

Conclusions and actions as a result of CM-16

Presented to CGMS-54 Plenary, agenda item 2

Coordination Group for Meteorological Satellites - CGMS



Strong participation:

- 57 participants (in-person + remote)
- High-level space agencies: CMA, ESA, EUMETSAT, JAXA, JMA, KMA, NASA, NOAA, IMD...
- WMO leadership (Secretary-General, Deputy Secretary-General, Presidents of INFCOM & SERCOM, etc.)

Formal platform for dialogue between **space agency leadership** and **WMO high-level representatives**

Established by WMO [Resolution 6 \(Cg-XIV\)](#)

CM sessions are typically convened biennially; 16th session held 3 - 4 March 2026 at WMO Headquarters, Geneva (hybrid)

Focus: Strategic coordination of satellite observations to support global weather, climate, hydrology, and EW4All

Coordination Group for Meteorological Satellites



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CM-16: Key Topics & Relevance to ET-SSU

Role of WMO to Space Agencies

Coordinating space-based observations for the benefit of users

Use of AI/ML Technologies

Need for early guidance on future AI-driven user requirements

Regional Activities in Support of the EW4All Initiative

Highlights infrastructure & training gaps

Implementation of the Space-Based Observing Component of WIGOS

Prepares us for the integrated future observing system in 2050

Satellite Data Sharing

Practical solutions for data access challenges in developing countries

Dialogue with Private Sector

Emerging opportunities for new tools, partnerships, and resources

Meeting outcomes and presentations available here: [LINK](#)

CM-16 Key messages

1. Ensure strong technical expertise and adequate resources to support the WMO Space Programme and address emerging challenges, including rapid AI/ML developments.
2. Highlight WMO's unique convening role in identifying global requirements, promoting the value of satellite observations, and facilitating dialogue between Members, space agencies, and broader stakeholders.
3. Strong support for the WIGOS Vision 2050 as the strategic framework guiding long-term planning and evolution of the global observing systems.
4. Modernize and improve the process for defining and communicating Earth observation requirements, ensuring greater agility and responsiveness in the context of AI-driven developments.
5. Advance "WMO Commons" initiative with industry and end users to enhance global collaboration and operationalization.

AI/ML Technologies: Readiness of Space Agencies and User Communities

CM-16 highlighted the rapid growth of AI in meteorology and the need for early guidance on future AI-driven user requirements.

Key Highlights from CM-16

- Outcomes from the WMO AI Conference (Abu Dhabi, September 2025) and the Joint Advisory Group on AI (JAG-AI) stressed governance, verification, workforce development, and international collaboration.
- Space agencies emphasized that satellite missions have long development cycles (30–40 years) and need early guidance on future AI-driven user requirements.
- Focus on making satellite data “AI-ready”:
 - Standardized, well-tagged, and annotated datasets
 - Common best practices for AI training datasets (CGMS initiative)
 - Valuable data from science missions (e.g., Aeolus, EarthCARE)
- Notable examples: ECMWF AI weather prediction, CMA AI Nowcasting Pilot Project, NASA GeoAI and foundation models

Action for WMO:

WMO is requested to facilitate the development of recommendations to space agencies regarding emerging needs and requirements arising from the introduction of AI/ML. Based on AI/ML and other new technologies, further actions should be taken to enhance satellite data utilization capacities and maximize socio-economic benefits.

Regional gap analyses revealed that satellite data alone is not enough

(the real bottlenecks are on the user side)

Key Findings from CM-16

- Space agencies described the regional gap analyses as highly valuable for aligning their services with real operational needs.
- Major challenges identified:
 - Limited internet bandwidth for high-frequency imagery
 - Insufficient computing power and storage for processing large datasets
 - Lack of awareness of available satellite products
 - Insufficient training on integration into forecasting and early warning systems
- Infrastructure and technical capacity gaps are often more critical than the availability of satellite data itself
- Strong interest in cloud-based data access and processing to reduce local hardware needs
- Need for better user-provider dialogue so agencies can tailor services to real operational needs

Action for space agencies:

Space agencies are strongly encouraged to continue to support multi-hazard early warning systems, including across the four pillars and to work with WMO Regional Satellite Data Requirements Groups to address specifically identified gaps through the EW4All gap analysis.

Space-Based Observing Component of WIGOS

Prepare us for the integrated future observing system in 2050

Key Highlights from CM-16

- Strong support for WIGOS Vision 2050 as the framework for future observing systems and the need for a clear implementation strategy.
- Need for stronger integration of space-based, Earth-based, and emerging observing systems.
- AI expected to significantly impact observing system design, operations, and observational requirements.
- Growing importance of transparency, traceability, and trust in AI-enabled data products.
- Greater use of OSSEs, impact studies, and modelling to guide future investments.
- Need for more agile and adaptive governance and review processes for observational requirements.
- Importance of capacity development and equitable access to observations and data.

Action for WMO:

WMO/INFCOM is requested to consider the strategies for the implementation of the WIGOS Vision 2050.

Satellite Data Sharing: Practical Solutions for Access Challenges

CM-16 addressed the growing challenge of massive satellite data volumes and how to make data truly usable in developing countries.

Key Highlights from CM-16

- Data volumes are exploding (e.g., NASA adds ~200 TB/day); traditional download methods are no longer sufficient.
- WIS 2.0 focuses on discovery and notification, not bulk distribution of large datasets.
- Strong push toward cloud-based access and processing to reduce local bandwidth, storage, and computing needs.
- Emerging solutions:
 - Selective data access via APIs (e.g., JAXA prototypes for data subsets)
 - Standardized APIs and “slicing” of datasets
 - Option to bypass global cache for very large files
- Agencies and WMO stressed training users to request only the data they actually need

Action for space agencies:

Space agencies are requested to work with WMO on the evolution of WIS 2.0 in light of the increase of data volumes.

Dialogue with Private Sector

Emerging opportunities for new tools, partnerships, and resources

Key Highlights from CM-16

- Strong push to expand engagement with private sector and commercial space actors.
- Strong support for using WMO's convening power to connect governments, NMHSs, academia, and private sector.
 - Broader engagement envisioned beyond traditional meteorological community (insurance, telecom, finance, etc).
- "WMO Commons" highlighted as a new mechanism for partnerships, resource mobilization, and collaboration.
 - Recognition that many industries already depend heavily on WMO-coordinated infrastructure and data.
- Interest in leveraging commercial platforms for hosting scientific payloads and Earth observations.
- Emphasis that private-sector collaboration should remain aligned with WMO mandate and public-good objectives.

Action for WMO:

WMO is requested to consider using its convening power with the private sector to explore opportunities to enhance the capabilities of the space-based Earth-observing system by leveraging partnership opportunities with key industry users.

CM-16 Actions

1. WMO is requested to facilitate the development of recommendations to space agencies regarding emerging needs and requirements arising from the introduction of AI/ML. Based on AI/ML and other new technologies, further actions should be taken to enhance satellite data utilization capacities and maximize socio-economic benefits.
2. Space agencies are requested to work with WMO on the evolution of WIS 2.0 in light of the increase of data volumes.
3. Space agencies are strongly encouraged to continue to support multi-hazard early warning systems, including across the four pillars (disaster risk knowledge; detection, observations, monitoring, and forecasting; warning dissemination and communication; preparedness to respond) and to work with WMO Regional Satellite Data Requirements Groups to address specifically identified gaps through the EW4All gap analysis.
4. WMO/INFCOM is requested to consider the strategies for the implementation of the WIGOS Vision 2050.
5. WMO is requested to consider using its convening power with the private sector to explore opportunities to enhance the capabilities of the space-based Earth-observing system by leveraging partnership opportunities with key industry users.
6. Space agencies are encouraged to provide input to the work of the G3W groups to help assess its status and develop plans for the implementation of the operational integrated observing system.

Strategic Directions Emerging from CM-16 Discussions

1. Establish more concrete mechanisms to maximize the application of space-based observations across all WMO activities.
2. Strengthen WMO's role as a trusted convenor beyond the traditional meteorological community.
3. Develop more agile processes for identifying and consolidating evolving Earth observation requirements, particularly in the context of AI developments.
4. Assess the implications of changing user requirements and AI-driven needs on future observing systems.
5. Continue evaluating emerging application areas and user communities and engage satellite agencies accordingly.
6. Reinforce WMO's unique role in identifying global requirements, communicating the value of satellite observations, and facilitating dialogue between Members, user communities, and space agencies.