

## Proposal for Forming an IAA Study Group (REV15 – 2010/02/18)

**Title of Study:** International Cooperation on Space Weather

**Proposer(s):** IAA Commission 5

**Primary IAA Commission Preference:** IAA Commission 5

**Secondary IAA Commission Interests:** IAA Commission 1

### Members of Study Team

(in alphabetical order)

#### Chairs:

Mr. Dan Baker (USA) ([daniel.baker@lasp.colorado.edu](mailto:daniel.baker@lasp.colorado.edu))  
 Mr. Werner Balogh (Austria) ([werner.balogh@unoosa.org](mailto:werner.balogh@unoosa.org))  
 Mr. Larry J. Paxton (USA) ([larry.paxton@jhuapl.edu](mailto:larry.paxton@jhuapl.edu))

**Secretary:** Mr. Werner Balogh (Austria) ([werner.balogh@unoosa.org](mailto:werner.balogh@unoosa.org))

#### Members:

The following is a preliminary list of members that will be invited to join the study team. The list of members will be confirmed at the initial meetings of the study team. Additional new members will be added as may be required by the study:

Name	Institution	Email
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#### To keep informed:

Name	Institution	Email
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Mr. M.Y.S. Prasad	Associate Director, ISRO SDSC SHAR	<a href="mailto:mys@shar.gov.in">mys@shar.gov.in</a>
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### **Short Description of Scope of Study:**

- The complex interaction of the Solar magnetic field, electromagnetic radiation and particles emitted by the Sun and of galactic radiation with the interplanetary magnetic field and planetary atmospheres causes events and effects that are commonly referred to as space weather. Space weather can adversely affect spacecraft, satellites, electronic components and power-plant facilities, radio communications and other infrastructure elements on which human society is increasingly dependent.
- Over the last few decades a wide range of scientific programmes and international initiatives have been conducted to study space weather. They have contributed to increase our understanding of space weather-related events and effects.
- The purpose of this study is to review – from an international, scientific, economic and policy perspective – our present knowledge of space weather and its (socioeconomic) effects on human society, past and ongoing programmes and initiatives, identify possible existing gaps and untapped opportunities, and make recommendations and propose ways forward that could contribute to increase human society's understanding of - and resilience to - space weather.

### **Overall Goal:**

1. Prepare a comprehensive, trans-disciplinary review/overview - in an international context - of the present status of understanding of space weather-related events and their effect on human activities for different societies and for different economic sectors.
2. Prepare a comprehensive, trans-disciplinary review/overview of world-wide planned and ongoing space weather-related activities (space-based and ground-based observations, modeling and forecast development).
3. Review international cooperation activities and advice on the role of international cooperation in addressing space weather-related issues, such as possible cooperation towards global space-weather monitoring capabilities.
4. Identify opportunities for international cooperation in the standardization, sharing and assimilation of timely/operational data
5. Identify opportunities for international cooperation to create optimized models to produce accurate (modeling/simulations/prediction), timely forecasts, tailored to needs in each country or region of the world.
6. Review existing and planned space-based missions and ground-based networks to identify gaps and opportunities not yet covered.
7. Provide policy makers with a range of options dealing with space weather effects.
8. Provide balanced and responsible information to the public, press and governments, particularly also in developing countries, about space weather causes and consequences.

### **Intermediate Goals:**

1. Support discussions under the agenda item "International Space Weather Initiative" in the Scientific and Technical Subcommittee of the United Nations Committee on the Peaceful Uses of Outer Space (UNCOPUOS) (2010-2012).
2. Support discussion, if relevant, under the agenda item "Long-term sustainability of outer space activities" in the Scientific and Technical Subcommittee of UNCOPUOS (2010-2012/2013).
3. Support discussions of the Interprogramme Coordination Team on Space Weather of the WMO.

**Methodology:**

- The study team will hold periodic meetings, preferably in connection with other major events (UNCOPUOS Meetings, IACs).
- In-between these meetings the work will be conducted through on-line collaboration. On-line resources available through the IAA website or other dedicated resources will be used, as applicable.
- At its initial meeting the study team will agree on the study objectives and prepare an initial study report outline. Responsibility for parts of the study report will be assigned to individual team members. Editor(s) will be assigned to coordinate the individual study report parts and to ensure a coherent final report.

**Time Line (preliminary):**

8-19 February 2010	47th session of the UNCOPUOS Scientific and Technical Subcommittee Meeting in Vienna, Austria	Constitution and first meeting of the study team Agreement on work programme Coordination with activities under the UNCOPUOS agenda item "International Space Weather Initiative"
18-25 July 2010	38 <sup>th</sup> COSPAR Assembly, Bremen, Germany	2nd meeting of the study team Review of 1st draft (outline) of the study group report
October 2010	61st IAC in Prague, Czech Republic	3rd meeting of the study team Review of 2nd draft of the study group report Contributions to the IAA Symposium/Session on "Policy and economic aspects of space situational awareness with particular regard to space weather" Discussion of contributions to the work under the UNCOPUOS agenda item "International Space Weather Initiative"
7-16 February 2011	48th session of the UNCOPUOS Scientific and Technical Subcommittee Meeting in Vienna, Austria	4th meeting of the study team Review of 3rd draft of the study group report Coordination with activities under the UNCOPUOS agenda item "International Space Weather Initiative"
1-10 June 2011	54th session of UNCOPUOS	5th meeting of the study team Review of the 4th draft of the study group report
October 2011	62nd IAC in South Africa	6th meeting of the study team Review and finalization of the study group report
October 2011		Publication of the study group report
February 2012	49th session of the UNCOPUOS Scientific and Technical Subcommittee Meeting in Vienna, Austria	7th and final meeting of the study team Presentation of the final study group report

**Final Product (Report, Publication, etc.):**

- It is anticipated that the conclusions reached by the study team will be published in a suitable publication, either as a book, comprehensive study report and/or as a position paper.
- The target date for completing the publication is February 2012, which would coincide with the conclusion of the 3-year workplan of the International Space Weather Initiative in the Scientific and Technical Subcommittee of UNCOPUOS.

**Target Community and Expected Effects:**

- The study targets the international space community as well as all other communities that are potentially affected by space weather-related phenomena.
- It is anticipated that the study team will provide valuable input to the discussions in the framework of the 3-year workplan of the International Space Weather Initiative in the Scientific and Technical Subcommittee of UNCOPUOS in the years from 2010-2012.
- In addition the discussions under the new agenda item on "Long-term sustainability of outer space activities" in the Scientific and Technical Subcommittee of UNCOPUOS in the years from 2010-2012/2013 may benefit from the study results.
- The outcome of the study may also be relevant to the work of other international bodies, such as the International Telecommunications Union (ITU) and the World Meteorological Organization (WMO).
- The study shall provide a comprehensive picture of how space weather effects on human activities and the role of international cooperation in understanding and minimizing potential threats posed by space weather.
- It is also expected that the study will contribute to informed decision making and to the promotion of international cooperation.

**Support Needed:**

- The study team will need to attract the most qualified experts in the field to prepare and deliver a credible study report.
- The experts participating in the study team will require the support of their home institutions (funding, time) to allow them to attend the meetings of the study team.
- Financial support, either from IAA and/or from other sponsors to be identified, will be required to publish the findings of the study team in form of a formal publication.

**Potential Sponsors:**

- IAA Secretariat
- Academic institutions
- Insurance companies
- Non-governmental organizations
- Space agencies
- United Nations entities (such as ITU, UNOOSA, WMO ...)
- [...]

**To be returned to the IAA Secretary General Paris by fax: 33 1 47 23 82 16 or by email: [sgeneral@iaamail.org](mailto:sgeneral@iaamail.org)**

**Date:**

**No Signature required if document authenticated.**

**Follow-up Section for IAA use only**

**Initial Phase**

**Application received:**

**Commission Approved:**

**SAC Approved:**

**Web Site Section opened:**

**Members Appointed:**

**Final Phase**

**Peer Review by Commission Completed:**

**Recommended by the Commission:**

**Final Report Received:**

**SAC Approved:**

**BOT Accepted:**

**Publisher Selected:**

**Study Published:**