

## CCES News 2

More than 500 scientists and engineers from the schools and research institutions of the ETH Domain are bringing together the multidisciplinary expertise required to tackle scientific issues of crucial societal relevance in CCES since its implementation in 2006. We are pleased to present the main results of this first period of CCES activities in the Latsis Symposium 2010 and invite you to participate and to register.

### Scientific Events

#### CCES Latsis Symposium 2010 'Research in Environment and Sustainability – Insights and Conclusions': registration open

The CCES Latsis Symposium 'Research in Environment and Sustainability – Insights and Conclusions' from November 15 to 17, 2010 will present highlights from the CCES research of the past four years and discuss main conclusions for various stakeholder groups. The five thematic areas of CCES and the research platform Swiss Experiment will have individual sessions with presentations of research highlights and a moderated discussion, giving the audience the possibility to actively participate. More deepened insights will be provided in two poster sessions. A conference dinner will allow personal exchange and networking among participants.

Further information: [www.cces.ethz.ch/latsis2010](http://www.cces.ethz.ch/latsis2010)  
Registration: [www.cces.ethz.ch/latsis2010/Registration](http://www.cces.ethz.ch/latsis2010/Registration)  
until October 15, 2010  
Contact: [info@cces.ethz.ch](mailto:info@cces.ethz.ch) or  
Silvia Häfliger directly (phone +41 44 632 62 89)

#### Announcement International workshop 'Environmental Risk and Extreme Events'

*Centro Stefano Franscini, Ascona, Switzerland,  
July 10-15, 2011*

Major environmental effects of climate change will be conveyed partly through increases in the frequency and severity of extreme events. Statistical techniques based on the probabilistic theory of extreme values are used to model such events, but traditional uses of these ideas do not accommodate the complexities of modeling uncertainties in a changing environment. This workshop will bring together researchers in statistics of extremes and in relevant applied domains, to assess the state of the art in model-



A washed-out bridge, damaged from flooding in Pakistan, August 5, 2010  
Photo: © [http://en.wikipedia.org/wiki/File:Damaged\\_bridge\\_from\\_flooding\\_in\\_Pakistan,\\_2010.JPG](http://en.wikipedia.org/wiki/File:Damaged_bridge_from_flooding_in_Pakistan,_2010.JPG)

ing of complex extreme events, to highlight emerging statistical ideas that may be useful in applications, and to identify challenging environmental extremal problems that need innovative treatment.

Further information: <http://extremes.epfl.ch/ascona2011>  
Anthony Davison, Institute of Mathematics, EPF Lausanne  
Contact: [anthony.davison@epfl.ch](mailto:anthony.davison@epfl.ch)  
The event is organized as part of the EXTREMES project:  
[www.cces.ethz.ch/projects/hazri/EXTREMES](http://www.cces.ethz.ch/projects/hazri/EXTREMES)

#### Announcement CARMA workshop 'Geological Storage of CO<sub>2</sub>'

A workshop on geological storage of carbon dioxide will take place on October 27, 2010, 9.00 to 17.30 h at ETH Zurich, room CLA J 1, Tannenstrasse 3, 8006 Zurich (map: [www.mapsearch.ethz.ch](http://www.mapsearch.ethz.ch), search for 'Gebäude' CLA) with speakers from the CARMA team. The aim of these yearly topical workshops is to educate the attendees on the methodologies used inside the different sub-projects belonging to CARMA. Target audience is expected to belong to all the disciplines pertinent

to CO<sub>2</sub> sequestration, including, but not limited to, geological, environmental, chemical and mechanical engineering. For this workshop, the following topics will be covered: geology and gas storage, CO<sub>2</sub> geological storage, geophysics and geochemistry of CO<sub>2</sub> injection, risk assessment and induced seismicity, and storage potential in

Switzerland. No registration is needed, but notifications of attendance are welcomed.

Marco Mazzotti and Ronny Pini, Institute of Process Engineering, ETH Zurich  
 Contact: marco.mazzotti@ipe.mavt.ethz.ch  
 The event is organized as part of the CARMA project:  
[www.carma.ethz.ch](http://www.carma.ethz.ch)

## Education

### ClimaAtscope – Swiss Experiment educational program

ClimaAtscope is an educational program launched in 2008, which informs children from 6 to 18 years about environmental monitoring in the Alps. Wireless sensing stations are set up around schools. Key development areas of climAtscope are: experiments such as building rain gauges, drawing graphs, analyzing online data from their station and direct contact (workshops, presentations, field trips) with scientists. Pedagogical notebooks have also been developed. More than 2000 children and 15 schools have already been involved in climAtscope. Further education activities of Swiss Experiment are Seismo at school and GLOBE (see [www.swiss-experiment.ch/index.php/SwisScope:Home](http://www.swiss-experiment.ch/index.php/SwisScope:Home)).



A scientist describing wireless sensing station to kids. Photo: V. Luyet, EPFL - EFLUM

Vincent Luyet, Swiss Experiment Education Program, EPFL - EFLUM  
 Contact: [vincent.luyet@epfl.ch](mailto:vincent.luyet@epfl.ch)  
 Information: <http://eflum.epfl.ch/climatscope/index.php>

### Announcement CCES Winter School 'Sustainability Science Meets Practice'

How can sustainability scientists lead a true dialogue with citizens about issues of general interest as well as concern? This is the topic of the first CCES winter school 'Sustainability Science Meets Practice' taking place in January / February 2011 in the surroundings of Zurich. Participants will improve their capabilities to understand and critically analyze the foundations of their research as well as the societal implications of its results and innovations; and the winter school is an opportunity to get in touch with practitioners, stakeholders and the public.

The winter school addresses PhD students from environmental and natural sciences, engineering, and social sciences related to sustainability science. PhD students from CCES projects will be preferred. PhD students in the above fields from outside CCES are eligible if not all places are allocated to CCES students.

The application deadline is October 31, 2010.

Claudia Zingerli, CCES, and Dr. Michael Stauffacher, Institute of Environmental Decisions, ETH Zurich  
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 Claudia Zingerli directly (phone +41 44 633 92 75)  
 Information and application: [www.cces.ethz.ch/winterschool](http://www.cces.ethz.ch/winterschool)

## Research

### River restoration:

#### Morphological, hydrological, and ecological changes, challenges and opportunities

Restoration is an essential means to enhance the dynamic stability of rivers while improving habitat diversity and variability and lowering long-term maintenance expenditures. Although the number of restoration projects has increased in recent years, scientific understanding is still limited with regards to the underlying principles determining how hydromorphological variability in restored river corridors relates to ecosystem functioning, biodiversity and (ground)water quality. In order to cope with the challenges of river restoration in a successful and efficient way, we need to increase our mechanistic understanding of the coupled hydrological and ecological processes in near-river corridors. Limitations in scientific advancement in these areas have especially been impaired by discipline-specific research rather than a multi-disciplinary endeavor that collaboratively investigates cause-and-effect relationships and re-examines historical assumptions and approaches.

In the CCES-funded multi-disciplinary RECORD-project (REstored CORridor Dynamics) the research team investigates coupled hydrological and ecological dynamics in a channelized and restored river section in northeast Switzerland by

synthesizing physical, chemical, and biological experiments and modeling.

The results showed that the gravel aquifer underlying the newly formed gravel bar has a mainly uniform layered structure in the top two meters, whereas the older sediments display a more variable depositional pattern. Furthermore, it was shown that bank filtration is a spatially and temporally varying process. Shortest travel times of freshly infiltrated river water were measured in the restored river sections, where natural banks and a pronounced river bed morphology exist. Preliminary results indicate that the biodiversity in the restored part of the Thur River is higher than in the channelized portion. The researchers presume that this is the result of the much more versatile living conditions in the revitalized section of the river. The RECORD-project demonstrates that multidisciplinary studies at engineered and restored river sections are improving our process understanding and help to better manage river systems.

Mario Schirmer, Department Water Resources and Drinking Water, Eawag

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The study makes part of the RECORD project:

[www.cces.ethz.ch/projects/nature/Record](http://www.cces.ethz.ch/projects/nature/Record)



River section of the Thur River close to Niederneunforn in North-Eastern Switzerland before (left) and after revitalization (right). Photos: C. Herrmann, BHAtteam Ingenieure, Frauenfeld