Developing a Metadata Infrastructure to facilitate data driven science gateway and to provide Inspire/GEMINI compliance for CLIPC

Andrej Mihajlovski (1), Maarten Plieger (1), Wim Som de Cerff (1), and Christian Page (2)

(1) Royal Netherlands Meteorological Institute (KNMI), the Netherlands (clipc@knmi.nl), (2) CERFACS, France

The CLIPC project is developing a portal to provide a single point of access for scientific information on climate change. This is made possible through the Copernicus Earth Observation Programme for Europe, which will deliver a new generation of environmental measurements of climate quality. The data about the physical environment which is used to inform climate change policy and adaptation measures comes from several categories: satellite measurements, terrestrial observing systems, model projections and simulations and from re-analyses (syntheses of all available observations constrained with numerical weather prediction systems). These data categories are managed by different communities: CLIPC will provide a single point of access for the whole range of data.

The CLIPC portal will provide a number of indicators showing impacts on specific sectors which have been generated using a range of factors selected through structured expert consultation. It will also, as part of the transformation services, allow users to explore the consequences of using different combinations of driving factors which they consider to be of particular relevance to their work or life. The portal will provide information on the scientific quality and pitfalls of such transformations to prevent misleading usage of the results. The CLIPC project will develop an end to end processing chain (indicator tool kit), from comprehensive information on the climate state through to highly aggregated decision relevant products. Indicators of climate change and climate change impact will be provided, and a tool kit to update and post process the collection of indicators will be integrated into the portal.

The CLIPC portal has a distributed architecture, making use of OGC services provided by e.g., climate4impact.eu and CEDA. CLIPC has two themes:
1. Harmonized access to climate datasets derived from models, observations and re-analyses
2. A climate impact tool kit to evaluate, rank and aggregate indicators
Key is the availability of standardized metadata, describing indicator data and services. This will enable standardization and interoperability between the different distributed services of CLIPC.

To disseminate CLIPC indicator data, transformed data products to enable impacts assessments and climate change impact indicators a standardized meta-data infrastructure is provided. The challenge is that compliance of existing metadata to INSPIRE ISO standards and GEMINI standards needs to be extended to further allow the web portal to be generated from the available metadata blueprint. The information provided in the headers of netCDF files available through multiple catalogues, allow us to generate ISO compliant meta data which is in turn used to generate web based interface content, as well as OGC compliant web services such as WCS and WMS for front end and WPS interactions for the scientific users to combine and generate new datasets.

The goal of the metadata infrastructure is to provide a blueprint for creating a data driven science portal, generated from the underlying: GIS data, web services and processing infrastructure. In the presentation we will present the results and lessons learned.