

DHS Science and Technology Directorate

Standard Unified Modeling, Mapping and Integration Toolkit (SUMMIT)

Problem Statement

The emergency management planning community lacks a mechanism to efficiently produce data for multiple scenario exercises, as well as the ability to archive, share and reuse previously used data for future planning, comparative analysis or during emergency operations. Due to this shortcoming, the Department of Homeland Security (DHS) operational components and emergency managers are not making full use of modeling and simulation tools to support disaster response planning and operations.

Seamless Data Modeling Solution

To address this gap, DHS Science and Technology Directorate First Responders Group (FRG) has developed the Standard Unified Modeling, Mapping and Integration Toolkit (SUMMIT). SUMMIT is a software toolkit that allows analysts, emergency planners, first responders and decision makers to seamlessly access integrated suites of modeling tools and data sources for planning, exercises and operational response. With its ability to support custom inputs and models and execute unique simulations, SUMMIT provides a complete analysis of the “what-if” scenarios that are critical to a successful response during an emergency event.

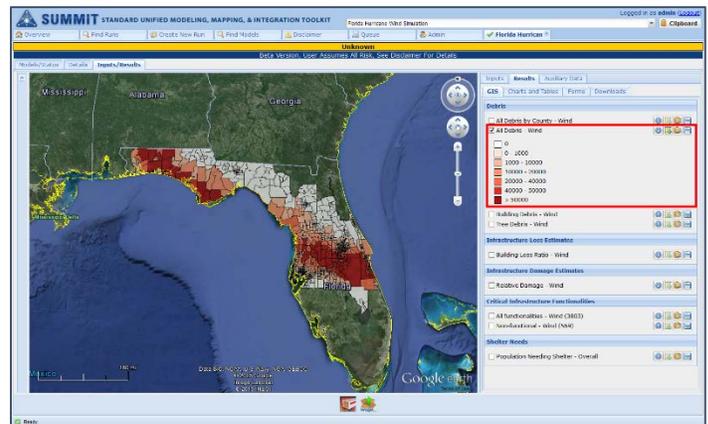
SUMMIT provides a common framework for integrating modeling and simulation tools, and supports the Federal Emergency Management Agency (FEMA) mission of providing computer-based applications, generating scientific information and data to assist with planning and response activities. The first responder community can easily and rapidly discover, integrate, configure, execute and view the results of modeling and simulation resources and related data. In addition, SUMMIT can facilitate development of end-to-end scenarios through its linking capabilities.

Proven Performance and Support Functions

SUMMIT is already making a difference in unified emergency management and response at all levels of engagement. Continued integration and expanded usage will increase reference sets and usable scenarios. SUMMIT provides the following key functions:

- **Discovery and use of models**, simulations, data and archived analyses that are relevant to a specific scenario or event of interest;

- **Bringing together users and modeling resources** from many locations, while ensuring that access to existing data and models is controlled by the resource owners;
- **Automatically linking** together disparate modeling tools;
- **Playing “what if” scenarios** for complex incidents;
- **Archiving and managing analysis results** (including model configuration parameters); and
- **Use of novel visualization** (i.e., geospatial views) and **collaboration environments** for enhancing user understanding of simulation results.



SUMMIT: Standard Unified Modeling, Mapping & Integration Toolkit – Florida Hurricane Scenario

Accomplishments to Date

FRG has transitioned SUMMIT to FEMA National Exercise Division, California Fire and Rescue Training Authority (CFRTA), California Exercise Simulation Center (CESC) and Sweden Civil Contingencies Agency (MSB).

Upcoming Milestones

- Awaiting DHS EACOE approval for inclusion into FEMA Technical Reference Manual (TRM).

Performers/Partners

- Constellation Software Engineering, Inc. (CSE).