INTERNATIONAL SPACE SCIENCE INSTITUTE
Hallerstrasse 6 • CH-3012 Bern • Switzerland

First Circular – Workshop of the International Space Science Institute (ISSI)

25 October 2015

The scientific foundation of Space Weather

Convenors:

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Date: 27 June – 1 July 2016

Context:

- There has been considerable progress in solar physics, in the physics of space plasmas and in the physics of the Earth's magnetosphere and ionosphere in recent decades. Solar-terrestrial physics evolved as the discipline that covers studies of solar effects on the Earth's space environment. In more recent years, the concept of space weather has developed as both a scientific discipline and, increasingly, a topic that provides a forum to assess the vulnerabilities of the space infrastructure of 21st century human life on Earth from solar disturbances. Therefore space weather research covers more than solar-terrestrial effects as it also includes the physics behind those phenomena that are identified as hazards in space and on the ground. A key requirement of space weather studies is the understanding of causal chains from the Sun to the terrestrial environment and their quantified predictability

Objective of the Workshop:

- The science of space weather is therefore effectively a synthesis of solar and near-Earth space phenomena and the causal links from the Sun to the Earth's neighborhood. The objectives of the Workshop will be to review the elements of the physical processes and to identify the way they link to each other to form the causal chains from the Sun to the Earth and thus to assess and review the scientific foundations of Space Weather.

The topics covered in the Workshop:

- Space weather: what it is, most important causal effects (and what's impacted)
- Solar phenomena driving space weather and their predictability
- Propagation of solar phenomena in the inner heliosphere
- The geoeffectiveness of solar phenomena –
- Anthropogenic space weather effects
- Extreme space weather events
- Space climate - long term variations in space weather effects
- Space weather at other planets in the solar system
- What can we learn from the activity of sun-like stars

Thanks to the prompt acceptances of the invited participants, what is likely to be the final programme is included with this First Circular. Invited authors are requested to propose more explicit titles for their talks.

Product of the Workshop

Following the Workshop, its output will be published as a volume in the Space Science Series of ISSI by Springer, in parallel with the publication of the papers in Space Science Reviews. It is expected that a total of about 15 to 20 high-quality topical review papers will result, to be submitted to the usual refereeing process and published in the book. The papers will be based on talks presented at the Workshop and will reflect the discussions that are encouraged to be held among the participants during the Workshop, with emphasis on interdisciplinarity.

Location: The Workshop will be held at the International Space Science Institute, Hallerstrasse 6, 3012 Bern, Switzerland.

Attendance: by invitation only, ~ 40 participants maximum.

Young scientists: Under its special programme of supporting young scientists, ISSI will invite (in addition) 4 to 6 early career scientists, within 2 years of their PhD, to take a full part in the Workshop.

Funding: ISSI will provide the subsistence costs (hotel and a per diem to cover meals) to all participants, but not the travel costs. There will be no registration charge for the Workshop.

Schedule:

Formal invitations and First Circular:	25 October 2015
Registration deadline:	31 October 2015
Second Circular and final program:	15 March 2016
Workshop:	27 June – 1 July 2016