Geographic Information Science and Technology

First Responder Operations Software
Incident Management Preparedness and Coordination Toolkit

Project Description

As with many professions, safety planners and first responders tend to be specialists in certain areas. To be truly useful, tools should be tailored to meet their specific needs. Thus, general software suites aimed at the professional geographic information system (GIS) community might not be the best solution for a first responder with little training in GIS terminology and techniques. On the other hand, commonly used web-based map viewers may not have the capability to be customized for the planning, response, and recovery (PR&R) mission. Data formats should be open and foster easy information flow among local, state, and federal partners. Tools should be free or low-cost to address real-world budget constraints at the local level. They also need to work both with and without a network connection to be robust. The *Incident Management Preparedness and Coordination Toolkit* (IMPACT) can satisfy many of these needs while working in harmony with established systems at the local, state, and federal levels.

Technical Approach

The IMPACT software framework, termed the *Geospatial Integrated Problem Solving Environment* (GIPSE), organizes tasks, tools, and resources for the end user. It uses the concept of software wizards to both customize and extend its functionality. On the Tasks panel are a number of buttons used to initiate various operations. Similar to macros, these task buttons launch scripts that utilize the full functionality of the underlying foundational components such as the PostgreSQL spatial database and ORNL-developed map editor. The user is presented with a series of instruction pages which are implemented with HTML for interactivity. On each page are links which initiate specific actions such as creating a map showing various features. Additional tasks may be quickly programmed and added to the panel. The end user can customize the graphical interface to facilitate its use during an emergency.

One of the major components of IMPACT is the *ORNL Geospatial Viewer* (OGV). It is used to provide various map displays for the Tasks and Maps panels. Unlike typical maps however, the OGV display is highly interactive and can be customized, automated, and animated to meet the needs of the user. It is also a means to both import and export geospatial data from or to existing GIS systems. The built-in simulation capability can be used as the basis of table-top exercises.
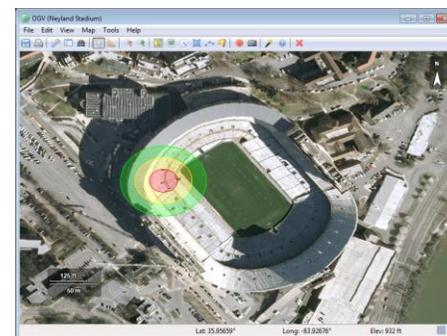
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