

## IPCC Data Distribution Centre at DKRZ



### The IPCC DDC:

The IPCC DDC is designed primarily for climate change researchers; however, its content may also be of interest to educators, organizations and the general public.

The DDC is overseen by the IPCC Task Group on Data and Scenario Support for Impact and Climate Analysis (TGIICA) and jointly managed by the British Atmospheric Data Centre (BADC), the World Data Center for Climate (WDCC), and the Center for International Earth Science Information Network (CIESIN). The data is provided by co-operating modeling and analysis centers.

The role of WDCC at DKRZ within the IPCC DDC is to host the Reference Archives for the climate model output data underlying the IPCC Assessment Reports. The IPCC DDC includes data from the Second (SAR) on to the latest, the Fifth Assessment Report (AR5) and parts of the First Assessment Report (FAR) data.

### IPCC DDC Assessment Report 5 (AR5) Reference Data Archive

The IPCC DDC Reference Data Archive for AR5 hosted at DKRZ was set up on the date of the submission deadline for contributions to the first part of the AR5 in March 2013. These contributions are results of the simulations and research carried out worldwide within the Coupled Model Intercomparison Project Phase 5 (CMIP5). For long-term interdisciplinary usage, detailed documentation was added. After a thorough quality assurance process the data was published and made citable via DataCite DOIs.

The AR5 Reference Data Archive is available in two collections: First, the DDC Reference Archive, directly archived from the CMIP5 data, and second, the IPCC Working Group I (WG I) Archive, a CMIP5 data subset collection of the ETH Zurich supporting the work of WG I.

The IPCC DDC for AR5 provides 1.6 Petabytes of data including over 800,000 data sets from more than 1,000 experiments. About 27 research institutions using 60 models contributed to IPCC DDC AR5 (Figure 1).

IPCC-DDC AR5 Reference Archive: Experiment Counts per Institute

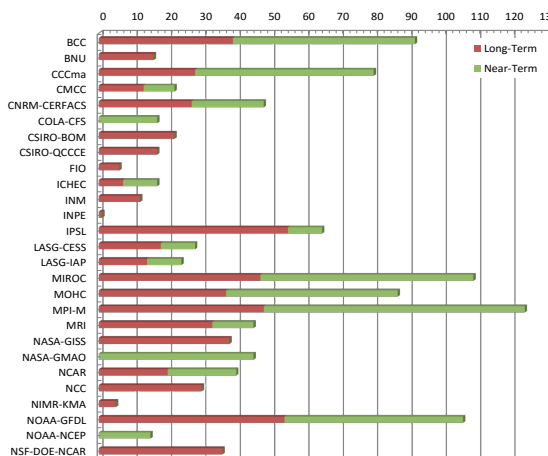


Figure 1: Number of the CMIP5 experiments contributed by the individual institutions, subdivided into long-term (red) and near-term or decadal (green) experiments.



### German Climate Computing Center (DKRZ)

The mission of DKRZ is to provide high performance computing (HPC) platforms, sophisticated and high capacity data management and services for premium climate science.

Beyond providing HPC services, DKRZ hosts the IPCC Data Distribution Centre (IPCC DDC) for climate model data and the World Data Centre for Climate (WDCC), which is part of the ICSU World Data System (WDS).

[www.dkrz.de](http://www.dkrz.de)

### IPCC DDC is funded by:



Federal Ministry of Education and Research

### DKRZ's IPCC DDC Services for Data Creators

- Long-term data storage and curation
- DataCite DOI data publication

### DKRZ's IPCC DDC Services for Data Users

- Data Dissemination: IPCC Data can be downloaded via the WDC and ESGF portals.
- Data Shipping: Core data of AR4 and AR5 for preselected geographical areas can be ordered on storage media.
- Long-term data curation and user support.

### IPCC DDC Future Plans

The DDC at DKRZ plans to strengthen its support of the internal IPCC process, namely the work of the IPCC Working Groups and the IPCC authors for the next, the Sixth Assessment Report cycle.

### Federated Projects, e.g. CMIP5

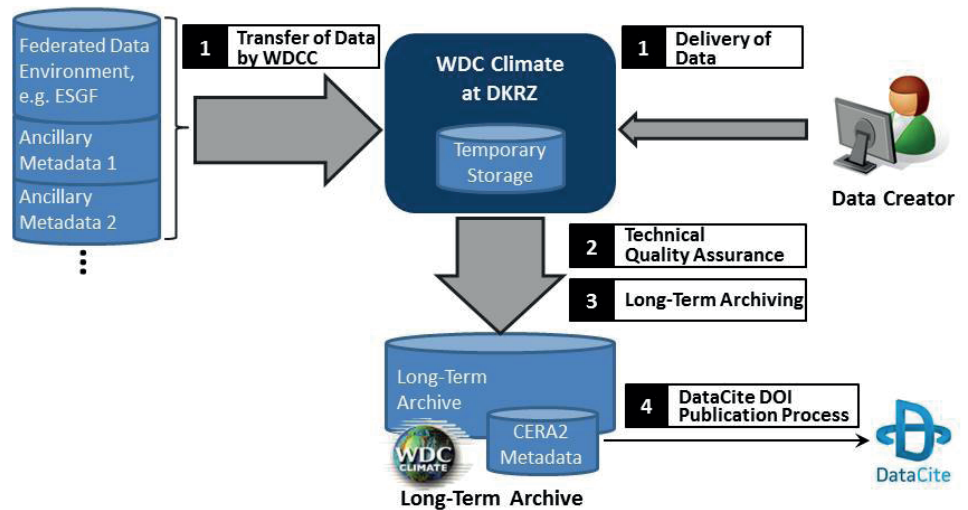


Figure 2: Long-term archiving workflow of the IPCC DDC (left) and the WDC (right).

## IPCC DDC Data Archiving Procedure

The long-term archiving procedure for large federated projects such as CMIP5 differs from the general archiving of project data. The data manager needs to collect the data together with documenting metadata from various project repositories (Figure 2) as such metadata are not directly supplied by the data creators. In the quality procedure, additional checks on the consistency of data and documentation from these different sources are applied before long-term data archiving. Finally, DataCite DOIs are registered to enable data citation.

## IPCC DDC Data Usage in 2015

IPCC DDC data is heavily used. In 2015, DDC users downloaded 2.6 Petabytes of data distributed over 2 million individual downloads (Figure 3). Most of the data downloaded was related to AR5, but AR4 data was still of high interest to the users.

The download activity in 2015 was carried out by over 700 users. 42% of the users were located in developing and economy-in-transition countries in Africa, Asia and South America (Figure 4). The average individual IPCC DDC user downloaded 2,900 files.

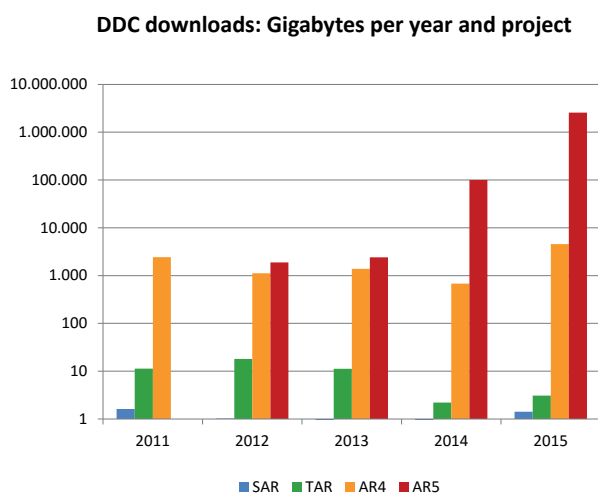
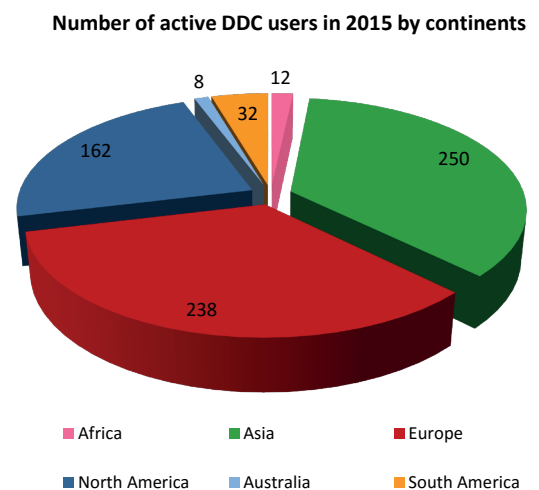


Figure 3 (left): DDC data download volumes over the last 5 years for the different Assessment Reports (SAR: Second, TAR: Third, AR4: Fourth, and AR5: Fifth Assessment Report).

Figure 4 (right): Continental distribution of active DDC users in 2015.



### IPCC DDC (<http://ipcc-data.org>) References:

- Experiment data is accessible from the IPCC DDC AR5 webpage: [www.ipcc-data.org/sim/gcm\\_monthly/AR5/](http://www.ipcc-data.org/sim/gcm_monthly/AR5/)
- Information about the IPCC DDC at DKRZ is collected at: <http://ipcc.wdc-climate.de>
- A data download guide is available at: <http://cera-www.dkrz.de/CERA/docs/IPCC-DDC-AR5-data.html>
- Data is stored in the CERA database with direct access at: <http://cera-www.dkrz.de/WDC/ui/BrowseExperiments.jsp?key=IPCC-DDC>

To learn more about data management services at DKRZ, please visit: [www.dkrz.de/daten-en/data-services](http://www.dkrz.de/daten-en/data-services)