CMIP6 compliant processing and climate extremes indices with CDO's

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The Climate Data Operators [1] tool kit (CDO) is a worldwide popular infrastructure software developed and maintained at the Max Planck Institute for Meteorology (MPI-M). It comprises a large number of command line operators for gridded data, including statistics, interpolation, or arithmetics. Users benefit from the extensive support facilities provided by the MPI-M and the DKRZ.

As a part of the sixth phase of the Coupled Model Intercomparison Project (CMIP6), the German Federal Ministry of Education and Research (BMBF) is funding activities promoting the use of the CDOs for CMIP6 data preparation and analysis.

Firstly, a new operator 'cmor' has been developed which enables the users to rewrite their data according to the CMIP6 standard. It may be piped with other CDO operators allowing users to finish CDO applications with a standarizing 'cmor' call. The web-based post processing workflow composition for CMIP6 developed at DKRZ [2] takes advantage of the cmor operator. Secondly, both the metadata model and the data model of the CDOs had to be adapted to the CMIP6 standard.

In addition, activities are underway to revise some operators for climate indices in order to adopt the procedures defined by the Expert Team on Climate Change Detection and Indices (ETCCDI) for 27 climate extremes indices. As with CMIP5, the ETCCDI climate extremes indices will be part of CMIP6 model analyses due to their robustness and straightforward interpretation.

[1] Schulzweida, U. (2019): CDO user guide. code.mpimet.mpg.de/projects/cdo , last access: 01.09.2019.
[2] Schupfner, M. (2019): The CMIP6 Data Request WebGUI. c6dreq.dkrz.de , last access: 01.09.2019.