

CENTER FOR CLIMATE SYSTEMS MODELING C2SM

SCIENCE HIGHLIGHTS FROM C2SM

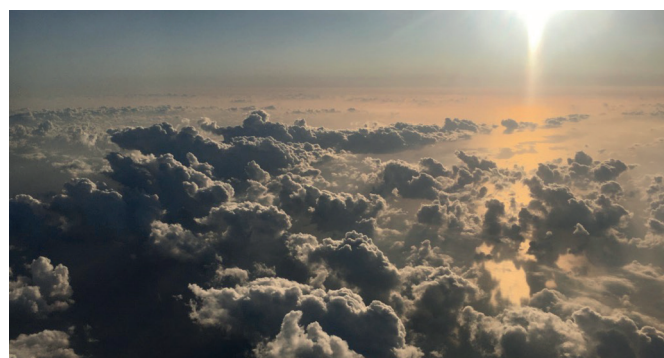
The **EXCLAIM** project will develop an exascale computing and data platform for weather and climate modeling capable of explicitly resolving critical processes of weather and climate, in particular clouds and convection.

EXCLAIM is a newly launched project running under the umbrella of ETHZ's Center for Climate Systems Modeling (C2SM) and funded primarily by ETHZ's internal funds. Over the next six years, a team of software engineers and postdocs, guided by directors of science and software, will develop this platform in collaboration with principal investigators from ETHZ, the Swiss National Supercomputing Centre (CSCS), the Swiss Data Science Center (SDSC), MeteoSwiss and Empa. The project is led by an executive committee consisting of N. Gruber, C. Schär, T. Schulthess, and C. Appenzeller.


BETTER REPRESENTATION OF CLOUDS AND CONVECTIONS


The envisaged EXCLAIM modeling and data platform will make a step change in the modeling of the weather and climate system. It will permit to push the resolution of the models to levels that so far have remained inaccessible, thus permitting to better represent a number of key small-scale processes such as clouds and convection. This will reduce uncertainties in weather prediction and climate projections. To achieve this goal, EXCLAIM will exploit the next generation of supercomputer architectures, implement novel concepts in data handling, and refactor the codes using the concept of domain specific software frameworks and higher-level code abstractions.

The development of the EXCLAIM platform is based on a strong collaborative approach that brings together computer, data, and climate scientists. This collaboration will also include the Deutsche Wetter Dienst and MPI-Meteorology in Germany, as well as the European Centre for Medium-Range Weather Forecasts –making this one of the strongest model development consortia worldwide. ■



Low-level clouds over the North Pacific off San Diego. Cloud and precipitation systems are one of the key topics of EXCLAIM. Photo: N. Gruber.

 MORE INFORMATION
c2sm.ethz.ch

 CONTACT
info@c2sm.ethz.ch

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 ETHZ, MeteoSwiss, Empa, WSL, and Agroscope.