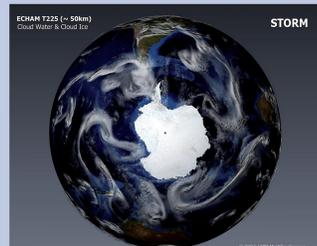
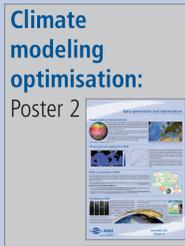


Data life cycle management

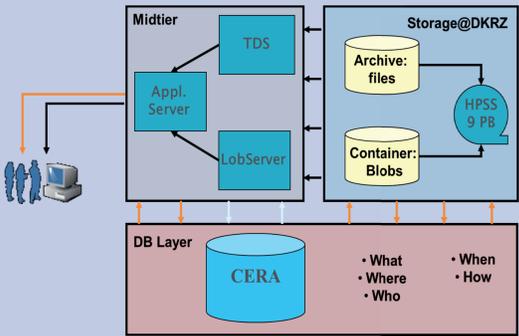
DKRZ - DATA INTENSIVE CLIMATE SCIENCE



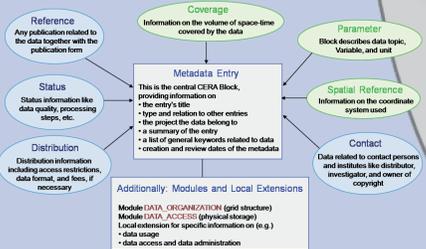
Consortial runs and visualization: DKRZ supports the execution of consortial runs – climate community agreed large model calculations – by an integrated compile and execution environment. Up to 1/3 of HLRE II („Blizzard“) is reserved for consortial runs which are of interest for a larger consortium of climate scientists. Present activities are the German climate modeling contribution to the next IPCC assessment report (IPCC-AR5) and the STORM project which calculates a high resolution, ocean eddy resolving climate model for more than 300 years.



GUI based catalogue and data access: The World Data Center Climate (WDCC) offers catalogue and transparent data access by a number of community adapted data portals, which implement community specific views for the available data services. Examples are data portals for research projects like ENSEMBLES, for communities like ENES or international programs like IPCC. Additionally the WDCC is integrated in international data federations via standardized metadata and data interfaces.

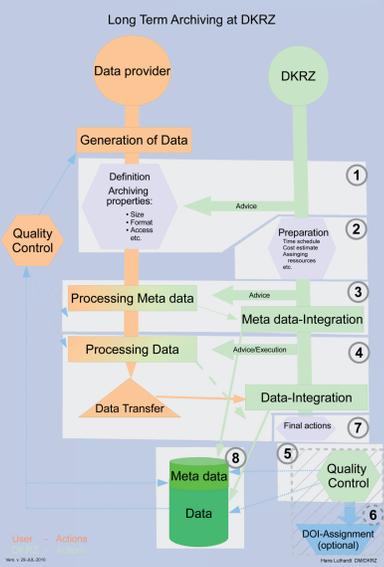


API based direct data access: WDCC offers data access services for data stored in files as well as data stored in a specific DKRZ container format. The storage location (disc or tape) is transparent to the user, only data access times are different.



Data documentation: WDCC uses the CERA-2 metadata model to describe its data entities. CERA-2 has been developed as modular description system which allows for easy adaption to new description requirements by adding new modules without affecting the existing ones. CERA-2 is in operation for more than 10 years now and left practically unchanged since 2000.

Long-term archiving: DKRZ offers long term archiving services. Storage period of at least 10 years are supported along with web-based data access. Long-term archiving is requested by the founding agencies in the context of “Rules for Good Scientific Practice” and a prerequisite to enable future research activities. This service thus includes the collection and maintenance of data documentation (metadata).

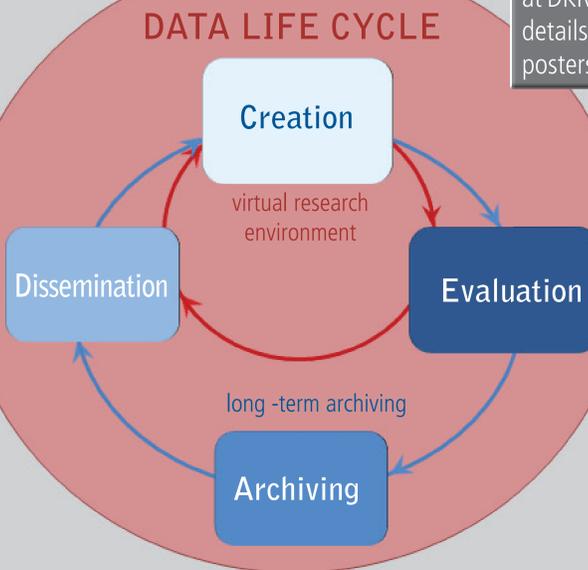


DATA SERVICES

climate modeling HLRE II optimisation

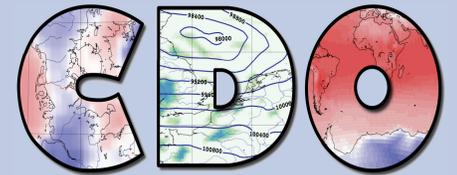
consortial runs (community agreed model calculations)

Data life cycle management and related services at DKRZ: the inner circle illustrates the basic data life cycle elements; the outer circle illustrates the related data services at DKRZ. For every service at DKRZ an example is given. Further details are shown on the referenced posters.



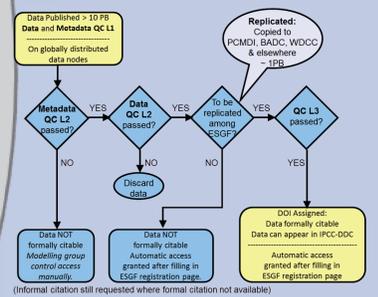
data processing
visualisation
data sharing
quality control

data documentation
long-term archiving
scientific data publication
bit-stream preservation
data curation

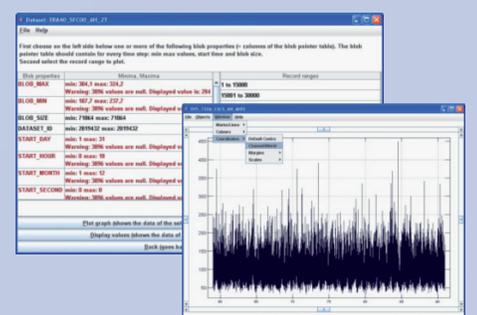


Data processing: The climate data operator (CDO, <https://code.zmaw.de/projects/cdo>) toolbox developed by the Max-Planck Institute for Meteorology, Hamburg, provide the basis for data (post-) processing services at DKRZ. The CDO toolbox is also widely used in the international climate research community.

Data sharing: Poster 4



Quality control: Climate model data becomes the basis for far reaching climate change related evaluation and decision processes. This increases the importance of formalized data and data documentation quality control processes. DKRZ coordinates a formally defined three level quality assurance process for the next IPCC-AR5. The third level is directly connected with scientific data publication and “freezing” of PetaBytes of model data.



Bit stream preservation: Poster 3



Data curation: WDCC at DKRZ offers a metadata visualization tool to provide a web-based, graphical representation of the metadata of a database entity. The metadata visualization tool is used for quality assurance and to check the metadata.