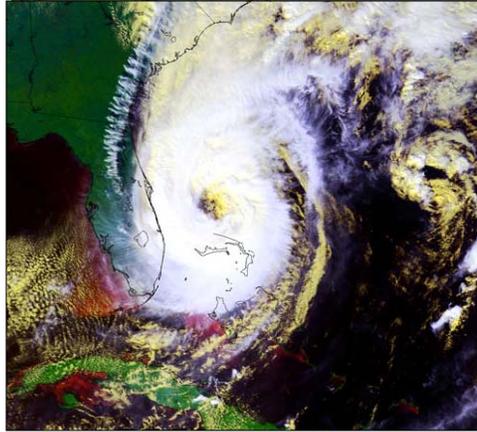


Florida Catastrophic Storm Risk Management Center



Annual Report
2009



THE FLORIDA STATE UNIVERSITY
COLLEGE OF BUSINESS

Mission and Directives

Mission

The Florida Catastrophic Storm Risk Management Center was created by the Florida Legislature in 2007. Housed within the Department of Risk Management/Insurance, Real Estate & Business Law in The Florida State University College of Business, the Center supports the state's ability to prepare for, respond to, and recover from catastrophic storms.

Directives

The Florida Legislature directed that the Center:

- Coordinates and disseminates research efforts that are expected to have an immediate impact on policy and practices related to catastrophic storm preparedness.
- Coordinates and disseminates information related to catastrophic storm risk management including, but not limited to, research and information that benefits businesses, consumers and public policy makers.
- Facilitates Florida's preparedness and responsiveness to catastrophic storms and collaborates with other public and private institutions.
- Creates and promotes studies that enhance the educational options available to risk management and insurance students.
- Publishes and disseminates findings primarily related to risk management.
- Organizes and sponsors conferences, symposia and workshops to educate consumers and policymakers.

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From the Director

In 2008, the Florida Catastrophic Storm Risk Management Center established a research agenda and outreach programs, and recruited additional researchers and affiliated faculty. The focus for 2009 was on completing several research projects and launching new initiatives. Long-term projects initiated in 2008 that focus on issues such as home-strengthening techniques, improving hurricane intensity forecasts, and preparing public libraries for their growing roles both pre- and post-disaster, began to bear results. At the same time several new projects related to the economic and risk management impacts of catastrophic tropical storms were launched and completed, among them a ground-breaking, four-paper series on the topic of subsidies in Florida's property insurance market. You will find more information about several of these projects in the "Research Highlights" section of this report and on our Web site (www.stormrisk.org).



In addition to publishing reports and summaries on our Web site, our faculty and staff disseminated our research by speaking at Center-sponsored symposia and speakers series, and making dozens of presentations across the nation and internationally to attendees of professional and academic conferences and graduate classes. I and our associate directors were called upon to speak about our research findings before Florida legislative committees and state commissions. Learn more about these speaking opportunities in the "Activities Summary" section of this report.

As we enter 2010, we look forward to working on several new state and federal projects that we believe will contribute much toward helping the state address the personal and economic threats posed by catastrophic storms. Also, we look forward to occupying expanded office space generously provided by The Florida State University College of Business. The additional space will allow us to add offices for staff as well as a larger meeting room, graduate student offices, printing and storage areas, and library space.

Many people at The Florida State University and across the state are to be thanked for their support of the Center as well as their continued guidance. Among them are FSU College of Business Dean Caryn Beck-Dudley, Risk Management and Insurance Department Chair Joan Gabel, the College of Business faculty and staff, and the Florida Legislature for continued funding. Our Advisory Council has been a pleasure to work with and a great resource.

I hope you find this report an interesting read. Please do not hesitate to contact me for more information about anything you may find of interest in this report.

Thank you,

A handwritten signature in black ink that reads "Patrick F. Maroney". The signature is written in a cursive style and is underlined with a long horizontal stroke.

Patrick F. Maroney

*Kathryn Magee Kip Professor of Risk Management and Insurance
and Director, Florida Catastrophic Storm Risk Management Center*

Staff, Advisory Board, & Faculty

Kathryn Magee Kip Professor and Director

Patrick F. Maroney

Advisory Council (2008-2009)

David Brooks, CPCU, ARM, XL Insurance

Leslie Chapman-Henderson, Federal Alliance for Safe Homes

Allen Durham, Star & Shield Risk Management, LLC

Allan J. Katz, Akerman Senterfitt

Jack Nelson, Ph.D., Wellington Management Company

Jack Nicholson, Ph.D., Florida Hurricane Catastrophe Fund

Dennis Ross, Former Florida Representative

Steve Wilder, The Walt Disney Company

Hugh Willoughby, Ph.D., Florida International University

Center Staff

Charles M. “Chuck” Nyce, Ph.D., Associate Director

Lorilee A. Schneider, Ph.D., Associate Director

Sue Ellen Smith, Program Manager

Brad Karl, Graduate Assistant

David Pooser, Graduate Assistant

Ashley McCreadie, Undergraduate Assistant

Faculty (The College of Business, The Florida State University)

Patricia Born, Ph.D.

James M. Carson, Ph.D.

Cassandra R. Cole, Ph.D.

Randy E. Dumm, Ph.D.

Kathleen McCullough, Ph.D.

Steve Payne, Ph.D.

Faculty (Affiliated)

Earl J. “Jay” Baker, Ph.D., The Florida State University

Janet Dilling, Ph.D., The Florida State University

James Elsner, Ph.D., The Florida State University

Robert Hart, Ph.D., The Florida State University

Forrest Masters, Ph.D., University of Florida

Charles R. McClure, Ph.D., The Florida State University

Robert Meyer, Ph.D., University of Miami and University of Pennsylvania

James W. “Jay” Newman, Jr., Research Consultant

2009 Activities Summary

Research and Grants

Original Center Research Completed

Over the past year the Center has made significant progress in research conducted by its own faculty and affiliated faculty. The most comprehensive work has looked at subsidies in the Florida property insurance market and financial issues. Papers completed to date (reports available at www.stormrisk.org):

- Subsidies in the Post-Loss Assessment Structure of Florida's Property Insurance Market;
- Pre-Loss Subsidies in the Florida Property Insurance Market;
- Granularity in the Florida Property Insurance Market;
- Residual Market Subsidies in Florida's Property Insurance Market: A Conceptual and Historical Framework;
- A Comparison of Hurricane Loss Models;
- The Capitalization of Stricter Building Codes in Miami, Fla., House Prices;
- The Capitalization of Stricter Building Codes in Jacksonville, Fla., House Prices.

Other Center research focused on the financial side of catastrophe issues. Papers substantially completed in this area to date:

- Determining Capital Market Capacity of Catastrophe Risk;
- Who Mitigates Against Potential Storm Damage and Why.

Grants

Two grants were awarded to the Center in 2009. Both projects will be completed in 2010:

- Home Hardening Incentives Programs: Innovative Concepts for Wind Mitigation and Home Hardening – This study, funded by the Florida Division of Emergency Management's Residential Construction Mitigation Program, will be completed in June 2010.
- Hurricane Mitigation Inspection System Study – The Florida Department of Financial Services is funding this study, which will be completed in March 2010.

Center-supported Research

The Center seeks out research partnerships with other academic centers and departments at FSU and outside institutions who are studying issues relevant to our mission. To date these Center-supported projects include:

- Landfalling Hurricane Wind and Storm Surge Behavior (*The Florida State University's Center for Ocean-Atmospheric Prediction Studies and the University of South Florida*);
- Preparing Public Libraries to Meet Catastrophe Challenges (*The Florida State University's Information Use Management and Policy Institute at the College of Information*);
- Florida Hurricanes and Damage Costs (*The Florida State University's Department of Geography at the College of Social Sciences*);
- Cataloguing, Evaluating, and Fostering Mitigation Efforts in Florida (*The Florida State University's Center for Disaster Risk Policy at the College of Social Sciences*);
- Determining How Floridians Decide Whether to Evacuate When a Hurricane Threatens (*The Florida State University's Department of Geography at the College of Social Sciences*);
- The Capitalization of Stricter Building Codes in Jacksonville, Fla., House Prices (*The Florida State University Department of Risk Management/Insurance, Real Estate and Business Law*)
- Investigating the Issue of Rain Penetration Through the Building Envelope (*The University of Florida's Department of Civil and Coastal Engineering*);
- Testing of Connections to Improve Hurricane Resistance of Aluminum Structures (*The Florida State University Department of Civil and Environmental Engineering, FAMU-FSU College of Engineering*)
- Improved Analysis and Understanding of the Meteorology Underlying the Various Components of the Hurricane Risk Problem (*The Florida State University Department of Meteorology*);
- Developing an Innovative, Computer-based Approach to Testing the Effectiveness of Alternative Approaches to Encouraging Mitigation (*The University of Pennsylvania's Wharton Risk Management and Decision Processes Center and the University of Miami School of Business Administration*).

Learn more about several of these projects in the Research Highlights section of this Annual Report. Also, visit www.stormrisk.org to access online reports and summaries.

Appointments

- Florida CFO Alex Sink announced that Center Director **Patrick Maroney** is a member of her new Advisory Council on Risk Management. The Council is the continuation of a public/private partnership that lead to multi-million dollar savings from applying private-sector business practices to Florida's risk management. Other members of the Council include representatives from Publix Supermarkets, Rosen Hotels and Resorts, Baptist Health System of Jacksonville, and the Florida Department of Juvenile Justice. Council meetings will be held twice a year in person, with conference call meetings as needed to advise the CFO and the Division of Risk Management.
- Center Associate Director **Lori Schneider** is a member of the Florida Commission on Hurricane Loss Projection Methodology. Florida's Chief Financial Officer Alex Sink made the appointment in late September. The Commission was created by the Legislature in 1995 as an independent panel of experts to evaluate computer models and other recently developed or improved actuarial methodologies for projecting hurricane losses. She serves on the commission as an expert in statistics. Other commission members affiliated with the Center include Jack Nicholson, COO of the Florida Hurricane Catastrophe Fund; and Hugh Willoughby, a research professor and meteorologist with Florida International University, who both serve on the Center's advisory council. Commission Chair Randy Dumm, a professor who specializes in risk management and insurance at The Florida State University, is a Center affiliated faculty member.

Symposia and Guest Speaking

Symposia

The Center organized two symposia in 2009.

Sept. 22 Special Symposium

Herding Cats: The Growing Challenges of Catastrophe Risks. The completed symposia include a Sept. 22 special catastrophe-related track that was part of the Society of Insurance Research's Annual Conference. Director Patrick Maroney provided an overview of Center research and activities. Associate Director Chuck Nyce spoke about price accuracy in Florida's property insurance market, and Associate Director Lori Schneider discussed the availability and capacity of private capital for Florida catastrophic storm funding. Center affiliated faculty Patricia Born, Robert Meyer, and James Elsner spoke on catastrophe models, computer-based approaches to testing mitigation marketing programs, and trends in Florida's hurricane damage costs, respectively. General contractor and home inspection expert John Minor spoke about how wind and surge losses are determined.

May 15 Special Symposium

Legislative Update, Subsidies in Florida's Property Insurance Market, Capital Market Capacity to Fund Catastrophe Risk. Presentations at this symposium included an update on recently passed legislation related to homeowners insurance, and research updates on subsidies in Florida's property insurance market and capital market capacity to fund catastrophe risk. Other topics discussed included an update of Center activities and research, new information on Florida hurricane trends and damage costs, insurance market responses to catastrophe models, and a new scale for rating hurricanes. The speakers were Center Director Patrick Maroney, Center Associate Directors Chuck Nyce and Lori Schneider and affiliated faculty Mark Powell, James Elsner, Patricia Born, and Chris Hinnant. Katherine Scott Webb, Partner, Colodny, Fass, Talenfeld, Karlinsky, Abate, gave an update on relevant state legislative activities.

Other Presentations and Conferences Attended

Nov. 22-24 – Southern Risk and Insurance Association 4th Annual Meeting. Center Director Patrick Maroney and Associate Directors Chuck Nyce and Lori Schneider presented on the topic of windstorm mitigation and its affects on solvency and insurance availability. Also, Nyce and Schneider presented on the topic of property and casualty insurance capacity in hurricane exposed states. Affiliated faculty Patricia Born, Jim Carson, Cassandra Cole, Randy Dumm, and Kathleen McCullough and Center graduate assistant David Pooser presented on various topics including insurer financial strength ratings, natural disasters and insurance availability, building codes and house prices, and who mitigates their homes and why.

Nov. 12 – Financial Ratings Agencies Presentation. Affiliated faculty Cassandra Cole, and Kathleen McCullough presented their paper entitled "Analysis of Financial Ratings Agencies." The research included an analysis of Demotech to provide a better understanding of the Demotech rating process and its relation to other rating firms.

Oct. 26 – Presentation at Fudan University, Shanghai. Center affiliated faculty Patricia Born presented her research entitled "Property Insurers' Responses to Catastrophic Events: A Comparison of Personal and Commercial Lines" to the insurance and economics faculty.

Oct. 9 – Federal Alliance for Safe Homes Annual Meeting. Center Director Patrick Maroney was a panelist for a discussion of mitigation products, processes, and techniques.

Oct. 1 – Competitive Enterprise Institute's Out of the Storm 09: Making Reform Work Conference. Center Director Patrick Maroney spoke about the Florida Hurricane Catastrophe Fund, 2009 Florida legislation, and Florida's mitigation discount program.

Sept. 17 – Florida Loss Projection Methodology Commission. Center Associate Director Chuck Nyce spoke to the members of the commission about post-loss subsidies and pre-loss pricing.

Aug. 3 – American Risk and Insurance Association Annual Meeting. Associate Director Chuck Nyce discussed his research on post-loss subsidies in the Florida insurance market.

June 24 – Safe Homes for All Leadership Forum. Center Associate Director Chuck Nyce discussed proper home mitigation incentives. The forum was sponsored by RenaissanceRe, Federal Alliance for Safe Homes, Institute for Business and Home Safety, and WeatherPredict.

June 11 – Presentation to the Florida Hurricane Catastrophe Fund's Participating Insurers Workshop. Center Director Patrick Maroney and Associate Director Chuck Nyce presented an overview of the Center's activities as well as research findings on subsidies in Florida's property insurance market.

May 3-6 – Annual PCS Catastrophe Conference. Center Director Patrick Maroney discussed the Center's research agenda, and current projects involving homeowners insurance market conditions in Florida.

April 14 – Meeting of the Florida Panhandle Chambers of Commerce. Center Director Patrick Maroney and Associate Director Chuck Nyce discussed insurer solvency issues, as well as the Center's activities and research.

April 9 – Presentation to Tallahassee Business Leaders About Property Insurance Issues. Center Associate Director Chuck Nyce spoke to representatives of the Tallahassee area business community and the Associated Industries of Florida along with former State Representative Don Brown. Issues discussed included the solvency of Citizens Property Insurance Corporation, the Florida Hurricane Catastrophe Fund, and potential solutions to Florida's property insurance issues.

Feb. 25 – Insurance Summit – Solvency Matters to Consumers. Center Director Patrick Maroney discussed mitigation incentives at this Florida Chamber of Commerce event. Associate Director Chuck Nyce attended also.

Jan. 25-28 – 10 Annual Windstorm Insurance Conference. Center Director Patrick Maroney attended this conference.

Jan. 14-16 – State of the Insurance Market Summit. Center Director Patrick Maroney and Associate Directors Chuck Nyce and Lori Schneider attended this conference sponsored by Colodny, Fass, Talenfeld, Karlinsky & Abate, the Property Casualty Insurers Association of America, and Guy Carpenter.

Other Research and Resource Dissemination Tools

www.stormrisk.org

The Center's Web site is an effective and affordable means of disseminating research findings. As progress reports, final reports and other project-related materials become available, they are placed on the site for easy download by visitors. In addition, videotaped presentations and slideshows are provided on the site for viewing by visitors, allowing the Center to serve a wider audience. The site has become a useful resource for those in need of accurate information for reports and presentations of their own.

In 2009 the Center added legislative tracking to the site. During the 2009 Florida Legislative session, information on relevant bills and the outcomes of pending legislation were posted on www.stormrisk.org. Also, visitors to the Center's site can learn about and track federal legislation related to risk management and insurance issues.

Future Upgrade Plans. We are exploring an expansion of the Web site to include the addition of an extensive online library not only for Center resources, but for catastrophe risk management resources worldwide.

Research Highlights

Risk Management/Insurance

Among the Center's research in the area of Risk Management/Insurance is a groundbreaking four-paper series on the topic of subsidies in Florida's property insurance market.

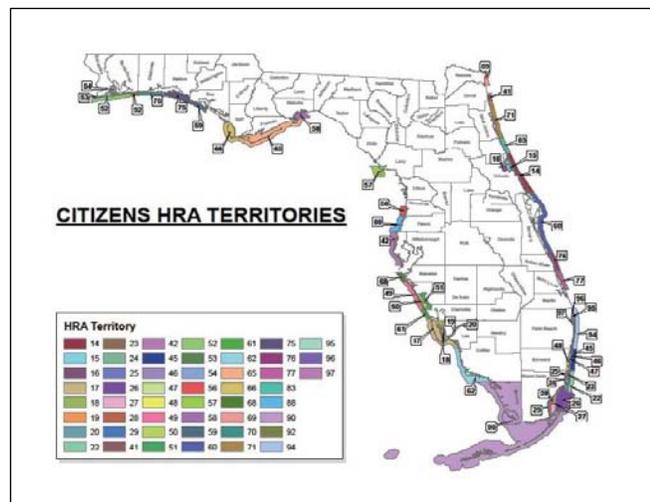
Subsidies in the Post-Loss Assessment Structure of Florida's Property Insurance Market

Investigators:

- **Cassandra R. Cole, Ph.D.**, Associate Professor and Waters Fellow in Risk Management and Insurance, The Florida State University
- **David A. Macpherson, Ph.D.**, E.M. Stevens Distinguished Professor of Economics, Trinity University
- **Patrick F. Maroney**, Kathryn Magee Kip Professor and Director, Florida Catastrophic Storm Risk Management Center, The Florida State University
- **Kathleen A. McCullough, Ph.D.**, Associate Professor, and State Farm Insurance Professor of Risk Management/Insurance, The Florida State University
- **James W. "Jay" Newman, Jr.**, Research Consultant
- **Charles "Chuck" Nyce, Ph.D.**, Associate Director, Florida Catastrophic Storm Risk Management Center, The Florida State University

Description of Problem:

A study of statutory changes made by the Florida Legislature in the 2007 special session stated among other things, "an effect of post-event funding through assessments is to have lower hurricane risk areas subsidize higher risk areas" (Towers Perrin Tillinghast, 2007). The financing of hurricane risk remains a high priority for the Florida Legislature. An understanding of the impacts of subsidies and the development of the current Florida property insurance market are important to those involved with public policy issues.



Study Objectives:

This paper addresses the issue of property insurance subsidies in the State of Florida. The objective of the analysis is to determine if the post-loss assessment procedures of Citizens Property Insurance Company (Citizens), the Florida Hurricane Catastrophe Fund (FHCF), and the Florida Insurance Guaranty Association (FIGA) are equitable and/or if

subsidies exist that benefit policyholders in some counties to the detriment of policyholders in other counties.

Approach:

The paper begins with a brief introduction to subsidies. Next, the paper reviews the Florida property insurance market, focusing on the structures of and post-loss assessment procedures for Citizens, FHCF, and FIGA. Finally, empirical analysis is performed to determine whether subsidies exist within the post-loss assessment structure of the Florida property insurance market and the extent of the subsidies. With respect to the post-loss subsidy, the amount that is paid under the existing assessment structure is compared to the amount that would be paid under an assessment structure that is more hurricane risk based to determine if a subsidy exists in the current assessment structure.

Accomplishments/Results:

Two primary scenarios with various combinations of deficits for Citizens, FHCF, and FIGA were constructed. The first scenario (similar to the combined losses of the 2004-2005 storms) involves a \$4 billion deficit at Citizens, a \$15 billion deficit at the FHCF, and no deficit at FIGA. Under the first scenario, private insurer policyholders in 18 counties would receive subsidies and 49 counties would pay subsidies, with some policyholders paying or receiving more than \$650 in subsidies in the first year assessments. In that same scenario, Citizens policyholders in nine counties would receive subsidies and 58 counties would pay subsidies with some policyholders paying or receiving more than \$1,000 in subsidies. The second scenario evaluated was the 1-in-100 year storm. This scenario resulted in the same counties paying and receiving subsidies. The size of the subsidies increased, however, with the largest subsidies exceeding \$1,700. In addition, the FHCF would have to collect a six percent assessment for 23 years to make up its deficit under this scenario.

Benefits of Research:

These results are important to insurers, insureds, Floridians, and politicians throughout Florida for a variety of reasons. First, neither Citizens nor the FHCF is operating as a true residual market mechanism. Citizens acts as a competitor to private insurers and the FHCF has replaced reinsurers in certain layers in the marketplace. Second, Citizens is unique in that it has the ability to assess private insurers (its competitors) in the event of a deficit through the Citizens Regular Assessment. Finally, there has been no empirical analysis to date estimating the size or duration of post-loss (assessment structure) subsidies in this market. The assessment structures of both Citizens and the FHCF allow for assessments outside of the property insurance markets, raising questions as to the target groups associated with this subsidy. Finally, the impact that these subsidies may have on future exposure and coastal development could be substantial. As a result, a thorough understanding of how these assessments are determined is crucial.

Pre-Loss Subsidies in the Florida Property Insurance Market

Investigators:

- **Patrick F. Maroney**, Kathryn Magee Kip Professor and Director, Florida Catastrophic Storm Risk Management Center, The Florida State University College of Business
- **Charles “Chuck” Nyce, Ph.D.**, Associate Director, Florida Catastrophic Storm Risk Management Center, The Florida State University College of Business
- **James W. “Jay” Newman, Jr.**, Research Consultant

Description of Problem:

Residual market mechanisms are special insurance entities. They are usually created by acts of state legislatures and are often heavily regulated by state insurance departments. The typical actuarially sound rate making criteria used in regulating insurance rates for private insurance companies may be supplanted for residual market mechanisms by other criteria for political, public policy or technical reasons. Whatever the reasons, rates for residual market mechanisms are often held below the level of rates that would meet the actuarially sound rate standards.

Study Objectives:

This paper discusses the magnitude and persistency of pre-loss subsidies in the pricing of policies in Florida’s property insurance residual market written by Citizens Property Insurance Company (Citizens).

Approach:

Utilizing information provided by Citizens for their upcoming 2010 rate filing, the magnitude of pre-loss subsidies inherent in its rate structure is calculated for the three largest personal residential policy types. The analysis is conducted at the territory level and is done on both a percentage and a dollar basis. In addition, the impact of the 2009 “glide path” legislation is analyzed to determine how long it will take for Citizens to achieve actuarially sound rates.

Accomplishments/Results:

The results show average policyholders in some territories are paying thousands of dollars a year in subsidies and policyholders in other territories are receiving subsidies of a similar size. Furthermore, there are some territories where, given the current limitations on rate increases, it will take Citizens more than 20 years to achieve actuarially sound rates.

Benefits of Research:

The magnitude and persistence of these subsidies are important to insurers, insureds, citizens, and politicians throughout Florida for a variety of reasons. There has been no work estimating the size or duration of the pre-loss (due to inaccurate risk-based pricing) subsidies in this market and very little work estimating the post-loss subsidies inherent in the assessment structure (Cole et al, 2009). Given the effect that subsidies have on

incentives and individual behavior, the impact that these subsidies may have on future exposure and coastal development in Florida could be substantial.

Granularity in the Florida Property Insurance Market

Investigators:

- **Patrick F. Maroney**, Kathryn Magee Kip Professor and Director, Florida Catastrophic Storm Risk Management Center, The Florida State University
- **Charles “Chuck” Nyce, Ph.D.**, Associate Director, Florida Catastrophic Storm Risk Management Center, The Florida State University

Description of Problem:

Much has been made in the press about north vs. south and inland vs. coastal subsidies with regard to property insurance rates and accuracy of pricing in the state of Florida. The discrepancies in rate accuracy however, are more localized than these broad comparisons. Even at the zip code level, expected loss costs vary enough to warrant more granular pricing of risk than is currently utilized in the territory-based property insurance rating systems.

Study Objectives:

As evidence of the need for granular pricing with regard to the wind peril in the residential property insurance market, this paper examines the role that distance to the coast (distance-to-coast) plays in the relationship between expected loss costs and wind premiums in the coastal areas included in Citizen’s Property Insurance Corporation’s High Risk Account (HRA).

Approach:

Empirical analysis is performed to determine whether the premiums charged within the Florida property insurance market are commensurate with the risk each location presents. The objective of this pre-loss analysis is to provide evidence regarding whether current homeowners premiums accurately reflect differences in expected losses both within and across different geographic regions. The relative price of insurance was calculated based on a comparison of wind only premiums being paid in the Citizens HRA relative to the expected loss (average annual loss) as measured by modeled loss costs generated by modeling organizations.

Accomplishments/Results:

The results show wide variation in the magnitude of the prices paid for wind coverage in relatively small geographical areas. One conclusion of this research is that subsidies exist not only on the intercounty level but also at the intracounty, intraterritory and intrazipcode levels.

Benefits of Research:

These results are important to insurers, insureds, citizens and politicians throughout Florida for a variety of reasons. There has been no work estimating the pre-loss accuracy

of risk-based pricing in this market, and very little work estimating the post-loss subsidies due to the assessment structure (Cole et al, 2009). This paper introduces the possibility of a new rating variable, distance-to-coast, that appears to have many of the characteristics necessary for a useful rating variable. This research has implications on the public policy issue regarding whether policyholders in the state of Florida are paying too much or too little for their property insurance coverage. The fact that there is evidence that even in the Citizens HRA territories, policyholders closer to the coast are paying relatively less for insurance than those further inland alters the landscape of the political argument that it is a northern vs. southern counties or inland vs. coastal counties issue. The accuracy of insurance pricing is an intracounty, intraterritory, and even intrazipcode issue. The impact that these subsidies may have on future exposure and coastal development could be substantial and requires further study.

Residual Market Subsidies in Florida's Property Insurance Market: a Conceptual and Historical Framework

Investigators:

- **James W. “Jay” Newman, Jr.**, Research Consultant

Description of Problem:

Legislative and regulatory actions often create subsidies in residual market mechanisms to the benefit of some policyholder groups and to the detriment of other policyholder groups. The existence of subsidies in Florida’s residential property insurance residual market mechanisms has received considerable public attention, but the nature of the subsidies has not been properly identified or described.

Study Objectives:

This study discusses the general nature of subsidies, the problems often associated with subsidies, the experience of other states with insurance subsidies arising in residual market mechanisms, and, in particular, the history of Florida’s residential property insurance residual market mechanisms and the specific ways that subsidies have arisen in those entities.

Approach:

The approach of this research is to review research literature on subsidies in general and subsidies in residual market mechanisms in particular, and describe legislative and regulatory developments in Florida with primary attention to residential property insurance residual markets.

Accomplishments/Results:

The report achieved its objectives of developing and presenting a general discussion of subsidies and a thorough review of Florida’s legislative and regulatory treatment of residential property insurance residual market mechanisms and how this treatment has created both rate-related and assessment-related subsidies. Specifically, the report discussed the consequences of setting the rates charged by Citizens and the Florida

Hurricane Catastrophe Fund (FHCF) at levels competitive with or below rates charged in the private insurance market. These consequences for Citizens include inappropriate growth in policies and exposure, along with potentially larger deficits and deficit assessments. For the FHCF, below-market rates limit its ability to build capital to pay for future hurricane losses and lead to potentially larger deficit assessments. In addition, inadequate rates for both entities produce a variety of pre-event and post-event subsidies with important economic and political implications.

Benefits of Research:

The report has presented (a) a description of subsidies in general and insurance subsidies in particular and (b) a discussion of legislative actions in Florida related to residential property insurance residual market mechanisms that should be useful to public policy makers, the press, insurance professionals, and others who want to understand how insurance subsidies are created and the problems associated with them.

Research Highlights

Hurricane Forecasting/Meteorology

The Center is supporting important research that is looking at ways to predict hurricane intensity change, improve forecasting of localized severe weather outbreaks during and after hurricane landfalls, and create a simplified combined wind and surge hazard risk model.

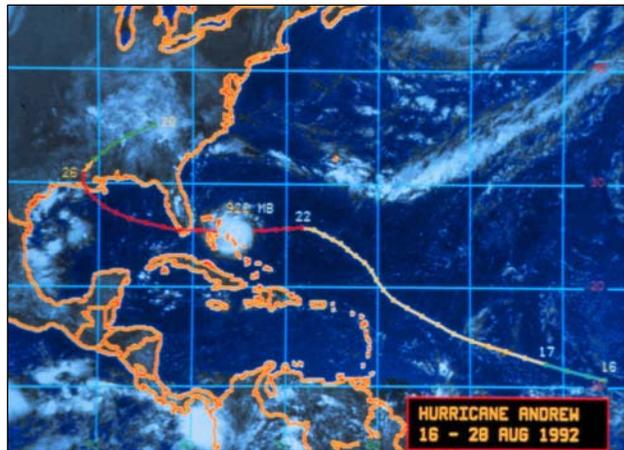
Improved Analysis and Understanding of the Meteorology Underlying the Various Components of the Hurricane Risk Problem

Investigators:

- **Robert Hart, Ph.D.**, Associate Professor of Meteorology, The Florida State University
- **Henry Fuelberg, Ph.D.**, David W. Stuart Professor of Meteorology, The Florida State University
- **Paul Reasor, Ph.D.**, Assistant Professor of Meteorology, The Florida State University (Now affiliated with the Hurricane Research Division of AOML/NOAA)

Description of Problem:

Hurricanes are one of the most destructive and unpredictable types of extreme natural events. Despite dramatic increases in technology over the past century, these storms still kill thousands in the United States and tens to hundreds of thousands in more impoverished regions of the world. These truths are even more sobering when one considers that hurricane track forecasts have improved markedly during the past decades. Yet, despite these track improvements, forecasts of hurricane intensity have shown almost no improvement during the same time period. Given the growth of the coastal population, an ever increasing number of citizens who have never experienced hurricane force winds, and a growing uncertainty about the future and role of climate change, there is a greater than ever need for breakthroughs in hurricane observations, analysis, understanding, forecasting, and risk mitigation.



Study Objectives:

The research used a synthesis of observations, modeling, theory, and analysis to tackle three different components of the hurricane risk problem: 1) improved understanding and prediction of hurricane eye structure and related short-term intensity change, 2) improved understanding, simulation, and predictability bounds of sheared convection during tropical cyclone genesis, and 3) improved forecasting of localized severe weather outbreaks during and after hurricane landfalls in Florida. In addition to the improved

understanding and forecasting, it is expected that the climatologies that resulted from these three tasks would be useful to CAT model developers to improve the realism of finer resolution aspects of their stochastic sets and resulting impacts.

Approach:

The project used a combination of tools: observational analysis, statistical analysis and regression, numerical modeling, and application of theory.

Accomplishments/Results:

The research has lead to: 1) the development of an improved short-term hurricane intensity forecast scheme, 2) a better understanding and climatology of the characteristics of the eye of hurricanes, 3) a better understanding of the conditions necessary for tornado outbreaks in hurricanes, 4) a scheme for forecasting areas of enhanced tornado threat during hurricanes, and 5) improved insight into the interaction between thunderstorms and their highly wind shear environment and how that interaction may play a role during the formation stages of a tropical cyclone.

Benefits of Research:

As a consequence of the research the scientific community has a better understanding of the threats associated with hurricanes, and CAT models can potentially incorporate finer detail of the wind structure and severe weather threat associated with tropical cyclones. In addition, the public has additional tools that can be used by emergency managers and forecasters to improve the already successful warning process. Finally, as a result of this research, the scientific community has a better understanding of the potential predictability bounds of the early stages of tropical cyclone formation.

Funds Leveraged:

Principal Investigators Hart and Fuelberg were awarded a four-year NASA grant in early 2009 that builds on some of the foundation and early research results provided by the Center's grant.

Number and Major of Students Supported:

Two M.S. graduates of meteorology and one Ph.D. candidate of Meteorology were received support from the Center's grant.

Cooperative Efforts:

Collaboration and conference calls with the following agencies occurred during the project: NOAA National Weather Service Tallahassee Office (Irv Watson, Science and Operations Officer), NOAA Storm Prediction Center, Dr. Richard Knabb (formerly NOAA National Hurricane Center), and Dr. Dan Cecil (University of Alabama in Huntsville).

Landfalling Hurricane Wind and Storm Surge Behavior

Investigators, including Titles and Affiliations:

- **Steven Cocke, Ph.D.**, Principal Investigator and Physicist, The Florida State University Center for Ocean-Atmospheric Prediction Studies (COAPS)
- **Steven Morey, Ph.D.**, Co-Investigator and Oceanographer, COAPS
- **Dmitry Dukhovskoy, Ph.D.**, Co-Investigator and Oceanographer, COAPS
- **Robert Weisberg, Ph.D.**, Co-Investigator and Oceanographer, University of South Florida
- **Mark Powell, Ph.D.**, Co-Investigator, NOAA-AOML Hurricane Research Division

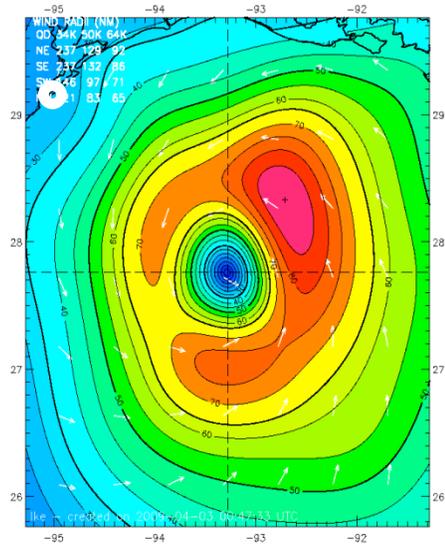
Description of Problem:

Florida homeowners face a predicament: Many need both windstorm and flood insurance but are only insured against the wind damage associated with a hurricane. Those that carry both protections question the need for insurance against wind damage when it is obvious to them that storm surge is the biggest threat to their structures. Compounding this problem is whether we understand the wind, surge and wave damage processes well enough to establish whether a loss can be attributed to wind or water. Recent hurricane landfalls (e.g. Hurricanes Ike (2008), Dennis (2005), Wilma (2005)) suggest that storm surge and waves are capable of inflicting huge losses, yet attribution of such losses to wind or surge is a challenging problem.

The ocean responds to extreme wind forcing through damaging waves and storm surge but little is known regarding the arrivals of peak surge, maximum inundation extent, and the most energetic waves relative to the timing of tropical storm force winds, hurricane force winds, peak eyewall winds, and the storm center (landfall). In addition, the sensitivity of the ocean response to various storm parameters (wind field extent, peak wind, radius of maximum winds, azimuthal variation in the peak winds, storm motion) is not well known.

Evaluation of residential claim data for major hurricane storm surge and wave events (e.g. Hurricanes Ivan of 2005 and Opal of 1995) tend to show much larger losses than comparable hurricanes in areas less susceptible to surge suggesting contamination of windstorm claims by storm surge and wave damage losses. Since the U. S. Gulf of Mexico coastline is particularly susceptible to hurricane storm surge and wave events, and comprises over half of Florida's coastline, a comprehensive understanding of the relative impacts and interactions between wind, surge, and waves is required if we wish to understand the physical causes of hurricane loss. For fair pricing of flood and windstorm insurance coverage, we need to establish a more holistic approach to modeling the hazard. Rather than the current practice of modeling just the wind hazard, we need to develop risk models capable of simulating the combined threat of wind, surge, and waves. Ultimately, with a more comprehensive understanding of the physical hazard, the insurance industry and federal and state government could create a new system of insurance coverage based on the combined risk of wind, surge, wave, and rain flooding damage to a property.

Hurricane Ike 2000 UTC 12 SEP 2008
 Max 1-min sustained surface winds (kt)
 Valid for marine exposure over water, open terrain exposure over land
 Analysis based on ASOS from 1804 - 2358 z, TTUHRF from 1803 - 2358 z, CMAN from 1800 - 2359 z,
 WEATHER_FLOW from 1805 - 2355 z, MOORED_BUOY from 1800 - 0000 z,
 SFMR43 from 1721 - 1751 z, SFMR_AFRIC_FLAG from 1740 - 2042 z,
 SFMR42 from 2220 - 2357 z, SFMR_AFRIC from 1721 - 0000 z,
 FCMP_TOWER from 2354 - 2354 z, GPSSONDE_WL150 from 2042 - 2356 z,
 METAR from 1800 - 0000 z, SHIP from 1800 - 0000 z,
 GPSSONDE_SFC from 2042 - 2356 z,
 2000 z position interpolated from 1800 Interpolation; mslp = 954.0 mb



Integrated Kinetic Energy: for Winds > TS force: 96 TJ, for Winds > Hurricane Force: 36 TJ
 Destructive Potential Rating(0-6) Wind: 3.1, Surge/Waves: 4.8
 Observed Max. Surface Wind: 90 kts, 52 nm NE of center based on 2024 z SFMR_AFRIC
 Analyzed Max. Wind: 90 kts, 48 nm NE of center
 Uncertainty -> mean wind speed error: -0.10 kt, mean direction error: 0.66 deg
 rms wind speed error: 6.72 kt, rms direction error: 14.60 deg
 Research product of NOAA / AOML / Hurricane Research Division

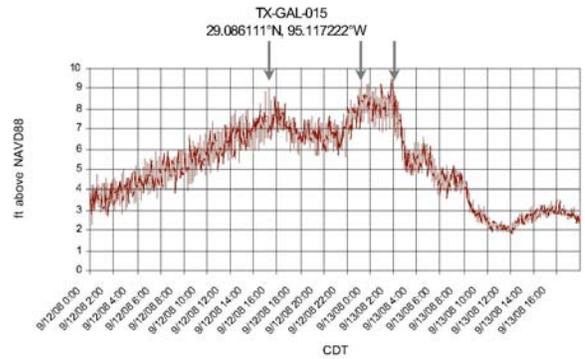


Fig. 1 (Left) Post analysis of Hurricane Ike’s wind field eleven hours before landfall at 1500 local time on Sept. 12, 2008. Circle shows location of USGS water level station, contours/colors show magnitude of the wind in knots. (Right) Water level (ft) time series at USGS station on the West end of Galveston Island. Note that the water level increased about 7 feet well before landfall despite offshore winds of about 25 knots.

Study Objectives:

Our study examines in detail recent hurricane storm surge and wind events from Hurricane Ike and one or two additional storms to help understand the timing of wind and surge peaks at particular locations relative to the landfall location and the time of landfall. In the process we will develop a research testbed for continued study of wind and storm surge relationships with the goal of developing a simplified stochastic combined wind and surge hazard risk model.

Approach:

FSU and USF will partner with NOAA’s Hurricane Research Division to simulate Hurricane Ike’s storm surge by using a series of detailed analyses of the wind field based on the data collected by Hurricane Hunter aircraft as well as other sources such as satellites, buoys and coastal wind towers. Storm surge model grid and parameterization sensitivities will be examined to understand pre-landfall water level rise, the peak landfall surge and extent of coastal inundation at landfall as well as inland inundation and

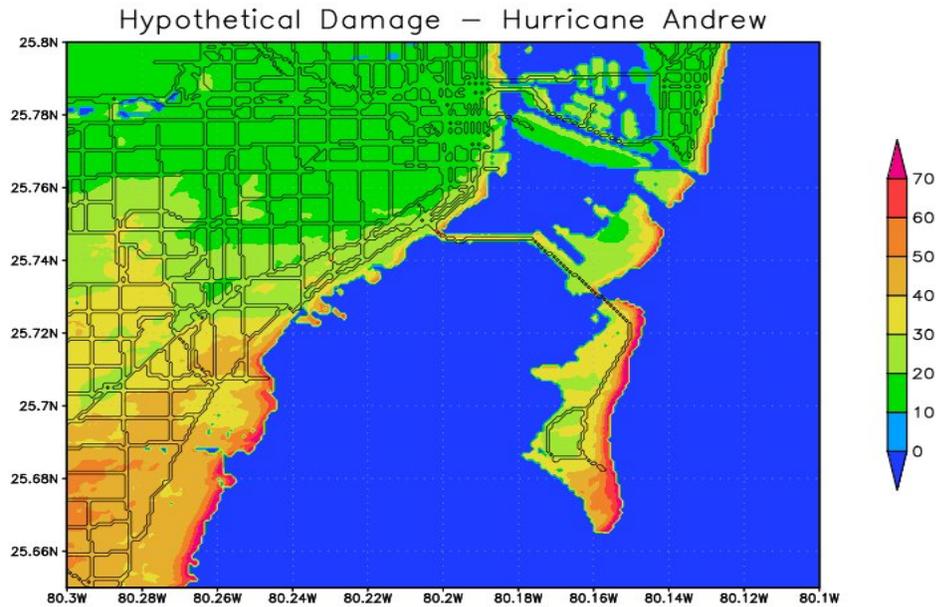


Fig. 2 Hypothetical wind damage in the Miami area assuming a uniform reference structure at all land locations and a wind field with characteristics of Hurricane Andrew. Damage is a percent of value loss, and does not include the effects of storm surge.

dewatering time. A series of experiments will be conducted to develop a simplified model capable of being run in concert with a stochastic hurricane model for the Gulf of Mexico.

Accomplishments/Results:

The project funding was secured near the end of 2009. Thus far, a complete series of wind field analyses for hurricane Ike and Gustav have been conducted as part of a leveraged research project led by Dr. Powell. Dr. Powell has presented preliminary results at the 2009 National Hurricane Conference, the FSU Center for Catastrophic Storm Risk Management Spring Symposium, and the Florida Commission on Hurricane Loss Projection Methodology. Figure 1 shows a sample wind analysis for Ike along with a time series of the surge level from a USGS water level station on Galveston Island. New numerical simulations of the Hurricane Dennis storm surge have been run to complement an existing suite of numerical experiments. The results of these model runs are being analyzed for inclusion in a journal manuscript.

We have begun testing of a candidate wind model that will be used to estimate coastal wind hazard and to drive the ocean circulations in the surge model when performing stochastic long-term simulations of hurricane activity for risk assessment. In Figure 2 we show an example of hypothetical wind damage in the Miami area for a storm with characteristics similar to Hurricane Andrew. The damage is represented as a percentage based on the value of loss relative to the value of the exposure, and assumes the same reference structure at all land locations. It can be clearly seen that losses are highest at the

coast where the reduced frictional effects on the wind due to nearby bodies of water lead to higher damaging wind speeds. Note that damage does not include storm surge, and that this result is just a proof of concept for testing purposes only.

Benefits of Research:

This project will result in research tools to examine future hurricane surge events on the U. S. Gulf of Mexico coastline as well as a simplified wind and surge risk model for the Gulf of Mexico. The model will provide a starting point for a holistic approach to hurricane risk modeling.

Cooperative Efforts:

At this time, this effort includes the cooperation of FSU, USF and the Hurricane Research Division of AOML/NOAA.

Research Highlights

Loss Mitigation

Two Center-supported projects focused on whether people are willing to pay a premium for homes that have been built to better survive severe winds, while another project is an engineering study into how to reduce wind-driven rain intrusion through the building envelope.

The Capitalization of Stricter Building Codes in Jacksonville, Fla., House Prices

Investigators:

- **Randy E. Dumm, Ph.D.**, Associate Professor and Peoples First Insurance Fellow, The Florida State University
- **G. Stacy Sirmans, Ph.D.**, Kenneth G. Bacheller Professor of Real Estate and Research Director, Center for Real Estate Studies, The Florida State University
- **Greg T. Smersh, Ph.D.**, Visiting Assistant Professor, University of South Florida

Description of Problem:

The 2002 Florida Building Code set stricter requirements for home construction and was designed to eliminate the existing patchwork of building regulations within the state as well as to ensure that buildings in high-intensity hurricane areas can better withstand the impact of wind-borne debris. While this building code represents a higher level of safety for consumers, it also increases construction costs. The key question is whether consumers are willing to pay for additional safety and if so, under what conditions.



Study Objectives:

This study examines the capitalization of the 2002 Florida Building Code in house prices for the Jacksonville, Florida, housing market. It extends the Dumm, Sirmans, and Smersh (2008) study by examining consumer buying behavior in a market that has been impacted by a significant and more recent change in building code standards (2002 Building Code versus 1994 South Florida Building Code) as well as a market with lower hurricane risks (Jacksonville versus Miami-Dade County). The study also provides an overview of the development of building codes.

Approach:

A hedonic pricing model is used to estimate the differential effect on house prices of the stricter 2002 Florida Building Code for the period 2003 to 2007. The model also tests whether the stricter building code became more valuable to homebuyers after the disaster “reality checks” of 2004 and 2005. The data fall within three distinct wind zones (Windborne Debris Region, 110 mile per hour, 100 mile per hour), and five neighborhoods. This allows for a more detailed locational analysis of the impact of risk on consumer purchase decisions.

Accomplishments/Results:

The results show that houses in the Windborne Debris Region that were built under the new, stricter building code sold for about 4.50 percent more, on average, than houses built under the older, less strict code. Thus, for the area with the greatest risk exposure, consumers were recognizing the value of the stricter building code and were willing to pay a premium for the additional safety.

The interior wind zones showed a negative premium for building code. Thus, for these zones, the stricter building code was not valued by consumers and houses built under the newer code actually sold for less, on average. However, the post-catastrophe variables for the 110 MPH Zone show that, after the 2004 hurricanes, the building code premium became less negative and, after the 2005 hurricanes, became positive. After the relatively quiet 2006 hurricane season, the premium once again turns negative. The results for the 100 MPH Zone showed that, after the 2004 hurricanes, the negative premium did not change. However, after the 2005 hurricanes, the building code premium turned positive. After the 2006 hurricane season, the building code premium shrinks but remains positive. Thus the impact of these storms on consumer behavior was substantial for these zones.

The post-catastrophe (“reality check”) variables provide some interesting insight into consumer behavior. For the zone with the most risk exposure, the existing positive premium for building code did not change after either the “closer call” 2004 or the 2005 hurricanes. For the two inland zones, the negative building code premium for the zone with the highest negative premium (110 MPH Zone) was reduced immediately following the 2004 hurricane season. However, it appears that consumers’ memories are short since the building code premium disappears (and returns to a negative level) after the relatively quiet 2006 hurricane season.

Benefits of Research:

The results of this study address the value that consumers associate with the institution of a stronger building code in a setting where this change is more recent. The study captures some of the time and locational factors that impact on consumer decisions related to safety and costs and also provides additional insights into these behaviors for areas with lower expectations about risk.

The Capitalization of Stricter Building Codes in Miami, Fla. House Prices

Investigators:

- **Randy E. Dumm, Ph.D.**, Associate Professor and Peoples First Insurance Fellow, The Florida State University
- **G. Stacy Sirmans, Ph.D.**, Kenneth G. Bacheller Professor of Real Estate and Research Director, Center for Real Estate Studies, The Florida State University
- **Greg T. Smersh, Ph.D.**, Visiting Assistant Professor, University of South Florida

Description of Problem:

A contributing factor of the extensive damage from Hurricane Andrew in 1992 was felt to be the erosion of building codes in the years leading up to the storm. After Hurricane Andrew, Broward and Dade counties passed tough new building codes (known as the South Florida Building Code). Among other things, requirements for the new building code included thicker plywood, impact-resistant glass or hurricane shutters, and truss tie-downs with minimum uplift force of 700 pounds. Given the increased costs associated with building to a more strict building code, the question is whether consumers are willing to pay a premium for safety when purchasing homes in areas prone to catastrophic wind loss. Following the losses from the 2004 and 2005 hurricane seasons, the public policy implications surrounding building codes (e.g., mitigation of housing stock, motivating positive behavior related to safety, impact on insurance availability and costs) for policy makers, insurers, lenders, regulators, and consumers in the State of Florida became even more significant. The State of Florida recognized the importance of strengthening homes through a \$250 million dollar mitigation program launched in 2006. In making or driving public policy in this area, it becomes even more important to understand consumer preferences for stronger and safer homes and their willingness to spend additional money for higher levels of safety.

Study Objectives:

This research sought to capture the differential effect on house prices of the stricter 1994 South Florida Building Code and to measure changes in consumer behavior after the “reality check” of the devastating 2004 and 2005 hurricane seasons in Florida.

Approach:

A hedonic pricing model is applied to home sales in Miami-Dade County for the period 2000 through 2007. The model also measures the change in the marginal value of the stronger code after the 2004 and 2005 storm seasons. The data are divided into geographical zones based on risk exposure and the regression model is estimated for each zone.

Accomplishments/Results:

Results show that the stricter building code has a positive effect on selling price, with the capitalization effect varying with risk exposure. Selling prices for homes built under the stricter code in the coastal zone reflected a premium of about 10.4 percent relative to prices of comparable homes built under the less-strict code. The value of the premium decreased as hurricane risk exposure decreased. For the interior zones with less risk

exposure, the premium was about 1.50 percent. The “reality check” variables show that, after the minimal impact of the 2004 hurricanes (in south Florida), the premium for structural integrity disappears. However, after the 2005 hurricane season where hurricanes did directly impact the south Florida region, the building code premium returns.

The post-catastrophe (“reality check”) variables provide some interesting insight into consumer behavior. For all three zones, there was a negative building code premium immediately following the 2004 hurricane season. A possible explanation is that, even though four hurricanes had an impact on Florida, the overall impact was minimal for the Miami area. This may create the “test of time” syndrome for consumers. A homebuyer may see no advantage of paying a premium for a newer-code home (which may have fewer amenities) relative to an older home that has stood the test of several severe natural disasters. In other words, consumers have a greater preference for additional amenities as opposed to disaster mitigation. In addition, factors such as the cost-effectiveness of substituting hazard insurance for hurricane disaster, consumers’ preferences for product characteristics over solid construction, and the availability of social insurance (efficient evacuation, National Guard protection of property) may affect the value that consumers attach to the stricter building code.

Benefits of Research:

The results of this study provide a better understanding of consumers’ attitudes and behavior toward disaster mitigation, specifically building codes, and the extent to which consumers recognize and value safety and are willing to bear the cost of mitigation.

Reduction of Wind-Driven Rain Intrusion through the Building Envelope

Investigators, including Titles and Affiliations:

- **Forrest Masters, Ph.D.**, Assistant Professor, Department of Civil and Coastal Engineering, University of Florida
- **David Prevatt, Ph.D.**, Assistant Professor, Department of Civil and Coastal Engineering, University of Florida
- **Kurt Gurley, Ph.D.**, Associate Professor, Department of Civil and Coastal Engineering, University of Florida

Description of Problem:

Rain water intrusion into buildings is a critical, recurring issue during hurricane impacts. Although most Florida homes survived the 2004 and 2005 storms structurally, a significant number experienced enough rain penetration to require extensive interior restoration. This included homes with no obvious envelope damage. The resulting occupant displacement and business interruption produced substantial financial losses.

Study Objectives:

This study uses a unique set of testing apparatus to experimentally investigate water penetration issues for existing and new infrastructure. The likely failure (leakage) modes are identified for a variety of fenestration and soffit products, installation conditions, and testing scenarios (static and dynamic loads). Both successful (resistant) and vulnerable systems are highlighted to provide a roadmap for mitigation efforts. The influence of aging (long-term mechanical and thermal stressing) on resistance to wind-driven water penetration is also investigated.

Approach:

UF has constructed a suite of experimental tools to facilitate the proposed research. A 2800 hp Hurricane Simulator was developed to replicate turbulent wind and rain loads on a full-size low-rise structure. A static and pulsating pressure chamber was constructed to compare standard test methods with the hurricane simulator. The third apparatus is a new pressure loading system designed to replicate both the dynamic temporal and spatial wind-induced pressures on the surfaces of buildings. These test apparatuses are used to subject windows and soffits to severe dynamic wind loads and rain in order to evaluate the performance of commonly used components and construction methods. Tests on specimens will be repeated after they are left to naturally age in order to determine the influence of aging on performance.

Accomplishments/Results:

UF recently upgraded its Hurricane Simulator. Major modifications include the incorporation of noise suppression equipment and an active control system to create more realistic gust loading. Field measurements of wind-driven rain during Hurricane Ike are being used to calibrate the system. A second testing apparatus, High Airflow Pressure Loading Actuator (HAPLA), was designed to simulate the intense, small-scale and short-lived pressure loads that act on porous surfaces, such as soffits. Based on this design, UF is now constructing a larger system intended to test large commercial wall systems. Finally, UF is constructing an outdoor aging facility to house entire full-scale system specimens to determine the performance of existing products in Florida's subtropical climate.

Benefits of Research:

Mitigating the losses associated with water penetration in high-wind events will benefit greatly from these research activities, which serve to identify the mechanisms for water ingress. Current methods test building products in isolation, not together as a system. This research has implemented "holistic" or systems-level testing, which enables the identification of water penetration not able to be found through traditional testing (e.g. through the interface between the wall and the window). Secondly, this research focuses on building assembly. Inadequate performance, structural or otherwise, is often cited as the cause of wind damage, but poor installation is often the culprit. UF is working closely with stakeholders to validate and enhance installation guidelines for products intended for hurricane-prone regions. Results from this testing will be used by the Florida Building Commission to address the failures observed in the 2004 storms.

Funds Leveraged:

In addition to directly funding research, this project has been supplemented the following projects (total project funding):

- Hurricane Resistant Building Product Research and Development (\$289K)
- Residential Construction Mitigation Program
 - Development of a Unified Engineering Basis for the Assessment of the Resistance of Florida Residential Building Envelopes to Severe Wind-Driven Rain (\$100K)
 - Field Evaluation of Thermal Performance and Energy Efficiency of Closed-cell Spray-Applied Polyurethane Foam in Vented Residential Attics (\$100K)
- NOAA Florida Hurricane Alliance (\$103K)
- Design Guidelines for Retrofitting Wood Roof Sheathing Using Closed-cell Spray Applied Polyurethane Foams, Sea Grant (\$200K)
- Damage Mitigation Research for the Florida Building Commission (\$250K)
- Pending project on roof cover-performance, Oak Ridge National Labs (\$300K)

Number and Major of Students Supported:

The project has supported or partially supported 6 graduate students and 9 undergraduate research assistants in the Department of Civil and Coastal Engineering.

Research Partners:

Alside; American Architectural Manufacturers Association (AAMA); American Forest & Paper Association (AFPA); APA–The Engineered Wood Association; Architectural Testing, Inc.; Atrium Companies, Inc.; Cast-Crete Corporation; C.B. Goldsmith and Associates, Inc.; CEMEX; Certified Test Labs; CertainTeed; Do Kim & Associates; DuPont; Fenestration Manufacturers Association (FMA); Florida Building Commission; Florida Home Builders Association (FHBA); General Aluminum; Henkel; Institute for Business and Home Safety (IBHS); James Hardie; JBD Code Services; JELD-WEN Windows and Doors; Lawson Industries, Inc.; Marvin Windows and Doors; Masonry Information Technologists, Inc.; MI Windows and Doors; NuAir Windows and Doors; Painter Masonry, Inc.; PGT Industries; PPG Industries; Protecto Wrap Company; Silver Line Windows and Doors; Simonton Windows; TRACO; Vinyl Siding Institute, and WCI Group, Inc.

Research Highlights

Disaster Preparedness

Public libraries across the Gulf Coast played important roles in preparedness and recovery during the catastrophic 2004 and 2005 Atlantic hurricane seasons. A Center-supported project is making critical advances in increasing the readiness of public libraries to meet future challenges.

Hurricane/Disaster Preparedness and Response by Utilizing Florida Public Libraries

Investigators:

- **Charles R. McClure, Ph.D.**, Principal Investigator, and Director, Information Institute and Francis Eppes Professor, College of Communication and Information, School of Library and Information Studies, The Florida State University

Description of Problem:

With virtually all public libraries having public access Internet workstations, numerous new service roles offer opportunities for public libraries to better serve local communities. One set of service roles that is evolving – especially in the southeastern and Gulf Coast portions of the United States – is public library community hurricane preparedness and response roles. Public libraries, reacting to hurricane emergencies, have fulfilled a range of useful hurricane and disaster preparation and response roles.

The problem is that there has been no systematic effort to identify these roles, associated best practices, and guidelines that might quicken widespread adoption of the roles by public libraries in hurricane-affected regions.

Study Objectives:

The study's purpose is to reduce communities' overall risk by raising public libraries' readiness levels to meet the challenges posed by these catastrophes. Study objectives include:

- Identify and organize relevant public library hurricane-related information resources, services, roles, and best practices;

The screenshot shows the Florida State University website for the project. The header includes the Florida State University logo and name, a search bar, and the text "Information Use Management & Policy Institute www.ii.fsu.edu". The main content area features a satellite image of a hurricane over the Gulf of Mexico with the project title overlaid. Below the image is a navigation menu with links: Hurricane Service Roles, Training, Digital Commons, Resources, About the Project, En Español, Download Plug-ins, Contact Us, and Quick Links. The main text area contains the title "Improving Florida Public Library Utilization in Community Hurricane Response" and a quote from Charles R. McClure. Below the text is a satellite map of the Gulf Coast region with a red box highlighting a specific area. The footer of the map section says "Provided by the National Oceanic and Atmospheric Administration (NOAA)" and "Download the Hurricane Flyer". On the right side, there is a "Project News" section with several news items dated from July 8, 2009, to April 20, 2009, including "Hurricane Flyer Now Available!", "YouTube Hurricane Web Training Video", "Professor Charles R. McClure Named as Hurricane Expert", "Arrival of Hurricane Season!", "McClure and Ryan Present Hurricane Project at Conferences", "Extension Grant Awarded", and "Institute Announces Training Schedule".

- Identify, aggregate, assess, and organize successful hurricane-related public library best practices;
- Develop and disseminate via an interactive web portal model plans, standards, guidelines and recommendations;
- Provide workshops and other training activities throughout Florida and the Gulf Coast region;
- Offer strategies to assist state and regional public library and government officials with disaster coordination responsibilities; and
- Disseminate to public libraries, government agencies, and others, via print materials and the web portal, resources, services, experiences, best practices, plans and guidelines to coordinate Florida’s public library managers and government partners to better prepare for and respond to hurricanes.

These objectives guide the study team’s efforts with this study.

Approach:

A number of considerations informed the study approach:

- *Exploratory*: No pre-conceived model existed, and assumptions, research questions and study populations shifted during and after each phase;
- *Pragmatic*: The conscious intent of research was to reduce hurricane risk by better utilizing public libraries to prepare and aid their communities;
- *Opportunistic*: The study anticipated unscheduled opportunities to collect and analyze data and designed the study approach to take advantage of these opportunities throughout the course of the project;
- *Multi-method*: Research included literature review, document analysis, various qualitative techniques (e.g., individual and group interviews, focus groups, and panels conducted face-to-face, by phone and email), brief open-ended and structured surveys, and some simple social networking analysis; and
- *User-based*: Wherever possible, theory development and data collection methodologies were driven by the studies’ users.

Accomplishments/Results:

A number of findings and products have resulted from the study thus far, including:

- Identifying the value of building a hurricane response network;
- Synthesizing, utilizing and implementing public library hurricane service roles;
- Creating documents that help make the case for public libraries being “essential services” and better assisting residents and evacuees prepare for and recover from hurricanes; and
- Developing the project web portal that organizes and disseminates information on services roles, best practices, and resources, and provides an online forum where public library managers, emergency management officials, and others may collaborate before, during, and after a storm.

An in-depth discussion of findings and products are available on the project web portal <<http://hurricanes.ii.fsu.edu/>>.

Benefits of Research:

The study benefits public librarians, local communities, and local, federal, and state emergency managers by:

- Enhancing the ability of public libraries to provide services, information, resources, and expertise to assist communities and residents;
- Providing a comprehensive approach for public libraries to work more effectively in local communities and with states for hurricane preparedness and response;
- Improving communication and planning/response between the public library and various government and other agencies regarding hurricane preparedness and response; and
- Educating local community members, government officials and others about the roles public libraries can play in hurricane preparedness and response.

Ultimately, the study will improve the ability of Florida and other Gulf Coast states to better prepare for, survive, and respond to hurricanes, and better leverage and coordinate public librarians' expertise in working with other state and local government agencies for hurricane preparedness and response.

Funds Leveraged:

A grant of \$40,000 was obtained from the State Library and Archives of Florida in the summer 2009 that allowed the study team to further investigate the use of broadband by public libraries for disaster/emergency management.

Number and Major of Students Supported:

Two Ph.D. candidates in Information Studies, one M.S. candidate in Business Administration, and one M.S. student in Library and Information Studies participated in this research.

Cooperative Efforts:

The project cooperated with the State Library and Archives of Florida, Lyrisis (formerly SOLINET), Florida's Multi-type Library Cooperatives, public libraries in Florida and throughout the Gulf Coast region, as well as federal, state, local and community agencies concerned with Florida hurricane preparedness and response.



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