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The foundation for climate services in Belgium: CORDEX.be

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According to the Global Framework for Climate Services (GFCS) there are four pillars required to build climate services. As the first step towards the realization of a climate center in Belgium, the national project CORDEX.be focused on one pillar: research modelling and projection. By bringing together the Belgian climate and impact modeling research of nine groups a data-driven capacity development and community building in Belgium based on interactions with users. The project is based on the international CORDEX (“COordinated Regional Climate Downscaling Experiment”) project where “.be” indicates it will go beyond for Belgium.

Our national effort links to the regional climate initiatives through the contribution of multiple high-resolution climate simulations over Europe following the EURO-CORDEX guidelines. Additionally the same climate simulations were repeated at convection-permitting resolutions over Belgium (3 to 5 km). These were used to drive different local impact models to investigate the impact of climate change on urban effects, storm surges and waves, crop production and changes in emissions from vegetation.

Akin to international frameworks such as CMIP and CORDEX a multi-model approach is adopted allowing for uncertainty estimation, a crucial aspect of climate projections for policy-making purposes. However, due to the lack of a large set of high resolution model runs, a combination of all available climate information is supplemented with the statistical downscaling approach.

The organization of the project, together with its main results will be outlined. The proposed coordination framework could serve as a demonstration case for regions or countries where the climate-research capacity is present but a structure is required to assemble it coherently. Based on interactions and feedback with stakeholders different applications are planned, demonstrating the use of the climate data.