

November 21, 2005

**1st Circular: Astrobiology Workshop: “Strategies for Life Detection”
April 24-28, 2006, ISSI, Bern Switzerland**

CONVENERS:

Jeffrey L. Bada, Scripps Institution of Oceanography, UC San Diego, USA
Roger M. Bonnet, Executive Director, ISSI
Oliver Botta, NASA Goddard Space Flight Center, Greenbelt, USA
Javier Gomez-Elvira, Centro de Astrobiología, Madrid, Spain
Emmanuelle Javaux, University of Liege, Belgium
Minik Rosing, Geological Museum, Copenhagen, Denmark
Franck Selsis, Ecole Normal Supérieure, Lyon, France
Roger Summons, MIT, Cambridge, USA

CONTACTS

Questions regarding the scientific program: Dr. Oliver Botta, NASA GSFC,
botta@issi.unibe.ch, +1 (301) 614 6380.
Questions regarding hotel, travel, directions to ISSI, etc.: Ms. Brigitte Fasler, Secretary,
fasler@issi.unibe.ch, +41 31 631 48 96.
Questions regarding computer & A/V issues: Mr. Saliba Saliba, System Administrator,
saliba@issi.unibe.ch, +41 31 631 32 51.
When in doubt: Oliver Botta.

Please note that all information in this circular will also be put on the workshop webpage located under “Workshop Schedule” on the ISSI home page (<http://www.issi.unibe.ch>) or directly at http://www.issi.unibe.ch/workshops/Life_Detect/.

CONTENTS:

- What is ISSI?
- Brief description of the workshop objectives
- Information for Speakers: Abstract submittal
- Information for Conveners/Session Chairs: Session Preparation
- Information for All Participants: Facilities, Travel and hotel arrangement

WHAT IS ISSI?

ISSI is an Institute of Advanced Studies. Its main function is to achieve a deeper understanding of the results from different space-research missions, ground-based observations and laboratory experiments, adding value to those results through multi-disciplinary research in an atmosphere of international cooperation.

WORKSHOP OBJECTIVES

To improve and adapt our current strategies of how to find life beyond Earth by increasing our understanding of biosignatures in an interdisciplinary approach. The contributions and output of the Workshop will constitute the contents of a Volume of the ISSI Space Science Series, published by Springer (www.issi.unibe.ch/ssss_of_issi.html) to be issued within approximately one year after the meeting.

Over the last decade, there has been an increasing interest in the scientific community in life detection. However, the goals and strategies used in different fields are distinct, and overlaps are found only occasionally. Paleontologists and geochemists searching for the earliest forms of life on Earth have applied morphological, chemical and isotopic biosignatures or biomarkers as pieces of evidence for traces of life. Despite state-of-the-art analytical instruments and techniques have been used in these analyses, the controversies over the validity of some of these results emphasize the difficulties associated with finding traces of past life even on the Earth.

The search for past or present life on another planet, where only limited resources are available, creates even bigger technological challenges. For instance, the results of the Automated Life-Detection Experiments on board the Viking Landers have not provided unambiguous results about their search for life on Mars. Future missions, including Mars Science Laboratory and ExoMars, are planned to carry instruments to search for traces of extinct or extant life on the surface or in the subsurface of Mars.

The third scientific field where life detection strategies are applied involves the search for Earth-like planets around other stars. Spectroscopic signatures in the atmospheres of such planets are the only technique that can be used to determine if such a planet harbors life. These spectroscopic biosignatures, for example gases in disequilibrium in a planetary atmosphere, are obviously different to *in-situ* biosignatures, although there are fundamentally linked through the metabolic process of life.

The major goal of the workshop is to bring together a group of world-renowned scientists from these fields to discuss the fundamental commonalities and overlaps, but also the differences, between the different life detection strategies at full depth. For example, what are the processes associated with life that lead to the formation of biomarkers and biosignatures, and how are they linked with each other? How can life detection strategies on Earth be applied to other planets? Apart of the scientific questions, we will also discuss the technological challenges in the construction of life detection instruments, including planetary protection requirements for *in-situ* instruments. At the end of the workshop, we would hope to have ideas for answers for the following three questions: What should we be looking for? Why should we be looking for it? How should we detect it?

As can be seen in the program, there will be only a few relatively short talks every day, and the focus will be on discussions among the participants. We imagine that the book resulting from this workshop should be used as a guide and reference for anybody interested in search strategies for life.

FOR SPEAKERS

Abstract Submittal: As indicated to you in our invitation letter, we have asked each speaker to give a talk on a particular topic. It is of course up to the speaker how he/she wishes to address the provided topic, but we kindly ask you to prepare a presentation that fits into the “big picture” of the workshop theme. Also, please keep in mind that your audience will be scientifically diverse, so you should try to avoid using specialized language and expressions during your talk. The workshop program has been divided such that a) the *goals of the workshop* will be fulfilled, b) there will be *plenty of time for discussion* during the session, and c) that the *resultant book* sufficiently covers the workshop topic. So that the abstracts can serve as useful references, please submit a maximum of 2 pages (minimum of about 1) in 2 column, 10pt. font format. An abstract template can be found on the workshop webpage. ***Talk titles and abstracts are due by February 13, 2006.*** Please send them *in PDF format* to Oliver Botta at botta@issi.unibe.ch. Concerning the presentations, ISSI will provide a digital projector, a PC laptop, a Mac desktop, and an overhead projector (or 2) for talks. You are also welcome to bring your own Mac laptop to hook up to the projector. Please let our System Administrator, Mr. Saliba, know if you have any other needs for your talk (contact info provided above).

FOR CONVENERS/SESSION CHAIRS

Session Preparation: As agreed at the conveners meeting, the conveners will act as session chairs. For a few sessions, one of the speakers will also act as a session chair. In addition, the conveners will write the introduction to each chapter in the book that corresponds to their session. Since it is essential to the goals of this workshop that the book is truly multidisciplinary, we will organize a working lunch during the workshop where the outline of the book will be discussed. We will provide more information later on the technicalities of the chapter submittal, book organization, and make-up of the editors of the book itself.

FOR ALL PARTICIPANTS

Facilities: ISSI has a reliable wireless network to which you will be able to connect during the meeting; the meeting room size will not allow for everyone to connect to an Ethernet cable. *Since the ISSI wireless network can only be accessed by password, please contact the ISSI System Administrator, Mr. Saliba, by March 27, 2006, so that he can set up an account for you.*

During the workshop, there will be no other groups meeting at ISSI, so there will also be rooms available for meetings of small groups during free time. You will also be able to connect your own laptop to the Ethernet in these rooms. Five PCs, three of which are dual boot (Windows and Linux) and three Mac computers, two of which have the latest Mac OSX, are available for all participants to use during free time.

Travel and hotel arrangements: While more details will be forthcoming, for those who wish to plan early: our secretary at ISSI, Ms. Fasler, will be handling travel and lodging logistics. She has booked a block of rooms, paid by ISSI, at a nearby hotel within walking distance of ISSI and the main train station. These rooms will have private shower/toilet, phone, and TV. If you wish to make your own hotel arrangements, ISSI will reimburse you up to 130 CHF per night during the workshop, *but only by wire transfer, not by check.*

ISSI will not cover any transportation costs, but for your information: the closest airport is the Bern/Belp airport (BRN), but unless there is a sale, it is quite expensive to fly into Bern from overseas. The Geneva (GVA) and Zürich (ZRH) airports are only 1.5 and about 1 hour, respectively, by train from Bern, and cost much less to fly into. For more details regarding travel, in particular about how to get to ISSI from the airports, please refer to the workshop website (http://www.issi.unibe.ch/workshops/Life_Detect/).

Please send your travel plans to Ms. Fasler by March 27, 2006, so that she can book a room for you for the appropriate nights. Once you have sent your travel plans and Ms. Fasler has made your hotel reservations, she will send to you more details on hotel location, etc. If you have any questions concerning travel, hotel arrangements, or visa issues please contact Ms. Fasler.

As indicated in your invitation letter, ISSI will reimburse you for food through a per diem of 70 CHF per day. Again, you will be reimbursed *only by wire transfer, not by check.* You will receive a reimbursement form during the meeting.

IMPORTANT DATES

13. February 2006: Abstract submission

27. March 2006:

- Send travel plans to Ms. Fasler.
- Apply for ISSI wireless network account to Mr. Saliba.

FUTURE CIRCULARS

Future circulars will include more detailed information about travel and hotel arrangements, the Wednesday tourist excursion and dinner, and other logistics items. All this information will also be posted on the workshop webpage, which will be updated regularly.