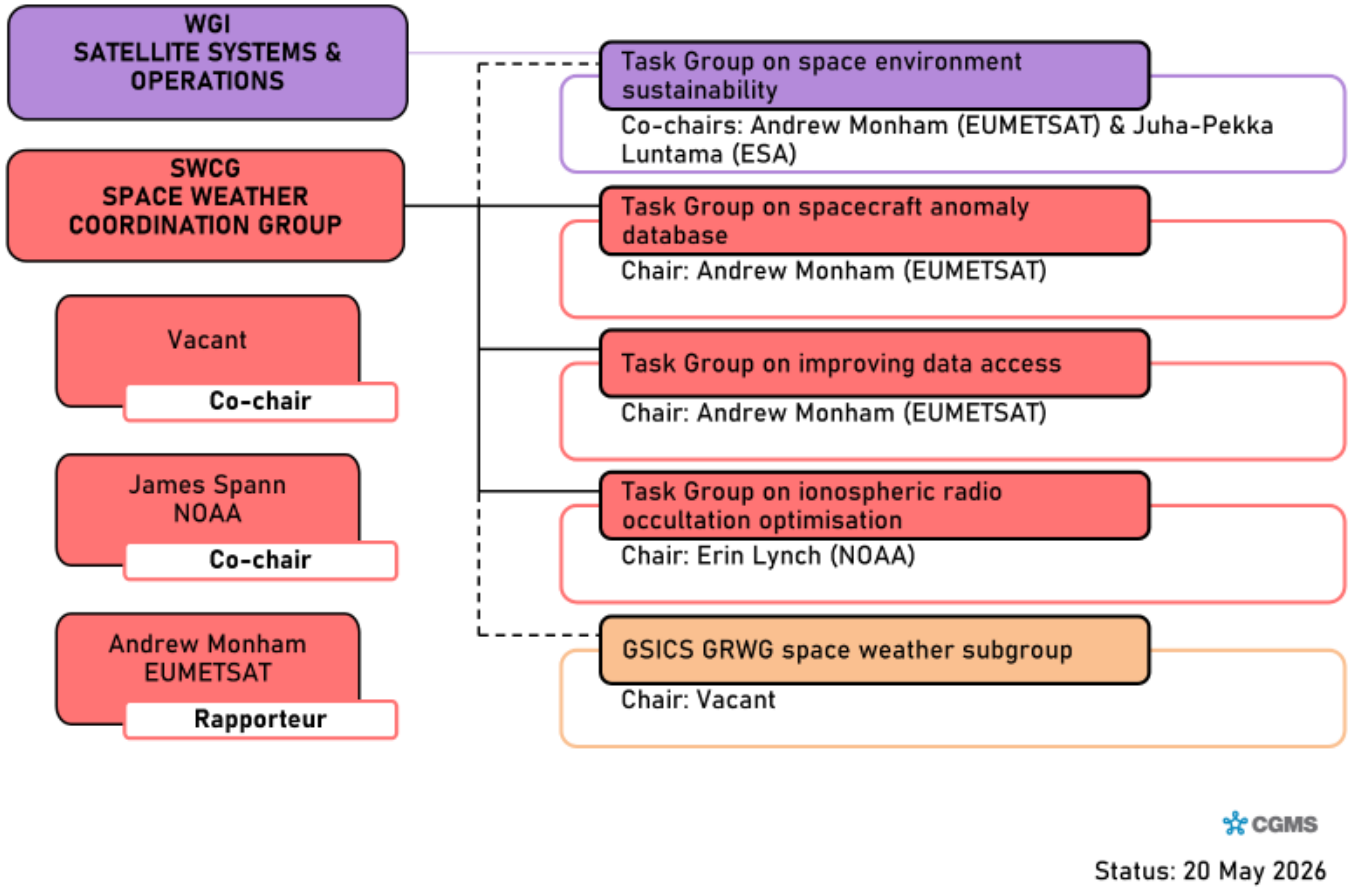
SWCG
Key Recommendations to CGMS Plenary

Coordination Group for Meteorological Satellites

CGMS

SWCG Organisational Updates



- **The *Terms of Reference* have been reviewed and updated as follows:**
  - No change to the high level objectives
  - Specifies representatives of SWCG in other CGMS Working Groups
  - Updates the interfaces with relevant external bodies

- Dr. Tsutomu Nagatsuma (NICT) has resigned all space weather roles after holding the Co-Chair position since 2017.
- **Dr. Zong Weigou (CMA) is recommended by SWCG to take over the co-chair role, and requests endorsement from CGMS Plenary**
- Co-rapporteur Jesse Andries (formerly WMO) also resigned his position. No replacement is currently sought
- **Nominations for the GSICS GRWG space weather subgroup are also invited following the resignation of Tsutomu Nagatsuma.**

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Main Outcomes and Future Work

CGMS Risk Assessment:

- Low risk of not meeting commitments with improvement in the risk posture for coronagraphy on the Sun-Earth line. Exceptions identified:
  - Risk of not having energetic particle sensors in the LEO afternoon orbit in the early 2030s.
  - Slight risk of gap in GEO magnetometers at 128°E in 2030.

CGMS Baseline Update:

- Separation of the Radio Occultation into neutral and ionosphere measurements specified.
- Specification of the quantitative thresholds for Electron and Proton energies included

Coordination with the WMO on Space Weather:

- Action raised to review terminology consistency for WIGOS Vision, OSCAR and CGMS baseline.
- Actions on improving latency information identified in OSCAR and the WMO Gap Analysis are progressing.
- A holistic view on meeting user needs using space and ground-based sensors is required.
  - Action raised to review OSCAR space-based gaps and identify which ones may be covered by ground-based sensors.

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Main Outcomes and Future Work

Coordination with the International Space Environment Service (ISES):

- On-going coordination with ISES in their objective to establish a Global Space Weather Warning System, linking ground networks and ensuring user needs met through combination of space and ground-based elements.
  - Several actions raised in ISES-CGMS Coordination Meeting at the US SWW on 30 April to provide user experience and needs on various types of space weather observations. Follow-up planned in Sept/Oct 2026.

Unique opportunity of a suite of L1 missions

- A total of six spacecraft (SOLAR-1, IMAP, Aditya-L1 and the legacy ACE, DSCOVR, and Wind missions) are in the same location of space and measuring the solar wind plasma, particle, and magnetic parameters simultaneously.
- Work has been performed on data comparisons and a plan established for creating datasets with common formats to ease data sharing.
- Extending the operational lives of legacy missions is also being considered.
- Workshops continue to maximise the advantage of this L1 constellation.

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Main Outcomes and Future Work

Data requirements for Aviation services

- SWCG analysed the needs identified by the ICAO space weather services as reported in CGMS-53
- Need for space-based radio burst measurements, rather than a ground-based solution was not understood
- ISES-CGMS coordination meeting on April 30 raised actions to investigate further.

GSICS activities in Space Weather

- Promoting activities aimed at the cross-calibration of space weather sensors
- Has focussed so far on high energy particle sensors
- Work Plan initiated, in particular a roadmap document is being developed to define the procedure for dataset cross-calibration.
- A meeting of the Panel on Radiation Belt Environment Modelling is scheduled to be held at COSPAR in August this year.

Review and updating of the High Level Priority Plan (HLPP)

- It was agreed that Section 6.1 is redundant to the revised Terms of Reference and can be removed from the HLPP.
- No further changes required.

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Main Outcomes and Future Work

Spacecraft Anomaly Database

- The compiled anomaly database since 2015 is available on the CGMS website on the **SWCG page**.
  - ESA, EUMETSAT and NOAA data was gratefully received covering up to at least end-2025.

- However, data input so far remains insufficient for intended use. Action raised:
  - CGMS Members operating satellites to suggest measures to enable satellite anomaly data supply

- EDAC (on-board software error correction events) supplied by EUMETSAT considered useful by NICT.

- Historical analysis of both anomalies and EDAC events is targeted: Action raised:
  - CGMS Members operating satellites to supply anomalies and EDAC events over defined time periods.

- CGMS anomalies and EDAC events ingested into the SPARK tool developed under NASA/NOAA study budget. Tool offers many powerful features for data analysis and data access security features. Actions raised:
  - Decide whether SPARK should become the baseline repository of CGMS anomalies, define access preferences (centralised vs federated)
  - CGMS Members to identify source of further SPARK funding.

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Main Outcomes and Future Work

Space weather data access

- The WMO Expert Team on Space Weather has determined that small space weather data sets can be transferred with very low latency on WIS2.0. Can work complementary to Agency operated data access mechanisms.
- Work on determining format and metadata standardisation for space weather continues. Convergence on a NetCDF format making use of HAPI (1 dimensional), SPASE (multi-dimensional) in discussion with ISES community.

Support to WGI Space Environment Sustainability – Space Weather aspects

- Coordination established into thermosphere sensing techniques and modelling which is a high priority in ensuring improved space traffic coordination and debris collision avoidance.

Space Weather AI Readiness

- Specific survey to be launched by SWCG in coordination with WGII:
  - Aim is to capture experience and issues of concern from SWx AI researchers from a global perspective
- Speakers will be selected for participation in the planned workshops to further discuss these issues.
- Report to be produced to identify status and issues to be addressed to ensure AI benefits in the SWx domain.

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Key recommendations to plenary

- Plenary invited to endorse Dr. ZONG Weiguo as co-chair of SWCG, following departure of Dr. Tsutomu Nagatsuma (NICT)

- Plenary requested to encourage each CGMS member operating satellites to suggest measures which would enable them to supply satellite anomaly data.

- Plenary is invited to take note of the:
  - Updated SWCG Terms of Reference
  - Proposed update to the HLPP
  - New definitions in the CGMS Baseline to be taken into account in the 2027 Risk Assessment Workshop
  - Efforts to establish coordination of thermospheric density modelling to improve space traffic coordination.
  - Planned survey, workshops and report on SWx AI readiness

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