

NetCDF and tools for data extraction and visualisation

What is NetCDF?

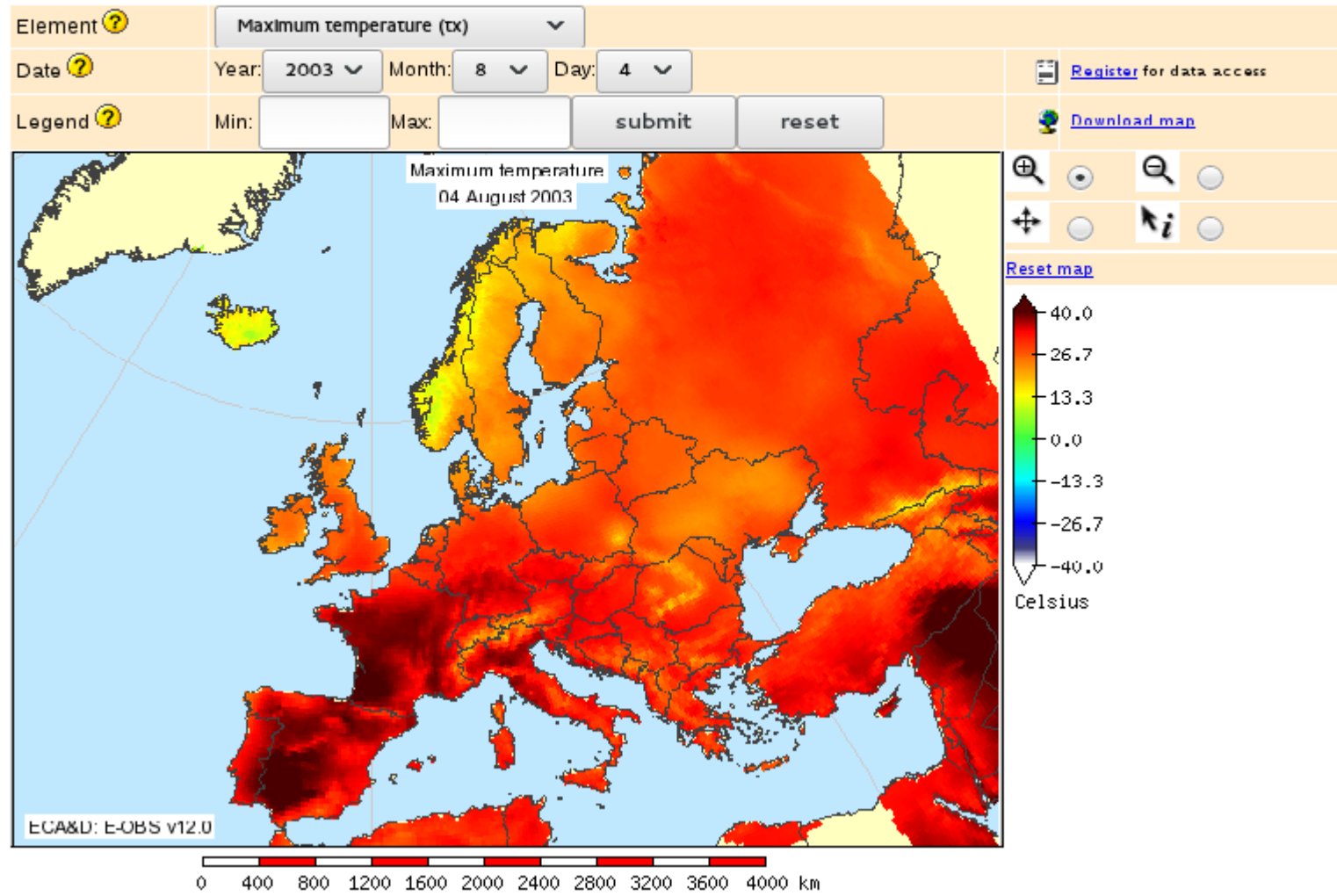
- NetCDF = Network Common Data Form
- Supported by the University Corporation for Atmospheric Research (UCAR - Boulder).
- All formats are "self-describing" (header describes layout of the file)
- Metadata in the form of name/value attributes (like what grid is used).
- The format is platform independent

Visualization of NetCDF can be done by many packages
One example is ADAGUC, another is Panoply

E-OBS daily maps

Select the *element*, *year*, *month* and *day* for which you want to view the map. The data shown is from E-OBS v12.0.

- [Help on how to use the interactive map.](#)



www.ecad.eu

Indices of extremes >
E-OBS indices maps

Possibilities to show maps
and graphs

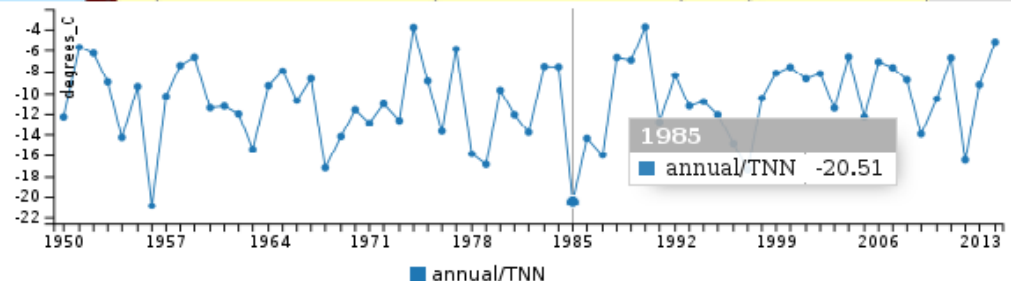
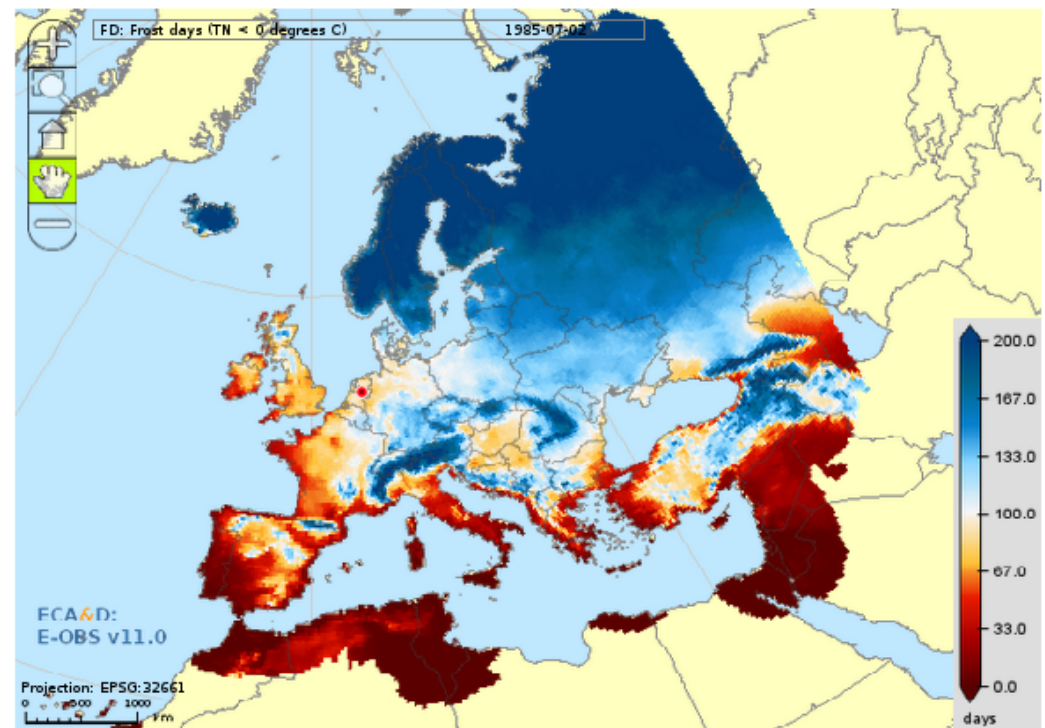
Provides historical
perspective

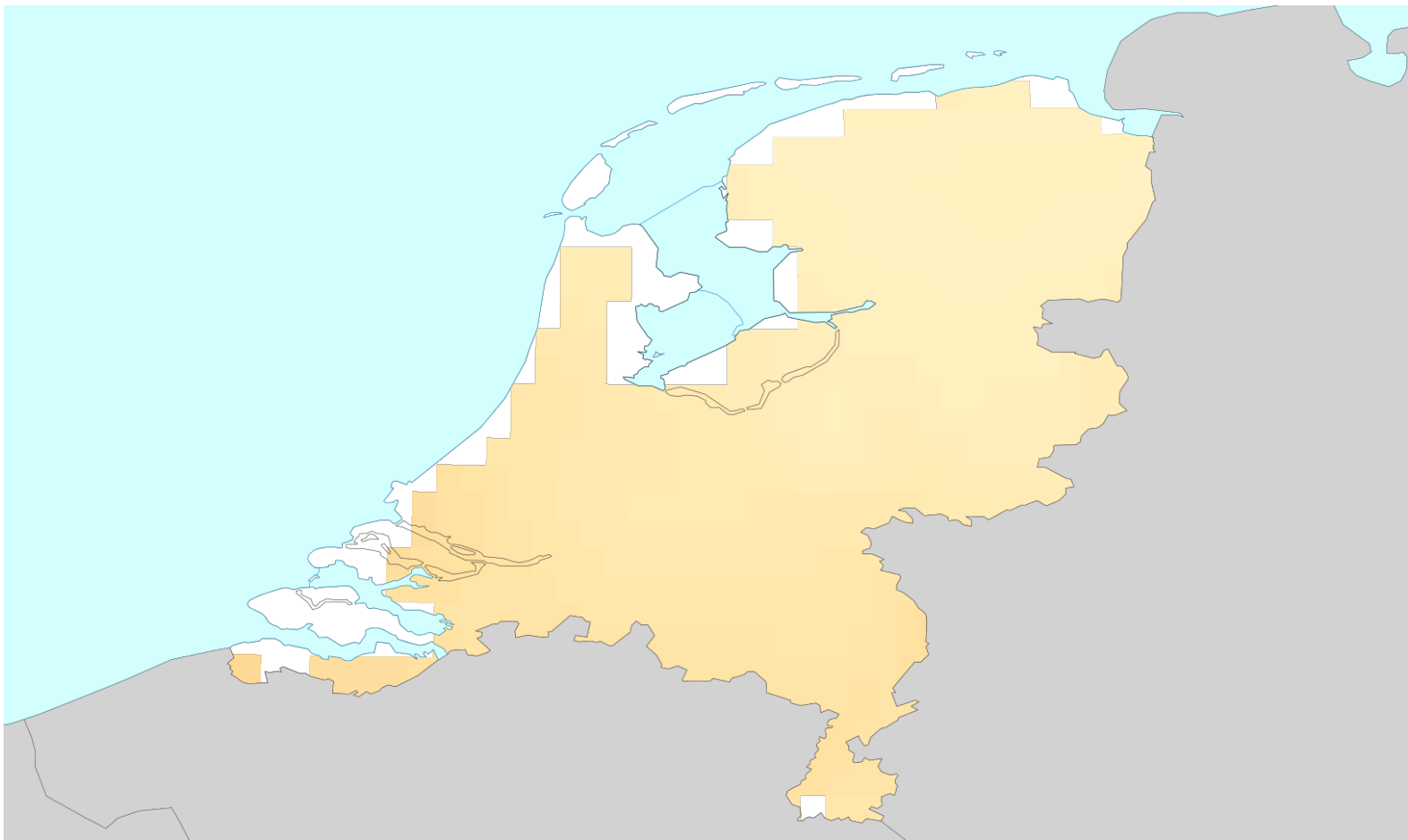
Select period: annual | Select index: FD: Frost days (TN < 0 degrees C) | < >

Selected date: 1985

Define range min: 0 max: 200 | Submit | Reset | Download map

Timeseries for a location (click on map & scroll down)





New possibilities exist – like clipping out country borders

ADAGUC develops quickly





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About ADAGUC

ADAGUC Workshop announcement: 17-19 June 2015

KNMI organizes a 3-day workshop to provide hands-on experience with the ADAGUC software suite. Please check the [announcement](#) for the programme and how to signup.

Demo application of Pytroll and ADAGUC with Suomi NPP Viirs: September 2014

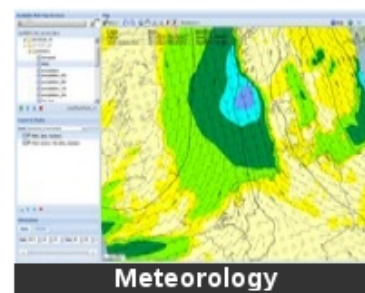
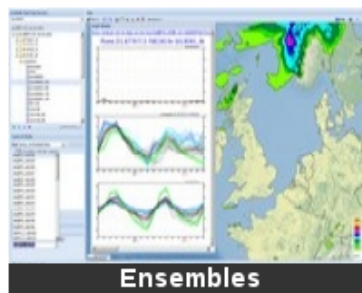
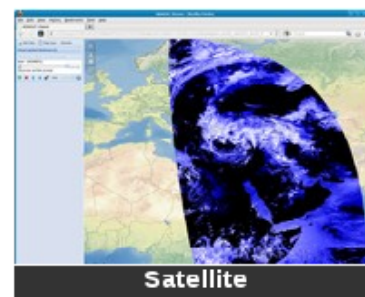
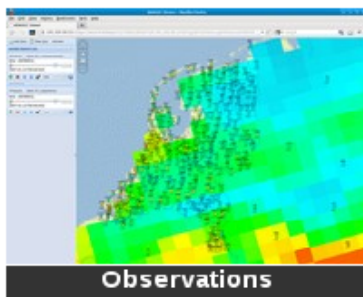
Demonstration of polar orbiter products in weather forecasting using open source tools and open standards. [Read more here.](#)

Results ADAGUC Workshop: 17-19 June 2013

KNMI has organized a 3-day [workshop](#) to get hands-on experience with the ADAGUC software suite.

ADAGUC software

ADAGUC is a geographical information system to visualize netCDF files via the web. The software consists of a server side C++ application and a client side JavaScript application. The software provides several features to access and visualize data over the web, it uses OGC standards for data dissemination.



- Freeware available at adaguc.knmi.nl
- Frequent workshops for users

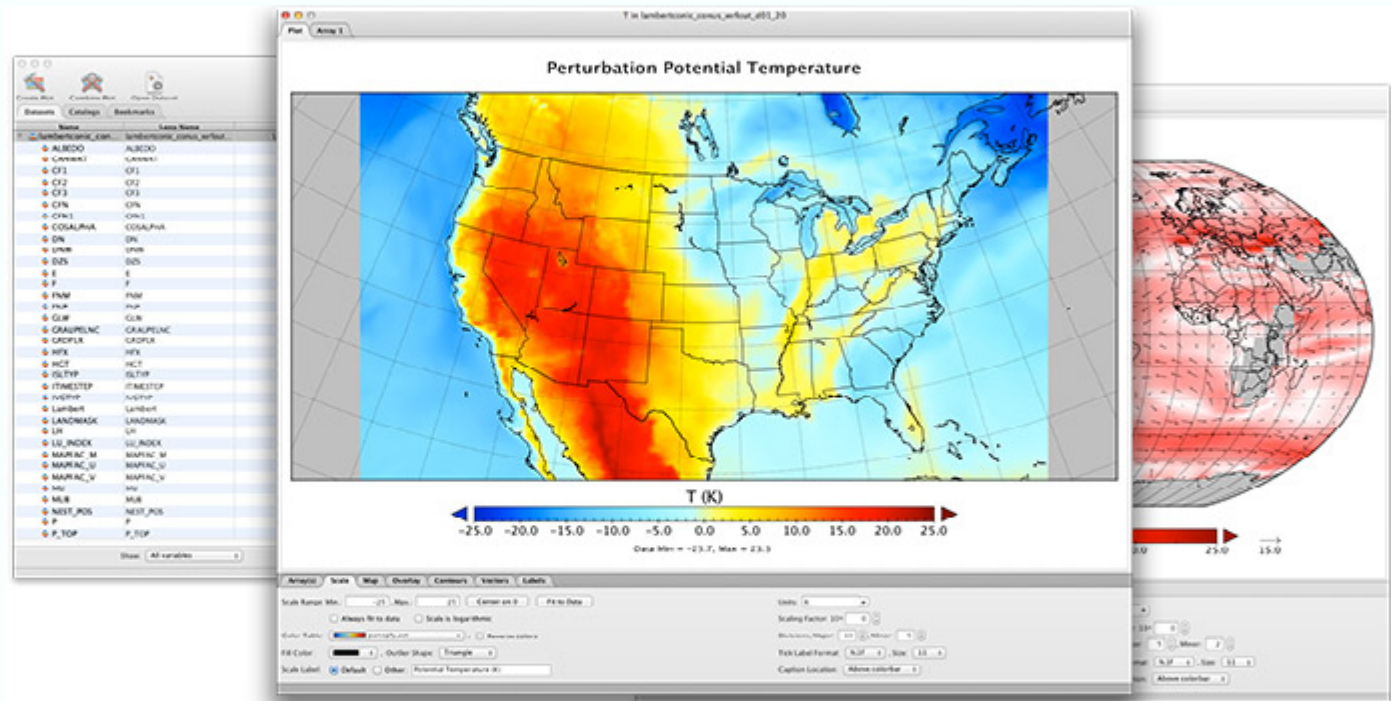




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Panoply netCDF, HDF and GRIB Data Viewer

panoply (PAN-uh-plee), noun: 1. A splendid or impressive array, ...



- Panoply provided by NASA
- Free software
- Allows overlays etc.

Panoply plots geo-referenced and other arrays from [netCDF](#), [HDF](#), [GRIB](#), and other datasets. With Panoply 4 you can:

- Slice and plot geo-referenced latitude-longitude, latitude-vertical, longitude-vertical, time-latitude or time-vertical arrays from larger multidimensional variables.
- Slice and plot "generic" 2D arrays from larger multidimensional variables.
- Slice 1D arrays from larger multidimensional variables and create line plots.



EXPRESSING THE RESULTS

- Results are output as NetCDF files
- Each variable of each product from the system has one file per day dating back to 1850 (60739 files, including today)
- Main variables are daily **minimum**, **maximum**, and **mean** surface air temperature
- A file contains a **global field** of observations at 0.25 degree resolution (1036800 grid boxes to cover the globe)
- Total observations = $3 \times 60739 \times 1036800 = 188922585600$ (about one hundred and ninety billion)
- We use the features of NetCDF to provide not only the temperature observations, but also a comprehensive description of uncertainty information

MOCKUPS FOR USER FEEDBACK

- We have created NetCDF files in appropriate formats for the **complete analysis** product, to check that users are able to open and use these.
- Files contain a **very rough indication** of the kind of data that may be present.
- We have not yet made files available with the satellite-only product and we would like more information from users about how this may be presented [more on this in 11:20 session].

Questions related to NetCDF

- Is support for using the NetCDF format required?
- What kind of support? Which tools?
- Familiar with using ESGF catalogue portals?
- Is referring to existing tools and their user guides sufficient?
- Are there tools/packages you work with that do not work well with NetCDF?
- Other remarks/suggestions?

MANY THANKS FOR YOUR FEEDBACK