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Demonstration

**An Integrated Fire, Smoke and Air Quality Network**

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The management of fire, smoke, and air quality is tasked to multiple agencies at federal, state, and local levels. The diversity in data collection methods, data reporting requirements, data formatting schemes, data analysis methods, and data presentation create a daunting challenge for the integration of these data. However, integration of these heterogeneous datasets is precisely what is called for by federal and regional organizations in order to derive a more comprehensive understanding of forest fires and their impacts.

Washington University in St. Louis and George Mason University are working with the US Environmental Protection Agency and the US Forest Service on a new NSF Digital Government project in developing an innovative network using evolving web services technologies with the objectives of providing uniform web-based access to, cataloging of, and display of distributed fire related data for fire, smoke, and air quality managers. This demonstration presents the project's progress to date.

The network uses software "middleware" components to link to and transform disparate data and offer them to end users through an easy-to-use web browser front end. The middleware components, based on web services and data standards, handle the data transformations and integration 'behind the scenes' and provide end users with the level of detail they desire; whether "raw" data or "value-added" information such as maps of fire locations or patterns of air pollutant concentrations. The data and tools included in the network are based on input from the user community.

The middleware components are built on the distributed Voyager (dVoy) infrastructure, a spatial-temporal framework that enables multi-dimensional data access and displays (i.e. maps and time series). The fire, smoke, and air quality network extends the dVoy infrastructure to accommodate new data types for fire and smoke applications and creates new web services for advanced fire-related data display and analysis.