

# ***DISASTER RESEARCH CENTER***

***DEPARTMENT OF SOCIOLOGY & CRIMINAL JUSTICE***

***UNIVERSITY OF DELAWARE***

## ***2004 Annual Report***

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**From the Director**

It is difficult to believe that I am already writing the "From the Director" message for my second annual report as Director of the Disaster Research Center (DRC). Almost two years have elapsed since I joined DRC and it has been a great experience (and a great deal of work). As this report will corroborate, 2004 has been an exciting year for DRC. We have experienced significant growth at all levels, from faculty, to students, to funded research projects. Also, Pat Young recently joined DRC as our Resource Collection Coordinator. Although we were saddened by Pat Dunham's departure (Pat and her family relocated to Germany), we are extremely pleased to have Pat Young join the DRC team (not having to learn a new name is also an added bonus).

In 2004, we also had an opportunity to celebrate DRC's 40<sup>th</sup> anniversary (although it really was our 41<sup>st</sup> birthday). The conference titled "Disaster Research and the Social Sciences: Lessons Learned and Future Trajectories," funded by the National Science Foundation (NSF) and the College of Arts and Sciences at the University of Delaware, allowed us to bring together leading researchers in the field of disasters, practitioners, and students to focus on the growth and development of the field from the perspective of the Social Sciences. An overview of the conference and its outcomes can be found in this report.

Another important initiative in 2004 was DRC's participation in the University of Delaware's Institutional Repository and DSpace project, which will result in the digitalization of DRC's preliminary papers as well as a variety of other reports and documents. This will allow greater access and dissemination of this important information. The support of the Provost's Office, the College of Arts and Sciences, and the Morris Library was instrumental in this process.

DRC researchers, staff, and students have been deeply touched by the December 26, 2004 Sumatra earthquake and the tsunamis it generated, the devastation resulting from these events, the still increasing loss of life, and the valiant response and recovery efforts undertaken by the survivors and outside volunteers. Thanks to the support of the Earthquake Engineering Research Institute (EERI, based in California and funded by the National Science Foundation) and the Sea Grant College Program at the University of Puerto Rico-Mayagüez (UPRM), a social science reconnaissance team, including members from DRC and the Emergency Management and Planning Program at the University of North Texas, traveled to some of the most impacted regions in India and Sri Lanka. Field reports and other information regarding our research in these countries will be forthcoming on the DRC website and through a number of other sources, including presentations and publications.

We should also note that 2005 promises to be a year of further development and growth for DRC. We are engaged in multiple, externally funded, research projects, other proposals are pending, and new initiatives are being developed. Further, DRC will also be implementing a structured program (with the collaboration of the Center for Disaster Research and Education - CDRE - at Millersville University) to provide mentoring and hands-on research training on the social science aspects of disasters to a cohort of 10 undergraduate students, selected competitively at the national level, for a period of three years. The Research Experience for Undergraduates (REU) program, funded by the National Science Foundation and the University of Delaware, will begin in the summer of 2005. For further details on the REU, refer to the DRC website at <http://www.udel.edu/DRC/>.

We are very pleased to present DRC's 2004 Annual Report. The report provides detailed information on DRC personnel, ongoing research projects, publications, and many other important initiatives and activities. We hope that this document will provide valuable information to the general community, including scholars, researchers, practitioners, students, and other community members at the national and international level.

Please have a safe and productive 2005!

Havidán Rodríguez, Ph.D.

Director

2/21/2005

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## Disaster Research Center (DRC)

This year marks the 42<sup>nd</sup> anniversary of the Disaster Research Center (DRC), the first social science research center in the world devoted to the study of disasters. Established at the Ohio State University in 1963 by Professors E.L. Quarantelli, Russell Dynes, and Eugene Haas, DRC moved to its current location, the University of Delaware, in 1985. In 2003, DRC welcomed Professor Havidán Rodríguez as its new director. The Center conducts field and survey research on group, organizational and community preparation for, response to, and recovery from natural and technological disasters and other community-wide crises. DRC has conducted basic research in sociology as well as applied studies that have been implemented in policies, programs, planning, and managing in the field of disasters.

Graduate and undergraduate training has been an integral component of DRC's mission. Faculty members from the University of Delaware's Department of Sociology and Criminal Justice oversee DRC projects and teach classes in the department's graduate concentration in collective behavior, social movements, and disasters, as well as the newly formalized undergraduate concentration in Emergency and Environmental Management. Graduate researchers from DRC have gone on to careers at leading universities, prominent research centers, key disaster-oriented government agencies, and private sector organizations that deal with disaster and risk issues.

Researchers at DRC have conducted nearly 600 field studies since the Center's inception, traveling to communities throughout the United States and to a number of foreign countries. DRC researchers have carried out systematic studies on a broad range of disaster types, including tsunamis, hurricanes, floods, earthquakes, tornadoes, hazardous chemical incidents, plane crashes, and civil disturbances. Past DRC studies have focused on such topics as emergency medical and mental health service delivery in disasters, community responses to acute chemical hazards, mass evacuation and sheltering, preparation for and response to major community disasters by lifeline organizations, community earthquake mitigation and emergency preparedness, disaster recovery, a large-scale multi-year study on the implementation of the FEMA's Project Impact initiative, and the utilization of earth science information in earthquake risk decision-making.

DRC is currently engaged in a number of research projects, including: a study of the organizational response to the September 11, 2001 World Trade Center (WTC) disaster; a collaborative and multi-disciplinary project focusing on emergency weather warnings, the development of new technologies, and their relationship to disaster preparedness and response; a collaborative project with engineers and computer scientists at the University of Rhode Island focusing on the development of a model and prototype software for the simulation of pedestrian motion, both during emergency situations that result in evacuations and during situations devoid of emergencies; population composition, geographic distribution, natural hazards, and vulnerability in the coastal regions of Puerto Rico; socio-economic impacts of earthquakes in the United States; a detailed analysis of urban search and rescue teams and their operations and response to hazard events. Additional details on these projects can be found in this report. It is important to note that DRC is also an active collaborator in the Engineering Research Center (ERC) for the Collaborative Adaptive Sensing of the Atmosphere (CASA) and the Mid-America Earthquake Center (MAE).

In addition to maintaining its own databases, DRC serves as a repository for materials collected by other agencies and researchers. DRC's specialized library, which contains the world's most complete collection on the social and behavioral aspects of disasters - now numbering more than 55,000 items

- is open to both interested scholars and agencies involved in emergency management. The Center has its own book, monograph, and report series with over 400 publications. DRC maintains ongoing contact with scholars from throughout the United States, Canada, Asia, Europe, and the Caribbean, some of whom have been visiting research associates at the Center for periods of up to a year. In recent years, DRC has also organized several multinational research conferences focusing on disaster issues in Central America, Southern Asia, Europe, Japan, and Russia, and the former Soviet Union.

Since its founding over four decades ago, DRC activities have been supported by diverse sources, including the National Institute of Mental Health, the Federal Emergency Management Agency and its preceding agencies, the NOAA Sea Grant Program, the U.S. Geological Survey, and the Multidisciplinary Center for Earthquake Engineering Research (MCEER). Major research funding is currently provided by grants from the National Science Foundation, the Public Entity Risk Institute (PERI), and the Sea Grant College Program at the University of Puerto Rico.

For more information, refer to DRC's home page at: <http://www.udel.edu/DRC>

## The Disaster Research Center (DRC) Celebrates its 40<sup>th</sup> Anniversary

Although one year late, DRC celebrated its 40th Anniversary by hosting a conference that focused on 1) the growth and development of the field of disasters from the perspective of the Social Sciences; 2) the theoretical, methodological, and public policy contributions of the field of disasters at the national and international level; 3) lessons learned and best practices that have emerged from this field of research; and 4) future trajectories and opportunities for Social Science research in the field of disasters. An important outcome of the conference was a set of important recommendations aimed at the growth and development of the disaster research field.

"Disaster Research and the Social Sciences: Lessons Learned and Future Trajectories" took place on April 30th and May 1st and was sponsored by the National Science Foundation (NSF) and the College of Arts and Sciences at the University of Delaware. The Conference included approximately 100 participants from across the US as well as countries such as Canada, Japan, New Zealand, Puerto Rico, Dominican Republic, Mexico, Venezuela, Russia, Turkey, Sweden, Greece, France, The Netherlands, England, Spain, and Israel. Reflecting the multidisciplinary nature of the disaster field, the conference participants included leading and emerging scholars from disciplines such as Sociology, Psychology, Geography, Public Policy & Administration, Political Science, Public Health, Engineering, Anthropology, Journalism, Law, and Nursing. Moreover, participants included practitioners and representatives from local, state, and federal agencies, private sector organizations, the American Red Cross, the United Nations, the National Science Foundation (NSF), the Centers for Disease Control and Prevention (CDC), the Public Entity Risk Institute (PERI), the American Sociological Association (ASA), the National Academy of Sciences (NAS), the Earthquake Engineering Research Institute (EERI), Oak Ridge National Laboratory, and the National Oceanic and Atmospheric Administration (NOAA).

Several celebratory events held over the conference weekend included a "Meet and Greet" at the University of Delaware's Carpenter Club (overlooking the stadium home to NCAA I-AA Champion Blue Hens), a reception at the Blue and Gold Faculty Club hosted by the Dean of the College of Arts and Sciences, Mark Huddleston, and a backyard celebration to end the conference hosted by DRC co-founders Russell Dynes and E.L. Quarantelli.

The conference was an opportunity to celebrate and recognize the contributions of the Disaster Research Center to the disaster field over the past four decades. Equally important, the conference included an ambitious goal of pulling together many of the leaders in the field to propose recommendations on the direction disaster research needs to take in the coming years. The conference allowed participants to discuss substantive, theoretical, and methodological issues and concerns relevant to the field and to generate new research initiatives that will contribute to strengthening and increasing our understanding and contributions of the field of disaster research. Given the important discussions and conclusions that emerged over the two day event, a special issue of the *International Journal of Mass Emergencies and Disasters* (IJMED) that builds on the conference outcomes will be published in 2005. A more detailed discussion of the aforementioned conference and its outcomes can be found in Rodríguez, Wachtendorf, and Russell, (2004), "Disaster Research in the Social Sciences: Lessons Learned, Challenges, and Future Trajectories," *International Journal of Mass Emergencies and Disasters*, Vol. 22, no. 2, Pp. 117-135.

# *Disaster Research Center Personnel*

## *Director*

*Havidán Rodríguez*

## *Core Faculty*

*Benigno Aguirre*

*Joanne M. Nigg*

*Tricia Wachtendorf*

## *Founding Directors*

*Russell R. Dynes, Professor Emeritus*

*E. L. Quarantelli, Professor Emeritus*

\* \* \*

## *Administrative Assistant*

*Natalie Lamoreau*

\* \* \*

## *Resource Collection Staff*

*Pat Dunham – Coordinator (2003-2004)*

*Pat Young – Coordinator (2004-Current)*

*Christine Bush - Undergraduate Assistant*

\* \* \* \*

## *Project Coordinator*

*(Formerly known as Field Director)*

*Brian Monahan (2003-2004)*

*Joseph Trainor (2004-Current)*



\* \* \* \*

*Graduate Research Assistants*

*Lauren Barsky*  
*William Donner*  
*Raymond Maratea*  
*Daniel Marks*  
*Gabriel Santos*  
*Jenniffer Santos-Hernández*

\* \* \* \*

*Information Technician*

*Yohannes Tesfaye*

\* \* \* \*

*Undergraduate Research Assistants*

*Cory Abbey*  
*Lammont Baker*  
*Jullion Cooper*  
*Jennifer Larson*  
*Becky Napp*  
*Jessica Rothrock*  
*Desiree Shivery*

*Lavelles Augustin*  
*Allison Capo*  
*Megan Denver*  
*Carla MacKenzie*  
*Jaime Perez*  
*Carla Russell*

\* \* \* \*

## ***2004 Publications***

### ***Articles and Book Chapters***

#### ***Aguirre, Benigno***

"Homeland Security Warnings: Lessons Learned and Unlearned." *International Journal of Mass Emergencies and Disasters*, Vol. 22, no. 2, Pp. 103-115.

"Los Desastres en Latinoamérica: Vulnerabilidad y Resistencia." *Revista Mexicana de Sociología*, Vol. 66, no. 3, Pp. 485-510.

#### ***Dynes, Russell R.***

"Expanding The Horizons of Disaster Research." *Natural Hazards Observer*, Vol. 28, no. 4, March 2004, Pp. 1-2.

#### ***Quarantelli, E. L.***

"The Origins and Impact of Disaster Research." Pp. 321-339 in Margaret O'Leary (ed.) *The First 72 Hours*. New York: Universe Inc., 2004.

"A review of a video game simulation---State of Emergency." Available electronically at the *Contemporary Disaster Review* Vol. 1, no. 1. Web site: <http://muweb.millersville.edu/~cdr/>.

#### ***Rodríguez, Havidán***

"A 'Long Walk to Freedom' and Democracy: Human Rights, Globalization, and Social Injustice." *Social Forces*, Vol. 83, no. 1, Pp. 391-412.

"The Role of Science, Technology, and the Media in the Communication of Risk and Warnings." *Risk and Crisis Communication: Building Trust and Explaining Complexities When Emergencies Arise*. Washington, D.C., Consortium of Social Science Associations (COSSA), Pp. 11-16.

#### ***Rodríguez, Havidán and Tricia Wachtendorf***

Invited Guest Editors. "Disasters, Vulnerability, and Society: An International and Multi-Disciplinary Approach." *International Journal of Sociology and Social Policy*, Vol. 24, No. 10/11.

***Rodríguez, Havidán, Tricia Wachtendorf and Carla Russell***

“Disaster Research in the Social Sciences: Lessons Learned, Challenges, and Future Trajectories.” *International Journal of Mass Emergencies and Disasters*, Vol. 22, no. 2, Pp. 117-135.

***Other Publications***

***Aguirre, Benigno***

Book Review: Pierrette Hondagneu-Sotelo, editor. *Gender and U.S. Immigration: Contemporary Trends*. Berkeley: University of California Press, 2003.

***Trainor, Joseph E. and Kathleen Tierney***

"Networks and Resilience in the World Trade Center Disaster." *MCEER Research Accomplishments 2003-2004*. The Research Foundation of the State of New York, 2004.

***Trainor, Joseph E.***

“Searching for a System Multi-organizational Coordination in the September 11th World Trade Center Search and Rescue Response.” Public Entity Risk Institute, NPO.

Book Review: Nat Brandt, “Chicago Death Trap.” *Journal of Contingencies and Crisis Management*, Vol. 12, no. 4, Pp. 170-176.

## *New Preliminary Papers*

### *Aguirre, B. E.*

“Disaster in Cuba.” Preliminary Paper No. 340.

“The 1999 Floods in Veracruz and the Paradigm of Vulnerability.” Preliminary Paper No. 341.

### *Rodríguez, Havidán, Walter Diaz and Benigno Aguirre*

“Communicating Risk and Warnings: An Integrated and Interdisciplinary Research Approach.” Preliminary Paper No. 337.

### *Wachtendorf, Tricia and James M. Kendra*

“Considering Convergence, Coordination, and Social Capital in Disasters.” Preliminary Paper No. 342a. (Paper presented to the 1<sup>st</sup> Annual Canadian Research on Hazards Network Symposium. Winnipeg, Manitoba, Canada. November 19).

# *Doctoral Dissertation*

*Wachtendorf, Tricia*

“Improvising 9/11: Organizational Improvisation in the World Trade Center Disaster.” Doctoral Dissertation No. 35, Disaster Research Center, University of Delaware, Newark, Delaware.

# *M.A. Thesis*

*Trainor, Joseph E.*

“Searching for a System: Multi-organizational Coordination in the September 11th World Trade Center Search and Rescue Response.” Department of Sociology and Criminal Justice and Disaster Research Center, University of Delaware, Newark, Delaware.

## ***Presentations in Professional/Scientific Conferences***

### ***Aguirre, Benigno***

“El Sistema de Alerta contra Terrorismo de los Estados Unidos de América: Una Visión Crítica de las Ciencias Sociales.” Dirección General de Protección Civil y Subsecretaría de Gobierno, Gobierno del Distrito Federal. Mexico (An Invited Conference Presentation to emergency management and police officials of the Government of the Federal District, Mexico.), October 15, 2004.

“Disaster in Cuba.” Association for the Study of the Cuban Economy. Coconut Grove, Florida, August, 2004.

### ***Donner, William R.***

"Non-Technological Problems in Emergency Management Decision-Making." Paper Presented at the Annual Hazards Workshop, Boulder, Colorado, July 11-14, 2004.

### ***Dynes, Russell R.***

"History of Disaster Research and DRC." Conference, “Disaster Research in the Social Sciences,” University of Delaware, Newark, Delaware, April 30, 2004.

### ***Monahan, Brian***

"From Ground Zero to Ground Hero: Emergent Public Drama and September 11, 2001." Annual Meeting of the Society for the Study of Social Problems, San Francisco, California, August 13, 2004.

"Response and Recovery at Ground Zero as Emergent Public." Annual Meeting of the American Sociological Association, San Francisco, California, August 15, 2004.

***Nigg, Joanne M.***

"Framework for a Bachelor's-Level Degree in Emergency Management." In a session on Higher Education and the Hazards Manager of the 21st Century at the 29th Annual Hazards Research and Applications Workshop Boulder, Colorado, July 13, 2004.

"Which Risk First?: Challenges in Prioritizing Earthquake Mitigation." Invited keynote presentation at the National Earthquake Conference, St. Louis, Missouri, September 27-29, 2004.

***Quarantelli, E. L.***

"Anti-social and Criminal Behavior: The Research Evidence." International Forum for Civil Defence. Terni and Narni, Italy. February 26-29, 2004.

"Theory and Science Behind Scenarios, Exercises, and Drills—A Sociological Perspective." Meeting of Committee on Smallpox Vaccination Program Implementation at The Institute of Medicine, The National Academies, Washington, D.C., March 29, 2004.

"Myth vs Reality." Community-Based Emergency Management Roundtable by the Joint Commission on Accreditation of Health Care Organizations. Chicago, Illinois, May 6, 2004.

***Rodríguez, Havidán***

"A 'Long Walk to Freedom' and Democracy: Human Rights, Globalization, and Social Injustice." Presented in the Panel on Human Rights and Globalization, Southern Sociological Society 2004 Annual Conference, Atlanta, Georgia, April 14-17, 2004.

"Enhancing Undergraduate Research Training: A Focus on Hazards and Disasters." Presented at the NDMS Disaster Response Conference: Catastrophic Care for the Nation, Dallas, Texas, April 21-25, 2004.

"Preparing the New Generations of Scholars, Researchers, and Professionals: Benefits, Opportunities, and Contributions of Research Training." Keynote speaker at the 5th Annual Conference on Undergraduate Research and Expression: A Celebration of Excellence, Reading Area Community College, Reading, Pennsylvania, April 24, 2004.

"The Role of Science, Technology, and the Media in the Communication of Risk and Warnings." Presented at the Congressional Briefing on Risk and Crisis Communication: Building Trust and Explaining Complexities When Emergencies Arise, Washington, D.C., June 7, 2004.

"The Integrating Data Analysis (IDA) Project: Lessons Learned." Presented at the Addressing Quantitative Literacy Gap Conference, Bolger Center, Potomac, Maryland, June 17-19, 2004.

"The Role, Contributions, and Complexities of Interdisciplinary Research: A Holistic Approach to Hazards and Disasters." Plenary Speaker in the session A Holistic Assessment of Hazards: Integrating Physical and Social Science, 29<sup>th</sup> Hazards Research and Applications Workshop, Boulder, Colorado, July 11-14, 2004.

"From Technology to Integrated Warning Systems: The Social and Organizational Dimensions of Severe Weather Events and Disasters." Presented at the ERC-CASA First Annual Research Retreat, Estes Park, Colorado, October 4-5, 2004.

"Where Do We Go From Here?: Developing Excellence in Academia and Beyond." Keynote speaker, National McNair Scholars Research Conference: Developing Excellence in Academia and Beyond. University of Delaware, Newark, Delaware, October 8, 2004.

### ***Santos, Gabriel and Benigno E. Aguirre***

"A Critical Review of Emergency Evacuation Simulation Models." Invited Presentation at the conference Building Occupant Movement During Fire Emergencies, at the National Institute of Standards and Technology, Gaithersburg, Maryland, June 10-11, 2004.

### ***Santos-Hernández, Jenniffer and Walter Diaz***

"Oklahoma: County Sociodemographics and Weather Events." Poster Presentation. ERC-CASA First Annual Research Retreat, Estes Park, Colorado, October 2-4, 2004.

### ***Trainor, Joseph***

"Multi-Organizational Networks and Community Resilience in Extreme Events: A Case Study of the September 11th World Trade Center Attacks" Presented with Kathleen J. Tierney at the Annual Meeting of the Multidisciplinary Center for Earthquake Engineering Research, Los Angeles, California, January, 2004.

"Stakeholders, Earthquakes, and Public Policy: Consistency and Variation in Framing Earthquake Mitigation Importance." Presented at the Annual Meeting of the Society for the Study of Social Problems, San Francisco, California, August 14, 2004.

"Searching for a System Multi-organizational Coordination in the September 11th World Trade Center Search and Rescue Response." Presented at the Annual Meeting of the American Sociological Association, San Francisco, California, August 15, 2004.



***Wachtendorf, Tricia***

"Creativity and Coordination in Disaster Response." Invited Presenter with James M. Kendra at the 4th Workshop for Comparative Study on Urban Earthquake Disaster Management, Kobe, Japan, January, 2004.

"Integrating Improvisation in Disaster Response Planning." Invited Presenter with James M. Kendra at the European Crisis Management Academy International Conference, Poljce, Slovenia, March 12, 2004.

"The Sociology of Disaster." Invited Lecture, The Communications Department, University of the West Indies Teleconference, March 23, 2004.

"Disaster Myths and Realities." Invited presentation to the Citizens' Panel on Critical Infrastructure Protection and Public Confidence, George Mason University, Arlington, Virginia, November 5, 2004.

"Considering Convergence, Coordination, and Social Capital." Presentation at the First Annual Symposium of the Canadian Risk and Hazards Network, Winnipeg, Manitoba, Canada, November 19, 2004.

## ***Disaster-Related Academic & Professional Activities***

### ***Aguirre, Benigno***

Principal Investigator, NSF Grant 0335743 (2003-2004). "Study of Warnings and Response to Tornadoes."

Co-Principal Investigator, NSF Grant 0331984 (2003-2006). "Behavioral Model of Pedestrian Dynamics."

Principal Investigator, NSF Grant 0324305 (2003-2006). "FEMA's USAR Task Force Deployments."

Principal Investigator, Public Entity Risk Institute Grant (2003-2005). "Anticipating Emergency Management Needs in Large Scale Community Crises: Lessons from the World Trade Center and Other Major Disasters."

President, Research Committee on Disasters, International Sociological Association.

Book Review Editor. *Natural Hazards Review*.

Reviewer. "The Nation's Fire Safety and Security." A Report of the National Research Council, Washington, D.C.

### ***Barsky, Lauren and Joseph Trainor***

"Social Science and Disaster Research." Brandywine Chapter of the International Rotary Club, Wilmington, Delaware, July 13, 2004.

### ***Quarantelli, E. L.***

Organized two sessions on the Sociology of Disasters at the 36<sup>th</sup> World Congress of the International Institute of Sociology in Beijing, China, July 7-11, 2004.

### ***Rodríguez, Havidán***

Member, Committee on Assessing Vulnerabilities Related to the Nation's Chemical Infrastructure, Division on Earth and Life Studies Transportation Research Board, Board on Chemical Sciences and Technology, National Academies.

Member, Disasters Roundtable Steering Committee, National Research Council, The National Academies.

Member, 2005 Natural Disaster Medical Systems (NDMS) Conference Planning Committee.

Reviewer, *Public Health Risks of Disasters: Communication, Infrastructure, and Preparedness*. Workshop Summary. The National Academies, Institute of Medicine and National Research Council. Washington, DC: The National Academies Press.

Member, National Science Foundation, Social Hazard Review Panel, Engineering Directorate.

Thrust Leader/Researcher, with Walter Díaz (Social/End-User Component), Center for Collaborative Adaptive Sensing of the Atmosphere (CASA). Funded by the National Science Foundation. This ERC is a collaborative project between the University of Massachusetts-Amherst (David J. McLaughlin, PI), Colorado State University, the University of Oklahoma, and the University of Puerto Rico-Mayagüez.

Principal Investigator, "Population Composition, Geographic Distribution, and Natural Hazards: Vulnerability in the Coastal Regions of Puerto Rico." Funded by the University of Puerto Rico, Sea Grant College Program (with Walter Díaz and Aurelio Mercado, University of Puerto Rico-Mayagüez).

Researcher, Social Science Research Team, Mid-America Earthquake Center, funded by the National Science Foundation.

***Rodríguez, Havidán, Benigno Aguirre and Tricia Wachtendorf***

Principal Investigator, "A Conference Proposal on Disaster Research and the Social Sciences: Lessons Learned, Challenges, and Future Trajectories." Funded by the National Science Foundation.

***Rodríguez, Havidán and Joseph Trainor***

"Hazards, Disasters, and Interdisciplinary Research: A Perspective from the Disaster Research Center (DRC)." Presented at the Department of Civil Engineering Research Seminar Series, University of Delaware, Newark, Delaware, March 29, 2004.

***Trainor, Joseph E.***

"Social Organization of Emergent Multi-Organizational Disaster Response Networks." Sociology of Disasters, Millersville University, Millersville, Pennsylvania, April 14, 2004.

“What does Sociology have to do with Disasters?” Introduction to Sociology.  
Goldey-Beacom College, Wilmington, Delaware, November 3, 2004.

“Disaster Research and The CDRE .” Center for Disaster Research and Education  
Open House and Ribbon Cutting, Millersville, Pennsylvania, November 4, 2004.

“Sociology of Disasters.” Guest lecture, Introduction to Sociology course.  
University of Delaware, Newark, Delaware, December 2, 2004.

## ***Other Professional Activities***

### ***Aguirre, Benigno***

Editorial Board. *Journal of Marriage and the Family, Contemporary Sociology, and Social Science Quarterly.*

Contributing Editor. *Handbook of Latin American Studies*, Sociology of the Caribbean and the Guianas Section, (Vol. 55 and subsequent volumes).

Member. NSF Dissertation Improvement Award Committee, NSF Sociology Program.

Chair, Committee on Diversity and Affirmative Action, Faculty Senate.

Chair, Latino Caucus, Office of Vice President J. Gibson, University of Delaware.

Member, Academic Program Review and Planning Committee, Department of Languages and Literatures, University of Delaware.

### ***Dynes, Russell R.***

Received the "E. L. Quarantelli Award for Contributions to Social Science Disaster Theory" from the International Sociological Association Research Committee on Disaster "for his astute work over the decades on theoretical aspects of disasters and related crises, particularly his willingness to challenge, using a sociological framework, traditional and accepted ideas." Atlanta, Georgia, August 18, 2004.

Received the "Outstanding Alumni Award" from the Department of Sociology, University of Tennessee, Knoxville, Tennessee, May 2, 2004.

### ***Nigg, Joanne M.***

Member, Division Review Committee for the Energy and Environmental Sciences division at Los Alamos National Laboratory.

Faculty Sponsor for Undergraduate Social Science Scholar Jennifer Barron. Topic: "Health Consequences of the World Trade Center Collapse."

### ***Quarantelli, E. L.***

Appointed to Advisory Committee on Local Public Health Emergency Drills and Exercises at the Center For Health Policy, School of Nursing, Columbia University.

Performed evaluation of project proposal for the Austrian Science Fund (FWF).

Manuscript review: Biosecurity and Bioterrorism, *Journal of Hazardous Materials and Risk Management: An International Journal*.

***Rodríguez, Havidán***

Member, Promotion and Tenure Committee, Department of Sociology and Criminal Justice, University of Delaware.

Member, Search Committee, Dean for the College of Arts and Sciences, University of Delaware.

Member, Graduate Recruitment and Success Coordinating Committee, University of Delaware.

Member, Council on Student Diversity, University of Delaware.

Member, Advisory Board, The University of Michigan Population Fellows Program.

Member, Council, Latino/a Sociology Section, American Sociological Association.

Member, Advisory Board, The University of Michigan Population Fellows Program, Professional Exchange for Applied Knowledge (PEAK) Fellowship.

Chair, Latino/a Sociology Section, American Sociological Association.

Director, Senior Honor's Thesis, Carla Russell. Topic: "Development, Vulnerability, and Disasters: A Comparative Case Study of Hurricanes Andrew and Mitch."

Mentor, McNair Scholar, Linda Estevez. Topic: "An Evaluation of the Qualities of Weather Information Sources as Described by the End-Users."

Organizer and Presider, Section on Latina/o Sociology, Annual Meeting, American Sociological Association, San Francisco, California, August, 2004.

***Santos, Gabriel A.***

Discussant. Panel entitled "Interdisciplinary Research on Organized Crime" at the 2<sup>nd</sup> General Session of the European Consortium for Political Research, University of Marburg, Germany, September 19, 2004.

***Santos-Hernández, Jenniffer***

Graduate Student Representative, Graduate Policy Committee, Department of Sociology & Criminal Justice, University of Delaware, Newark, Delaware.

Webmaster, American Sociological Association, Latino/a Sociology Section.  
URL: <http://ceci.uprm.edu/~asa-latino>.

***Trainor, Joseph E.***

Honored Guest, Center for Disaster Research and Education Press Announcement, Millersville, Pennsylvania, September 12, 2004.

***Wachtendorf, Tricia***

Session Moderator, "Developing an International Disaster Research Agenda: Opportunities, Challenges, and Potential for Growth and Leadership." Conference: Disaster Research and Social Sciences: Lessons Learned and Future Trajectories, Newark, Delaware, May 1, 2004.

Interviewed for "Destruction's Instruction: Team from the Disaster Research Center Office at UD Analyzes Responses to Catastrophic Events," Larry Nagengast (reporter), The News Journal, Wilmington, Delaware, June 10, 2004.

Session recorder, Session on the National Institute for Standards and Technology (NIST) World Trade Center Investigation: Progress and Findings, 29th Annual Workshop on Hazards Research and Applications in Boulder, Colorado, July 13, 2004.

Invited discussant for the Disasters Regular Session at the Annual Meeting of the American Sociological Association, San Francisco, California, August 15, 2004.

## ***Undergraduate Students' Achievements***

### ***Abbey, Cory***

National Society of Collegiate Scholars  
Pi Sigma Alpha Political Science Honor Society

### ***Capo, Allison***

National Deans List  
Golden Key International Honor Society  
University of Delaware Dean's List  
University of Delaware Latina Student of Distinction

### ***Denver, Megan***

University of Delaware Dean's List  
Second place in the national Phi Alpha Delta mock trial competition  
Alpha Lambda Delta Honor society  
Study Abroad Program: Palermo University, Argentina

### ***Larson, Jennifer***

University of Delaware Dean's List  
Alpha Xi Delta Scholastic Scholarship for Fall 2004 and Spring 2005  
Alpha Xi Delta Philanthropy Chair  
Recipient of the J P Morgan Chase Service Star Award for "Outstanding Service and Commitment to Goals of the Firm"

### ***Napp, Rebecca***

President Roselle's Women of Promise Award  
Member of Alpha Kappa Delta, National Sociology Honor Society  
University of Delaware Dean's List

### ***Perez, Jaime***

University of Delaware Dean's List  
President Roselle's Women of Promise Award  
Participant in University of Delaware Women's Studies Program External Review  
Golden Key International Honor Society  
National Society of Collegiate Scholars  
J. Bayard Eliason Scholar Award  
Alpha Lambda Delta Honor Society

### ***Rothrock, Jessica***

Third place in the Interdisciplinary Ethics Program Essay Contest



***Russell, Carla***

University of Delaware Dean's List

University of Delaware Summer Scholar Social Science recipient 2004

Senior thesis 2004-2005 "Development, Vulnerability and Disaster: A Comparative Case study of Hurricanes Andrew and Mitch"

Inducted into Phi Beta Kappa

***Shivery, Desiree***

University of Delaware Dean's List

National Society of Collegiate Scholars

## ***Research Projects, 2004***

### ***Organizational and Community Resilience in the World Trade Center Disaster***

DRC Principal Investigators: Kathleen Tierney and Benigno E. Aguirre

Other Lead Personnel: Tricia Wachtendorf

Research Assistants: Joseph Trainor

Undergraduate Research Assistants: Carla Russell, Carla MacKenzie

Funding Agencies: Public Risk Entity Institute (PERI); National Science Foundation through the Multidisciplinary Center for Earthquake Engineering Research (MCEER)

This project focuses on the manner in which emergency management and crisis-relevant organizations in the City of New York coordinated with other responding organizations and jurisdictions to develop multi-organizational strategies for managing the World Trade Center disaster. The project uses the World Trade Center attack and its aftermath as a case study to address longstanding issues in the disaster research literature, such as the relationship between planning, emergence, and improvisation in disaster response activities; how multi-organizational response networks develop and function, and how resilience is achieved in complex response networks. Research activities for this study consist of fieldwork and direct observation in settings in which response and recovery activities are coordinated; interviewing; and document collection and analysis.

### ***FEMA's USAR Taskforce Deployments: Implications for the Management of Emergency Response***

DRC Principal Investigator: Benigno E. Aguirre

Co-Principal Investigator: Richard Buck

Project Leader: Joseph Trainor

Graduate Research Assistants: Lauren Barsky, Brian Monahan, Gabriel Santos

Undergraduate Research Assistants: Lavelles Augustine, Allison Capo, Megan Denver, Desiree Shivery, Jennifer Larson, Becky Napp, Jaime Perez

Funding Agency: National Science Foundation

The Urban Search and Rescue taskforces (USAR) sponsored by the National Science Foundation, a key component of the federal emergency response system, are examined to determine: A) the extent to which these taskforces are impacted by known problems at search and rescue (SAR) operations, as well as the solutions they have developed to these problems; and B) their interaction with other agencies, EMS personnel, volunteers, and law enforcement organizations, in what has become a critical factor in the conduct of present day SAR operations. Information comes from documents, focus groups with ten USAR taskforces, and in-depth interviews with 117 key informants representing other agencies and groups that participated in nine major USAR deployment sites. To check on the validity of the findings, results of the content analysis of textual material are compared to the findings from statistical analyses of this same information. The research addresses the diversity goals of the NSF. It supports the training of two minority undergraduate students. Results will be incorporated into graduate and undergraduate courses in risk analysis and emergency planning and programs and training at FEMA. The primary outcome of the study will be a useful blueprint for

local, state, and federal agencies and private organizations to follow during participation in SAR operations that will help improve the effectiveness of disaster responses and USAR activities. It also contributes to the social science understanding of the emergent multiorganizational SAR system as a form of organized, adaptive crisis response social organization.

### ***Behavioral and Model of Pedestrian Dynamics***

DRC Principal Investigator: Benigno E. Aguirre (with Natacha E. Thomas, University of Rhode Island)

Project Leader: Gabriel Santos

Graduate Research Assistants: Brian Monahan, Joseph Trainor

Undergraduate Research Assistant: Allison Capo, Jullion Cooper

Funding Agency: National Science Foundation

The project develops a Cellular Automata (CA) model and associated prototype software for the simulation of environmentally-constrained and managed pedestrian motion during normal times and during emergency situations that result in evacuations. The model captures naturally occurring interactions involving the environment, the pedestrians, physical constraints, emergency constraints, and the evacuation policies and controls that a management authority would attempt to implement. From a social science perspective, it is useful to think of evacuation behavior during emergencies as having three distinct analytical dimensions: the physical environment being evacuated, the managerial policies and controls deployed at evacuation, and the psychological and social organizational factors impacting the people present during the emergency. It is much more common in the physics and engineering literature to find consideration of the first two dimensions than of the third. The proposed study addresses the essence, and the interactions, of all three dimensions of the pedestrian evacuation problem to predict the course of events following the enactment of specified evacuation policies and controls. The project results will be interpreted in light of accumulated knowledge on the sociology of disasters, allowing for the provision, to local and federal government agencies as well as private organizations, of a useful blueprint to follow during crisis evacuations. This provision of guidance is an important benefit to society, as it improves disaster response programs at the local, state and federal levels. The need for a social science study of crisis evacuation is particularly keen nowadays as terrorist threats have increased. This project entails the training of graduate and undergraduate students in the mastery of analysis approaches and the participation of female and minority faculty in science. Project results further facilitate consideration of evacuation in the design phase of architectural, engineering, and urban design studies. (T. F. Greene Airport in Providence, Rhode Island, is the proposed simulation test-bed. The Rhode Island Airport Corporation vouches for its strong support of the proposed effort and anticipates using the derived simulation software).

### ***Technology, Weather Forecasts, and Warnings: Integrating the End-User Community***

DRC Principal Investigator: Havidán Rodríguez (with Walter Díaz, University of Puerto Rico-Mayagüez - UPRM)

Project Leader: William Donner

Graduate Research Assistants: Daniel Marks, Jenniffer Santos

Undergraduate Research Assistants: Corey Abbey, Jennifer Larson, Jessica Rothrock, Desiree Shivery

Funding Agency: The National Science Foundation through the Center for Collaborative Adaptive Sensing of the Atmosphere (CASA)

Social Scientists at DRC and the Center for Applied Social Research (CISA) at the UPRM are contributing to the research efforts of the Center for Collaborative Adaptive Sensing of the Atmosphere (CASA) by exploring the social and human dimensions of severe weather forecasts and warnings. CASA is a recently established Engineering Research Center (ERC) within NSF's Directorate for Engineering that focuses on the development of revolutionary sensing technology that will enable earlier and more accurate forecasts of severe weather events. The aim of the recently funded ERC is to establish the necessary infrastructure to sense, analyze, and predict lower atmospheric events and to respond to potentially hazardous phenomena in order to significantly reduce their impact on society. More accurate and reliable weather forecasts and warning systems (based on the technology proposed by CASA researchers) may lead to improved disaster mitigation, preparedness, and response initiatives. However, improving weather forecasts and increasing lead times is only part of the equation in determining the ultimate effectiveness of organizational and individual preparedness and response to natural hazards. Social Scientists in the CASA project are focusing their research efforts on examining how improved forecasting can reduce the exposure and vulnerability of individuals and property to every-day and extreme weather events. Specifically, through the use of survey methodology, focus groups, and in-depth interviews, we are examining how the end-user community, particularly emergency managers, access, utilize, and respond to weather forecasts. We also seek to explore their knowledge and interests concerning weather forecasting issues, attitudes towards climatological information, and their needs and interests in relation to the use of meteorological information. We aim to answer a variety of questions, including: Who has access to climatological information and weather forecasts? What are the primary sources of weather information used by emergency management agencies? How much confidence do these end-users have on this type of information? According to the end-users, how reliable are weather forecasts and warnings? How does climatological information affect the decision-making processes of this community of end-users? We have already initiated the data collection process in the state of Oklahoma; we will then collect similar types of data in Texas and Puerto Rico.

***Population Composition, Geographic Distribution, and Natural Hazards: Vulnerability in the Coastal Regions of Puerto Rico.***

DRC Principal Investigator: Havidán Rodríguez (with Walter Díaz and Aurelio Mercado, University of Puerto Rico-Mayagüez - UPRM)

Project Leader: Jenniffer Santos-Hernández

Research Assistant: Carla Russell

Funding Agency: University of Puerto Rico NOAA Sea Grant College Program

Given its geographic location and climatological conditions, Puerto Rico is highly susceptible to natural hazards (e.g., hurricanes, floods, tsunamis, and earthquakes). Coastal or riverine flood areas and steep mountains characterize much of Puerto Rico. Hurricanes San Ciriaco (1899), San Felipe (1928), San Ciprián (1932), Santa Clara (1956), Hugo (1989), and Georges (1998) have had a significant social and economic impact on the Island's population and economy. As a result of changing social and demographic patterns in Puerto Rico, there has been a significant increase in population density, in the proportion of the elderly and physically disabled population, and an increasing concentration of residents in flood and/or landslide prone areas, especially along the coastline. According to the Insurance Commissioner's Office, as of June 2003, 160,000 families were living in flood prone areas in Puerto Rico, of which 43,568 (27.2%) did not have flood insurance. These factors have contributed to the increasing vulnerability to natural hazards on the Island. The primary goal of the proposed project is to understand how these and other factors contribute to the vulnerability of the Puerto Rican population living in coastal regions, how they have changed from 1990 to 2000, and how

risk and vulnerability vary according to different social, economic, and demographic variables. This research project is a collaborative and interdisciplinary effort between the Disaster Research Center at the University of Delaware, the Center for Applied Social Research (CISA) and the Physical Oceanography Laboratory in the Department of Marine Sciences, both at the University of Puerto Rico-Mayagüez. To accomplish the aforementioned goals, we propose to: 1) develop geographical maps of the coastal areas of Puerto Rico that will include detailed demographic and socioeconomic data of the resident population. GIS technology and existing storm surge and tsunami flood maps will be used as a starting point; 2) conduct a census of emergency response agencies and other organizations and structures located in areas subject to coastal flooding; 3) examine the determinants of vulnerability in the coastal regions of Puerto Rico and, using 1990 and 2000 Census data, determine how vulnerability in these regions has changed during this ten-year period.

### ***Quantitative Models of Social and Economic Consequences***

DRC Principal Investigator: Havidán Rodríguez (Project Principal Investigator: Steven French (Center for Geographic Information Systems, Georgia Institute of Technology), with Walter Peacock (Texas A & M University), Ed Feser (University of Illinois at Urbana-Champaign), and Ricardo López (UPRM))

Project Leader: Daniel Marks

Funding Agency: National Science Foundation through the Mid-America Earthquake Center (MAE)

“While a significant literature exists on the social and economic impacts of natural disasters, this knowledge has not been translated into quantitative models that can be used to predict the level of consequences that are likely to result from events of different magnitudes. To model the social and economic consequences of earthquakes will require the development of models that are driven by the physical damage estimates produced by engineering models. MAE Center research has produced robust models to predict physical damage to buildings, transportation networks, and infrastructure systems. This project will extend those models to predict the social and economic consequences that are often the most salient concerns of decision makers. Major social impacts that have been identified include short and long-term shelter needs, short and long term job loss, business failures, number of casualties, direct dollar losses and business interruption losses. The project team will compile an exhaustive list and identify those that can be effectively modeled. The project goals and objectives include: 1) to advance the state-of-the-art of social science research on earthquake hazards to be better aligned and integrated with the quantitative modeling approach that characterizes current research in the geophysical and engineering areas; 2) the development of a set of quantitative models to estimate the social and economic consequences that result from the physical damage produced by earthquake of various sizes; and 3) the development of a cross-hazard metric to characterize the damage produced by a hazard event (earthquake, flood or hurricane). This metric will be the exogenous variable that drives the social and economic models.” (Quoted from the MAE Social Science Quad-Chart, Project Number: DS-7b).

## *Disaster Research Center Field Studies*

### *Multiple Trips*

*Ben Aguirre, Joseph Trainor, Gabriel Santos, Lauren Barsky, and Richard Buck conducted eleven focus group interviews at various locations across the country with FEMA USAR Team members, as well as five in-depth interviews with past and present managing personnel.*

### *Multiple Site Visits*

*Havidán Rodríguez, William Donner and Jenniffer Santos-Hernández, Oklahoma, Interviews with emergency managers for the ERC-CASA Project.*

## *Visitors to DRC*

### ***February***

*Hank Fischer, Millersville University, Millersville, Pennsylvania, USA*

### ***March***

*Frank Furedi, School of Social Policy, Sociology and Social Research,  
The University of Kent, Canterbury, England*

*Carol Kuprevich, Co-Director, Disaster Response, Division of Substance Abuse and  
Mental Health, Delaware, USA*

*Paul Pulliam, Research Triangle International, Research Triangle Park,  
North Carolina, USA*

### ***April***

*Nikola Garber, Knauss Sea Grant Fellows Program Manager, NOAA National  
Sea Grant College Program, Maryland, USA*

*Boris Porfiriev, Risk and Crisis Research Center, Institute for International  
Economic and Political Studies, Russian Academy of Sciences, Russia  
(also visited in May)*

### ***May***

*Milan Hron, General Directorate of Czech Fire Rescue Service, Czech Republic*

*Alan Kirschenbaum, Technion-Israel Institute of Technology, Haifa, Israel*

*Jesus Macias, CIESAS, Mexico City, Mexico (also visited in December)*

*Juan Murria, Consultant to FUNVISIS, Caracas, Venezuela*

*Philip Buckle, Coventry University, Coventry, England*

*Eve Coles, Coventry University, Coventry, England*

***June***

*Linda Dorsten, State University of New York at Fredonia,  
Fredonia, New York, USA*

***July***

*Dave McLaughlin, University of Massachusetts-Amherst, ERC-CASA Project,  
Amherst, Massachusetts, USA*

*Brenda Phillips, University of Massachusetts-Amherst, ERC-CASA Project,  
Amherst, Massachusetts, USA (also visited in September)*

***September***

*Apoorva Bajaj, University of Massachusetts-Amherst, ERC-CASA Project,  
Amherst, Massachusetts, USA*

*Ellen Bass, University of Virginia, ERC-CASA Project, Charlottesville, Virginia,  
USA*

*Walter Diaz, University of Puerto Rico-Mayaguez, ERC-CASA Project,  
Mayaguez, Puerto Rico*

***October***

*Cpt. Mary Chaffee, Nurse Corps, U.S. Navy, USA*

*Angela Gladwell, Department of Homeland Security, Washington, D.C., USA*

*Randolph Langenback, Ph.D., Independent Consultant, Conservationtech.com*

*Capt. Roberta Proffitt Lavin, U. S. Public Health Service, Office of Public Health  
Emergency Preparedness, USA*

***November***

*Henry W. Fischer, Ph.D., Director, Center for Disaster Research and Education,  
Millersville University, Millersville, Pennsylvania, USA*

*Joseph Scanlon, Emergency Communications Research Unit, Carleton University,  
Ottawa, Ontario, Canada*

*Griffin Trotter, Ph.D., M.D., Associate Professor in the Center for Health Care  
Ethics, Saint Louis University, Saint Louis, Missouri, USA*