

REMO-BFG: Improved decision support for infrastructure planning in water management

Background

All infrastructure planning in the water sector requires knowledge of meteorological, hydrological and oceanographic variables on a daily to climate scale for the past and the future.

REMO-BFG supports running research activities in these fields, like the KLIWAS programme, by improving the knowledge on the robustness of information about future climate change.

We are thankful for the computing time and technical support provided by the German Climate Computing Centre (DKRZ).

Data and Methods

REMO-BFG comprises a series of regional climate simulations driven by (1) different emission scenarios and (2) different AOGCM runs.

These simulations fills known gaps in the current “ensemble of opportunity” (e.g. EU-ENSEMBLES) and supports the assessment of different sources of uncertainty in complex climate impact modelling chains.

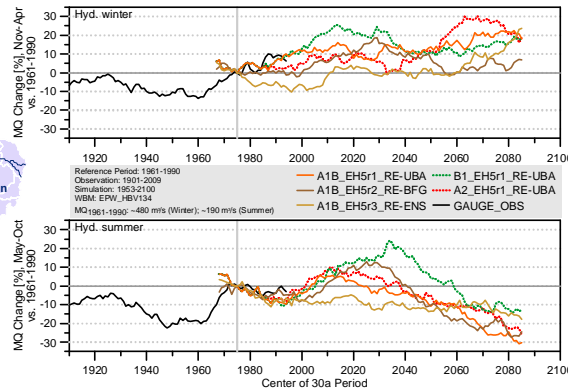
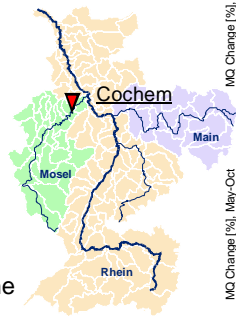
Here, we show selected examples of simulated discharges on different waterways in Germany*.

- Departmental Research Programme**
- National Meteorological Service of Germany (DWD)
 - German Maritime and Hydrographic Agency (BSH)
 - German Federal Institute of Hydrology (BfG)
 - German Federal Waterways Engineering and Research Institute (BAW)

Project 473: SRES vs. internal climate variability

Change of mean seasonal discharge at gauge Cochem (River Moselle)

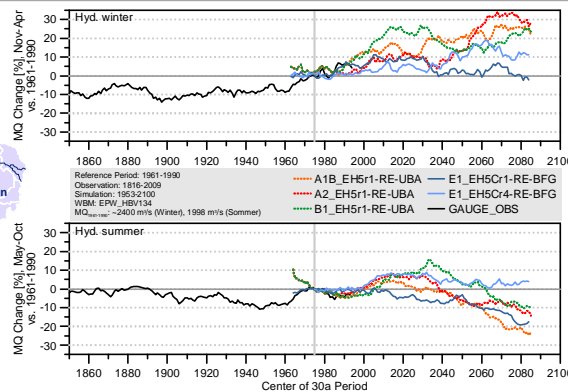
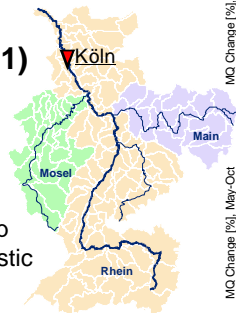
→ Spread of internal variability equals spread of emission scenarios, even at the end of the century.



Project 614: SRES vs. “2 degree maximum warming” (E1)

Change of mean seasonal discharge at gauge Cologne (River Rhine).

→ Summer discharge may drop significantly, even under optimistic emission scenarios.



Authors:

- Enno Nilson (*)
- Peter Krahe (*)
- Maria Carambia (*)
- Bastian Klein (*)
- Daniela Jacob (*)
- Claas Teichmann (*)
- Katharina Bülow (*, now †)
- Lorenzo Thomassini (*)
- Ralf Podzun † (*)

(*) German Federal Institute of Hydrology (BfG)
 (†) Max Planck Institute for Meteorology (MPI-M)
 (‡) German Maritime and Hydrographic Agency (BSH)

Corresponding Author:

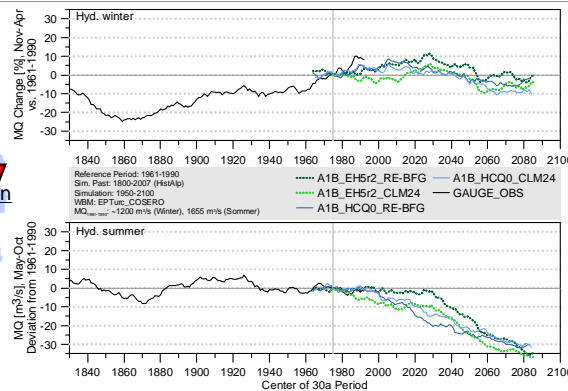
Peter Krahe
 Department Water Balance, Forecasting, Predictions
 German Federal Institute of Hydrology
 Am Mainzer Tor 1
 56068 Koblenz, Germany
 Tel: +49 261 1306 5234
 Fax: +49 261 1306 5080
 E-Mail: krahe@bafg.de

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Project 707: GCM vs. RCM

Change of mean seasonal discharge at gauge Achleiten (River Danube)

→ Different model chains – similar evolution: EH5r2 resembles HCQ0 in snow dominated discharge regimes



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* One experiment (RCP45_EC-EARTH_REMO, project 787) is not completed so far (current status: 15 %). It did not receive resources in 2013.