Institute
for Infrastructure
and Information Assurance
at James Madison University

FALCON: A DECISION SUPPORT SYSTEM FOR HAZARDOUS MATERIALS INCIDENTS AND TERRORISM RESPONSE

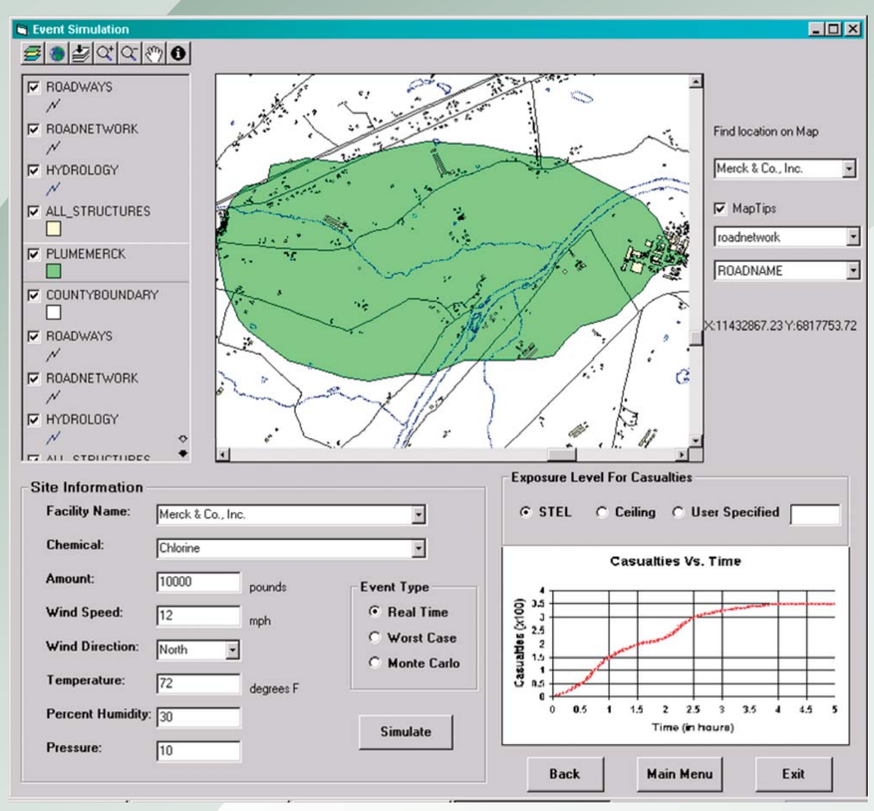
WHAT IS FALCON?

FALCON: Focused Analysis Linking Chemical and Community Data to Operational Needs

The copyrighted work consists of a concept design and prototype software implementation of an integrated, GIS- based decision support system for emergency prevention and management of hazardous incidents. Integrated elements in the prototype include proof-of-concept prototypes of the following:

- Medical advisory expert system encapsulating a toxicologist's knowledge and experience for real-time diagnosis of victims exposed to hazardous materials
- Geo-referenced chemical inventory database to track inventories of chemicals reported in the community
- Geo-referenced community database to evaluate possible impact of chemical release based on population density and weather conditions

FALCON Integrates Elements Needed for Emergency Response and Planning



- EMS preparedness assessment instruments to evaluate local community emergency management services preparedness with respect to chemical events
- Security and preparedness assessment instruments to evaluate the level of security in facilities where chemicals are stored
- Comprehensive risk models for evaluating community risks from hazardous chemicals

MARKET SIGNIFICANCE

FALCON is a decision support prototype system that integrates several different elements that are used or needed by emergency response personnel for planning or real-time response. While many of these elements already exist, they are typically "disconnected" so that decision makers must manually access information from several different sources and media and then try to integrate that information in an often ad-hoc way. FALCON provides a fully integrated environment that pulls all these sources together and enhances their value through powerful, but easily understood analysis tools.

FALCON can be used by:

- Local government (emergency response coordinators, fire, police, hospitals, etc.)
- Funding agencies
- Organizations involved in providing decision support to local government for planning, training and response to chemical events in the local community.

NEXT STEPS

The Project Team is actively recruiting potential partners who can further assist in developing the FALCON system. These partners could provide subject-matter expertise in emergency response, funding for development, or expertise for software development.

FEATURED COMPONENT

CHEMICAL PLANT SECURITY ASSESSMENT TOOL

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Concentration: Information Knowledge Management
Thesis Advisor: Dr. Michael Deaton

Much attention has given to the threats posed by terrorist-initiated attacks with nuclear or biological weapons. However, studies by the federal government indicate that the greatest threats may come from chemical plants near major metropolitan areas which leave extremely dangerous chemicals virtually unprotected and at the disposal of anyone who wants to release them in a malicious attack on our population.

The Chemical Plant Security Assessment Tool is designed for easy use and capable of providing guidance to local community emergency planners and chemical plant personnel for identifying and reducing security vulnerabilities. This Excel-based spreadsheet tool uses a series of questions and checklists to provide a numerical and graphical summary of a given site's security to allow the assessor to identify and improve problem areas.

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