

Project: **1309**

Project title: **CLMcom - PoolData**

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Report period: **2022-05-01 to 2024-04-30**

Report Project CLMcom - PoolData

The Climate Limited-area Modelling Community (CLM Community, www.clm-community.eu) is an open international network of scientists working in the area of regional climate modelling and climate change. The members of the CLM Community develop the regional climate models COSMO-CLM and ICON-CLM (community models) together, apply the models for a wide range of applications and collaborate in scientific projects.

The community models are used on many different HPC systems all over the world, but the HPC systems at DKRZ have always been the most important place for common activities of the community members (e.g. test and evaluation of new model versions and setups, climate simulations for CORDEX, data exchange).

In 2022, we established this project (pd1309) as overarching project for the CLM Community activities at DKRZ. We unified all previously existing /pool/data projects of the CLM Community here, in order to simplify the search for and access to the data, optimize the storage requirements and considerably reduce the administrative overhead. The unification of the different projects the community had before 2022 turned out to be a very good and helpful step. The data can now be found and accessed much easier and the storage requirements are optimized, because different copies of the same data aren't kept in different projects anymore.

The initial allocation request for this project included only the resources that were already available in the previously existing projects (e.g. ERA boundary conditions, results of reference simulations). In 2022, we applied for additional resources, which have been used for the provision of input files (boundary conditions) for the downscaling of CMIP6 simulations with COSMO-CLM and ICON-CLM. The necessary input data of the global models is reformatted to the input format of the regional models. This data must be available in /pool/data, because it must be accessible across projects and was and will be used by many member institutions of the CLM Community for the downscaling of CMIP6 simulations. The BMBF funded projects NUKLEUS (1187, 1203) and UDAG (1364) are only two examples for projects that use the data of the CLMcom – PoolData project extensively.

The data can also be used by other regional modelling groups as basis for the production of the input files for their regional models and according to our knowledge, the REMO group also works with the data. As long as the CMIP6 downscaling is ongoing (next few years), these datasets must be available on disk to simplify the access and avoid delays in the production of the simulations. Once the CMIP6 downscaling is completed, it is sufficient to keep a copy of the data in the archive.

In summary, the central disc space for sharing data that is used by many groups in the CLM Community is and will be absolutely essential for the collaboration of the member institutions. In the last two years, the largest part of the disc space was used for providing boundary conditions from ERA5 and CMIP6 GCMs, but also for sharing input and reference data for other community activities like CORDEX FPS Convections and FPS LUCAS and the COPAT2 initiative for optimizing the set-ups of COSMO-CLM 6.0 and ICON-CLM.