Data policy - Geospace Observatory (GO) Canada

1. Introduction

Geospace Observatory (GO) Canada is an array of ground-based instruments for remote-sensing geospace and a coordinated research program designed to advance understanding of the geospace system. GO (Geospace Observatory) Canada generates large and diverse volumes of space data and information that must be effectively managed to achieve the objectives of the program and to maximize the value of the data for scientific research and development of applications (e.g. (For example) space weather forecast products).

This policy is intended to be compatible with the data principles and policies of partner agencies, and Canadian government departments. The scope of this policy, however, is limited to the GO (Geospace Observatory) Canada initiative and is subject to higher-level policies of the Canadian Space Agency (CSA). The GO (Geospace Observatory) Canada Data policy applies to all projects funded through the GO (Geospace Observatory) Canada initiative; compliance with the policy is a condition of funding. The activities of each project are consistent with the GO (Geospace Observatory) Canada Data policy and are expressed

in a data management plan.

The CSA (Canadian Space Agency)'s Sun-Earth System Sciences group is the author of the GO (Geospace Observatory) Canada Data policy. Questions about the policy and its implementation should be directed to the GO (Geospace Observatory) Canada Project Officer of the Sun-Earth System Sciences group at go@asc-csa.gc.ca.

2. Objectives

The purpose of the GO (Geospace Observatory) Canada Data policy is to ensure that high-value data are accessible both now and in the future. The value of the data is measured against GO (Geospace Observatory) Canada objectives for the benefit of the users: geospace scientists, space weather forecasters, and the general public. Taken together, high-value GO (Geospace Observatory) Canada data require:

- high-quality data;
- data that are well-documented;
- open data formats;
- data that are openly accessible;
- data that are rapidly accessible; and
- data that are easy-to-use.

Equally important are stable preservation and accessibility of GO (Geospace Observatory) Canada data throughout their lifecycle. In addition to ensuring that the data are available for future use, these objectives also enable citations to data. Citations are essential for recognition of data providers as important contributors to the advancement of science.

3. Data

For the purposes of this policy, data are defined as: the digital information output by an instrument, the products generated by processing the information, and the associated metadata. Intellectual property is specifically excluded from this definition.

This policy applies to the data generated by projects endorsed by the CSA (Canadian Space Agency) as GO (Geospace Observatory) Canada projects. GO (Geospace Observatory) Canada projects include those supported through the CSA (Canadian Space Agency)'s GO (Geospace Observatory) Canada initiative as well as projects supported by partner agencies and other Canadian government departments that contribute to the objectives of GO (Geospace Observatory) Canada. It should be recognized, however, that GO (Geospace Observatory) Canada projects may use related data from outside sources, such as from space-based instruments. Such data are outside of the domain of this policy, but the principles of access and preservation of high-value data are encouraged to be applied in those cases.

4. Data access

In order to maximize the value of data gathered under the auspices of the GO (Geospace Observatory) Canada initiative, all data are made fully, freely, and openly available on the shortest feasible timescale. This policy follows international policy and practice, notably,

- the Twelfth World Meteorological Organization (WMO) Congress, Resolution 40 (1995) [1], and
- the International Council for Science (ICSU) Assessment on Scientific Data and Information (2004) [2],

and is in accordance with

- the Canadian Policy on Information Management (2007) [3], and
- the Open Government Licence – Canada (Version 2.0) [4].

The only exceptions to this principle of full, free, and open access are:

- where data include personal information;
- where data release may cause harm, specific aspects of the data may need to be kept protected (for example, the accuracy of instrument locations may need to be reduced in some documents in order to avoid vandalism); or
- where pre-existing data are subject to access restrictions (for example, data acquired under restrictive policies that will be made available alongside data collected in compliance with this policy).

The ICSU (International Council for Science) Assessment on Scientific Data and Information defines "full and open access" as equitable, non-discriminatory access to all data preferably free of cost, although some reasonable cost-recovery for distribution of the data is acceptable. WMO (World Meteorological Organization) Resolution 40 uses the term "free and unrestricted" and defines this as non-discriminatory and without charge. "Without charge", in the context of this resolution, means a charge that is no more than the cost of reproduction and delivery and without charge for the data themselves.

Metadata are essential to the discovery, access, and effective use of data. All GO (Geospace Observatory) data include a full set of metadata that completely document and describe the data. As described in the Reference Model for an Open Archival Information System (OAIS) [5], a complete set of metadata contains all the information necessary for the data to be independently understood by users and to ensure

proper stewardship of the data.

The data associated with each GO (Geospace Observatory) instrument array are made available through a data "landing page". This is a web page at a stable URL through which the data may be accessed, both by people and by automated systems. It provides links to the data as well as contextual information to facilitate use of the data. It also serves as a publishing record for the data and may be used as an endpoint for citations to the data.

Regardless of any delays in delivery of the data themselves, all GO (Geospace Observatory) Canada projects funded by the CSA (Canadian Space Agency) promptly provide basic descriptive metadata of collected data (no more than one week after acquisition by the instrument) in an internationally recognized, standard format to a CSA (Canadian Space Agency)-approved catalogue or registry.

5. Data preservation

Recognizing that the significance of scientific data is often realized long after they have been collected, and to ensure the lasting legacy of GO (Geospace Observatory) Canada, it is essential to ensure long-term preservation of and sustained access to GO (Geospace Observatory) data throughout its life. GO (Geospace Observatory) data are preserved in their simplest, useful, machine readable form and are accompanied by a complete metadata description. Associated metadata records include descriptions of quality control procedures and processing that have been applied to the data.

6. Data citation

To recognize the important role of data providers and to facilitate repeatability of observations in keeping with the scientific method, users of GO (Geospace Observatory) data are required to cite the sources of the data and copyrighted products (analogous to article authors). Where possible, this citation should take the form of a formal citation to the data, such as the citations used when referring to a journal article. If a journal's editorial policies prohibit formal citation of the data, the citation should instead refer to a recommended journal article. The CSA (Canadian Space Agency) will encourage journals to require formal citation of the data used in articles they publish.

7. Acknowledgement

Any publication that includes a citation to GO (Geospace Observatory) data should also acknowledge the CSA (Canadian Space Agency) for funding the GO (Geospace Observatory) Canada project that generated the data. Any acknowledgement is acceptable as long as it includes the following text: "supported through the Geospace Observatory (GO) Canada initiative of the Canadian Space Agency". Here are two examples:

> The authors thank J. Smith and the rest of the XYZ team for data. XYZ is operated by the University of ABC, and **supported through the Geospace Observatory (GO) Canada initiative of the Canadian Space Agency**.
>
> This material is based upon work **supported through the Geospace Observatory (GO) Canada initiative of the Canadian Space Agency**.

8. Responsibilities

8.1 GO (Geospace Observatory) Canada projects

All GO (Geospace Observatory) Canada projects PIs (Principal investigators) are responsible for:

- applying the data management principles, standards and practices outlined in this policy to their data; and
- identifying data management requirements and issues to the CSA (Canadian Space Agency).

8.2 Canadian Space Agency

The CSA (Canadian Space Agency) is responsible for the implementation of the GO (Geospace Observatory) Canada initiative. As such, it is responsible for:

- providing interpretive advice on this policy;
- enabling the distribution of information pertaining to data management to GO (Geospace Observatory) Canada projects, program managers and other interested parties;
- assisting GO (Geospace Observatory) Canada projects and data repositories to collaborate effectively; and
- promoting a culture of open data-sharing and information-sharing nationally and internationally between all participants in the GO (Geospace Observatory) Canada initiative.

9. Data rights and rules for data use

The terms for distribution and use of the GO (Geospace Observatory) data govern both the production and distribution of scientific datasets

by GO (Geospace Observatory) Canada projects, as well as use of the GO (Geospace Observatory) data by the science community and general public. These terms are summarized below:

- The data are open to all scientists and the public (Users).
- There are no proprietary periods associated with the data.
- Users shall have timely access to the data. The definition of "timely" shall be indicated for each dataset.
- Users shall cite the data when writing articles that make use of the data and that are intended for submission to a peer-reviewed publication. The required citation shall be provided on the relevant data landing page.
- Users should acknowledge the CSA (Canadian Space Agency) as supporting the GO (Geospace Observatory) Canada initiate. The required acknowledgement shall be provided on the relevant data landing page.
- Users are encouraged to provide the relevant GO (Geospace Observatory) Canada project PI (Principal investigator)(s) with copies of their manuscripts upon their submission for consideration of publication. On publication the citation should be transmitted to the GO (Geospace Observatory) Canada project PI (Principal investigator) and any other providers of data.
- Users are encouraged to make tools of general utility and/or value-added data products widely available to the community. Users are encouraged to collaborate with the relevant GO (Geospace Observatory) Canada project PI (Principal investigator)(s) and to notify the CSA (Canadian Space Agency) of such utilities or products.

These terms are subject to change as the policies of the CSA (Canadian Space Agency) and its partners change.

10. Appendix – Example implementation

The following is a brief example illustrating how a GO (Geospace Observatory) Canada project could implement the data policy. The comments in square brackets [...] indicate the policy criteria addressed.

All project data are made accessible via ftp [**open access: full, free, and unrestricted access**] through a hierarchy of folders, structured by date [**easy-to-use**]. Low-resolution data are available five minutes after acquisition, high-resolution data are available within two months of acquisition when custodians ship disks to the project centre [**rapid access**]. The data are stored as CDF formatted files [**open format**] with descriptive and unique file names [**well-documented**]. The data are described using the SPASE metadata standard [well-documented; open format]; all metadata are available within one day of acquisition [**rapid access**].

All project data, metadata, and documentation are available through a data landing page [A] and are updated daily [**well-documented; open access; rapid access; easy-to-use**]. We are committed to providing access to these data through this landing page until 2025 [**stable, long-term access; citable**]; the landing page includes instructions on how to cite the data [**citable**] and acknowledge the funding agencies [**acknowledgement**].

A customized version of the GO (Geospace Observatory) Canada Data rights and rules for data use is provided on the landing page, with links to the original at the GO (Geospace Observatory) Canada website.

11. References

1 WMO (World Meteorological Organization) Resolution 40: WMO (World Meteorological Organization) Policy and Practice for the Exchange of Meteorological and Related Data and Products Including Guidelines on Relationships in Commercial Meteorological Activities, World Meteorological Organization (WMO) Congress, October 1995. http://www.wmo.int/pages/prog/www/ois/Operational_Information/Publications/Congress/Cg_XII/res40_en.html

2 ICSU (International Council for Science) Report of the CSPR Assessment Panel on Scientific Data and Information, International Council for Science (ICSU), December 2004 http://lasp.colorado.edu/media/projects/egy/files/PAA_Data_and_Information.pdf

3 Canadian Policy on Information Management, Government of Canada, July 2007. https://www.tbs-sct.gc.ca/pol/doc-eng.aspx?id=12742

4 Open Government License Agreement, Government of Canada, Version 2.0. http://open.canada.ca/en/open-government-licence-canada

5 Reference Model for an Open Archival Information System (OAIS), Consultative Committee for Space Data Systems (CCSDS), Recommended Practice CCSDS (Consultative Committee for Space Data Systems) 650.0-M-2, June 2012. http://public.ccsds.org/publications/archive/650x0m2.pdf

6 IPY (International Polar Year) 2007-2008 Data Policy, ICSU (International Council for Science)/WMO (World Meteorological Organization) Joint Committee for the International Polar Year (IPY), April 2008. http://classic.ipy.org/Subcommittees/final_ipy_data_policy.pdf

Footnotes

A Examples: http://dx.doi.org/10.3334/ORNLDAAC/1025, http://nsidc.org/data/mod10_l2.html, http://cera-www.dkrz.de/WDCC/ui/Compact.jsp?acronym=dphase_mpeps, and http://lasp.colorado.edu/lisird/fism/.

Date modified:
2019-11-22