

# CGMS best practice document

## Relationship with the private sector Commercial data purchases

*Discussed at CGMS-52 WG session on 24 April 2024*

**To be endorsed by CGMS-52 plenary on 5 June 2024**

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## 1. INTRODUCTION

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The overarching goal of the CGMS Futures 2022+ Project: Relationship with the Private Sector theme is to leverage the opportunities of a rapidly growing commercial space sector while maintaining operational data standards and open data sharing. This document is intended to help CGMS Members and Observers develop a shared understanding of the range of Member agencies' views and practices in relation to operational use of commercial Earth observations. Although the practice of government agencies purchasing commercial data is still in its relatively early stages and most CGMS Members are not purchasing data at this time, this document is intended to provide a snapshot of Members' current commercial data purchase programs and to present some guidance regarding best practices based on the experiences of those agencies to date. This report focuses on operational commercial data purchases. While commercial data purchased for research purposes is out of scope of this document, many of the practices outlined here would also apply. These eight best practices for commercial data purchases have been identified by WGIII and [approved] at CGMS Plenary-52.

### 1.1 CONTEXT: THE CGMS FUTURES 2022+ PROJECT

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The frequency of extreme weather events is increasing, and the growing vulnerability of people living in high-risk areas is contributing to a steep increase in demand for information about weather, climate and water and their impacts. Scientific and technical progress over the last several decades has allowed forecasts to provide more accurate information. The global nature of the climate system means that forecasting and monitoring depends completely on international exchange of data.

In 2022, the CGMS Futures 2022+ Task Team was formed to perform a strategic review of CGMS activities and processes to face the hurdles ahead. The team considered the following challenges: the impact of the changing environment and user requirements; CGMS' need to remain user-driven and operational; changes in CGMS leadership; and the priorities for the next 10 years and beyond.

The work of the Futures Task Team was presented at the CGMS-51 Plenary in 2023 when CGMS Members approved the CGMS Futures Project 2022+ strategic themes:

- Socio-economic benefits
- Research to operations
- Future observing (hybrid) space infrastructure
- Future information technologies
- Relationship with the private sector
- Space situational awareness.

In addition, CGMS Members agreed to develop the strategic themes of Earth System Monitoring and Climate and Support to Developing Countries. CGMS Members identified Champions for each theme, an individual who coordinates efforts and reports to the appropriate CGMS Working Group. NOAA is the champion agency for the Relationship to the Private Sector theme, coordinating with other CGMS Members and Observers, and those working on this effort have reported to CGMS Working Group III during the 52<sup>nd</sup> intersessional period.

To gather information from CGMS Members to identify the best practices, the Secretariat announced a broad data call to solicit input such as copies of reports and solicited interest for a task team. In February 2024, the Secretariat followed up by distributing a member survey focused on commercial data purchases. The aims of this survey were to:

- gain an overview of the current status of Members' operational use of commercial data purchases,
- gather information about Members' plans to purchase commercial data, and
- identify potential areas suitable for a best practice recommendation for all Members at Plenary-52 in 2024.

The survey results reflect the somewhat limited interactions of agencies and private companies as a whole with respect to commercial data purchases; however, the agencies that are purchasing commercial data have shared their experiences and lessons learned, which may help CGMS as a whole to lay the groundwork should Members decide to move forward toward increased public-private partnerships. A summary of the survey results can be found in Appendix D.

## 2. RELATIONSHIP TO THE PRIVATE SECTOR THEME

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The relationship between the public and private sector has been a growing area of importance and complexity for decades. Primary factors that have been driving significant change among the global environmental Earth observation community and that continue to affect the landscape in which CGMS agencies operate comprise the following: scientific and technological innovation, growing demand for environmental observation services, global action for adaptation to climate change, public sector institutional and resource constraints, and increased private sector involvement, consolidation and globalization.<sup>1</sup> In this rapidly changing landscape, agencies seek to gain efficiency, improve quality and to bridge existing gaps in order to better serve the public.

Commercial companies offer desired capabilities to complement public sector efforts through trends such as an accelerating innovation pace, less expensive launches, and more Earth observation satellites and instruments. Commercial data may allow for access to new data faster than before and may provide access to more diverse data types at enhanced temporal and spatial scale.

What, then, are the potential drawbacks? Commercial services are emerging and may be beneficial if they complement existing validated services, so a coordinated way to guide the co-existence of public and private services that includes guidelines for operations is needed and could benefit CGMS.<sup>2</sup> Other issues for using commercial data for public services include data quality, data rights and redistribution policies, interoperability, and observational record continuity, which could affect service delivery. The private sector would like to capitalize on the opportunities of the growing satellite sector while addressing concerns involving profitability, the required capital, and intellectual property rights. CGMS Members will need to monitor changes in investor sentiment, market fluctuations and revenue

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<sup>1</sup> WMO report to CGMS: WMO policy framework for public-private sector engagement

<sup>2</sup> CGMS Futures Private Sector position paper, 2023.

streams, which may create uncertainty about the continuity and sustainability of commercial satellite data.

### 3. COMMERCIAL DATA PURCHASES & DATA POLICY

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At the center of this issue is how data policy affects interactions with the private sector. Meteorology has a nearly 200-year history of international collaboration and data exchange, and this exchange of information is the backbone of the high-quality, authoritative environmental services the public sector provides. CGMS members should ensure public-private partnerships do not conflict with the free and unrestricted exchange of meteorological and climate data, information, and research among government agencies.

This commitment to broadening and enhancing the free and unrestricted international exchange of Earth system data is codified in the World Meteorological Organization (WMO) Unified Policy for the International Exchange of Earth System Data, or Resolution 1, which is a comprehensive update of the international data policy guiding the exchange of weather, climate and related Earth system data between the 193 Member States and Territories of WMO. This policy now encompasses all WMO-relevant Earth systems, including weather, water, climate, atmospheric composition, oceans, cryosphere, and space weather. These diverse disciplines need to be addressed in a comprehensive manner, and efforts like the CGMS Futures Project, WMO's Open Consultative Platform and CEOS' New Space efforts seek to address the rapidly evolving data issues and opportunities.

As modelling capabilities are progressing rapidly, the need for exchange of Earth system data will continue to grow. The Unified Data Policy allows for incremental updates in the decades ahead to keep pace with emerging needs, and this, coupled with agencies increasingly leveraging commercial capabilities may require Members to engage with existing and emerging partners in new ways.

Recalling the WMO's passage of the Geneva Declaration 2019 (Resolution 80, Cg-18) *Building Community for Weather, Climate and Water Actions*, which outlined the WMO high-level policy on public-private engagement (PPE), Annex 3 to Resolution 1: *Guidelines of the application of the data policy in public private engagement*, provides guidance to Members regarding the intersection of these two policies. Annex 3 recalls the high-level principles previously identified in the Geneva Declaration including that public private interactions related to data exchange and sharing must respect "the sovereign right of Members in deciding how weather, climate and water services are organized and provided". Annex 3 also seeks to "broaden and enhance the free and unrestricted international exchange of Earth system data through better sharing of data between the public and private sectors." Of particular relevance to CGMS, note that Annex 3, section 3(c) states: Members should ensure that, in case of core data purchased from private sector data providers, such data sets are appropriately licensed for free and unrestricted international exchange. In addition, section 4.4, which addresses the exchange of data purchased by the public sector from the private sector, states:

With the growing activities of the private sector in providing observational data, or in global NWP, in some countries global or regional data sets will be purchased by public sector entities, such as NMHSs, from private companies. The conditions for the redistribution of

such data sets to other Members may vary depending on license agreements. Members are encouraged to consult with other Members on the need and added value of the purchased private data sets for their operations, in particular with those Members operating global or regional NWP. Purchasing of commercial data sets with a license for redistribution (as core or recommended data) and possible adequate cost sharing models with other Members may be considered by Members, based on economic analysis, and bearing in mind the benefits for all parties, as well as the commitment, via the “shall” language in the resolution to exchange all declared core data on a free and unrestricted basis.

This policy seeks to address growing challenges, including both the ability to provide enough international data to make use of increased modelling capabilities and the ability to have the resulting model data used effectively by government services worldwide to provide accurate, authoritative services. The Unified Data Policy will help agencies to significantly expand and improve their monitoring and prediction capabilities.

CGMS Members are approaching these changes based on their national priorities and international agreements. The commercial environmental monitoring market is still developing and its state still varies widely among CGMS members. It has found some success with value added services, particularly with Global Navigation Satellite System Radio Occultation (GNSS-RO aka GPS-RO).<sup>3</sup> Radio occultation data has a positive impact on weather forecasts because it provides information about temperature and moisture.

#### 4. NOAA AND EUMETSAT CASE STUDIES

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NOAA’s Commercial Weather Data Pilot Project was initiated by the U.S. Congress via the Consolidated Appropriations Act, 2016 (P.L. 114-113), whereby the U.S. Congress directed NOAA to enter into at least one pilot contract, through an open competitive process, to assess the potential viability of commercial weather data in NOAA’s weather modelling and forecasting. Further, the Congress provided funding to NOAA to purchase, evaluate, and calibrate available data, which meets the standards and specifications set in NOAA’s Commercial Data Policy issued in 2016. In 2017, NOAA issued the NESDIS Commercial Weather Process. Together, these documents set the principles that guide NOAA’s engagement with the commercial sector and the practices for how NOAA assesses, pursues, and determines the viability of using commercial data.

NOAA conducted two rounds of a commercial data pilot project for GNSS Radio Occultation data in 2016 and 2018 respectively. NOAA purchases of GNSS-RO data under the pilots were used for evaluation purposes under a limited distribution licenses, which granted NOAA the right to share the data with WMO Members, CGMS Members and WMO Specialized Meteorological Centers with restrictions on commercial reuse. Including access to NOAA’s global partners helped ensure a more robust evaluation of the commercial data provided.

In 2020, NOAA/NESDIS concluded the commercial sector was ready to provide operational Radio Occultation (RO) data and initiated the Commercial Data Program to manage the acquisition, ingestion,

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<sup>3</sup> Commercial Space Capabilities and Market Overview, 2022

use and dissemination of commercially sourced data. NOAA's current license for operational purchases of GNSS-RO data are consistent with the World Meteorological Organization Unified Data Policy; and are made available on a free and unrestricted<sup>4</sup> basis under the Creative Commons Attribution 4.0 International License (CC BY 4.0). NOAA decided the benefits of free and unrestricted exchange of the data were of sufficient value to warrant additional cost and/or purchasing of reduced quantities of data. Moreover, NOAA's current license importantly specifies that vendors may only provide NOAA with unique data sets. This provision aids in avoiding duplicative purchases by NOAA and our international partners.

Today, NOAA's Commercial Data Program (CDP) engages with the commercial sector through pilots used to evaluate quality and impact of commercial data on NOAA programs, and commercial data purchases to support operational forecasting. NOAA has expanded the commercial data pilots to space weather and ocean surface winds; completing a twelve-month Space Weather Data pilot program focusing on ionospheric measurements, and beginning a pilot for GNSS-Reflectometry data for Ocean Surface Wind Instruments. Through the Commercial Data Program, NESDIS strives to ensure NOAA's observation systems are adaptable, responsive to emerging technologies, high-quality, and economically sustainable, while upholding the international data sharing commitments on which NOAA depends.

In 2021, EUMETSAT also started to procure commercial RO data, with global licensing enabling free and open global data redistribution. While EUMETSAT had existing RO data, the additional data improves forecast accuracy so it decided to purchase additional data from Spire Global Luxembourg Sarl. EUMETSAT receives the RO data and then processes and disseminates it for use in weather forecast modeling. The EUMETSAT license for RO data is non-exclusive and allows it to be shared immediately in keeping with the WMO Unified Data Policy. EUMETSAT is purchasing commercial data with the understanding that they should complement core EUMETSAT observing systems, and represent a small fraction of the entire dataset acquired by EUMETSAT satellites.

In 2023, EUMETSAT approved the continued purchase of RO data since the initial pilot program demonstrated both weather forecast accuracy benefits and value for the money. At that time EUMETSAT Member States noted that the offer for the provision of commercial meteorological data in Europe was still very limited, i.e. with no competition so far.

United States national policy and federal laws encourage public-private partnerships. The U.S. is embracing the opportunity to purchase commercial data from the evolving private sector, guided by the following principles from the NOAA Commercial Space Policy:

- Sustain service quality
- Optimize mission requirements
- Ensure access to global observations
- Uphold national and international standards
- Ensure a vibrant research enterprise

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<sup>4</sup> World Meteorological Organization: WMO Unified Data Policy, April 2022.

- Explore new partnerships

The NOAA and EUMETSAT programs are complementary to one another since there are provisions that the same data not be sold to both organizations. At the same time, licensing arrangements make it possible for EUMETSAT and NOAA to exchange these unique data sets, improving weather forecasting models globally. These data benefit communities globally through more data for weather forecasting models. Figure 1 provides a chart of organizations throughout the world that receive the redistributed RO data.

**Figure 1: International Partner Agencies Currently Receiving Redistributed Commercial RO Data**

Country/ Region	Agency	Membership
Australia	Bureau of Meteorology (BOM)	WMO
Canada	Environment and Climate Change Canada (ECCC) Canadian Meteorological Center (CMC)	WMO
China	China Meteorological Administration (CMA)	CGMS & WMO
Europe	European Organization for the Exploitation of Meteorological Satellites (EUMETSAT)	CGMS
Europe	European Centre for Medium-Range Weather Forecasts (ECMWF)	WMO
France	Centre National d'Etudes Spatiales (CNES)	CGMS
Germany	Deutscher Wetterdienst (DWD)	WMO
Hong Kong	Hong Kong Observatory (Weather Forecasting Office)	WMO
India	India Meteorological Department	CGMS & WMO
India	Indian Space Research Agency (ISRO)	CGMS
Japan	Japan Meteorological Agency (JMA)	CGMS & WMO
Korea	Korea Meteorological Administration (KMA)	CGMS & WMO
New Zealand	Meteorological Service of New Zealand (MetService)	WMO
United Kingdom	The Met Office (UKMO)	WMO

Source: NOAA/NESDIS Commercial Data Program, 2023

Essential to the success of the operational purchases referenced in the case study above has been the ability for both EUMETSAT and NOAA to redistribute the data globally without restrictions on redistribution nor reuse.

One of the key tools that can be used when purchasing commercial data are standard open data licenses that help the legal treatment of data keep up with combined open data sets, advanced data processing techniques and changing interoperability standards. Advocates of standard open data licenses underscore that the consistency and certainty they provide lower barriers to data use since clearly licensed data can be used immediately without negotiation.<sup>5</sup>

<sup>5</sup> Information in this document on standard data licenses is taken from the Group on Earth Observations Data Licensing Guidance, February 2023




Standard open data licenses have been adopted by numerous international organizations and data providers, including:

- The Group on Earth Observations
- The FAIR Principles and other Open Science initiatives, including UNESCO’s
- European Commission
- The Research Data Alliance and CODATA
- United Nations Statistical Commission

CGMS Members should consider using one of the standard open data licenses for commercial data. These licenses should not be modified or augmented with additional text, and custom license agreements should be avoided as far as possible. Standard data licenses increase partners’ abilities to combine datasets from different sources, avoiding situations in which different data sets are subject to different licensing terms.

In cases where a standard data license with unlimited distribution rights may not be possible, NOAA has adopted tiered definitions for consideration from least to most restrictive. This may be especially useful and attractive to vendors for archived data for which the commercial value drops significantly after a short period of time. EUMETSAT has adopted a similar approach.

**Figure 2: NOAA Data Sharing Licensing Options**



	<b>Option 1</b>	Unlimited distribution rights.	
	<b>Option 2</b>	Distribution to U.S. Government agencies, National Meteorological Centers (NMC), WMO Met Centers, CGMS members, non-profits, academic entities for non-commercial use, with no further distribution	<b>Option 2a</b> Adds unlimited distribution after 24 hours
	<b>Option 3</b>	Distribution to U.S. Government agencies, National Meteorological Centers (NMC), WMO Met Centers, and CGMS members for non-commercial use with no further distribution	<b>Option 3a</b> Adds unlimited distribution after 24 hours
	<b>Option 4</b>	Distribution to U.S. Government agencies for non-commercial use and no further distribution (except to contractors for use on agency behalf)	<b>Option 4a</b> Adds unlimited distribution after 24 hours
	<b>Option 5</b>	No distribution outside NOAA (except for contractors and grantees for use on NOAA’s behalf)	<b>Option 5a</b> Adds unlimited distribution after 24 hours

Source: NOAA Commercial Data Program

## 5. BEST PRACTICES FOR CONSIDERATION

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The following are recommended best practices (BP) for Members to consider when making commercial data purchases, each of which is in use by at least one of the agencies.

**Best Practice BP.01 Ensure that international data policies are upheld, especially pertaining to the free and unrestricted sharing of government earth observations data.**

Consider the impact of acquiring commercial data or data products on international partners and other stakeholders and assess whether a proposed commercial solution directly affects a Member's ability to carry out international commitments.

**Best Practice BP.02: Include language to purchase unique data sets when purchasing commercial data.**

Recognizing the cost of more open data licenses may result in Members' reducing the quantity of data purchased; contracts should include a stipulation for vendors to provide unique data to the acquiring Member to avoid duplicative purchases and maximize the quantity and/or temporal and/or spatial resolution of the data collectively available to all Members. Global licensing enabling unrestricted exchange with international partners is preferred.

**Best Practice BP.03. Ensure service standards.**

Procuring data from commercial sources should not compromise the reliability and quality of services. The same criteria of validation, data integrity, quality and security should be applied to commercial data and data products as to those obtained by other means before entering into a binding agreement for the purchase and use of observations to support and the data quality of commercial mission products should be evaluated. *See Appendix C for additional details.*

**Best Practice BP.04 Facilitate interoperability between private and public sector data.**

While the agency purchasing the data should be responsible for ensuring that data are assimilated into operational models, the provider should prepare the data for seamless interfacing with existing agency capabilities for communication, computational power, assimilation and visualization of similar datasets. The vendor should provide the data in an agreed-upon common format with metadata and with spectral response functions where applicable.

**Best Practice BP.05: When procuring commercial data, consider using standard open data licenses to define any restrictions on use.**

When purchasing commercial data, Members should aim to apply one of the standard licenses below with free sharing open, unrestricted data, such data should aim to be licensed using one of the licenses below. Custom license agreements should not be used, and these standard licenses should not be modified or augmented with additional text.

**Figure 3: Recommended Standard Legal and Licensing Terms for Free and Unrestricted Data**

Legal/License Term	Description
CC0 1.0	Creative Commons Universal Public Domain Dedication
CC BY 4.0	Creative Commons Attribution 4.0 International

Source: GEO Data Licensing Guidance, 2023

**Best Practice BP.06 CGMS Members should communicate their commercial space policy to other CGMS Members.**

Consider coordination with international partners regarding relevant events and activities such as policy documents and the results of business data assessments.

**Best Practice BP.07 Ensure the best value when deciding whether to enter into a contract.**

Consider the value of public access and the additional costs of data sharing rights when comparing the cost to produce the data internally versus purchasing the data. The costs of long-term maintenance, access, and archival rights associated with commercial data should also be considered. Commercial data should have impact assessments run with Numerical Weather Prediction Centers that demonstrate an added value.

**Best Practice BP.08 Ensure a vibrant research enterprise.**

Consider sustained access by the research community (i.e. academic and not-for-profit institutions) to free, unrestricted, and timely data necessary for advancing environmental understanding and prediction.

## 6. LESSONS LEARNED

Here are some of the lessons learned reported from the agencies that have purchased commercial data:

- Government agencies can set out service requirements for fulfillment by commercial providers
- Commercial purchases can provide value for the cost
- Global licensing enabled exchange of data with international partners created synergies and benefits from U.S. commercially procured data
- Communication between government agencies using similar types of data avoids duplicative data
- Competition in Europe is currently limited so contracts are placed for a short period of time with the possibility to test new market opportunities on a regular basis
- EUMETSAT plans to develop a limited permanent budget line to procure commercial data; discussions are ongoing with Member States regarding this.

Rapidly evolving public-private partnerships call for increased communication among CGMS Members and Observers in these matters. CGMS efforts could be coordinated with other institutions seeking to

keep pace with these issues with aims similar to those of the CGMS Futures Project. The Committee on Earth Observation Satellites continues to conduct a number of New Space initiatives, and the WMO has invited key partners and stakeholders across the weather enterprise to establish and engage in an Open Consultative Platform. As we move forward, we seek to increase engagement with the private sector through multi-sector engagements like these to help foster innovation and to address our common challenges.

APPENDIX A: Glossary

APPENDIX B: Documentation list

APPENDIX C: Recommended criteria for assessing

APPENDIX D: CGMS survey results on commercial data purchases

## APPENDIX A: GLOSSARY

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**Commercial Environmental Data:** remote sensing imagery, Earth observations, and other types of environmental data that are produced wholly by commercial enterprises through the designing, building, owning, and/or operating their own observing sensor or platform and associated data analytical systems. These data can be provided by domestic and international entities.

**Conditions on use:** in the context of the Unified Data Policy, conditions on use may be applied to recommended data; such conditions may be applied using licenses. Note that attribution is not considered a condition on data use and is strongly encouraged in all cases.

**Data license:** the specific contractual terms that prescribe the procuring agency's rights to use and, if applicable, disseminate the data to third parties. It further addresses the treatment of value-added and derived products and, if applicable, the rights of third parties to use the provider's data and any value-added and derived products.

**Derived data:** any data that is generated one-to one as traced in the satellite information

**Downstream data:** any data other than the derived data and licensee derived data that is generated and that is sufficiently different that it cannot be reconstructed from such derived data. It includes but is not limited to data generated by aggregation or statistical computations, weather prediction model outputs, and geophysical products that may be generated by the licensee.

**Earth Observations:** measurements of the physical, chemical, geological, and biological characteristics of Earth that are obtained from space-based, aircraft-borne, ship-borne, ocean, or land-based sensors. It includes in-situ measurements as well as surveys and reference systems, such as the Global Positioning System.

**End User License Agreement (EULA):** an agreement between the licensor of a licensed product and the licensee. EULAs detail the conditions for the licensee's use of the licensed material, such as distribution and third-party use rights.

**Free and unrestricted:** Free and unrestricted means available for use, re-use and sharing without charge and with no conditions on use.

**Without charge:** Without charge, in the context of the Unified Data Policy, means at no more than the cost of reproduction and delivery, without charge for the data and products themselves.

**Licensee:** the user accessing the data consistent with the permissions specified by the data owner.

**Value-Added Product:** work created when data are modified—through technical manipulation, addition of data, or both—where the principal features and characteristics of the source data are retained in the work and are extractable through technical means.

## APPENDIX B: DOCUMENTATION LIST

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Centre for Spatial Law and Policy. Big Data Use in Wildfire Management: How Not to Get Burned by the Legal Challenges of Data Sharing. December 2021.

Committee on Earth Observation Satellites CEOS New Space Task Team: New Space White Paper. November 2023.

International Bank for Reconstruction and Development. Charting a Course for Sustainable Hydrological and Meteorological Observation Networks in Developing Countries. 2022.

Group on Earth Observations Programme Board Meeting, Law and Policy Subgroup Leaders (PB-25.07). Data Licensing Guidance. February 2023.

United States National Science and Technology Council Subcommittee on U.S. Group on Earth Observations Committee on the Environment: United States Government Commercial Earth Observations Data Purchases. July 2022

U.S. Department of Commerce National Oceanic and Atmospheric Administration. NOAA Commercial Space Policy. January 2016.

U.S. Department of Commerce (DOC) National Oceanic and Atmospheric Administration (NOAA) National Environmental Satellite, Data, and Information Service (NESDIS). Commercial Space Activities Assessment Process. January 2017.

World Meteorological Organization: Guidelines on Emerging Data Issues. 2019.

World Meteorological Organization: WMO Unified Data Policy. April 2022.

Yonekura, Emmi, Brian Dolan et al. for Rand Commercial Space Capabilities and Market Overview. 2022

## APPENDIX C: RECOMMENDED CRITERIA FOR ASSESSING<sup>6</sup>

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### Category I: Value

- a. Concept Legitimacy. The concept for the application of the data type to the observing system requirement will be supportable through documented peer review in the scientific and/or engineering community, including solutions exploiting innovative concepts not previously used.
- b. Accuracy. The data will have errors and statistical biases comparable to or better than similar data the Agency uses operationally, and the vendor will inform the Agency of these error characteristics.
- c. Quality. Data will comply with specified characteristics for coverage, resolution, location, temporal refresh, and signal-to-noise ratio.
- d. Timeliness. The data will be available within operational latency requirements.
- e. Reliability. The data will be made available within specified limits of regularity, and within enumerated tolerance levels for gaps and outages.
- f. Validity. The data will be tested, calibrated, verified, and validated to standards identified by the Agency.

### Category II: Cost Effectiveness

- a. Cost/Value Balance. The method for acquisition, ingest, processing, delivery mode (e.g., ground antenna, secure data transfer, etc.), and exploitation of the data will achieve a competitive cost to the Agency relative to the value of the data, compared to similar government owned and international partner datasets over a comparable period of time. This includes the impacts of necessary modifications to the Agency's systems to ingest, conduct additional processing as needed to meet the Agency's use requirements, and merge the new data set with other Agency operational data sets and products.
- b. Availability. The vendor will make the data available for testing in order to determine the likely cost/value balance and to facilitate making the greatest total return on its investment.
- c. Sustainability. The vendor will provide the data over a sustained lifecycle of testing and operations, which assumes the viability of the provider's long-term business plan.

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<sup>6</sup> Adapted from the National Oceanic and Atmospheric Administration (NOAA) National Environmental Satellite, Data, and Information Service (NESDIS). [Commercial Space Activities Assessment Process](#). January 2017.

- d. Support. The vendor will be available for predetermined levels of support through the lifecycle of testing, integration and operations, commensurate with a high reliability operational capability.

**Category III: Exploitability**

- a. Comprehensiveness. The vendor will provide the data in an agreed-upon common format, complete with metadata, and with spectral response functions where applicable. The vendor will prepare the data for seamless interfacing with existing Agency capabilities for communication, computational power, assimilation and visualization of similar datasets.
- b. Security. The data will only be considered testable or usable when all applicable Agency IT security requirements are met, as appropriate to the data type and delivery specifications, and the data comply with all Agency information management policies.
- c. Downstream Use. Data rights will be consistent with the Agency's intended use and relevant domestic policies and international obligations.



## APPENDIX D: CGMS SURVEY RESULTS ON COMMERCIAL DATA PURCHASES

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The survey was distributed to all CGMS Members and Observers.

Six responses were received from the following agencies:

1. EUMETSAT
2. ESA
3. JAXA
4. JMA
5. KMA
6. NOAA

Three agencies responded that they are not purchasing commercial data:

- ESA
- JAXA
- JMA

*Note:* JMA additionally responded that their agency position is that satellite data, including commercial satellite data, needed for core meteorological services, such as warnings to protect life and property should be exchanged on a free and unrestricted basis. However, the possibility of purchasing commercial satellite data in the future would depend on various factors such as technical, financial and political variables. At this point, no discussion or study on the purchase of commercial satellite data by the government has been done yet.

Agencies not purchasing commercial data provided the following reasons:

- Two responses: We do not have a need for commercial data
- One response: We are investigating the possibility of its application including its cost effectiveness

Three agencies responded that they are purchasing data:

- EUMETSAT
- KMA
- NOAA

*Note:* KMA purchases ALOS-2/PALSR-2 to study the surface displacement estimation of volcanoes; the license it uses limits distribution to purchaser use only. These data are not within the scope of CGMS, though they might be relevant as a practice of a CGMS member for non-meteorological commercial satellite data.

Three agencies indicated they have a process that ensures commercial data is of sufficient quality for operational use:

- EUMETSAT
- JMA
- NOAA