

2 February 2018

English only

**Committee on the Peaceful
Uses of Outer Space
Scientific and Technical Subcommittee
Fifty-fifth session
Vienna, 29 January–9 February 2018
Item 11 of the provisional agenda*
Space Weather**

**Progress report on the work of the Expert Group on Space
Weather including in relation to UNISPACE+50 thematic
priority 4 “International framework for space weather
services” at the 55th session of the Subcommittee**

**Submitted by the Rapporteur of the Expert Group on Space
Weather**

I. Introduction

The present document contains information on the progress of work of the Expert Group on Space Weather, as will be presented to the Subcommittee by the Rapporteur of the Expert Group, Ian Mann of Canada.

The Expert Group reiterates that now more than ever, international cooperation which addresses appropriate planning and a coordinated response from Member States and their national and international agencies to the space weather threat, is of the utmost importance. Recognising that fact, the Expert Group continues to enjoy the very active participation of Member States and Expert Group believes that they are making very significant and ongoing progress towards their mandate. In particular, the Expert Group believes they have identified clear and strategic opportunities for the Committee of Peaceful Uses of Outer Space to facilitate the level of international collaboration needed to meet the challenges of understanding and mitigating the impacts of severe space weather, for the benefit of all mankind.

The Expert Group held two meetings on the margins of the 55th session of the Subcommittee with the participation of more than 28 Experts from around the world. In these meetings the Expert Group primarily focused its work on further development of the recommendations contained in its report on Thematic Priority 4: International Framework for Space Weather Services for UNISPACE+50 ([A/AC.105/1171](#)).

During these meetings the Expert Group took the opportunity to further consider the recommendations in the report on Thematic Priority 4: International Framework for Space Weather Services. In this conference room paper we take the opportunity to

* [A/AC.105/C.1/L.363](#).



provide additional clarification and a more detailed basis for the implementation of the recommendations. In particular, in the recommendations outlined below a more detailed definition of the process to be used to develop a formal proposal for the membership, terms of reference, and mandate for the proposed future international coordination group for space weather is outlined for the benefit of delegations.

II. Summary of progress in work

The Expert Group continues to work in accordance with its mandate, not least in relation to the promotion of increased and expanded member State involvement in providing space weather monitoring, from the ground and in space, and in developing, advancing, and sharing and delivering space weather services. For the past year the additional mandate from the Committee from its June 2016 meeting to additionally develop strategies to address thematic priority 4: International Framework for Space Weather Services within the UNISPACE+50 process has constituted the primary focus of its work. This resulted in the development by the Expert Group of the report on Thematic Priority 4: International Framework for Space Weather Services for UNISPACE+50 ([A/AC.105/1171](#)).

Consistent with the prior recommendations from the Expert Group which were communicated to the 54th meeting of the Subcommittee ([A/AC.105/C.1/2017/CRP.30](#)) in Feb. 2016, the Expert Group has continued to highlight the value of the approach of assessing the “Why, When, What and How” of space weather.

Understanding that the global potential impacts of adverse space weather demand a global response, it is clear why member States need to act. These States need to know “when” to act, for example, in response to impending severe space weather, driving an urgent need to develop an improved basis for international monitoring, forecasting, and warning procedures especially in the form of more coordinated international communication and coordination of warnings of extreme space weather events.

Equally important is then knowing “what” to do. This requires understanding the unique space weather vulnerabilities in each member State, and having a defined set of best practices, operating procedures, and actions which can be taken during such extreme space weather. This also requires an assessment in each member State of their space weather risks and related socio-economic impacts, as well as defined operating procedures and best practices which should be developed in partnership with critical infrastructure and civil protection administrations.

In the Report on Thematic Priority 4: International Framework for Space Weather Services ([A/AC.105/1171](#)), this approach is used to develop a detailed roadmap based on the definition of six core themes (Section III), and in the context of global activities on space weather (Section IV), the Expert Group defined a proposed basis to deliver appropriate mechanisms for delivering improved international collaboration, improved space weather services, towards an improved global resilience against the space weather threat (Section V). Recommendations in Section VI of the report on Thematic Priority 4 then formed the basis of the proposed approach for achieving future improved coordination and collaborations, and improved space weather services and overall resiliency against the adverse effects of space weather for the period 2018-2030 in the context of UNISPACE+50.

III. Intersessional work

In the development of Report on Thematic Priority 4: International Framework for Space Weather ([A/AC.105/1171](#)), the Expert Group undertook extension outreach and intersessional work in order to develop a consensus approach for space weather activities in the context of future strategies which could be implanted for the

period 2018-2030 through the UNISPACE+50 process. This included the following meetings:

- Dedicated two days Expert Group meeting on the margins on the European Geosciences Union meeting which was held at the United Nations in Vienna from 27 to 28 April 2017.
- Town Hall meeting at the European Geosciences Union meeting, April 2017.
- Town Hall at AGU Dayside Magnetosphere Chapman Conference, Chengdu, China, July 2017.
- Town Hall at International Astronomical Union Symposium on Space Weather (IAUS 335: Space Weather of the Heliosphere: Processes and Forecasts), Exeter, the United Kingdom, July 2017.
- United Nations/United States of America Workshop on the International Space Weather Initiative (ISWI), Boston, the United States of America, August 2017.
- Presentation by the Rapporteur for the space weather Expert Group at the United Nations High Level Forum, Dubai, the United Arab Emirates, November 2017.
- Town Hall at European Space Weather Week, November 2017.

IV. Recommendations

International Coordination Group for Space Weather

The Expert Group deliberations at its meetings on the margins of the 55th session of the Subcommittee re-iterated the importance of the Report on Thematic Priority 4: International Framework for Space Weather ([A/AC.105/1171](#)). In particular, the Expert Group focussed on need for a new international coordination group for space weather consistent with the elements of the draft General Assembly resolution under space diplomacy under (d) (vi). This new international coordination group could deliver improved international collaboration and coordination for improved space weather services and ultimately enhance global resiliency against the adverse effects of space weather.

Consistent with the Report on Thematic Priority 4: International Framework for Space Weather ([A/AC.105/1171](#)), and consistent with the goals defined for UNISPACE+50, the Expert Group emphasizes that a new international coordination group for space weather should have a mandate which allows it to not only report to the Scientific and Technical Subcommittee, but to also enable it to make recommendations for decisions which would be considered by the member States of the Committee at meetings of its Subcommittee.

Timetable

The Expert Group recommends that the terms of reference for a possible international coordination group for space weather (ICSW) be proposed by 2019. That is, initial consideration of the basis for constituting the ICSW be presented to member states of the Committee in 2019; its further development during an international space weather workshop in the summer of 2019; and presentation for final approval at the meetings of both the Subcommittee and the Committee in 2020.

Membership, Terms of Reference, and Mandate of the ICSW

Further to the proposal in the Report on Thematic Priority 4: International Framework for Space Weather ([A/AC.105/1171](#)) at its meetings on the margins of the 55th meeting of the Subcommittee, the Expert Group developed a more detailed

proposal for the process to be used to develop the draft membership, terms of reference, and mandate for the international coordination group for space weather.

In particular, the Expert Group agreed on the following approach which provides further clarity. The approach extends the recommendations contained in Report on Thematic Priority 4: International Framework for Space Weather (A/AC.105/1171), but in particular expands upon and clarifies the proposed in recommendation 80 (c), and supersedes the part of the recommendation in 80 (h) that states “*The Expert Group would also develop the draft terms of reference, mandate and structure of the proposed coordination group, in close collaboration with the COSPAR Panel on Space Weather and the Office for Outer Space Affairs*”.

Specifically, the Expert Group takes note of the draft General Assembly resolution on space as a driver of sustainable development:¹

(d) Space diplomacy builds on existing norms and negotiated treaties, refers to cooperation among Member States to engage with each other on an equal footing and with mutual respect, with the overall goal of addressing common challenges facing humanity and building constructive, knowledge-based partnerships, and in this regard in strengthening existing mechanisms and forging new ones in the area of international cooperation in the peaceful uses of outer space activities, actions should be taken:

(vi) To consider, under a multi-year workplan of the Scientific and Technical Subcommittee under the item on space weather, the establishment of an international coordination group for space weather as the basis for strengthened international coordination;

To address action (d)(vi) in the draft General Assembly resolution, the Expert Group proposes that it will take the following steps:

1. Establish a drafting committee to develop a proposal for the membership, terms of reference, and mandate for an international coordination group for space weather.
2. The drafting committee membership would be open to:
 - a. Representatives of member States of the Committee of the Expert Group on Space Weather².
 - b. 1 nominee each from United Nations Office for Outer Space Affairs, World Meteorological Organization, International Civil Aviation Organization, and other relevant United Nation entities, 1 nominee each from Committee on Space Research, Coordination Group for Meteorological Satellites, and International Space Environmental Service, and 1 nominee each from other relevant Observers of the Committee as appropriate (e.g., European Space Agency, Scientific Committee on Solar-Terrestrial Physics, International Astronomical Union).
3. The drafting committee will hold at least three (3) intercessional meetings in 2018. Potential suggested locations/times are:
 - a. Space Weather Workshop, Broomfield, Colorado, April 16-20, 2018
 - b. Asia-Oceania Space Weather Alliance workshop, Bandung, Indonesia, September 19-21, 2018
 - c. European Space Weather Week, November 5-9, 2018

¹ A/AC.105/C.1/L.364

² It is noted that all member States of the Committee are able to engage in the work of the drafting committee through the existing mechanism whereby they nominate their experts to join the Expert Group on Space Weather.

To ensure broadest participation in the drafting committee, remote access tools (e.g., webex) should be provided. There will be regular reporting from the drafting committee to the States members of the Expert Group on Space Weather.

4. The drafting committee will consider recommendations in the Thematic Priority 4 report³. The drafting committee may also consult with relevant international industry associations as appropriate.
5. The drafting committee will produce a report which provides a recommendation for the membership, terms of reference, and the mandate of the international coordination group. This report will be communicated by the Expert Group on Space Weather for information and initial consideration by the States members of the Committee at its Subcommittee in 2019.
6. Following feedback from delegations at the Subcommittee in 2019, a final draft will be developed by the representatives of member States of the Committee of the Expert Group on Space Weather.
7. Consistent with the proposal contained in the Thematic Priority 4 Report, the goal is for a final proposal for the international coordination group for space weather to be presented to the Subcommittee in 2020.

V. Update to the Work Plan for the Expert Group on Space Weather

The Expert Group on Space Weather presents the following updated work plan for the period up to 2021, consistent with its existing mandate and consistent with the recommendations contained in the UNISPACE+50 Thematic Priority 4 Report:

- 1. The Expert Group will review the space weather related activities and work plans of the relevant United Nations entities, including the World Meteorological Organization (WMO) and International Civil Aviation Authority (ICAO) and others, and those within States members of the Committee and national and international organizations. Identify and assess their role in the global space weather effort, promote coordination and communication between them, and ensure that the efforts of the Subcommittee are complementary.*
- 2. Recognizing the impacts of space weather, the Expert Group will promote increased and expanded member State involvement in providing space weather monitoring, from the ground and in space, and in developing, advancing, and sharing and delivering space weather services.*
- 3. In relation to planning for the development of the proposed future international coordination group for space weather, the Subcommittee will receive the reports from the drafting committee, through the Expert Group, and consider their recommendations for the future membership, terms of reference, and mandate of the coordination group.*
- 4. The Expert Group will report yearly to the Subcommittee on its progress, on important issues which have been identified, and where specific actions are recommended, including those related to a possible future international coordination group for space weather. The Expert Group will also make a recommendation for its continuing and future work plan.*

³ A/AC.105/1171