WCRP Data Policy

Introduction

The World Climate Research Programme (WCRP), a global multidisciplinary climate research programme, requires a wide range of data and needs data centres to ingest, quality control, archive and distribute these data. The WCRP data policy provides guidelines for how these data should be handled in a consistent manner so as to achieve the programme's scientific objectives. The policy aims to strike a balance between the rights of investigators and the need for widespread access through the free and unrestricted sharing and exchange of WCRP data and metadata. WCRP data policy is intended to be fully compatible with IOC [1], WMO [2-4], GCOS [5] and GEOSS [6] data principles.

The multidisciplinary nature of WCRP and its core projects and affiliated programmes means that the principles enshrined in the Data Policy must be applied to data in each core project and subprogramme's implementation plan.

Definitions used in the WCRP Data Policy

1. WCRP data

"WCRP Data" consists of directly observed data, derived data, gridded fields, and other data products generated and/or used within the WCRP to further its scientific goals. WCRP data and related products can be categorized in terms of those that are specifically sponsored or endorsed by the WCRP, those generated by other related bodies and programmes such as the World Weather Watch of the WMO, GCOS, JCOMM, and other projects of the WCRP and those generated by relevant national and institutional WCRP core projects and affiliated programmes. The WCRP should strive to ensure that all data relevant to the WCRP are accessible freely and without restriction, including those collected by other projects and programmes. The WCRP JSC recommended that all WCRP project and programme data be published on the Earth Science Grid Foundation CoG (ESGF CoG) [7].

2. Metadata

Metadata is defined as the descriptive information such as content, quality, condition that characterizes a set of measurements.

WCRP Data Policy and Principles

For the WCRP to succeed, high-quality data and metadata need to be collected, processed and exchanged without significant delay in a free and unrestricted manner.

WCRP data policy is enshrined in the WCRP data principles below:

1. Free and unrestricted exchange
All WCRP data should be made available freely and without restriction. “Freely” means at no more than the cost of reproduction and delivery, without charge for the data itself. “Without restriction” means without discrimination against, for example, individuals, research groups, or nationality. In exceptional circumstances involving highly specialized or experimental data, principal investigators may temporarily limit access until such time as the data can be adequately validated.

2. Timely exchange
WCRP investigators should make data available voluntarily and with minimal delay, preferably also in real-time, to maximize their value to WCRP. In cases where extensive post-processing of delayed mode data is needed before a final research quality data set can be generated, early release of a preliminary version of the data is required.

3. Quality control
WCRP investigators retain the primary responsibility for the quality of the data they produce and distribute. Data originators and those generating climate data products are required to ensure that their data meet international quality standards wherever possible.

4. Metadata
Metadata are required to enable the use of data without ambiguity or uncertainty. Metadata for WCRP data sets will be developed and managed in accordance with international standards.

5. Preservation of data
Long-term survival, integrity, and access to WCRP data must be preserved for future generations. Internationally agreed standards should be used for the acquisition, processing, and final archival of data and metadata. Data distributed in real and near-real time should, wherever possible, be replaced in a delayed mode after it has undergone quality control and full documentation.

6. Plan for reuse in reanalysis
While datasets will be used individually and in combination for research purposes, the sum total of all WCRP and WCRP-relevant data will have great value in reanalysis activities. To aid this, uniformity of data format and quality should be a high priority.

7. Easy access
WCRP encourages the use of the most recent advances in communication to ensure widespread access to data collected under auspices of the programme.

8. Use of existing national and international mechanisms and centres
Where feasible, WCRP will use existing national and international mechanisms for the exchange and storage of oceanic and atmospheric data, and build on the data management structure of existing programmes. In this way, the effectiveness of the data system will be improved by reducing redundancy and duplication and identifying opportunities and system economies, with financial costs minimized.

9. Reporting Requirements

Data and metadata should be submitted to recognized data assembly centers as well as to appropriate national and international archival institutions so that the collected information may be safeguarded for future analysis. Inventories of data and related information should be readily accessible and updated as needed on a routine basis.

10. Referencing and citations

In order to recognize the efforts of data producers and curators and to ensure data access and traceability, it is strongly recommended to publish data set description in the open literature with DOI referencing.

11. Common infrastructure

In order to streamline the scientific work and information exchanges, WCRP strongly recommends the use of the Earth System Grid Federation (ESGF CoG) as the distributed standard repository/infrastructure for model (observational and reanalysis resp.) data sets. This includes climate scenarios (Model Intercomparison Projects, MIPS), observations (Observations for MIPS - obs4MIPS), and reanalyses (Collaborative Reanalysis Technical Environment - CREATE-IP, and Analysis for Model Intercomparison Projects, ana4MIPS).

References

[1] IOC Data Policy (http://ioc3.unesco.org/iode/contents.php?id=200)
[2] WMO Resolution 40 (http://www.wmo.int/pages/about/Resolution40_en.html)
[3] WMO Resolution 25 (http://www.wmo.int/pages/about/Resolution25_en.html)
[4] WMO Resolution 60 (http://library.wmo.int/pmb_ged/wmo_1157_en.pdf#page=557)
[5] Implementation plan for the Global Observing System for Climate in support of the UNFCCC, 2010; GCOS – 138 (GOOS-184, GTOS-76, WMO-TD/No. 1523)
(http://www.wmo.int/pages/prog/gcos/Publications/gcos-138.pdf)
[6] GEO Data Sharing Principles Implementation (https://www.earthobservations.org/geoss_dsp.shtml)
[7] Report of the 34th Session of WCRP Joint Scientific Committee, 2013 (http://www.wcrp-climate.org/images/documents/reports_flyers/WCRP_JSC34_report.pdf)