



Why is the new FIU Extreme Events Institute (EEI) so different? By their very nature, extreme events (emergencies/disasters/catastrophes) cross traditional disciplinary boundaries and require trans-disciplinary research and knowledge application approaches. The recently launched EEI at Florida International University located in Miami, Florida, encompasses multiple disciplines, including faculty and researchers from the social and behavioral sciences, engineering, computer science, earth and atmospheric sciences, public health, public administration, and management.

On May 19, 2014 at the New York headquarters of the United Nations, the R!SE Alliance for Disaster Risk-Sensitive Investments was formally announced. FIU's Extreme Events Institute is one of the principal, and founding partners in R!SE, charged with global programming for Disaster Risk Management (DRM) Higher Education. The other principal partners are the United Nations International Strategy for Disaster Reduction (UNISDR), PricewaterhouseCoopers (PwC), the Economist Intelligence Unit (EIU), Principles for Responsible Investing (PRI), AECOM, and Willis Reinsurance.

The EEI was also recently awarded a Cooperative Agreement with the United States Agency for International Development—Office of U.S. Foreign Disaster Assistance (USAID/OFDA) for the project “**Disaster Risk Reduction (DRR) in the Americas – Second Phase: Building Resilience.**” This new project commenced in April 2014, and is for two years at \$1.99 million. It follows on a five-year, \$5.6 million project under a previous Cooperative Agreement with USAID/OFDA.

EEI is the umbrella organization over several existing or planned FIU Centers, most notably the International Hurricane Research Center (IHRC). The IHRC has developed **three innovative research initiatives** whose success relies on input from and collaboration between several disciplines:



The “**Wall of Wind**” (WOW) facility is capable of performing controlled testing in flows that replicate hurricane winds up to Category 5 and accompanied by wind-driven rain. The WOW has confirmed the effectiveness of large- and full-scale wind and rain testing approaches. As a result, the team is advancing the understanding of hurricane impacts on buildings and developing/validating innovative damage mitigation products to foster hurricane resilient communities. Also, full-scale experimentation results were applied to improve Florida Building Code’s wind load provisions on building roof mounted equipment for the State of Florida, including its High Velocity Hurricane Zones. Research collaboration has encompassed various engineering fields including wind, civil, mechanical, and structural engineering in addition to architecture.

The **Florida Public Loss Model** is the state’s only certified and transparent method of determining annual expected insured and probable maximum losses as a result of a hurricane and helping to set windstorm rates. Florida will be the first state to combine wind, storm surge and flood risks in a single public model to determine the overall hazards of a storm. IHRC professors lead the team that includes specialists from the University of Florida, Florida State University, Florida Institute of Technology, Hurricane Research Division of NOAA’s Atlantic Oceanographic and Meteorological Laboratory and University of Miami. These experts and the project will make the EEI the leading center for innovative hurricane risk and loss research.

The **Coastal and Estuarine Storm Tide (CEST)** model is used to estimate storm surge as low pressure weather systems, such as hurricanes and tropical storms, approach coastal areas. Storm surge and coastal flooding have become increasingly appreciated hazards, brought home so clearly by “SuperStorm” Sandy. The research team is comprised of geoscientists, mathematicians, meteorologists, and computer scientists. The model takes into account the expected tide at landfall and the atmospheric pressure and wind characteristics of the weather system. It also takes into consideration major coastal topographic features such as coastal ridges and barrier islands. FIU’s research in partnership with the National Hurricane Center will be used to enhance storm surge models for future operational forecasts when a hurricane approaches.



What are the goals and objectives of the EEI?

The goal of the EEI is to achieve research synergy across the social and behavioral sciences, physical sciences, computer science, public health, management, and engineering in the multi-hazard study of extreme events and responses to them. The structure of the EEI is intended to efficiently foster trans-disciplinary research. We expect that as research grows and progresses in this area, other centers may be created under the EEI. Currently, there are plans for a Disaster IT Center to be led by faculty from the School of Computing and Information Sciences.