaboration while legislation is developed.

**Climate risks and economic shocks are catalyzing public-private engagement.** The rising impacts of climate change are driving private sector interest in reliable meteorological data and services. These shared vulnerabilities present an opportunity to build trust and forge strategic partnerships aligned with national resilience goals.

**Transparency and accessibility are key barriers to private sector collaboration.** Private actors report difficulty accessing public sector opportunities due to opaque processes and limited information sharing. Improving communication frameworks and procurement systems would enable more meaningful private engagement and innovation.

**Legislation remains the highest priority to institutionalize partnerships and governance.** Participants agreed that formal legal structures are foundational for enabling cost recovery, enforcing standards, and securing long-term investments. Clear legislative backing supports consistent, rules-based engagement across sectors.

**Capacity development is essential for sustaining technical expertise in meteorology.** A regional shortage of skilled professionals is threatening the long-term viability of hydromet services. Investment in training, career pathways, and professional development is needed to attract and retain qualified staff, particularly in small island contexts.

**Private sector talent can strengthen capacity if better integrated into national systems.** Skilled professionals exist in the private domain but are often sidelined due to rigid public structures. More inclusive frameworks could retain this talent domestically and foster a more agile, innovative meteorological ecosystem.

**Civil society and academia offer untapped potential for supporting resilience.** Community-based organizations and universities can support observation network maintenance, data dissemination, and local engagement. Their involvement enhances ownership, protects equipment, and can increase demand for hydromet data.

**WMO guidance can inform national public-private frameworks.** Existing guidelines from the WMO, particularly those developed under the Open Consultative Platform (OCP), provide a foundation for structuring national PPP policies. Countries are encouraged to adapt and apply these tools to their local context.

**Development finance institutions can help broker partnerships and mobilize investment.** Institutions like the Development Bank of Jamaica (DBJ) can act as intermediaries for public-private collaboration. Establishing open proposal channels and co-financing mechanisms would accelerate innovation and scale climate services.

# Wrap-up and conclusions

Session 9 served as the culminating session of the SOFF Caribbean Workshop, focused on consolidating key outcomes, reflections, and forward-looking actions from the preceding sessions. The goal was to validate shared priorities, identify cross-cutting challenges, and ensure that regional voices and lessons would shape the SOFF Steering Committee’s decisions.

Moderators: Dr Ana Heureux (SOFF Secretariat), Mr Mario Peiró Espi (SOFF Secretariat), and Mr Evan Thompson (Jamaica)

A summary of key outcomes and recommendations from the compliance segment of the session follows.

**Communicating the value of data and meteorological services to governments.** NMHSs continue to struggle with securing adequate funding and recognition from policymakers. The use of economic valuation tools and strategic advocacy was recommended, supported by WMO and CMO, to demonstrate the return on investment in meteorological services.

**Emphasizing inclusive, regionally anchored collaboration.** The workshop reaffirmed the importance of solidarity and cross-country support, ensuring that all countries, including non-CMO members, benefit from regional initiatives. The “no country left behind” principle was emphasized as critical to equitable progress.

**Need for legislation and strategic plans.** National meteorological legislation was identified as a foundational enabler of service delivery, cost recovery, and authority. Strategic plans were equally important to align national priorities with donor funding, helping countries guide and absorb external investments efficiently.

**Sustainability is a concern as the region depends on funding from external sources.** Caribbean countries want to ensure that they can maintain their upper-air network in the case that US support is discontinued or reduced (such as: lack of support for Hydrogen generators).

**Data sharing is working due to regional cooperation and WIS2.0 node hosted by CMO, but sustainability is a concern.** The success of WIS2.0 in the region relies on individuals, capacity on this needs to be built out to more people. Countries proposed to establish a working group and sharing platform of experts to share technical solutions and build capacity in the region.

**Proposal on coordinated calibration approach for the region.** The region put forward a proposal for two main calibration centers in the region CIMH and Cuba. In the current mechanism, SOFF can support Cuba and CREWS provides support to CIMH. It was proposed that larger NMHSs also build calibration capacities and all met services having calibration kits (traveling standard), suggestion to harmonise these kits across the region.

**Urgency to harmonize fragmented infrastructure and procurement models.** Regional inefficiencies due to disparate infrastructure and uncoordinated procurement were highlighted as major obstacles. Participants advocated for operationalizing regional procurement mechanisms, led by CMO and CIMH, and establishing a shared policy to streamline equipment acquisition and reduce delays. Funders and programmes were also urged to improve coordination among themselves to avoid contributing to fragmentation—particularly in relation to equipment procurement. It was emphasized that coordination efforts must be two-way, aligning external expectations with the limited capacity of NMHSs to manage multiple concurrent initiatives.

**Details on Compliance will facilitate planning for SOFF investments.** Countries emphasized the need to better understand the details of the Compliance phase to ensure they can sustain their investments in the long term. Sustainability and autonomy is important to the region.

**Strengthening capacity and communities of practice.** The sustainability of hydromet systems depends on trained personnel and knowledge-sharing mechanisms. Participants called for roving experts, train-the-trainer programs, and regional technical working groups to foster skills in calibration, IT systems, and marine observations.

**Call for regional calibration policy and spare parts framework.** A structured, tiered calibration framework and spare parts management system were proposed to enhance regional resilience. A regional portal and accountability mechanism for calibration and spares were recommended, with support from SOFF and CREWS to ensure coverage.

**Mitigating risk of overload on NMHSs.** The growing number of climate and resilience initiatives risks overwhelming NMHSs with limited human resources. Participants urged donors and implementers to coordinate not just on goals but also on the cumulative demands placed on national technical staff and systems.

**Growth through discomfort and country execution.** Working with MDBs and country-led execution modality represents a major transition in program delivery. While challenging, this shift builds national ownership and institutional resilience, requiring countries to navigate unfamiliar systems with support from peer advisors and partners.

**Equity in speed and support across countries.** With varying capacities and starting points, countries are progressing at different speeds. A shared commitment to learning, collaboration, and mutual support is essential to ensure that all countries achieve GBON compliance within a unified regional framework.

**Role of regional institutions must be funded and formalized.** Despite their central role, institutions like CIMH currently lack direct funding through SOFF. Participants recommended establishing a regional funding window to ensure consistent support for cross-country calibration, training, and technical leadership functions.

# Annex 1: List of Participants

|  |  |  |  |
| --- | --- | --- | --- |
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# Annex 2: Concept note and agenda

[**SOFF Regional Workshop in the Caribbean**](https://www.un-soff.org/wp-content/uploads/2025/03/SOFF-Caribbean-Workshop-concept-note_May-2025.pdf)

# Annex 3: Additional Links

1. **Speaker Presentations:**

<https://www.un-soff.org/private-link/soff-idb-crews-regional-workshop-in-the-caribbean-may-5-7-kingston-jamaica/>

1. **WIS:**

[**Welcome — WIS2 in a box 1.0b8 documentation (wmo.int)**](https://docs.wis2box.wis.wmo.int/en/latest/)

1. **Photos:**

<https://drive.google.com/drive/folders/1fu0xK5XE96u6lz9wEs2J5fvSJjg_AYb4?usp=drive_link>