HUB: Online Water Information Sharing

Open Data Standards Inspire Regional Cooperation

Leveraging advancements in web technologies, a significant number of conservation authorities (CAs) formed the Ontario conservation authority HUB. They recognized a collective need for a central, online repository to conveniently and safely share vast amounts of information for the management of water and other natural resources on behalf of nearly a million residents. The HUB works with KISTERS Web Interoperability Solution (KiWIS) to enhance and streamline access to its spatial and temporal data -- helping municipalities with land use, emergency planning and community relations.

Challenge

As a few Canadian watershed management agencies needed to replace their legacy systems, they sought a robust, configurable off-the-shelf tool to record, analyze and report real-time data feeds. Specifications included:

• Capturing a high-density of data from 100 monitoring stations from hourly and daily telemetry to 5- and 15-minute increments
• Expanding geographic scope to include data for areas more likely to flood
• Flexible data visualization and ease-of-use for calculating and reporting cumulative impacts of urban development and conservation initiatives

KISTERS is a global software solutions and technology firm dedicated to effective long-term management of water resources. Our environmental experts help clients achieve organizational goals through the deployment of powerful and flexible software.

Water Information Systems KISTERS (WISKI) provides quick and powerful access to manage and edit time series water data. Water resource professionals enjoy the capability of handling large volumes of data and calculating cumulative impacts of urban development while web service users can view and download data with ease.

“...The HUB assists in our flood forecasting efforts, providing nearby data to fill gaps and have redundancy options in our gauge poll plans. We have experienced greater sharing of knowledge, work procedures and communication.”

-- Eastern Ontario Conservation Authority HUB Administration

Engineers and water resources specialists were also receiving a high volume of requests from municipalities, farmers and outdoor sports enthusiasts. Kayakers, canoeists, fisherman, etc. were interested in time-sensitive data related to their unique needs. Phone calls created extra demand. Ontario conservation authorities knew the Internet could communicate information the public wanted.
Results

Consistency. Convenience. Cooperation. The Ontario HUB maintains consistency of data collection, management and reporting for each different conservation authority that reports to the Ministry of Natural Resources.

This coordinated effort empowers each authority to more efficiently manage flood risk and ecosystems using the monitoring networks of surrounding authorities and their own. Seamless integration with GIS provides a truly regional evaluation of current conditions and historic trends.

Online information sharing provides convenience to data managers and the public. The HUB saves time by automating reports, letting users pull specific details instead of manually pushing out data. Commonly requested information is presented quickly and concisely via graphs, tables and maps.

Ultimately the HUB results in more effective management than any single conservation authority could support. The open network increases public safety and quality of life in the Ontario region for a modest investment because storms and floods don’t discriminate by county let alone conservation authority.

Solution

Today the Ontario conservation authority HUB creates and publishes data online using ESRI’s ArcGIS and WISKI. The software allows internal data managers to validate, analyze and report information in real time. These professionals can enforce the integrity of data from each authority.

Concurrently the adoption of Open Data standards in KiWIS web services inspired regional and province-wide collaboration in the areas of flood management, water quality management and ecological management. Rather than respond to frequently asked questions, data managers specify parameters shared with external data users. The ability to query and export results in nearly real time, and in various file formats, allows for easy integration into powerful graphing, mapping and visualization tools.

KiWIS feeds water quality data into GRCA’s web site via widget.