

World Meteorological Organization (WMO) Commission of Climatology (CCI) Perspectives on a Global Framework for Climate Services

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on behalf of WMO CCI TT-CSTD



WMO OMM

World Meteorological Organization
Organisation météorologique mondiale

Global Framework for Climate Services

Climate services provide climate information to help individuals and organizations make climate smart decisions.



National and international databases provide data, maps, risk and vulnerability analyses, assessments, and long-term projections and scenarios.



Socio-economic variables and non-meteorological data may be combined, depending on user needs.

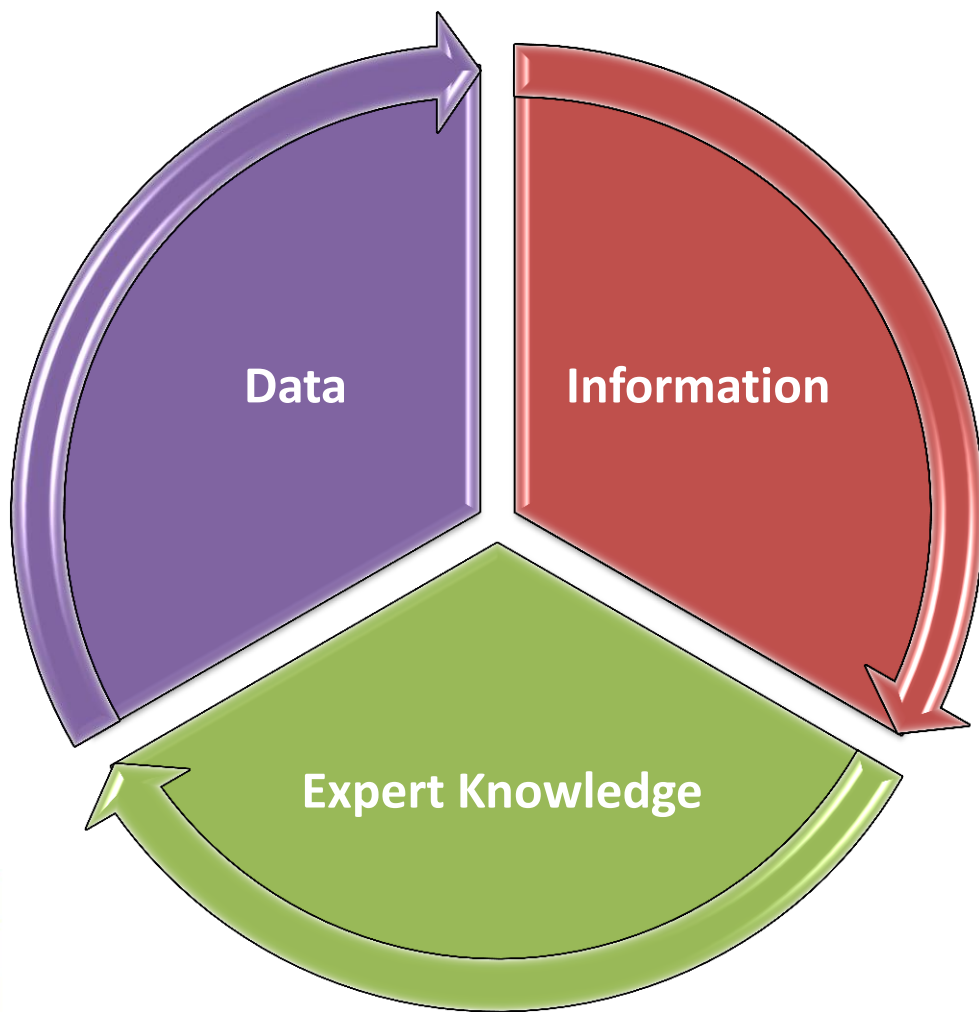
Customized products for different user communities.



What is Climate Services?

- **Climate services** is a scientifically-based climate information provided in a way that enhances users' knowledge and understanding about the impacts of climate on their decisions and actions.

Climate Services Components



Information includes:

1. Data on past and present climate conditions
2. Analyses of past and present climate conditions
3. Forecasts and scenarios of future climate conditions
4. Analyses and forecasts of the impacts of climate conditions on equipment, people, and operations
5. Assessments of the confidence associated with climate information
6. Decision support for managing risks and opportunities associated with climate variations and climate impacts



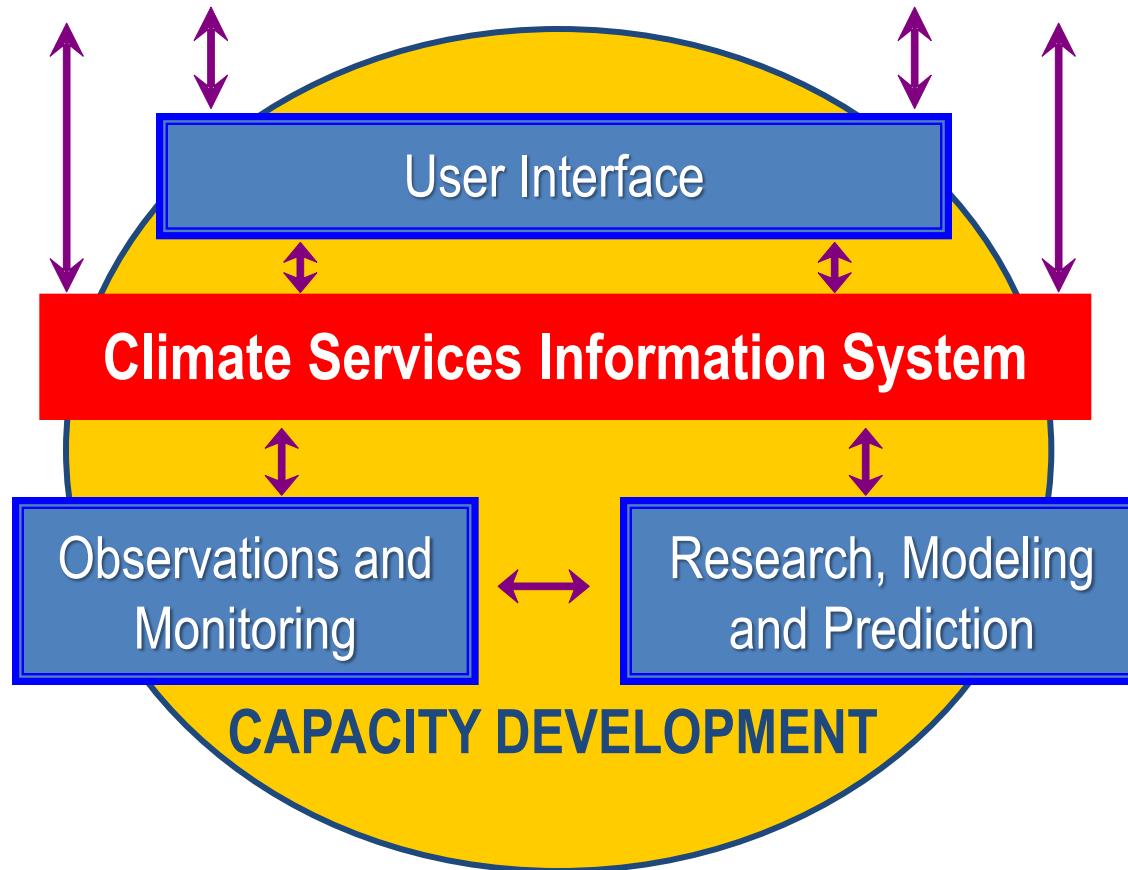
CSIS Earlier Development: Res 17 (Cg-16, 2011)

- (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 ...



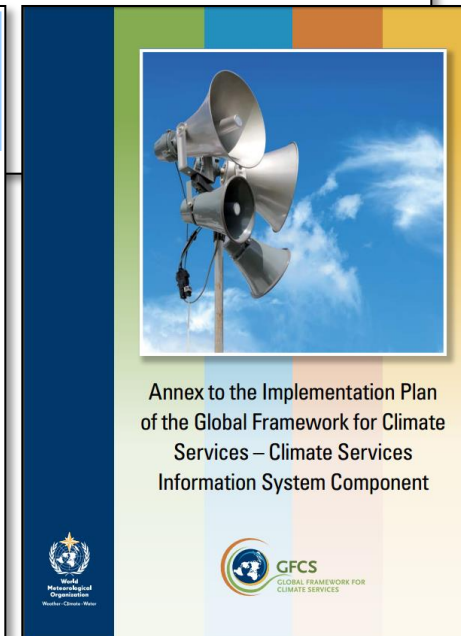
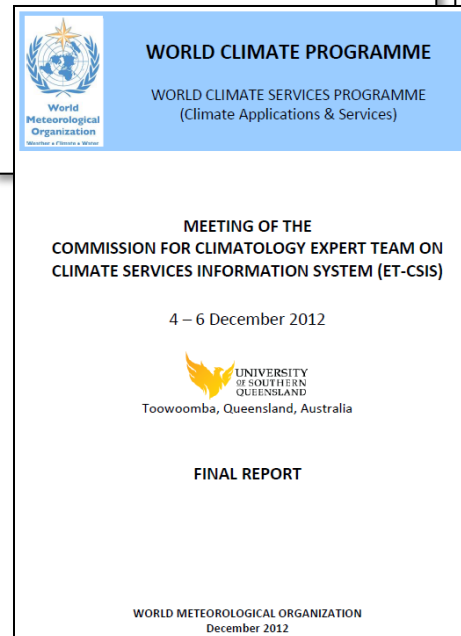
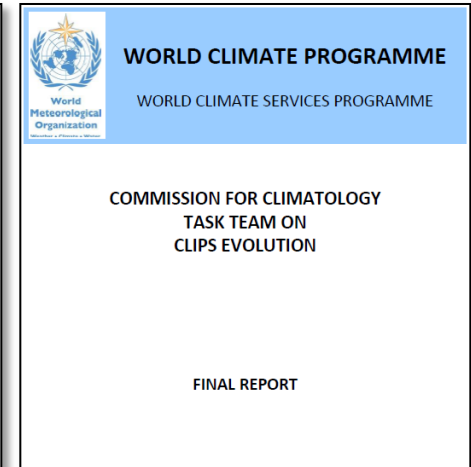
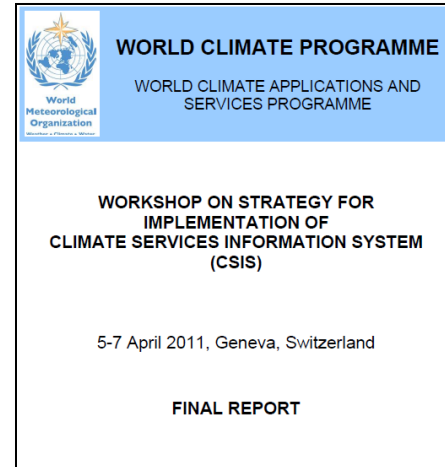
Climate Services Information System within GFCS Pillars

Users – Government, private sector, research – agriculture, water, health, construction, disaster reduction, environment, tourism, transport, etc.



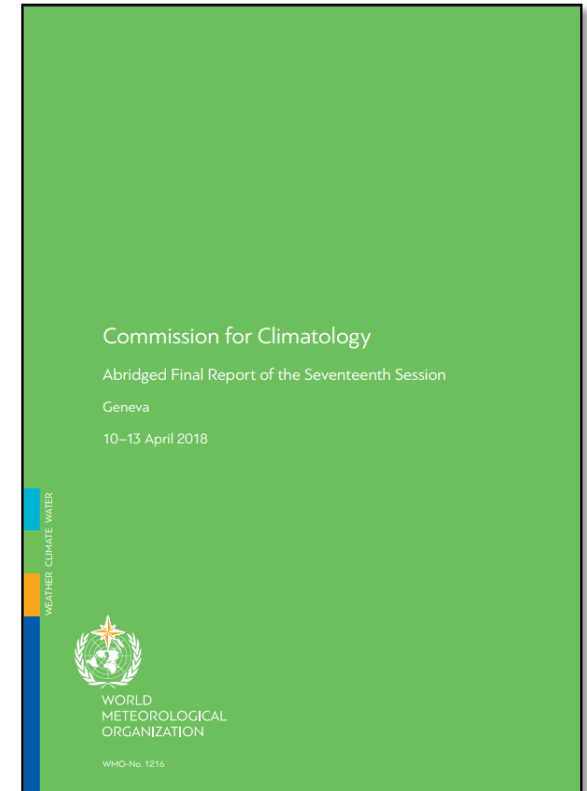
Earlier Development: WMO/GFCS Reports

- **Strategy for Implementation of CSIS – April 2011**
 - Defines top-level CSIS functions and formalized structures
- **Task Team on CLIPS Evolution – October 2011**
 - Identified existing tools
- **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

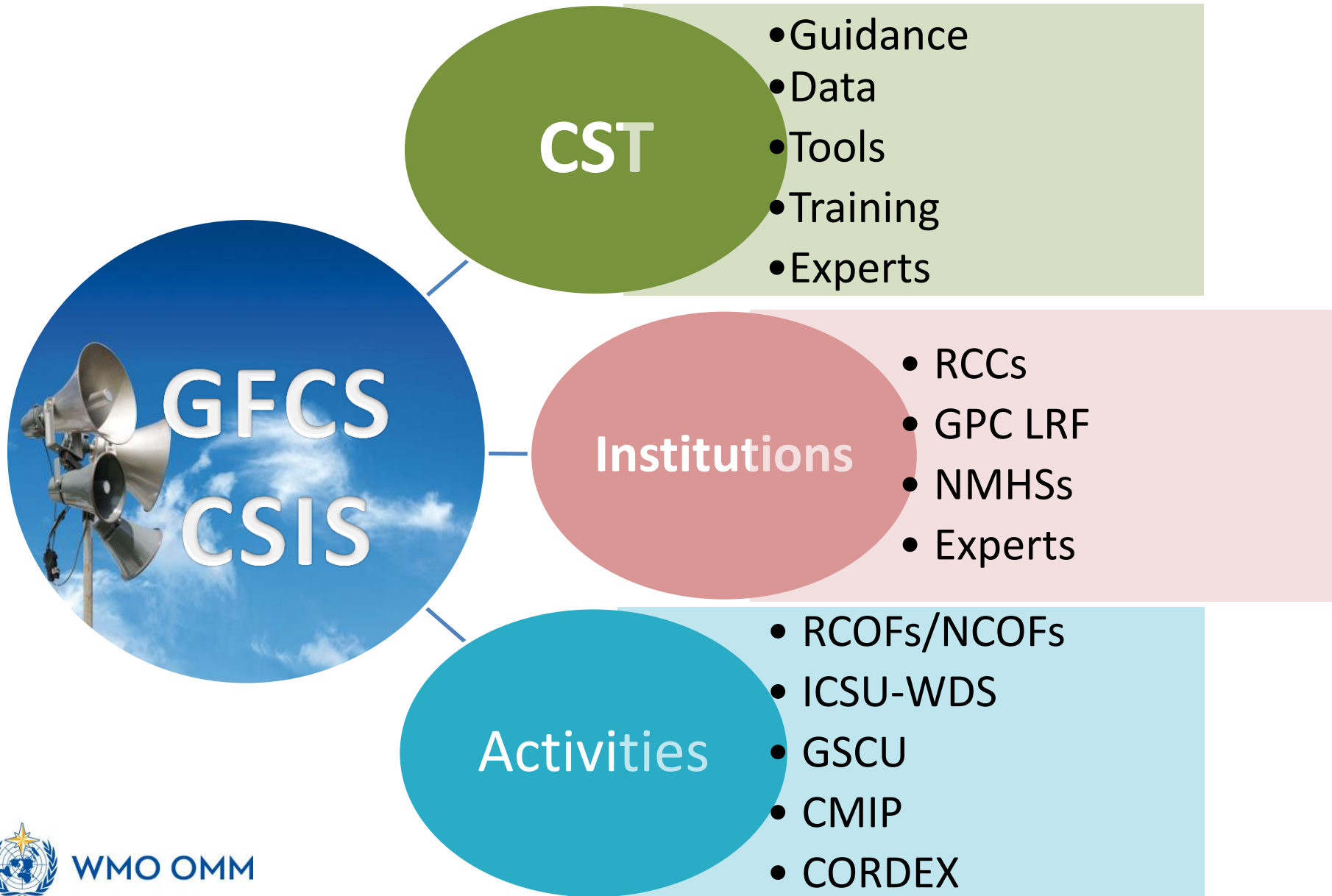


Recent Development: CCI- 17 Session, 2018

- To align WMO CCI support to Members through the country-focused results-based framework and mechanism for WMO contributions to the GFCS efforts;
- To provide guidance to integrate well-defined service delivery practices systematically into the implementation and operational plans for the Climate Services Information System (CSIS);
- To include service delivery emanating from all the CSIS core functions: (i) climate data rescue, management and mining; (ii) climate analysis and monitoring; (iii) climate prediction; and (iv) climate projection; into further development of the CSIS Technical Reference as well as the Climate Services Toolkit;



CSIS and CST Functional Distinctions



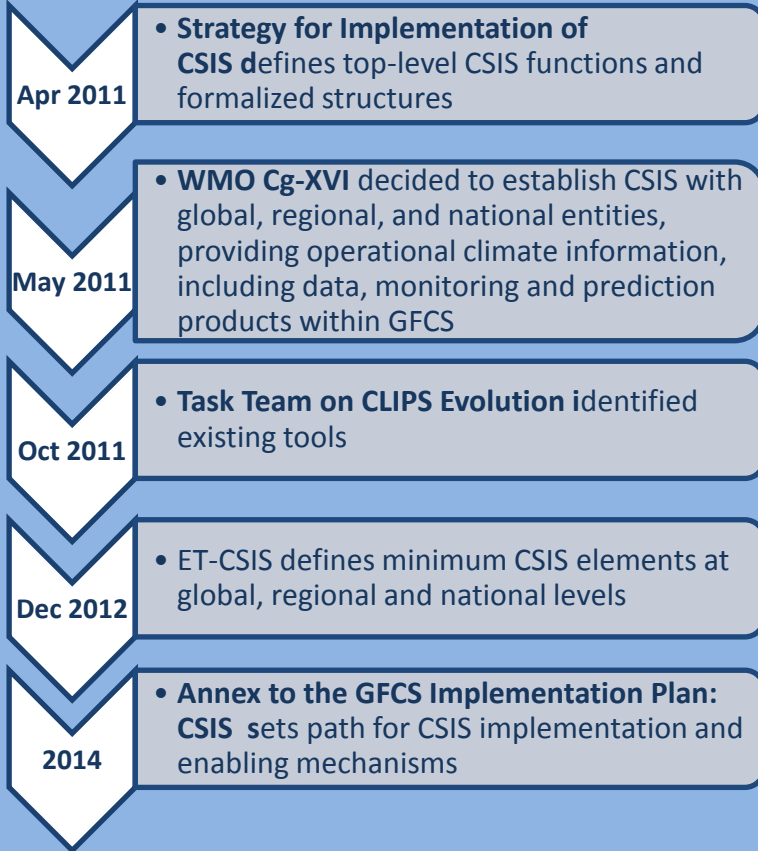
What is CST?

- **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
- 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

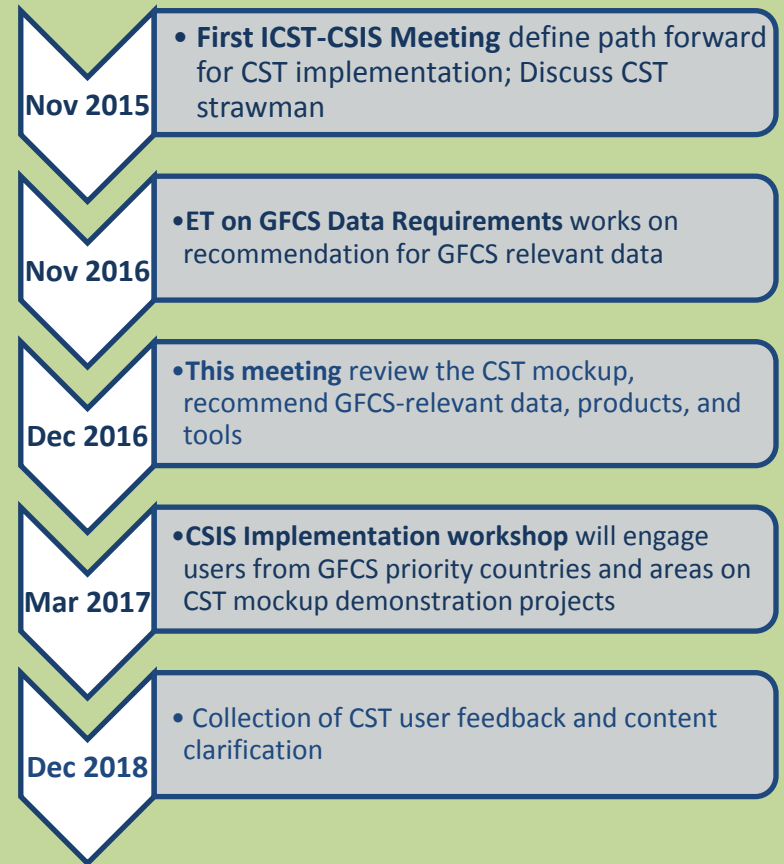
CST is a suite of guidance, procedures and instructions, data, software tools, training resources, and examples for enabling climate services at global, regional, and national levels

CST Development Stages

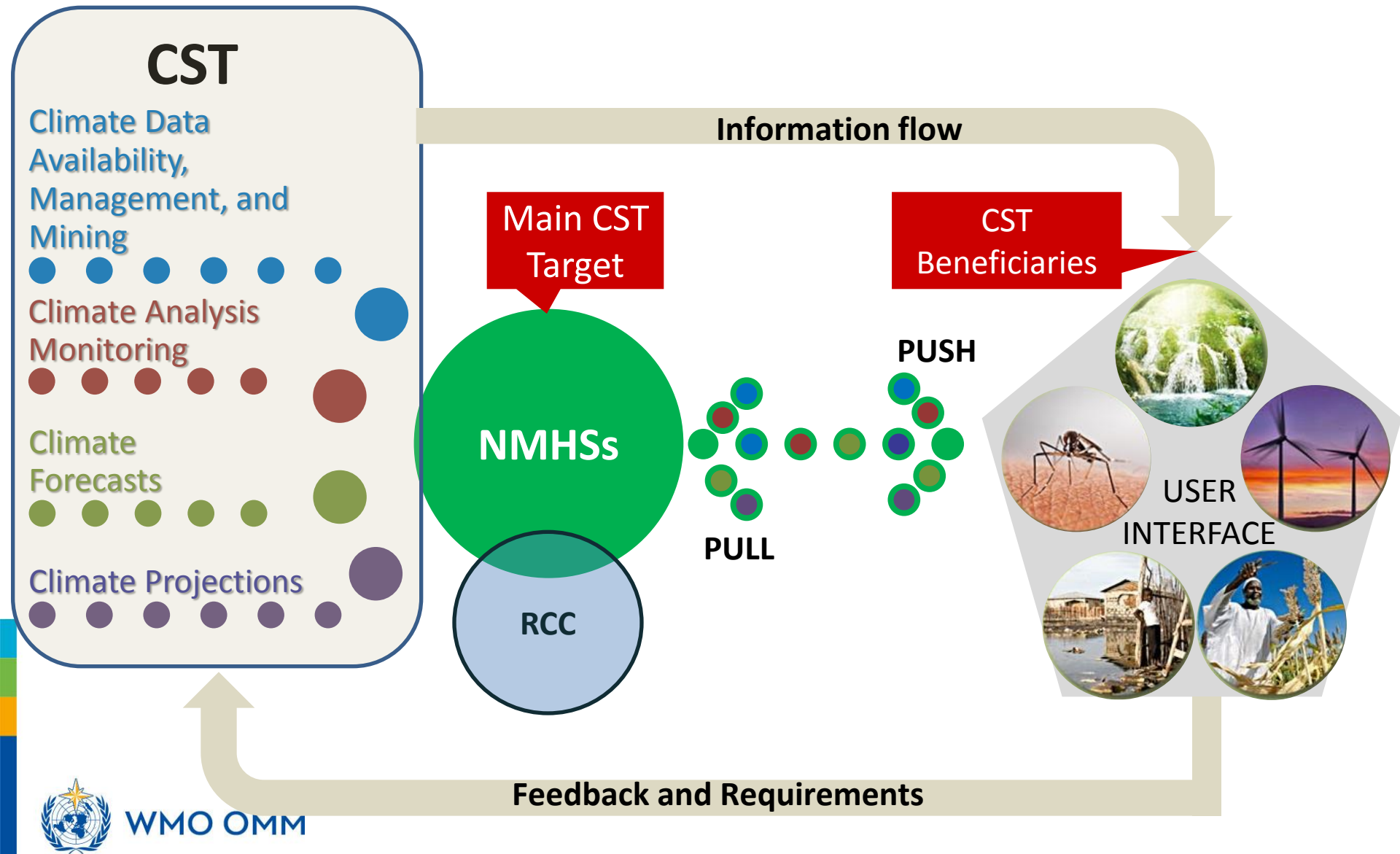
Conceptualization



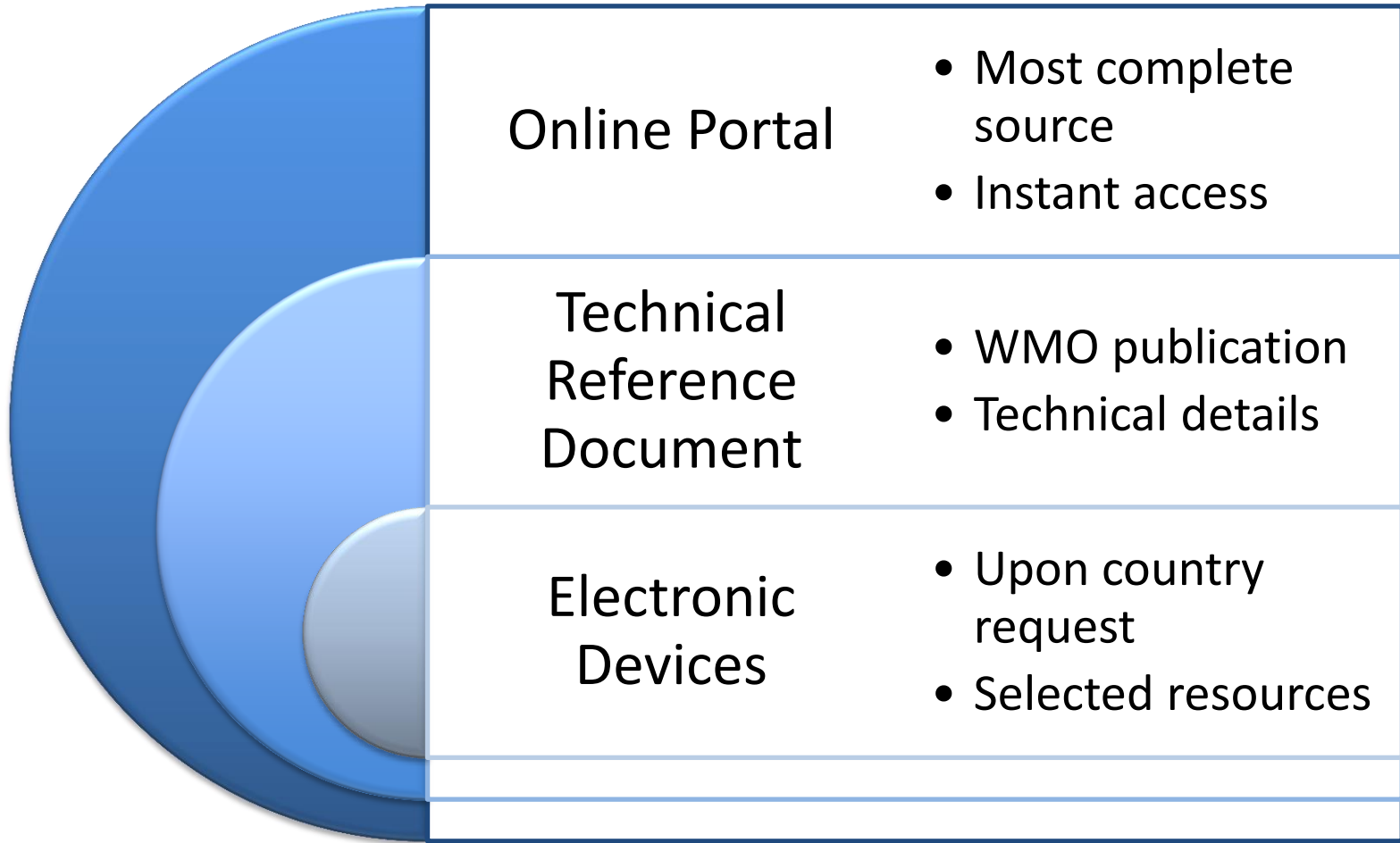
Implementation



CST Target Users and Beneficiaries



CST Components



CST Web Portal

Welcome to Climate Servic... x +

www.wmo.int/cst 50% Search

Climate Services Toolkit ABOUT GUIDANCE AND TRAINING PRODUCING CLIMATE PRODUCTS SUPPORT

WEATHER CLIMATE WATER
TEMPS CLIMAT EAU

Climate Services Information System
Implementation Coordination Team
Present

**Climate Services Information System (CSIS)
Climate Services Toolkit (CST)**

Climate Services Toolkit (CST) facilitates access to guidance, data, software tools, training for developing operational support to climate services at the National Meteorological and Hydrological Services of WMO Members

- Guidance**
Reference to WMO guidance documents related to GFCs pillars including Climate Services Information System
- Software Tools**
Links to selected data sets for development of climate services at global, regional, and local levels.
- Help Desk**
Access to frequently asked questions and answers, climate experts, WMO terminology, and CST feedback form.
- Training Resources**
Reference to training courses on the WMO-defined professional competencies for climate services development.
- Climate Data**
Links to selected tools for climate data management, analyses, predictions, projections, and downscaling
- User Forum**
Access to venue for CST users' discussions, updates, and various climate services topics of shared interests.

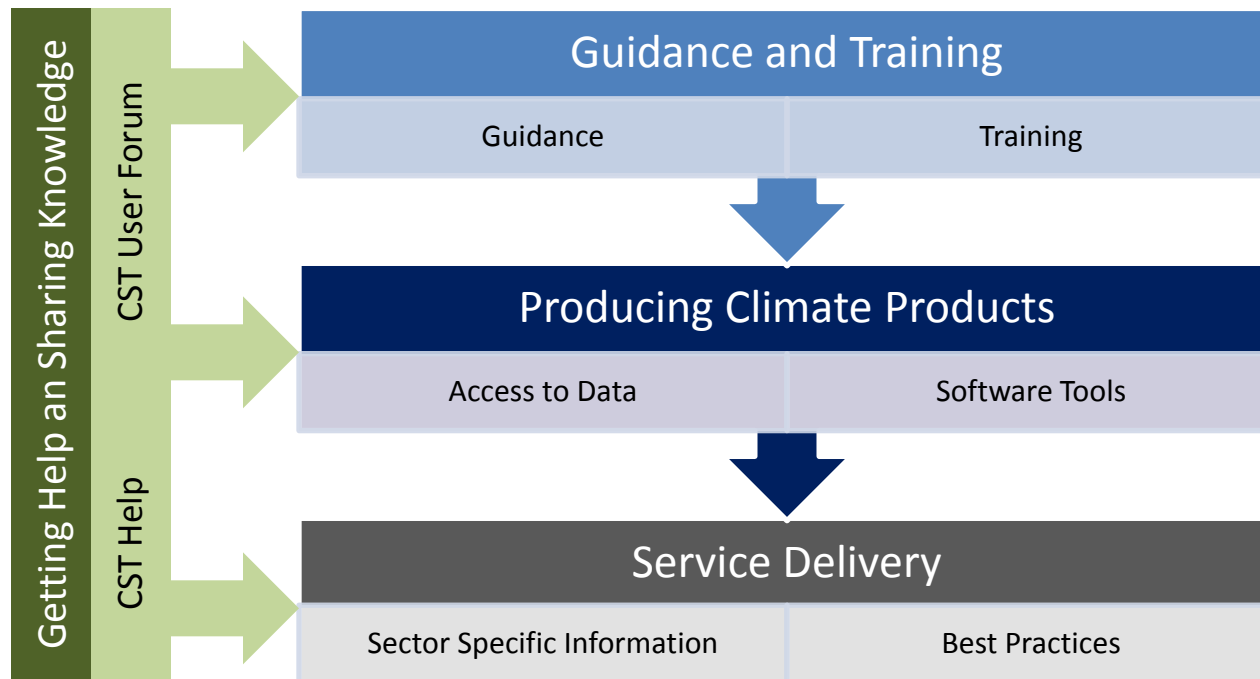
Why CSIS Climate Services Toolkit Prototype?

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



What can the CSIS CST offer?

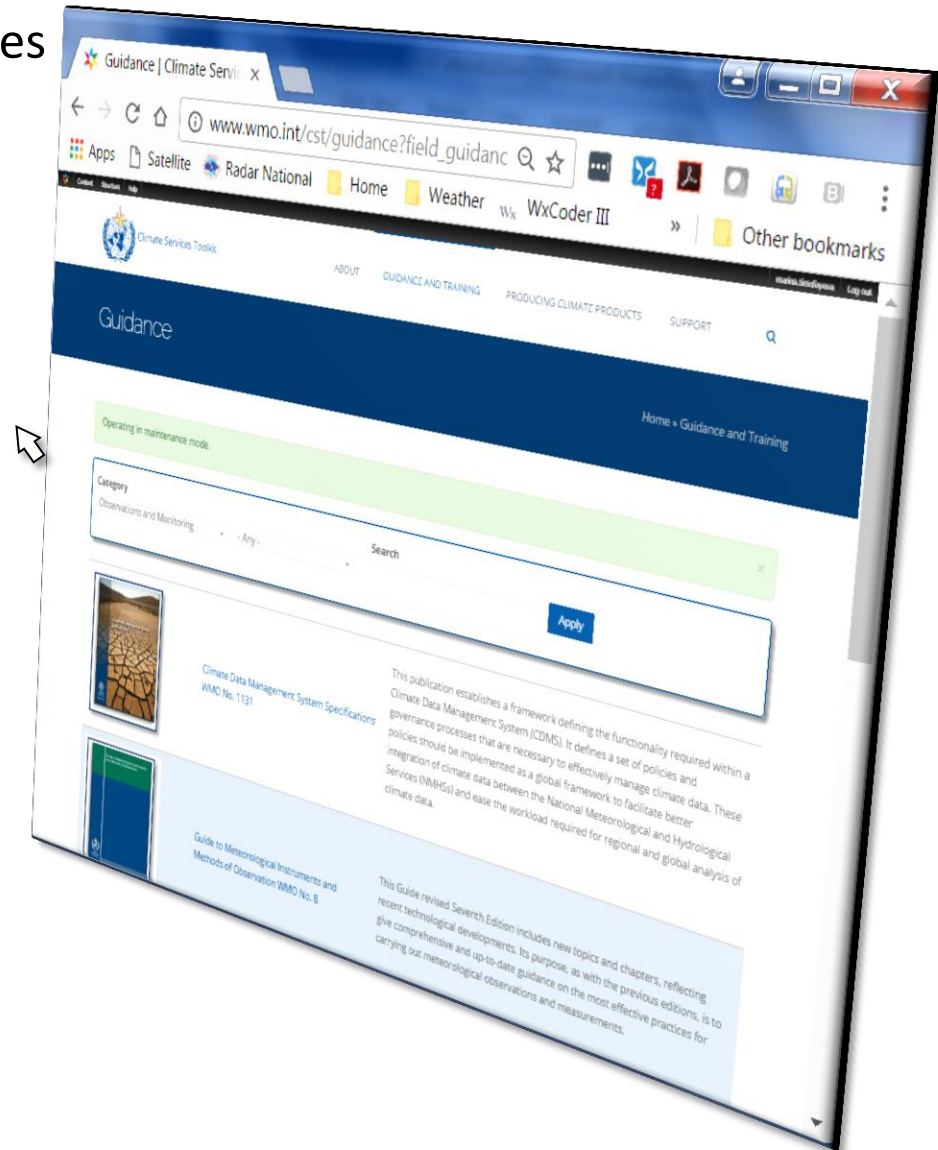
- ❑ CST resources are organized following expected steps of information utility
- ❑ Start with Guidance and Training
- ❑ Examine resources available in Climate Data and Software Tools,
- ❑ Note: Section on Service Delivery will be available after March 2017
- ❑ Get Support from Help Desk and User Forum



What 'Guidance' is included?

Menu > Guidance and Training > Guidance

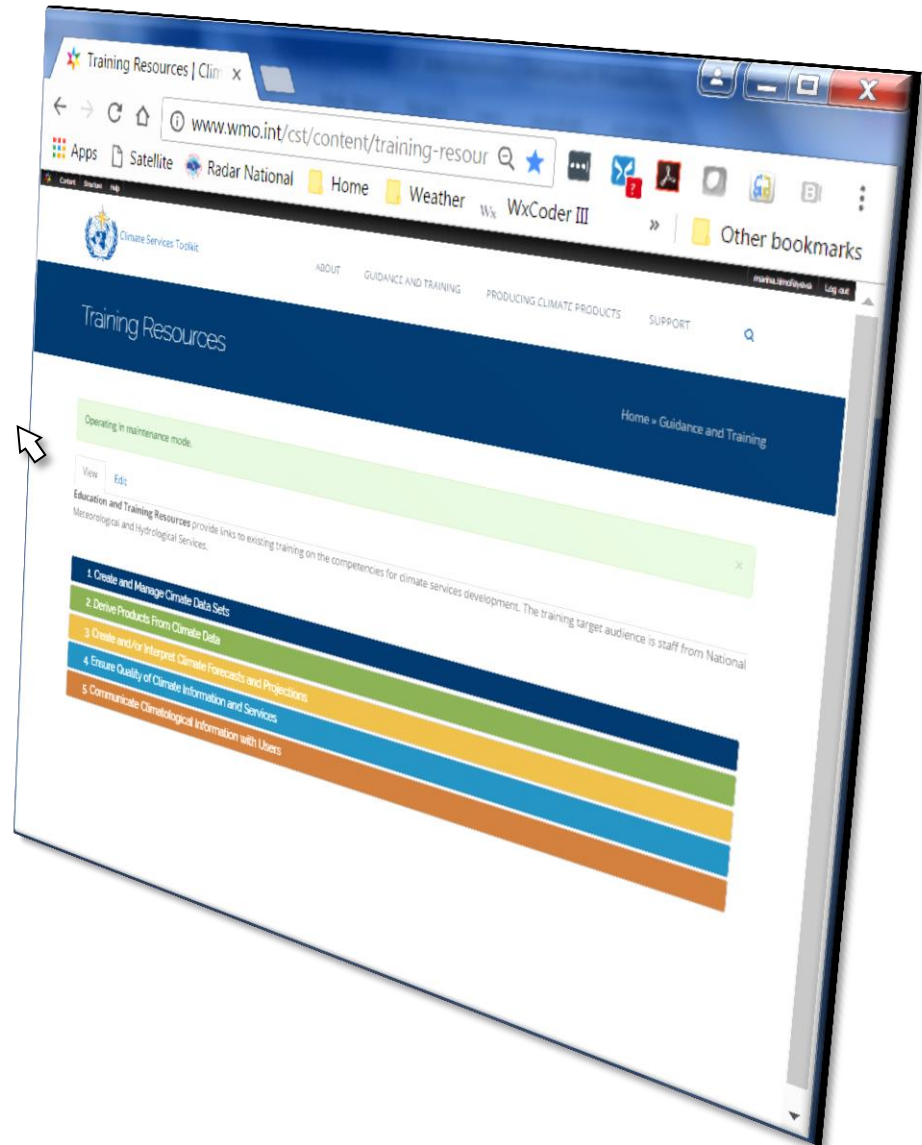
- ❑ Links to subset of WMO Climate Services Guidance documents
- ❑ Providing recommendations for best practices on GFCS pillars:
 - Observations and Monitoring
 - Climate Services Information System
 - Research, Modeling And Predictions
 - Capacity Development
 - User Interface Platform



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



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**

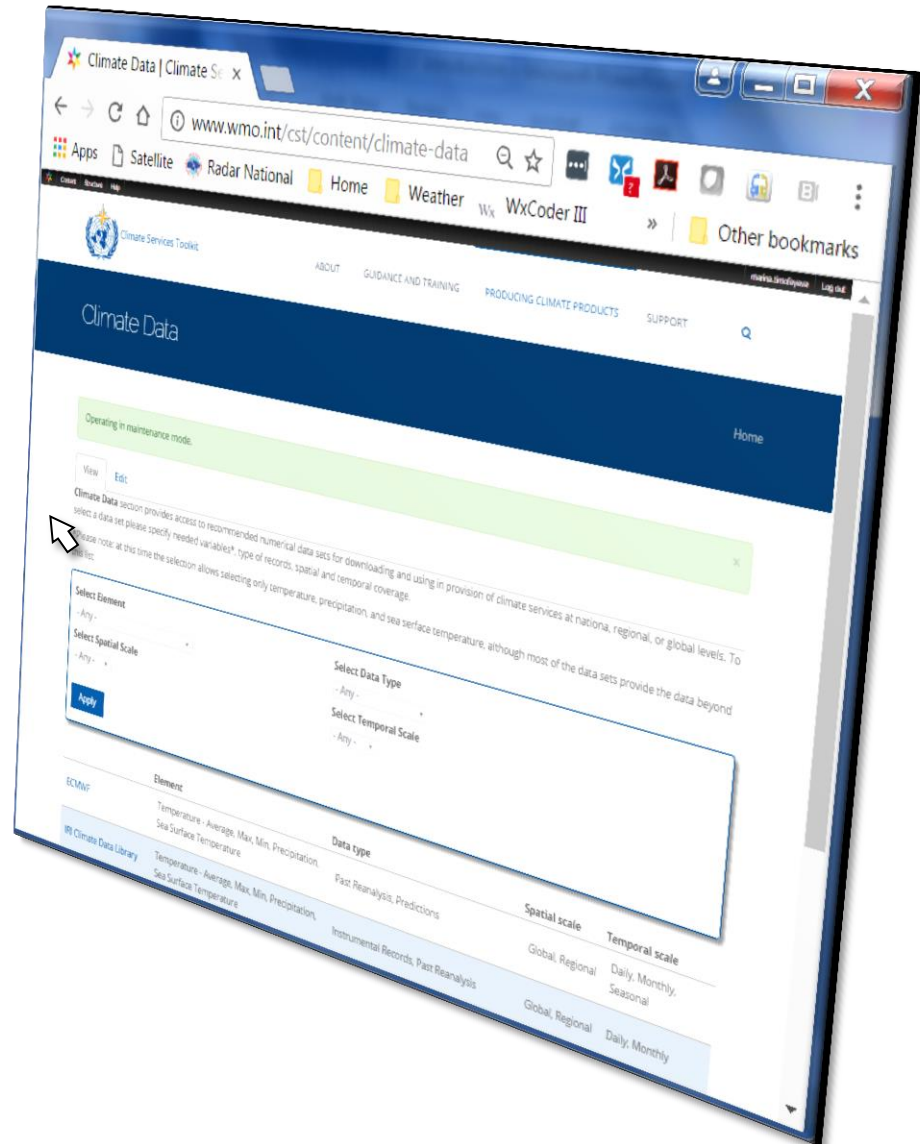
Instrumental, Reanalysis, Current Conditions, Prediction, Projections

➤ **Spatial Scale**

Global, Regional, National

➤ **Temporal Scale**

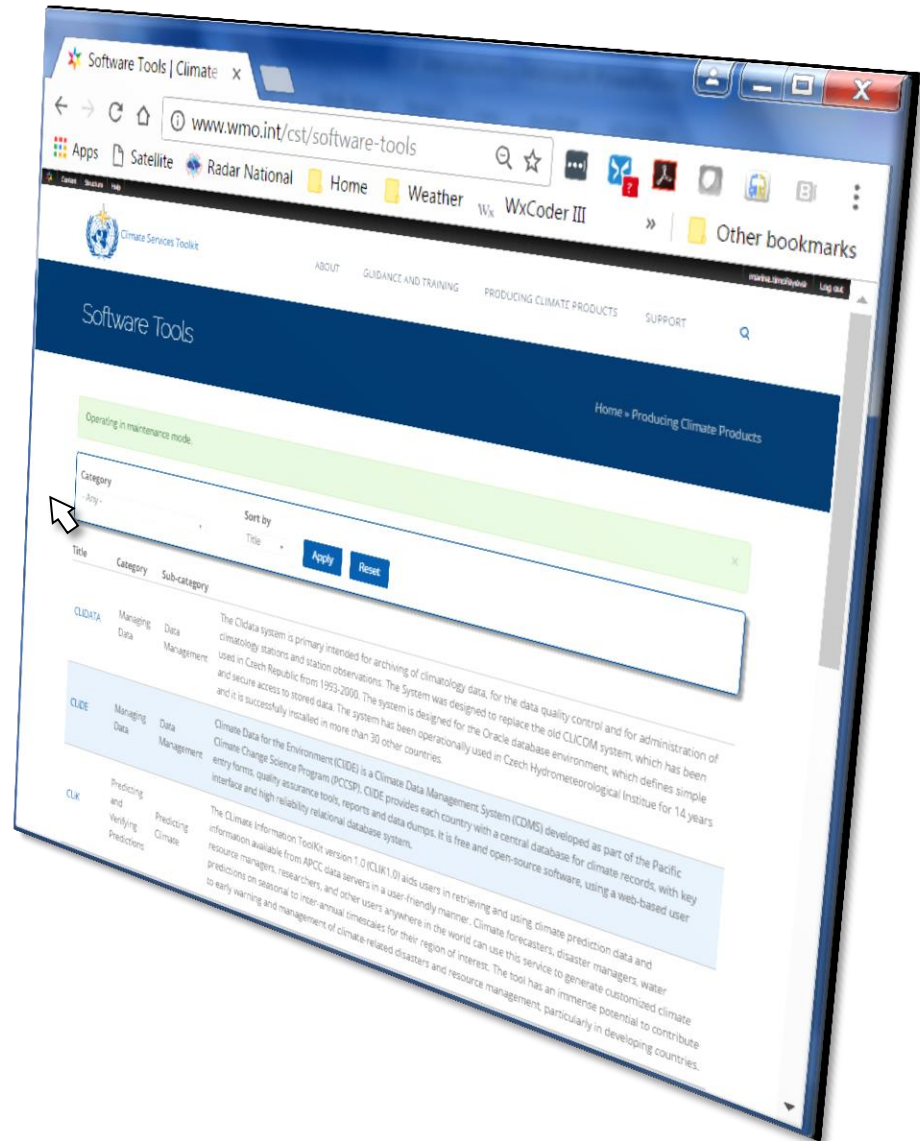
Daily, Weekly, Monthly, Seasonal, Decadal



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**
 - **Analyzing and Monitoring Data**
 - **Predictions**
 - **Projections**



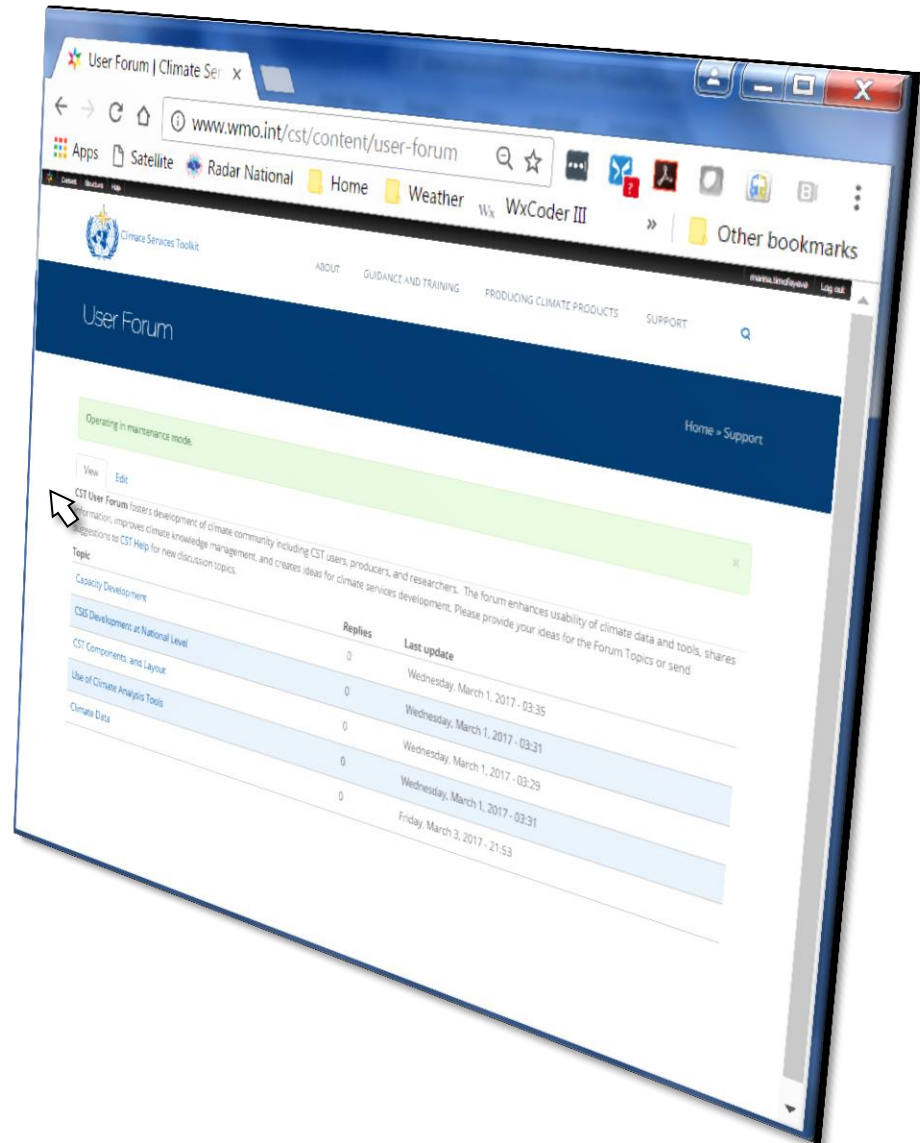
What 'Support' is provided?

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

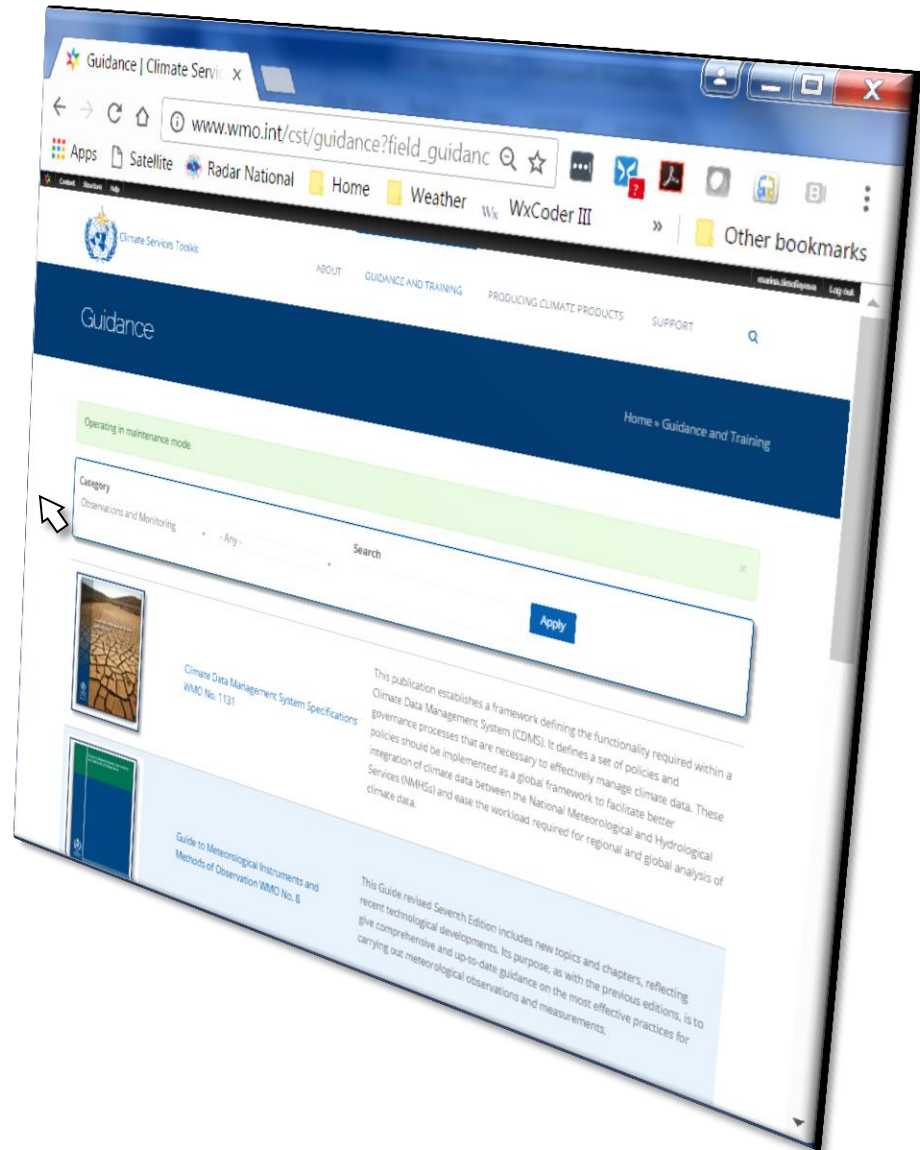
❑ Help Desk will be significantly revised after the CSIS International Workshop in March 2017, in Nanjing, China



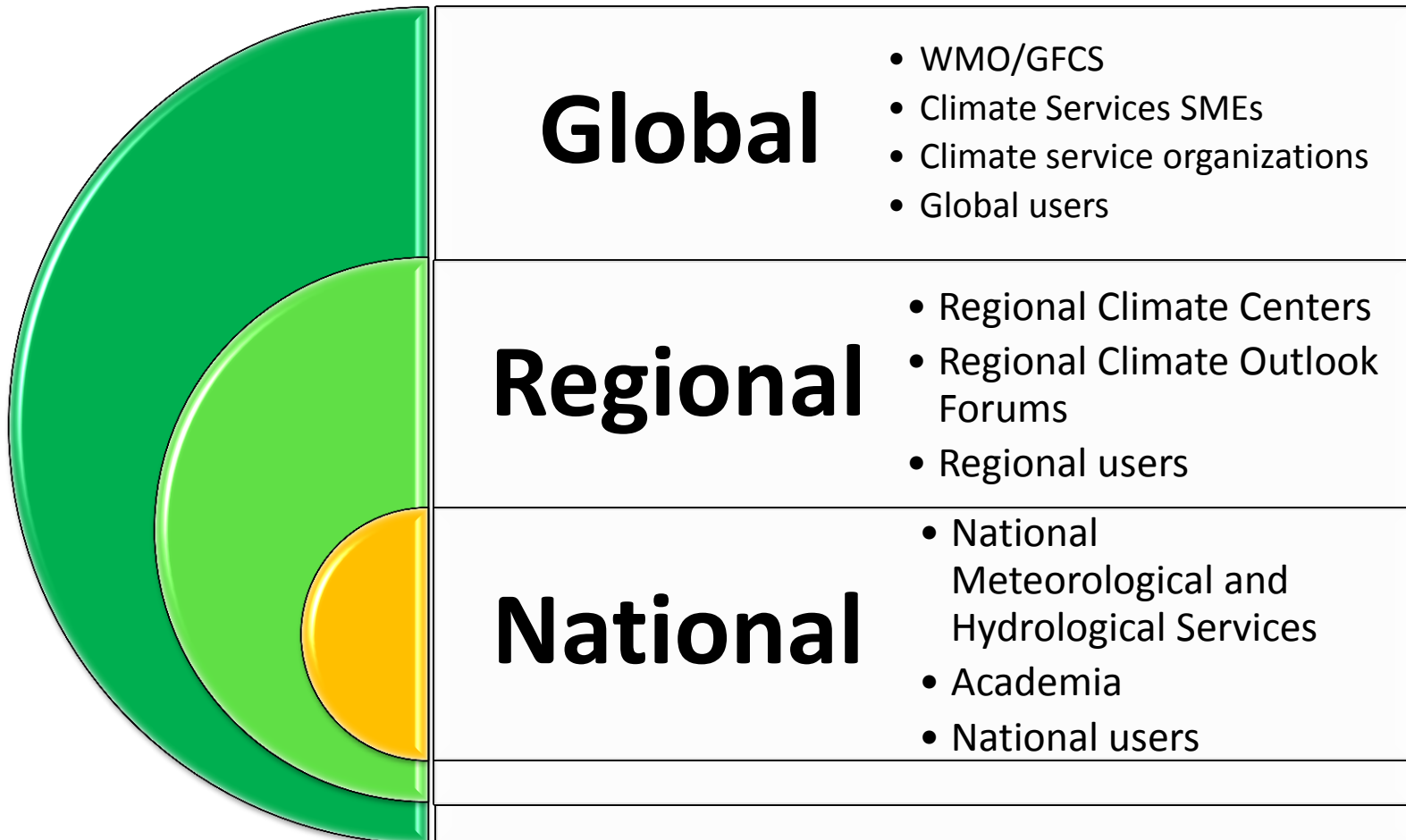
What is coming next?

Menu > Service Delivery

- ❑ 'Service Delivery' Section is under development
- ❑ 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



CST Deployment Network



First TT_CSTD Meeting December 2018



First TT_CSTD Meeting

December 2018

Meeting Outcomes:

- Approved TT-CSTD Terms of Reference and work plan for 2019-2021
- Defined process for management of CST resource
- A draft of standards for CST resources
- Plan for CST section on Service Delivery development in coordination with GFCS Help Desk
- Recommendations for CST online interface modification made
- Plan for CST partnership engagement process
- Plan for developing guidance for downscaling of climate predictions at S2S time scales
- Plan for developing guidance for downscaling of climate projections



TT_CSTD Plan Of Action 2018-2021

Key Deliverable	Activity	2018	2019	2020	2021
Further development of CST Portal	1.1 Propose CST interface changes using feedback provided by initial CST users (RCCs and NMHSs)	x	x		
	1.2 Produce catalog of technical specification of CST data and tools using input from CCI FAs and expert community		x	x	
	1.3 Routinely update CST portal prototype		x	x	x
Inventory of potential candidates for inclusion in CST and proposals for accreditation procedures	2.1 Define and recommend process, criteria, and standards for CST data, tools, training, etc.	x	x		x
	2.2. Evaluate CST existing resources with the recommended standards and criteria, and as appropriate modify criteria		x	x	
	2.3 Select additional existing climate data, tools, and best practises and incorporate them in CST		x	x	x
Training concept for CST implementation	3.1 Develop curricula for CST training in collaboration with CCL ET4.1-CDSD/QM			x	x
	3.2 Produce a set of recommendations for CST training at country level in coordination with RCCs and RTCs		x	x	x
Guidance on customization and deployment of Climate Services Toolkit	4.1 Determine ways for CST integration into WIS		x	x	x
	4.2 Work with RCCs on translation of CSTcontent in all WMO languages			x	x
	4.3 Provide expert knowledge to RCCs and NMHSs and other partners, as they come along, in CST deployment through RCOFs, NCOFs, and other events	x	x	x	x
	4.4 Support GFCs Help Desk by sharing CST resources and expert knowledge	x	x	x	x
Integrate good practices for the production and usage of regional and national climate information including climate prediction and climate change scenarios, into CST	5.1 Work with CCI FAs ETs on best practises for climate adaptation using subseasonal, seasonal, and longer term predictions and projections		x	x	x
	5.2 Incorporate downscaling guidance, data, tools, and training into CST Portal			x	x
	5.3 Review Guidance on operational practicies for seasonal forecast to select good practicies on seasonal predictions at national scale for integration into CST		x	x	



CST Performance Evaluation

Attribute	Performance measures
Coverage	<ul style="list-style-type: none">Number of global applications of climateNumber of RCCs uses of CSTNumber of climate service examples on country levelNumber of CSIS outreach materials available in all WMO languages
Accuracy	<ul style="list-style-type: none">Average skill of climate productsNumber of new technologies/tools/methods shared through CST
Relevancy to end users	<ul style="list-style-type: none">Number of CST user reports on climate information use for decision supportNumber of climate services products and /or tools for sectoral applicationsNumber of user targeted workshops
Efficiency and Timeliness	<ul style="list-style-type: none">Number of CST usersAverage level of CST usefulness as estimated by CST feedback survey

Спасибо Thank you Merci

For more information, contact:
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Downscaling

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