GLOBAL CLIMATE OBSERVING SYSTEM
KEEPING WATCH OVER OUR CLIMATE

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Regional Workshops in Association with the UNFCCC

In line with the UNFCCC decision 19/CP.22 and the conclusions of SBSTA 45, GCOS, together with the WMO Integrated Observing System (WIGOS), in association with the UNFCCCC has held a series of Regional Workshops focussing on areas which are not contributing to global climate observations of key atmospheric variables of temperature, wind and surface pressure. Global coverage of these variables is essential for both numerical weather prediction and also climate modes, forecasts and predictions.

Main Finding of Regional Workshops and response from WMO

NEED:

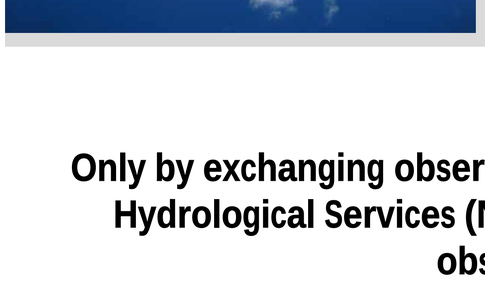
Systematic observation of the Earth's climate is a global common good that supports the implementation of the Paris Agreement, in the context of sustainable development and efforts to eradicate poverty. Systematic upper air observations, including the GCOS Upper Air Network (GUAN), and surface meteorological observations, are used primarily for weather forecasting and climate models, forecasts and projections at the international level, including climate reanalyses which form the basis of much of our understanding of climate and climate change. Most of the value of sustained, systematic meteorological observations can only be realised at a national level if they are reported and exchanged internationally. Observations underpin all climate services, planning climate policy and adaptation. The value of basic observation systems cannot be over-emphasized.

FUNDING:

Despite regional differences a common theme of the regional workshops is that funding is inadequate. It is clear that project funding from international donors does NOT work for sustainable, systematic observation of the climate. Piecemeal funding has caused a range of issues for effective operation and has not established sustainable long-term operation.

RESPONSE:

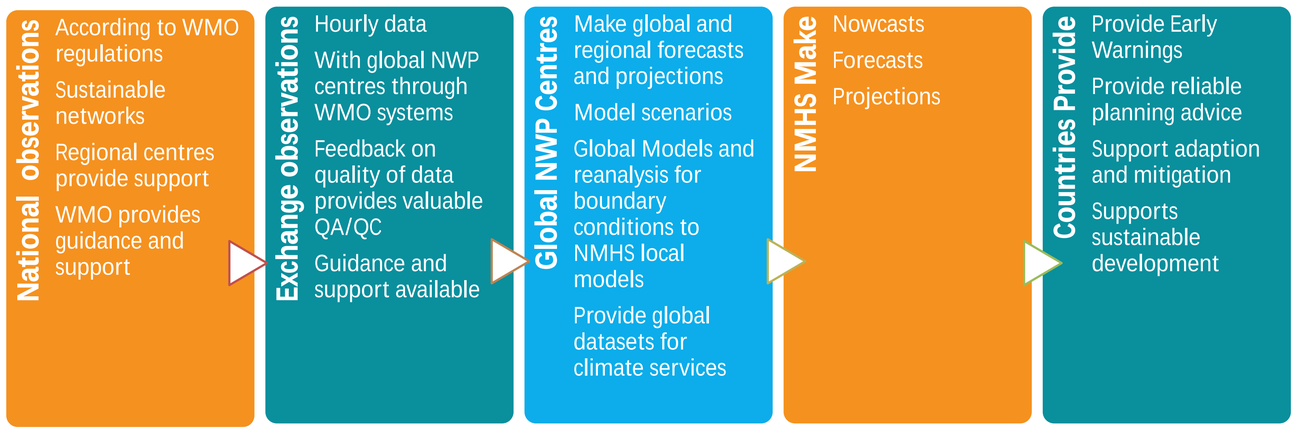
WMO developed the Global Basic Observing System (GBON) that will provide the minimum data needed to support global numerical weather prediction and climate models, forecasts and projections. WMO is developing the Systematic Observations Financing Facility that would both support the development of the basic network where there are gaps and also support its ongoing operation. GBON would cost US$ 750 million by 2025 and lesser amounts thereafter. Observations for any region in the World supports national weather and climate predictions for all countries. Funding should reflect this global benefit.



Messages from the Regional Workshop for Pacific SIDS

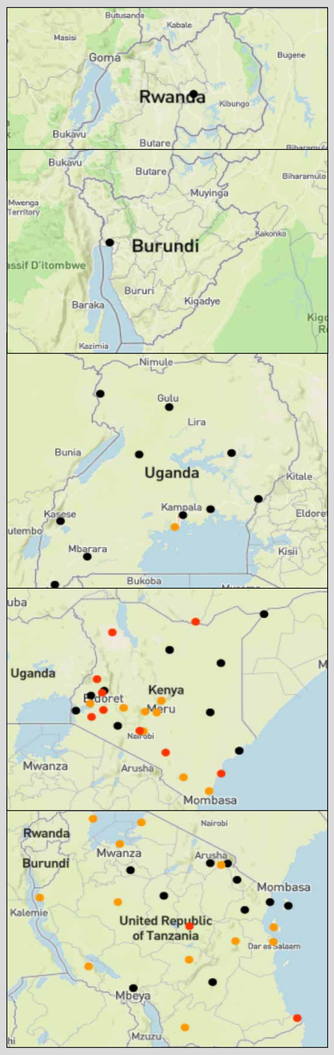
- Systematic upper air observations in the Pacific region, tend to have the highest measured impact, of all ground-based measurements, on the quality and accuracy of weather and climate analysis and prediction not only locally, but globally. The resulting products underpin weather and climate aspects of early warning systems as well as other climate-related services.
- Both the spatial density and observing frequency of the upper air network over the South Pacific region currently fall short of GCOS and WMO requirements. Due to the unique geography of the region – vast swathes of ocean surface with relative little land mass distributed over some 20 small island states with modest-size populations and correspondingly modest GDPs – systematic observation is particularly challenging in this region.
- The upper air network over the South Pacific therefore needs sustained international support.
- The workshop developed an outline for a Pacific region observing network plan to strengthen regional and national meteorological networks, Identify capacity building needs and to support requests for finance.

Only by exchanging observation made by National Meteorological and Hydrological Services (NMHS) and others can the full value of the observations be realised.



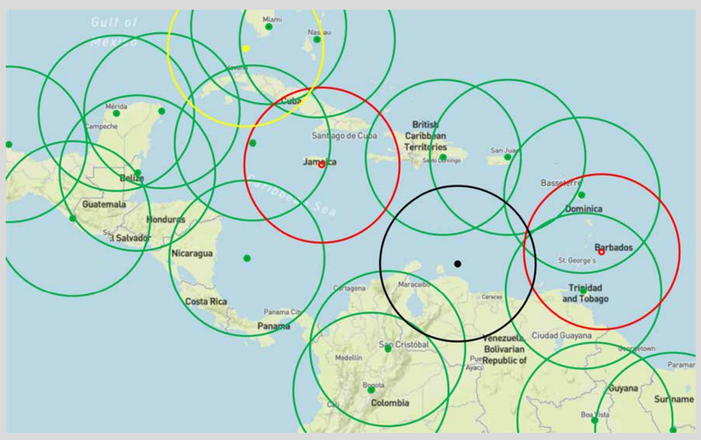
The benefits of data exchanged extend to all countries and should be supported globally

Upper air observing sites in the East Africa region, according to the WIGOS Data Quality Monitoring System. There are no sites in Green which would be acceptable reporting, black is not reporting in the period up to October 2018. Orange sites report some data. The data is not being successfully received by the global monitoring centres from red sites.



Messages from East Africa Regional Workshop

- While most of the five countries in the region (Uganda, Burundi, Kenya, Rwanda and Tanzania) have operating networks and sites and are meeting minimum WMO requirements, many of the stations are not fully reporting as needed by international centres for global numerical weather prediction and reanalysis (hourly for surface stations and every 12 hours for upper air observations). Currently, in Africa, only about 10% of the surface and 20% of the radiosonde stations that are required to report meet this need.
- Currently, WMO mandatory requirements, are not sufficient to support global NWP and consequently national climate services. However, the proposed WMO Global Basic Observation Network (GBON) will allow numerical weather prediction and reanalysis centres to meet the regional needs.
- The workshop recognised the support of governments in the region for observations, but further and sustained support is needed for the required long-term sustainability of observation.
- The workshop developed an outline for a regional plan to improve the value chain from observations to climate services in East Africa covering: Planning to ensure the sustainability of systems and staff, … Calibration and maintenance policies … Support regional collaboration to build technical and operational capabilities.



Upper air observing sites in the Caribbean region, according to the WIGOS Data Quality Monitoring System. The circles have a radius of 500 kms, indicating the minimum spacing according to GBON. Sites in Green are reporting, yellow indicates missing variables and black is not reporting in the period August 2019. The red sites were identified during the workshop, but their data is not being successfully received by the global monitoring centres. Overall the coverage over the region meets the GBON requirements with only one gap over the ocean.

Messages from Caribbean Workshop

- Sustainability of observations, following the GCOS monitoring principles, is required to support climate monitoring and climate-change decision making. The most important need is to support unbroken long-term data acquisition not new systems. Maintaining, strengthening, upgrading, and improving existing systems is needed (e.g. supplying spare parts): Mostly issues that are relatively low cost.
- Training is needed for staff to interpret the meteorological information to provide climate services, e.g. on agriculture, extreme events. Training is also needed to support the underlying observations especially covering GBON and associated IT. Year-long fellowships have been successful and should be supported and encouraged.
- Technical support and capacity is needed to ensure routine reporting of data as needed.

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