Climate Services Toolkit

Initial Prototype and Future Evolution

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

WMO Commission for Climatology

WEATHER CLIMATE WATER
TEMPS CLIMAT EAU

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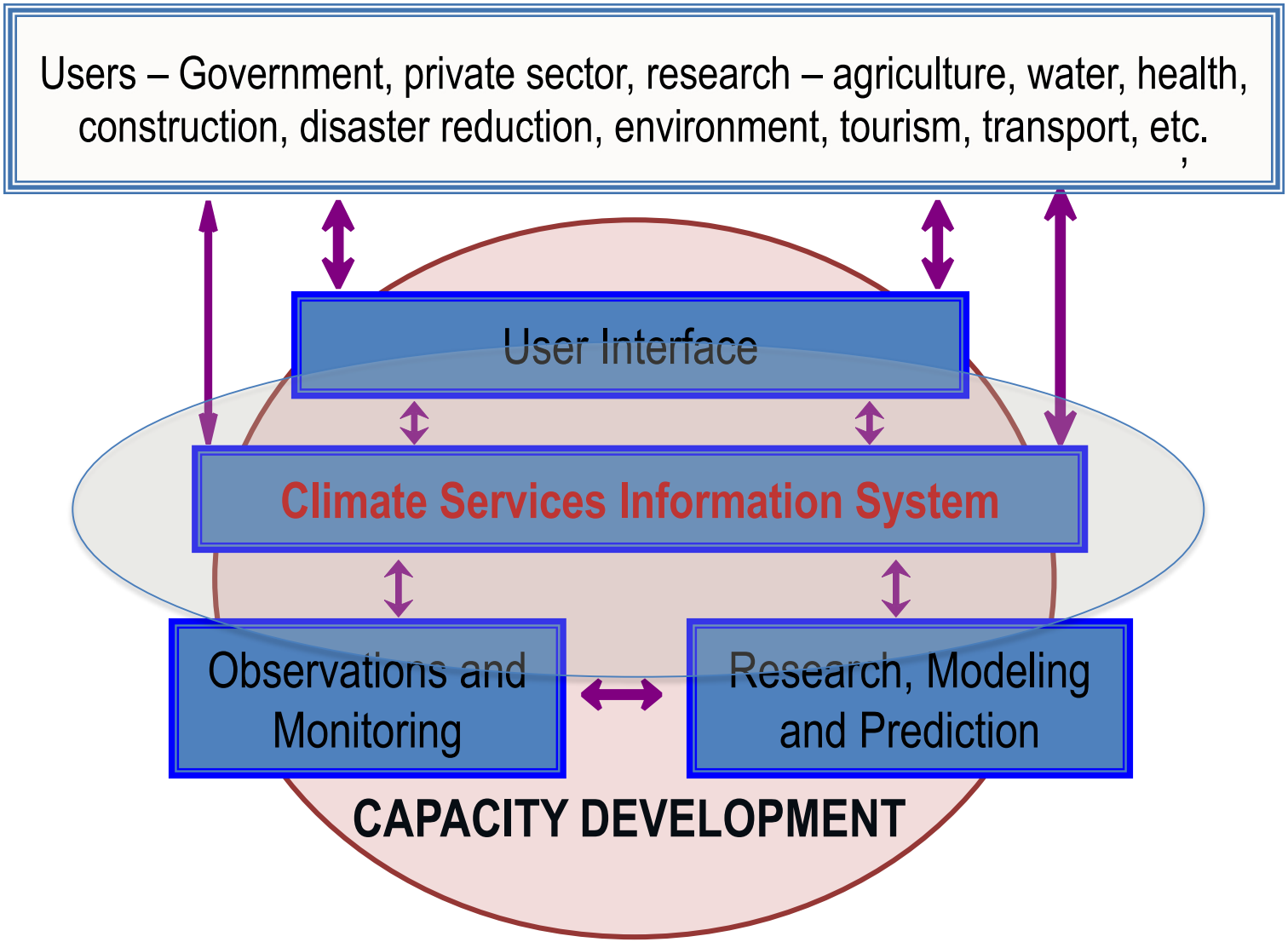
World Meteorological Organization
Organisation météorologique mondiale

GFCS: A vehicle for coordination



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Earlier Development: CSIS Establishment by Congress Resolution 17 (Cg-16), May 2011

- (1) To establish a **Climate Services Information System** with global, regional and national entities providing operational climate information, including data, monitoring and prediction products within the GFCS;
- (3) That CSIS operations shall adhere to the **WMO Technical Regulations** and should generate, as needed, new Technical Regulations pertinent to the advancement of operational climate services;
- (5) That the core operational CSIS products should be **standardized** in terms of production, presentation, delivery and verification …

Earlier Development: WMO/GFCS Reports

- **Strategy for Implementation of CSIS – April 2011**
  - Defines top-level CSIS functions and formalized structures
- **Task Team on CLIPS Evolution – October 2011**
  - National Framework for CS
  - Identified existing tools - CST
- **ET on CSIS – December 2012**
  - Defines minimum CSIS elements at global, regional and national levels
- **Annex to the GFCS Implementation Plan: CSIS – 2014**
  - Sets path for CSIS implementation and enabling mechanisms

Climate Services Toolkit: Why a CST?

- **Facilitate the production, communication, and application** of climate information products
- **Ensure that the information and products** developed for and provided to end-users is relevant, reliable, **useable**, consistent (through time and across regions) and of high quality
- **Share new tools, procedures and instruction**, information and methods, and thereby enable all CSIS providers to take advantage of research and development advances
- **Facilitate climate services standards and consistency** in support of National Meteorological and Hydrological Services
- Enable more **countries to develop their national products**, and so encourage improved data sharing, and foster the interaction and shared learning between information providers through the development of a common set of skills
- **Reduce the need for expensive capacity building** through availability of training resources. The Climate Services Toolkit will also make training workshops more focused, tangible and efficient in imparting the operational skills

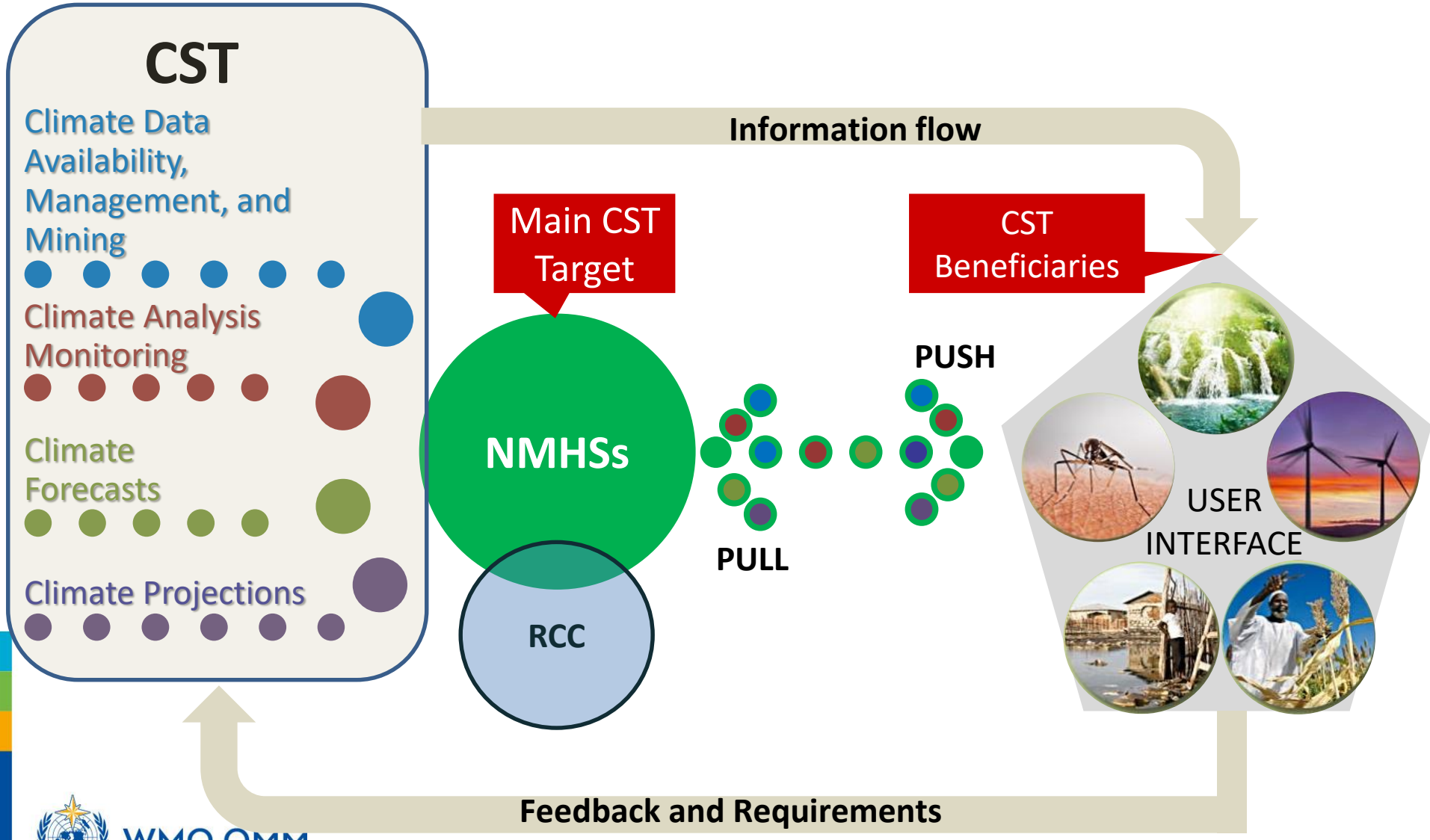
What is CST?

- **The Climate Services Toolkit comprises:**
  - Data portal in public domain for access to and analysis of observations
  - Data management system for quality control and simple management of data
  - Climate monitoring tools for calculation of anomalies, percentiles, return periods
  - Software tools for conducting climate analyses, making predictions, and assessing projections

CST is a suite of guidance, procedures and instructions, data, software tools, training resources, and examples for enabling climate services at global, regional, and national levels

- Guidance, procedures, and instructions serve as a starting point for climate services development and a reference tool
- These products are accompanied by training materials specifically designated to support the generation and use of climate information and prediction products dedicated to user-target

CST Target Audience and Beneficiaries



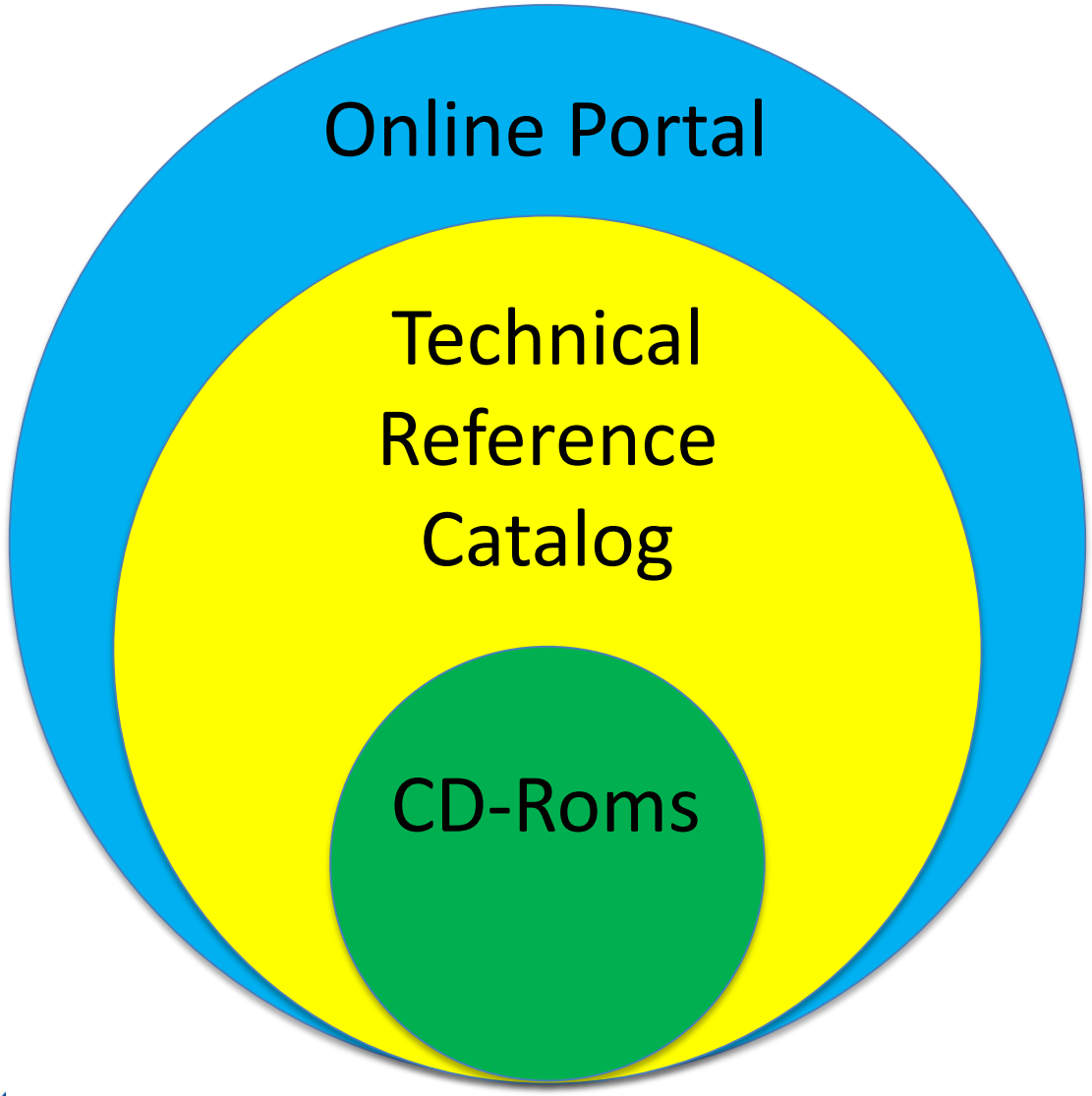
CST Main Target Audience – NMHS

Function	CST functionality	Example of NMHS User-Targeted Products
Data Service	Historical homogenized national station datasets, real-time data in digital form (daily mean temperature, Tmin, Tmax, and Prec), Climate database, archiving, mining, dissemination services. Data rescue and exchange	SPI, SPEI, **MAI**, onset dates for rainy season, heating degree days
Monitoring	Climate diagnostics incl. analysis of climate variability, change, and extremes Historical reference climatologies Annual state of national climate reports	Bulletins targeted at specific sectors, percentile information, risk maps, **vulnerability maps**, ETCCDI, PDFs, regularly updated reference climatologies
Prediction	Seasonal and intraseasonal predictions Comprehensive verification of past forecasts and real-time assessment	Outlooks of Temp/Prec, Monsoon onset, breaks and bursts, heat wave, **cold waves**
Projection	National information on climate change projections; Communication of the relevant climatological context and information on uncertainties Validation of model simulations	Scenario, information on change in significant weather eventsand extremes, etc.
Dissemination and Capacity Development	Online access to products and services incl. methodology information, product descriptions, and user guidance User feedback mechanisms	Forums, workshops, hands-on training, press releases etc.

Source: ET-CSIS 2012 Meeting

CST COMPONENTS

CST Components



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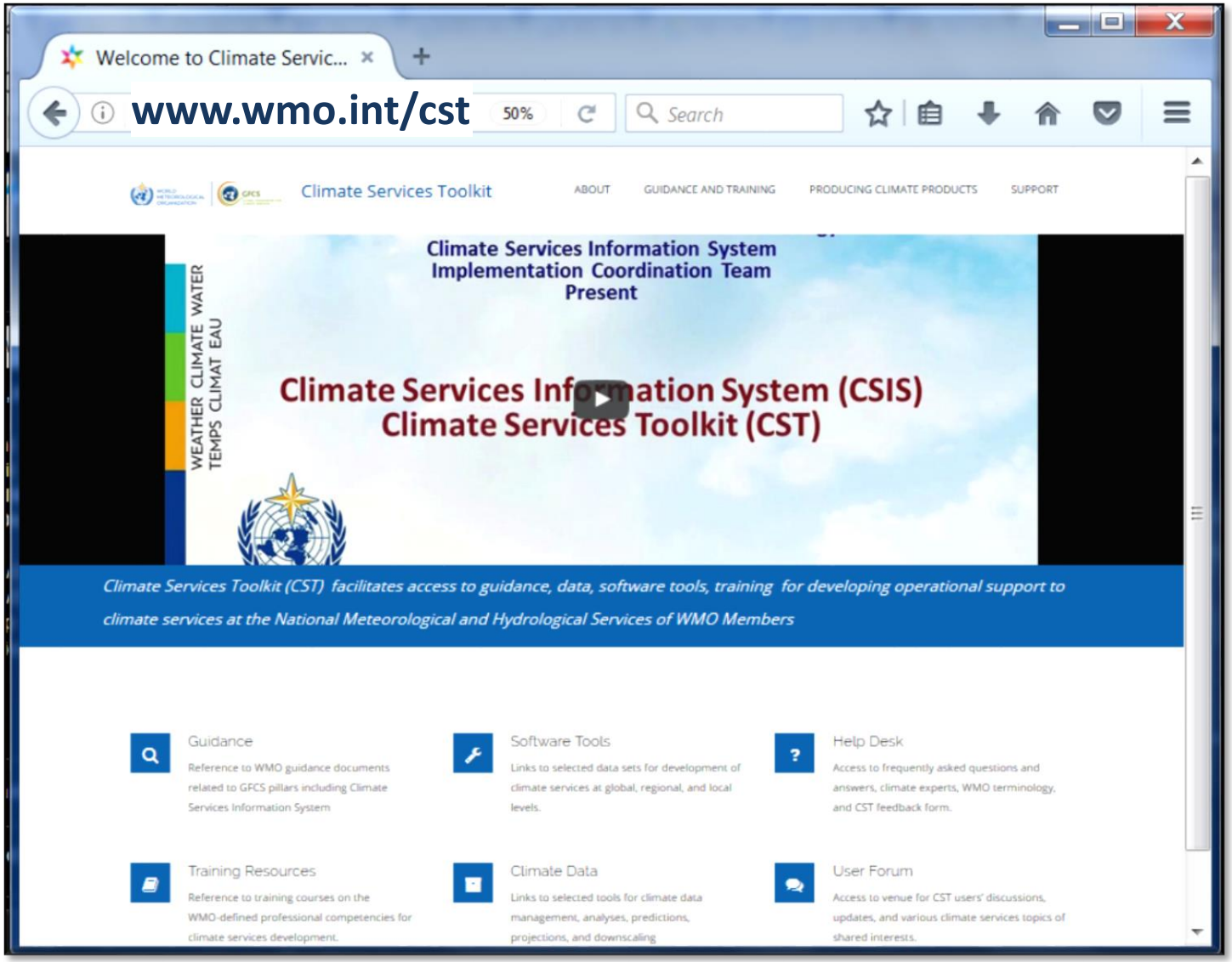
CST Web Portal



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Technical Reference Catalog

- Describes purpose, organizational structure, element, mechanisms, and enables
- Includes technical specification of data, products, and tools
- Provides usage information and training resources
- Input will be collected as the meeting follow up activities – online questionnaire
- This meeting discussions and breakout session will guide the online questionnaire scope

Set of Electronic Devices

- Some WMO country members experience technological challenges – band width, hardware availability, access to power, etc.
- CST should be flexible to support these countries with a minimal set of selected resources

CST EXISTING FEATURES

Why CSIS Climate Services Toolkit Prototype?

- In support of Climate Services Information System (CSIS) implementation, the operati component of the Global Framework for Climate Services (GFCS)
- An online outlet for data, tools, guidance, training resources
- For climate services development at natio regional, and global levels
- Recommended by technical experts from WMO Commission of Climatology
- Available in public domain at no cost to users

http://www.wmo.int/cst/

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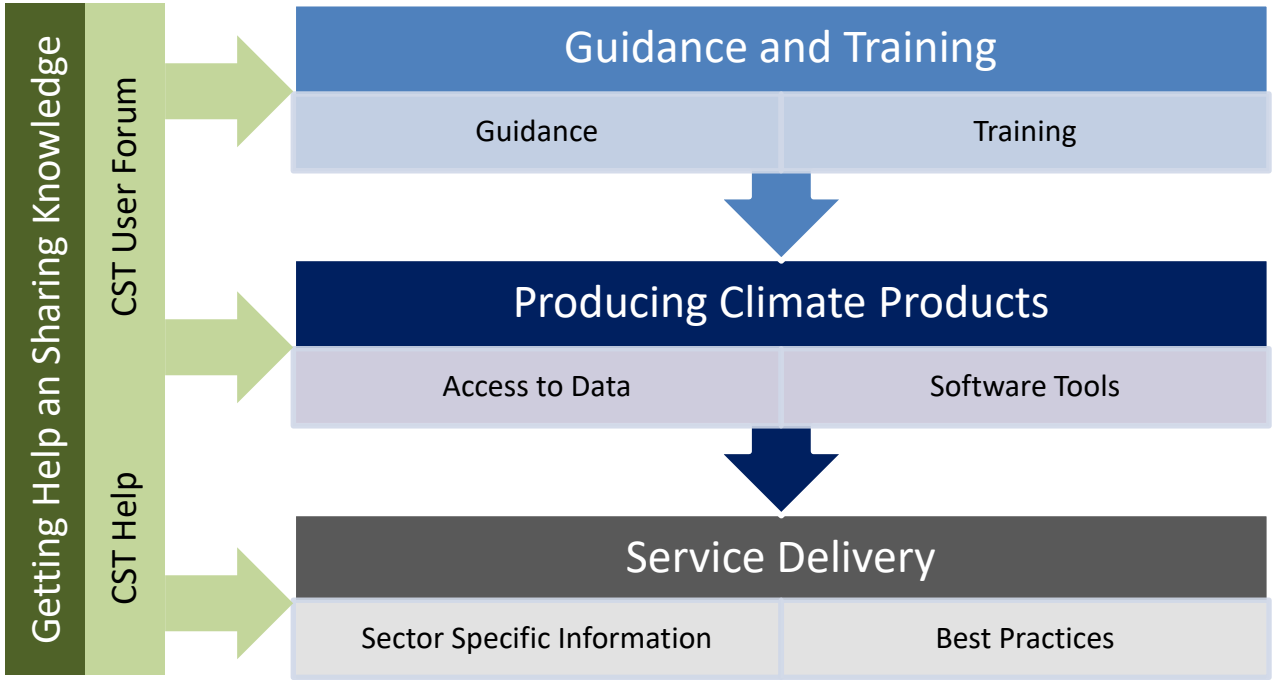
What can the CSIS CST offer?

- CST resources are organized following expected steps of information utility
- Start with Guidance and Training
- Examine resources available in Climate Data and Software Tools,
- Note: Section on Service Delivery will be available after March 2017
- Get Support from Help Desk and User Forum



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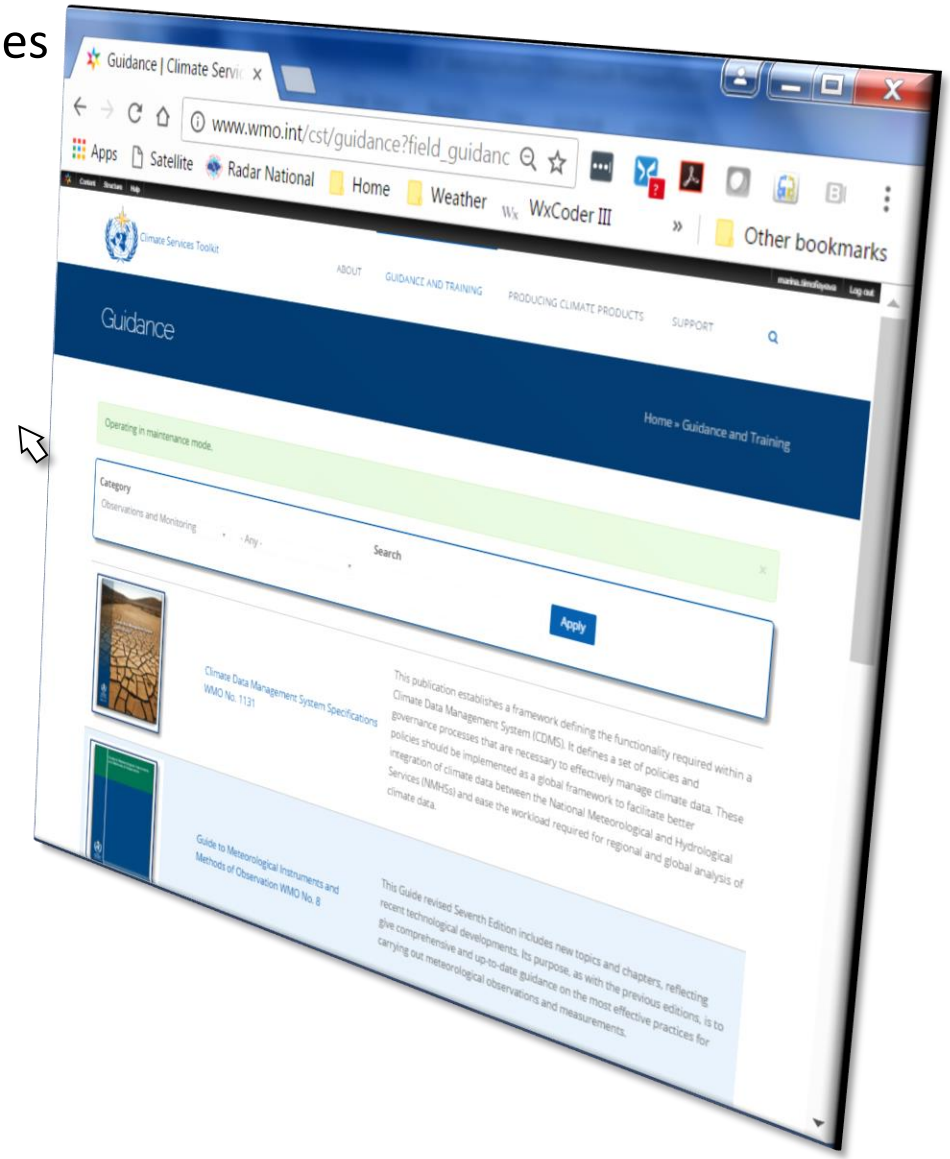
What ‘Guidance’ is included?

Menu > Guidance and Training > Guidance

- Links to subset of WMO Climate Services Guidance documents
- Providing recommendations for best practices on GFCS pillars:
  - **Observations and Monitoring**
  - **Climate Services Information System**
  - **Research, Modeling And Predictions**
  - **Capacity Development**
  - **User Interface Platform**



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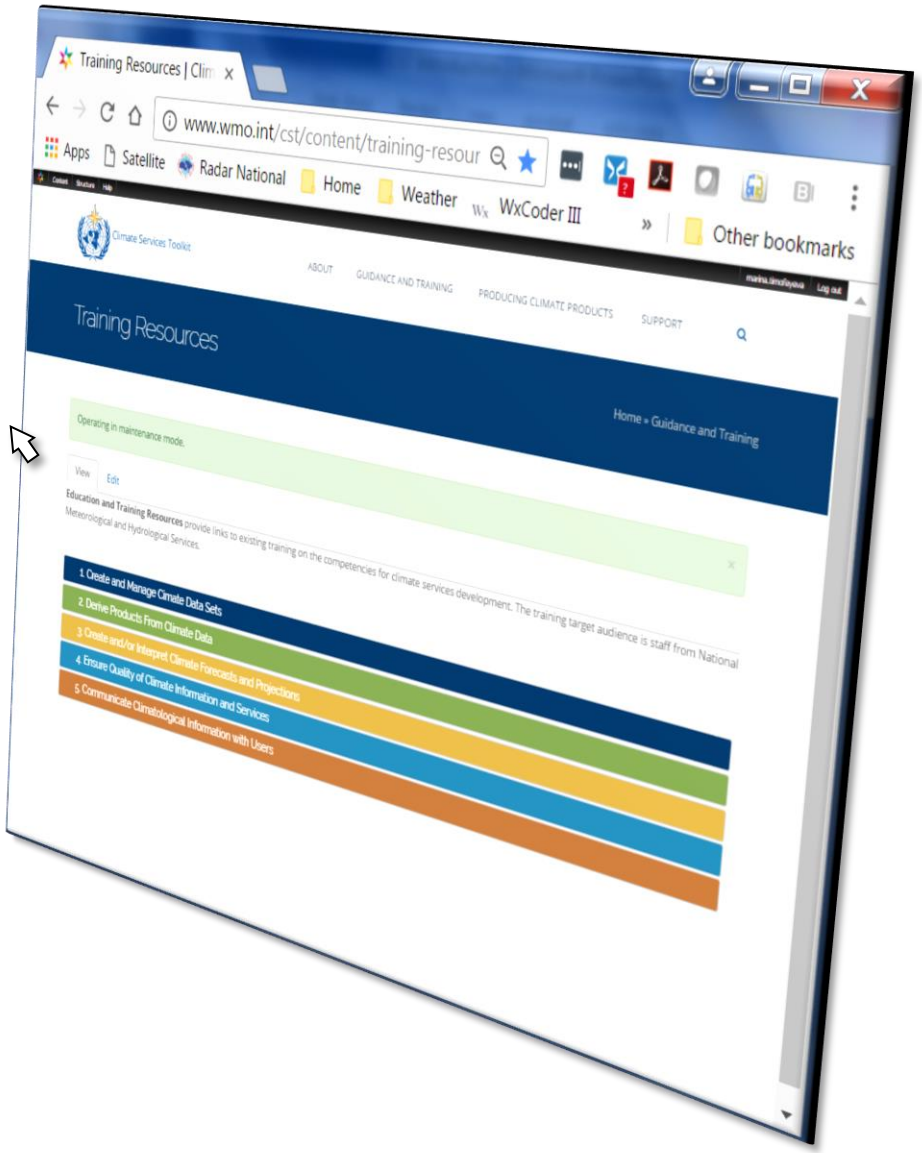
What ‘Training Resources’ are available?

Menu > Guidance and Training > Training Resources

- Organized according to WMO recommendation on Competencies for Provision of Climate Services
- Links to available distance learning modules and residence courses offered by the international climate services community
- Currently in English
- Selected courses are available in Spanish and French



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How are ‘Climate Data’ selected?

Menu > Producing Climate Products > Climate Data

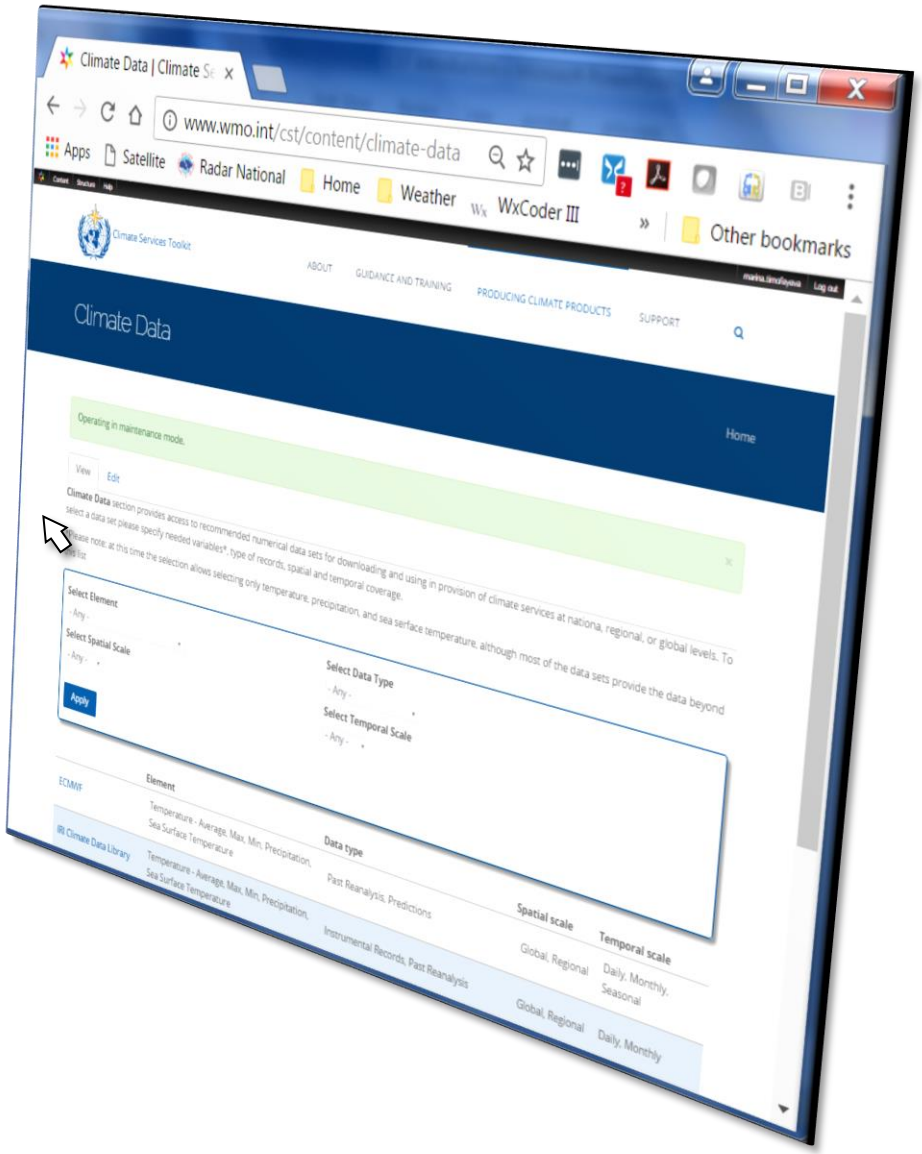
- Selection of ‘Climate Data’ sets is based on four characteristics:

  - **Climate Element**
    Temperature, Precipitation, Sea Surface Temperature

  - **Data type**
    Instrumental, Reanalysis, Current Conditions, Prediction, Projections

  - **Spatial Scale**
    Global, Regional, National

  - **Temporal Scale**
    Daily, Weekly, Monthly, Seasonal, Decadal



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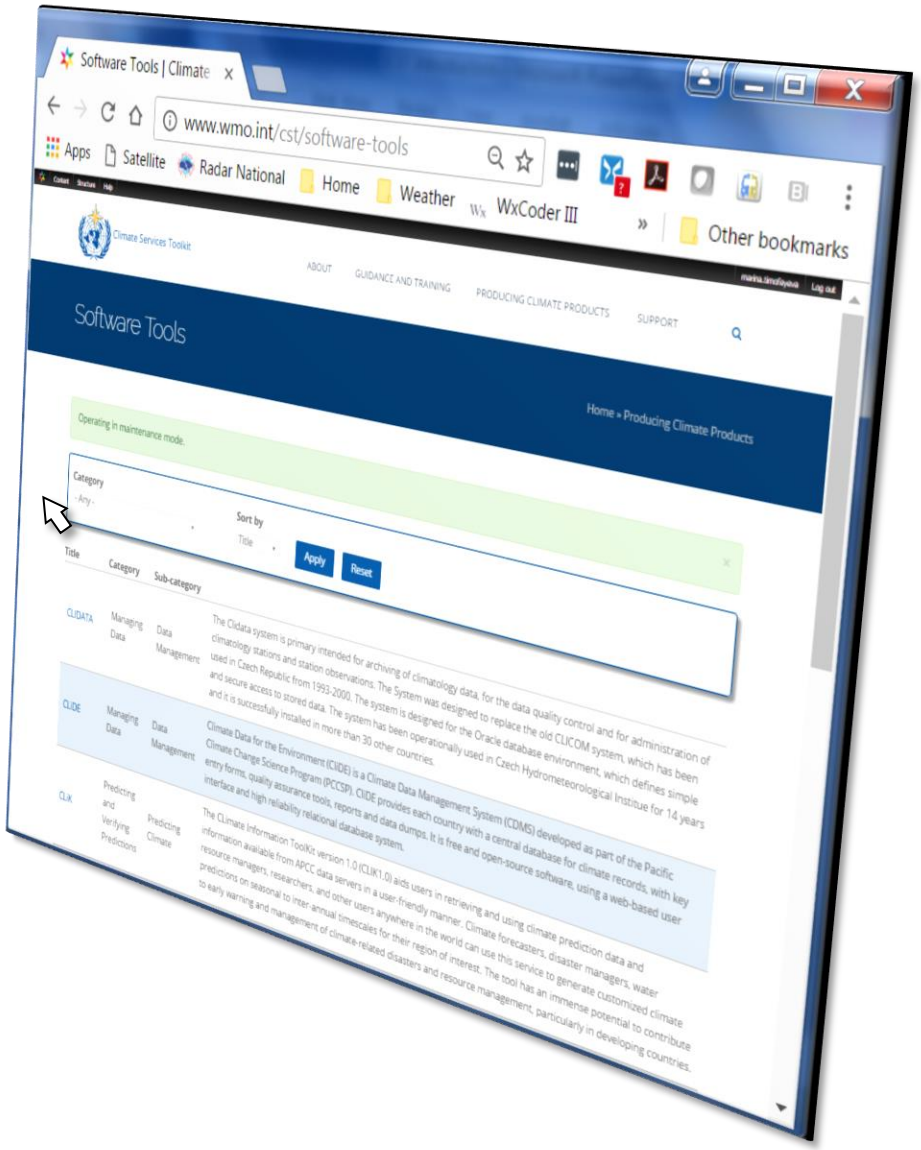
Which ‘Software Tools’ is CSIS CST linked to?

Menu > Producing Climate Products > Software Tools

- Links to climate services tools
- Allow tool section by categories:
  - **Managing Data & Products**
  - **Analyzing and Monitoring Data & Products**
  - **Predictions**
  - **Projections**



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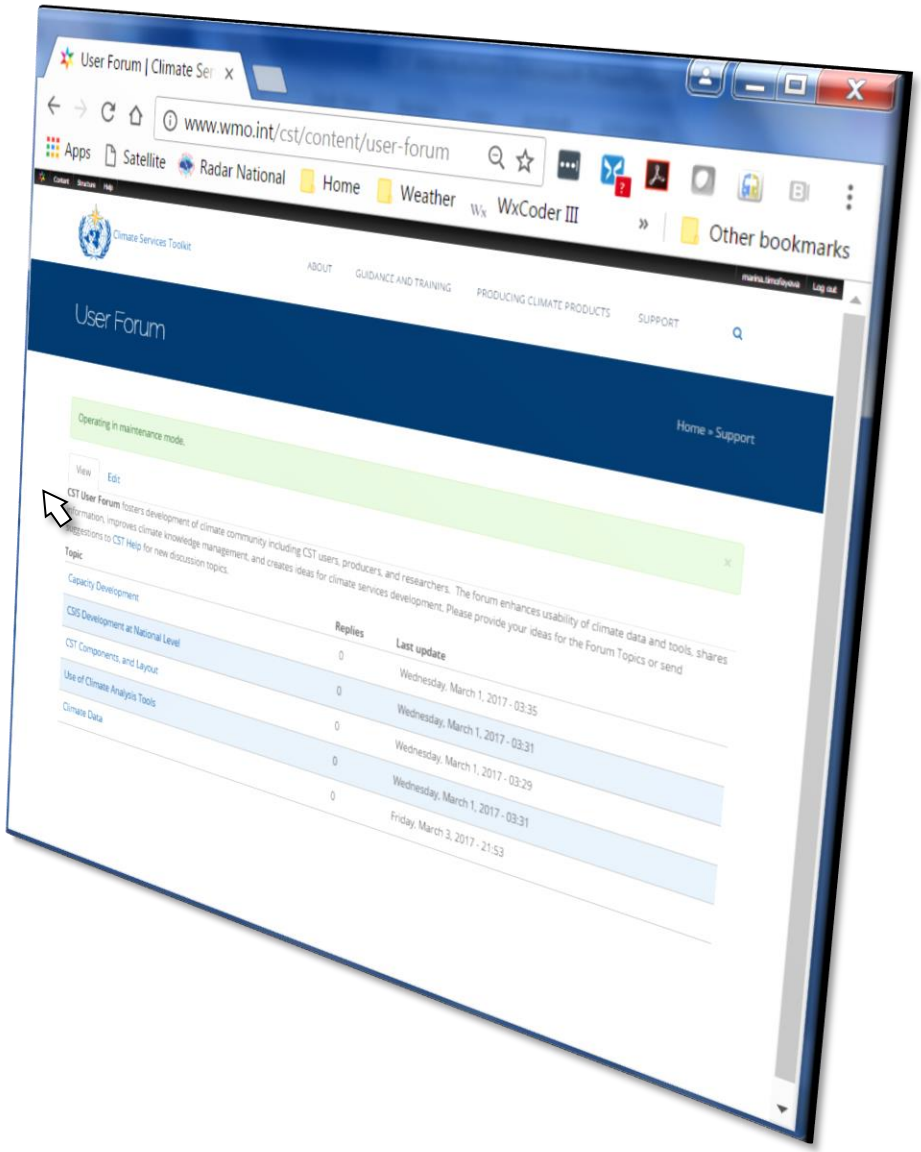
What 'Support' is provided?

Menu > Support > Help Desk or User Forum

- The Support section includes:
  - **CST User Forum to facilitate CST utility** – shown now
  - **Help Desk**
    - ✓ Frequently Asked Questions and Answers (FAQ&A)
    - ✓ Contact Experts on various climate services topics
    - ✓ Terminology
    - ✓ Evaluation Survey
- Help Desk will be significantly revised after the CSIS International Workshop in March 2017, in Nanjing, China



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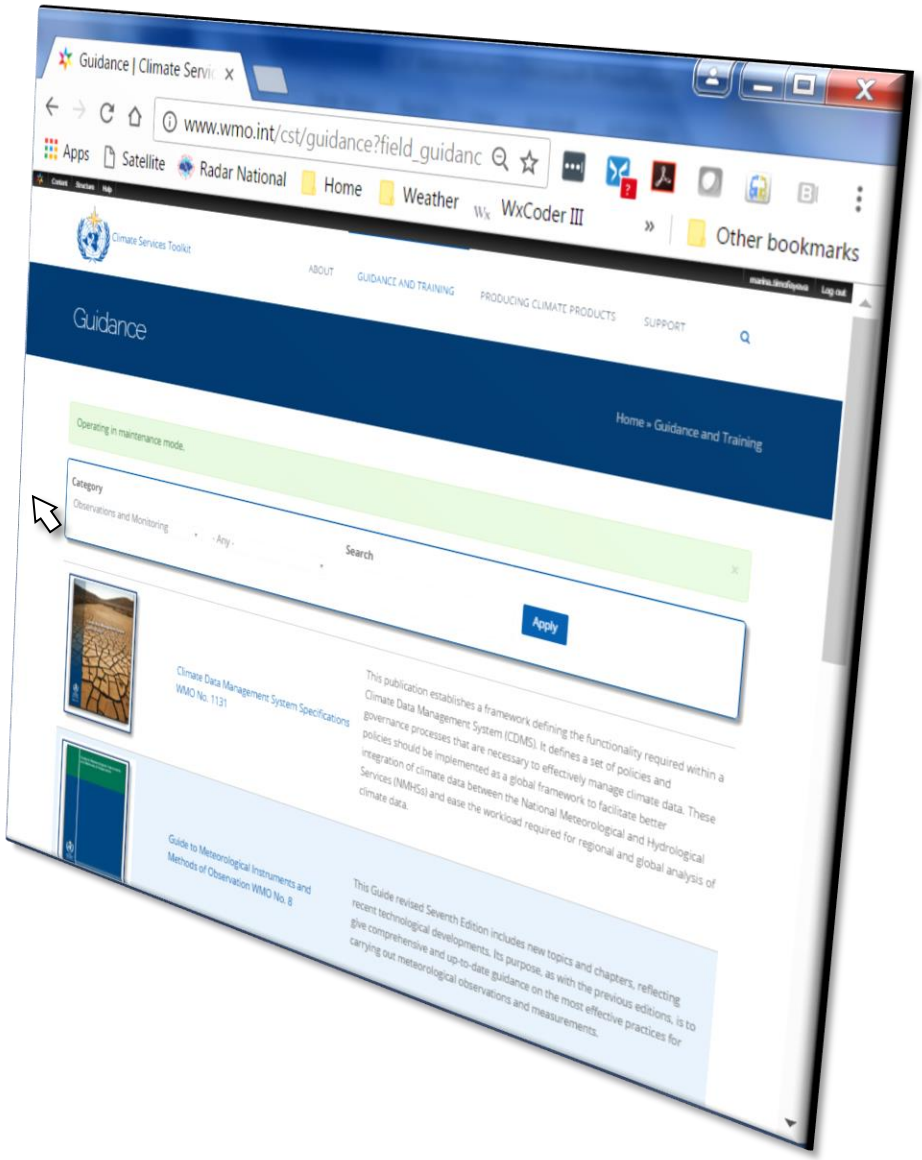
What is coming next?

Menu > Service Delivery

- ‘Service Delivery‘ Section is under development pending outputs of the CSIS International Workshop in March 2017, in Nanjing, China
- Initial plan to include information on:
  - **Case studies of climate services for five GFCS priority sectors**
  - **Best practices for climate communication**
  - **Tools to engage partners and users**



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CST NEAR-TERM ACTIONS 2017 - 2018

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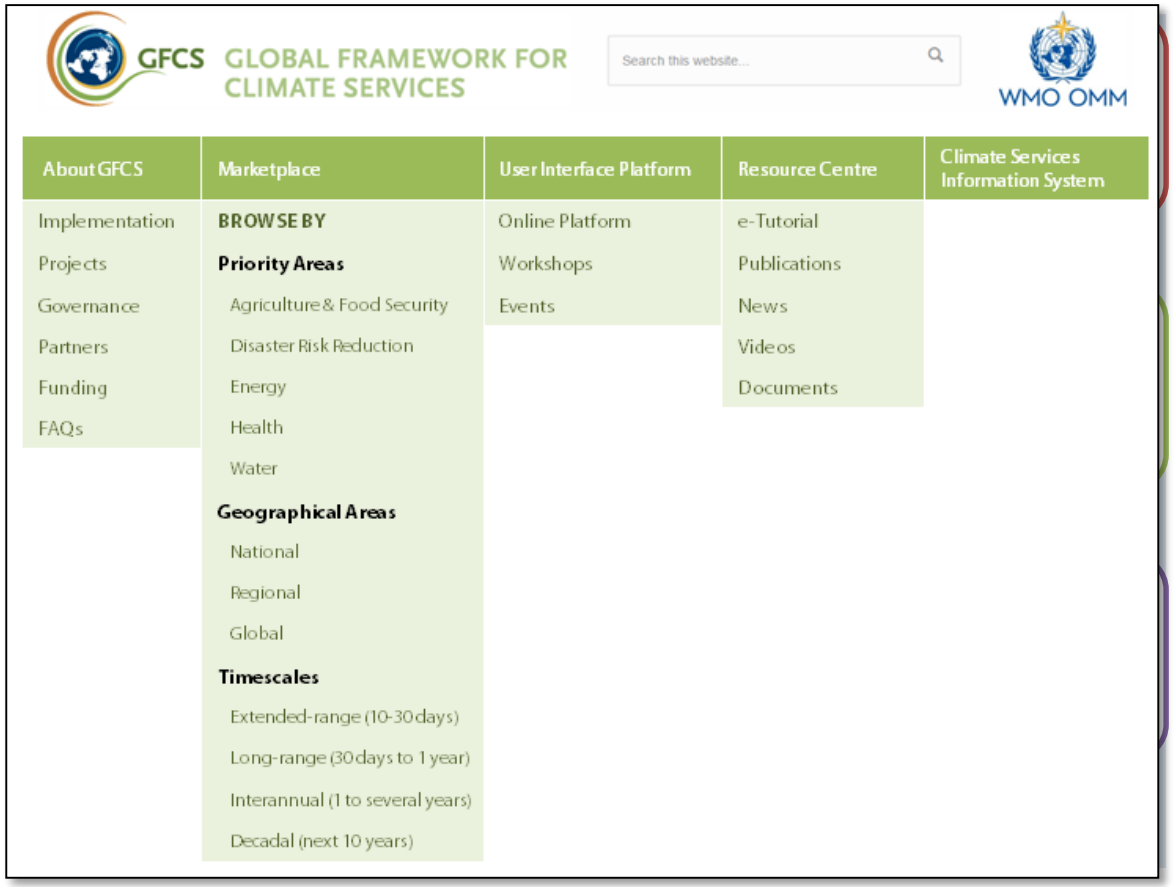
Service Delivery Section

In collaboration with GFCS Help Desk and UIP:

- **Case studies of climate services demonstration and operations for five GFCS priority sectors**
- **Best practices for climate communication**
- **Tools to engage partners and users**
- **Tools for assessment of climate services**



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Feedback Incorporation

Completeness and Correctness

- All identified tools and data sets are included
- Descriptions of tools and data sets are adequate
- All links are proper and working

Usefulness and Relevance

- Navigation is easy
- Tools and Data are responsive to user needs
- Training is in place
- Help Desk is completed
- User Forum is used and able to help

Strategy for CST Content and Update

NOW	NEAR-TERM FUTURE
Initial set of categories for data/tools/guidance	User-driven CST categories
CST resources have been identified by CCL experts	There are many good resources outside of the CCL SMEs' awareness
Too many resources does not equal to all are usable	A set of selection criteria for CST resources
Guidance	Climate products generation procedures and instructions
Help Desk and User Forum	Clearing House

Remaining CST Components

Technical Reference Catalog

- Content
- Organization
- Cross- reference
- Mechanism for evolution and updates
- Reference to procedures and instruction

E-Devices

- An interim step to expedite CS in countries, not a permanent dependency
- Need specifics for Data
- Few tools are available for downloading
- Actual procedures and instructions

CST Steps for Capacity Development

- Regional partnerships and networking
- Regional and national climate data management systems and data sharing dialogs
- Steps for building institutional capacity
- Steps for building infrastructural capacity
- Education, training, and knowledge management

CST Application Cases

- NMHSs and respective RCCs should work together in developing case studies
- CST SMEs are to be ready for expert support, guidance, and training
- Each case studies should have clear objectives, road map, and performance measures
- Reporting and information exchange is critical

CST Outreach Actions

CSIS CST should reach out to wider scientific community for information exchange through:

- Peer-reviewed publications
- Brochures
- Fact sheets
- Scientific and partnership targeted meetings and professional societies

CST LONG-TERM DEVELOPMENT 2020 AND BEYOND

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Fully Operational CST Vision

- WIS-compliancy
- CST refers to tools that are compliant with standards and can be labeled as “WMO recommended”
- Transition from online reference toolkit to online usability toolkit
- Seamlessness and transparency of the CST data and tools
- Learning progressions implemented
- CST capabilities at global, regional, and national levels
- International climate services community efficiently shares new advances in research and development
- Support for end-users of climate services is timely, accurate, and competent
- Translated in all WMO languages

To Achieve the Goals

- Dedication and commitment
- Engagement and cross-pollination of ideas
- Continuous practice and leaning lessons
- Communication and coordination
- Sustained governance, leadership, and management

Thank you
Merci

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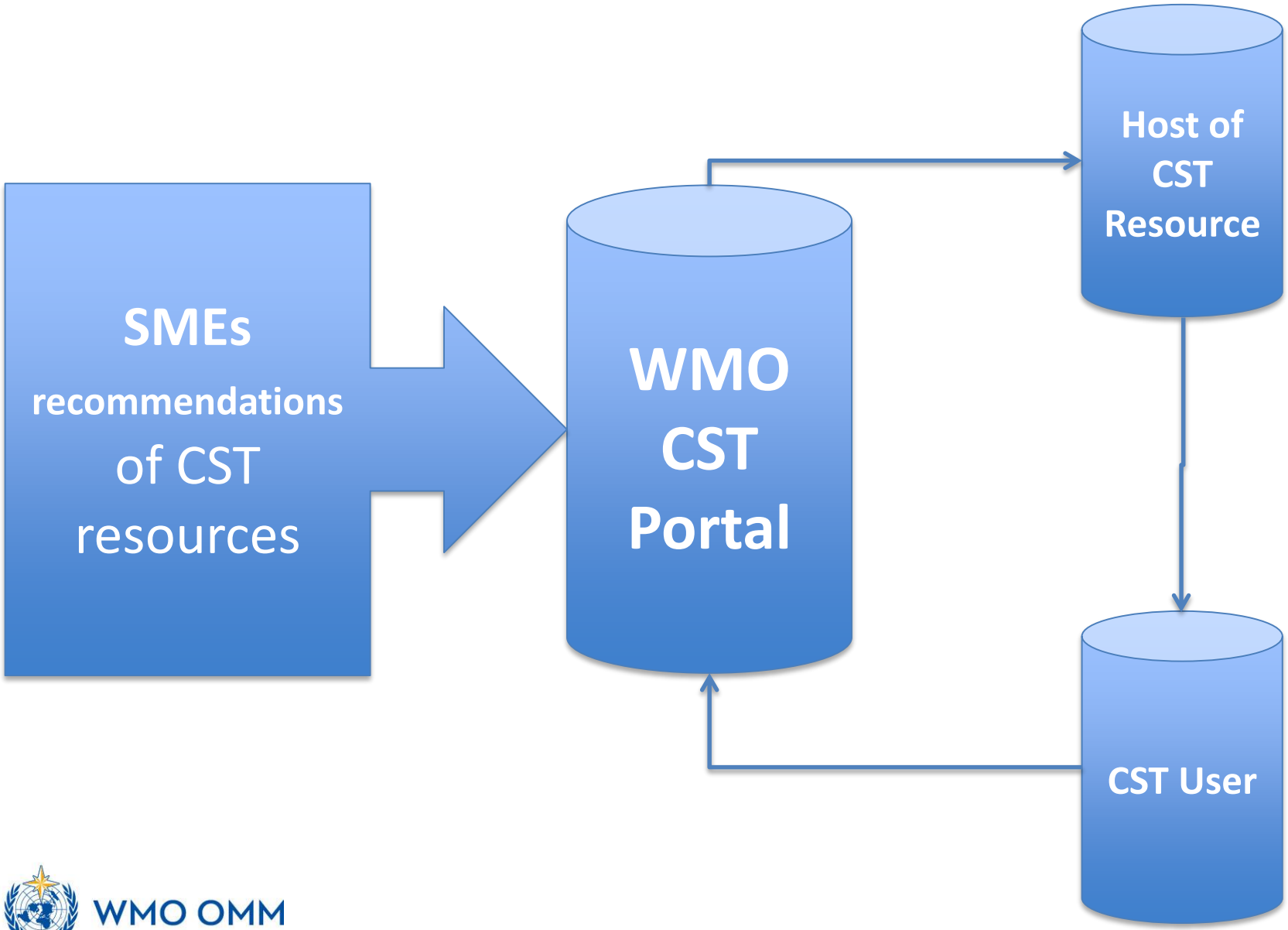
CST Population and Information Sharing



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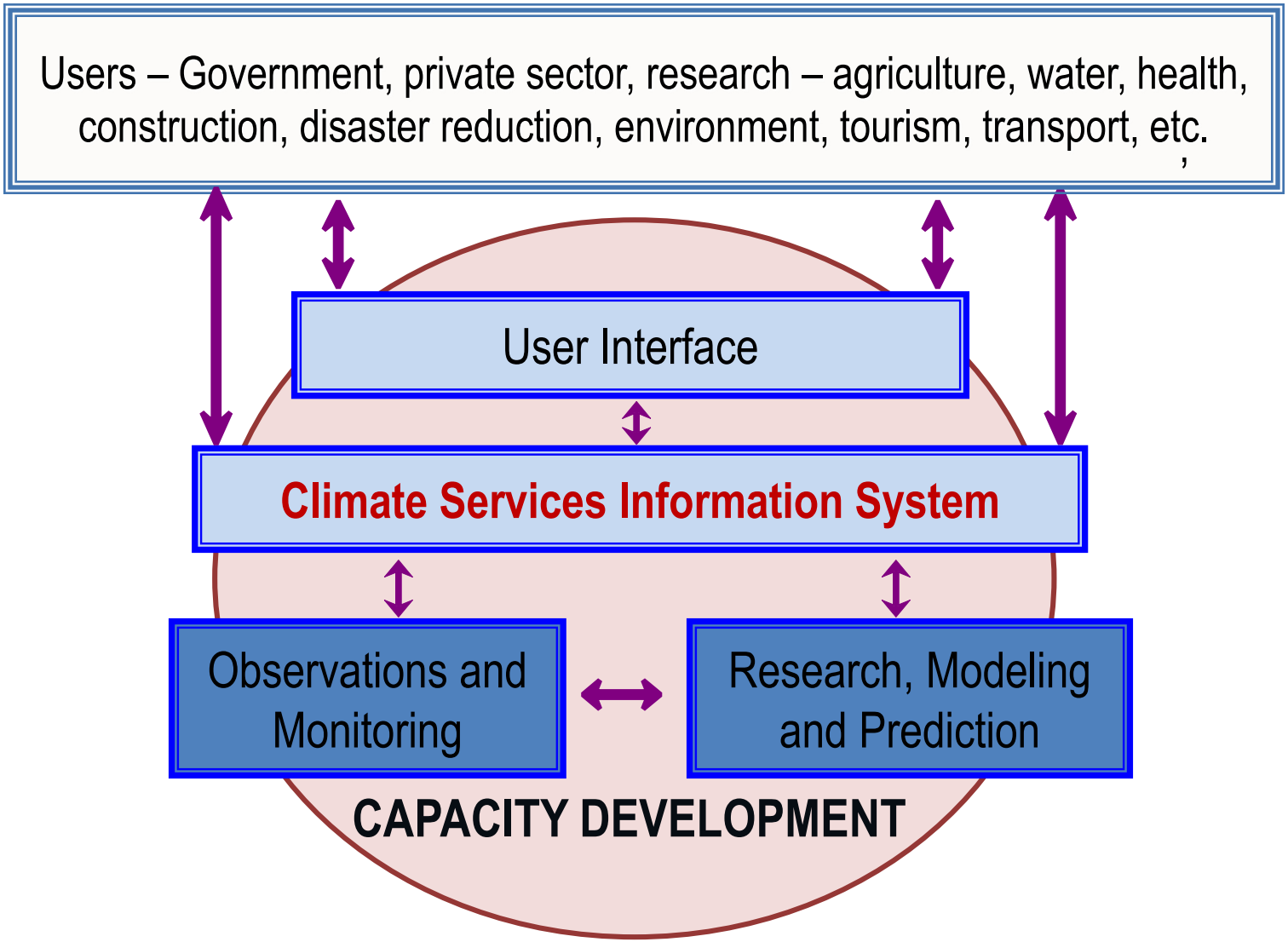
Coordination with GFCS Pillars



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