

Climate change impacts on hydrological extremes (floods, low flows) along rivers in the Scheldt and Meuse basins in Belgium

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Based on the most recent data and climate modelling results, the climate change impact on the risk of hydrological extremes (floods, low flows) along rivers in the Scheldt and Meuse river basins in Belgium have been studied. The study required the simulation results from global and regional climate models (GCMs and RCMs) to be statistically downscaled to the time and space scale necessary for the hydrological impact analysis. The modelling approach was based on ensemble modelling and probabilistic analysis of simulation results, enabling the uncertainty on the climate model-based projections to be taken into account. The climate change scenarios furthermore were to be compared / verified with the results from a statistical analysis on the present and past climate and flow records.

The research consisted of two main phases. In Phase 1, climate change scenarios were being developed and tailored for use in hydrological and hydrodynamic impact analysis. This was done after statistical analysis of trends and cycles in long-term series of historical rainfall, evapotranspiration and river flow, and after the analysis and statistical downscaling of climate model simulation results. Phase 2 focused on the impact modelling towards flood risks and low flows risk along rivers, making use of hydrological and hydrodynamic models.

More detailed information on methodologies and results can be found on the website of the CCI-HYDR project for the Belgian Science Policy Office (Programme Science for a Sustainable Development):

<http://www.kuleuven.be/hydr/CCI-HYDR.htm>

Keywords: Climate change, Rainfall extremes, River floods, Statistical downscaling, Surface water availability, Urban drainage