



Southeast Region Research Initiative

Mission

SERRI's mission is to assist local, state and tribal leaders in developing the tools and methods required to anticipate and forestall terrorist events and to enhance disaster response. SERRI combines science and technology with validated operational approaches to address regionally unique requirements and suggest regional solutions with potential national implications.

Goals

Research: Leverage regional research institutions and national research capabilities to meet regional homeland security needs.

Operational: Integrate requirements, facilitate mission-effective interactions among homeland security participants within the region, and facilitate technology transfer.

The SERRI Research Team

Georgia

- Georgia Institute of Technology

Kentucky

- University of Kentucky

Mississippi

- University of Mississippi
- Mississippi State University
- Alcorn University
- Jackson State University
- University of Southern Mississippi

North Carolina

- Western Carolina University

South Carolina

- University of South Carolina
- Savannah River National Laboratory

Tennessee

- Tennessee State University
- University of Tennessee
- Oak Ridge National Laboratory
- Y-12 NNSA Site

DHS Priority Areas

SERRI Focus Areas	Borders and Maritime Security	Chemical / Biological	Command, Control and Interoperability	Explosives	Human Factors	Infrastructure / Geophysical
Biological Systems		•			•	•
Informatics, Modeling, and Analysis	•		•	•	•	•
Education Outreach	•	•	•		•	•



Examples of SERRI Research

A Simulation environment for planning, training, and assessment of emergency response and evacuation capabilities at high consequence sports events

Development of a robust evacuation system to evaluate and support emergency response, stadium evacuation operations, and the subsequent traffic flow. The system will be capable of evacuating up to 70,000+ spectators.

Rapid Detection of Agriterrorism via Remote Sensing

Design, implement and validate the use of an automated target recognition (ATR) system that uses remote sensing technologies, such as hyperspectral imaging (HSI), for detecting when toxic airborne biochemical agents have been applied to agricultural crops. The system will be developed using commercial herbicides and pathogen test cases.

Nano-Particle reinforced composites for critical infrastructure protection

Investigate the use of recent advancement in material, structure and building technologies for the protection of critical infrastructures against terrorist threats, as well as natural disasters. The new structural/building technologies developed from this research can be used to improve the survivability of these structures.

Development of an integrated sensor system for real-time monitoring of metabolites of organophosphorus chemical warfare agents, pesticides and e-coli in food and water

Development of a robust sensor system which will be deployed for three critical environments for monitoring against biological and chemical agents. Sensor type will include a deployable device as a distributed sensor network for continuous real-time monitoring, a bench top/portable assay sensor for food analysis and a hand-held portable device for use by first responders.

Capturing Hurricane Katrina Analysis and Lessons Learned Research

Create a national resource for conducting lessons-learned research associated with the application of geospatial technologies to disaster management in the aftermath of Hurricane Katrina.

Analysis of WMD in materials in waste and storm water treatment infrastructure in south-eastern U.S. cities

Development of estimation tools and required supporting data to predict distribution and fate of a dispersed WMD material in wastewater and storm treatment and handling systems of the State of Mississippi for any southeastern U.S. urban environment in the 24 to 96 hour period immediately following the dispersal event.

Workforce Development Initiative

This project will develop a hub and spoke model for Workforce Development among the colleges and universities in the DHS University Centers of Excellence. COE universities would function as the “hubs” of the homeland security related science, technology, engineering and mathematics (STEM) distribution network.

Data-driven simulation system for training, decision support and policy evaluations (REALSIM)

This project will develop a system that will consist of a core modeling and simulation capability that will be able to determine the dynamic movement and tracking of material assets and people based on real-time data feeds to the system. It will address requirements for training, event planning, and policy evaluation. It will be scalable from local to state to regional to national needs, be able to serve as a dynamic information repository, and provide a flexible range of user interfaces based on open standards, in order to provide interoperability with existing and future applications and data systems.

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