

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 exist.



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 exist.



International Organizations Engaged in Space Weather Services

UN Committee on the Peaceful
Uses of Outer Space

World Meteorological
Organization



International Civil Aviation
Organization



Coordination Group
for Meteorological
Satellites



International Space
Environment Service



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)