

DRC

Disaster Research Center

UNIVERSITY OF DELAWARE



2007 ANNUAL REPORT

DISASTER RESEARCH CENTER

**COLLEGE OF ARTS AND SCIENCES
OFFICE OF THE VICE PROVOST
FOR RESEARCH AND GRADUATE STUDIES**

UNIVERSITY OF DELAWARE

2007 ANNUAL REPORT

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Disaster Research Center (DRC)

Established at Ohio State University in 1963 by Professors E. L. Quarantelli, Russell Dynes, and Eugene Haas, and moved to its current location at the University of Delaware in 1985, DRC was the first Center in the world devoted to the social scientific study of disasters. Historically, the Center has conducted field interviews and extended research projects on group, organizational, and community preparation for, response to, and recovery from natural and technological disasters and other community-wide crises for both academic and practical development of the field of disaster research and mitigation.

Recognizing the broader research interests in disasters across the campus and the interdisciplinary nature of the research, the Center moved from the Department of Sociology and Criminal Justice to the College of Arts and Sciences in the summer of 2006 and in June 2007 the Center moved again to come under the oversight of Research and Graduate Studies in the Office of the Provost. While much of the research at DRC has been interdisciplinary throughout its existence, the Center is now embarking on a new era as it builds on and maintains its foundation in social science while broadening its activities to embrace more explicitly interdisciplinary, multidisciplinary and cross disciplinary research.

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 over 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 but not limited to 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, preparations of and responses to major community disasters by lifeline organizations, community earthquake mitigation and emergency preparedness in the Central U.S. and the San Francisco Bay Area, disaster recovery in Charleston, South Carolina and Santa Cruz, California, a large-scale multi-year study on the implementation of FEMA's Project Impact initiative, and the utilization of earth science information in earthquake risk decision making.

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 (FEMA) and its preceding agencies, the NOAA Sea Grant Program, and the U.S. Geological Survey. Major research funding is currently provided by grants from

the National Science Foundation (NSF), FEMA, the Multidisciplinary Center for Earthquake Engineering Research (MCEER), and the Public Entity Risk Institute (PERI).

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 ñ now numbering more than 55,000 items ñ is open to both interested scholars and agencies involved in emergency management. The Center has its own book, monograph, and report series with over 550 publications including preliminary papers and published articles. DRC maintains ongoing contact with scholars from throughout the United States, Asia, Europe, and Mexico, 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 disasters issues in Central America, Southern Asia, Europe, Japan, Russia, and the former Soviet Union.

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



Gathering of University of Delaware Administration and DRC Faculty for the open house at the DRC's new facilities in Graham Hall. (left to right, front row: Dr. Havidán Rodríguez, Vice Provost for Academic Affairs and International Programs/DRC Core Faculty, Dr. Joanne Nigg, DRC Interim Director/Core Faculty, Dr. Sue McNeil, Incoming DRC Director; back row: Dr. Russell Dynes, DRC Co-Founder and Faculty Emeritus, Dr. Henry Quarantelli, DRC Co-Founder and Faculty Emeritus, Dr. Daniel Rich, Provost.

(photo by DRC Staff)

Director's Message

The Disaster Research Center (DRC) is pleased to present our 2007 Annual Report. Despite this being a year of changes at DRC — a new Director, a new role as a University-wide center at the University of Delaware, and a new location — it has been a productive year.

As the newly appointed Director of DRC, I am proud to be part of the tradition of DRC and excited to be leading DRC through these challenging times. I am honored to be the first director of DRC that comes from Engineering. I am also very fortunate to have the opportunity to interact with several of the former directors on a day-to-day basis and to have spoken with all of the past directors. The founding directors, Emeritus Professor Henry Quarantelli and Emeritus Professor Russ Dynes, are both active and valuable participants in the Center.

As a University-wide center, DRC now reports to Vice Provost Carolyn Thoroughgood and the Office of Research and Graduate Studies. We will maintain our close ties to the Department of Sociology and Criminal Justice but DRC is now embarking on a new era as the Center builds on and maintains this foundation in social science research and broadens its activities to more explicitly embrace interdisciplinary, multidisciplinary and cross disciplinary research. This includes developing and supporting a new interdisciplinary graduate program in disasters, including faculty from other disciplines, developing a strategic plan to chart our future, and revamping our website. In the fall, we welcomed Associate Professor Rachel Davidson and Assistant Professor Earl (Rusty) Lee to DRC. Both have appointments in the Department of Civil and Environmental Engineering. Rachel comes to the University of Delaware from Cornell University and Rusty comes from Rensselaer Polytechnic Institute.

Our new location in newly renovated facilities in Graham Hall is spacious and comfortable. We have space to house faculty, staff, graduate students, visitors, and the E.L. Quarantelli Resource Collection, as well as undergraduate workspace and an area for our new Computer-Assisted Telephone Interviewing (CATI) system. Please come and visit, use the Collection, or attend one of our Salon Series seminars.

The 2007 Annual Report documents the accomplishments of our faculty, staff, graduate students and undergraduate students this past year. Highlights include:

- Active engagement of our students in our research. The publications listed reflect this involvement.
 - Twelve graduate and 17 undergraduate students worked at DRC throughout 2007 as research assistants. These students have been instrumental in the growth and development of our Center. Funding for these students has been possible through a number of externally funded research projects.
 - The Research Experience for Undergraduates (REU) Program, funded by the National Science Foundation and the University of Delaware, continued for the third year. In 2007, funding was renewed for another three years. This program brings together a

talented group of social science students, selected competitively throughout the U.S., to engage in an intensive and hands-on training program at DRC.

- Strengthened international connections.
 - Professor Benigno Aguirre received a Fulbright grant to conduct research in Chile during the fall semester.
 - Twelve individual researchers from eight different countries have spent anywhere from a day to an extended period at DRC. Professor Anna Olofsson of Mittuniversitetet (Mid Sweden University), Östersund, Sweden, was with the DRC for the Fall, 2007 semester as one of those visitors with whom international connections were established. Her collaborative efforts with DRC staff continue currently.
- Initiated a student chapter of the Earthquake Engineering Research Institute. This effort spearheaded by Ph.D. student Jenniffer Santos-Hernández, is the first student chapter of EERI initiated by social scientists. The chapter has participated in the national conference, sponsored speakers and movie nights and is working on a student conference.
- A new home for the E. L. Quarantelli Resource Collection. Resource Collection Coordinator, Pat Young, redesigned the library space and planned and implemented the move from Main Street to Graham Hall.

Our strategic plan was completed in December and is intended to provide an agenda for activities at the Disaster Research Center (DRC) at the University of Delaware over the next three to five years. Specific actions will be updated each year in response to changes in the environment and to reflect the year's accomplishments.

We look forward to a productive 2008 and welcome your comments and suggestions.

Sue McNeil, Ph.D., P.E.
smcneil@udel.edu

Research

DRC has a well-established research tradition built on its foundations in the social sciences, a proven capacity for quick response field research, and a culture of collaboration between faculty, staff, graduate students, and undergraduate students. In particular, the increase in attention on issues related to disasters, the multidisciplinary funding climate, emerging collaborations between DRC and external agencies, the many unfunded mandates related to disaster planning that have been imposed on governmental agencies, and DRC's new University level administrative location under Research and Graduate Studies have created not only an increased demand for DRC's traditional expertise, but have also provided motivation to go beyond multidisciplinary work and develop a sustainable interdisciplinary program. In developing such an environment, DRC plans to draw on the core research areas current DRC faculty engage in, all of which are prime for interdisciplinary collaboration, including:

- The identification of the social, physical and environmental factors/conditions that influence vulnerability and resiliency of social and physical systems
- Individual and collective threat perception and behavior
- Organizational and inter-organizational dynamics
- Development and disasters
- Social and political dynamics that enhance the development of public policy for disaster reduction
- Analysis and management of infrastructure systems

In developing and conducting research projects, DRC aims to act as a catalyst for and serve as the intellectual home for interdisciplinary disaster related research. We focus on team-conducted projects that are more fruitful than independent research on the same topic, that leverage the interests and capacities of other disciplines on campus, that balance quantitative and qualitative approaches to research, that demonstrate systems-level thinking, that employ the broadest possible set of methodologies and analytic techniques, and that nurture a culture which values the integration of disciplinary insights and thinking.

Project Descriptions

This section provides short descriptions of active or recently completed projects involving faculty from the Disaster Research Center at the University of Delaware. Although by no means an exclusive list of capabilities, these projects demonstrate the Center's expertise and our active agenda.

Active Projects

Characterization of the Supply Chains in the Aftermath of an Extreme Event: The Gulf Coast Experience.

Co-Principal Investigator: Tricia Wachtendorf, Disaster Research Center, Jose Holguin-Veras and Satish Ukkusuri, Rensselaer Polytechnic Institute

Graduate Project Lead: Bethany Brown

Undergraduate Research Assistants: Chris Colindres, Jeffrey Engle, Lauren Ross, Caroline Williams

Funding Agency: National Science Foundation

This project is concerned with gathering perishable information and data about the basic features of the formal and informal logistic systems supporting the recovery and flows of critical and non-critical supplies to areas impacted by Hurricane Katrina. Prior research points to the challenges associated with setting up supply chains to an impacted site that fully account for immediate resource requirements, the range of supply sources and source mechanisms, as well as the management and prioritization of critical versus non-essential donations. This Small Grant for Exploratory Research project (1) identifies the basic features of the supply chains delivering resources to the Gulf Coast; (2) gathers data about the actual

flows of critical and non-critical supplies; and (3) documents lessons learned, both positive and negative. This research will provide future researchers with a clear picture of the supply chains in place at the site of an extreme event, which will enable the development of much needed decision support systems. The research involves multi-university collaborations between Rensselaer Polytechnic Institute and the University of Delaware. It makes use of quick response data collected by the University of Delaware's Disaster Research Center in the weeks following the hurricane and leverages resources of Rensselaer's Center for Intermodal Freight Mobility and Security.

Collaborative Research Proposal on Improvisation and Sensemaking in Sudden Crisis.

Principal Investigator: Tricia Wachtendorf

Co-Principal Investigators: James M. Kendra, University of North Texas and Jasmin Ruback, Ruback & Associates

Graduate Project Leads: Lynn Letukas and Brandi Lea

Undergraduate Research Assistants: Chris Colindres, Jeff Engle, Brandi Gilbert, Deon Pfenning, Lauren Ross, Brittany Scott and Caroline Williams

Funding Agencies: National Science Foundation, University of Delaware Research Foundation

This project examines organizational improvisation and sensemaking under conditions of rapid change and urgent needs for decision and action. The project studies the unplanned waterborne evacuation of hundreds of thousands of commuters from Lower Manhattan after the September 11, 2001 attack on the World Trade Center, and the subsequent improvised boat-lift of supplies and equipment into the city. Focus is on sensemaking and

improvisation across multiple organizations that are geographically dispersed yet nevertheless able to "make sense" with each other regarding swiftly developing emergency needs and to coordinate their actions responsively and productively. Analytical methods include an inductive qualitative approach to interview and documentary data as well as a social network analysis of pre- and post-attack relationships among participants and geographically

referenced to points in the New York-New Jersey-Statens Island area. This is a collaborative

project with James Kendra (PI) at the University of North Texas.

DRU: Contending with Materiel Convergence: Optimal Control, Coordination, and Delivery of Critical Supplies to the Site of Extreme Events.

Principal Investigator: Jose Holguin-Veras, Rensselaer Polytechnic Institute

Co-Principal Investigators: Tricia Wachtendorf, Disaster Research Center, Havidán Rodríguez, Disaster Research Center, Satish V. Ukkusuri, Rensselaer Polytechnic Institute, Didier M. Valdes, University of Puerto Rico-Mayagüez

Graduate Project Lead: Bethany Brown

Graduate Research Assistants: Lauren Barsky and Lynn Letukas

Undergraduate Research Assistants: Jeffrey Engle, Chris Colindres, Brittney Scott

Funding Agency: National Science Foundation

The overall goal is to develop methodologies and tools to foster an accelerated convergence between the dynamic needs and supplies of critical resources (e.g., blood, water) to the site of an extreme event. These methodologies will be based on state of the art concepts from the social sciences, control theory, and robust stochastic optimization of dynamic supply chains with the aim of reducing adverse impacts of convergent low priority goods, while expediting the flow of high priority supplies to various response related sites. This topic was identified as a critical research issue by Mr. Joe Picciano, Acting Director of FEMA Region II at

the time of the 9/11 attacks, who highlighted that such techniques are of critical importance to “ . . . improve the distribution of critical assets and goods in a catastrophic event . . . ”

This was again emphasized by many of those handling supplies in the aftermath of Hurricane Katrina when interviewed by team members.

These methodologies could help: (a) ensure that emergency workers and support staff have the critical resources they need for an efficient rescue operation; (b) prioritize the incoming flows of donations; and (c) distribute the critical supplies efficiently to impacted areas.

FEMA’s USAR Taskforce Deployments: Implications for the Emergency Response.

Principal Investigator: Benigno E. Aguirre

Graduate Project Lead: Joseph Trainor

Graduate Research Assistants: Lauren Barsky, Rita Poteyeva, Manuel Torres

Undergraduate Research Assistants: Megan Denver, Jen Westfall

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: 1) 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 2) their intersection 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 doctoral students and two minority undergraduate students. Results will be made part of graduate and undergraduate courses in risk analysis and emergency planning, and of 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 multi-organizational SAR system as a form of organized, adaptive crisis response social organization.

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

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

Graduate Project Lead: Jenniffer Santos-Hernández

Undergraduate Research Assistants: Carla Russell, Caroline Bomfim, Chris Colindres, Meghan Gunyuzlu, Jen Westfall

Funding Agency: University of Puerto Rico Sea Grant College Program

Given its geographic location and climatological characteristics, 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 and 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 this project was 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. To accomplish the aforementioned goal, we developed geographical maps, in both paper and GIS format, of the coastal areas of Puerto Rico that include detailed demographic and socioeconomic data of the resident population. Using 1990 and 2000 Census data, Project Leader Santos-Hernández completed her MA thesis which presents the estimation of the social vulnerability to storm surge flooding index for Puerto Rico. This research project allowed us to develop a better understanding regarding the demographic and socio-economic factors that contribute to the vulnerability, perception of risk, disaster mitigation, and preparedness among communities on the Island's coastal regions. Further, it will also provide government agencies and emergency management organizations with detailed information that will allow them to play a critical role in mitigating the effects of natural hazards in Puerto Rico. The Disaster Research Center (DRC) has purchased the software necessary to publish on the Internet, in an interactive format, the vulnerability maps that we have developed. This research project was a collaborative and interdisciplinary effort between the Disaster Research Center at the

University of Delaware, the Center for Applied Social Research (CISA) in the Department of Social Sciences and the Physical Oceanography

Laboratory in the Department of Marine Sciences, both at the University of Puerto Rico-Mayagüez.

Research Experience for Undergraduates (REU) Program: Training the New Generation of Disaster Researchers.

Principal Investigators: Havidán Rodríguez and Joanne Nigg
Senior Personnel: Tricia Wachtendorf, Benigno Aguirre
Graduate Project Leads: Lauren Barsky, Lynn Letukas
Undergraduate Research Assistant: Michelle Moses
Funding Agency: National Science Foundation, Department of Defense and University of Delaware

The National Science Foundation funded (2005–2007) the University of Delaware’s Disaster Research Center (DRC) to establish a Research Experience for Undergraduates (REU) site to engage ten (10) undergraduate students in hands-on research training to enhance their understanding of the social science aspects of disasters. Each summer, a nine (9) week research training institute will be held at DRC to provide students with the necessary academic background, training, and relevant research experiences to prepare them to function as relatively independent research scholars. Course models will focus on research methodology, social science approaches to understanding

the causes and consequences of disasters, and ethical implications of the research process. Students will work with leading scholars and researchers on state-of-the-art research projects that focus on issues such as disaster mitigation, preparedness, response, recovery, vulnerability, and resilience. A multi-disciplinary group of leading disaster researchers and practitioners will participate in the Invited Speaker Series in order to emphasize the contributions that other disciplines bring to this field. A series of professional development and social-cultural activities will complement the trainees’ overall education and training.

Resiliency of Transportation Corridors Before, During and After Catastrophic Natural Hazards.

Principal Investigator: Sue McNeil
Co-Principal Investigators: Joanne Nigg and Tracy DiLiberty
Graduate Project Lead: Silvana Croope
Funding Agency: University of Delaware University Transportation Center with funding from U.S. Department of Transportation

The objective of this project is to develop a framework to evaluate the resiliency of transportation corridors before, during or after a catastrophic event. The project addresses the challenge of working with diverse sets of data that present several problems such as incomplete data, lack of data, data that is too dense for real-time analysis, and data not made available due to homeland security policies. Given these data challenges, we develop the framework using a specific example and then attempt to

generalize our findings. We will use U.S. 13 in Sussex County, Delaware as the example. U.S. 13 is subject to flooding, and we are aware of much of the data DELDOT has available. The evaluation will use real-time emergency event management utilizing data generated from the Transportation Management Center integrated with data from other DELDOT sections and other institutions.

The proposed research serves as the initial concepts and framework for a suite of tools to assist agencies to be better prepared for, better

able to respond to and better able to recover from catastrophic events due to natural hazards. The research uses existing data, GIS tools and concepts of resiliency to assist in this important area.

A technical report and presentation will document the research results and provide direction for further research, development and implementation.

Resiliency of Transportation Corridors During Disaster.

Principal Investigator: Tricia Wachtendorf

Funding Agency: University of Delaware University Transportation Center with funding from U.S. Department of Transportation

Transportation corridors are vital in allowing for public and commercial mobility. When these corridors are compromised during a disaster, the way in which emergency response networks function is critical to ensuring continuity or resumption of the transportation flow. Inter-organizational coordination is central to an effective disaster response and may require interaction across jurisdiction, timely exchange of information, and provision of personnel or material resources. This study examines how multi-organizational actors/agencies expect and are expected to interact during a transportation corridor disaster. Using social

network analysis, researchers will examine the codified and actor-anticipated interaction in maintaining the continuity of transportation flows along the I-95 corridor in Delaware. The research will serve to: 1) provide information to facilitate planning and management of response in Delaware and the surrounding states; 2) increase our understanding of social response networks in place during corridor disasters, which may have applicability in other geographic areas; 3) generate results useful in the development of socio-technical systems to better communication and coordination during corridor disasters.

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

Principal Investigators: Havidán Rodríguez and Walter Díaz, University of Puerto Rico-Mayagüez (UPRM)

Post-Doctoral Research Fellow: William Donner

Graduate Project Lead: Jenniffer Santos-Hernández

Undergraduate Research Assistants: Michael Clark, Claudia Flores, Michelle Moses, and Yesenia Rodríguez

Funding Agencies: National Science Foundation (NSF); Engineering Research Center for the Collaborative Adaptive Sensing of the Atmosphere (ERC-CASA)

Scientists at DRC and the Center for Applied Social Research at the UPRM (CISA) are contributing to the research efforts of 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.

CASA's technology is expected to increase the warning time for tornadoes, flash floods, and other severe weather events with greater accuracy than existing systems. 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 everyday and extreme weather events. Specifically, through the use of survey methodology, focus groups, face to face in-depth interviews, and phone interviews using the recently acquired CATI system (Computer Assisted Telephone Interviewing) we are examining how the end-user community—particularly emergency managers and members of the general public—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 in 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?; and finally,

How does the public respond to and interpret warnings issued by the National Weather Service (NWS), emergency managers, and the media? We have already initiated the data collection process in Oklahoma, Louisiana, Missouri, Tennessee, and Puerto Rico; in the future, we will collect similar types of data in Texas and other states.

To Rebuild or to Relocate? An Investigation of Post-Catastrophe Housing Decisions among Hurricane Katrina Survivors.

Principal Investigator: John Barnshaw

Undergraduate Research Assistants: Lauren Ross, Megan Denver

Funding Agency: Natural Hazards Center at the University of Colorado at Boulder

This research explored the experiences of Hurricane Katrina evacuees' to Texas following the mandatory evacuation of New Orleans. This grant investigated the intent to return to the impacted area or relocate following Hurricane

Katrina. To date, this project collected perishable data on the attitudes, evacuation, sheltering and housing intentions of 46 evacuees and 3 public officials as well as supplementary documents in the days and weeks following Hurricane Katrina.

Recently Completed Projects

Disaster Realities in the Aftermath of Hurricane Katrina: Revisiting the Looting Myth.

Principal Investigator: Lauren Barsky

Funding Agency: Natural Hazards Center at the University of Colorado at Boulder

In the aftermath of Hurricane Katrina, a number of media stories that made extensive references to reports of looting emerged from New Orleans and the surrounding areas heavily impacted by Hurricane Katrina. Given the discrepancy between long-standing assertions in sociological literature on disasters portraying widespread looting as a myth and the conflicting reports coming out of these heavily impacted disaster areas, semi-structured interviews with individuals and organizational actors were conducted in order to examine the extent to which looting actually occurred in the aftermath of Hurricane Katrina. In instances where

looting was reported, information was obtained in order to differentiate between individuals taking non-essential items and those engaging in appropriating behavior (i.e., taking items necessary for survival). Also, for cases in which looting actually did occur, questions were asked regarding motivations for this behavior. This research is useful in understanding the activities labeled as looting in this disaster, the extent to which media accounts accurately portrayed the behavior, the context surrounding the behavior, and its implications for understanding behavior and reporting in other high consequence events in the United States.

Organizational and Community Resilience in the World Trade Center Disaster.

Principal Investigators: Benigno E. Aguirre, Disaster Research Center, and Kathleen Tierney, Natural Hazards Center, University of Colorado, Boulder

Senior Personnel: Tricia Wachtendorf, Disaster Research Center, James M. Kendra, University of North Texas

Graduate Project Lead: Joseph Trainor

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 field work and direct observation in settings in which response and recovery activities are coordinated; interviewing; and document collection and analysis.

Quantitative Models of Social and Economic Consequences.

Co-Principal Investigators: Havidán Rodríguez, Disaster Research Center, Steve French, Georgia Institute of Technology

Senior Personnel: Walter Peacock, Texas A&M University, Ed Feser, University of Illinois at Urbana-Champaign, and Ricardo López, University of Puerto Rico Mayagüez

Graduate Project Lead: Daniel Marks

Graduate Research Assistant: Gabriela Wasileski

Undergraduate Research Assistant: Julie Wurcel

Funding Agencies: National Science Foundation through the Mid-America Earthquake Center (MAE); University of Delaware Research Foundation

“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 states 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).

The Social Impacts and Consequences of the December, 2004 Indian Ocean Tsunami: Observations from India and Sri Lanka.

Principal Investigators: Havidán Rodríguez, Joseph Trainor, Tricia Wachtendorf Senior

Personnel: James M. Kendra, University of North Texas, A. Subramanian, Madras Christian College, Madras, India, Ram Alagan University of Peradeniya Kandy, Sri Lanka

Funding Agencies: Earthquake Engineering Research Institute (EERI) and the University of Puerto Rico-Mayagüez Sea Grant College Program

Less than one month after the disaster, researchers from the University of Delaware’s Disaster Research Center (DRC) and the University of North Texas’ Emergency Administration and Planning Program (EAPP) traveled to some of the most heavily impacted

areas of India and Sri Lanka. This social science reconnaissance team, comprised of three sociologists and one geographer, was supported by the Earthquake Engineering Research Institute (EERI) and the Sea Grant College Program at the University of Puerto Rico-Mayagüez. The

team was also comprised of Dr.A. Subramanian (Political Scientist, Madras Christian College, in Madras, India) and Dr. Ram Alagan (Department of Geography, University of Peradeniya and affiliated with the International Center for Ethnic Studies (ICES) in Kandy, Sri Lanka¹). Drs. Subramanian and Alagan had been actively engaged in disaster relief work in some of the areas that the team visited in India and Sri Lanka.

These local collaborators provided detailed information focusing on cultural, historical and political aspects in these countries thus providing the needed context in which to ground our observations.

The field team spent approximately one week in each of the two countries and was able to collect an extensive amount of data and information on the social impacts of the tsunami, the immediate response and relief effort, and the preliminary planning stage of

the recovery effort. Central to the team's goals were to: a) collect perishable data that may otherwise not be available at a later date; b) identify communities particularly hard hit by the tsunami; c) identify key priority areas for future research; d) identify local and state agencies as well as local and international NGO's taking part in the recovery and relief efforts; and e) establish contacts with local researchers and practitioners.

¹The EERI reconnaissance team also benefited from the extensive information and guidance provided by Dr. Stanley Samarasinghe and his colleagues at the ICES, and the staff from the Disaster Mitigation Institute (DMI) in India. Also, the hospitality, kindness, and the time, cooperation, and information provided to the field team by many community members and governmental and non-governmental agency (NGOs) representatives were instrumental to the success of our field research.



India — Photo of debris left behind in an Indian village by the Indian Ocean tsunami of December 26, 2004. *(photo by DRC staff)*

DRC Field Studies

In addition to our regular projects, researchers at DRC have conducted over 600 field studies since the Center's inception, traveling to communities throughout the United States and to a number of foreign countries in the immediate aftermath of disaster events. Our work has focused on a broad range of disaster types. Recent field studies have focused on a number of topics including organization, multi-organizational coordination, social behavioral response to disasters, warning and evacuation, and vulnerability.

This section offers a brief list of the field research conducted by DRC faculty and graduate students during the past calendar year.

Location Visited: New Orleans, Louisiana
Dates of Travel: August 15–31, 2007
Team Members: Bethany Brown
Funding Source: Disaster Research Center Dissertation Fellowship
Project Title: Organizational Response and Recovery of Domestic Violence Shelters in the Aftermath of Disaster
Reason for Visit: Data collection for dissertation.

Locations Visited: New York (Brooklyn, New York City, Staten Island), New Jersey (Atlantic Highlands, East Rutherford, Hoboken, Jersey City, Middletown, Newark, Perth Amboy, Teaneck, Tinton Falls, and Weehawken), and Washington D.C.
Dates of Travel: January 19–July 26, 2007
Team Members: John Barnshaw, Lynn Letukas, Deon Pfenning, Lauren Ross, Tricia Wachtendorf and Caroline Williams
Funding Source: National Science Foundation, University of Delaware Research Foundation
Project Title: Collaborative Research Proposal on Improvisation and Sensemaking in Sudden Crisis
Reason for Visit: Researchers conducted 24 in-depth interviews with key individuals involved in the unplanned boat evacuation of Lower Manhattan by an ad hoc flotilla of ferries, tugs, workboats, dinner cruise boats and other assorted harbor craft after the 9/11 attacks on the World Trade Center, and the subsequent improvised boat-lift of supplies and equipment into the city.

Location Visited: Dover, Delaware
Dates of Travel: October 13, 2007
Team Members: Lauren Barsky, Jeffery Engle, Kimberly Gill, Lynn Letukas, Bruce Lindsay, Brian Newby, Joanne Nigg
Project Title: Delaware Department of Education: Pandemic Influenza Preparedness
Reason for Visit: The Delaware Department of Education held a training conference for key individuals in Delaware schools that focused on pandemic influenza preparedness and planning. The primary goal of this conference was to offer informational sessions for individuals in Administration, Building and Grounds, School Counselors, Extracurricular Program, Nutrition Services, School Nurses and Transportation Services to expand knowledge and raise awareness of pandemic influenza outbreaks and foster pandemic preparedness within schools. During this conference, a survey was administered by students in a Sociology of Disaster course, to all participants to assess to their prepared for a future pandemic outbreak. The goal of this research was to offer recommendations for future pandemic planning exercises for the Delaware Department of Education.



Various marine vessels converge on lower Manhattan to transport people from the area impacted by the attack on the World Trade Center, September 11, 2001.

(photo by Jim Sweeney)

Education/Mentoring

Students, staff, and faculty affiliated with DRC all play an important role in graduate and undergraduate education at the University. Faculty offer related classes, advise students (as academic advisors, and advisors for independent studies and research), serve on comprehensive exam and dissertation committees; faculty and staff offer professional training sessions for graduate and undergraduate students; and graduate students mentor undergraduates, serve as teaching assistants, and in some cases, such as in the REU program, teach classes. The Disaster Research Center has a history of engaging graduate and undergraduate students in research. Although DRC does not admit students, offer classes, or award degrees, faculty teach classes as part of their responsibilities in their home departments and influence academic programs. DRC faculty members have also been active members of the University-wide committee to develop the interdisciplinary M.S. and Ph.D. program in Disaster Science and Management. The intent is that this new graduate program would begin in the fall of 2009.

This section provides information and examples regarding DRC's efforts to manifest its vision of education and mentoring in a concrete way.

Master's Thesis

Jenniffer M. Santos-Hernández

“Development, Social Vulnerability and Disasters in the West Coast of Puerto Rico.” Department of Sociology and Criminal Justice and Disaster Research Center, University of Delaware, Newark, Delaware.

Doctoral Dissertation

William Donner

“An Integrated Model of Risk Perception and Protective Action: The Case of Public Response to Tornado Warnings.” Disaster Research Center, University of Delaware, Newark, Delaware.

DRC Salon Series

The Disaster Research Center Salon Series differs slightly from a traditional lecture in that we encourage presenters to raise substantive issues which might contend with the existing literature, offer new possibilities, or raise issues that require additional study, or offer potential areas for collaboration between DRC and invited Salon presenters. All Salon Series presentations took place on the University of Delaware campus.

“A Tale of Two Cities.” Presented by William Stanhope, Director of Special Projects, Institute of Biosecurity, School of Public Health, Saint Louis University, March 14, 2007.

“Vulnerability and Disruptions.” Presented by Rusty Lee, Civil and Environmental Engineering, University of Delaware, September 27, 2007.

“Australian Natural Disasters.” Presented by Richard Graham, Innisfail SHS, Australia, October 1, 2007.

“Communicating for Recovery.” Presented by Susan Nicholls, Division of Communication and Education, University of Canberra, Canberra, Australia and Chris Healy, Private Consultant and Director of the Canberra Bushfire Recovery Centre, Canberra, Australia, October 24, 2007.

“UNICEF and Disaster.” Presented by Everett Ressler, Chief of Early Warning and Preparedness, UNICEF, October 29, 2007.

“Swedish Disaster Research.” Presented by Anna Olofsson, Mittuniversitetet (Mid Sweden University), Östersund, Sweden, November 12, 2007.

DRC Training Series

The Disaster Research Center Training Series seeks to provide the research community with practical skills which improve the productivity or development of undergraduate, graduate or faculty through introductory or refresher courses on a variety of topics. Each training session is arranged on a topic at the request of students and faculty and most are open to the larger academic and local communities. All Training Series programs took place on the University of Delaware campus.

“Geographic Information Systems Applications.” Presented by Jenniffer Santos-Hernández, Graduate Research Assistant, Disaster Research Center, March 12, 2007.

“Network Analysis and Applications.” Presented by John Barnshaw, Projects Coordinator, and Joseph Trainor, Limited Term Researcher, Disaster Research Center, April 9, 2007.

“Graduate School Tutorial.” Presented by Anne Bowler, Associate Professor, Sociology Department, University of Delaware, and John Barnshaw, Projects Coordinator, Disaster Research Center, September 26, 2007.

“Academic Job Search.” Presented by Sue McNeil, Director, Disaster Research Center, and Tricia Wachtendorf, Core Faculty Member, Disaster Research Center, October 11, 2007.

Undergraduate Student Achievements

Jennifer Baylesr

- Member, University of Delaware Marching Band.

Caroline Bomfim

- Awarded “Best Delegate” status by the Organizers at the International Youth Leadership Conference
- Recipient, CFIS General Scholarship to travel to Granada, Spain
- Recipient, FLLT Study Abroad Scholarship to travel to Granada, Spain
- Recipient, Merit Scholarship to attend the International Youth Leadership Conference

Michael Clark

- University of Delaware Dean’s List.

Chris Colindres

- Intern, Middlesex County Office of Emergency Management, Middlesex County, New Jersey
- Recipient, University of Delaware Merit Scholarship for the 2007-2008 academic year

Sarah Cornwell

- Intern, American Association for Retired People, Washington, District of Columbia.

Megan Denver

- Nominee, Len Perfetti Award (Criminal Justice Department, University of Delaware)
- Recipient, Benjamin McLuckie award (Alpha Kappa Delta, University of Delaware chapter)
- Member, Alpha Kappa Delta (Sociology Honor Society)
- University of Delaware Dean’s List.
- Member, Phi Kappa Phi (All Discipline Honor Society).
- Member, American Criminological Association.
- Member, American Sociological Association.
- Member, Eastern Sociological Society

Jeffrey Engle

- University of Delaware Honors Program
- Participant, Chorale, University of Delaware
- Participant, Theater, University of Delaware

Claudia Flores

- University of Delaware Dean's List
- Recipient, of the Latino/Latina Students of Distinction Award
- University of Delaware Honors Program
- Recipient, University Merit Scholarship
- Recipient, Excel Scholarship
- Outreach Coordinator, Earthquake Engineering Research Institute, University of Delaware Chapter.
- Recipient, University of Delaware General Honors Award
- Intern, Greater Philadelphia Hispanic Chamber of Commerce, Philadelphia, Pennsylvania

Brandi Gilbert

- Member, McNair Program.

Michelle Moses

- University of Delaware Dean's List
- Recipient, MBNA Scholarship

Shaila Parker

- Member, McNair Program

Yesenia Rodriguez

- Selected as one of the University of Delaware's Women of Promise

Lauren Ross

- Participant, Summer Research Experience for Undergraduates (REU) Program, Disaster Research Center, University of Delaware
- Recipient, Winter Session Scholar Award
- Member, National Political Science Honor Society
- Guest Lecturer, "Disasters and Society" undergraduate class, University of Delaware
- University of Delaware Honors Program
- Graduate Teaching Assistantship (Sociology) at the George Washington University

Brittany Scott

- University of Delaware Dean's List
- Member, American Sociological Association
- Member, Eastern Sociological Society

Caroline Williams

- Recipient, FEMA Certification in Animals and Disasters
- Recipient, FEMA Certification in The Incident Command System
- Recipient, FEMA Certification in The Role of Emergency Operations Centers
- Recipient, FEMA Certification in Radiological Emergency Management
- Recipient, Red Cross Certification in Introduction to Disaster Services
- University of Delaware Dean's List

Julie Wurcel

- Member, Phi Sigma Delta (Spanish National Honor Society)
- Member, Political Science National Honor Society
- Summer Internship with New Haven Legal Assistance Association
- University of Delaware Dean's List

Research Experience for Undergraduates (REU) Year Three Activities

The Disaster Research Center's REU program included the following guest speakers:

June

- William Andersen, National Science Foundation, Washington DC
- Anne Bowler, Graduate Program Director, Department of Sociology and Criminal Justice, University of Delaware, Newark, Delaware
- Margi Prueitt, American Red Cross of the Delmarva Peninsula, Wilmington, Delaware
- Jasmin Ruback, Ruback and Associates, Washington DC
- Daniel Valle, American Red Cross of the Delmarva Peninsula, Wilmington, Delaware

July

- Dee Baer, University Writing Center, University of Delaware, Newark, Delaware
- Melissa Cole, North Shore Long Island Jewish Health System's Department of Emergency Management, Long Island, New York
- Marcia Nickel, Emergency Preparedness Coordinator, University of Delaware, Newark Delaware
- Dory Ross, University Writing Center, University of Delaware, Newark, Delaware

The following is a list of the 2006 REU participants, their institutional affiliations, and their research topics:

Sarah Baker, Tulane University, New Orleans, Louisiana, USA

“Emergent Behaviors during the Operation and Evacuation of New Orleans Area Hospitals in the Days Following Hurricane Katrina.”

Derrick Beasley, North Carolina A&T State University, Greensboro, North Carolina, USA

“On Katrina and Houston: Evacuees in the Media...A Critical Analysis.”

Nicole Brown, Western Washington University, Bellingham, Washington, USA

“Minority Owned Business Vulnerability in South Dade County.”

Kristy Duhamel, University of Delaware, Newark, Delaware, USA

“The Missing Link: Gendered Experiences of Hurricane Katrina Evacuees.”

Kate Mallula, University of Kansas, Lawrence, Lawrence, Kansas, USA

“The Intersection of Race and Class in the Housing Intentions of New Orleans Evacuees.”

Maritza Loaiza, Universidad de Costa Rica, Costa Rica

“Oklahoma Emergency Managers’ Perceptions on Public Response to Disasters.”

Sandra Olarte-Hayes, McGill University, Montreal, Quebec, Canada

“Psychological Factors in Social Interactions Between USAR Personnel and Other Emergency Responders.”

Deon Pfenning, University of North Texas, Denton, Texas, USA

“All Available Skills: The Impact of Human Capital on the Waterborne Evacuations of 9/11.”

Susannah Rowe, Dickinson College, Carlisle, Pennsylvania, USA

“Newspaper Media Response and Disaster Reporting: A Look at Social Control Frames Pre and Post Hurricane Katrina.”

Danielle Turner, Millersville University, Millersville, Pennsylvania, USA

“Group Response to Tornado Warnings.”

REU Participants Travel Disasters Roundtable



Boulder, Colorado–REU participants attended the 20th Disasters Roundtable in Washington, D.C They are pictured here along with University of Delaware Vice Provost and DRC Core Faculty member Havidán Rodríguez (sixth from right), DRC Graduate Project Lead Lauren Barsky (fifth from right), and DRC Undergraduate Research Assistant Michelle Moses (third from right).

(photo by DRC staff)

Outreach/Dissemination

DRC is well known in the academic community of disaster researchers as a major force for the development of research methods and theory within the field. This section illustrates our activities aimed at applying or distributing the information and knowledge gained from DRC research projects and institutional history.

Peer Reviewed Publications

The following are publications authored or co-authored by DRC faculty, students and staff that are related to disasters and which have undergone the peer review process. The list is divided according to publication type.

Articles

B. E. Aguirre

2007. "Dialectics of Vulnerability and Resilience." *Georgetown Journal on Poverty Law & Policy*. 14(1): 39-59.

Lauren E. Barsky, Joseph E. Trainor, Manuel R. Torres, and Benigno E. Aguirre

2007. "Managing Volunteers: FEMA's Urban Search and Rescue Programme and Interactions with Unaffiliated Responders in Disaster Response." *Disasters*. 31(4): 495-507.

Megan Denver, Jaime Perez, and B. E. Aguirre

2007. "Local Search and Rescue Teams in the United States." *Disaster Prevention and Management*. 16(4): 503-512.

Walter Díaz, Aurelio Mercado, Havidán Rodríguez, and Jenniffer Santos

2007. "Exposición y Vulnerabilidad a las Marejadas Ciclónicas en Puerto Rico (parte I)." *Marejada*. 1(1): 14-16.

William R. Donner

2007. "The Political Ecology of Disaster: An Analysis of Factors Influencing U.S. Tornado Fatalities and Injuries, 1998-2000." *Demography*. 44(3): 669-685.

Russell R. Dynes

2007. "Resiliency is Us." *The Conference Board Review*. 44(4): 7-8.

Daniel E. Marks and Ivan Y. Sun

2007. "The Impact of 9/11 on Organizational Development among State and Local Law Enforcement Agencies." *Journal of Contemporary Criminal Justice*. 23(2): 159-173.

Earl E. Lee, William Wallace, and John Mitchell

2007. "Restoration of Services in Interdependent Infrastructure Systems: A Network Flows Approach". *IEEE Transactions on Systems, Man and Cybernetics - Part C*. 37(6):1303-1317.

E. L. Quarantelli

2007. "The Myth and the Realities: Keeping the 'Looting' Myth in Perspective." *Natural Hazards Observer*. 31(4): 2-3.

"Panic Diaries: A Genealogy of Panic Disorder by Jackie Orr (book review)." *Contemporary Sociology*. 36(1): 77-78.

Monographs

Havidán Rodríguez

2007. *Tools and Methods for Estimating Populations at Risk: From Natural Disasters and Complex Humanitarian Crises*. Committee on Using Demographic Data and Tools More Effectively to Assist Populations at Risk of Facing Disasters, National Research Council, The National Academies of Science. Washington, DC: The National Academy Press. Havidán Rodríguez, Committee member.

Book Chapters

Benigno E. Aguirre

2007. "The Sociology of Collective Behavior." Pp. 528-539 in *21st Century Sociology: A Reference Handbook* edited by Clifton D. Bryant and Dennis L. Peck. Thousand Oaks, California: SAGE Publications.

John Barnshaw and Joseph Trainor

2007. "Race, Class, and Capital amidst the Hurricane Katrina Diaspora." Pp. 91-105 in *The Sociology of Katrina: Perspectives on the Modern Catastrophe* edited by David L. Brunsma, David Overfelt, and J. Steven Picou. Boulder, Colorado: Rowan & Littlefield Publishers, Inc.

William R. Donner, Havidán Rodríguez, and Walter Díaz

2007. "Public Warning Response Following Tornadoes in New Orleans, LA, and Springfield, MO: A Sociological Analysis." *Proceedings, Second Symposium on Policy and Socio-economic Research*, January 15–18, 2007. (Washington, DC: American Meteorological Society, 2007). <<http://ams.confex.com/ams/pdfpapers/120774.pdf>>

James M. Kendra and Tricia Wachtendorf

2007. "Improvisation, Creativity, and the Art of Emergency Management." Pp. 324–335 in *Understanding and Responding to Terrorism* edited by Huseyin Durmaz, Bilal Sevinc, Ahmet Sait Yayla, and Siddik Ekici. Fairfax, VA: IOS Press.

DRC Preliminary Paper Series

Enrico L. (Henry) Quarantelli

2007. "Problematical Aspects of the Computer Based Information/Communication Revolution with Respect to Disaster Planning and Crisis Managing." Preliminary Paper No. 358.

Other Publications

The following are lists of publications authored by DRC faculty, students, and staff generated by DRC-conducted research projects or represent writings within the recognized area of expertise for the author or authors.

Miscellaneous Reports

DRC Staff

2007. "Disaster Related Dissertation Abstracts."

DRC Staff

2007. "Panic Bibliography."

Invited Commentaries

Lauren E. Barsky and William R. Donner

2007. "Lessons from the Field: Human Needs Often Complicate Ethical Duties in Disaster Research." *Protecting Human Subjects*. 15: 18–19

E. L. Quarantelli

2007. "The Myth and the Realities: Keeping the 'Looting' Myth in Perspective." *Natural Hazards Observer* 31(4): 2-3.

Havidán Rodríguez, Jenniffer Santos, William Donner, and Walter Díaz

2007. "Science, Technology and Disasters: Integrating End-User Needs." *Weather and Society Watch*. 1(4): 4, 9.

Conference Proceedings

William R. Donner, Havidán Rodríguez, and Walter Díaz

2007. "Public Warning Response Following Tornadoes in New Orleans, LA, and Springfield, MO: A Sociological Analysis." *Proceedings, Second Symposium on Policy and Socio-economic Research*, January 15-18, 2007. Washington, DC: American Meteorological Society. <<http://ams.confex.com/ams/pdfpapers/120774.pdf>>

Training Programs

James M. Kendra and Tricia Wachtendorf

2007. *Emergence and Convergence in the Post-Disaster Environment: Recent Research Perspectives*. Training program created for the Public Entity Risk Institute. <http://www.riskinstitute.org/PERI/TRAINING/>

Tricia Wachtendorf

2007. *Disaster Myths and Realities*. Training program created for the Public Entity Risk Institute. <http://www.riskinstitute.org/PERI/TRAINING/>

Tricia Wachtendorf and James M. Kendra

2007. *Integrating Improvisation in Disaster Response: A Look at the World Trade Center Disaster*. Training program created for the Public Entity Risk Institute. <http://www.riskinstitute.org/PERI/TRAINING/>

Presentations at Professional Conferences

DRC personnel regularly participate in conferences and professional meetings that contribute to the field. Below are lists of these activities.

Paper Presentations

Benigno E. Aguirre

“Business Continuity and Disaster Planning.” Invited presentation, MBA Graduate Program, College of Business, Universidad Austral de Chile, November 20, 2007, Valdivia, Chile.

“On the Design of Disaster Plans.” Invited Presentation, Commission on Bio-Security, Universidad Austral de Chile, December 19, 2007, Valdivia, Chile.

Margaret L. Andersen, Bethany Brown, and Lauren Barsky

“Two Years Later: Race, Class, Gender and Hurricane Katrina.” Presented at the NAACP Panel Discussion, October, 2007, University of Delaware, Newark, Delaware.

Ronet D. Bachman, Antonia Randolph and Bethany Brown

“Do Security Measures Increase Feelings of Safety at School? The Interaction Effects of Gender and Race.” Presented at the 77th Annual Meeting of the Eastern Sociological Society, October 15, 2007, Philadelphia, Pennsylvania.

John Barnshaw

“Theoretical Approaches to Evacuation in the Aftermath of Hurricane Katrina.” Presented at the 57th Annual Meeting of the Society for the Study of Social Problems, August 12, 2007, New York, New York.

John Barnshaw and Lynn Letukas

“How Race-Gender Cohort Analyses Demonstrate Differential Sexual Risk Taking within the Black Community.” Presented at the 37th Annual Meeting of the Association of Black Sociologists, August 9, 2007, New York, New York.

John Barnshaw, Joseph Trainor, and Benigno Aguirre

“Disaster Statistics and Methodology.” Presented at the 102nd Annual Meeting of the American Sociological Association, August 12, 2007, New York, New York.

John Barnshaw, Joseph Trainor, Lynn Letukas, and Lauren Ross

“Intersections and Implications of Evacuation amidst Hurricane Katrina.”
Presented at the 77th Annual Meeting of the Eastern Sociological Society, March 15,
2007, Philadelphia, Pennsylvania.

Lauren Barsky

“Looting in Disasters: An Examination of Looting Behavior in the
Aftermath of Hurricane Katrina.” Presented at the Annual Meeting of the Society
for the Study of Social Problems, August 12, 2007, New York, New York.

Lauren Barsky, Joseph Trainor, Manuel Torres, and Benigno Aguirre

“Managing Volunteers: FEMA’s Urban Search and Rescue Program and
Interactions with Unaffiliated Responders in Disaster Response.” Presented at the
Annual Meeting of the Eastern Sociological Society March 15, 2007, Philadelphia,
Pennsylvania.

Lauren Barsky and John Barnshaw

“Public Policy Implications for Looting in the Aftermath of Hurricane Katrina.”
Presented at the 1st Annual Graduate Student Conference at University of
Delaware, March 9, 2007, Newark, Delaware.

“Looting, Public Policy and Disaster: Implications and Intersections for
Intervention.” Presented at the 77th Annual Meeting of the Eastern Sociological
Society, March 15, 2007, Philadelphia, Pennsylvania.

Silvana Croope and Sue McNeil

“Understanding Critical Infrastructure Management Challenges for the 21st
Century.” Presented at the 11th World Conference on Transport Research, June
2007, Berkeley, California.

Megan Denver

“Characteristics of Local Search and Rescue Teams in the United States.”
Presented at the Annual Meeting of the Eastern Sociological Society, March 15-18,
2007, Philadelphia, Pennsylvania.

William Donner, Havidán Rodríguez, and Walter Díaz

“Public Warning Response Following Tornadoes in New Orleans, LA, and Springfield, MO: A Sociological Analysis.” Presented at the Symposium on Policy and Socio-Economic Research, 87th Annual Meeting of the American Meteorological Society, January 14–18, 2007, San Antonio, Texas.

James M. Kendra and Tricia Wachtendorf

“Geographic Aspects of Sensemaking: The Waterborne Evacuation of Lower Manhattan on September 11, 2001.” Presented at the Annual Meeting of the Association of American Geographers, April 17–21, 2007, San Francisco, California.

Brandi Lea, James M. Kendra, and Tricia Wachtendorf

“Uncharted Waters: The Waterborne Evacuation of Lower Manhattan on September 11th.” Presented at the 10th Annual Emergency Management Higher Education Conference, Federal Emergency Management Agency, June 2–5, 2007, Emmitsburg, Maryland.

Lynn Letukas

“Two Sides of the Same Disaster: An International Exploration of the Social Construction of Disaster.” Presented at the 77th Annual Meeting of the Eastern Sociological Society, March 15, 2007, Philadelphia, Pennsylvania.

“Constructing the News: Media Reporting of the Indian Ocean Tsunami Response.” Presented at the 1st Annual Graduate Student Conference at University of Delaware, March 9, 2007, Newark, Delaware.

E. L. Quarantelli

“Conventional Beliefs and Counterintuitive Realities.” Presented at Disasters: Recipes and Remedies Conference, November 2, 2007, New School for Social Research, New York, New York.

Jennifer Santos-Hernández

“‘A Resounding Success’: Development, Vulnerability and Disasters in the West Coast of Puerto Rico.” Presented at the 57th Annual Meeting Society for the Study of Social Problems, August 12, 2007. New York, New York.

“Development, Vulnerability, and Disasters in the West Coast of Puerto Rico.” Presented at the 32nd Annual Hazards Research and Application Workshop, University of Colorado at Boulder, July 8, 2007, Boulder, Colorado.

“Development, Capital and Disasters: Social Vulnerability in Puerto Rico’s West Coast.” Presented at the 3rd Puerto Rican Conference on Public Health, Graduate School of Public Health, University of Puerto Rico-Medical Sciences Campus, May 8–10, 2007, San Juan, Puerto Rico.

Jennifer Santos-Hernández and Jacqueline Miller

“Vulnerability to Disasters in Puerto Rico: Incorporating the Social, Physical and Built-Environment into Radar Scanning Strategies.” Presented at the 16th Conference on Applied Climatology, American Meteorological Association Annual Meeting, January 16, 2007, San Antonio, Texas.

Jennifer Santos-Hernández, Havidán Rodríguez, Walter Díaz, Benigno Aguirre, and William Donner

“Collaborative Adaptive Sensing of the Atmosphere: Integrating the End User Community.” Presented at the 32nd Annual Hazards Research and Application Workshop, July 8, 2007, University of Colorado at Boulder, Boulder, Colorado.

Manuel Torres, Benigno Aguirre, Joseph Trainor, and Richard Buck

“Contrasting USAR response in the WTC and Pentagon 9/11 Disasters: Trust Building, Preexisting Bonds, and Inter-Organizational Response.” Presented at the 102nd Annual Meeting of the American Sociological Association Meeting, August 12, 2007, New York, New York.

Manuel Torres and Rita Poteyeva

“The influence of terrorist acts on Urban Search and Rescue: Organizational and Individual transformations in post 9/11 U.S.” Presented at the 77th Annual Eastern Sociological Society (ESS) Conference, March 17, 2007, Philadelphia, Pennsylvania.

Joseph Trainor, Benigno Aguirre, and Richard Buck

“A Critical Evaluation of the Incident Command Systems and NIMS.” Presented at the FEMA in Higher Education Annual Conference, June 2–5, 2007, Emmitsburg, Maryland.

Tricia Wachtendorf

“Considering the Role of Improvisation in Disaster Response.” Invited presentation for a panel on Improvisation in Disaster Response at the Annual Hazards Research and Applications Workshop, Natural Hazards Center, University of Colorado, July 10, 2007, Boulder, Colorado.

Tricia Wachtendorf and James M. Kendra

“The Waterborne Evacuation of Lower Manhattan on September 11: A Case of Distributed Sensemaking?” Presented at the International Research Committee on Disasters Meeting at the Annual Meeting of the American Sociological Association, August 13, 2007, New York, New York.

Tricia Wachtendorf and Nicholas J. Madonia

“A Tale of Two Cities: Personal Disaster Convergence in Washington and New York City.” Presented at the Annual Meeting of the Society for the Study of Social Problems, August 12, 2007, New York, New York.

Poster Presentations

Lauren Barsky and Michelle Moses

“The Research Experience for Undergraduates (REU) Program: Enhancing Disaster Research through Undergraduate Training.” Presented at the Annual Hazard Research and Applications Workshop, July 8, 2007, Boulder, Colorado.

Daniel Marks and Gabriela Wasileski

“An Analysis of the Effects of Business Characteristics and Disaster Impact Resulting in Business Closure.” Presented at the Mid-America Earthquake (MAE) Annual Meeting, February 15, 2007, Urbana-Champaign, Illinois.

“An Analysis of Business Resiliency to Disaster Impacts.” Presented at the Mid-America Earthquake (MAE) Annual Meeting, February 15, 2007, Urbana-Champaign, Illinois.

Sessions Organized or Moderated

Jennifer Santos-Hernández

“Communicating Risk to Non-Native Speakers.” Natural Hazards Center Workshop, July 12, 2007, Boulder, Colorado.

Joseph Trainor

“Researcher in Hazards by Young Professionals.” Natural Hazards Center Workshop, July 12, 2007, Boulder, Colorado.

Tricia Wachtendorf

“Considering Disaster: Social Responses to Crisis.” Society for the Study of Social Problems Annual Meeting, August 12, 2007, New York, NY.

Invited Presentations

John Barnshaw

“Lessons Learned from Hurricane Katrina.” Presented at the Spring Lecture Series of the Newark Public Library, April 24, 2007, Newark, Delaware.

John Barnshaw and Lynn Letukas

“Education, Anthropology and Disaster Research.” Department of Education, University of Delaware, February 19, 2007, Newark, Delaware.

“Hurricane Katrina: What You Need to Know.” Presented at the Kristol Center for Jewish Life, University of Delaware, March 5, 2007, Newark, Delaware.

Rachel Davidson, Meredith Nelson, and Linda Nozick

“Long-term Regional Hurricane Risk Analysis Using Hazard-consistent Scenarios.” Society for Risk Analysis Annual Meeting, December 10–12, 2007, San Antonio, Texas.

William Donner, Havidán Rodríguez, and Walter Diaz

“Public Warning Response Following Tornadoes in New Orleans, LA, and Springfield, MO: A Sociological Analysis.” Symposium on Policy and Socio-Economic Research, 87th Annual Meeting of the American Meteorological Society, January 14–18, 2007, San Antonio, Texas.

William Donner, Havidán Rodríguez, Walter Díaz, Jenniffer Santos-Hernández, and Daniel Marks

“Understanding, Public Response within a Decision Sciences Framework.” Presented at the CASA Decision Science Workshop, January 25–27, 2007, Dallas, Texas.

Lynn Letukas

“Using Atlas TI in Qualitative Research.” Disaster Research Center, Research Experience for Undergraduates (REU) Program, June 21, 2007, University of Delaware, Newark, Delaware.

Joanne M. Nigg

“Warnings as Socio-technical Systems.” Presented at the Seminar Series in Disaster and Emergency Management Number 2, National Center for Computational Hydroscience and Engineering, University of Mississippi School of Engineering, April 13, 2007, University, Mississippi.

Brenda Phillips, David Pepyne, David Westbrook, Ellen Bass, Gerry Brotzge, Walter Díaz, Kevin Kloesel, Jim Kurose, David McLaughlin, Havidán Rodríguez, and Michael Zink

“Integrating End User Needs into System Design and Operation: The Center for Collaborative Adaptive Sensing of the Atmosphere (CASA).” Preprint, 16th Conference on Applied Climatology, American Meteorological Society Annual Meeting, January 14–18, 2007, San Antonio, Texas.

E. L. Quarantelli

“Informal discussion on disaster research findings.” 187th Meeting of the Committee on Science, Engineering and Public Policy, November 5, 2007, National Academies, Washington, D.C.

Havidán Rodríguez

“The Societal Dimensions of Disasters: Preparing for the Next Catastrophic Event.” Presented during the Distinguished Scholars Faculty Dinner. University of Delaware, November 7, 2007, Newark, Delaware.

Joseph Trainor

“A Critical Evaluation of ICS and NIMS.” Presented at the University of Pittsburgh Medical Center, Center for Bio Security, Guest Speaker Series, July 17, 2007, Pittsburgh, Pennsylvania.

“Norms, Culture, and Traveling Abroad.” Presented to Engineers Without Borders, University of Delaware, April 11, 2007, Newark, Delaware.

Tricia Wachtendorf

“The Networked Disaster.” Sponsored by Institute for Information Technology and Culture, Wayne State University, November 13, 2007, Detroit, Pennsylvania.

Visitors to DRC

DRC hosts numerous national and international visitors throughout the year, many of whom come to work with DRC personnel and to utilize the E. L. Quarantelli Resource Collection. In addition, DRC also sponsors a speaker series intended to initiate novel and provocative discussion of disaster related topics.

The following is a list of the visitors to DRC during the past year including their institutional affiliation.

March

Mustafa Altinakar, National Center for Computational Hydroscience and Engineering, The University of Mississippi, University, Mississippi, USA

S. Parasuraman, Tata Institute of Social Sciences, Mumbai, India

Andreas M. Seidl, Institut für Organisation und Materialwirtschaft, Vienna University of Economics and Business Administration, Vienna, Austria

Delta Sousa e Silva, Laboratório Nacional de Engenharia Civil, Instituto Superior das Ciências do Trabalho e da Empresa, Lisbon, Portugal

William D. Stanhope, Institute for Biosecurity, Saint Louis University, St. Louis, Missouri, USA

P. Vijayakumar, Tata Institute of Social Sciences, Mumbai, India

August

Chris Gillespie, Cooper Union / Drexel University REU Program, New York, New York, USA

James Kendra, University of North Texas, Denton, Texas, USA

Scott Knowles, Drexel University, Philadelphia, Pennsylvania, USA

Anna Olofsson, Mittuniversitetet (Mid Sweden University), Östersund, Sweden

Juan Carlos Gavilanes Ruiz, Centro Universitario de Investigaciones en Ciencias del Ambiente, Universidad de Colima, Colima, Mexico

Sunil Santha, Tata Institute of Social Sciences, Mumbai, India

Masaki Urano, Waseda University, Tokyo, Japan

September

Henry W. Fischer, Center for Disaster Research and Education, Millersville University, Millersville, Pennsylvania, USA

October

Edouard Dervichian, Swissphone Telecom AG, Samstagern, Switzerland

Richard Graham, Innisfail State High Schol, Innisfail, Queensland, Australia

Deirdre T. Guion, Department of Marketing, Saint Joseph's University, Philadelphia, Pennsylvania, USA

Chris Healy, Private Consultant and Director of the Canberra Bushfire Recovery Centre, Canberra, Australia

Rob Jones, Innisfail State High Schol, Innisfail, Queensland, Australia

Susan Nicholls, Division of Communication and Education, University of Canberra, Canberra, Australia

Everett Ressler, Preparedness and Early Warning Unit, UNICEF, Geneva, Switzerland

November

Timothy A. Bourdess, Argonne National Laboratory, Gettysburg, Pennsylvania, USA

Eelco H. Dykstra, School of Engineering and Applied Science, The George Washington University, Washington, D.C., USA

Paul L. Hewett, Jr., Argonne National Laboratory, Forest Hill, Maryland, USA

December

Tom Faulkner, The University of Winnipeg, Winnipeg, Manitoba, Canada

Disaster Emergency Planning Initiative (DEPI)

In addition to our normal outreach activities, 2007 also marked the beginning of a new thrust area for DRC as we launched our Disaster Emergency Planning Initiative. This initiative is aimed at using best practices from emergency management and insights from disaster research to help small communities plan for disaster response.

Our initial project in this area was with the small Delaware community of Delaware City. After acquiring Department of Homeland Security funding to update and improve its emergency operations plan (EOP), the community contracted with the Disaster Research Center to request consultation services during the creation of their plan. In order to provide this outreach service, DRC applied expertise in the social science of disasters and research findings in order to create a document that not only meets the technical needs of Delaware City, but also takes into account a number of important principles of emergency management as discussed in the disaster research field. The following issues are the key elements that drove our approach to the creation of this document:

“All Hazards” Oriented

While different hazards (e.g. hurricane, flood, chemical release) will create different needs, planning under the constraints of a real world budget cannot account for every possibility. As a result, it is important to identify high probability events and plan more extensively for these, but it is also vital to create a model of response that attends to the many tasks that might be performed in any type of event.

Community Tailored

While the basic elements of formal emergency plans are fairly similar across communities that have engaged in planning activities, it is important to recognize that these plans are not simply interchangeable. It is extremely important to understand community demographics, resources, and special needs if an emergency plan is to be successful in making responses better. By taking into account the characteristics of the community, we can reduce unknowns and increase the appropriateness and rapidity of disaster response.

Moving Towards an Integrated Network

It is well documented that planning is most effective when it is integrated rather than fragmented. Given this reality we need to understand this plan as a way of linking together both private and public organizations and people that will likely perform disaster related tasks in this community. By bringing together these groups we can facilitate the pooling of collective strengths and capacities.

In addition, we need to realize that the community is only one of many connected communities in the area, county, and state. As a result, in addition to being in contact and integrated with local stakeholders we also focused on integration with external related organizations.

“Living Document”

As Clarke points out in his book *Mission Improbable*, “Some plans are highly instrumental, but others are little more than vague hopes of remote futures with no connection to human will or capacity.” This suggestion serves as a powerful warning to all who engage in planning activities. Creating a book, document, or plan is simply the beginning of the process. As suggested by many organizational and disaster specialists true preparedness as the planning community become more like a high-reliability system with a constant reflective capacity. In essence, focus on “planning” rather than “the plan.” Such systems thrive through constant communication, self-questioning, and adaptation. It is the Center’s hope that this plan will become a living document that is revisited, revised, and constantly questioned. As a result a number of discussions were facilitated and suggestions made which were intended to help encourage the plan’s evolution. In essence the “plan” is only half as important as the planning process. The former creates a document; the latter builds knowledge, creates familiarity, and leads to education.

Other Disaster-Related Activities

In addition to the activities listed above, DRC faculty, students and staff also participate in a range of activities pertaining to disasters including affiliations with various Boards, reviewers for disaster related journals, etc.

Below is a brief list of affiliations currently held by DRC personnel.

Benigno E. Aguirre

- Consultant, University emergency and disaster planning (assisting Dr. Victor Cubillos, President, Universidad Austral de Chile, in the aftermath of a major fire on the Isla Tejas campus)

John Barnshaw

- Reviewer, *Societies without Borders*
- Reviewer, *Social Problems*
- Reviewer, *Disasters: The Journal of Disaster Policy, Study and Management*
- Reviewer, *Sociological Spectrum*
- Member, American Sociological Association
- Member, Contingency Planning Association of the Carolinas
- Member, *Sociologos sin Fronteras* (Sociologists without Borders)
- Member, Eastern Sociological Society
- Member, Association of Black Sociologists

Rachel Davidson

- Participant, *Future of Earthquake Engineering Interdisciplinary Research Workshop*, Earthquake Engineering Research Institute, September 6, 2007, San Francisco, California.

Russell R. Dynes

- Received the Charles E. Fritz Award for General Career Contributions to Disaster Research by the International Sociological Association, Research Committee on Disaster, in New York, August 13th, 2007. The award was “for his pioneering research and lifelong continuing support for social science disaster studies.”

Lynn Letukas

- Reviewer, *Disasters: The Journal of Disaster Studies, Policy and Management*
- Member, Strategic Planning Committee

Sue McNeil

- Member, National Research Council Committee on “Sustainable Critical Infrastructure Systems: Framing the Challenges Workshop” to be held Washington, DC, May 2008

Joanne Nigg

- Committee member, Committee on Research Priorities in Emergency Preparedness and Response for Public Health Systems, Board of Health Sciences Policy, Institute of Medicine of the National Academies
- Consultant. National Center for Computational Hydroscience and Engineering, University of Mississippi.
- Study Director. Pandemic Flu Planning for School Districts in Delaware, in conjunction with the State of Delaware Department of Education. Fall, 2007.
- Coordinator and Advisor. Emergency and Environmental Management concentration for majors within the University of Delaware Sociology program.

Henry Quarantelli

- Nominated for the Board of Scientific Counselors for the Office for Terrorism Preparedness and Emergency Response (COTPER) in the Centers for Disease Control and Prevention (CDC)
- Interviewed by the San Diego (California) Union-Tribune newspaper regarding the behavior of people in forest fires

Havidán Rodríguez

- Reviewer, *Disasters: The Journal of Disaster Studies, Policy and Management*
- Reviewer, Royal Netherlands Academy of Arts and Sciences
- Reviewer, The Japan Foundation
- Reviewer, Center for Global Partnership
- Member, The Greater Philadelphia University Consortium for Emergency Preparedness
- Member, Advisory Board, Sociologist without Borders-International
- Member, Board of Directors, Voices without Borders, Inc., Delaware
- Member, Editorial Board, *Journal of Emergency Management*
- Member, Advisory Board of the Social Science Research Council (SSRC) Task Force on Hurricane Katrina and Rebuilding the Gulf Coast
- Member, Committee on Using Demographic Data and Tools More Effectively to Assist Populations at Risk of Facing Disasters, National Research Council, The National Academies
- Member, Disasters Roundtable Steering Committee, National Research Council, The National Academies
- Member, Nominations Committee, Southern Sociological Society

Joseph Trainor

- Member, Disaster Research Center Strategic Planning Committee
- Reviewer, *Disasters: The Journal of Disaster Studies, Policy and Management*
- Consultant, University of Delaware Emergency Planning Committee
- Reviewer, *Journal of Disaster Planning*
- Mentor, NSF Research Experience for Undergraduates (REU) Program
- Guest Editor, *Natural Hazards Review*
- Reviewer, *Journal of Homeland Security and Emergency Management*

Tricia Wachtendorf

- Faculty Adviser, UD-EERI Student Chapter
- Advisory Board Member, Learning from Earthquakes, Earthquake Engineering Research Institute
- Student Activities Board Member, Earthquake Engineering Research Institute
- Manuscript Reviewer, *International Journal of Mass Emergencies and Disasters*
- Manuscript Reviewer, *Southern Rural Sociology*
- Panel Reviewer, National Science Foundation
- Proposal Reviewer, National Science Foundation
- Guest Speaker, "Talk of the Nation," National Public Radio nationally-syndicated talk show featuring discussion on the California Wildfire evacuation and symbolic value of possessions, October 24, 2007.

The E. L. Quarantelli Resource Collection



Collection space of the E. L. Quarantelli Resource Collection.

(photo by DRC staff)

Report of Activities

One of the key functions at DRC that supports its ongoing mission of Research, Education/ Mentoring, and Outreach/Dissemination is the continuing maintenance and growth of the E. L. Quarantelli Resource Collection. During the past year the Collection has seen regular growth and Collection staff have undertaken several initiatives to improve and enhance the quality and accessibility of the Collection.

The major initiative undertaken this year regarding the Resource Collection was DRC's relocation from our former headquarters at 87 East Main Street to our new facility at 166 Graham Hall. Although just a few short blocks from each other, the move required careful planning and organizing to ensure success. As a result, the Collection is now housed in a more library-like setting, providing researchers with improved access to resources and information and enabling staff to better maintain the Collection.

Resource Collection staff assisted a total of 20 short term* researchers and 9 extended term** researchers. Visitors to the Collection included researchers from Portugal, Austria, Mexico, India, Japan, Sweden, Switzerland, Australia, and Canada as well as various institutions throughout the United States.

Resource Collection staff also assisted with a total of 68 graduate and undergraduate student visits. Students represented 6 different fall semester courses and 4 different academic disciplines. In addition, Collection staff also worked closely with the 10 visiting students who participated in this year's Research Experience for Undergraduates (REU) program hosted by DRC.

Additional outreach and dissemination efforts also included shipment of 115 disaster related publications to the Center for Hazards Assessment Response and Technology (CHART), University of New Orleans, to help reestablish their research library in the continuing wake of Hurricane Katrina. Resource Collection staff also sent 19 boxes of research material to the Center for Disaster Research Education at Millersville (Pennsylvania) University to help them continue to expand their research library.

Collection staff conducted 8 training workshops regarding available library databases. Staff also attended 3 training programs offered by the University.

The Resource Collection Coordinator has been very actively involved in the establishment of both the Delaware Disaster Assistance Team (DDAT) and the Emergency Response Working Group (ERWG) at the University of Delaware. The former is a consortium of representatives from various libraries and museums throughout Delaware working toward establishing a team of trained responders who will be able to assist in recovery of essential collections throughout the state in the event of a disaster. The latter is a similar group consisting of individuals representing various University departments and serving a similar function. Currently the Resource Collection Coordinator serves as the Vice-Chair of ERWG and is a member of the core group further organizing DDAT.

The E. L. Quarantelli Resource Collection grew by a total of 1,866 items. Current collections include print materials, journals and newsletters, electronic files, microfilm, microfiche, videos in both VHS and DVD format, slides and film and currently numbers approximately 55,000 items. New acquisitions included items obtained during a visit by Resource Collection staff to the Library of Congress as part of their Surplus Books program.

Collection maintenance and enhancement projects included transferring copies of all DRC publications to the University Archives as emergency backups, transferring 29 boxes of research records to the University Archives, relabeling of materials, ongoing records cleanup in DISCAT (the Resource Collection electronic catalog) and reorganizing collection materials to suit the new DRC space and facilitate a more user friendly environment.

* short term = 1 day ** extended term = 2 or more days

Continuing projects include scanning all DRC publications to create electronic backup files in accord with the Resource Collection emergency preparedness plan.

DRC Publications

The DRC produces a number of publications throughout the year including published articles, peer-reviewed Preliminary Papers, monographs, book chapters, miscellaneous reports, and invited commentaries. For a complete list of this year's publications, please refer to the "Peer Reviewed Publications" and "Other Publications" in the Outreach/Dissemination section of this report beginning on page 29.



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