Climate Services Information System:
The Operational Core of the Global Framework for Climate Services

Anahit Hovsepyan
Rupa Kumar Kolli
WMO
Climate Service Information System (CSIS)

- The CSIS is the component of the GFCS most concerned with the generation and dissemination of climate information.
- HLT report: ‘The Climate Services Information System is the system needed to collect, process and distribute climate data and information according to the needs of users and according to the procedures agreed by governments and other data providers.’
Role of CSIS within the GFCS

- It is the ‘operational centre’ of the GFCS. It is the means of delivery of climate data and products.
- It will include climate data, monitoring, prediction (monthly, seasonal, decadal) and projection (centennial) activities.
- It comprises global, regional and national centres and entities that generate/process climate information (observations and predictions), and the exchange of data and products to agreed standards and protocols.
- It must be supported by observation and research programmes (e.g. GCOS, WCRP).
- Capacity building initiatives will increase ‘conductivity’ of data flow.
- Part of the CSIS is in place, but new infrastructure is needed to fulfil the GFCS vision.
Global Producing Centres of LRF

- In 2006, WMO set up a process to designate centres making global seasonal forecasts as WMO Global Producing Centres (GPCs) of Long Range Forecasts
- GPCs adhere to commonly defined standards – aiding consistency and usability of output:
  - a fixed forecast production cycle
  - a standard set of forecast products
  - WMO-defined verification standards
- A comprehensive set of standard verification measures, with which to communicate the skill of forecasts, has been defined (the WMO Standard Verification System for Long-Range Forecasts – SVSLRF)
- 12 GPCs designated so far
- Two Lead Centres: LC-LRFMME and LC-SVSLRF
Currently Designated GPCs

Links to GPCs: http://www.wmo.int/pages/prog/wcp/wcasp/clips/producers_forecasts.html
Regional Climate Centres (RCC)

WMO RCCs are Centres of Excellence that create regional climate products in support of regional and national climate activities and thereby strengthen capacity of WMO Members in a given region to deliver better climate services to national users.

A WMO RCC serves primarily the NMHSs in the region!

WMO RCC responsibilities shall be regional in nature and shall not duplicate or replace national responsibilities.

WMO RCC: A multifunctional centre that fulfils all the required functions of an RCC

WMO RCC-Network: A group of centres performing climate-related activities that collectively fulfil all the required functions of an RCC
WMO RCC Status Worldwide

Designated RCCs
Designated RCC-Networks
RCCs in Demonstration Phase
RCC-Networks in Demonstration Phase
RCCs Proposed
RCC-Networks Proposed
WMO Mechanisms for Guiding GPCs and RCCs

- Commission for Basic Systems (CBS)
- Commission for Climatology (CCI)
- CBS/CCI Expert Team on Operational Predictions from Sub-seasonal to Longer-time Scales (ET-OPSLS)
- CCI/CBS Expert Team on RCCs
- ICT on CSIS (CCI)
- Global Data Processing and Forecasting System (GDPFS)
- Interactions with WCRP and Commission for Atmospheric Sciences (CAS)
Regional Climate Outlook Forums (RCOFs)

- RCOFs provide platforms for Climate experts and climate information users to:
  - Discuss current climate status
  - Exchange views on scientific developments in climate prediction
  - Develop consensus-based regional climate outlooks that can feed into national climate outlooks produced by NMHSs
  - Engage in user-provider dialogue

- An important aspect of RCOFs is the facility to bring together experts in various fields, at regular intervals, operational climate providers and end users of forecasts in an environment that encourages interaction and learning.
Regional Climate Outlook Forums worldwide
RCOFs and Food Security Outlooks

- Regional agriculture and food security outlooks are now regularly produced based on the climate outlooks after the RCOFs in some regions.
- For example, the climate outlook in the Greater Horn of Africa in the form of precipitation for March to May 2008 has been used by Famine Early Warning Systems Network (FEWS-NET), to prepare the Food Security Outlook for March to July 2008.
RCOFs and Public Health

- Many diseases are indirectly or directly associated with climate. Vector-borne diseases are sensitive to changes in meteorological parameters such as rainfall, temperature, wind and humidity. These include malaria, dengue and Rift Valley Fever (RVF). Extreme climate events can trigger rampant outbreaks of waterborne diseases such as cholera and typhoid in areas where they are not common.

- Some efforts are now being made to provide warning of changes in epidemic risk by integrating rainfall, temperature and other non-climate information.

- For example, Malaria Outlook Forums (MALOFs) are held in association with RCOFs in southern Africa and the Greater Horn of Africa.

- The information developed jointly by climate and health experts in these sessions, together with information on population vulnerability, food security, immuno-suppression and adequacy of control coverage, gives the health community a longer lead-time over which to optimize the allocation of the resources available to combat malaria.
NMHSs: Underpinning the GFCS

- NMHSs already provide climate services based on the historical archives of observational data collected for weather services; several of them also provide operational climate prediction products, up to seasonal time scales.
- NMHSs are mandated by the WMO Convention to observing and understanding of weather and climate and in providing meteorological (including climatological), hydrological and related services in support of relevant national needs, ensuring authenticity to their products and services.
- NMHSs are structured and trained to provide 24/7 services.
- NMHSs through collaborative mechanism have established standard practices across the globe for weather services that can be easily extended for delivering climate services.
- Users deal with weather and climate information in a seamless manner, and it greatly helps them to meet all their weather and climate information needs through a ‘single window’; NMHSs can effectively provide such a single window.
- NMHSs and their partners constitute a large pool of technical experts dealing with weather and climate.
Potential National Mechanisms

- **Frameworks for Climate Services at the national level**
  - Similar to other levels of GFCS but involves particularities and specifics for delivery of climate services at the national level through well-coordinated arrangements between the key national institutions responsible for observations, research, tailored products and expert advice as well as the user sectors.
  - Some countries may establish coordination mechanisms appropriate to their national context, largely as integral components of the NMHSs, to support/facilitate GFCS implementation at the national level.

- **National Climate Outlook Forums (NCOFs)**
  - Adapting the Large and Regional scale forecasts to the national context
  - Tailoring products and translating key messages for users (Multidisciplinary Working Groups)
  - Evaluating the impact of expected conditions (with existing vulnerabilities)
NCOF Objectives

- Ensure that climate information products, including their uncertainties and limitations, are understood by and communicated to users.
- Discuss user views to make these climate information accessible, user-friendly and applicable.
- Provide a platform for understanding risks and opportunities of past, current and future climate information; and for inter-agency coordination of policies, sectoral plans and programs linked to potential impacts of hydro-meteorological hazards.
- Evolve a culture of working together through joint climate information interpretation sessions for managing risks in various climate-sensitive sectors, like agriculture, irrigation, disaster risk reduction and health.
- Strengthen and enhance the interface for inter-agency coordination of policies, sectoral plans, and an ongoing process of understanding and responding to risks posed/opportunities brought about by past, current, and future climate.

NCOF guidance document
CSIS Projects

- Facilitate the effective use of GPC and other global climate products by regional and national providers (e.g. RCCs and NMHSs), including the operational provision of Global Seasonal Climate Update
- Strengthening regional and national systems for providing climate services
- Establish and coordinate operational support for Frameworks for Climate Services, including NCOF/NCF at the national level in developing countries
- Define, build and make available a Climate Services Toolkit to all countries
- Establish modern Climate System Monitoring based on improved operational monitoring products
- Implementation of Climate Watch System
- Standardize the operational CSIS products
- Promote effective CSIS-wide use of WMO Information System (WIS)
Thank You

Anahit Hovsepyan
World Climate Applications & Services Division
Climate Prediction & Adaptation Branch
Climate & Water Department
World Meteorological Organization

Phone: +41-22-730-8212; Fax: +41-22-730-8042
ahovsepyan@wmo.int