Report on Outcomes
Research Stakeholder Consultation
21 October 2020 - 14h00 to 16h00 CET

This online consultation, in preparation for the WMO Data Conference, asked stakeholders to discuss data policies that are being used in various scientific/research communities and to examine their differing perspectives on WMO Data Policy.

Discussions centered around three topics:

1. Does the research community have access to the operational data that it needs to carry out its work (taking into consideration current data policy)?

2. What research data are required by the diverse services providers to further advance their services and data policy associated with such exchange?

3. How is the current WMO Data policy accepted/perceived within the research community, and how to create incentives for more harmonized/compatible data policy between research and operational communities?

The meeting was co-chaired by:

- Celeste Saulo, First Vice-President WMO; Directora - Servicio Meteorológico Nacional Secretaría de Investigación, Política Industrial y Producción para la Defensa, Buenos Aires, Argentina

- Toste Tanhua, co-chair of the Global Ocean Observing System (GOOS); GEOMAR Helmholtz Centre for Ocean Research Kiel, Germany

Presentations, Speakers, and Their Key Points:

(1) "Ocean Observations and Research," Michelle Heupel, Integrated Marine Observing System (IMOS), Australia

- IMOS makes all data publicly available;
- No restrictions apply (acknowledgment of source is required);
- FAIR principles followed;
- No user registration is required in order to use data;
- Attribution of data sources is a difficult challenge to resolve, but important for the research community.

(2) "Atmospheric Composition Observations and Research," Jörg Klausen, Meteoswiss, Switzerland

- Policy for satellite-data access typically open, with minimal restrictions;
- More complicated for surface-based observations;
- Global Atmosphere Watch program (GAW) data policy requires co-authorship, in the case of publication with substantial use of data;
- Data policy without data license does not ensure protection of intellectual property;
- GAW also needs access to weather data.

(3) "Special Observing Periods under the Year of Polar Prediction and Cryosphere," Jorn Kristiansen MetNo, Norway

- Observing capabilities lagging in polar areas;
- Need for standards to drive data usability and interoperability, make data publicly available, develop interoperability standards;
- Benefits of citizen observations for weather forecast;
- Meteorological–computational science co-design thinking;
- Harnessing opportunities in emerging technologies and interoperable systems for collecting observations and sharing data required for the benefit of R2O and O2R.

(4) "Open Data Access Approaches in GEO and the Research Community, " Robert Chen, Center for International Earth Science Information Network (CIESIN), USA

- Access to the benefits of scientific activity is a fundamental human right;
- Research data from public funding must be open;
- GEO has adopted the concept of "open data by default" with minimum restrictions;
- There are important differences between public domain and open licensing approaches;
- Non-WMO related example: rapid COVID-19 vaccine development would not be possible without open access to data.

Approximately 160 stakeholders participated in the consultation, including individuals from developed and developing Member governments (NMHSs and other services) and the research community.

Summary of Views Expressed

- Several communities across the different domains of the Earth System (atmosphere, atmospheric composition, ocean, climate, cryosphere) promote and adhere to FAIR Principles (Findable, Accessible, Interoperable, Reusable) and/or open access approaches.

- Updated WMO policy could endorse FAIR principles and support licenses to clarify access and usage rights.

- Sustained funding of long-term observation programs with operational dependencies as public infrastructures is a critical issue.

- The research community does not always have easy access to or influence on the operational data (observations and model output) and data formats which hinders data interoperability, interpretation and advances in high-quality science.

- Current WMO policy is well-recognized in the research community, but requests have been heard for clear guidance on licenses; as well as clarity and/or better definitions of the terms "essential", "additional" and "other data".

- There is a need to apply consistent data policies to all scientific data to the extent possible, to reduce barriers to interdisciplinary reuse and integration.

- Much of data from several Earth-system disciplines are provided mainly by the research community (atmospheric composition, ocean…), and funded as such.

- The data latency is generally longer in the research community, which reduces the potential impact and benefit of the data for operational purposes (e.g. assimilation in numerical prediction models).

- Duplication of data holdings across multiple repositories is an issue.

- WMO should establish "open by default" as a standard and as a norm.

- Open data policy is needed to facilitate science and maximize the value of data, efficiency and expanded capabilities as well as equity.

- Exceptions are possible in cases where legislation, treaty, commercial interests etc. explicitly require restrictions.

- FAIR Principles promoted by some parts of the research community do not explicitly encourage open data sharing (FAIR alone is not enough).

- Data access needs to be both technically open (i.e., available in a machine-readable standard format to be processed by a computer application) and legally open (i.e., explicitly licensed that allows commercial and non-commercial use and re-use without restrictions).

- Utilize open access licensing and labelling (machine readable) to facilitate legal interoperability.

- Avoid customized licenses and restrictions that lead to complicated license "stacking".

- Implement Digital Object Identifiers (DOIs), etc. to facilitate transparency, traceability and attribution, especially between operational, research, and applications communities.

- Registration and attribution are conditions that do not restrict access and reuse.

- User-informed data management should be promoted and supported, including as a legacy of the research projects/programmes.