

New C2SM website

C2SM has released a new website that follows the new content management system of ETH. We hope that the website has improved in readability and clarity. Please help us to have a lively website by sending us information regarding new publications, projects, events and people. For any inputs, questions, or comments, [contact us](#).

New staff at C2SM for outreach and communication

[Tracy Ewen](#) has joined the C2SM core staff on June 1st, 2015. Tracy completed a PhD in climate modelling at the University of Victoria, Canada in 2004, and has since worked at IAC, ETH and the [Hydrology and Climate group \(H2K\)](#) at the University of Zurich. She continues to work part-time with H2K where she is involved in teaching and outreach. At C2SM she will develop new outreach activities to increase awareness of climate issues for the general public and to support the C2SM community. We wish Tracy a warm welcome!

Save the date: 2015 ETH-Klimarunde, November 4, 2015, 3-7:39pm

“[Vision Null: Wege zur einer CO2-neutralen Gesellschaft](#)” will be the topic of the 2015 edition of the ETH-Klimarunde. In light of the upcoming COP21 taking place in Paris in December 2015, the question of how to transition towards a low-carbon world will be addressed. The current knowledge regarding the 2°C target and the related carbon budget, the process and opportunities for successful international negotiations and the potentiality for large-scale development of low- and neutral-carbon technologies will be presented and discussed. The first part of the event (3-5pm) will allow direct interactions with a large suite of experts from various domains. The event (in German) is jointly organized by C2SM and the Energy Science Center at ETH. [Registration](#) is mandatory.

Save the date: Scientifica 2015 “Licht und Erleuchtung”, September 4-6, 2015

C2SM will contribute to the [Scientifica 2015](#), the science fair jointly organized by University of Zurich and ETH. Come to our booth entitled “Unsichtbares Licht in der Erdatmosphäre” with your family and friends to explore the global energy budget of the Earth. Experiments will allow you, for example, to change the composition of the atmosphere and observe the effect on the Earth's radiation balance. If you are interested in participating as a volunteer, contact us.

The new Swiss Climate Change Scenarios CH2018 initiative

The recently initiated project “CH2018” aims at releasing new climate change scenarios for Switzerland by 2018. It builds upon the excellent scientific network established in the predecessor project [CH2011](#), which involved the C2SM partners MeteoSwiss and ETH among other institutions. The CH2018 initiative will run in the framework of the National Center for Climate Services (NCCS), which is currently being established. The NCCS is hosted at MeteoSwiss and is expected to come into operation in autumn 2015. The new CH2018 scenarios will be based on the latest set of climate model simulations over Europe. A market evaluation will be performed in the next few months among stakeholders in

Switzerland to ensure that the provided scenario data and information optimally meets the variety of end-user needs.

New project: Combining atmospheric research with supercomputing

The "[Cloud-resolving climate modeling on future supercomputing platforms](#)" (crClim) project, which is funded by the Sinergia Programme of the Swiss National Science Foundation, started on May 1, 2015. PIs of the project include [C2SM members Christoph Schär, Heini Wernli, Oliver Fuhrer, Philippe Steiner, Torsten Hoefler, and Thomas Schulthess](#). The goal of the project is to develop and exploit a European-scale climate model that is capable of resolving convection at a grid-spacing of 2 km. The project will exploit and further develop the recently established COSMO prototype version running on GPU processors.

New project: Providing high-level abstractions for weather and climate models

A new project entitled CLAW ("[CLAW provides high-Level Abstractions for Weather and climate Models](#)") has been approved by ETH. CLAW aims to develop an open-source tool that will allow to automatize the generation of code for a specific hardware target from a single Fortran source code. The focus is on domain-specific abstractions required in the physical parameterizations and the aerosol- and chemistry modules of climate models. This new tool will facilitate the adaptation of current weather and climate codes to efficiently exploit emerging computing platforms and help achieve a high degree of performance portability. Based on the strong collaboration between ETH and MeteoSwiss together with CSCS, CLAW is developed in the framework of the [PASC initiative](#) and is funded by ETH.

New project: Energy-efficient Scalable Algorithms for Weather Prediction at Exascale

A new project named ESCAPE (Energy-efficient Scalable Algorithms for Weather Prediction at Exascale) has been funded in the framework of the EU [Horizon2020 Future and Emerging Technologies \(FET\)-High Performance Computing \(HPC\) program](#). The project unites a consortium of several weather services and partners from the private sector around ECMWF who has the main lead for the project. The project will fund a 3-year position at MeteoSwiss which will link and apply the developments of the [PASC GridTools project](#) with the ECMWF global model.

"Werkstattgespräche" and "Workshop Discussions"

[C2SM-community member Oliver Stebler](#) has produced a series of short documentaries to explain the importance and relevance of the research activities of a number of C2SM Members. Some of the interviews are now available in both German and English. The more recent interviews feature:

- Christof Appenzeller: [Bei den Wetterprofis](#)
- Ulrike Lohmann: [Die Wolkenfängerin](#)
- Reto Knutti: [Auf verschlungenen Pfaden](#)
- Thomas Peter: [Wissenschaftler, Diplomat und «Psychologe»](#)

Climate Impact Science with Citizens: www.OpenNature.ch

On March 1st, the Swiss citizen science website www.OpenNature.ch was launched. Developed with the support of [C2SM-community member Werner Eugster](#), the website aims at building awareness for science-based climate impact knowledge, collecting scientifically sound phenology and seasonality observations and understanding environmental change. The project features climate change impacts on plants, animals, mushrooms, landscapes, and climate extremes. OpenNature.ch includes a news section presenting new scientific findings and shares the results on social media network such as Facebook (www.facebook.com/OpenNature.ch) or Twitter (@OpenNature_CH). Input and feedback is always very welcome. Contact: [This Rutishauser](#).

Report: Future road salt use in Switzerland

In a recent study proposed by Schweizer Salinen AG (the Swiss salt producer), [MeteoSwiss](#) has estimated the future road salt use under future climate conditions using changes in climate indices provided by the CH2011 scenarios. The study showed that the expected widespread decrease in the number of snowfall days will result in a reduction of the amount of future road salt required for winter service in Switzerland by around 50% following the A1B scenario in the 2060 time horizon. These future estimates will help Schweizer Salinen AG to design their long-term business strategy. This collaboration shows how an effective climate service can work in practice.

[Zubler, EM, Fischer, AM, Liniger, MA, und Schlegel, T: 2015, Auftausalzverbrauch im Klimawandel, Fachbericht MeteoSchweiz, 253, 36pp, ISSN: 2296-0058.](#)

Paper: Climate change does not cause winter cold snaps

C2SM Member [Tapio Schneider](#) led a team of scientists at ETH Zurich and the California Institute of Technology to explore the hypothesis that climate change, by inducing larger variability in temperature, may have resulted in recent winter cold snaps across the eastern United States. The authors used a broad range of climate simulations and theoretical arguments to show that, in most places, the range of temperature fluctuations decreases as the climate warms. In contrast to results from previous studies, they could show that the day-to-day temperature variability in mid-latitudes, especially in winter, generally decreases as the temperature difference between the poles and the equator diminishes. Cold snaps will therefore become rarer as this variability is reduced. However, heat waves will become more frequent because the mean temperature increases.

[Schneider, T., T. Bischoff, and H. Plotka \(2015\): Journal of Climate, doi:10.1175/JCLI-D-14-00632.1](#)

ETH News article: [Climate change does not cause extreme winters](#)

Paper: Attribution of extreme weather to global warming

In a recent study published in Nature Climate Change, C2SM researchers [Erich Fischer](#) and [Reto Knutti](#) conclude that already today, 75% of hot extremes and 18% of the heavy rainfall events occurring worldwide are attributable to the observed warming. Based on an ensemble of global climate models, the authors analyze heavy rainfall and high-temperature days that occurred about once in 3 years in pre-industrial conditions and quantify how their frequency changes with certain levels of global warming. As opposed to single-event attribution studies, their global aggregate approach and focus on moderate extremes makes it possible to quantify the human contribution to weather extremes for certain levels of global warming. With each increment of warming, the frequency of high-temperature and heavy precipitation extremes rises sharply. The authors show that if temperatures rise globally by 2°C, twice as many extreme hot days are expected worldwide than with a 1.5°C increase.

[Fischer, E. M. and R. Knutti \(2015\): Nature Climate Change, doi:10.1038/nclimate2617](#)

ETH Zukunftsblog article: [More than half of hot extremes due to climate change](#)

Paper: Evaluation of European regional reanalyses and downscalings for precipitation in the Alpine region

C2SM-community members Francesco Isotta and Christoph Frei from Meteoswiss have compared European-scale model-based regional reanalyses, two downscaling datasets, one global reanalysis and four station-based interpolation datasets, focusing on precipitation in the region of the European Alps. The evaluation provides insight into the relative strengths and limitations of the various datasets and downscaling concepts

[Isotta, F., R. Vogel, and C. Frei \(2015\): Met. Z., 24 \(1\), 15-37](#)

Paper: Towards a better understanding of the development of heat waves

Heat waves in Europe, like the ones in 2003 and 2010, are typically associated with atmospheric blocking, that is with stationary high pressure anomalies in the middle to upper troposphere. C2SM-community members [Stephan Pfahl](#) and [Heini Wernli](#) from ETH together with Mischa Croci-Maspoli from MeteoSwiss have analysed a large amount of data from the past 21 years, including ground-measurements, balloons, aircraft and satellites from the European Centre for Medium-Range Weather Forecasts in Reading, UK. Their study reveals that the ascent of air masses from the lower troposphere, associated with latent heat release in clouds, contributes significantly to the formation of such blocking anticyclones. This process is not taken into account in current blocking theories, and may have implications for changes in blocking frequencies in a warming climate.

[Pfahl S., C. Schwierz, M. Croci-Maspoli, C.M. Grams, and H. Wernli: Importance of latent heat release in ascending streams for atmospheric blocking. Nature Geoscience, 20 July 2015, doi: 10.1038/ngeo2487.](#)

ETH News article: [Making Europe sweat](#)

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