

First Circular – Workshop of the International Space Science Institute (ISSI)
11-01-2019

Natural and man-made hazards monitoring by the Earth Observation missions: current status and scientific gaps

Date: 15 – 18 April 20189

Location: International Space Science Institute (ISSI), Hallerstrasse 6, 3012 Bern, Switzerland

Workshop website: <http://www.issibern.ch/workshops/sentinelearth/>

Conveners:

Jérôme Benveniste	(ESA-ESRIN, Italy)
Anny Cazenave	(ISSI, Switzerland & LEGOS, Toulouse, France)
Teodolina Lopez	(ISSI, Switzerland)
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Summary and main objectives of the Workshop:

The COPERNICUS program of the European Union now provides routine observations of the Earth and the environment, in particular with the operational Sentinel missions developed and operated by ESA. These missions offer excellent possibilities to monitor natural and man-made hazards and disasters, hence understand underlying scientific mechanisms and their interactions. The objective of this workshop is to address a number of natural and anthropogenic hazards, of high impacts on human societies, for which remote sensing data from the COPERNICUS Sentinels and other Earth Observation (EO) missions can be used in synergy, not only to report changes affecting the Earth system, but also to provide added-value information on the processes causing these changes. Focus will be given to the following topics:

- Solid Earth processes (earthquakes and crustal deformations in active tectonic areas, volcanic hazards, land-slides, natural and anthropogenic subsidence)
- Hydrological changes (water quality and resource)
- Extreme events (storm surges, floods, storms and hurricanes, droughts, fires, etc.)
- Land use change (deforestation, desertification, impact on agriculture and food security)
- Natural and man-made forcing at land-sea interfaces
- Pollutions (land, air, sea)
- Tipping points in physical and biological systems

Obviously, the above topics cannot be treated in isolation since several of them are interconnected (e.g., land use change has impact on hydrology; pollution can affect water quality, etc.). The program will highlight these interactions and will identify the underlying scientific mechanisms and advances offered by combining different types of space-based and in situ observations and model results.

Outcomes of the Workshop:

An important outcome of the workshop is a book published in the Space Sciences Series of ISSI by Springer (SSSI, see www.issibern.ch/publications). This volume is not intended to be the proceedings of the Workshop, but a collection of in-depth peer-reviewed papers informed by the contributions and

discussions at the Workshop. It should provide a coherent picture of the current state of the subject. The papers are both published in the hardcover book (in the Space Science Series of ISSI) and individually in a special issue of the *Surveys in Geophysics* journal as soon as they are reviewed and accepted. We aim for submitting the papers within 3-6 months after the workshop. While several oral presentations are allocated to each session, we would like to encourage the production of broad overview papers on a few given topics, co-authored by the speakers who have contributed during the corresponding sessions. The journal issue and the SSSI volume are expected to appear about 12 months after the workshop.

Expectation of the participants:

We expect from you an oral presentation of about 20 minutes (+ 10 minutes for questions) and an active participation during plenary discussions. Participants are also expected to contribute to the writing of the overview/review papers to be published later on after the workshop in *Surveys in Geophysics* and the SSSI volume.

Attendance: This Workshop is by invitation only with a limited number of participants (maximum 40 to 45).

Early career research scientists

Under its special program for supporting early career research scientists, ISSI invites a few early career scientists, within two years of their PhD, to take full part in the Workshop.

Invitation letter: If you need an official invitation letter, please contact directly Alexandra Lehmann (Alexandra.Lehmann@issibern.ch).

Funding: ISSI provides the subsistence costs (hotel and per diem to cover meals) to all participants while in Bern, and deals with all organizational matters such as reservations, reimbursements (please contact directly Alexandra Lehmann) and computer issues. However, except for conveners, ISSI is not in a position to cover travel expenses. There is also no registration fee for the Workshop.

Schedule:

First Circular:	11 January 2019
Second Circular & Final programme	28 February 2019
Registration & Hotel Reservation Deadline:	15 March 2019
Workshop Date:	15-18 April 2019