



Visualization of cloud physical properties derived from Meteosat using OGC Web Map Services.

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The Cloud Physical Properties (CPP) algorithm is being developed at KNMI to derive cloud, precipitation and radiation products from satellite instruments such as SEVIRI onboard the METEOSAT Second Generation (MSG). The CPP algorithm development is largely done inside EUMETSAT's Climate Monitoring Satellite Application Facility (CM-SAF), but also in research projects like EURO4M, SYNTHESIS, MSGSIM, and SICCS.

In the MSG-CPP project, data is converted to the network common data format (NetCDF) with Climate and Forecast conventions (CF conventions). Data can be accessed by using web services defined by the Open Geospatial Consortium (OGC).

Web Map Services are offered for data visualization and Web Coverage Services are offered for data conversion and access (WMS & WCS). The OGC services can be accessed in the ADAGUC portal, a JavaScript based web tool which runs in most modern browsers. The portal allows viewing, zooming, querying and downloading of the data. Interesting situations can be captured and sent to others by creating status hyperlinks, and the data can be displayed in Google Earth if desired.

The high resolution of the images and the large data volumes are challenging for real-time and web based visualization services. During the MSG-CPP project the ADAGUC OGC server has been optimized to enable quick rendering of visualizations from NetCDF data, the server reads the NetCDF4 files directly and interpolates the data to the desired geographic projection and location. A new feature of the server is the support for NetCDF flag values and flag meanings as specified in the Climate and Forecast conventions. Flag values and flag meanings allow for visualization of data with discrete values. This feature is used in the visualization of thermodynamic phase of particles at the top of the cloud, which values are indicated with meanings like no_cloud, liquid, ice and mixed. The legend of the WMS service displays these meanings individually and the `getfeatureinfo` request of the WMS service shows the meaning of the corresponding value. In this presentation, the MSG-CPP data and the OGC services are described and explained in more detail.