Automatic visualization of OpenDAP data resources using OGC services.

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More and more scientific datasets used in meteorology and climate sciences are becoming available by the Open-source project for a Network Data Access Protocol (OpenDAP). OpenDAP allows for browsing and accessing huge amounts of data over the internet, without the need for downloading the data itself. OpenDAP provides functionality to access, describe and subset large files without the need for downloading a full copy. OpenDAP does not provide for quick looks or visualizations over the internet itself.

Within the IS-ENES project, we present a way to generate visualizations of OpenDAP services over the internet by using automatically configured Web Map Services (WMS), enabling visualization of interesting OpenDAP data in a web browser on users request.

This functionality is achieved by passing OpenDAP URLs to the GetCapabilities request of an OGC service, allowing OpenDAP datasets to be visualized without any necessary configuration. The same method can also be used to configure an OGC Web Coverage Service (WCS), allowing data re-projection, sub setting and conversion to other formats. This chaining of services is achieved by using the ADAGUC OGC server as an OpenDAP client. ADAGUC uses the NetCDF C library to access data, which has built in support for OpenDAP.

Currently the software is capable to provide visualizations of datasets in raster format described by the climate and forecast (CF) conventions. Legends and colours are selected according to CF standard names and units, e.g. temperature in Celsius is displayed with different colours than precipitation in kg/m2.

Automatic generation of OGC services with OpenDAP as a resource, enables previewing interesting data in a web browser without the need to download the data itself. During this presentation this method is described in more detail and real-life examples are given.