


WGI

Satellite Systems and Operations

Presented to CGMS-46 Plenary agenda item E

Topics covered by WG-I during CGMS-46 (23 Working Papers)

I/2	Review of actions and Recommendations from previous meetings	✓
I/3	Frequency management matters (including topics related to Space Weather)	✓
I/4	Meteorological Satellites Space to Ground Interface (Direct Readout) and LHRIT Global Spec. Global Specs (CCSDS based) and Best Practices for DR processing	✓
I/5	Data Collection Systems	✓
I/6	System Technical aspects including: Use of space weather data for operations, Space debris and collision avoidance, Implementation of WGI aspects of the CGMS contingency plan	✓
I/7	HLPP and Inter-Sessional meetings towards CGMS-47	✓ 

Primary Thematic Areas

- **Frequency** use and protection (including space weather). SFCG delegated
- **Meteorological Satellites Space to Ground Interface** (Direct Readout) and LHRIT Global Spec. Global Specs (CCSDS based) and Best Practices for DR processing
- **DCS**. Subset of WG-I via Inter-sessional (key designated from NOAA, EUM and JMA as minimum)
- Use of **Space weather** data (e.g. Space weather related anomaly reporting) for satellite operations. First within the WG and through Inter-sessional meetings with additional experts to develop the topic in the WG
- **Space debris** monitoring and collision avoidance. Coordination with IADC
- **System technical aspects**
 - sharing/rationalisation of orbits and operational aspects on the implementation of contingency plans
 - Handling of future large data volumes and associated data circulation. First within the WG and through Intersessional meetings with additional experts to develop the topic in the WG
 - Relevant aspects on the implementation of the global contingency plan from Plenary (as proposed by WGIII)

Frequency management matters (incl. space weather matters)

Outcome of SFCG-37 (6 – 13 September 2017, Montreal):

- Space agency reports on national/regional regulatory changes/issue;
- Space weather observations using radio frequencies (in preparation for a WRC-23 agenda item);
- WRC-19 issues of prime concern to CGMS;
- Compatibility of passive sensors in the 23.4-26 GHz band and IMT-2020 (5G) in the 24.25-27.5 GHz and higher band;
- Optimisation of the use of the band 2200-2290 MHz.

SFCG will take place from 21 – 30 August.

Frequency management matters (incl. space weather matters)

WMO Steering Group on Radio Frequency Coordination updated the preliminary position paper on the Agenda of the World Radio Communications Conference 2019 (WRC-19)

Action on CGMS agencies to provide comments/inputs to the next meeting of ITU-R Working Party 7C (19—25 September 2018), on the Preliminary draft new Report ITU-R RS.[SPACE_WEATHER_SENSORS] (Technical and operational characteristics of RF-based space weather sensors) on missing information on space weather instruments/ applications

The date for a joint webex for this action during SFCG potentially in the period 22-24 August

Meteorological satellites Space to Ground Interface (Direct Readout) and LHRIT Global Spec. Global Specs (CCSDS based) and Best Practices for DR processing

The role of CGMS agency best practices in support to local and regional processing of LEO direct broadcast data:

- Expresses the commitments taken by the CGMS agencies operating DB satellites with respect to the coordination and support provided to the Direct Broadcast user community
- The coordination and support is required by the user community to successfully establish and operate optimized DB reception and processing systems compatible with the different DB satellites
- CGMS agencies operating DB satellites need to guide the user community towards the new capabilities of future satellites and the next generation of DB reception systems
- By adopting the Best Practices, CGMS Agencies are also increasing users' access to data, improving timeliness of satellite data in environmental models and reducing demands on alternative data distribution systems

Meteorological satellites Space to Ground Interface (Direct Readout) and LHRIT Global Spec. Global Specs (CCSDS based) and Best Practices for DR processing

- Update of CGMS agency best practices in support to local and regional processing of LEO direct broadcast data
- Status of implementation of CGMS best practices in support to local and regional processing of LEO direct broadcast data presented by **NOAA, EUMETSAT and CMA**

Meteorological satellites Space to Ground Interface (Direct Readout) and LHRIT Global Spec. Global Specs (CCSDS based) and Best Practices for DR processing

The use of netCDF standards and conventions for data formatting

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- Since CGMS-45 there have been three Working Group I inter-sessional meetings on the topic of data formats and formatting standards. The primary outcome of these meeting was a comparison of the use of the CF Conventions in netCDF products across agencies and the identification of use patterns which fall outside the scope of the CF Conventions.
- WGI nominated EUMETSAT (Daniel Lee) to act as liaison between CGMS and the governing bodies of the CF Conventions in order to ensure that the evolution of this important standard reflects the community's requirements.

Data Collection Systems

- Proposal for a WGI sub-group on DCS activities agreed, using Intersessional meetings and existing face-to-face meetings, i.e. EUMETSAT DCS Workshop/Satcom Forum 2018 in October 2018. First meeting will cover:
 - CGMS agency best practices in support to DCP user data access
 - CGMS agency best practice in support to DCP TX certification process
 - Future DCS standard and system evolutions:
 - Progress report on the E-DCP (ref. ESA study)
 - NOAA Satellite DCS Use Concept Validation Project
 - GOES DCS Two-Way Prototype Development
- The Group would provide a consolidated DCS report to CGMS-47
- Status of Roshydromet, JMA and NOAA data collection systems presented including progress on the NOAA two-way DCP implementation
- SATCOM Forum 2018 preparations presented - action to create a CGMS DCS page on the CGMS Website with links to members DCS websites

Use of space weather data

Presentations given on the NOAA NCEI Evaluation of CGMS Anomaly Reports and also the CGMS Space Weather Anomaly Survey Results

Action on SWTT:

- Develop a presentation/paper for the next CGMS on use case/s from analyses and any recommendations to operators arising

System technical aspects

Space debris and collision avoidance. Coordination with the IADC

- **Action** to nominate a SWTT POC to IADC
- **Action** for Agencies to provide reports for CGMS-47 on CA processes and lessons learned in implementing CA processes

Implementation of WGI aspects of the global contingency plan (as proposed by WGIII)

- Nomination of WGI representative for WGIII contingency issues
- Handling of future large data volumes and associated data circulation – Action for Agencies to provide reports for CGMS 47 on the status of their systems already in place and those planned, along with their overall approach to dealing with the challenges associated with handling and circulating large data volumes

To be considered by CGMS:

- For endorsement:
 - EUMETSAT – Sean Burns as Rapporteur for WGI

