CENTER FOR CLIMATE SYSTEMS MODELING

SCIENCE HIGHLIGHTS FROM C2SM

The Swiss Climate Summer School 2019 discussed transformative net negative emission technologies.

SWISS CLIMATE SUMMER SCHOOL 2019:
'CARBON AND CLIMATE IN THE PARIS WORLD: GETTING OUT OF THE FOSSIL FUEL CARBON BUDGET CRUNCH' – A RETROSPECT.
8–13 SEPTEMBER 2019

The Swiss Climate Summer School is a joint venture of C2SM at ETH Zurich and the Oeschger Centre at the University of Bern. The 2019 school was organised by C2SM under the scientific guidance of Prof. Nicolas Gruber, Prof. Niklaus Zimmermann and Prof. Fortunat Joos. By means of eleven keynote lectures by internationally renowned experts, front edge knowledge on climate change, the carbon cycle, and negative emission technologies was presented to 57 participants from 12 countries. In addition, six case studies on negative emission concepts were prepared in smaller groups by assuming positions of different stakeholders. The groups were supported by the keynote lecturers and external experts from several NGOs and companies. The case studies were presented in a public hearing style on the last day of the school. We are looking back to a highly successful school and thank all who contributed to make it such a memorable week. The Swiss Climate Summer School 2020 will focus on the topic 'Extreme weather and climate: from atmospheric processes to impacts on ecosystems and society' (announcement and registration at www. climateresearch.ch).

PAPER: DETECTION OF A CLIMATE CHANGE SIGNAL IN EXTREME HEAT, HEAT STRESS AND COLD IN EUROPE

A recent study by Dr. Ruth Lorenz from ETH Zurich has analysed trends in extreme temperature using data from 1950 to 2018. At individual measurement stations trends are likely to be affected by natural variations, which makes it difficult to detect a signal due to climate change. Thus, this study used observations over many stations across Europe using statistical methods to assure overall trends are real.

The study shows that on average, the number of days with extreme heat has tripled since 1950 and extreme heat has increased by 2,3 degrees Celsius in magnitude. Likewise, the number of days with extreme cold decreased in frequency by at least half and extreme cold temperatures warmed by more than 3 degrees Celsius on average. These changes are much larger than expected from natural variability and occur at 94 per cent of all stations. If only natural variability played a role, we would expect increases at about half and decreases at the other half of stations. ■

REFERENCE

Lorenz R, Stalhandske Z, Fischer EM (2019). **Detection of a climate change signal in extreme heat, heat stress, and cold in Europe from observations.** Geophysical Research Letters 46: 8363–8374. doi.org/10.1029/2019GL082062

ABOUT C2SM

C2SM aims to improve the understanding of the climate system and strengthen the predictive skill of climate and weather models. It is a joint initiative of ETH Zurich, MeteoSwiss, Empa, WSL, and Agroscope.

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