

# Report on the outcome of WGIV activities since last plenary

Presented to CGMS-52 Plenary

## Executive summary of the WP

CGMS-52 WGIV meeting took place on 23 and 25 April 2024.

### Highlights:

- WMO' WIS 2.0 is midway through its pre-operational phase. Some members have begun to share data via WIS 2.0, and others have plans in place to do that. Metadata definitions have been coordinated through WGIV and are undergoing formal approval. Data providers need to continue to prepare and adapt, and consumers need to be on-boarded
- The CGMS Cloud Services Expert Group has compiled a set of Best Practices. These have been reviewed by WGIV and subsequently fully endorsed
- WGIV recalled its commitment to review CGMS members' adherence levels to the CEOS Data Preservation Guidelines, and will follow up on this at its forthcoming meetings

## Introduction

### Working Group IV – DATA ACCESS & END USER SUPPORT

- Co-chair: Kotaro Bessho (JMA), Prof. Asmus (Roshydromet)
- Rapporteurs: Simon Elliott (EUMETSAT) and Natalia Donoho (WMO)

### Objectives of WGIV

- To support the user-provider dialogue on regional/global scales;
- To support the implementation and evolution of sustained and coordinated communication satellite broadcast systems (e.g. GEONETCAST related);
- To address global or inter-regional data circulation and access (e.g. WIS/GTS/RMDCN, academic networks, other terrestrial networks, etc.) in coordination with WMO dedicated expert teams;
- To promote the widening of data access, to new missions/providers as well as for other user communities;
- To promote data formats and standards, including the use of open standards (currently handled by the CGMS Task Teams on data formats);
- To support the coordination of metadata for satellites and instruments (currently handled by the CGMS Task Force on meta data);
- To address the user readiness for new satellite systems, with support from SATURN point of contacts;
- To address the notification of changes (and alerts) in satellite data and/or products impacting users, with the aim of defining best practices;
- To address topics related to cybersecurity towards end users;
- To address long term data preservation;
- To discuss relevant aspects on the implementation of the global contingency plan (as proposed by WGIII) from Plenary; and
- To address topics from the CGMS High Level Priority Plan within the scope of WG IV.

### WGIV Task Groups:

- Expert Group on Cloud Services
- Task Group on Cyber Security – in abeyance
- Task Group on Data Access/Exchange
- Task Group on Metadata
- Task Group on User Readiness

## WGIV main outcomes and future work (1)

### User-provider dialogue on regional/global scales

KMA presented the RA II and RA V Progress Report on the RA II WIGOS Project to Develop Support for NMHSs in Satellite Data, Products, and Training in 2023 and the 5th Joint Meeting of RA II WIGOS Project and RA V TT-SU for RA II and RA V NMHSs.

KMA, JMA, CMA, and BoM have strengthened cooperation in 2023 to develop support for meteorological satellite users in RA II and RA V. In 2023, AOMSUC-13 was held in South Korea hosted by KMA, and cooperation activities were carried out through a Training Event and a Joint RA II and RA V Coordination Meeting held in conjunction with conference.

Further joint activities are taking place in the region, including planning for WMO Early Warning for All (EW4ALL).

Recommendation: Other regional associations (ie. Other than RA II and RA V) and organizations with an area of responsibility are recommended to provide corresponding inputs in the future

## WGIV main outcomes and future work (2)

### Coordinated communication satellite broadcast systems

CMA provided an update of the FENGYUN satellite data and application services. In addition to discussing data access via CMACast, the GTS, and WIS 2.0, non-real-time access from the FENGYUN satellite data center website, downloading toolkits and offline data services were presented

EUMETSAT described the status and future plans of its EUMETCast system, including recent updates in the uplink service forming part of EUMETCast Satellite and the integration of Automatic Multicast Tunnelling (AMT) and software-based authentication into EUMETCast Terrestrial.

JMA provided an update and plans on usage of cloud services, data dissemination and distribution of Himawari-8/9, including HimawariCloud and HimawariCast. They also talked about JMA Data Dissemination System (JDDS) and variety of meteorological data (e.g. satellite imagery and High-resolution Cloud Analysis Information) to NMHSs.

## WGIV main outcomes and future work (3)

### Global or inter-regional data circulation and access, including WIS 2.0

ISRO share updates on their web portal to support ocean and meteorological user community. This is provided by their Meteorological and Oceanographic Satellite Data Archival Centre (MOSDAC)

NOAA provided update and plans on GEONETCast Americas (GNC-A). They also provided an introduction to and status report on GNC-Americas, recent and future efforts to upgrade system capabilities, and contribution and application for regional early warning initiatives

WMO, EUMETSAT and JMA discussed WMO's WIS 2.0 and the huge impact this will have on global satellite data exchange. WMO gave a focused overview of WIS 2.0 and EUMETSAT and JMA described the steps they are taking to capitalize on this. CMA is also providing satellite data via WIS 2.0

WGIV noted the opportunity to join the WMO INFCOM Study Group on Future Data Infrastructure (SG-FIT)

## WGIV main outcomes and future work (4)

### **Disaster support**

JMA provided an update on JMA Himawari Request service. JMA launched a new international service “HimawariRequest” in 2018, allowing users to request Target Area observations covering a 1000 km x 1000 km area every 2.5 minutes. They provided current status and consideration of processing methods, continuous coordination with CMA and KMA, and the improvement of the portal page.

### **Support to the Ocean user community**

IMD gave an overview of the utilization of Oceansat-3 scatterometer wind vector products in operational real time monitoring of extreme weather events. Wind vector data from scatterometers have been assimilated in NWP models by various national and international agencies.

KMA has been operating Marine Weather Broadcast Service (MWBS) by GK2A since 2020 to provide high-quality digital marine weather information to vessels. GK2A MWBS uses the Low Rate Information Transmission (LRIT) to provide marine weather information such as sea surface analysis, weather charts, marine forecast, and satellite images observed by GK2A. It is available for vessels in the ocean and in Asia-Pacific islands

## WGIV main outcomes and future work (5)

### Support for Arctic observations

ROSHYDROMET provided updates and plans on the Arktika-M programme. Since CGMS-51 the highly elliptical satellite constellation has been increased by Arctica-M N2 satellite and now consists of 2 satellites providing 24-hours coverage of the Arctic region

WMO provided updates on cryosphere and polar activities. WMO is planning a workshop in 2025: “space-based cryosphere and polar observation”

Recommendation: Agencies to consider participation in the review of gap analyses and the drafting of a roadmap for core cryosphere data, endorsement of the proposed approach to the planned workshop, and potential engagements



## WGIV main outcomes and future work (6)

### Support for Hyperspectral infrared instruments

EUMETSAT described the availability of MTG IRS products via EUMETSAT data access services. The MTG mission will include both an imaging and a sounding satellite. MTG-S, the sounder satellite, will fly with the InfraRed Sounder (IRS) on board. EUMETSAT operates a portfolio of data access services that will provide users with MTG-S IRS data products

JMA provided an update on JMA's hyperspectral infrared sounding mission. JMA started manufacturing the follow-on satellite “Himawari-10” in JFY 2022. Himawari-10 is scheduled to be launched in JFY 2028 and begin operating in JFY 2029. As part of its payload Himawari-10 will carry the Sounder (GHMS). JMA is currently creating simulated observation data of GHMS to support early application, product development and user readiness for the IR sounder.

### Coordination of Metadata

WMO provided report on the status and plans of the Task Group on Metadata. The Group led discussions of a new approach on metadata in the context of WMO WIS 2.0. The draft list of instruments and satellites prepared by the group is in the process of formal adoption

## WGIV main outcomes and future work (7)

### User readiness for new satellite systems

WMO presented the status of implementation of the agreed best practices on user readiness. The “CGMS/WMO Best Practices for Achieving User Readiness for New Meteorological Systems” were endorsed by CGMS-51 plenary and approved at the third session of the WMO Infrastructure Commission (INFCOM-3) in April 2024. The Best Practices provide a typical breakdown of user readiness activities and a timeline of deliverables from satellite operators to support user readiness.

VLab Co-Chair presented updates and plans on the VLab. The VLMG continued to coordinate efforts through quarterly online meetings. The Eleventh meeting of the VLMG was in January 2024, in Muscat, Oman. DGMET will host the meeting at the VLab Oman Centre of Excellence. The VLMG thanks NOAA/NWS, EUMETSAT, and KMA for their annual Trust Fund contributions

Action: CGMS members are to review and sustain support to their own Satellite Programs that offer International Training

## WGIV main outcomes and future work (8)

### Cloud Services interoperability

The Chair of the CGMS WGIV Cloud Service Expert Group shared the Group's status and plans. The Group was established in July 2020 across all CGMS members under WGIV. Over the past year, the Expert Group held the 2023 annual Cloud workshop, completed development of a Cloud Best Practices document, currently in works for CGMS publication, and collaborated with the Committee of Earth Observing Satellites (CEOS). Discussion focused on Background & Deliverables, 2023 Accomplishments, including 2023 Cloud Workshop, CGMS Cloud Best Practices Document, Coordination with CEOS and next steps (CGMS Cloud Champion and 2025 Cloud Workshop).

The Chair also recalled the CGMS cloud expert best practices. These had already been subject to review by WGIV and were fully endorsed at the meeting

Recommendation: WGIV Cloud Expert to extend activities to all CGMS entities, broadening the use and value of the associated Best Practices Document and Workshop

## WGIV main outcomes and future work (9)

### Long term data preservation

At the CGMS-47 plenary, CGMS agreed to the recommendation of WG-IV to adopt the “CEOS EO Data Preservation guidelines”. WGIV noted that CGMS has not yet conducted the associated review, and agreed that it should be considered in the scope of forthcoming intersessional meetings. It was agreed that the following points would be addressed:

- CEOS WGISS Data Stewardship Interest Group updated the guidelines document in 2023. The new guidelines need to be addressed
- WMO ET-SSU has also discussed data stewardship and pointed to the need to ensure regular reprocessing of satellite data. Their considerations also need to be considered.

Action: At its forthcoming intersessional meetings, WGIV to consider the requirement for long-term data preservation and scientific stewardship raised by ET-SSU and consider how the WG can support this

## WGIV main outcomes and future work (10)

### Report on CGMS future direction 2022+ project

CMA presented a proposal for a survey to establish how CGMS Members could provide support to developing countries. WGIV would be able to help develop this concept through its intersessional meetings, noting the need to ensure no overlap with the work of WGII

The report on Hybrid Space Observation Architectures was summarised for WGIV. WGIV endorsed the concept of capturing the process used for this analysis and re-applying this process for specific cases identified by WGIII's Gap Analyses

The report on Relationship with the Private Sector was summarised for WGIV, together with the Best Practices for Commercial Data Buys. WGIV endorsed the proposed Best Practices for commercial data buys

Recommendation: WGIV recommends to plenary that the process used for this analysis of Hybrid Space Observation Architectures is captured and subsequently re-applied for specific cases identified by WGIII's Gap Analyses

## Items for Plenary

- The HLPP was updated following review of WGIV related matter. The revised HLPP will be presented to plenary for endorsement.
- CGMS agencies to consider nominating additional members for the Task Group on Data Access/Exchange. This key Group will have within its scope the global data exchange mechanisms used to ensure availability of key satellite data.
- A dedicated group has been meeting on a semi-formal basis to work on recipes for RGB images. This group is to some extent, part of the activities of WMO's ET-SSU. WGIV noted that there may be some overlap with the work of its Task Group on User Readiness. WGIV suggested the RGB group to prepare a report for WGIV in the future under a new agenda item 3.9
- WGIV confirmed the continued availability of Kotaro Bessho (JMA) and as Co-Chair, and Simon Elliott (EUMETSAT) and Natalia Donoho (WMO) as WGIV Rapporteurs. WGIV Co-Chair Prof. Asmus (ROSHYDROMET) is retired but remains active. He will not be able to participate in the activities of the WG as required. *WGIV needs a replacement co-chair, with nominations ideally in place in time for CGMS 52 Plenary.*

## Key issues endorsed by WGIV:

- CGMS WGIV endorsed participation in the review of gap analyses and the drafting of a roadmap for core cryosphere data, the proposed approach to the planned workshop, and potential engagements
- Cloud Best Practices have been subject to review by WGIV and were fully endorsed at the working group
- WGIV endorsed the concept of capturing the process used for this analysis and re-applying this process for specific cases identified by WGIII's Gap Analyses
- WGIV endorsed Best Practices for Commercial Data Buys

## To be considered by CGMS:

- CGMS is invited to note the outcome of WGIV activities since last plenary
- Actions raised by WGIV:
  - CGMS to note the opportunity to join the WMO INFCOM Study Group on Future Data Infrastructure (SG-FIT)
  - Members to review and sustain support to their own Satellite Programs that offer International Training
  - At its forthcoming intersessional meetings, WGIV to consider the requirement for long-term data preservation and scientific stewardship raised by ET-SSU and consider how the WG can support this
  - WGIV to decide how the activities of the inform RGB recipe group can be properly reflected in the work of WGIV