



EPOS-Norway Portal

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The European Plate Observing System (EPOS) is a European project about building a pan-European infrastructure for accessing solid Earth science data. Implementation phase of the EPOS project (EPOS-IP – EU Horizon2020 – InfraDev Programme – Project no. 676564) started in 2015. The EPOS-Norway project (EPOS-N; RCN-Infrastructure Programme - Project no. 245763) is a Norwegian project funded by National Research Council and is closely linked to the EPOS-IP project. The aim of the Norwegian EPOS e-infrastructure is to integrate data from the seismological and geodetic networks, as well as the data from the geological and geophysical data repositories. In this abstract, we present ongoing work on development of the Norwegian web portal for accessing the data.

The EPOS-N Portal is implemented by adapting Enlighten-web, a server-client program developed by NORCE in several projects, among them EPOS-Norway. Enlighten-web facilitates interactive visual analysis of large multidimensional data sets, and supports interactive mapping of millions of points. The Enlighten-web client runs inside a web browser. The user can create layouts consisting of one or more plots or views. Supported plot types are table views, bar charts, scatter plots, line plots and map views. For the map views the CESIUM JavaScript library is applied. Multiple scatter plots can be mapped on top of these map views.

An important element in the Enlighten-web functionality is brushing and linking, which is useful for exploring complex data sets to discover correlations and interesting properties hidden in the data. Brushing refers to interactively selecting a subset of the data using the mouse e.g. to dynamically alter a bounding box. Linking involves two or more views on the same data sets, showing different attributes. The views are linked to each other, so that highlighting a subset in one view automatically leads to the corresponding subsets being highlighted in the linked views. If the updates in the linked plots are close to real-time while brushing, the user can perceive complex trends in the data by seeing how the selections in the linked plots vary depending on changes in the brushed subset. This interactivity, especially for large data sets, requires GPU acceleration of the graphics rendering. In Enlighten-web, this is realized by using WebGL.

For metadata handling, the EPOS-N Portal will access an external database compatible with the EPOS-IP project. Metadata can e.g. specify data sources, services, ownership, license information and data policy. Bar charts can be used for faceted search in metadata, e.g. search by categories. EPOS-N Portal can access remote datasets via web services. Relevant web services include FDSNWS for seismological data, GLASS for GNSS and OGC services for geological and geophysical data (e.g. WMS – Web Map Services). Standalone datasets are available through preloaded data files. Users can also simply add another WMS server or upload their own dataset for visualization.

Enlighten-web is also planned to be made available through the pan-European infrastructure as a pilot ICS-D (Distributed Integrated Core Services) for visualization.