

SUMMIT Support for Exercises

About SUMMIT

The Infrastructure Protection and Disaster Management Division (IDD) of the Department of Homeland Security (DHS) Science and Technology (S&T) directorate has funded the development of the Standard Unified Modeling, Mapping and Integration Toolkit (SUMMIT), a software toolkit that enables analysts, emergency planners, responders, and decision makers to seamlessly access integrated suites of modeling tools and data sources for planning, exercises, or operational response. Currently in its pilot phase, initial SUMMIT versions will be deployed at the Federal Emergency Management Agency (FEMA) National Exercise and Simulation Center (NESC). The NESC is a congressionally-mandated exercise and simulation facility within FEMA Headquarters. The NESC's primary objectives include providing state-of-the-art modeling and simulation capabilities to support national, federal, state, local and tribal exercises. Sandia National Laboratories is the principal SUMMIT architect.

SUMMIT allows emergency management personnel to easily and rapidly discover, integrate, configure, execute, and view the results of the nation's modeling and simulation (M&S) resources and related data. These resources help ensure a scientific grounding for exercises and other emergency management activities, while enabling a dynamic view of fast-moving events that allows for analysis of the "what if" trade-offs that are so crucial to effective response during an actual event. Further, SUMMIT offers M&S tool and data providers a standard mechanism for making their resources widely available, providing the nation greater access to a broad range of exercise planning resources.

Currently, the NESC intends to use SUMMIT to support the National Level Exercise (NLE) program, while several FEMA exercise series are under consideration for pilot usages of SUMMIT. These pilots will allow the emergency management community to work with SUMMIT and begin to more intensely leverage M&S in emergency management activities.

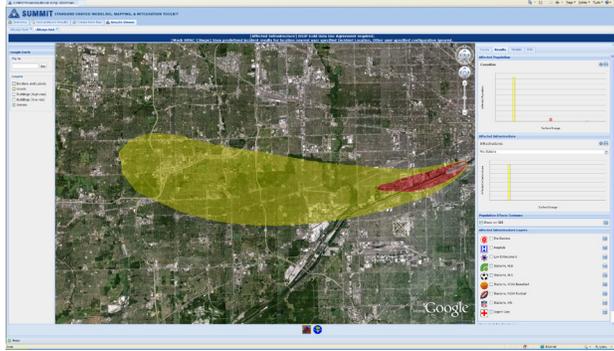
SUMMIT links models to create scenario data for exercises

SUMMIT facilitates development of integrated scenario data through its model linking capabilities. SUMMIT templates represent the workflow for linking models and data to address a specific incident. SUMMIT has a library of templates for a number of threats, each creating integrated data to support scenario development, inject creation, and evaluation for exercises. Example products that can be created using SUMMIT templates are listed below.

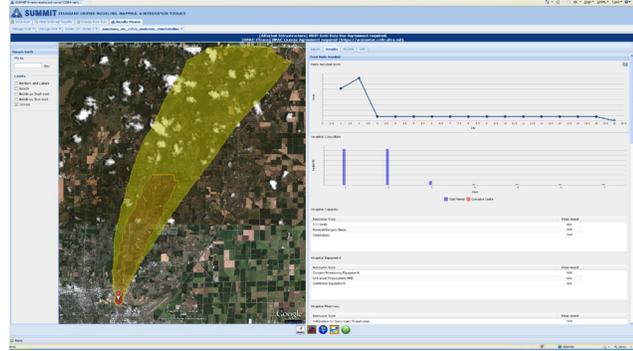
	Earthquake	Chemical Release	Biological Release	Nuclear Detonation
Planning	Building damage probabilities, by census tract (including collapsed) Casualties Presentation of casualties, by time, by hospital Medical needs Individual building damage Adjudication of individual building damage	Chemical plume Casualties Infrastructure effects Medical needs Available hospital beds Hospital bed shortfall	Biological plume Casualties Infrastructure effects Medical needs Available hospital beds Hospital bed shortfall Population movement Point Of Distribution staffing needs	Nuclear fallout plume Casualties Infrastructure effects Medical needs Hospital bed shortfall
Conduct	Products from above for common operating picture, data for inject creation	Products from above for common operating picture, data for inject creation	Products from above for common operating picture, data for inject creation	Products from above for common operating picture, data for inject creation
Evaluation	Comparison of player reports to scenario data from above products	Comparison of player reports to scenario data from above products	Comparison of player reports to scenario data from above products	Comparison of player reports to scenario data from above products

Sample SUMMIT Capabilities and Products

Visualization of plume with casualties and affected infrastructure



Medical needs over time -- beds, casualties, supplies

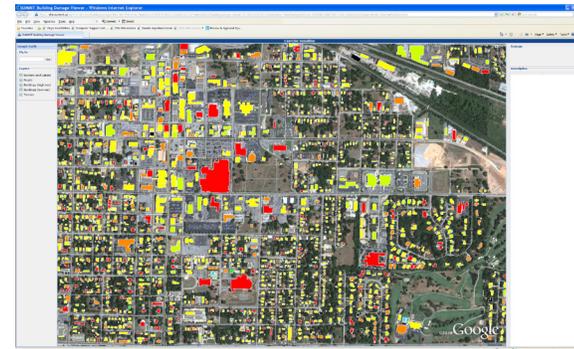


Medical surge data for all hospitals and medical centers in region of interest

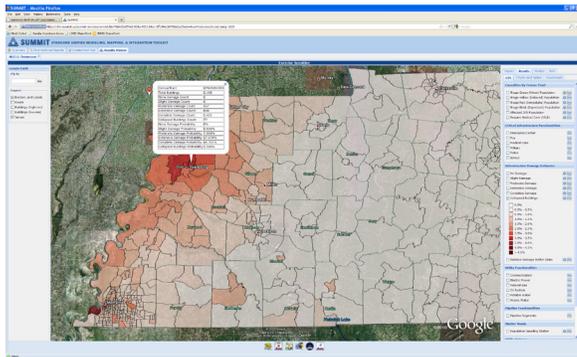
County	Minor	Delayed	Immediate	Expectant	Affected	Req Med Care
1 Adams	0	0	0	0	0	0
2 Alexander	0	0	0	0	0	0
3 Adams	40	8	1	2	0	11
4 Bond	0	0	0	0	0	0
5 Brown	0	0	0	0	0	0
6 Cathoun	0	0	0	0	0	0
7 Cass	0	0	0	0	0	0
8 Christian	0	0	0	0	0	0
9 Clark	0	0	0	0	0	0
10 Clay	0	0	0	0	0	0
11 Clinton	0	0	0	0	0	0
12 Coles	0	0	0	0	0	0
13 Crawford	0	0	0	0	0	0
14 Cumberland	0	0	0	0	0	0
15 Edwards	0	0	0	0	0	0
16 Effingham	0	0	0	0	0	0
17 Fayette	0	0	0	0	0	0
18 Franklin	1	0	0	0	1	0
19 Fulton	0	0	0	0	0	0
20 Galtain	1	0	0	0	0	0
21 Greene	0	0	0	0	0	0
22 Hamilton	0	0	0	0	0	0
23 Hancock	0	0	0	0	0	0
24 Hardin	0	0	0	0	0	0
25 Jackson	6	1	0	0	7	0
26 Jasper	0	0	0	0	0	0
27 Jefferson	0	0	0	0	0	0

Individual building damage*

*if building footprint data is available



Building damage probabilities by census tract



Casualty counts by county within region of interest

County	Minor	Delayed	Immediate	Expectant	Affected	Req Med Care
42 41 RUTHERFORD	0	0	0	0	0	0
43 42 RUTHERFORD	0	0	0	0	0	0
44 43 RUTHERFORD	0	0	0	0	0	0
45 44 SHELBY	0	0	0	0	0	0
46 45 SHELBY	0	0	0	0	0	0
47 46 SHELBY	0	0	0	0	0	0
48 47 SHELBY	0	0	0	0	0	0
49 48 SHELBY	0	0	0	0	0	0
50 49 SHELBY	0	0	0	0	0	0
51 50 SHELBY	0	0	0	0	0	0
52 51 SHELBY	0	0	0	0	0	0
53 52 SHELBY	0	0	0	0	0	0
54 53 SHELBY	0	0	0	0	0	0
55 54 SHELBY	0	0	0	0	0	0
56 55 SHELBY	0	0	0	0	0	0
57 56 SHELBY	0	0	0	0	0	0
58 57 SHELBY	0	0	0	0	0	0
59 58 SHELBY	0	0	0	0	0	0
60 59 SHELBY	0	0	0	0	0	0
61 60 SUMNER	0	0	0	0	0	0
62 61 SUMNER	0	0	0	0	0	0
63 62 SUMNER	0	0	0	0	0	0
64 63 TROUSDALE	0	0	0	0	0	0
65 64 WARREN	0	0	0	0	0	0
66 65 WARREN	0	0	0	0	0	0
67 66 WARREN	0	0	0	0	0	0

Website: www.dhs-summit.us



Homeland Security
Science and Technology

Piloted in conjunction with



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