

README concerning the HAPPI dataset available via DKRZ /pool/data resources

Date: 29 April 2021

T I T L E O F T H E D A T A S E T

Half a degree Additional warming, Prognosis and Projected Impacts Mdel Intercomparison Project (HAPPI-MIP)

P A T H T O T H E D A T A S E T

/poo/data/HAPPI

O W N E R / P R O D U C E R O F T H E D A T A S E T

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The contact details of the individual dataset creators are given in the netcdf-file headers.

D A T A U S A G E L I C E N S E

The data are provided with different data usage licenses/restrictions:

MPI-M, ETH and MIROC: CC-BY-NC-SA 2.0 (<https://creativecommons.org/licenses/by-nc-sa/2.0/>)

CCCma: Canadian Government License involving no restrictions on data reuse (see netcdf file headers for complete license text)

NorESM: Data policies laid out in Mitchell et al. (2017, see above). This policy requires involvement of the HAPPI community in any efforts regarding data reuse.

Reference: Mitchell et al. (2017): <https://gmd.copernicus.org/articles/10/571/2017/gmd-10-571-2017.pdf>

C O N T E N T O F T H E D A T A S E T

The data are provided as globally gridded netcdf-files. The experiments provided are called All-Hist, Plus15-Future and Plus20-Future. The experiment setup is used to study the following scenarios:

- 1) All-Hist: Current decade conditions (2006 to 2015).
- 2) Plus15-Future: 1.5C warmer than pre-industrial, relevant for the 2106 to 2115 period
- 3) Plus20-Future: warmer than pre-industrial, relevant for the 2106

to 2115 period

The motivation behind these experiments is given in Mitchell et al (2017). Each of the experiments is comprised of an ensemble consisting of 40 members, amounting to 120 datasets per model (amounting to 1200 model years).

The data are global and are available as either daily or monthly means. The naming of variables, coordinates and units follows CF and CMIP conventions.

The amount of available variables depends on the temporal output.

For daily output, the following are available (variable naming follows CMIP conventions):

hurs huss pr ps tas tasmx tasmin uas vas

For monthly output, the following variables are available (variable naming follows CMIP conventions):

clt hfls hfss hurs hus huss pr ps psl rlds rlus rlut
rsds rsdt rsus rsut ta tas tasmx tasmin tauu tauv ts ua
va zg mrsos

References to the used models are given in the netcdf-file headers (if available).

D A T A U S A G E S C E N A R I O S

The data are suited for the envisaged scientific usage scenario, namely estimating the impact of policy measures aimed at limiting the increase in global near surface temperature to 1.5 or 2 degrees celsius compared to pre-industrial conditions. The data are especially suited as input for impact-related research questions, such as hydrology, agriculture and the associated socio-economic impacts.

Furthermore, the overall ensemble allows for estimating the uncertainties associated with the above mentioned changes and understand model behaviour.

At DKRZ, the data may especially be of interest to those users involved in impact-related research, e.g. in the framework of CLICCS and future projects focusing on interdisciplinary research questions related to policy-related climate goals.

M E T H O D S U S E D F O R D A T A C R E A T I O N

The data was generated within the framework of the HAPPI-MIP initiative (<https://www.happimip.org>) and formed part of the scientific basis for IPCCs SRES1.5 report (<https://www.ipcc.ch/sr15/download/>).

The data hosted at DKRZ was produced by a total of 5 institutions

(CCCma (Canada), ETH Zuerich, the Japanese MIROC consortium consisting of AORI, NIES and JAMSTEC, DKRZ in collaboration with MPI-M, and the Norwegian NorESM Climate modelling Consortium). The approach to data creation follows that outlined in Mitchell et al. (2017).

ISSUES

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VOLUME OF THE DATASET (AND POSSIBLE CHANGES THEREOF)

The HAPPI dataset has a total volume of 2.4TB. As this amount will not change in the future, we request a total of 2.4TB of storage resources for provision of the HAPPI dataset to the DKRZ user community.

TIME HORIZON OF THE DATASET ON /POOL/DATA

As the data is up to now neither available via ESGF nor via any long-term archiving option, the provision via /pool/data is the only means of making the dataset available to the community. Therefore, the data shall be made available for three years (January 2022 - December 2024).

Towards the end of that allocation period, a review of data provision needs for the HAPPI dataset will be performed. If suitable, other storage options, e.g. long-term archival, will be explored.