

Proposal for Forming an IAA Study Group SG 1.15

Title of Study: International Cooperation on Space Weather

Proposer(s): Prof. Susan McKenna-Lawlor

(Must be member(s) of the Academy M or CM)

Primary IAA Commission Preference: Commission 1

(From Commission 1 to Commission 6)

Commissions: 1 Space Physical Sciences, 2 Space Life Sciences, 3 Space Technology & Systems Development, 4 Space Systems Operations & Utilization, 5 Space Policy, Law & Economics, 6 Space and Society: Culture and Education

Secondary IAA Commission Interests:

(From Commission 1 to Commission 6)

Members of Study Team

Chair(s): Susan McKenna-Lawlor

(Must be member(s) of the Academy, M or CM)

Secretary: Susan McKenna-Lawlor

Other Members:

(Open to members and non- members of the Academy)

Angels Aran, Anil Bhardwaj, Murray Dryer, Bernie Jackson, Patricia Goncalves, Piers Jiggins, Ralph McNutt, Dusan Odstreil, Terry Onsager, Michael Panasyuk, Guenther Reitz, Pierre Rochus, Lawrence Townsend, Rami Vainio.

Short Description of Scope of Study

Space weather can adversely affect spacecraft performance as well as the performances of power plant facilities, radio communications and other technical infra-structure (i.e. elements on which human society is increasingly dependent). Over the last few decades a wide range of scientific programs and international initiatives have been conducted which have individually contributed toward increasing our understanding of space weather related events/effects. |

The purpose of the present study is to review from an international, scientific, economic and policy perspective our present knowledge of space weather and its (socio-economic) effects on human society. Included will be

accounts of past and ongoing programs and initiatives together with the identification of existing gaps in our understanding and hitherto untapped opportunities to advance our knowledge of the many impacts of Space Weather.

Overall Goal:

Recommendations and proposals charting ways that could contribute to increasing the understanding and resilience of human society to space weather experienced on the ground and in space will be formulated.

(Expected scientific or practical benefit of the study group's efforts)

Intermediate Goals:

Inter-comparison of the results obtained through modelling. using different methodologies developed in several countries, an extreme energetic particle event measured in space. Discussion of the insights provided by differences/ similarities between the model results and the measurements.

Development of a Human Space Awareness Index to assist in Onboard Management of hazardous space weather conditions in space.

Methodology:

The work will be coordinated by email and using SKYPE. Special sessions of the study group could be organized to take place during IAA and other meetings in the course of the study to review progress.

Time Line:

Spring 2018; Presentation of a report to Commission 1 outlining preliminary findings.

Spring 2019; Presentation of an interim report to Commission 1.

Presentations at Academy Symposia and papers published, for example, in Acta Astronautica are expected to accompany the study.

Final Product (Report, Publication, etc.):

A final report will be provided to Commission 1 in Spring 2020. It is anticipated that this study will (with Academy approval) progress to be published as a book.

Target Community:

Potential beneficiaries; scientists, spacecraft designers, decision makers in the area of risk assessment to human crews, mission managers. Space agencies etc.

Support Needed:

The Academy is requested to suggest the names of experts in the areas of economic and policy perspectives relevant to the study who would be willing to join the group.

Potential Sponsors:

Space Technology Ireland Ltd., Maynooth, Co. Kildare, Ireland.

To be returned to the IAA Secretary General Paris

*by fax: 33 1 47 23 82 16 or
by email: sgeneral@iaaemail.org*

Date: 15 Sept. 2016

Name: S. McKenna-Lawlor

(No Signature required if document authenticated).