

The *National Center for the Study of Preparedness and Catastrophic Event Response (PACER)* is a consortium of leading universities, government agencies, and other national organizations. Led by Johns Hopkins University and sponsored by the U.S. Department of Homeland Security (DHS), PACER engages in multidisciplinary, trans-institutional research to create knowledge, promote and sponsor academic advancement, support decision making, and enhance the nation's security.

**Mission:** The mission of PACER is to improve the nation's preparedness and ability to respond to disasters through rigorous scientific research focused on medical and public health preparedness strategies, response capabilities, and surge capacity.

PACER provides a scientifically rigorous and educationally challenging environment that fosters intellectual discovery, creates and transmits innovative knowledge and tools, and advances and promotes the field of medical and public health preparedness and response.

**Project Spotlight:** PACER investigator Joshua Epstein, who is director of the Center for Advanced Modeling at Johns Hopkins, has developed an urban evacuation model using hybrid computational fluid dynamics and agent-based modeling. This pioneering tool uses hybrid plume-agent modeling to assist in the design of evacuation strategies for large cities after the release of chemical or biological airborne toxic contaminants. The PACER model shows interactions of contamination clouds and human evacuation dynamics in urban settings like Los Angeles (image right) to support evacuation planning and associated policy development and implementation. This involves visualization of toxic plume dynamics and traffic patterns projected on realistic, 3D, wargame-like renditions of a city. The model can help assess evacuation strategies, such as shelter-in-place, road closures, or reducing the permeability of buildings.

## Center Goals:

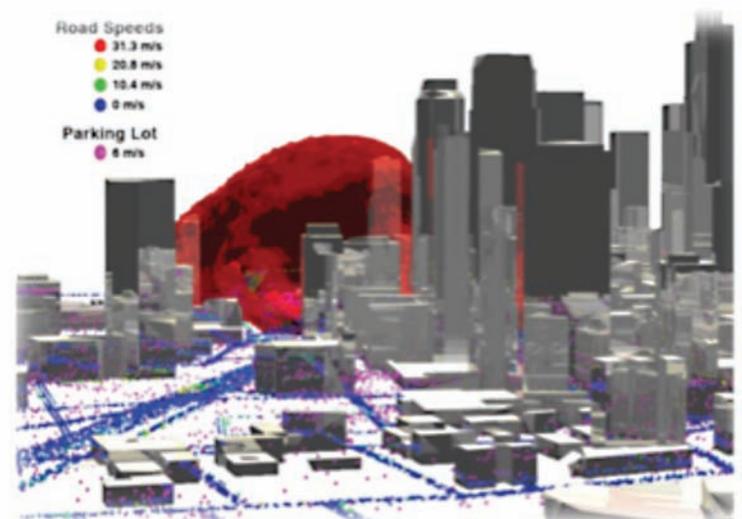
**Research:** PACER highlights multidisciplinary, trans-institutional investigations of high-priority issues, as identified by DHS.

**Basic and Applied Research:** Generate the fundamental scientific foundation for understanding disaster preparedness and response. Build upon this foundation using applied methodologies designed to solve the practical problems of the modern world, with a research focus on:

- (1) medical and public health preparedness strategies.
- (2) medical and public health response capabilities.
- (3) medical and public health capacity.

**Translation:** Translate new knowledge by developing tools, models, and other practical applications for medical and public health preparedness and response. Communicate findings to practitioners and policy makers.

**Decision and Policy Support:** Develop and disseminate tools that enable decision makers, leaders, and policy producers to leverage up-to-date, relevant information when developing policies and appropriate courses of action.



## Other Goals:

**Training:** PACER is establishing a Summer Scholars program for four students for 10 weeks to support future leaders in National Security from DHS-sponsored programs across the country. The award is available to undergraduate or pre-doctoral students to support work conducted in any area of disaster preparedness and response, under the direction of a PACER principal investigator and mentor.

**Scholarship:** The PACER Scholars Program is for studies in DHS and homeland security-relevant fields and research. Through these awards, PACER seeks to recognize individuals with demonstrated interest in the field of disaster preparedness and catastrophic event response who exhibit exceptional merit, leadership, and integrity. The objective is to foster opportunities for students to work closely with recognized top subject-matter experts.

**Advocacy:** PACER is leading the way in the creation of a Society of Disaster Health dedicated to research, education, policy, and advocacy in the fields of disaster medicine and public health preparedness.

**Tools You Can Use:** The Electronic Mass Casualty Assessment and Planning Scenarios (EMCAPS) is a software program that allows users to model selected disaster scenarios for use as a drill-planning aid and as an educational resource. EMCAPS can estimate casualties arising from biological, chemical, radiological, or explosive. Version 2.0 is in development.

- Download EMCAPS for free at our website.

## Representative list of collaborating partners and affiliates:

- Brookings Institution
- Columbia University
- Dartmouth College
- Howard University
- Meharry Medical College
- Morehouse College
- University of Chicago
- University of California, Los Angeles (UCLA)
- University of Pittsburgh Center for Biosecurity
- University of Southern California (USC)
- University of Tennessee
- Vanderbilt University Medical Center
- American Medical Association
- Centers for Disease Control and Prevention
- MITRE Corp.
- National Medical Association
- The Office of the White House Initiative on Tribal Colleges and Universities
- Johns Hopkins Hospital
- Johns Hopkins Applied Physics Lab (APL)
- Johns Hopkins University Bloomberg School of Public Health
- Johns Hopkins University School of Advanced International Studies
- Johns Hopkins University School of Medicine

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