

C2SM-NEWSLETTER

Center for Climate Systems Modeling
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C2SM enters its second phase

Isabelle Bey – C2SM executive director

The Center for Climate Systems Modeling (C2SM) has been established in response to the scientific challenges posed by climate change. After a first successful phase, C2SM will enter into a great and exciting second phase in July 2012.

Climate change is not only a pressing societal concern, but also one of the most challenging scientific issues. As the anticipated future climate lacks an observed analogue in the past, numerical models of the climate system have become decisive and indispensable tools in climate research. While these models have seen an impressive development since their beginnings about 40 years ago, many key questions about the climate system and how to best represent it in numerical tools remain unresolved. In response to these challenges, the Center for Climate Systems Modeling (C2SM) has been established in 2008.

The primary objectives of C2SM are to improve the understanding of the climate system, and our ability to predict it. C2SM represents and involves several hundred scientists among its partnership (currently consisting of ETH, MeteoSwiss, Empa and ART). It serves as a coordinating platform, and supports the development, application and exploitation of climate models and climate data sets.

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A particular highlight of the last years is the development and dissemination of the new Swiss Climate Change Scenarios (CH2011), a far-reaching project that paves the way towards a coherent assessment of climate change impacts, ranging from health, agriculture, water resources, to glacier retreat. Reaching out towards such research communities is another central goal of the C2SM strategy.

C2SM also successfully enabled and acquired large scientific initiatives. This includes a High-Performance and High-Productivity Computing (HP2C) project jointly with the Swiss National Supercomputing Center (CSCS) dedicated to the exploitation of the next generation high-performance computing system, a NSF-funded Sinergia project aiming at a better understanding of the exchange of long-lived greenhouse gases between atmosphere and biosphere (CarboCount CH), and an ETH-funded large collaborative project on the water cycle in a changing climate (CHIRP2). All these projects strongly rely on the modeling platform that is maintained and further developed under the coordination of C2SM. This currently includes the global climate model ECHAM, the regional climate and weather forecast model COSMO, and some related modules for aerosol, land component, etc.

The successful implementation and development of C2SM during the first phase of its existence was key in securing funding for the second phase. All partners have renewed their interests in supporting the Center. In particular, ETH Zurich has approved funding for the core activities, and contributions from our partners have been approved. The second phase will start in July 2012 and run until the end of 2016. These developments provide a secure financial base for the next years and add on to the commitment of C2SM to further strengthen the strategy and services, on behalf of our members, and to the benefit of the whole climate research community in Switzerland. In the second phase, emphasis will be put on the following lines during the second phase:

- Strengthening the coordinating role of C2SM to address new research avenues by implementing the recently acquired large collaborative projects, and by further establishing C2SM as a unique entry point for climate modeling activities at ETH and in Switzerland.
- Developing improved links with the climate impact community following the CH2011 scenario initiative
- Co-organization and co-sponsoring (together with the NCCR Climate) of a summer school on “The Water Cycle

in a Changing Climate: Observations, Scenarios, Impacts” (to be held in September 2012).

- Strengthening the outreach and communication instruments to improve C2SM’s visibility, in collaboration with other activities at ETH and our partner institutions

Entering the second phase of C2SM is a great and exciting challenge and we are very much looking forward to it!

» www.c2sm.ethz.ch

Results from “Climate Change and Hydrology in Switzerland” (CCHydro)

In a concluding event on 8 June 2012, the Federal Office for the Environment (FOEN) presented the results from the 3-year project CCHydro, investigating the impacts of future climate change on the water balance in Switzerland. The necessary climate change data was prepared by C2SM members at ETH Zurich and disseminated by C2SM.

The project results show that the water resources will only change slightly by the end of the century. However, the rise in the snow line associated with rising air temperature will greatly reduce the volumes of snow and ice stored in the Alps. Combined with the expected drier summer and wetter winter, the seasonal flows will be redistributed. High and particularly low water flow events will probably occur more frequently, mainly in sensitive regions such as the Swiss Plateau, Valais and Ticino.

C2SM supported the project by disseminating the climate change data prepared by Thomas Bosshard and colleagues in the group of C2SM member Cristoph Schär at the Institute for Atmospheric and Climate Science at ETH Zurich. In the meantime, an updated version of the dataset has become part of Swiss Climate Change Scenarios CH2011 (named “Local scenarios at daily resolution based on individual model chains”). (tc)

» www.bafu.admin.ch/projekt-cchdro

News

CarboCount CH measurement sites

Project

The project CarboCount CH is currently setting up four new measurement sites in Switzerland to measure the concentrations of the two most important greenhouse gases carbon dioxide and methane with high precision and accuracy. The measurements will capture signals from emission sources as well as biosphere-atmosphere exchange of CO₂ over the Swiss Plateau. In order to prevent the signals to be dominated by the local biosphere surrounding the sites, the measurements will be obtained from tall towers and other elevated sites.

In early July, the famous former radio tower Beromünster, the core site of the network, will be equipped with air sampling lines and meteorological instruments at five different levels between the surface and 210 m height. This setup will allow for a better description of local transport processes and to test the quality of the atmosphere and biosphere models used in the project to predict atmospheric CO₂ and CH₄ concentrations.

» www.carbocount.ch

MAIOLICA II and OPTIWARES

Project

Two new projects funded by the Competence Center Environment and Sustainability (CCES) will start in the coming months with several C2SM members as principal investigator (PI) and co-PI.

MAIOLICA II seeks to improve our understanding of the feedbacks among the terrestrial biosphere, atmospheric composition and climate, contributing to the observed variability of atmospheric CH₄ concentrations in the recent past. PI is C2SM member Thomas Peter from ETH Zurich. Co-PIs are C2SM member Dominik Brunner from Empa and Nick Zimmerman from WSL.

OPTIWARES aims to improve the quantitative understanding of the impact of aerosols from wood combustion on air quality and climate and to develop new strategies to encourage the use of more appropriate wood combustion facilities. The project is led by Urs Baltenspeger from PSI with C2SM members Ulrike Lohman and Thomas Peter as co-PIs.

C2SM is a co-PI of both projects and will provide support for modeling activities and outreach.

Rapid ocean acidification in the California Current System

Publication

Increased CO₂ concentrations are causing the acidity of the oceans to rise. C2SM co-chairman Nicolas Gruber and colleagues have investigated how the oceanic acidity will develop along the west coast of the USA until the year 2050. The waters off the west coast of the USA are known for their particularly large wealth of fauna and flora. This biodiversity is threatened by climate change. "Considerable changes in the ecosystem along the west coast of the USA are bound to occur," said Nicolas Gruber to ETH Life.

» www.ethlife.ethz.ch/archive_articles/120612_pazifik_ver-sauerung_cn/index_EN

Public event with Dr. James Hansen

Event

On 30 April 2012, James Hansen spoke to a crowded Auditorium Maximum at ETH Zurich about "the Requirements to Avoid Dangerous Climate Change". Dr. Hansen heads the NASA Goddard Institute for Space Studies and is one of the most renowned climate scientist. In case you missed the presentation you can watch it online.

» www.iac.ethz.ch/events/hansen

Thierry Corti leaves C2SM

Staff

Thierry Corti is leaving C2SM at the end of June 2012 to take a new position at Swiss Re as a specialist in atmospheric perils. The whole C2SM group would like to thank Thierry for his dedicated work over the last three years, in particular his strong involvement in the CH2011 initiative, and wishes him all the best for the continuation of his career.

Agenda

Events in Switzerland

4th International Disaster and Risk Conference IDRC

Sunday - Thursday, 26 - 30 August 2012

Davos

» www.idrc.info

4. Symposium Anpassung an den Klimawandel

Freitag, 21. September 2012

UniS, Universität Bern

» http://events.scnat.ch/proclim/index_en.php?id=16713

10th Swiss Geoscience Meeting

Friday / Saturday, 16 / 17 November 2012

University of Bern

» www.geoscience-meeting.scnatweb.ch/

Updates & Further events

» www.c2sm.ethz.ch/news

Imprint

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