

World Data Center for Climate (WDCC) – Risk Management –

version v2.0; 04 October 2023

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The World Data Center for Climate (WDCC) is an infrastructure to archive and publish research data and is hosted by the German Climate Computing Center (Deutsches Klimarechenzentrum, DKRZ), Hamburg. .

This document describes the risk assessment and management implemented at the WDCC. This includes the measures for the data security and safety and the management of the residual risks to the data .

Security

WDCC uses the DKRZ tape storage infrastructure for its data holdings and applies the same strict security measures that the DKRZ has implemented to avoid unlawful physical or logical access to the data.

Physical Security

Only trained DKRZ staff has access to the WDCC storage infrastructure which is located in an especially secured environment. The security concept includes that all physical accesses to storage infrastructure are controlled, logged and monitored. State-of-the-art fire prevention and protection systems (like an oxygen reduction system) are in place. In the event of a power outage, an Uninterruptible Power Supply (UPS) is installed.

Logical Security

The access to the WDCC data is audited. In addition, password and firewall protections are in place. To minimize the risk related to tape media deterioration, data objects are copied onto new tape media on a regular basis.

Safeguard Backup

All data archived at the WDCC is backed-up to the Max Planck Computing and Data Facility (MPCDF) at Rechenzentrum Garching, located near Munich, 800 km away from WDCC. Therefore an automated routine instantaneously copies newly archived data and transfers them to MPCDF. The access to this separate copy is strictly limited to specially trained RZG and DKRZ staff.

This backup guarantees the business recovery and continuity in cases of logical data corruption, physical security issues, or other disasters.

Risk assessment and management

The self-assessment of the risks to data archived in the WDCC comes to the following conclusions :

- Unlawful physical third party access: *low risk*
The access to the DKRZ building is limited to DKRZ employees by electronic access control. Any access to the tape storage infrastructure, however, is monitored and strictly limited to specially trained employees.
- Unlawful logical access by third parties: *some risk*
WDCC has a user registration, including user name, email and password. This allows the WDCC to monitor user-specific accesses and downloads. Read access to WDCC data is limited to registered users only. Only trained WDCC employees have write permissions.
- Violation of confidentiality: *very low risk*
The WDCC does not archive data that are subject to confidentiality.
- Power outage: *low risk*
During the last decades there have been only a few incidents, which were mostly buffered by the Uninterruptible Power Supply (UPS).
- Technical and staff faults: *low risk*.
However, they can never be excluded completely. Therefore access to the metadata base and data storage is possible for well trained staff only.
- Especially smoke and fire risk: *very low risk*.
At WDCC the local storage of the data is under a reduced oxygen atmosphere. This lowers the above risk substantially and requires a denial of access for everybody except very few staff members.
- The status of data availability is displayed to the user on the WDCC web page with green/yellow/red marks in case of possible unavailability of the tape system. In case of longer lasting problems a warning and information page can be displayed.

All in all, the openness of most of the data lowers any risks of confidentiality violations substantially, the external backup allows for complete recovery of WDCC data in case of corruption.

Further policies

For all issues concerning WDCC's general data policies see the document DKRZ-LTA Preservation and Storage Policy which can be found, e.g., on docs.wdc-climate.de .

For all matters concerning general protection of personal data see the DKRZ website at <https://www.dkrz.de/about-en/contact/en-datenschutzhinweise>. This not only refers to data access by web browser but also by any API and by the jblob download tool.

Contacts

In case any questions regarding this preservation and storage policy arise, please contact WDCC user support at data@wdc-climate.de.