



# Expectations from the GFCS

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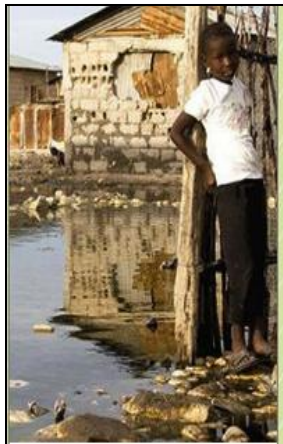
<http://gfcs-climate.org/>

# Vision

Enable better management of the risks of climate variability and change and adaptation to climate change, through the development and incorporation of science-based climate information and prediction into planning, policy and practice on the global, regional and national scale



**Agriculture and  
food security**



**Disaster risk  
reduction**



**Water**

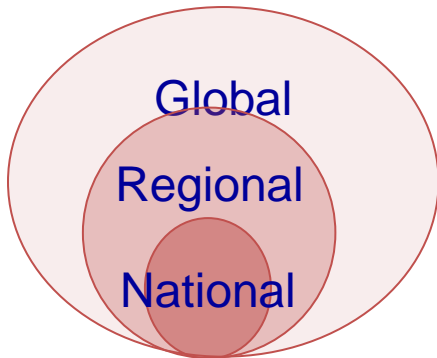
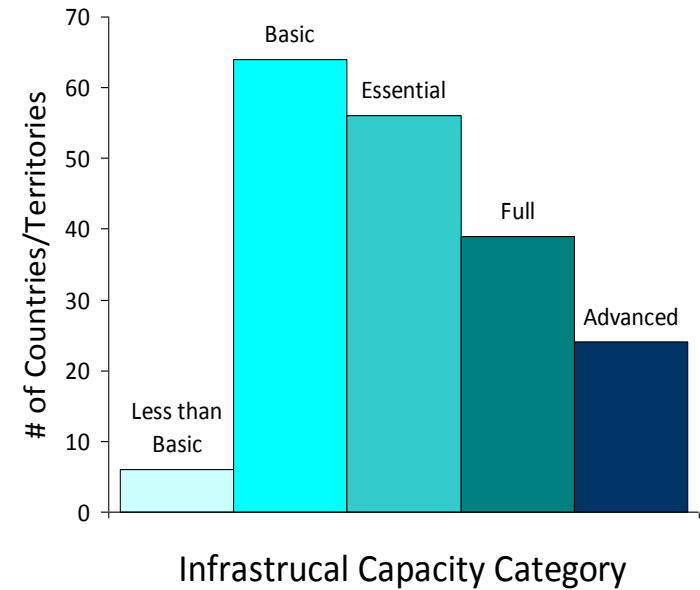
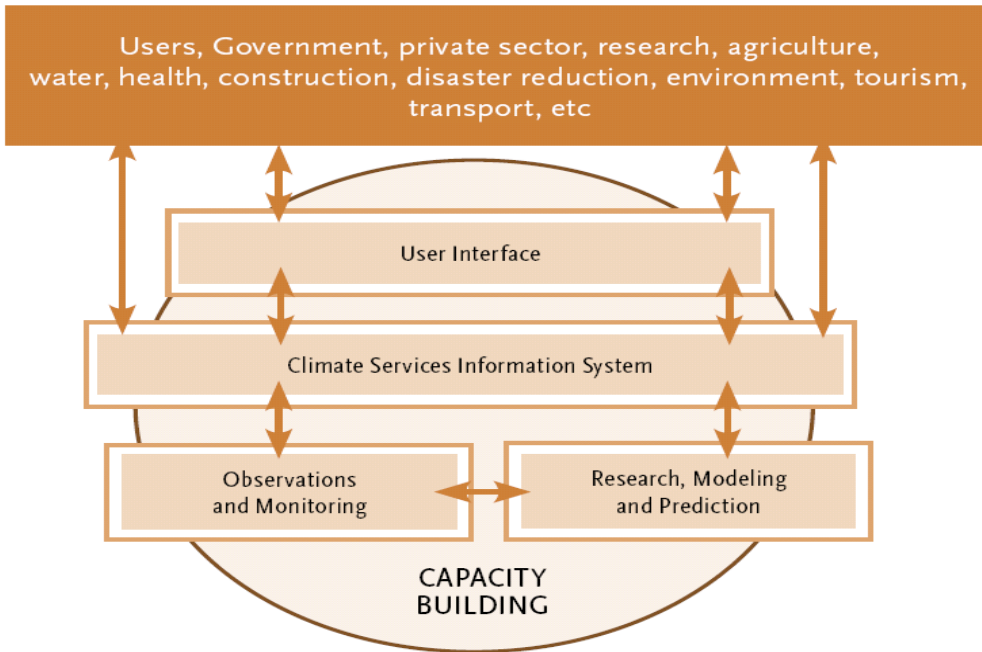


**Health**



**Energy**

# GFCS Pillars



Many countries lack the infrastructural, technical, human and institutional capacities to provide high-quality climate services.

# Gaps and deficiencies identified through the GFCS IP

- Inadequate atmospheric observations, limited space and surface-based remote sensing capabilities, and the absence of operational monitoring of some important air quality, radiation, etc...;
- Inadequate observational coverage of important oceanographic variables (ocean currents, mass flux, ocean salinity, and sea ice parameters);
- Inadequate terrestrial observing networks (river discharge, ground water, lake levels, permafrost, glaciers and ice caps) and absence of designated networks for soil moisture, Leaf Area Index (LAI), Fraction of Absorbed Photo-synthetically Active Radiation (FAPAR) and above ground biomass

# Gaps and deficiencies identified through the GFCS IP

- Need for complementary biological, environmental, and socio-economic data;
- Data policies and infrastructure for data management as well as access to historical observational and other relevant data and derived products;
- Need to address data loss and inhomogeneities in time series;
- Need to rescue, digitize data

# Additional aspects

- **Interoperability and Sustainability of observing systems**
  - Cooperation at Regional level (among neighboring countries for design of observing systems, maintenance, calibration, sharing of spare parts, etc.)
  - Partnerships at national level for data sharing, standardization etc.



# Climate information needs of users and related knowledge gaps

## Decision-making process and user information gaps

1 **Strategic ahead-of-season planning (1- 12 month lead time)**

2 **Risk monitoring and management: intra-season operations (1wk to 40 days range)**  
- timing/duration/intensity of dry/ wet spells

3 **Longer-term strategic planning/policy development (next 1-10 years)**  
- Trends/frequencies of rainfall/temperature over next 5-10 years

4 **Climate change adaptation policy development/planning (next 50 years)**  
- Robust climate change projections  
- Information on the role of climate change in observed events

## Climate Research Frontier

1 **Improving Seasonal prediction**  
Remote drivers of variability (SSTs, teleconnections, MJO, etc)  
- Local drivers of variability( land-atmosphere coupling)

2 **Sub-seasonal prediction**  
Improved understanding of sources of sub-seasonal predictability

3 **Decadal prediction**  
Drivers of decadal and multi-decadal variability (AMO, PDO)  
Role of aerosols

4 **Climate change scenarios**  
Earth System Modelling  
Attribution methodology  
Understanding Uncertainty



# Climate information needs for end users and related knowledge gaps

## Decision-making process and end-user information gaps

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### Assessing current vulnerability due to recent climate events

Lack of 'impacts' datasets (e.g. crop yields, river flows, health/hospital admission statistics) to aid development and targeting of applications models

6

### Decision making at local scales

Detailed climate services (*geographically*)

7

### Estimation of the impacts of climate variability and change

8

### Mainstreaming climate services for all timescales

## Climate Research Frontier

5

### Observation / database development

-Enhancing the observations network for both biophysical and socio-economic climate variables;

6

### Downscaling

- understanding and improvement of the downscaling process
- quantification of benefits and uncertainties to users

7

### Applications modelling

Improved understanding/ modeling of climate impacts on hydrology, food security and crop yields, health

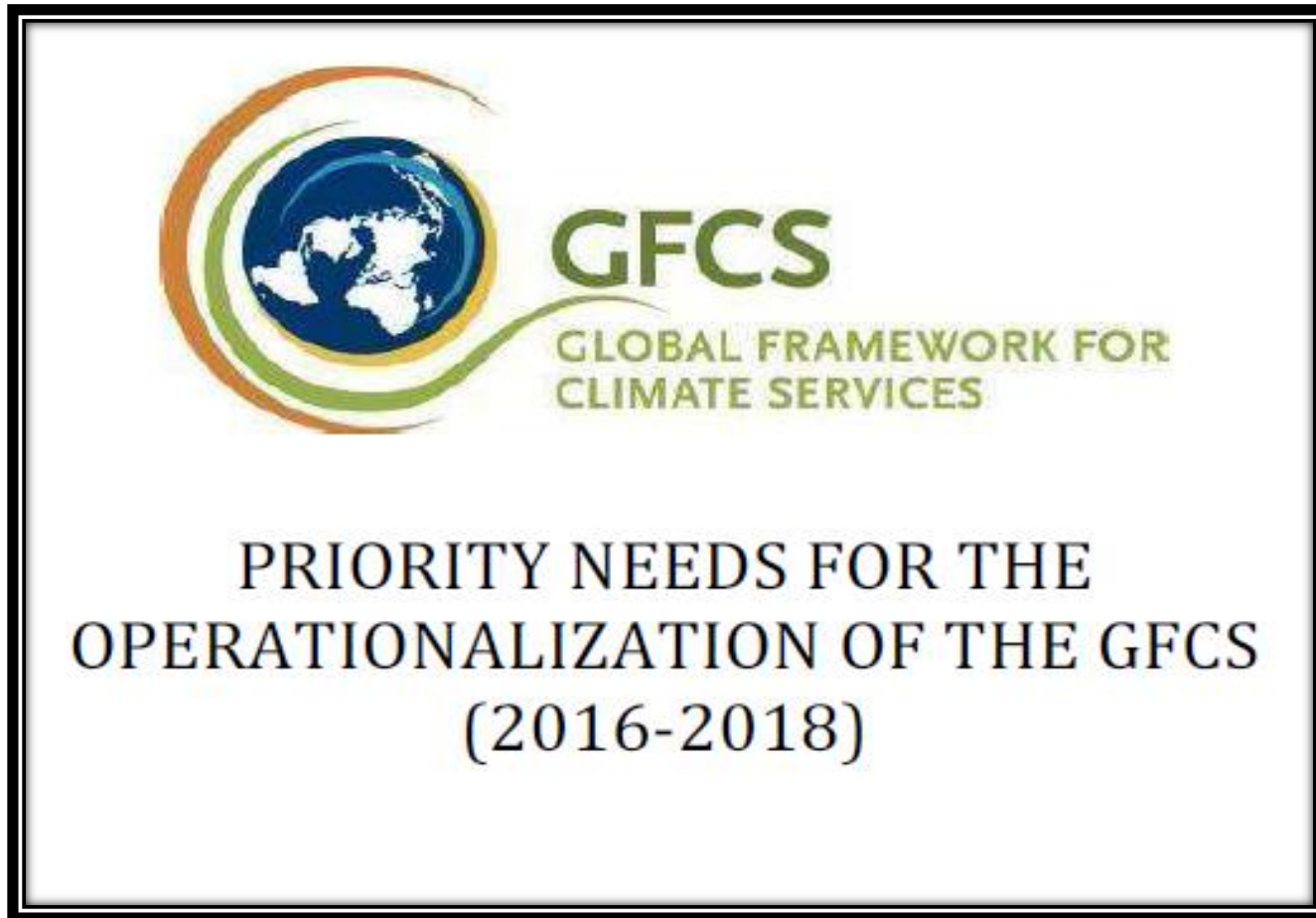
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### Communication and climate service provider/user interactions

- Improving availability/usability of services
- strategies for bridging the gap between service providers and end users



# New Developments



**Approved by Management Committee of Intergovernmental Board  
On Climate Services, October 2016**

# Main objectives

- Support priority applications in agriculture and food security, disaster risk reduction, energy, health and water to ensure that decision making and investments in these climate sensitive sectors are improved through co-development and use of climate services.
- Enhance sustained mechanisms to support effective user-driven climate services through effective user interface mechanisms at regional and national level.
- Upgrade and expand the technical and scientific capabilities that countries need in order to provide user-driven climate services such as such as early warning systems, climate observing systems, research, and capacity development.

# Specific activities

- Identification of data needs and design of observational systems in data poor regions
- Large-scale data recovery and digitization
- Demonstration of efficient improvements to ground-based and space-based networks for measurement of changes in water cycle
- Climate Data Management System



Thank you for your attention

# New developments

## Expert Team on Specific Data Requirements for the GFCS to:

- **Undertake a review of GFCS implementation requirements with respect to data and products developed or acquired under WMO auspices:**
  - Review and summarize requirements identified in the GFCS IP
  - Consult with members of the PAC
  - Monitor data requirements emerging from country level
- **Prepare a synthesis and recommendations** regarding:
  - needs which are currently satisfied by data already included in the annex to Resolution 60 (Cg-17)
  - any unmet data requirements
  - the status of PAC member policies and practices with respect to the free and unrestricted exchange of GFCS relevant data and products
- **Prepare a report to the IBCS MC**