

Deutsches Klimarechenzentrum (German Climate Computing Centre) DKRZ

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German Climate Computing Centre

Mission

DKRZ – Partner for Climate Science.
Maximum Compute Performance.
Sophisticated Data Management.
Competent Service.

Vision

DKRZ reliably unlocks the potential of the accelerating technological progress for climate research

German Climate Computing Centre

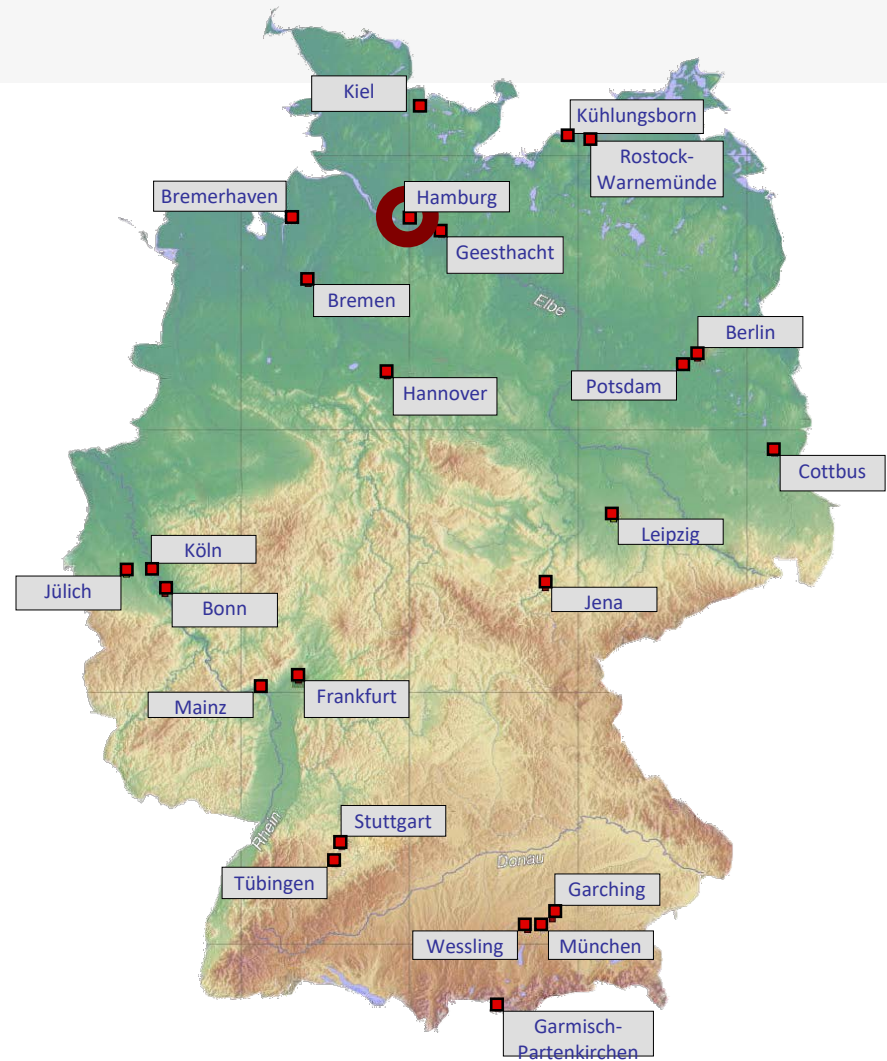
Non-profit limited company since 1987

- Share-holders MPG (55%), FHH/UHH (27%), AWI (9%), HZG (9%)
- 80+ staff at DKRZ
- 10+ staff at university research group

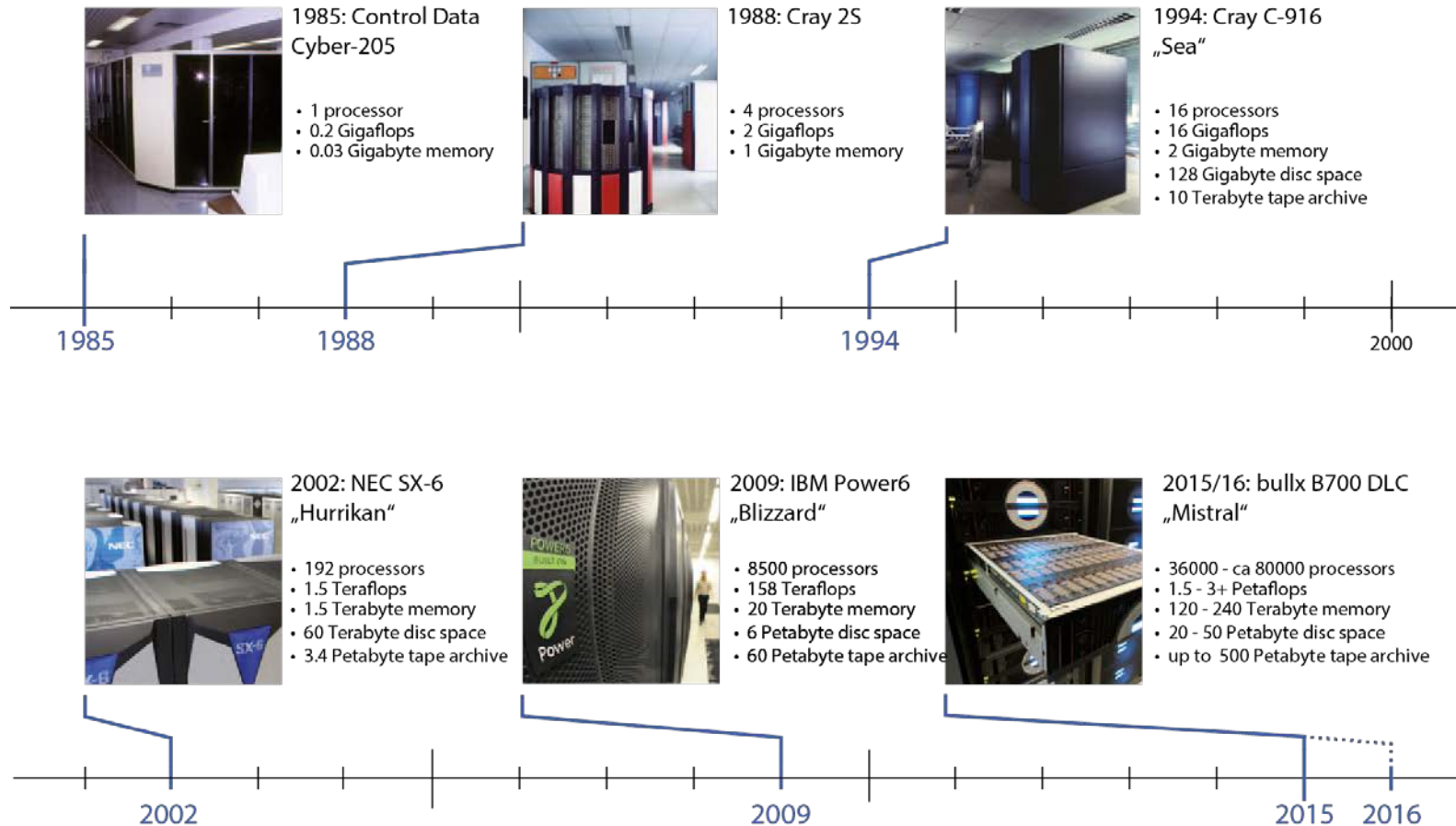


DKRZ's Customers

- Research groups from all over Germany
- Several European partners
- Climate and earth system researchers only



30 Years of Computer and Storage Systems (1987-2018)



HLRE-3 – Mistral (2015-2020)



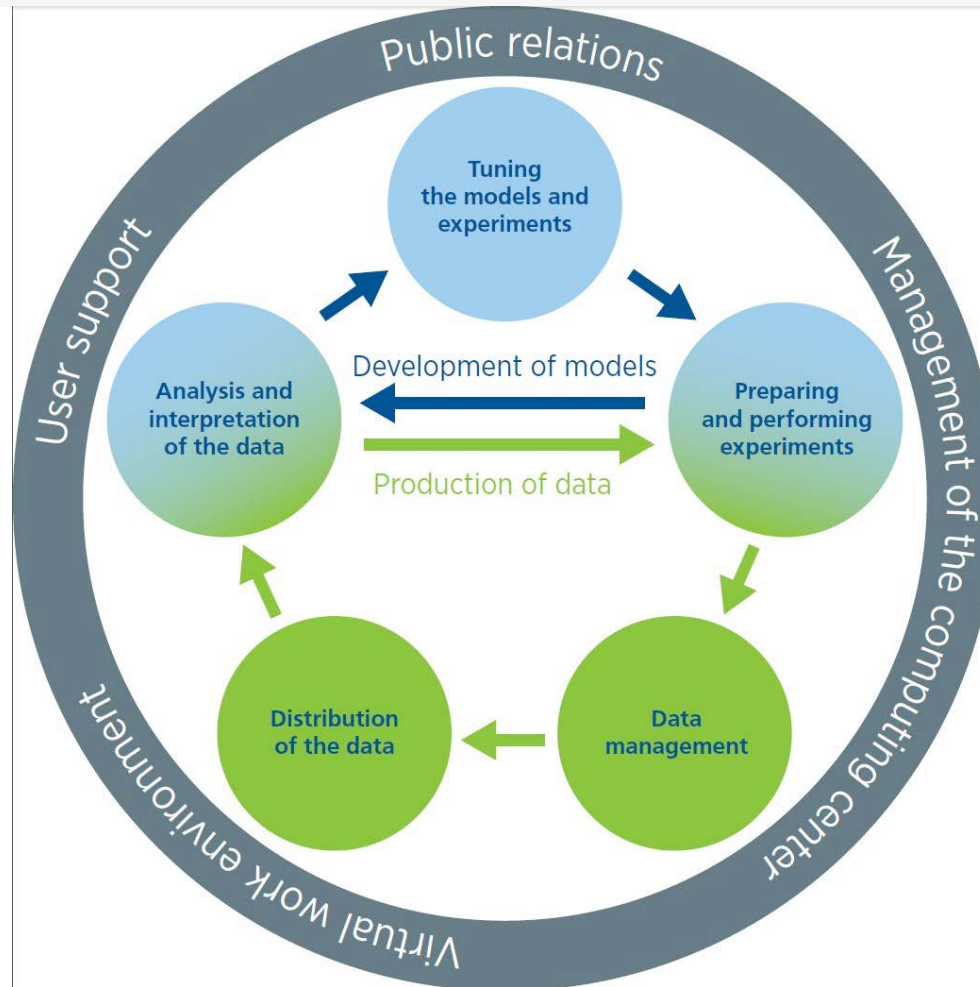
bullx DLC 720, 3,500+ nodes, 100,000+ cores, Haswell/Broadwell, 3.6 PFLOPS
240 TB main memory, 54 PB disk storage, 450 GB/s mem-disk rate, FDR network
21 nodes for visualization
hot liquid cooling with high efficiency

High Volume Data Archive

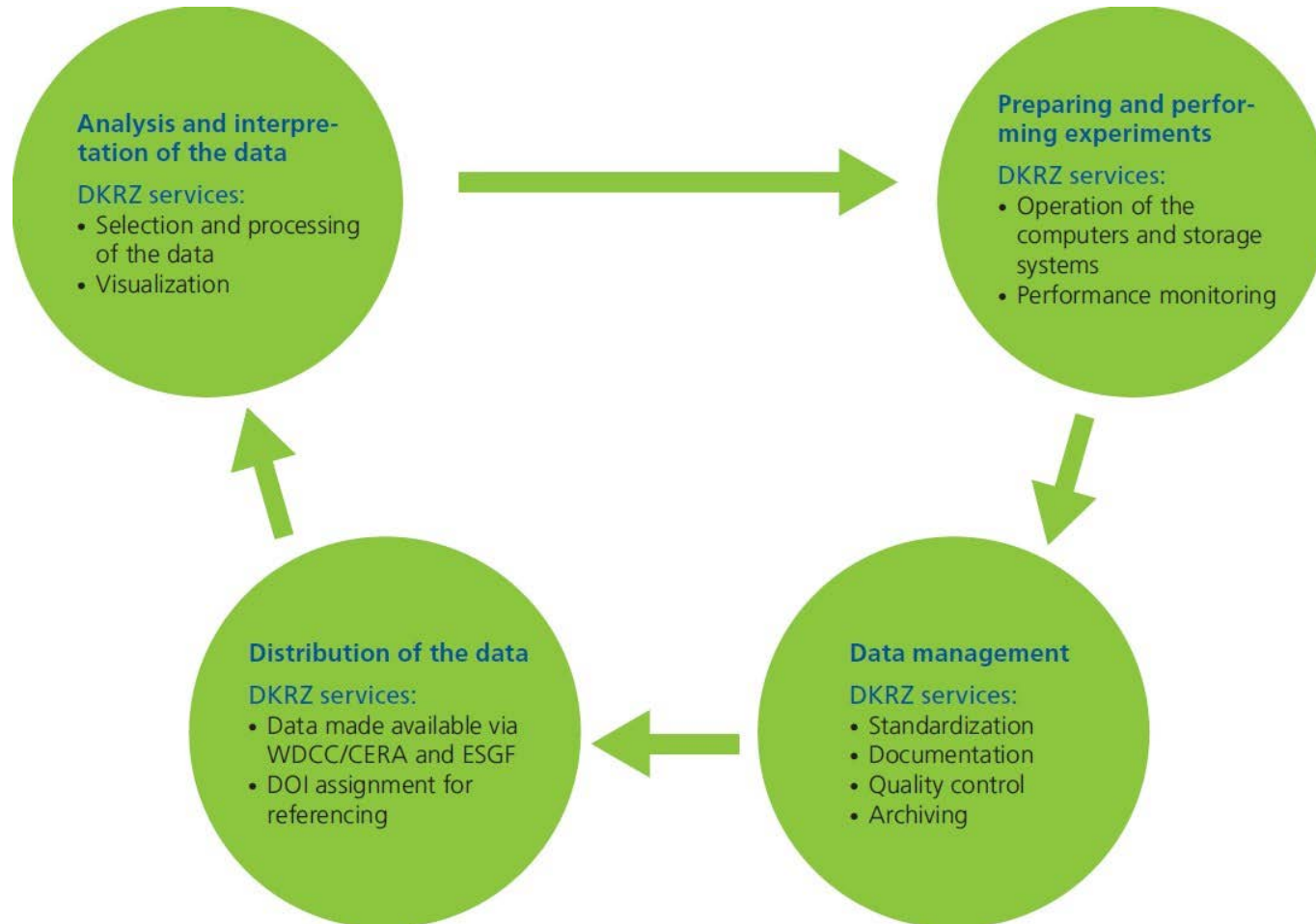
- 65,000 slots for tapes in Hamburg (10,000 remote)
- 90+ PB of climate data, increase 40 PB in 2018
- 500 PB capacity until 2020



Service Profile



Service Profile – Data Production



Departments

Applications

- Support parallelization during model development
- Code tuning and optimization
- Result visualization

Data Management

- Quality management of result data
- Long term archival
- Manage persistent identifiers for data sets
- Enable world-wide access to climate data at DKRZ

Contributions to Adding Value

- CMIP – Model inter-comparison
 - CMIP5: German contribution to the 5th assessment report of IPCC
- CliSAP – Cluster of excellence of Universität Hamburg
- HD(CP)² – Modeling clouds and precipitation
- EUDAT – Data services for Europe
- MiKlip – Medium range climate projections

New Scientific Challenges

- CMIP6 – Model inter-comparison for 6th assessment report
- ESiWaCE – Center of Excellence in H2020
 - DKRZ coordinates 16 partners: climate, weather, industry
- CliCCS – New cluster of excellence of Universität Hamburg
- ReKliEs-De – regional climate projections
- PalMod – paleo climate modeling
- DataCite – cite model data as literature reference
- ESGF – federated climate data e-science environment
- Integration into European Open Science Cloud (EOSC)

The Team (DKRZ + University Group)

