

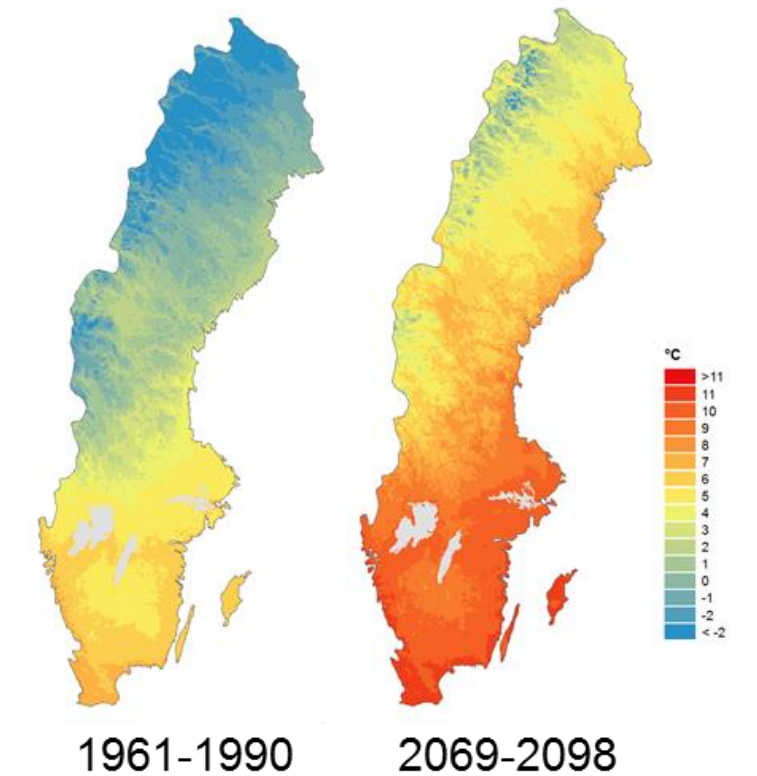
Challenges and good practice , 23 September 2015

Climate changes and adaptation is needed

Gunn Persson



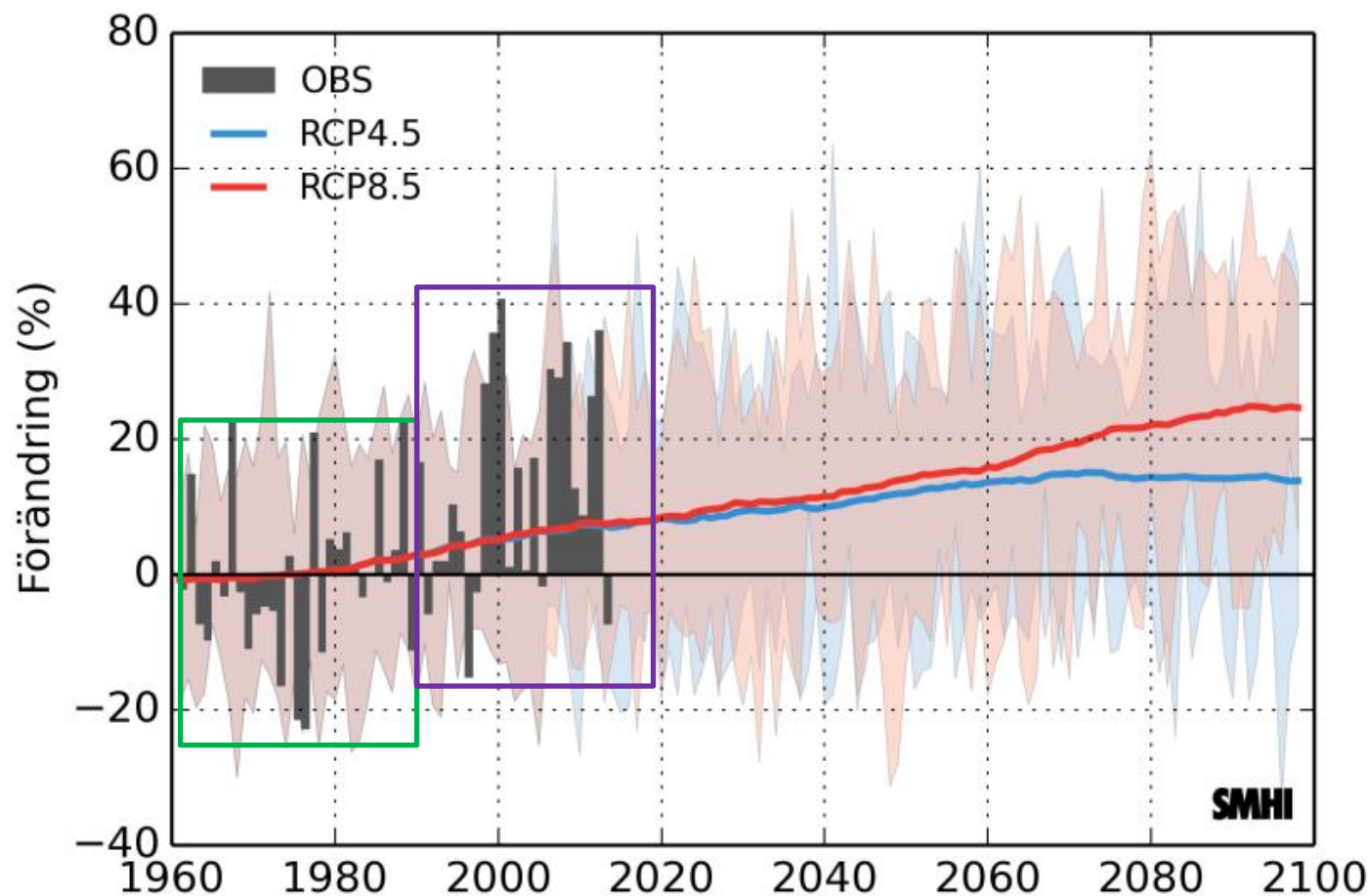
Weather and climate



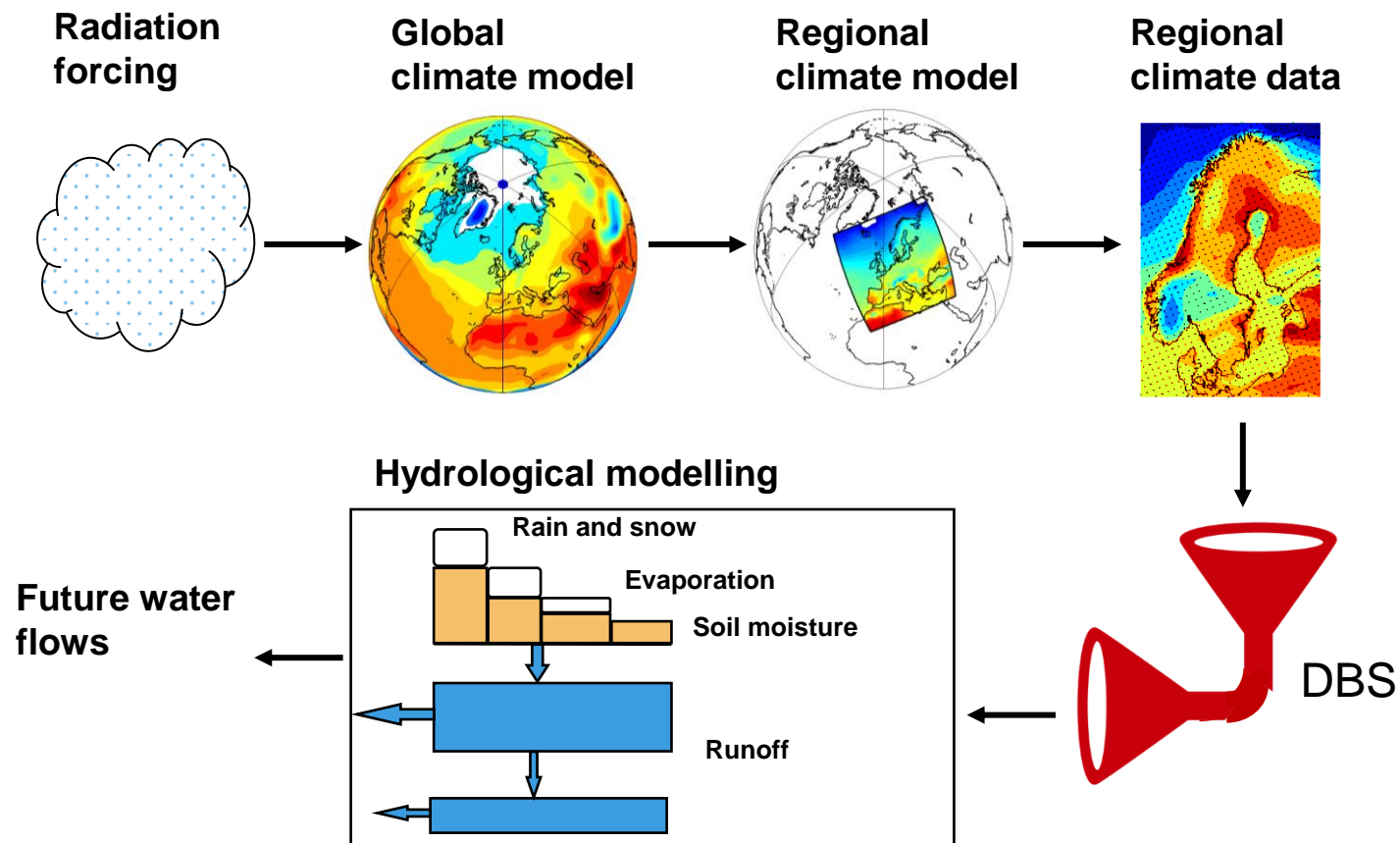
Representativity

- SMHI has "Climate stations", with long timeseries and stable conditions, that can be used to study climatological changes.
- 30 of these are runoff stations.
- No connection to HaV environmental monitoring

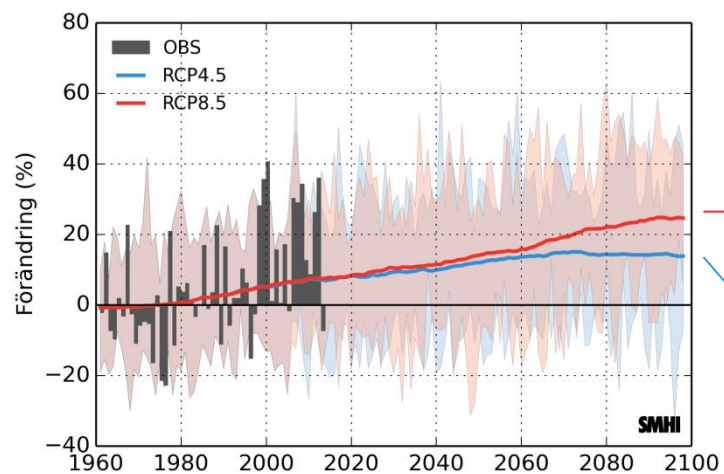
Precipitation Västra Götaland County



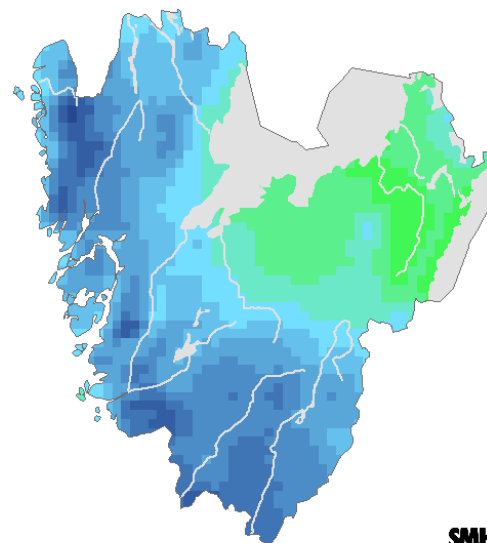
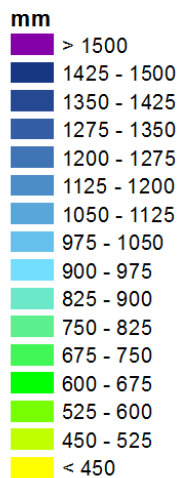
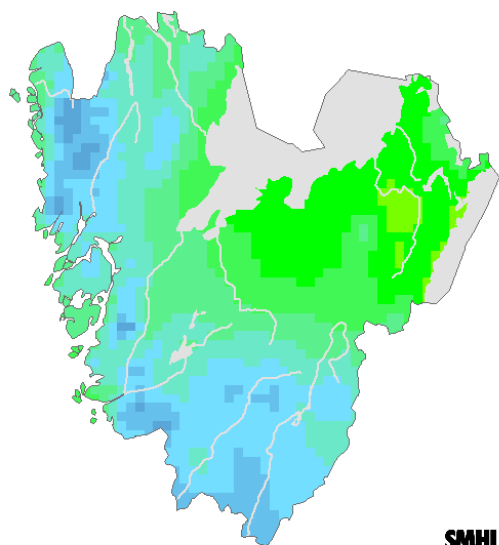
Hydrological effect studies



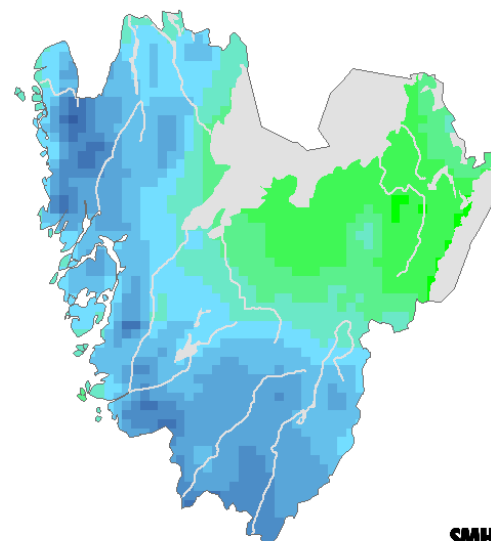
Precipitation



1961-1990



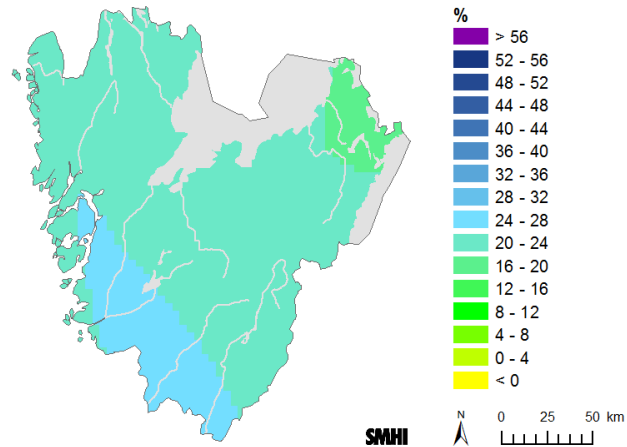
2069-2098
RCP8.5



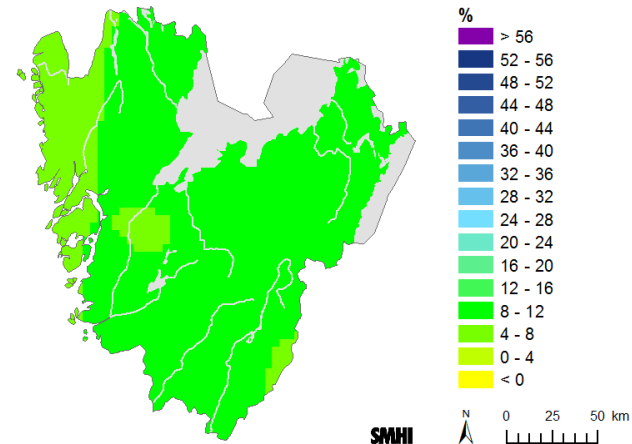
2069-2098
RCP4.5

Change in precipitation (%) 2069-2098 vs 1961-1990

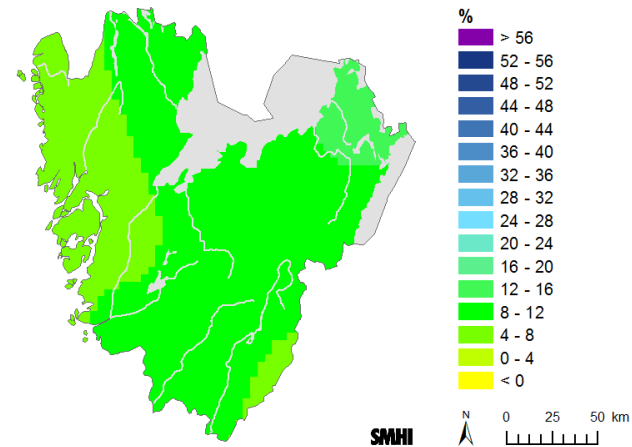
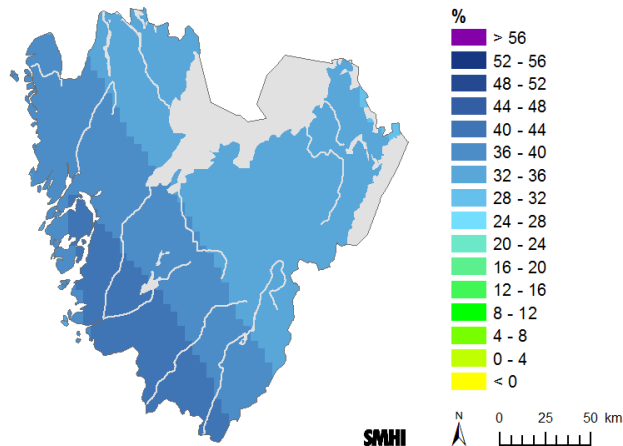
Winter



Summer



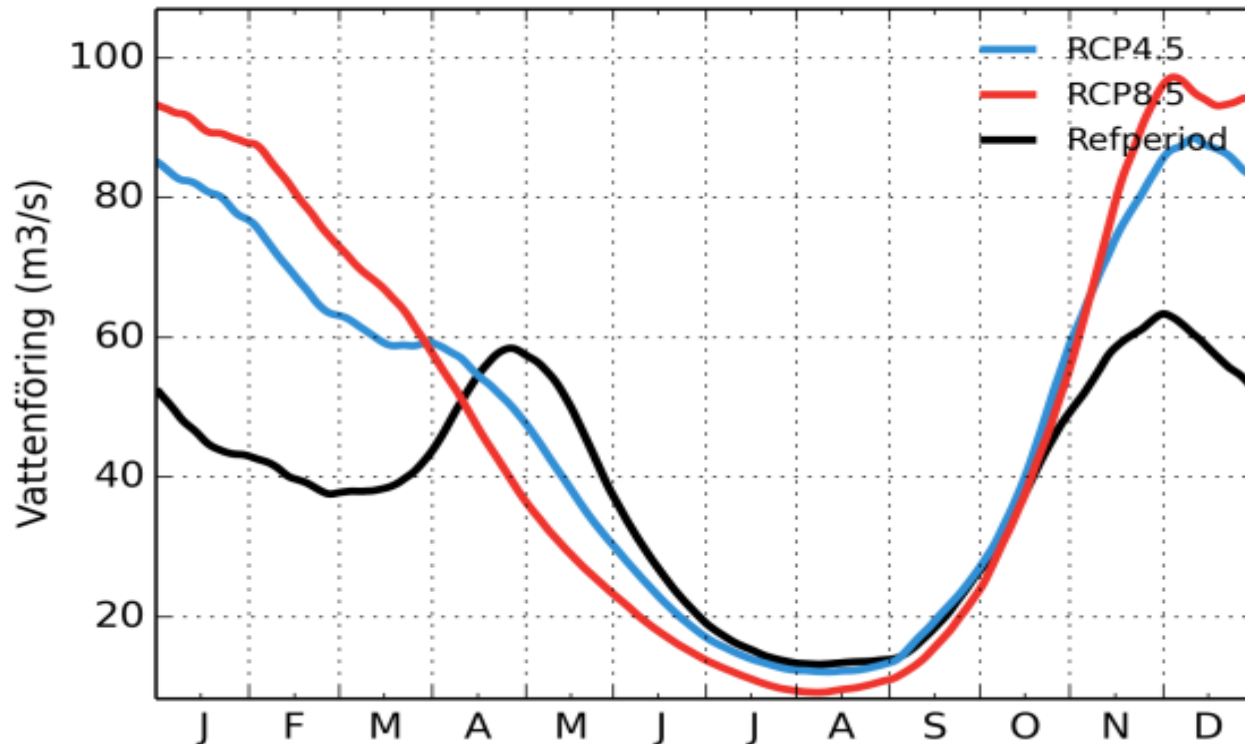
RCP 4.5



RCP 8.5

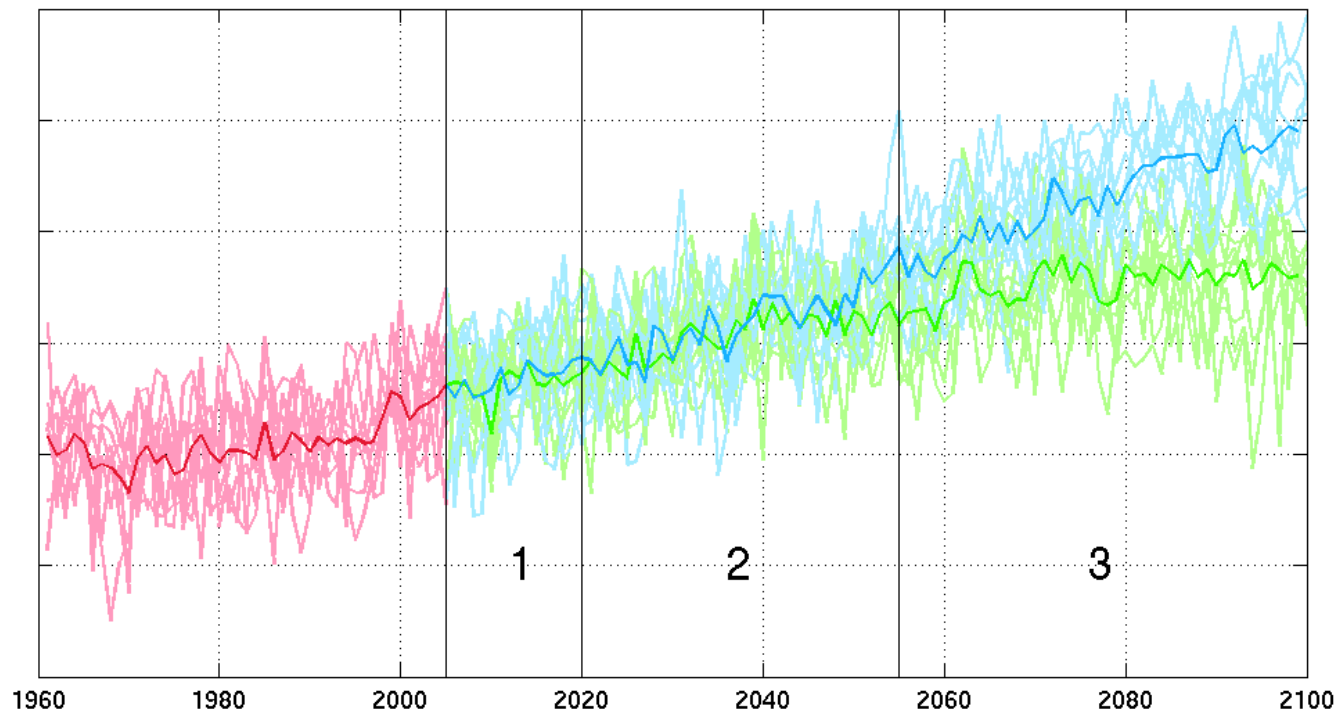
Change in river flow

Example: Upperudsälven

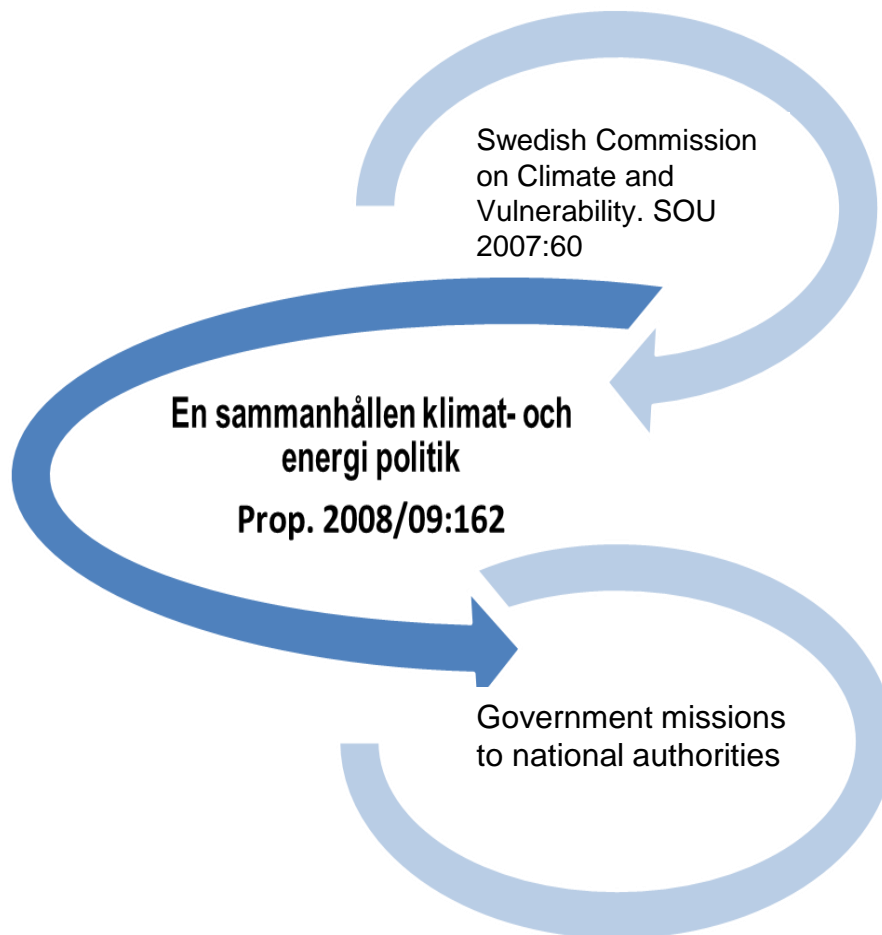


Results are robust

All climate models give similar results regarding future climate but with variations. Some parameters are more robust than others.




Climate adaptation – national level

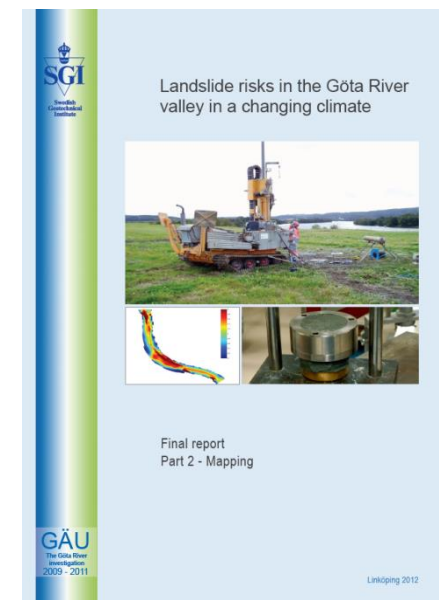


Sweden facing climate change - threats and opportunities.



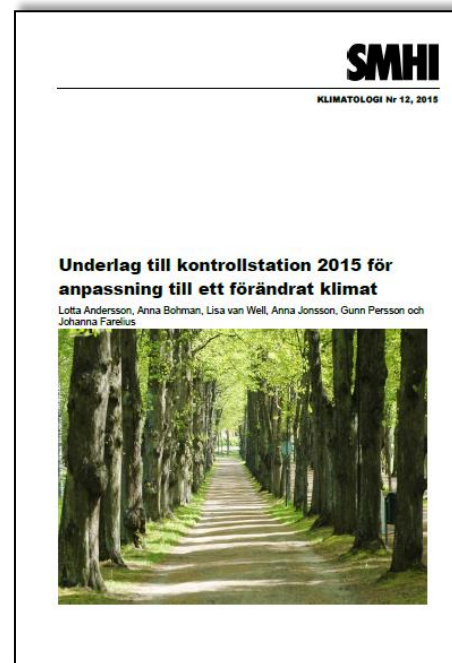
Climate adaptation initiatives in Sweden

- National elevation database 
- Landslide risk mapping in the Göta Älv River Valley
- Swedish drinking water investigation
- County Administrative Boards regional climate change action plans
- National Knowledge Centre for Climate Adaptation



SMHI missions to support

- Together with the Swedish EPA and Swedish Energy Agency report on the climate scientific knowledge base
- To survey, analyse and follow-up on climate adaptation work in Sweden

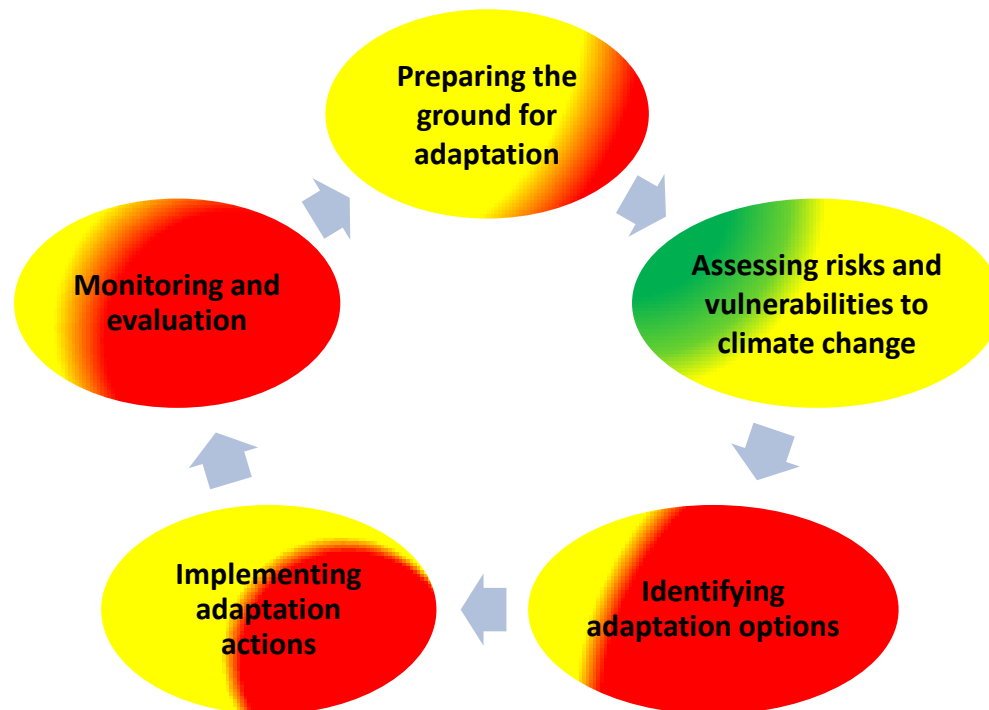


In cooperation with

- National and regional authorities
- Municipalities
- Researchers
- Sectoral organisations
- Representatives of the private sector

EU:s preparedness scoreboard for climate change adaptation

- 2014 Commission presents scoreboard with indicators
- 2017 Commission judges if measures are sufficient. If not, legal instruments will be introduced.



Suggestions related to water

- Guidelines for local and regional authorities on environmental friendly methods to protect coastlines from erosion.
- Guidelines for CC effects on reference conditions and methods to distinguish human activities from CC.
- National guideline for handling CC within Water framework and Marine strategy directives
- Analyse pisciculture risks, vulnerabilities and possibilities. Integrate CC in sustainable fisheries management
- Forming a group with the goal to create an authority based forum for preparedness for new diseases
- Mission to look over the conditions to reach the environmental objectives with regard to CC and time perspective 2020-2100. Relevance, suggest changes, regional differences.



Most important conclusions

- Laws and regulations need to be adapted; roles and responsibilities as well as strategies and goals should be made clearer.
- Priority and funding should be given to research and development measures that fill an identified knowledge-gap, including long-term monitoring.
- Knowledge and decision support as well as prognoses and warning systems should be more accessible.
- There is a need to outline how the costs of adaptation should be distributed among actors and how resources for prioritised measures can be guaranteed.



Adaptation costs.....

.... but it still pays to adapt in relation to the costs incurred, if no action is taken

Good practice needs planning

- Several measures can be made to reduce flooding and other problems
- Important to know what to plan for
- Who and how
- Cost-benefit
- Follow up

