



The German Climate Computing Centre (DKRZ) is the central simulation and data processing facility for the German climate and Earth System modelling community and is one of the leading facilities in this area. DKRZ not only operates supercomputers in the highest performance class and one of the largest data and archive systems worldwide, we also participate in many national and international projects aiming to improve the software and infrastructure for climate modelling.

In addition to the accurate and fast simulation of climate scenarios, their energy efficiency is becoming increasingly important for research and the operation of high-performance computing (HPC) systems. Increasingly, heterogeneous hardware components are being combined into complex systems in order to achieve the lowest possible power consumption for climate model runs. At the same time, the resulting systems should be usable for both the scientific user and the HPC administrator. To explore this exciting field, we are looking for you as a

Software Engineer for Energy-Efficient HPC (f/m/d)

Your tasks

The goal of the GreenHPC project "EECLiPs" is to create a proof-of-concept HPC cluster based on heterogeneous components (CPU, GPU, Vector) on which climate simulations with the ICON model can be carried out as energy-efficiently as possible. Together with colleagues in the project and at DKRZ, you will analyse different HPC architectures, identify hardware suitable for specific components of the ICON model, build the proof-of-concept cluster and finally show its advantages by running ICON on it. This will involve using software analysis techniques (profiling and tracing the simulation with respect to runtime and energy consumption) as well as practical work on creating a customised software stack.

Your profile

- Enjoy evaluating and optimising scientific simulations on HPC systems - using your knowledge of parallel programming (such as MPI, OpenMP, OpenACC).
- Ability to translate the theoretical options of modern hardware into practical codes - good programming skills, preferably in Fortran and C/C++, may be utilised
- Confident handling of Linux operating systems and scripting tools
- Hands-on mentality at different levels: From application code to system software to hardware
- Very good communication skills and knowledge of English
- Successfully completed university degree related to scientific computing

We offer you the opportunity to work on and solve your tasks in the team of the scientific environment at DKRZ. You will have the time to delve into the complex issues of climate simulations on high-performance computers and to develop new approaches together. Of course, continuing education in both high-performance computing and climate science is opened up via specialist conferences and workshops and is supported by DKRZ.

We are based in Hamburg, but we want to create a suitable working environment by offering flexible working hours and location (up to 100% work at home within Germany). The advertised position can be filled on a full-time or part-time basis. Remuneration will be based on the applicant's qualifications in accordance with TVÖD-Bund up to pay group E13. You are welcome to start at any time, but the exact start date can be agreed individually. The position is initially limited to the project duration until 31 August 2025.

If you are interested, please send your application, quoting reference number **DKRZ-07_2023**, with a letter of motivation and a detailed curriculum vita (all in one pdf file) to

bewerbungen@dkrz.de

Questions? Dr. Hendryk Bockelmann (bockelmann@dkrz.de) will be happy to answer them in advance.