



A web server framework for rich interactive access to geologic and water quality data.

Peter Scharling (1), Klaus Hinsby (2), and Kelsy Brennan (3)

(1) COWI, Lyngby, Denmark (pesh@cowi.dk), (2) Geological Survey of Denmark and Greenland (GEUS), Hydrology, Copenhagen, Denmark (khi@geus.dk), (3) Earthfx Inc., Toronto, Canada (kelsy@earthfx.com)

Geodata visualization and analysis is founded on proper access to all available data. Throughout several research projects Earthfx and GEUS managed to gather relevant data from both national and local databases into one platform. The web server platform which is easy accessible on the internet displays all types of spatially distributed geodata ranging from geochemistry, geological and geophysical well logs, surface- and airborne geophysics to any type of temporal measurements like water levels and trends in groundwater chemistry.

Geological cross sections are an essential tool for the geoscientist. Moving beyond plan-view web mapping, GEUS and Earthfx have developed a webserver technology that provides the user with the ability to dynamically interact with geologic models developed for various projects in Denmark and in transboundary aquifers across the Danish-German border. The web map interface allows the user to interactively define the location of a multi-point profile, and the selected profile will be quickly drawn and illustrated as a slice through the 3D geologic model. Including all borehole logs within a user defined offset from the profile. A key aspect of the webserver technology is that the profiles are presented through a fully dynamic interface. Web users can select and interact with borehole logs contained in the underlying database, adjust vertical exaggeration, and add or remove off-section boreholes by dynamically adjusting the offset projection distance. In a similar manner to the profile tool, an interactive water level and water chemistry graphing tool has been integrated into the web service interface. Again, the focus is on providing a level of functionality beyond simple data display. Future extensions to the web interface and functionality are possible, as the web server utilizes the same code engine that is used for desktop geologic model construction and water quality data management. In summary, the GEUS/Earthfx web server tools demonstrate that a rich interaction with geologic models and borehole data is possible through a web interface. Examples from existing and active homepages will be shown.