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Processing and analysing an ensemble of climate projections for the joint research project KLIWAS

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The research programme KLIWAS, funded by the German Federal Ministry of Transport, Building and Urban affairs is focussed on climate change and its impacts on waterways and navigation for Germany in the 21th Century. In order to derive sound statements about the range of possible future climate changes, KLIWAS use hydro-meteorological information derived from a wide variety of global and regional climate models.
In the framework of KLIWAS the German Meteorological Service (DWD) validates and evaluates an ensemble of climate projection data derived from a large number of regional Climate Models. Beside the use of approved bias-correction and downscaling techniques to provide verified input data for various impact models, emphasis is taken on the quantification of uncertainties in climate model output.
Currently, for daily precipitation amounts, mean air temperature and global radiation a linear bias correction was carried out. In addition, precipitation was corrected with the quantile mapping method. Reference Data are the high-resolution HYRAS-KLIWAS data sets (5•5 km^2 regionalized daily observations).
On the basis of the SRES-scenario A1B the probabilities of changes in air temperature, precipitation amount, global radiation and several climate indices were computed looking at near (2021 to 2050) and far (2071 to 2100) scenario horizons.