



World Meteorological Organization

COMMISSION FOR CLIMATOLOGY

**Expert Meeting on WMO Climate Data
Management System Strategy**
Geneva, Switzerland, 12-14.XII.2018

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14.XII.2018

**OPEN WMO WORKSHOP ON INTEROPERABLE TOOLS TO MANAGE
CLIMATE-RELEVANT DATA**

REVIEW COMMENTS

Version / No	Reviewer	Issue	Notes	Response
0.1/1	ET-DRM	Add RCCs as attendees		Added to "workshop participants"

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Regulation 43

Recommendations of working groups shall have no status within the Organization until they have been approved by the responsible constituent body. In the case of joint working groups the recommendations must be concurred with by the presidents of the constituent bodies concerned before being submitted to the designated constituent body.

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OPEN WMO WORKSHOP ON INTEROPERABLE TOOLS TO MANAGE CLIMATE-RELEVANT DATA

Proposed date: March/April 2018

Proposed duration: 3 days

Proposed location: WMO Headquarters, Geneva, Switzerland

CONTEXT

Observing meteorological and related elements and collecting, storing, exchanging and archiving relevant data operationally are among the key basic traditional tasks of National Meteorological and Hydrological Services (NMHS); related observational data sets usually form the national climate record. Complemented by massive data holdings from other entities including universities and research institutes, public organisations and private industry, these data establish the ultimate basis for underpinning mankind's meteorological knowledge and services. Managing relevant data bases operationally in a sustained way constitute a major challenge methodologically, technologically and resource-wise.

A remarkable development took place over the last thirty years by widely implementing based Climate Data Management Systems based on Information and Communications Technology (ICT) in NMHSs to manage, maintain and further develop their national climate records. A recent survey concluded that WMO Members (191 at this point in time) operate almost 100 different ICT-based CDMSs implemented in the absence of any WMO CDMS Specifications. While there is still a remarkable number of NMHSs that do not operate a, ICT-based CDMS at all, almost 50% of NMHSs stated that they are not fully satisfied with their CDMS. Moreover, international data analyses on regional and global level are hampered by inconsistent national input due to methodological differences in data management and by difficulties in handling traditional climate data alongside hydrological and other environmental data.

In 2014, WMO published for the first time CDMS Specifications (WMO-No. 1131; WMO 2014; cf. https://library.wmo.int/pmb_ged/wmo_1131_en.pdf) to enable Member countries and territories to develop CDMSs that meet WMO programme requirements and to develop or purchase the ICT-based tools to support these. Further efforts are under way to strengthen WMO management of climate-relevant information.

In this context, the role of WMO is:

Setting and further developing standards and best practices for operational management of climate-relevant data

Facilitating international collaboration to ensure compliance of Member CDMSs with WMO CDMS Specifications in particular as well as to advance climate data management tools and infrastructure in general

WORKSHOP SCOPE

Tools for managing climate-relevant data to assist compliance with the CDMS specification.

WORKSHOP OBJECTIVES

Prepare for implementation of decisions by eighteenth World Meteorological Congress that will:

- Authorize development, ongoing maintenance and support of a reference CDMS tool-set available without charge to all WMO Members to support their implementation of national CDMSs that are compliant with the CDMS specifications;
- Create a management structure to oversee the reference CDMS.

Identify:

- Potential resources for developing, maintaining and supporting the reference CDMS tool-set;
- A high level-architecture for the reference CDMS tool-set;
- Modifications or additions to existing standards and specifications that will be needed to enable a reference CDMS tool-set to be developed and maintained.

WORKSHOP OUTCOMES

The workshop will endorse drafts of documents to achieve:

- An understanding by high level decision makers of the opportunities and obligations associated with a reference CDMS tool-set;
- A declaration to be signed at Cg-18 by WMO Members and members of cooperating organizations who chose to do so that confirms their intention to designate resources (financial and skilled people) to developing, maintaining and supporting a reference CDMS tool-set;
- An outline technical plan for the reference CDMS tool-set, including
- Top level architecture that allows the key modules and interfaces for the reference CDMS tool-set to be identified;
- A roadmap to implantation of the reference CDMS tool-set that allows WMO Members to invest in CDMS tools-sets now and to migrate to the reference CDMS tool-set as its components become available;
- Identification of key topics on which additional or modified standards and specifications will be needed to achieve a reference CDMS tool-set;

Decisions to be proposed to Cg-18 on:

- Developing a reference CDMS tool-set to be owned formally by WMO;
- A management structure to oversee the reference CDMS tool-set and the effectiveness and impact of its implementation.

WORKSHOP FORMAT

Plenary presentations of the key issues and options; drafting groups; plenary confirmation of recommendations of drafting groups. There may be a need for a poster session if there are too many existing systems to be described in-session.

WORKSHOP AGENDA ITEMS

AGENDA

1. Opening and administration
2. WMO climate data management system (Presentation by President CCI representative)
3. Aims of WMO reference climate-related data management tool sets (presentation by CCI ET)
4. Needs for climate-relevant data management systems
5. Existing tool sets that are offered for inclusion in an open source tool set (short presentations of scope by those offering – may need to be poster session with brief introductions)
6. Drafting of documents. This is agenda item forms the majority of the workshop. It is structured as:

Plenary briefing: The chair of each drafting group outlines the initial draft of each document for his/her group.

Drafting group first session: drafting groups work in parallel to produce a second draft of their documents

Plenary update: The chair of each drafting group summarizes the main changes proposed and the reason for them

Drafting groups second session: drafting groups continue to update their documents.

Plenary endorsement: The chair of each drafting group summarizes their documents.

7. Next Actions
8. Any Other Business

DRAFTING GROUPS

Drafting group	Topics
Governance	<p>Cg-18 decision on WMO "endorsement" of open source CDMS tool set.</p> <p>Text of declaration at Cg-18 on commitment to contribute to open source CDMS tool set.</p> <p>Ownership and management structure for tool set.</p>

Drafting group	Topics
	<p>Governance of the tool set contents and development.</p> <p>Funding mechanisms for tool set development, maintenance and support.</p>
Architecture	<p>Items in CDMS specification that will be supported by tool set.</p> <p>High level architecture with identification of interfaces that will be needed to allow modular development and implementation of the tool set; these interfaces must be "backwards compatible" because they will determine how the tool set works with other aspects of the tool set and with external systems.</p> <p>Topics on which standards/specifications will be needed for the tool set to be effective – categorized by whether these need to be set in WMO regulations (such as standard algorithms, which internationally recognized protocols or standards have to be supported for international exchange) or in the configuration management of the tool set (such as interface between modules).</p>
Roadmap	<p>Roadmap to implementing open CDMS tool set – identification of candidate sources of modules.</p> <p>Shared hosting of implementations of the tool set</p>
Communications	<p>Why the tool set is important.</p> <p>Benefits to investors who may not themselves use the tool set.</p>

WORKSHOP PARTICIPANTS

Climate-relevant data managers from NMHS and other entities, CDMS and climate data management tool and infrastructure developers, international partners (governmental, public and private, {IOC IODE, HMEI, World Bank, Green Climate Fund...}), representatives from WMO co-sponsored programmes (GCOS, WCRP), Technical Commissions (CCI, CHy, CBS, JCOMM), WIS 2.0, Seamless Global Data Processing and Forecasting System, representatives of Regional Climate Centres.

STAFFING

Each of the drafting groups will need to be supported by a member of WMO staff who has expertise in the area being discussed together with the relevant working practices within WMO. Legal Counsel needs to be invited to take part in the discussions of the Governance group, and the Contacts, Communication and Public Affairs Office needs to take part in the communications group.