

Executive Report of the Subproject:

Metrology for Meteorology in the Caribbean

Regional Fund Quality Infrastructure for Biodiversity and Climate Protection in Latin America and the Caribbean

IMPLEMENTATION PERIOD: FROM 2020 TO 2022

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Impact on biodiversity and/or climate protection

The metrological and meteorological communities started a closer cooperation at the international level through the activities of the Bureau International des Poids et Mesures (BIPM) and the World Meteorological Organization, recognizing the need and value of assuring accurate meteorological measurements at international, regional and national levels.

The Regional Organization for Standards and Quality (CROSQ) of the Caribbean Community (CARICOM) initiated the cooperation with the meteorological community through this project focusing on the reliability of data of the meteorological variable of temperature, based on comparable measurements traceable to the International System of Units (SI), including its uncertainty evaluations. Accurate and reliable measurements and confidence in the produced data are essential for climate studies and weather forecasting, as well as for estimating and monitoring climate change and its impacts in the Caribbean. This enables stakeholders and decision-makers to establish, design and implement effective adaptation and mitigation policies and plans.

Main activities and results

- Cooperation between the Metrological and Meteorological communities at the national and regional levels.
- Capacity-building for National Meteorological Services.
- Capacity-building for National Metrology Institutes for accreditation of their temperature calibration services.
- Capacity-building for the Caribbean Reference Laboratory (CaRL) for Temperature Metrology.
- Memorandum of Understanding (MoU) between CROSQ and the Caribbean Institute of Meteorology and Hydrology (CIMH) signed.

Lessons learnt

The analysis of the results of the subproject shows that:

- National Meteorology Services should have national and regional access to calibration services and to metrological expertise. CROSQ and its members could offer these services and provide access to know-how in close coordination with the CIMH.
- Communication and understanding of the challenges and workload of the different actors is very important for establishing good cooperation between the two scientific communities.
- The aforementioned institutions face challenges and constraints that could be gradually overcome through close cooperation.
- The University of the West Indies (UWI) as a recognized organizer and provider of capacity-building in the region is a key partner in the scientific support of this type of cooperation.
- Virtuality made it possible to organize capacity-building activities and probably with better absorption by participants, as well as the inclusion of more stakeholders in each activity.

Use of the results in a short and medium term

- The basis for a sustainable cooperation between the two communities at national and regional level has been set. The National Metrology Institute (NMI) will cooperate with the Meteorological Services of each country and provide calibrations, as well as access to metrological expertise and capacity-building resources.
- At the regional level, CROSQ and CIMH will cooperate to identify the metrological demand of national meteorological services beyond temperature measurements (pressure, rainfall intensity, wind speed, etc.) and to organize the metrological response based on the offer provided by CIMH, NMI, CaRL and UWI.
- CROSQ will evaluate this experience and lessons learnt to initiate or strengthen its cooperation with other Caribbean actors that need access to metrology and quality services and expertise to meet their objectives, maximizing the benefits of virtual means. This evaluation will cover the role of UWI as a recognized convenor and relevant provider of capacity-building in the region, as well as an interesting partner in the scientific accompaniment of this type of cooperation.

For further information, it is recommended to consult the Technical Documentation of the subproject in the websites of the participating institutions.



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As a researcher and user of climate data from meteorological services, I see the importance of engaging both communities, metrologists and meteorologists, in producing high quality and accurate data.

This project enabled an open and informative dialogue in the areas of gaps, institutional and infrastructure issues, equipment certification, calibration and uncertainties, and new and future collaborations between the National Institutes of Meteorology and Hydrology (NIMH) and the National Metrology Institutes (NMI) to improve current NIMH processes and procedures.

Trainings in temperature metrology including calibration techniques, standards and associated uncertainty analysis were a substantial part of the project. The activities were well planned and included mentoring programmes with a focus on strengthening the institutional structures of NIMH and NMI. Training workshops in other relevant elements for climate monitoring should be considered in the future as research on renewable energy in the Caribbean is on the rise and would need reliable climate data.

This project has been an eye-opener for us at the University of West Indies (UWI), bridging the gaps through networks. The UWI can assist with qualitative and statistical assessments of climate data, as well as foster training workshops in metrology.

Due to the pandemic, the project implementation took a virtual route. This allowed the participants to engage in activities while feeling safe and comfortable in their countries and workplaces. All meetings and workshops were held with a virtual whiteboard tool allowing simultaneous collaboration. I must congratulate the facilitators of the workshops and meetings for this, as we were able to learn how to use new digital tools.

The programme was well thought out in advance as it fostered relationships within the Caribbean and specific islands as some group activities included NMH and NMI from the same island (for example, in creating national roadmaps) while others mixed the representatives of the island to allow different perspectives on topics such as the 'Way Forward' for this subproject. It has produced many collaborative projects within the islands, including virtual study tours of NMH and NMI, as well as a memorandum of understanding with the Caribbean Institute of Hydrology and Meteorology (CIMH).

Its continuity will support the NMH and NMI relationship by allowing for best practices in their daily work.

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