Commission for Climatology (CCI), Commission for Hydrology (CHy) and Global Framework for Climate Services (GFCS)

Rupa Kumar Kolli
Climate and Water Department
WMO
WCP Structure

World Climate Programme

GCOS
- Co-Sponsored

WCRP
- Co-Sponsored

WCSP
- WMO: CCI

PROVIA
- UNEP

Cg-17 Revised
WMO Commission for Climatology (CCI)

OPACEs: Open PAnels of CCI Experts

**OPACE 1: Climate Data Management**
- ET-CDMS
- ET-DARE
- Rapp. COI
- IPET-CDMP
- TT-SOGCON
- Rapp. VON

**OPACE 2: Climate Monitoring & Assessment**
- ET-NCMP
- TT-DEWCE
- ET-CCDI
- TT-HOM
- Rapp. WWCER
- TT-URSDCM

**OPACE 3: Climate Prediction, Projection & Delivery Mechanisms**
- CCI/CBS ET-RCCs
- CBS/CCI ET-OPSLS
- TT-GSCU
- TT-RCOFs
- TT-TCI

**OPACE 4: User Interface for Climate Adaptation & Risk Management**
- ET-SCI
- ET-UICS
- ET-CRM

**OPACE 5: Capacity Development**
- ET-ETR
- ET-QM
- TT-GCP
- ET-IIC
  - Adv. Social Media

Implementation Coordination Team on Climate Services Information System (ICT-CSIS)

High-level GFCS Advisor • Communication Advisors • PROVIA Contact Point

Five Panels
28 Teams
GFCS Elements and CCI Role

ICT-CSIS; All OPACEs

Production and Delivery of Products

User Interface Platform

Understanding of Applications

OPACEs 1, 2

Observations & Monitoring

Capacity Development

OPACEs 2, 3, 4

OPACE 5

Climate Services Information System

Development of information and products

Research, Modelling and Prediction

Monitoring and Analysis

Production and Delivery of Products

Capacity Development
Observations and Monitoring Pillar (1/2)

- OPACE 1: Climate Data Management
  - ET on Climate Data Base Management Systems
  - ET on Data Rescue
  - Rapporteurs on Climate Observational Issues
    - Includes JCOMM volunteers
  - Inter-Programme ET on Climate Data Modernization Programme
  - Task Team on Statement of Guidance on CCI Observational Needs
  - Rapporteurs on Volunteer Observing Networks
Observations and Monitoring Pillar (2/2)

- OPACE 2: Climate Monitoring and Assessment
  - Task Team on Definition of Extreme Weather and Climate Events
  - Joint CCI/WCRP/JCOMM ET on Climate Change Detection and Indices
  - Task Team on Homogenization
  - Rapporteurs on World Weather and Climate Extreme Records
  - Task Team on Use of Remote Sensing Data for Climate Monitoring
  - ET on National Climate Monitoring Products
Research, Modeling and Prediction Pillar

- Linkages pursued through OPACEs 2 and 3 as well as ICT-CSIS
Climate Services Information System Pillar (1/2)

- OPACE 3: Climate Prediction, Projection, and Delivery Mechanism
  - Joint CCI/CBS ET on Regional Climate Centers
  - Joint CBS/CCI ET on Operational Predictions from Sub-seasonal to Longer-time Scales
  - Task Team on Tailored Climate Information
  - Task Team on Global Seasonal Climate Update
  - Task Team on Regional Climate Outlook Forums
Implementation Coordination Team on CSIS

- Coordinate and manage a suite of proposed activities
- Closely aligned with Operations and Resource Planning of GFCS
- Climate Services Toolkit
- CSIS workshop in 2016
- Linkages across all OPACEs as well as WCRP, CBS, CHy, CAgM
User Interface Platform Pillar

- OPACE 4: User Interface for Climate Adaptation and Risk Management
  - ET on Sector-specific Climate Indices
  - ET on Climate Risk Management
  - Focal Points for Disaster Risk Management
  - ET on User Interface for Climate Services
Capacity Development Pillar

- All OPACEs contribute to capacity development, but CCI decided to have a more focused approach to upscale these efforts.

- OPACE 5: Capacity Development
  - ET on Education and Training
  - ET on Quality Management
  - TT on the Guide to Climatological Practices
  - Advisors on Social Media
  - ET on Infrastructure and Institutional Capabilities
Commission for Hydrology (CHy) Structure

President
Dr. Harry F. Lins (USA)

Vice-President
Dr. Zhiyu Liu (China)

Theme areas

Area 1: Quality Management Framework - Hydrology
Leader: J-F Cantin (Canada)

Area 2: Data Operations and Management
Leader: T. Boston (Australia)

Area 3: Water Resources Assessment
Leaders: A. Cardoso (Brazil), S. Kim (Republic of Korea)

Area 4: Hydrological Forecasting and Prediction
Leaders: J. M. Maina (Kenya), Y. Simonov (Russian Federation)

Area 5: Water, Climate and Risk Management
Leader: J. Danhelka (Czech Republic)

UNESCO-IHP: Chair UNESCO-IHP IGC
J. Cullman (Representative of the Chair of UNESCO-IHP IGC)

OPACHE I: Basic Systems

OPACHE II: Water Resources Assessment

OPACHE III: Hydrological Forecasting and Prediction

OPACHE IV: Water Climate and Risk Management
Hydrological Forecasting and Prediction

- Focus on short to medium-term forecasting (0 to 10 day forecast lead time)
- Use of:
  - Hydrological modelling linked to numerical weather prediction
  - Meteorological and climatological observations for hydrological purposes
    - Includes ground-based in situ observations
    - Satellite estimations
  - Ensembles
Water, Climate and Risk Management

- Prepare guidance material on how to use regional climate modelling (i.e., long-term climate scenarios) in strategic hydrological management;
- Prepare a comprehensive report on downscaling approaches for hydrological applications and their associated uncertainties, including commenting on existing case studies.
- Provide guidance on extended hydrological prediction for water resources management including compilation of case studies.
Project initiatives under GFCS

- South Asian Climate Outlook Forum (SASCOF)
  - Regular sessions of Climate Services User Forum (CSUF) for Water sector in conjunction with SASCOF
  - Case studies to illustrate the utility of long range (extended hydrological) forecasting in Water Resources Management.
  - Two river basins proposed for potential demonstration:
    - Tungabhadra, India
    - Brahmaputra, Bangladesh

- Strong focus on seasonal to sub-seasonal (S2S) forecasting for Water Resources Management
Components of GFCS

- **User Interface Platform** - to provide a means for users, user representatives, climate researchers and climate service providers to interact.

- **Climate Services Information System** - 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.

- **Observations and Monitoring** - to ensure that the climate observations necessary to meet the needs of climate services are generated.

- **Research, Modelling and Prediction** - to assess and promote the needs of climate services within research agendas.

- **Capacity Development** - to support systematic development of the necessary institutions, infrastructure and human resources to provide effective climate services.
GFCS Sectoral Priorities

All sectors to be tackled but in the first four years the GFCS is proposing giving priority to:

- Agriculture and Food Security
- Disaster risk reduction
- Water
- Human Health
- Energy*

*Recommended by IBCS-2/Approved by Cg-17
GFCS Governance

- Intergovernmental Board on Climate Services (IBCS)
  - Established by Extraordinary Session of World Meteorological Congress in 2012
- IBCS-1: 1-5 July 2013, Geneva
  - Adopted the GFCS Implementation Plan
- IBCS-2: 10-14 November 2014, Geneva
- IBCS Management Committee (Re-established in IBCS-2)
  - Chair: Dr Jens Sunde (Norway)
  - Co-Vice-Chairs: Dr L.S. Rathore (India) and Dr L. Makuleni (South Africa)
  - 28-Member Management Committee
- Partnership Advisory Committee
- GFCS Trust Fund
- GFCS Office (as part of WMO Secretariat)
GFCS Partnership Advisory Committee (PAC) Members
Early Implementation of GFCS

- National Consultations/Pilot Projects on frameworks for climate services at national level
  - Burkina Faso, Chad, Mali, Niger, Senegal, South Africa, Belize, Dominica, Trinidad and Tobago, Papua New Guinea, Bhutan, etc.

- Regional Consultations
  - LDCs in Asia, Bangkok, October 2012
  - SIDS Caribbean, Port of Spain, May 2013
  - SIDS Pacific, Cook Islands, 31 March-4 April 2014
  - Latin America, 28 July – 1 August 2014
  - Southeastern Europe, November 2014

- Establishment of joint project offices
  - WHO/WMO Climate and Health
  - GWP/WMO IDMP TSU
  - WFP/WMO
Lessons learned from regional workshops and national consultations

**Regional**
- Importance of research and science
- Role of Regional Climate Outlook Forums
- Maximization of limited resources through regional approach
- Exploring gaps, capacity development, and strategies for engaging stakeholders

**National**
- Systematic dialogue with users
- Understanding in-country capabilities
- Identification of data and observation requirements
- Identification of priority research questions
- Building sector-specific capacities
- Leveraging enabling factors
Resolution 64 (Cg-17) requests the Secretary General:

- To develop a results-based framework identifying the specific WMO contributions to GFCS implementation and associated expected outputs over the seventeenth financial period in line with the WMO Strategic Plan 2016–2019
- To focus the framework on achieving coordination and synergies across the commissions, regional associations and co-sponsored programmes for supporting GFCS implementation at the regional and country levels
- To ensure it is driven by country-level implementation support requirements, including through a focus on specific illustrative countries, to make certain it addresses identified needs in particular contexts with broad applicability
Framework narrative

- Linkages to GFCS Implementation Plan
  
- Informed by
  - Sept 2014 GFCS Meeting on Implementation and Coordination (leveraging)
  - Partners Advisory Committee agreement to focus collective efforts in selected countries to provide comprehensive, coordinated support

- Focus countries
  - Burkina Faso, Tanzania, Bhutan, Papua New Guinea, Dominica, Moldova (PAC)
  - Colombia and Peru (WMO, RA III)

- Upscaling via wider applicability of tools and methods, PAC, regional and global centers

- Support through WMO programmes and GFCS Operational and Resources Plan
Framework Results: Overarching Goals

- Climate services initiated or strengthened in selected countries at a scale and scope sufficient to significantly improve climate related outcomes in priority climate-sensitive sectors
  - Target: 6-7 countries
- Demonstration of enabling and facilitation mechanisms for developing and/or strengthening knowledge, tools, methods, systems, institutional infrastructure, operating principles, policies, partnerships and resources in place for sustaining GFCS implementation on a wide scale
Framework Results: Logically Connected through 5 Objectives

1) **Country level** – Institutional, technical, financial and human resources mobilized for climate services planning, implementation and results monitoring targeting climate-sensitive national priorities

2) **Practice support** – Human resources, tools, methodologies, guidelines and capacity development materials needed to support and quality assure country-level implementation available

3) **Institutional architecture** – Institutional delivery systems in place and engaged at regional and global level for country-level implementation support and upscaling, including capacity development support services, and for provision of "surrogate" services as necessary to complement national (and regional) capabilities

4) **Policy support** – International policy environment, including as related to funding, aligned with, and supportive of, GFCS and framework implementation

5) **Management** – Management and coordination arrangements and resources in place to support framework implementation and link it to complementary partner efforts
Systematic approach for supporting countries

Step 1: Conduct Comprehensive Country Baseline Capacity Assessment for the Development of Climate Services

Step 2: Support NMHS to Engage in a National Consultation process for Climate Services & Develop Action Plan

Step 3: Develop National Action Plan
Map needs against existing initiatives at national/regional level

Step 4: Organize Action Plan endorsement by government and partners

Step 5: Begin Implementation of Action Plan; Launch National Framework for Climate Services; Monitor & Evaluate Impact
Programme for Implementing GFCS at Regional and National Scales

- **Focus Regions**
  - **Small Island Developing States**
    - Pacific Island Countries
    - Caribbean
    - Indian Ocean Islands
  - **South Asia**
    - 9 countries in South Asia
    - Special Focus on Third Pole region
  - **Polar Region (Arctic)**

- **Also supporting**
  - Global Action on Integrated Drought Management
  - Capacity Development for Climate Sciences

- **Total budget - 6.2m USD**
Working together towards strengthened Research and Operations Linkages for Enhancing Climate Services

Joint Session of WMO Commission for Climatology (CCI) and Joint Scientific Committee for the World Climate Research Programme (WCRP)

JOINT CCL-WCRP STATEMENT

Heidelberg, Germany, 02 July 2014

We, the experts representing the World Climate Research Programme¹ (WCRP) and the World Meteorological Organization (WMO) Commission for Climatology (CCI), having met in a Joint Session on 02 July 2014 at Heidelberg, Germany, have deliberated on a number of issues of common interest and agree that our joint efforts are critical to comprehensively address the rapidly emerging societal needs for climate services for adaptation and risk management.
Thank You

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