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National Centre for Climate Services NCCS

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

NCCS

National Centre for Climate Services

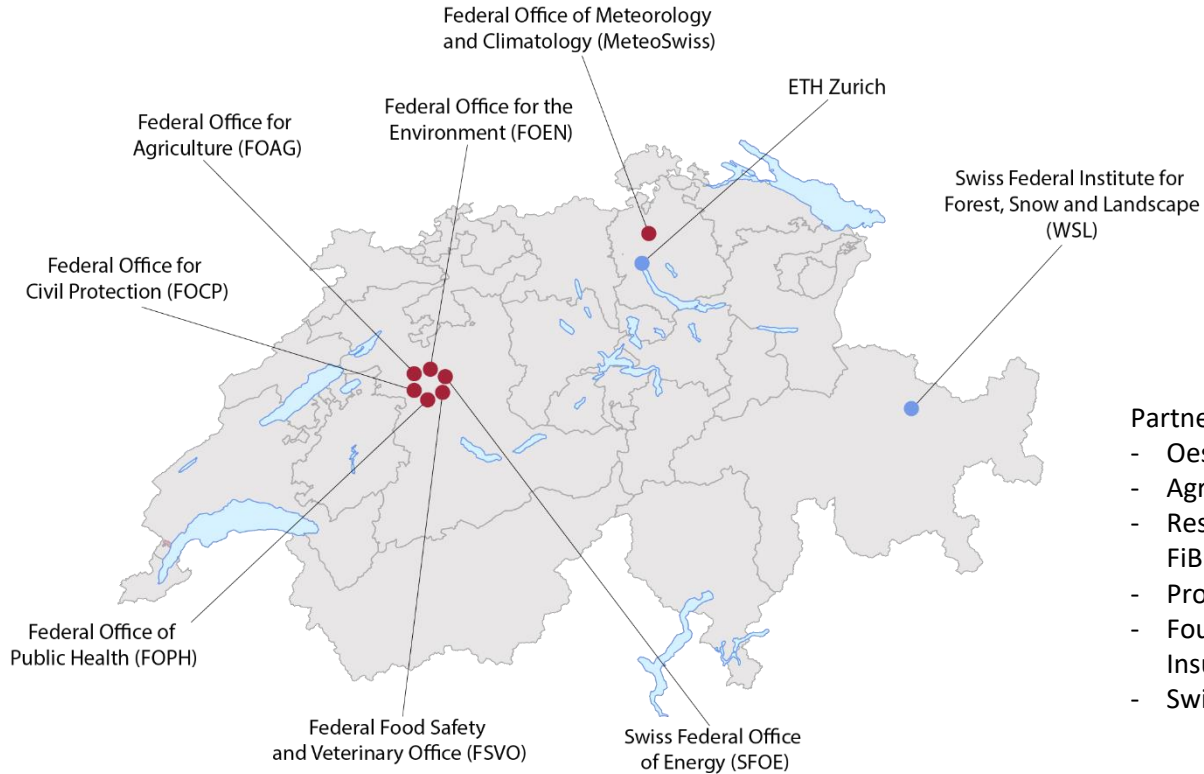
Dr. Vincent Roth | FOEN

NCCS

The federal network for climate services



NCCS members

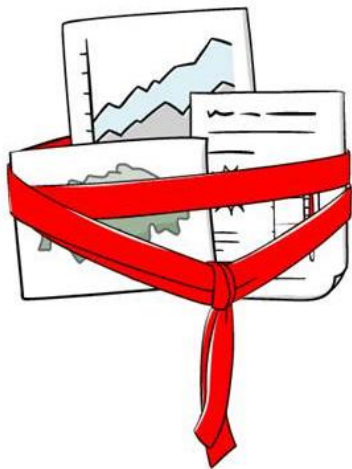


Partners:

- Oeschger Centre for Climate research
- Agroscope
- Research Institute of Organic Agriculture FiBL
- ProClim
- Foundation for Prevention of the Public Insurance Companies for Real Estate FPPIRE
- Swiss Insurance Association SIA



NCCS: Vision and goals



Bundling of existing
climate services



Promote dialogue
between actors



Develop &
communication
tailored information

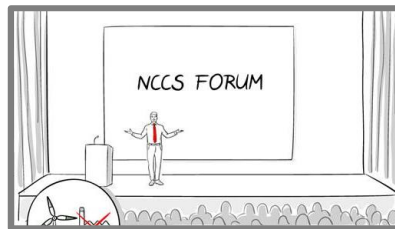


Promoting and disseminating climate services

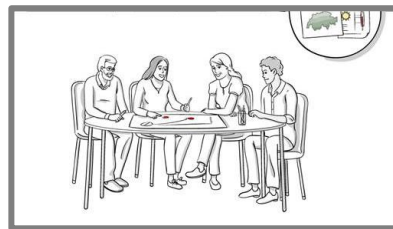
As a network agent and knowledge hub, the NCCS provides an interface with the users of climate services in the following ways



NCCS Webplattform



NCCS Forum

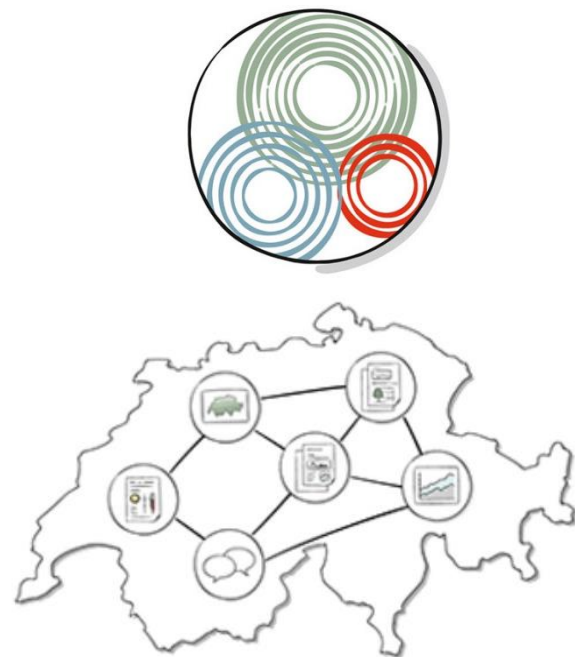
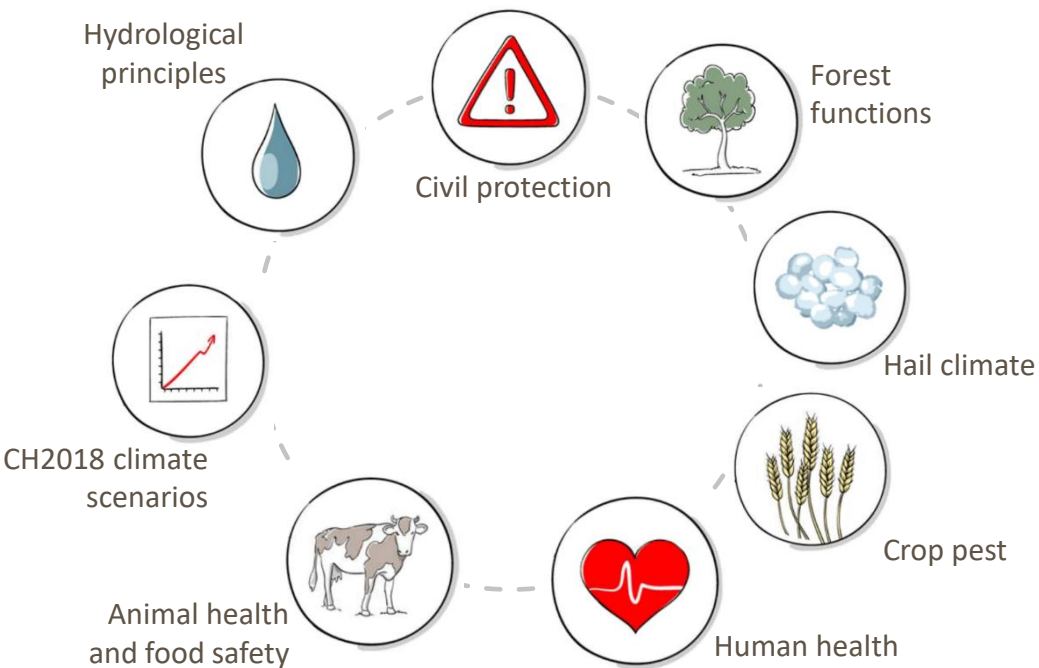


Workshops &
Conferences



Publications &
communication
materials

NCCS priority themes & NCCS-Impacts



Examples



CH2018 and CC in the Swiss cantons

Key messages

The Climate Scenarios CH2018 describe how our climate could change up to the middle of this century and beyond. "Dry summers", "Heavy precipitation", "More hot days", and "Snow-Scarce Winters" are some of the expected consequences of unchecked climate change for Switzerland. The potential impact of global efforts to mitigate climate change – and the extent to which climate change would still affect Switzerland – is shown by the scenario "When climate change mitigation takes hold". The Climate Scenarios combine simulations that use the latest climate models with observations of the trends thus far, providing the most accurate picture to date of our country's future climate.



Dry summers

Vegetable grower Valérie is watering her cucumbers, as the soil is drier. Evaporation is increasing, and it is raining less often.

Heavy precipitation

Homeowner Urs is clearing out his cellar yet again, as extreme precipitation has become markedly more frequent and intense.

More hot days

Grandma Lucia can't sleep, as heatwaves and hot days and nights have become more common and more extreme.

Snow-scarce winters

Gian is stuck on the grass, as winters are warmer and often bring rain instead of snow.

Regional information

Cantons

- Aargau
- Appenzell Auserroden
- Appenzell Innerrhoden
- Basel-Landschaft
- Basel-Stadt
- Bern
- Fribourg
- Geneva
- Glarus
- Graubünden
- Jura
- Lucerne
- Neuchâtel
- Nidwalden
- Obwalden
- Schaffhausen
- Schwyz
- Solothurn

Cantons

Already today, climate change is more pronounced in Switzerland in comparison to the global average. The level and nature of impacts vary depending on the region. Various Swiss cantons have already developed, planned and implemented adaptation and mitigation strategies as well as projects and measures. Click on a canton below to get more information on regional climate change patterns and climate services for local and cantonal needs.



Climate change in the Swiss cantons

The development of adaptation and mitigation strategies in the Swiss cantons relies on robust information on both ongoing and future climate change patterns not only at the national scale but also at cantonal level. In this context, not only changes in mean conditions, but especially changes in the frequency and intensity of extreme events are of great importance. Based on the NCCS priority theme "CH2018 Climate Scenarios", led by MeteoSuisse, this information has been produced and bundled in cantonal fact sheets. Corresponding figures are available in the CH2018 web site. Together, these

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Hydro-CH2018

THE WATER BODIES AT THE END OF THE CENTURY

Climate change will greatly affect water availability over the course of the year. The Hydro-CH2018 hydrological scenarios show that, at certain times and in certain regions, this vital resource will become so scarce or so warm that humans will have to curb their activities and nature will suffer. With climate change mitigation, the changes will be much smaller, meaning that such mitigation is worth the effort. Systematic protection of waters as well as careful planning and management will enable the challenges to be dealt with more effectively.

The overview shows the mean expected changes in 2070-99 compared with the reference period 1981-2010, with and without climate change mitigation. The values given are averages for the whole of Switzerland.



CHANGES IN RUNOFF

As temperatures rise, snow and glaciers will gradually become less important as reservoirs. This will alter the seasonal distribution of runoff, with streams and rivers in Switzerland carrying more water in winter and less in summer than they do now. In addition, there will be more groundwater recharge in winter.



WATER SHORTAGES IN SUMMER

Rivers and streams will carry less water in summer owing to the reduction in meltwater and precipitation as well as more frequent and longer dry periods. There will also be an increase in evaporation. As a result, the amount of water available in summer will decrease, while at the same time nature and society's need for water will increase.

RESPECTING LIMITS ON USE

When temperatures rise, nature needs more water. Human use of water bodies must adapt to this additional demand or risk damaging ecosystems. Moreover, when water is scarce, certain uses must be prioritized over others. It is important to take a long view here, because hydraulic structures and operating licences can be around for many decades.

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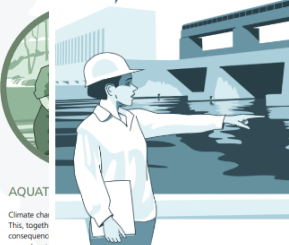
GROWING HAZARD POTENTIAL

More frequent and intense heavy precipitation events combined with a higher zero-degree line will reinforce high-water levels, landslides and flooding. At high altitudes, glaciers will disappear and the frozen subsoil will gradually thaw. This will increase the likelihood of rockfalls, landslides and debris flows.

MAKING WATERS MORE RESILIENT TO CHANGE

Ecologically able to cope rivers, lakes, restored to, protect water and from co

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AQUAT

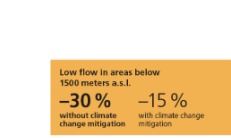
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→ Page 16

Changes in runoff

How ver
scenarios

Snow and glaciers will lose importance in Switzerland's water balance.



Water shortages in summer

Drought in summer and autumn will lead to more water scarcity in some regions.



Growing hazard potential

Natural hazards such as highwater levels, flooding and landslides will increase.



Aquatic life at risk

The rise in water temperatures will threaten biodiversity in and around water bodies.



Cantons

Vaud

Since the year 1864, the temperature in the Canton of Vaud has increased by 2 °C. If global greenhouse gas emissions continue to rise in the future, the warming will continue and will amount to further 2.4 °C by 2060 with respect to the mean of the period 1981-2010. Only an effective lowering of emissions can limit the future temperature change. However, adaptation to the impacts of climate change in the Canton of Vaud would be required even in this case.



Schloss Chillon, Waadt

- Climate change in the Canton of Vaud
- Adaption to climate change
- Projects

Climate change in the Canton of Vaud

The CH2018 Climate Scenarios provide a Swiss-wide picture on how climate variables such as temperature and precipitation will change throughout the 21st century. They are now complemented by the corresponding information for each individual Swiss canton. Human-made climate change will lead to a further increase of both winter and summer temperature in the Canton of Vaud. Mean precipitation amounts will tend to decrease in summer and to increase in winter. The magnitude of these changes will depend on the future

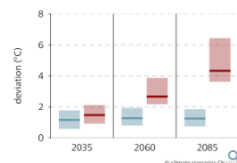
Climate change in the Canton of Vaud

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Temperature

deviation from the normal period 1981-2010

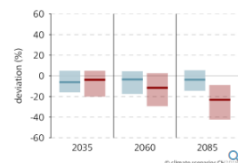
Ct. Vaud summer
 RCP2.6
 RCP8.5



Precipitation

deviation from the normal period 1981-2010

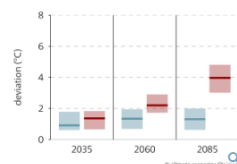
Ct. Vaud summer
 RCP2.6
 RCP8.5



Temperature

deviation from the normal period 1981-2010

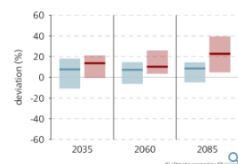
Ct. Vaud winter
 RCP2.6
 RCP8.5



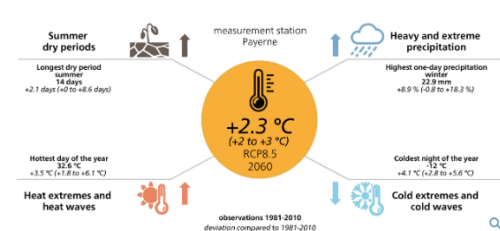
Precipitation

deviation from the normal period 1981-2010

Ct. Vaud winter
 RCP2.6
 RCP8.5



Besides understanding future changes in mean temperature and mean



Overview of the expected changes in extreme values for the measuring station Payerne for the period around 2060 compared to the normal period 1981-2010 (assumption: emission scenario RCP8.5). The expected increase in mean temperature for Switzerland compared to the normal period 1981-2010 at this time is 2.6 °C.

© MeteoSwiss

Download and data

More details on the climate in the Canton of Vaud, on specific climate indicators and on projected changes of the mean climate and of extreme events are available in the cantonal fact sheet and in the CH2018 web atlas.

Fact sheet: climate change in the Canton of Vaud (in French) (PDF, 5 MB, 16.11.2021)



CH2018 web atlas

Based on your selection criteria, you are provided with a wide range of graphics and the associated data. Various climate parameters are available for measuring stations,



Facts and figures

Get an Swiss-wide overview of the possible changes in temperature, precipitation and various climate indicators with and without climate change mitigation.



NCCS data hub

Data



Search words

Sector

NCCS-Member

Reset

Search

1



CH2018 web atlas

Based on your selection criteria, you are provided with a wide range of graphics and the associated data. Various climate parameters are available for measuring stations, regions, cantons or the whole of Switzerland.



Hydro-CH2018 web atlas

According to your selection criteria you get a wealth of graphics and the corresponding data. Available are future discharge data at different stations all over Switzerland.

2



Online tool Adaptation to climate change for municipalities

The tool can be used to evaluate the risks of climate change in one's own municipality. It also shows concrete recommendations for action and successful examples from other municipalities.

3



CH2018 datasets

A number of datasets of the CH2018 scenarios are available for use in impact research and practical applications. Find here detailed information about these datasets, instructions for data access, as well as terms and conditions



Hydro-CH2018 datasets

A selection of datasets from the Hydro-CH2018 hydrologic scenarios is available for use in climate impact research and practice.



Hail climate datasets

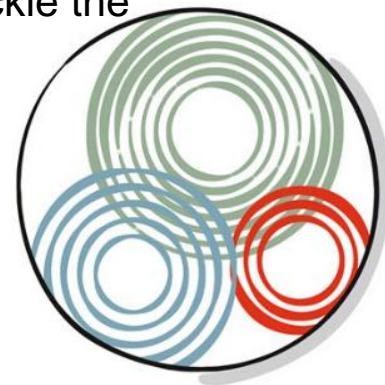
A selection of datasets from the project "Hail Climate Switzerland" is available for use in climate research and practice.

The NCCS-Impacts programme



Overarching goals of Programme «CH-Impacts»

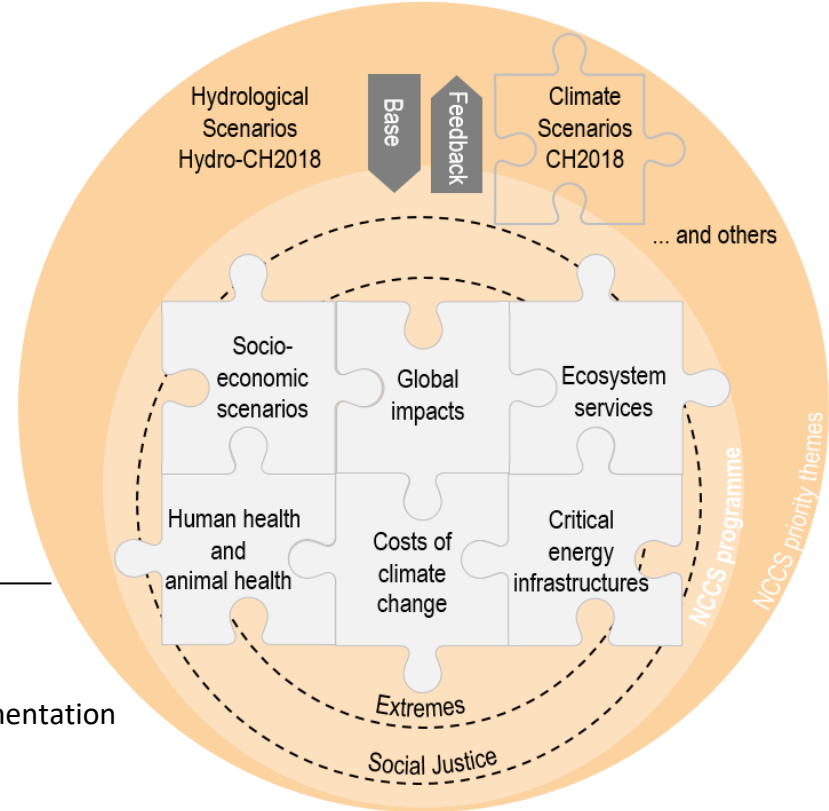
1. Impacts: Systemic overview of the **effects of climate change** on and in Switzerland and its key challenges for the environment, economy and society.
2. Basis for decision-making: Broad **availability and utilization of jointly produced climate services** for a targeted and sustainable approach to the risks and opportunities of climate change.
3. Authority-orientated support: **Cross-sectoral support for the Confederation and all stakeholders in their forward-looking actions** to tackle the challenges of climate change.





NCCS CH-Impacts

- Shared Socioeconomic Pathways for Switzerland
 - [Global impacts of climate change on Switzerland](#)
 - Impacts of climate change on ecosystem services in CH
 - Impact of climate change on human and animal health
 - [Impact costs of climate change in Switzerland](#)
-
- ****Impacts of climate change on critical infrastructure**
 - *****Climate information as a basis for programme implementation**



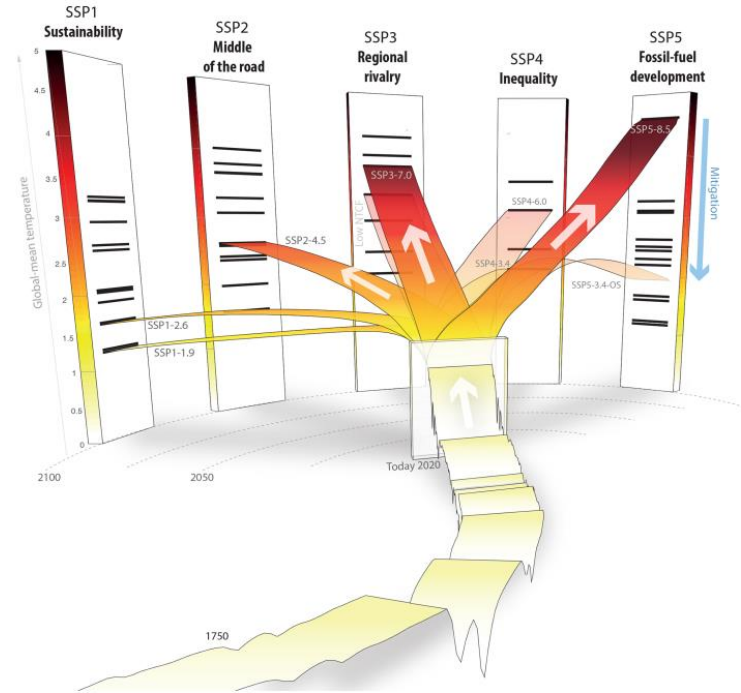
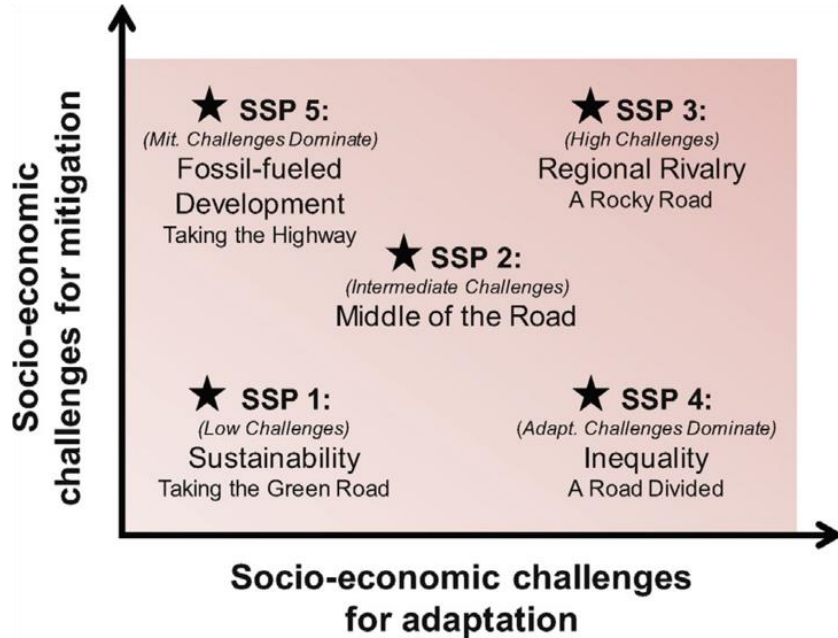


Projekt «socio-economic scenarios»

Development of Swiss Shared Socioeconomic Pathways SSPs

M. Meinshausen et al.: The SSP greenhouse gas concentrations and their extensions to 2500

3577





Project «Global impacts»

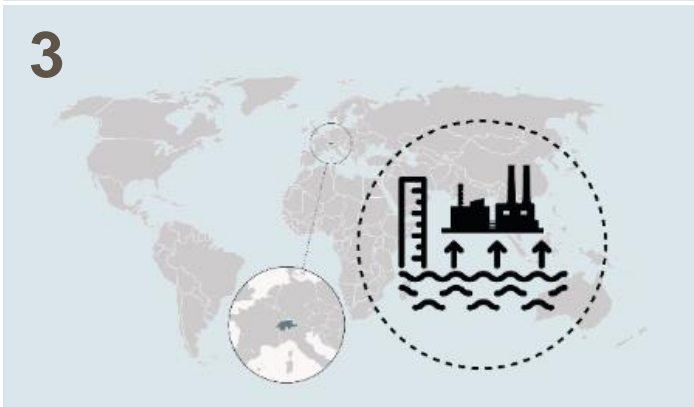
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2



3



4 & 5





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Thank you for your time and interest!

Questions / Discussion





