

<b>Project title</b> [Descriptive title of data project]	The Inter-Sectoral Impact Model Intercomparison Project (ISIMIP)
<b>Project acronym</b> <i>will be used as folder name on /pool/data, e.g. ISIMIP3b</i>	ISIMIP3b
<b>Principal investigator PI</b> [full name, affiliation, email] <i>Long-term contact person for this data, e.g. group leader</i>	Leonard Borchert, CEN-UHH, leonard.borchert@uni-hamburg.de
<b>Applicant (if not the same as PI)</b> [full name, affiliation ]	
<b>Allocation period</b> [YYYY-MM-DD to YYYY-MM-DD] <i>Maximally a period of 5 years will be granted, but the period can be extended upon request once it is close to expire.</i>	2025-01-01 to 2029-12-31
<b>Total data storage volume requested</b> [in GB or TB] <i>Maximally 80 Tb can be granted for /pool/data user projects.</i>	4 TB
<b>License allows data read-access</b> [Yes or No] <i>The license of the data allows that all Levante users have read access to the data.</i>	Yes

## Project overview

Provide a brief overview of the context in which the data was generated, including the creators and methods used. Include references to scientific publications, web links, or other detailed sources that describe the data, its evaluation, and its application, if available.

The Inter-Sectoral Impact Model Intercomparison Project (ISIMIP, <https://www.isimip.org/>) is a collaborative research initiative that aims to provide a consistent framework for the collation of a consistent set of climate impact data across sectors and scales. ISIMIP consists of successive rounds of simulations connected to the phases of the Coupled Model Intercomparison Project (CMIP), developing and providing climate and socioeconomic forcing datasets for cross-sectorally consistent climate impact modelling. To that end, the ISIMIP simulations are carefully downscaled and bias-corrected to reflect future climate changes as accurately as possible within the framework of the respective climate model. This enables using this climate model output in impact models. The current generation of ISIMIP simulations is ISIMIP phase 3a for reanalysis (Cucchi et al., 2020) and phase 3b for climate models (Lange, 2019).

ISIMIP also curates impact model output data and provides modelling protocols to integrate climate impacts across sectors and scales. Several sectors are included in ISIMIP, including agriculture, terrestrial biodiversity, health, energy, groundwater, and fisheries, among others. We only move to store the ISIMIP climate model output on Levante, not the impact model output.

### **Data content**

Provide a brief overview of the data to be stored in /pool/data. If possible, provide information on the: (a) Kind of Data: Observational or model data, gridded or point data, (b) Coverage: Temporal and spatial range, including resolution, (c) Variables: List of variables, (d) File Formats: e.g., NetCDF, CSV, GRIB.

ISIMIP consists of successive rounds of simulations and provides both global input climate forcing data and global output impact model data in netCDF format. In phase 3, the spatial resolution is 0.5 degrees.

Phase 3a ([https://www.isimip.org/outputdata/?simulation\\_round=ISIMIP3a](https://www.isimip.org/outputdata/?simulation_round=ISIMIP3a)) consists of several historical climate forcing datasets. These data sets resemble several data sets already available on Levante, which is why we do not move to make these data available in /pool.

Phase 3b ([https://www.isimip.org/outputdata/?simulation\\_round=ISIMIP3b](https://www.isimip.org/outputdata/?simulation_round=ISIMIP3b)) consists of climate forcing datasets obtained from 5 different climate models (GCMs) for 3 Shared Socioeconomic Pathways (SSPs), as well as historical and pre-industrial control runs. The model simulation output is carefully bias-corrected and downscaled to provide bias-free regional climate information. Several variables are provided, of which tas, tasmx, tasmin, pr, ps, and hurs at daily resolution are of highest priority.

### **Planned scientific data usage**

Describe potential applications and target communities for the data.

ISIMIP provides a consistent, downscaled, and bias-corrected framework to assess climate impacts across sectors and spatial and temporal scales. These data can be used to answer questions about the impacts of climate change on human and natural systems today and in the future under different scenarios, as well as the interactions between these impacts.

The agricultural sector data in particular will be used to investigate the impacts of climate change, especially climatic extremes, on crop yields. ISIMIP data allows for a robust multi-model assessment of these impacts and the identification of relevant climatic impact drivers, understanding impact pathways, projections of the future of these impacts, and the analysis of policy options and consequences. Similar use cases are foreseen for climate impact modellers in different fields, several of which are represented and active with the Hamburg climate research community within CEN and CLICCS.

## Data storage usage plan

Briefly specify the expected storage duration. Also, please note if the data volume will change over the allocation period due to new additions or updates.

The currently requested ISIMIP data has a volume of 3.54 TB. Since ISIMIP is an ongoing initiative with future simulation rounds that will lead to new possibly increasing data requirements in the future, a long-term commitment to storing this data at DKRZ is required to enable its continued and seamless use.

## Data Licenses and Data Citation

Specify the licenses associated with the data and any usage restrictions. Additionally, outline how users must attribute the data, providing the required citation details.

ISIMIP3 model output is published with a CC0 1.0 license. Details on the terms of use of ISIMIP3b data are contained in <https://www.isimip.org/gettingstarted/terms-of-use/terms-use-publicly-available-isimip-data-after-embargo-period/>.

Information on the data licenses and data citation will be provided in the /pool/data/ISIMIP README. The ISIMIP3b model outputs are DOI data publications which have a predefined citation format (<https://data.isimip.org/doi/>). The citation for the provided atmospheric data is "Stefan Lange, Matthias Büchner (2021): ISIMIP3b bias-adjusted atmospheric climate input data (v1.1). ISIMIP Repository. <https://doi.org/10.48364/ISIMIP.842396.1>".

## References

List here the citation you are referring to in the text above.

Cucchi, M., Weedon, G. P., Amici, A., Bellouin, N., Lange, S., Müller Schmied, H., Hersbach, H., and Buontempo, C.: WFDE5: bias-adjusted ERA5 reanalysis data for impact studies, Earth Syst. Sci. Data, 12, 2097–2120, 2020.  
<https://doi.org/10.5194/essd-12-2097-2020>

Lange, S.: Trend-preserving bias adjustment and statistical downscaling with ISIMIP3BASD (v1.0), Geosci. Model Dev., 12, 3055–3070, 2019b.  
<https://doi.org/10.5194/gmd-12-3055-2019>