Geophysical Research Abstracts
Vol. 15, EGU2013-7888-2, 2013
EGU General Assembly 2013

The climate4impact portal: bridging the CMIP5 data infrastructure to impact users

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Together with seven other partners (CERFACS, CNRS-IPSL, SMHI, INHGA, CMCC, WUR, MF-CNRM), KNMI is involved in the FP7 project IS-ENES (http://is.enes.org), which supports the European climate modeling infrastructure, in the work package 'Bridging Climate Research Data and the Needs of the Impact Community'. The aim of this work package is to enhance the use of climate model data and to enhance the interaction with climate effect/impact communities. The portal is based on 17 impact use cases from 5 different European countries, and is evaluated by a user panel consisting of use case owners. As the climate impact community is very broad, the focus is mainly on the scientific impact community. This work has resulted in a prototype portal, the ENES portal interface for climate impact communities, that can be visited at www.climate4impact.eu.

The portal is connected to all Earth System Grid Federation (ESGF) nodes containing global climate model data (GCM data) from the fifth phase of the Coupled Model Intercomparison Project (CMIP5) and later from the Coordinated Regional Climate Downscaling Experiment (CORDEX). This global network of all major climate model data centers offers services for data description, discovery and download. The climate4impact portal connects to these services and offers a user interface for searching, visualizing and downloading global climate model data and more. A challenging task was to describe the available model data and how it can be used. The portal tries to inform users about possible caveats when using GCM data. All impact use cases are described in the documentation section, using highlighted keywords pointing to detailed information in the glossary. During the project, the content management system Drupal was used to enable partners to contribute on the documentation section.

In this presentation the architecture and following items will be detailed:
- Security: Login using OpenID for access to the ESG data nodes. The ESG works in conjunction with several external websites and systems. The climate4impact portal uses X509 based short lived credentials, generated on behalf of the user with a MyProxy service. Single Sign-on (SSO) is used to make these websites and systems work together.
- Discovery: Facetted search based on e.g. variable name, model and institute using the ESG search services. A catalog browser allows for browsing through CMIP5 and other climate model data catalogues (e.g. ESSENCE, EOBS, UNIDATA).
- Download: Directly from ESG nodes and other THREDDS catalogs
- Visualization: Visualize any data directly using ADAGUC dynamic Web Map Services.
- Transformation: Transform your data into other formats, perform basic calculations and extractions using OCG Web Processing Services

The current portal is a Prototype. It is built to explore state-of-art technologies to provide improved access to climate model data. The prototype will be evaluated and is the basis for development of an operational service. The portal and services provided will be sustained and supported during the development of these operational services (2013-2016) in the second phase of the FP7 IS-ENES project, ISENES2.