QGIS/PostGIS : stacking FOSS4G for water management

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Abstract

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Hydrological GIS data are widely used by public organizations, environment, water supply and water treatment companies. Water data analysis can be very specific, and is not a GIS-only field.

It is therefore interesting to look at FOSS4G applications, to see how they fit the need to have a real FOSS4G stack for water-related data handling and analysis.

Based on real experience from several clients in the water industry, we want to give an insight into several interesting use cases.

Some examples:
- Automatic labelling of water linestrings
- Topology validation of hydrological network
- Impact of valve opening/closing on hydraulic networks
- Locating a pollution source upstream
- Using OGC Sensor specification to monitor a city water network in real time

We will show how QGIS and PostGIS can be used together to answer most of the needs in water management. This includes features like network analysis in PostGIS with recursive queries to identify upstream / downstream river parts. We will also present the various QGIS plugins enabling water management, be it for hydraulics or hydrology.

We will finally discuss the need to develop an integrated water management software stack, and the directions we can follow to make it happen.