



The "Collaborative Climate Community Data and Processing Grid – C3Grid", funded by the German Ministry for Research and Education (BMBF), is setting up a grid infrastructure for a seamless and fast access to the numerous data resources in the community of earth system research. C3Grid will ease model setup as well as data comparison and gives a broad scientific community access to model results and observational data.

The world data centres WDC Climate, WDC RSAT and WDC Mare as well as Germany's National Meteorological Service (DWD) and several other scientific institutes with specialised datasets provide a variety of data resources. Scientists from all major German earth science institutions are in the consortium and take part in the development and implementation of the C3Grid. They are supported by specialists from applied computer science from ZIB and University Dortmund.

#### How can C3Grid help in modeling?

##### Model setup

- preparing initial and boundary conditions, forcing data (find data, cut out the interesting spatial and temporal region, format conversion, regridding)

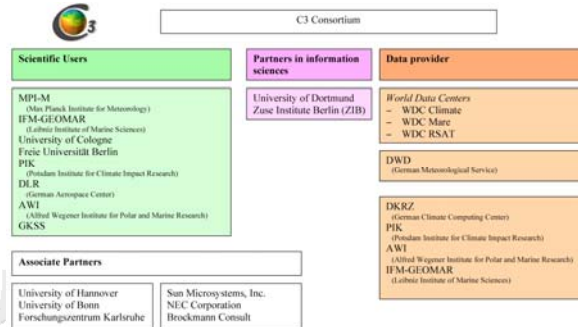
Model intercomparison, comparison of results with measurements

- find and prepare data, which fits the requirements (cut out the interesting spatial and temporal region, format conversion, regridding)
- compute intensive analysis tools
- visualization

#### Current status in data providing

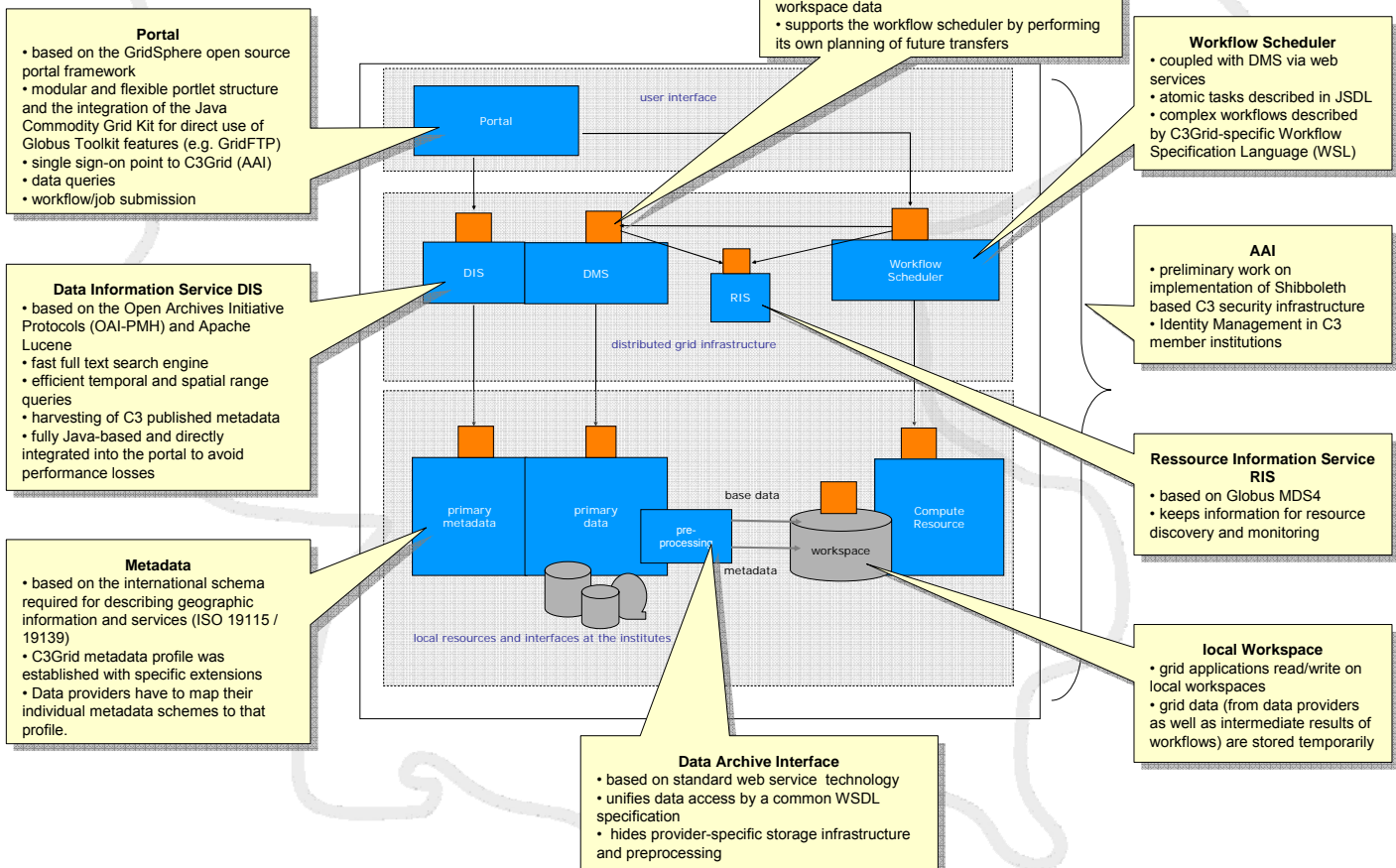
Provider	Data	in C3Grid
WDC Climate	Simulation results IPCC	~ 63 TB
WDC Mare	measurements (JGOFS, Southern Ocean)	~ 10 GB
WDC RSAT (DLR)	satellite data (Ozon profiles)	~ 60 GB
DKRZ Archive		
	IFM-GEOMAR* Simulations Nemo	~ 370 GB
	GKSS* Simulations Paleo	~ 1,1 TB
	MPI-M* Simulations IPCC	~ 1.3 TB
PIK	gridded meteorological & Carbon data	~ 9 GB
DWD	climatological data	~ 200 GB
AWI	Simulations OMIP	~ 300 GB
FUB/ Uni K	Simulations IPCC	~ 900 GB

Status	full data access	data searchable	Metadata exist	setup phase
	full	partial	partial	partial



#### General implementation issues

- basic middleware Globus Toolkit 4.x with some C3 specific components
- components coupled via Web services
- C3 data publications standards
- workspace for logical/physical namespace mapping
- workflows consisting of several sequential but mutual dependent chains of elementary tasks → WSL



Status:

Generation 0 implementation of C3Grid with high attention in development of infrastructure for data discovery and retrieval

- Gridification of two typical diagnosis workflows (stormtrack and humidity flux analysis)

Generation 1 (release in september 2007):

- with data from all data providers
- enhanced workflow scheduling

Further steps:

- integration of further data provider
- user support for gridification of new workflows by prototypic implementation of a Workflow Information Service (WFIS)

GEFÖRDERT VOM