

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

1 June 2010

Coupling between the Earth's Atmosphere and Its Plasma Environment

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Date: 27 September – 1 October 2010

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

Context

Within its Earth Science Program from Space the International Space Science Institute (ISSI) holds a Workshop that will be focused on the interrelation between the atmospheric and the plasma environments of Earth in view of promoting the understanding of the relation and interaction between these two separate space envelopes of our planet with their different constitutions, compositions and dynamics.

The topics of the Workshop will cover the physics of the terrestrial atmosphere and the transition from the atmosphere to the magnetosphere and possibly further out to the solar wind in as far as they are of relevance to the intention of the Workshop.

It is expected that the Workshop will illuminate common aspects of both these envelopes and their possible interrelations that may contribute to mutually affecting their parameters and dynamics both on short time scales and in the long-term trends.

1. General information

The aim of this **Second Circular** is to provide the participants with more detailed information on the workshop programme, organisation and logistics, and to serve as a last reminder. No further circular will be sent out about this workshop. **Particularly importantly, arrival and departure dates are needed from participants. Requests for hotel bookings need to be made to Brigitte Schutte (contact details above) right away, and certainly no later than 1 September 2010.** Please see our WWW homepage at <http://www.issibern.ch> for general information about ISSI and to check on the participants and further information of this particular WS.

2. Objectives and Topics of this Workshop

Two environments of Earth permeate the near-Earth space: the Earth's atmosphere and the Earth's plasma envelope. The atmosphere extends out from Earth's surface up to an altitude of – very roughly – below ~1000 km. The Earth's plasma environment starts from altitudes – also very roughly – above ~50-70 km and stretches out far into space.

While the Earth's atmosphere forms – again very roughly – an about spherical shell around Earth, with its extended uppermost layer the thermosphere, the Earth's plasma environment is about spherical only at its bottom layer, the ionosphere. At altitudes above about ~1000 km it becomes completely ruled by the geometry and dynamics of Earth's magnetic field, forming a spatially inhomogeneous and asymmetric and temporarily highly variable envelope that, from mid- to low latitudes and geocentric distances below roughly ~4-5 Earth radii, forms the plasmasphere that is attached to the closed low latitude geomagnetic field lines. At high latitudes, on the open auroral and polar geomagnetic field lines, it connects to the magnetosphere and is subject to its violent dynamics.

Both Earth's envelopes are usually treated as separate entities. Their interaction has for long time and for historical reasons been considered only in the context of the physics of the ionosphere, with the atmosphere acting as the source of ionization that is due to solar UV irradiance plus a small contribution from occasional particle precipitation from the radiation belts and in the aurora.

The present Workshop intends to closer investigate the interrelationship between the two environments based on the increase of knowledge in both, atmospheric and plasma physics. In a manner of pioneering this widely unknown area it intends to bring together experts from both fields for mutual information and selecting areas that are promising for further investigation.

The goal of the Workshop is to find out up to what degree it can be expected that the dynamics of the atmosphere – and possibly even the climate – affect the dynamics and "climate" of Earth's plasma environment, contributing to Space Weather. Vice versa, it is the goal of the Workshop to identify those areas in which the plasma envelope of Earth may possibly affect the dynamics of the Earth's atmosphere, contributing to its chemistry, temperature structure and balance, and its radiative and absorptive properties as well as its long-term trends.

3. Workshop Programme

The draft (but almost final) workshop program is attached to this Second Circular. Both the up-to-date program and the list of participants is available from the workshop website

<http://www.issibern.ch/workshops/earthplasma/>

4. Publication

A workshop volume is planned to be published by [Springer](#) both as an issue of the journal [Space Science Reviews](#) and as a hardcover book in the [Space Sciences Series of ISSI](#) (SSSI). It is

expected that a total of **~20 review style high quality papers, submitted to the usual refereeing process**, will be included into the book. Papers will be based on talks presented at the Workshop and will be moderated by the discussions in the WS. The Conveners/Editors of the Workshop will propose a specific structure of the book that will be based on the given talks and discussions during the Workshop. They will discuss it with the participants/contributors at the Workshop.

Further details about the publication will be given at the workshop and will be provided to the contributors afterwards. A brief introduction to [Springer's Editorial Manager](#) web-based submission and editing system is posted on the website (including access to the various templates/style files).

Submission of the papers is expected within ~5-6 months time (**tentative deadline is 01 February 2011**) after the workshop, a requirement set by Springer in agreement with ISSI. It is preferred that the contributions are not single author texts but arise from an agreement between author groups that form during the workshop, mostly guided by the structure of the sessions. Extended abstracts are not suited, however. Papers should review the particular field and might include suggestions for further research. However, unpublished new material should rather be referred to but reserved for specific publications in the refereed scientific literature.

5. Funding of the Workshop

ISSI will fund the participants by providing the daily subsistence cost during the time of the meeting up to a **maximum of 7 days (time of arrival in Bern through departure from Bern)**. This includes the cost for the hotel and for meals. However, ISSI is not in a position to cover travel costs, taxis, phone calls etc. There will be **no registration fee** for this workshop. ISSI will also **cover the publication costs** of the printed volume (including a limited number of colour page charges, to be decided by the conveners in discussion with the ISSI directorship), of which **each participant will receive a free copy**.

6. Attendance and Schedule

Attendance is by invitation only, 48 invited participants have confirmed their participation.

Schedule:

Final Programme:

1 August 2010

Hotel reservations:

at the latest 15 August 2010

Workshop:

27 September to 1 October 2010

7. Young Scientist Program of ISSI

A small number (six) of young scientists have been invited to participate in the Workshop. The definition in this context is that they should be within 4 years of their PhD (plus or minus). ISSI will cover the subsistence costs (hotel and meals) to the invited young scientists.

8. Equipment available at ISSI

ISSI is equipped with a pool of different kinds of workstations such as PCs, Macs as well as with Postscript printers for both black & white and in colour. All machines have Ethernet connections and run web browsers, ssh, telnet, ftp, etc., so connecting home, accessing email, printing, etc. while at ISSI will be no problem.

Participants who bring their own notebook computers will be able to connect to the Ethernet through the standard RJ45 plug. A limited though sufficient number of cables are available at ISSI and addresses will be dealt out by our DHCP server. We also provide wireless access; participants wishing to use that will receive a username/password combination from our computer engineer and

system administrator, Saliba F. Saliba (e-mail: saliba@issibern.ch), who will also help with any computer-related questions.

The Workshop room (second floor of Hallerstrasse 6 above ISSI) is equipped with a computer and beamer for electronic presentations, a video/DVD player, an overhead projector and a whiteboard.

9. Social Programme

An informal welcome drink will be offered at the end of the first Workshop day at ISSI, on Monday, 27 September at 5 p.m. On Wednesday 29 September the afternoon will be free so that participants can explore Bern and its many attractions or the picturesque Bernese environment. We will hold a workshop dinner on Wednesday 29 September in one of Bern's renowned restaurants. Further information will be given at the occasion of the Workshop.

10. Travelling to Bern

Bern can be reached easily from two international airports: [Zurich \(ZRH\)](#) and [Geneva \(GVA\)](#). Direct intercity trains to Bern depart every half hour from inside the airport buildings; see <http://www.rail.ch> for detailed departure times. The travel time is ~1.5 hours from Zurich airport and ~2 hours from Geneva airport.

There is also a local airport ([Bern, BRN](#)), located a 20 minute shuttle ride from the city centre, but with direct connections only to Munich, Brussels and Paris. Bern is connected to many European cities by fast intercity trains (e.g. TGV Paris-Bern in 4.5 hours, or Frankfurt-Bern 5 hours). Time table information of trains within and around Switzerland can be found at <http://www.rail.ch>. Also check out our website <http://www.issibern.ch/> for a few more travel tips such as links to city maps of Bern, weather forecasts, tourist information etc...

11. Hotel Reservations

For all the Workshop participants, the ISSI Secretariat will make a **block booking** in city centre hotels (located within walking distance from both, ISSI and the Bern railway station).

The workshop participants are requested to *contact the workshop secretary*

Mrs. Jennifer Zaugg

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email: secretary@issibern.ch

as early as possible to indicate their arrival and departure dates and times, as well as any special requests they may have (e.g. a double room).

**Please note that all hotel reservations have to be done
by the ISSI Secretariat**

A confirmation will be returned within a few days.

For the nearby hotels please consult

<http://www.issibern.ch/localguide/location.html>

where you find maps that indicate the location of ISSI. For the hotels go to "hotels", and near the bottom of the page "map of hotels".