WORLD METEOROLOGICAL ORGANIZATION

MEETING OF THE CCl EXPERT TEAM
ON CLIMATE DATA MANAGEMENT SYSTEMS (ET CDMS)

4-7 November 2014

Geneva, Switzerland

FINAL REPORT

1. Opening

The meeting of the CCl Expert Team on Climate Data Management Systems (ET CDMS) was formally opened at 9.30 a.m. on Tuesday, 4 November 2014. On behalf of the Secretary-General of the World Meteorological Organization (WMO), Mr Peiliang Shi, Director, WMO Information System Branch, addressed the meeting by highlighting the key role of data management in underpinning climate information and services. He expressed his support to, and appreciation of, the collaboration between CCl and CBS teams in the WIS and WIGOS contexts and mentioned the joint Ad-hoc Meeting on Observational Metadata, scheduled to be held subsequently to the ET CDMS meeting (10-11 November, WMO premises).

2. Organisation of the meeting

The meeting was chaired by ET CDMS Co-Chair Mr Bruce Bannerman. The agenda for the meeting (see Annex 1) was adopted with no revisions. The meeting agreed on its hours of work and other practical arrangements. The list of participants is presented in Annex 2.

The agenda and outcome of the joint session of CCl's Expert Team on Data Rescue (ET DARE) and ET CDMS (Wednesday, 5 November, WMO premises) are provided in Annexes 3 and 4.

All meeting presentations listed below can be accessed here: http://www.wmo.int/pages/prog/wcp/wcdmp/Meetings.php

Agenda item	Presenter	File name
3	William Wright	ET CDMS background
3.1	Peer Hechler	WMO activities
3.2	Peer Hechler	
	Bruce Bannerman	cdms_related_activities
	Denis Stuber	CDMS News
		Links_Technical_Commissions
	Steve Palmer	CDMS activities_UK
5	Bruce Bannerman	Overview CDMS_Spec
	Denis Stuber	Uptake_CDMS_Spec
	Denis Stuber	CDMS_Spec_users
	Steve Foreman	WIS
6	Bruce Bannerman	Refining_CDMS_Spec
		Defining_user_requirements
		cdms_sustainability
		Global_climate_record
		Information modelling
	Jeremy Tandy	IPET_MDRD_Information_Modelling
		Emerging_trends
		Linked_data
7	Bruce Bannerman	Key_themes

3. Status of Climate Data Management Systems

Mr William Wright, Co-Chair of CCl OPACE 1 (Climate Data Management) provided an overview presentation, addressing the wider context of the ET CDMS activities, and highlighting a couple of important issues to be considered, such as sustainability.

3.1 Review of relevant outcomes of WMO constituent body sessions

Mr Peer Hechler provided an overview of ET CDMS-relevant outcomes and recommendations of the 16th World Meteorological Congress, the 66th Session of the Executive Council, the 16th Session of the Commission for Climatology and sessions of the Intergovernmental Board on Climate Services; all of which are reflected in the team's current terms of reference.

3.2 Brief appraisal of recent CDMS-related activities worldwide

Mr Hechler presented recent and on-going CDMS-related activities in which the Secretariat has been involved recently, including the CCl survey on the status of CDMSs worldwide, the CDMS Specifications publication as well as CDMS coordination and implementation activities. Mr Bannerman highlighted ET CDMS topics of collaboration with the Inter-Commission Coordination Group on the WMO Integrated Global Observing System (ICG WIGOS) Task Team on WIGOS Metadata (TT WMD) as well as with the Inter-Programme Expert Team on Metadata and Data Representation Development (IPET-MDRD), such as Metadata and information modelling. He then informed of the CliDE CDMS status and plans for a follow-up open source CDMS development. Brief status information was provided for MCH (Mr Nirina Ravalitera), CLISYS and CLIWARE (Mr Denis Stuber) and CLIMSOFT (Mr Steve Palmer). Mr Palmer furthermore discussed the Weather Observations Website and the use of the cloud computing as well as the management of 'formal' and 'informal' data. Mr Wright informed of his envisaged participation in a meeting of ICG-WIGOS Task Team on WIGOS Data Guidance in January 2015 in Melbourne, Australia, which will address relevant issues around externally supplied data.

4. Review of the team's Terms of Reference (ToR)

The team reviewed its ToR and proposed the following (editorial) modifications to paragraphs b) and e):

a. Develop and implement a monitoring mechanism for a continued updating of the CDMSs Specifications document and establish an updateable register of CDMS compliance with the specifications;

b. Consolidate the work done on defining CDMS specifications, *including* ~~and on establishing an adequate description of~~ climate metadata ~~that also distinguishes~~ *and distinguishing* observations from formal and informal sources such as crowd-sourced data;

c. Consider making a proposal for a possible amendment of the Technical Regulations with respect to the CDMS specifications;

d. Work with the CBS Inter-Programme Expert Team on Metadata and Data Representation Development (IPET-MDRD) to develop a Logical Data Model that facilitates efficient exchange of Climate Observations Data and Metadata;

e. ~~Further d~~*D*evelop and pursue a strategy for Open Source CDMS development;

f. Collaborate with the GFCS, and other relevant bodies and technical commissions on the development of a sustainable strategy to meet on-going needs for support, training and skills availability for CDMS and Data Rescue.

5. CDMS Specifications Publication

Mr Bannerman introduced the CDMS Specifications publication (cf. http://www.wmo.int/pages/prog/wcp/wcdmp/CDM_3.php) to the team. Mr Stuber discussed options to support an appropriate uptake of the document by the envisaged target users including NMHSs and CDMS developers, such as e-mail lists, an ET CDMS wiki as well as a CDMS compliance registry (level of compliance of existing CDMSs with WMO's CDMS Specifications). Mr Hechler informed the team of a letter sent by the Secretary-General to all WMO Members, Technical Commissions and Regional Associations as well as GCOS on 8 September 2014; which (i) informs of the availability of WMO CDMS Specifications, (ii) encourages the uptake of the document and (iii) invites nominations of Member contact persons.

Mr Steve Foreman introduced the Manual on WIS and discussed the approval procedure for amendments.

The team's subsequent discussions resulted in a number of actions, conclusions and recommendations, which are captured in the team's work plan (Annex 5) or in section 9 'Conclusions and recommendations' below.

6. Key activities

Mr Bannerman presented the work required for developing the CDMS Specification publication further by adding sufficient detail and identifying ambiguities in underlying WMO guidelines and documents to (i) support a primary evaluation of CDMS current state capabilities and (ii) support relevant IT-development. He discussed *user stories*, *use cases* and *swim lanes*

to describe the intended use of the CDMS components as well as their interrelationship (contracts).

Mr Bannerman furthermore addressed the issues of (i) CDMS sustainability (collaboration and software re-use, establish a community for open source CDMSs, efficient CDMS deployment and maintenance, training needs, funding requirements) and (ii) sustainability of the global climate record (need for a data management policy framework to support the generating of consistent national, regional and global climate records).

The team was provided with a couple of presentations around 'information modelling' by Messrs Bannerman and Jeremy Tandy to underpin its future work.

The team's subsequent discussions resulted in a number of actions, conclusions and recommendations, which are captured in the team's work plan (Annex 5) or in section 9 'Conclusions and recommendations' below.

7. Work plan

The team discussed, and agreed on, its work plan (Annex 5). Considering the highly dynamic environment in which the team performs, it concluded to develop a vision for its achievements for the current CCl intersessional period (and beyond) and to define its specific actions for the next 12 months period. The team will review its progress against its vision on an annual basis and define its subsequent 12 months' work plan accordingly, taking into account on-going developments in data management and information modelling within WMO and beyond.

The team furthermore agreed to support its activities by online meetings in 2 months intervals, set up by the Secretariat and applying rotating time slots in order to cope with the different time zones of the team members' home countries. The team recommended annual face-to-face meetings at the end of each 12 months' work plan period.

8. Any other business

No further items were raised by the participants.

9. Conclusions and recommendations

The team agreed on the following conclusions (C) and recommendations (R):

Outcome type	Description	Corres-ponding agenda item
R	IPET-CDMP to consider the concept of a WMO Climate Data Framework as described in section 11.1 of the WMO CDMS Specifications publication	5
C	Consider the role of WMO regional structures (Regional Associations, Regional Climate Centres) in supporting the uptake of the CDMS Specifications publication	5
C	Consider developing a WMO (climate) data QC/QA standard, which can easily be converted into CDMS functionality	5
C	ET CDMS to continue working on CDMS Specifications as a priority	5
C	ET CDMS to work with CBS (ICT-ISS) to establish a joint team to extract the elements of CDMS Specifications relevant to broader data management concerns for inclusion in WMO N° 1060 Manual on WIS Part VI Data Management, pending authorisation from CBS to progress the data management work	5
C	The team agreed to use the notion Climate **Data** Management Systems for CDMS (instead of Climate **Database** Management System)	5
C	Consider defining a competency framework for data managers and developing suitable training and learning material; consider including management training in order to strengthen capacities for a structured management of work processes (to be considered for the team's work plan Nov. 2015 – Nov. 2016)	6
C	Consider an update of the CDMS Specification publication in 2016; work on a MS WORD version in track-change mode and apply file naming convention; assign responsibilities to each component; ensure creating durable references within the CDMS Specification publication in order to support its maintenance and further development	6
C	Develop a vision for the ET's achievements for the current CCl intersessional period (and beyond) and define specific actions for the next 12 months.	7
C	Support the team's work by online meetings in two months intervals and face-to-face meetings every 12 months	7

10. Closing

The meeting was closed by its chairperson on Friday, 7 November 2014 at 5.08 p.m.