OECD Wengen-2006 Workshop

Adaptation to the Impacts of Climate Change in the European Alps

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Implication of Climate Change for Water Resources in the Alps

Paolo Burlando

Institute of Environmental Engineering, ETH Zurich, Switzerland
e-mail: paolo.burlando@ethz.ch
Preliminary Remarks

OBJECTIVE OF THE SYMPOSIUM

• Adaptation to impacts of climate change

  which are predicted to occur as

  • “reduction in snow cover at lower altitudes,
  • receding glaciers and melting permafrost,
  • and changes in temperature and precipitation extremes”.

“These changes have potential implications for critical aspects of Alpine economies, including winter tourism; exposure of human settlements and infrastructure to natural hazards; agriculture and ecosystems; and water resources”
Is climate change already here?

- Daily streamflows
- 48 undisturbed basins in CH
- 3 study periods between 1931 and 2000

- Mann-Kendall nonparametric test
- Joint analysis with precipitation and temperature
- Correlation of changes with basin attributes
Is climate change already here?

Streamflow trends in Switzerland

Marius-Victor Birsan\textsuperscript{a}, Peter Molnar\textsuperscript{a,*}, Paolo Burlando\textsuperscript{a}, Martin Pfaundler\textsuperscript{b}

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Large scale precipitation changes

predicted change of precipitation [%]
2071-2100 and 1961-1990, HadRM simulations

evidence for significant shifts that may impact water resources

[source: Frei & Schmidli, 2003]
Local scale precipitation changes

Station: Evolene (CH)
1825 m asl

Simulations based on downscaled scenarios
