Web Processing Services for Copernicus Climate Change Service

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Copernicus is a European Union's programme to develop information services for earth observations. These services operate on data from multiple sources like earth observation, satellites and in situ sensors. The users of Copernicus are policymakers and public authorities. They use Copernicus services and data for decision making on environmental topics like climate change.

The Copernicus Climate Change Service (C3S) provides information for monitoring and predicting climate change. It has access to Global Climate Model projections using well-established metrics and manipulation tools and receive outputs tailored to specific sector needs.

A Climate Data Store (CDS) has interfaces to interact with external data and processing services for the C3S climate change portal hosted at ECMWF, UK.

The CP4CDS sub-project provides the required data and services for global climate projections to the Climate Data Store. It uses the ESGF (Earth System Grid Federation) software stack to provide access to climate projections like CMIP5. In addition it provides compute facilities to analyse climate model projections using the Web Processing Service (WPS) standard interface. The PyWPS Python implementation of OGC Web Processing Standard is used for the processing service. The analysis toolbox is based on ESMValTool, the climate model evaluation tool by DLR. The service deployment on compute-clusters and container orchestration environments is provided by Birdhouse components.

CP4CDS is developed by the leading European climate compute centres: CEDA, IPSL and DKRZ.

We will give an overview of the Copernicus CP4CDS processing service solution.

Links:
* http://climate.copernicus.eu/
* http://bird-house.github.io/
* https://esgf.llnl.gov/
* http://www.esmvaltool.org/