

DKRZ Awards Contract for Germany's New Climate Supercomputer to Bull

Hamburg, Germany – October, 21, 2026: DKRZ, the German Climate Computing Center, has awarded a 40 millions Euro contract to Bull, a leader in advanced computing and AI, for its next supercomputer including 5-year support services. Based on the BullSequana XH3500 platform, the system is designed to support both physics-based simulations as well as AI-driven climate research, while significantly improving energy efficiency.

Expected to enter service in early 2028, the High-performance Computing System for Earth System Research (HLRE-5) will be able to run simultaneously two global climate simulations at 5 km resolution while reducing the energy required per simulated year by around 75% compared to the current system, Levante.

This commitment to energy-efficiency is not new and builds on years of continuous and collaborative effort by DKRZ and Bull. The current GPU extension of the Levante system was ranked the world's third most energy-efficient supercomputer in the November 2025 and June 2026 editions of the Green500 list, alongside other Bull systems occupying the first and second positions.

"The new system will allow us to drastically reduce the energy needed for our users' climate simulations. For a center that exists to study the climate, that is not a side benefit - it is part of the job." said Dr. Hendryk Bockelmann, head of DKRZ's Applications department.

"We are proud to continue our long-standing collaboration with DKRZ, one of Europe's leading climate computing centers. HLRE-5 builds on years of joint innovation in energy-efficient supercomputing and demonstrates how advanced digital infrastructure can support excellent climate research" added Dr. Martin Matzke, head of Northern and Central Europe, Bull.

Based on two partitions, HLRE-5 combines a GPU partition, which is powered by NVIDIA GB200 Grace Blackwell Superchips, and carries the bulk of the system's simulation and AI capability, and a CPU partition which is based on NVIDIA Vera CPUs and brings the ARM architecture to DKRZ's core system for the first time, substantially improving energy efficiency for workloads that do not run on GPUs. All nodes are connected by NVIDIA Quantum-2 InfiniBand networking, which provides the low-latency / high data rate (400 GBit/s) inter-node communication that global climate models at kilometer-scale resolution depend on.

"We are grateful for NVIDIA's longstanding support in optimizing ICON for GPUs, which also contributed to us winning the 2025 ACM Gordon Bell Prize for Climate Modelling. We look forward to continuing this collaboration on HLRE-5," highlighted Dr. Jan Frederik Engels, member of the Gordon Bell team and system designer for compute part of HLRE-5.

On the storage side, a new strategy moves beyond capacity as the primary measure of scale, focusing instead on the efficient use of resources through intelligent data placement and tiering. At its core is the latest IBM Storage Scale System 6000, combining 60 Petabytes of high-capacity disk drive storage with up to 340 Gigabytes/s throughput and a dedicated 500 Terabytes flash tier. In close collaboration with IBM, advanced demand-driven tiering capabilities are intended to help optimize how storage resources are utilized across diverse research workloads.

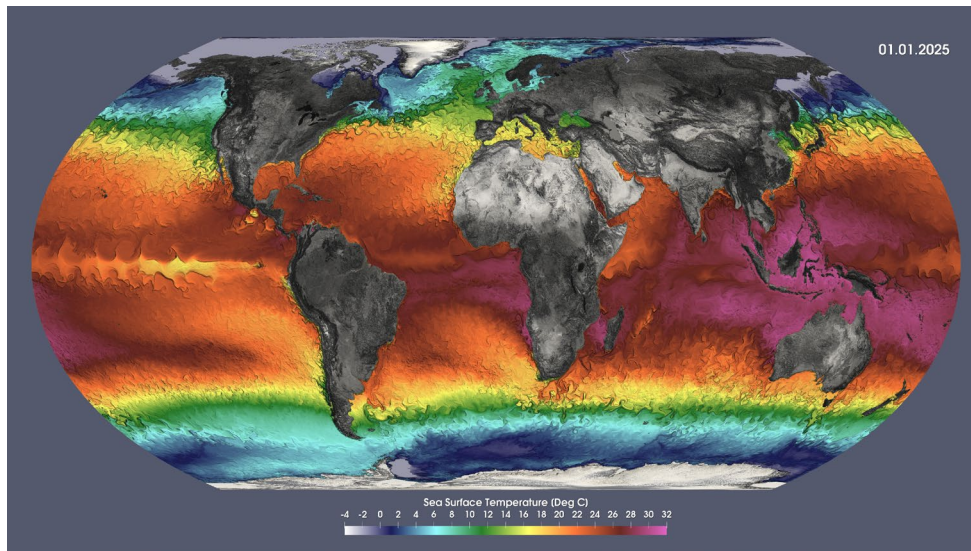
The flash based storage tier addresses the rapidly growing demands of AI, designed to support demanding AI workloads. Combined with the scale and efficiency of the capacity tier, it provides the research community with a powerful foundation for both HPC and the next generation of AI-driven research.

As in previous generations, DKRZ will rely on Bull's patented Direct Liquid Cooling (DLC) technologies to cool all computational components. This technology uses warm water running in a closed loop through the nodes and carrying the heat away far more efficiently than air cooling.

For several years DKRZ has supplied part of this heat to the neighboring chemistry department of University of Hamburg. With the installation of HLRE-5, the cooling infrastructure will be upgraded so that a larger

share of the waste heat becomes available for reuse, and the University of Hamburg plans to extend its use to further buildings on and around the Climate Campus.

The total investment in the system is 40 millions Euro, which includes a five-year support contract. Funding is mainly provided by the Helmholtz Association, the Max Planck Society, and the City of Hamburg, as part of their long-term funding agreement for the HPC systems at the DKRZ. Thanks to additional funding from the Max Planck Society and the Federal Ministry of Research, Technology and Space as part of the High-Tech Agenda Deutschland (HTAD), the system's capacity could be significantly increased.



Simulation using the weather and climate model ICON at a resolution of 5 km, which was run within the EU project EERIE. The colors represent the simulated sea surface temperature, and the bump shading shows the flow velocity. In the future, such kilometer-scale climate simulations can be run even more energy-efficiently on the new HLRE-5 supercomputer (Visualization: Michael Böttinger, DKRZ).

Short: *ICON simulation at 5 km resolution within the EU project EERIE. Colors show sea surface temperature, bump shading the flow velocity. The new HLRE-5 will enable such kilometer-scale climate simulations with greater energy efficiency (Visualization: Michael Böttinger, DKRZ).*

About DKRZ

The DKRZ provides German climate researchers with access to high-performance computing and data storage systems that are specifically tailored to the workflows of climate modeling. In addition, the DKRZ team supports researchers in optimizing their models as well as in analyzing, visualizing, and publishing the extensive climate data.

The Deutsches Klimarechenzentrum GmbH is a nonprofit limited liability company (GmbH) with four shareholders: the Max Planck Society for the Advancement of Science e.V., the Free and Hanseatic City of Hamburg, represented by the University of Hamburg, the Helmholtz Center Hereon, and the Alfred Wegener Institute, Helmholtz Center for Polar and Marine Research.

The DKRZ was founded on November 11, 1987. Currently, the DKRZ has approximately 120 employees.

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About Bull

Leveraging nearly a century of innovations, Bull is a global leader for High-Performance Computing, Artificial Intelligence and Quantum technologies with c.720m€ in revenue and 3,000 professionals operating in 32 countries. Built on an open, end-to-end and trusted approach, Bull designs, deploys and operates hardware, software and strategic services that unlock enterprise value, accelerate scientific research and advance society. Driven by world-class R&D, backed by 1,600 patents, manufacturing excellence and data sciences expertise, Bull enables nations and industries to fully control their AI and data and to drive progress for the benefit of the planet.

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