

Vaklodingen Interpolated Dataset

Interpolated maps help to identify trends along large data gaps in time. This is the main reason behind Rijkswaterstaat request of Vaklodingen dataset interpolation, in order to fill these gaps and obtain elevation values for years with missing values. Furthermore, visualizing interpolated maps can give a clearer indication of the morphological processes and development trends present along the Dutch coasts. Another practical advantage of the Vaklodingen Interpolated dataset is that the obtained elevation can be used in reports as it is without undertaking any interpolation pre-processing beforehand.

However, the interpolation dataset has been constructed based on the measured one, meaning that it does not represent reality, and it should be interpreted for what it is.

The interpolation was carried on Vaklodingen data, in particular on the .nc files you can find in the following URL: <http://opendap.deltares.nl/thredds/catalog/opendap/rijkswaterstaat/vaklodingen/catalog.html>.

These files represent the multibeam bathymetry along the Dutch coast. The data is stored in NetCDF format, that also contains time, latitude and longitude information. The area is divided in tiles, and it is also possible to visualize the data with the KML overview (http://kml.deltares.nl/kml/rijkswaterstaat/vaklodingen_overview.kml) in Google Earth (<https://publicwiki.deltares.nl/display/OET/Dataset+documentation+Vaklodingen>):



Each tile includes altitude data related to different time-series. In some of the tiles the altitude of a single year is present. Our purpose is to obtain the same time-line in all the tiles and create additional altitude values based on the linear interpolation along the time dimension, in order to standardize the dataset. Whether the interpolation is not a possible option we assume that the altitude keeps a constant value after the year of the last measurement. We have chosen a time series that starts from the 1926 and ends on the 2014 for all tiles.

Procedure

We have created the NetCDF files and KML files using the raw data available on <https://svn.oss.deltares.nl/repos/openearthrawdata/trunk/rijkswaterstaat/vaklodingen/raw/grid> with the ncgen script (https://svn.oss.deltares.nl/repos/openearthrawdata/trunk/rijkswaterstaat/vaklodingen/scripts/ncgen_ncgen_vaklodingen.m). We have extended the altitude and the date variables with Matlab, finally we have overwritten the new altitude variable creating a new NetCDF file (the script is available here https://svn.oss.deltares.nl/repos/openearthrawdata/trunk/rijkswaterstaat/vaklodingen/scripts/ncgen_interpolated/nc_interpolation.m).

We are also producing the KML files (https://svn.oss.deltares.nl/repos/openearthrawdata/trunk/rijkswaterstaat/vaklodingen/scripts/ncgen_interpolated/kml_interp.m) that can be used to visualize the changes during the years of the bathymetry in Google Earth. The results will be available soon.