



Schweizerische Eidgenossenschaft
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National Centre for Climate Services NCCS

Consciously addressing the climate of today
and tomorrow: promoting dialogue and jointly
developing and coordinating solutions.





NCCS: the network for climate services

Climate services comprise scientific information and data on the climate of the past, present and future, as well as its consequences. These services serve as the basis for decision-making that takes account of climate issues. Climate services can help the government, political and business sectors and society to minimise climate-related risks, identify opportunities and optimise benefits and costs.

The NCCS coordinates the development and propagation of these climate services. Acting as an interface between producers and users, the NCCS encourages dialogue and fosters the collaborative development of climate services. In this way the Centre ensures that its work is focused on the needs of the users. Moreover, the NCCS provides its climate services in a userfriendly format.

The parties involved in the NCCS include the Federal Office of Meteorology and Climatology MeteoSwiss, the Federal Office for the Environment (FOEN), the Federal Office for Agriculture (FOAG), the Swiss Federal Office for Civil Protection (FOCP), the Federal Office of Public Health (FOPH), the Federal Food Safety and Veterinary Office (FSVO), the Swiss Federal Institute of Technology in Zurich (ETH Zurich) and the Swiss Federal Institute for Forest, Snow and Landscape Research (WSL). The Centre has been in operation since autumn 2015.

The Federal Government established the NCCS in response to the recommendations of the Global Framework for Climate Services (GFCS) issued by the World Meteorological Organisation (WMO).

The NCCS gives answers to these and other questions:

⚠ Dealing with natural hazards

- Will it rain more and will we therefore have bigger floods?
- What does this mean for my town?

❤ Health

- How much worse will the heat waves get?
- What does this mean for the population?

🌿 Agriculture

- Will there be more pressure from pests in the fruit, wine and crop farming sectors?
- What does this mean for crop protection?

☀ Energy

- Is the roof of my house suitable for solar panels?

🌲 Forestry

- Which tree species should we promote today?
- Which species have a good wood yield and provide a good habitat for animals and plants, even in times of higher temperatures and drought?

💧 Water resources

- How will water availability change?
- What measures will guarantee sufficient supply of drinking water for all of Switzerland in the future?

🐄 Animal health

- To what extent does climate change favour the occurrence of previously exotic pathogens and their vectors?
- How can heat stress in livestock be identified and avoided?



Priority themes

The NCCS develops climate services within several focal topics.

Examples include:

Climate scenarios – possible changes to the climate in Switzerland.

Climate scenarios provide a glimpse of the future. They serve as the basis for assessing the impact of climate change. For an area such as Switzerland, spatially highly resolved climate scenarios are needed. These are computed using the latest climate model simulations for Europe, thereby contributing to a joint national database. Climate scenarios are used, for example, as the basis for adjustments to the Federal Government's strategy for climate change. The new generation of climate scenarios CH2018 will be published in 2018 and will replace the current CH2011 climate scenarios.



Hydrologic cycle – the impact of climate change on water resources and natural hazards.

Climate change is affecting the entire hydrologic cycle. It changes the volume of water which is available at a specific place and time, both at the surface and underground. Water quality is also affected. These changes have consequences for hydropower generation, water supply, urban drainage, flood protection and the prevention of natural hazards.

If we are to formulate measures to facilitate Switzerland's adjustment to these changes, we need to improve our understanding of the processes of the hydrologic cycle and their development. This demands constant observation of changes to the hydrologic cycle as well as knowledge of the central physical and chemical processes and their interaction in order to develop comprehensive mathematical models of the water balance. These can be used in conjunction with the new climate scenarios to prepare hydrologic scenarios.



Forest functions and climate change – the impact of climate change on forest health, the distribution of tree species and the forest as a carbon sink.

The forest has many functions and provides many services such as: soil formation, wood production, carbon capture, regulation of the local climate, protection against natural hazards, habitat for animals and plants, and recreational space for humans. Climate change is affecting the forests. Drought and high temperatures can harm indigenous tree species and increase their mortality. This leads to a change in the forest's composition of species, which also changes its functions and services.

Experts investigate the development of the forest, its functions and the services it provides to society in a changing climate. Building on this they also develop management tools such as early warning systems or proposals for silvicultural measures.





Harmful organism scenarios – climate change and the possible future development and spread of pests and pathogenic agents in agricultural landscapes.

Climate often plays a decisive role in the proliferation and spread of pests and pathogenic agents. Both the number of generations and the size of an insect population depend primarily on the temperature. Mild winters make it easier for imported pests to establish themselves.

Experts combine climate scenarios with forecast models for individual pests. They simulate the possible future development and spread of pests among crops in Switzerland, thus establishing an important foundation for the development of sustainable crop protection strategies.



Extreme climatic events and natural hazard processes – how representative scenarios for extreme climatic events can improve civil protection measures.

The interaction between climate change, natural hazard processes, impacts and mitigation of impacts are complex. Scenarios of extreme climatic events help to improve preventative and civil protection measures. These scenarios illustrate how natural hazard processes may play out and how these affect people, the environment, the economy and society. The focus is on extreme hail storms combined with heavy precipitation.



Climate Change and Human Health – what the effects of heat waves on health are and how preventive measures can be implemented

Climate change and higher temperatures can have substantial impacts on health. The focus is on heatwaves and their impacts on health – as they already occur today and will occur more frequently, more intensively and longer in the future according to climate scenarios. It has been verified that the mortality rate and hospital admissions significantly increase during heatwaves. In the hot summer of 2003, 7% more people died in Switzerland as a result of the heat, in 2015 it was 5.4%. In order to better understand the health effects of climate change and to address issues such as "What can authorities do to protect the population?", basics, data and new insights are obtained – that way, preventive measures can be provided and evaluated.



Animal Health – how the climate affects the spread of animal diseases and epidemics

The health of animals is influenced by the climate – high temperatures and heat waves affect them already today. Hot spells, for instance, cause heat stress in dairy cows, which impairs their reproduction, growth and wellbeing. Moreover, the spread of pathogens and their vectors (such as mosquitoes) is favoured by climate change and poses a health risk for many species of animals - and thus often for humans as well. Information on animal health and the spread of animal diseases and epidemics is continuously recorded. By linking health with climate data, the impact of climate change on animal health, and thus on food safety and human health, can be estimated.





User interfaces

The NCCS links the producers and users of climate services through various channels. These include the web portal of the NCCS (www.nccs.ch), the NCCS Forum, user group-specific workshops and other existing channels.

Scientifically sound and comprehensible: the NCCS publishes climate services and background information on its web portal. The NCCS Forum, a regular networking event, also provides information on climate services.

During these events, producers and users of climate services meet and discuss their ideas, needs and options. This dialogue serves as the foundation for the preparation and further development of the best possible climate services. In a demand-driven manner, the NCCS organises additional workshops for individual sectors such as the agricultural sector, or on specific topics like climate scenarios.



Organisation

Contact

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Members of the NCCS

Federal Office for Meteorology and Climatology MeteoSwiss
Federal Office for the Environment FOEN
Federal Office for Agriculture FOAG
Swiss Federal Office for Civil Protection FOCF
Federal Office of Public Health FOPH
Federal Food Safety and Veterinary Office FSVO
ETH Zurich
Swiss Federal Institute for Forest, Snow and Landscape Research WSL

The climate services are developed by teams of specialists focusing on specific topics. Collaborative work on these priority themes by other institutions is also welcome. Currently, Agroscope, the Research Institute of Organic Agriculture (FiBL), the University of Berne and ProClim – Forum for Climate and Global Change of SCNAT contribute to the priority themes.



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