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# A Web-based Data Visualization and Analysis System for Watershed Management

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## Abstract

In recent years, the combination of databases, data analysis, and Internet technologies has greatly enriched the functionalities of GIS and facilitated the dissemination of geospatial information. In this paper, we propose a web-based data visualization and analysis system to manage the watershed of the Occoquan Basin in Northern Virginia. This system distinguishes itself from others in the following respects. First, it enables near real-time data collection and dissemination. Second, data-query tools are embedded in the system to support effective data analysis and visualization functionalities. In addition to regular queries, aggregation queries have been developed to provide summary views of historical data with various granularities. Third, the visualization and analysis tools can be accessed via the Internet. WWW technologies, such as active web pages and Java programming, provide user-friendly interfaces for browsing, plotting, comparing, and downloading information of interest, without the need of dedicated GIS software. This system can render information to support many other applications, including pollution control and biochemical detection.

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