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Generic visualization of OpenDAP data resources using OGC services

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OpenDAP provides functionality to access and subset large datasets over the web without the need for downloading a full copy. OpenDAP is great for centralized data access and data exploration, but does not provide for visualization by default. In this presentation we describe a generic method to create visualizations of interesting OpenDAP data resources using OGC Web Map Services (WMS).

Visualizing remote datasets using WMS is achieved by adding OpenDAP URLs as parameter to the service. This enables automatic visualization of OpenDAP datasets without any necessary configuration. The same method is used to create an OGC Web Coverage Services (WCS), allowing for data re-projection, subsetting and conversion to other formats. This way, OpenDAP datasets become available to Geographical Information Systems (GIS).

The functionality has been built into the ADAGUC OGC server which uses the NetCDF-C library for OpenDAP access. Currently raster data described by the climate and forecast (CF) conventions is supported. Colors and styles are selected on basis of CF standard names and units, e.g. temperature in Celsius is displayed with different colors than precipitation in kg/m2. The technology is used in the climate4impact portal developed during the IS-ENES FP7 EU project. In this portal data from the fifth phase of the Coupled Model Intercomparison Project (CMIP5) can be visualized. This presentation describes the method in more detail and examples are shown.