United Nations Committee on the Peaceful Uses of Outer Space (COPUOS) – *Roadmap for Space Weather Services*





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Notable Events in COPUOS History

- 1957 International Geophysical Year
- 1968 United Nations Conference on the Exploration and Peaceful Uses of Outer Space (UNISPACE 1)
- 2007 International Heliophysical Year
- 2013 Space Weather agenda item approved by COPUOS Scientific and Technical Subcommittee (STSC)
- 2015 Space Weather Expert Group formed
- 2016 Space Weather Guidelines agreed by STSC
- 2018 UNISPACE+50





UNISPACE+50 Initiative

To be commemorated in 2018

- Celebrate 50th anniversary of United Nations Conference on the Exploration and Peaceful Uses of Outer Space
- Serve as a blueprint for shaping the "Space 2030" agenda

Seven Thematic Priorities identified for UNISPACE+50

Priority 4: International framework for space weather services

Develop a space weather roadmap for coordination and information exchange on space weather events and mitigation



TP 4: International Framework for Space Weather Services

Objective:

- Strengthen reliability of space systems to adverse space weather
- Develop space weather roadmap for international coordination and information exchange on space weather events and their mitigation
- Utilize risk analyses and assessments of user needs
- Recognize space weather as a global challenge
- Increase awareness through communication, capacity-building, and outreach
- Identify governance and cooperation mechanisms to support this objective

Long-Term Sustainability of Outer Space Guidelines for Space Weather

Guideline 16: Share operational space weather data and forecasts

- Undertake a coordinated approach to maintain long-term continuity of data
- Monitor continuously to establish international database network
- Support collection, archiving, sharing, intercalibration, dissemination of data, model output, and forecasts
- Identify key data sets and gaps
- Identify high priority needs for numerical models and forecasts
- Consider common formats and protocols to promote interoperability

Guidelines are consistent with plans of the World Meteorological Organization, Coordination Group for Meteorological Satellites, etc., but gaps exists.

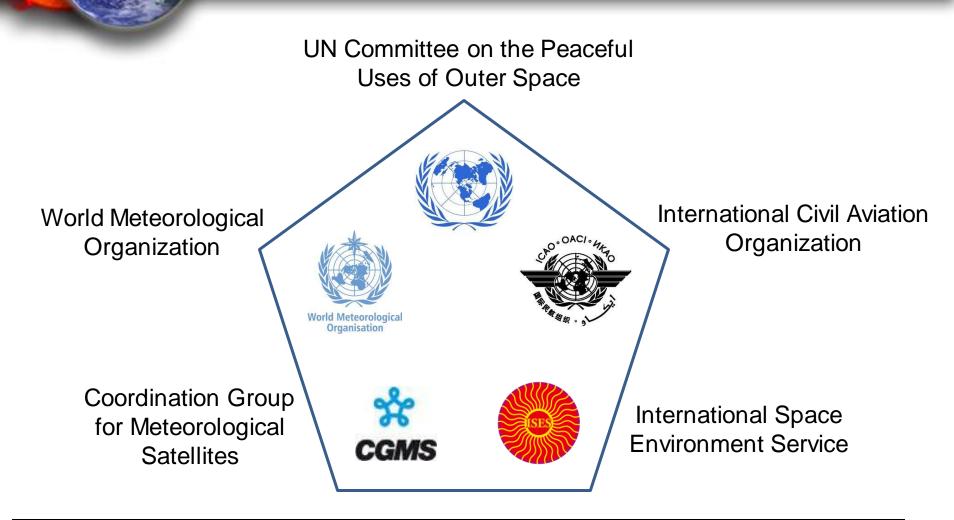
Long-Term Sustainability of Outer Space Guidelines for Space Weather

Guideline 17: Develop space weather models and collect established practices on mitigation

- Undertake a coordinated approach to fill gaps in research and operational models
- Promote cooperation on forecast modeling and reporting of space weather-related impacts, such as satellite anomalies
- Encourage training on the use of space weather data
- Work toward international standards for mitigation of satellite impacts
- Assess the risk and socio-economic impacts of space weather

Guidelines are consistent with plans of various organizations, but gaps exists.

International Organizations Engaged in Space Weather Services



Numerous other groups are active in space weather research (COSPAR, ISWI, ILWS, IAU, URSI, SCOSTEP, etc.)

Next Steps

- Space Weather Expert Group will develop recommendations for an international framework for space weather services
- Recommendations are to include governance and cooperation mechanisms
- Further discussions will occur at UN/US Workshop on the International Space Weather Initiative, July 31-August 3, 2017, Boston College
- Further discussions at COPUOS STSC, February, 2018
- Final roadmap to be submitted to COPUOS in June, 2018
- Participation is encouraged Contact Ian Mann (Rapporteur) and Terry Onsager (imann@ualberta.ca and Terry.Onsager@noaa.gov)