

6.4 WMO Climate Data Quality Assessment

- The WMO Commission for Climatology (CCI) recommended the establishment of a High Quality Global Data Management Framework for Climate (HQ-GDMFC) which was approved by Cg-18.
- An International Expert Group on Climate Data Modernisation developed a Stewardship Maturity Matrix for Climate Data (SMM-CD) which is part of the HQ-GDMFC.
- An initial 18 global climate datasets have been submitted by international domain Subject Matter Experts and assessed.
- These assessments are only available upon request (Cg-18 decision 2.2.3.6)
- KNMI created a data portal for CCI, where the datasets are currently directly accessible (climatedata-catalogue.wmo.int)

WMO Climate Data Catalogue

(Cg-18/Doc. 5.2(2), Annex, APPROVED, p. 34)

Note:

(1) Datasets of key ECVs are needed to describe climate variability and change. Scientists and Decision- and Policy-makers are looking for trusted datasets that are easily discoverable, accessible and retrievable.

(2) **A climate data catalogue in the context of climate change monitoring is intended to provide a living list of datasets of the GCOS Essential Climate Variables** with a primary focus on climate indicators such as Temperature, Precipitation, Sea Level, Sea Ice, Ice Sheet and Glaciers, Climate Extreme indices, Hydrology and others. All such datasets should be maturity assessed and a maturity rating will provide the user with information on the level of documentation, archival, access, data quality assurance, data integrity and more, for each of the datasets.

2.2.3.1 A WMO Climate Data Catalogue which includes maturity-assessed climate datasets shall be established to document the maturity of the datasets according to the criteria described in the Guidance on WMO SMM-CD (see 2.2.2.1 above), and to facilitate their documentation, discovery, access and retrieval. The Catalogue will be maintained and updated under WMO auspices.

2.2.3.2 The Catalogue shall provide information about access to, and ensure updates where appropriate for, a list of datasets for which Maturity has been assessed and maturity scores assigned.

2.2.3.3 Global climate datasets proposed to be included in the WMO Climate Data Catalogue should first be recommended by one of the GCOS science panels or other authoritative sources who will base their recommendation on an established scientific foundation and quality criteria such as observation uncertainty, calibrations, metadata completeness, etc.

2.2.3.4 Climate datasets having regional, national or a limited (non-global) geographical domain of coverage can be included in the Catalogue if a relevant GCOS science panel, or an authoritative scientific body at national or regional level considers them of high relevancy to global climate science efforts. In this case the same process for maturity assessment and cataloguing shall be followed as for the global datasets.

2.2.3.5 An Entity which desires to include a Climate dataset in the WMO Climate Data Catalogue shall conduct a self-assessment of the dataset against the WMO Stewardship Maturity Matrix for Climate Datasets (see 2.2.2.1) and submit the Dataset proposal to the relevant WMO technical committee responsible for climate data management.

2.2.3.6 For each dataset included in the Catalogue, the documents providing the results of the maturity assessment should be made available to users upon request.

Current references to GCOS

- The Global Climate Observing System (GCOS) Essential Climate Variables (ECVs) provided a list of key climate variables suitable for this assessment.
- A Stewardship Maturity Matrix for Climate Data (SMM-CD) has been implemented as an emerging tool for climate data management standards focusing primarily on quality management and governance in addition to the GCOS climate dataset reviewing process. Disconnected from other approaches like ISC World Data System (WDS)
- The maturity assessment started with global datasets and is expected to be extended to regional and national datasets a few years after the operationalization of the process at the global level. This will allow consistent classification of data references across these three levels. WMO Climate Data Catalogue
- WMO uses a list of 7 state-of-the-climate indicators that are based on the 54 Global Climate Observing System (GCOS) Essential Climate Variables, including surface temperature, ocean heat content, atmospheric carbon dioxide (CO₂), ocean acidification, sea level, glacier mass balance and Arctic and Antarctic sea ice extent. Additional indicators are usually assessed to allow a more detailed picture of the changes in the respective domain. Selection of KNMI as implementing partner not transparent

1. Stewardship Maturity Matrix (SMM)

- Lack of clear process
 - No definition of Subject Matter Experts
 - Can be anyone, including the creator of the dataset (lack of independence)
- Can give wrong impression about quality, but it's only about stewardship
 - No guarantee that a proposed dataset has sufficient scientific quality or is supported/used by the science community
- Grandfathering of existing datasets, less chances for new ones
- Self assessment rather random and not transparent
- Disconnected from other approaches like ISC World Data System (WDS)
- In the last shared version before Cg-18, suggested datasets should have gone through GCOS panel quality check. This is not the case anymore and the definition authoritative is not precise

2. WMO Climate Data Catalogue

- Catalogue does not point to data sets but to the KNMI climate explorer
- Selection of KNMI as implementing partner not transparent
- Assessments not available on the web, only by request
- Duplication of other efforts like ECV Inventory, Copernicus Climate Data Store, CEOS/CGMS JWGClimate activities (to date 1300+ recorded datasets), etc.

1. Significant references to GCOS

1. Is this based on GCOS or following GCOS or simply referring to GCOS for convenience
2. Is there a need/wish to strengthen the role of/reference to GCOS and what GCOS can provide

2. Are these GCOS endorsed data sets

1. Yes => significant impact on workload
2. No => how does this reflect on GCOS, it's role within WMO and within the community

3. Impact on the future

1. Going from global to regional => definition of regional requirements
2. First step towards application areas

Request to Steering Committee

1. The GCOS Steering Committee is requested to develop a position on the role of GCOS and its panels in this effort given the references to GCOS and implications on it's role and workload