

Composing a joint D-A-CH climate scenario ensemble

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The generation of scientifically rigid and at the same time actionable and user-tailored climate scenarios is a centerpiece of today's climate services. Most often, such scenarios rely on global and/or regional climate model data and are provided at national scale, serving as an important information source for climate adaptation measures and informing mitigation policies. While a range of national scenario assessments has been produced in recent years, the science behind is continuously evolving and existing scenario products are typically subject to a range of caveats and limitations. One of these limitations is the inconsistency across national borders due to the use of different underlying climate model ensembles, different postprocessing and downscaling techniques, different sources of observational reference data, different climate indicators or different communication and visualization approaches. In a joint effort, the national meteorological services of Germany (D), Austria (A) and Switzerland (CH) seek to improve on this situation and to develop a set of consistent climate scenario products covering the entire D-A-CH region. The joint project started in mid-2021 and requires a common data and analysis platform to establish a global and regional climate model ensemble as its simulation backbone, including model quality assessment and model selection/weighting. The underlying model simulations originate from the CMIP5, CMIP6 and CORDEX initiatives and all raw simulation data are already available on DKRZ resources via its ESGF service. Furthermore, DKRZ provides the required software and analysis environment and, as such, represents an ideal platform for establishing the joint simulation database. Results from the project are expected to serve as a role model for the establishment of multinational and user-tailored climate scenario products and will be freely available for interested users and stakeholders. Our experiences during the project will serve the scientific community active in climate scenario generation and climate information distillation.