American Association for Wind Engineering

NEWSLETTER OF THE AMERICAN ASSOCIATION FOR WIND ENGINEERING

THE WIND ENGINEER

July 2004

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Steve C.S. Cai and Suren Chen
Louisiana State University

Introduction

Even as storm prediction and tracking technologies improve, providing greater warning times, our nation is still becoming ever more susceptible to the effects of hurricanes due to the massive population growth along the hurricane coast from Texas to Florida to the Carolinas. New Orleans is a prime example. Most of the city is at or below sea level, surrounded by levees. A direct hit by a Category 3 or larger hurricane will 'fill the bowl,' submerging most of the city in 20 ft or more of water. Four of the five major evacuation routes out of the city include high-rise spans over open water. The Louisiana Office of Homeland Security and Emergency Preparedness (LOHSEP) estimates that under current conditions, in the best-case scenario there will be time to evacuate only 60-65% of the 1.3 million metro-area population, meaning hundreds of thousands will remain in a city that will have water over the roofs of most of the buildings. Emergency management officials estimate a 10% casualty rate for those remaining in the city.

This nightmarish scenario came all too close to reality twice in 2002. Hur-

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Announcement and Call for Papers

10th Americas Conference on Wind Engineering

May 31-June 4, 2004

The Tenth Americas Conference on Wind Engineering (10ACWE) will be held in Baton Rouge, Louisiana, which is located approximately 75 miles northwest of New Orleans. The conference will be hosted by the LSU Hurricane Center and Louisiana State University. Two page extended abstracts are requested for papers in all areas of wind engineering. Abstracts are due September 30, 2004 (see page 3 for instructions on abstract submission and other key dates). Please visit the conference web site at **www.10ACWE.lsu.edu** for more information and periodic updates.

Conference Goal and Topics

This conference seeks to facilitate the exchange of the latest scientific and technical information between academics, researchers, engineering and architecture

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IGERT Interns at Texas Tech

Kishor Mehta, Ph.D, P.E.
P.W. Horn Professor of Civil Engineering

As a part of the NSF funded Integrated Graduate Education and Research Training (IGERT) program at Texas Tech, five undergraduate students and a faculty member are working on research projects for two months during the summer. This year, the interns are from Texas A&M Kingsville, which has a large Hispanic student population. Dr. Hector Estrada, Associate Professor in Civil Engineering at TAMK, will spend one month pursuing research on in-home shelters for hurricanes. Five junior and senior civil engineering students, selected following personal interviews at TAMK, are working in both the laboratory and field with IGERT doctoral candidates while being mentored by faculty members.

During the first two days of the internship, the students were given an orientation of the WISE facilities and projects as well as a brief workshop on wind loads on buildings and structures.

Two students, working with Dr. John Schroeder, had an opportunity to travel to Kansas and Iowa to gather data on thunderstorms. During their four days of travel, they had the experience of a lifetime witnessing four tornadoes (see figure below).

Photo by Gabriel Longoria, IGERT Intern

Another student is working with Dr. Doug Smith checking the instrumentation at the WERFL field site and performing statistical analysis of data, and the last two students are working with Dr. Ernst Kiesling on shelter projects—one in the debris impact facility and the other in preliminary design of hurricane shelters.

The internship program will continue each year for the next four years, targeting different institutions with a large minority student population. The current IGERT interns are gaining valuable hands-on experience in pursuing graduate research, a good understanding of wind science and engineering, and an educational mentoring by faculty and graduate students. This internship experience should increase the chances of attracting young people into graduate studies in wind engineering.

BREAKING NEWS
House Passes National Windstorm Impact Reduction Act

On July 7, the House of Representatives passed H.R. 3980, the National Windstorm Impact Reduction Act of 2004. The bill passed by a vote of 387 to 26. This important bi-partisan legislation, introduced by Reps. Randy Neugebauer (R-TX) and Dennis Moore (D-KS), proposes creation of a National Windstorm Hazard Reduction Program. The program is modeled after the successful and long-running National Earthquake Hazard Reduction Program. The bill authorizes $67.5M in funding over the next three years, for research and technology transfer activities aimed at reducing damage and casualties caused by hurricanes, tornadoes and other windstorms.

ASCE and AAWE have been leading the efforts to get this legislation turned into reality. The wind engineering community owes a big vote of thanks to Bogusz Bienkiewicz, Mike Gauss, Kishor Mehta, Jim Rossberg and Brian Pallasch at ASCE, and many others who have been working on this legislation for five years now. Although we still have a way to go, this is a critical step in the process. The next step is to get H.R. 3980 or similar legislation introduced into the Senate. To keep up to date with the latest developments in Washington, please visit the Wind Hazard Reduction Coalition web site at *http://www.windhazards.org.*

10ACWE Announcement/Call for Papers

(Continued from page 1)

practitioners, and students on the many aspects of wind engineering, including but not limited to:

Wind measurement and monitoring	Wind climate
Hurricanes, tornadoes and storms	Wind characteristics
Structural response/control	Wind tunnel testing
Building and bridge aerodynamics	Wind-related hazards
Full scale and field studies	Wind damage
Computational wind engineering	Wind energy
Loss estimation and insurance	Wind erosion
Wind and emergency management	Urban wind issues
Dispersion of pollutants	Vehicle aerodynamics
Wind codes and standards	Case studies

Submission of papers

Two-page extended abstracts are due by September 30, 2004 (see the conference web site **www.10ACWE.lsu.edu** for information on abstract format). Abstracts will be reviewed by the Scientific Advisory Committee. Authors will be notified of acceptance by December 20, 2004. Full papers (6-12 pages) are due March 15, 2005.

Conference participants will be provided with a book of extended abstracts and a CD-ROM with full proceedings. Authors will not be asked to sign over copyrights, and are encouraged to expand the papers and seek archival publication elsewhere.

Technical Activities

In addition to oral presentations, the conference will include technical poster sessions, exhibitor booths, an AAWE Membership Meeting, tours of the LSU Wind Tunnel Lab and other campus research facilities, and continuing professional development seminars and short courses designed for practitioners.

Conference Organization

This conference is convened by the American Association for Wind Engineering. It is one of the three regional wind engineering conferences to be held in 2005 under the aegis of the International Association for Wind Engineering (IAWE). The other two regional conferences are the 4th European-African Conference on Wind Engineering, to be held in Prague, and the Sixth Asia-Pacific Conference on Wind Engineering, to be held in Seoul, Korea (see page 10 for calls for papers). The Americas Conference is the 10th conference in a series formerly known as the US National Conferences on Wind Engineering (until 1997), and most recently as the Americas Conference on Wind Engineering—2001.

Conference Venue

The 10ACWE will be held at the Sheraton Convention Center Hotel in Baton Rouge, Louisiana. This downtown location, with a view over the Mississippi River, has been enjoying a renaissance in recent years. There are several restaurants and museums, a riverboat casino, a planetarium, and other attractions within easy walking distance of the hotel.

Baton Rouge is the state Capital, with a metropolitan area population of one-half million. It is the home of Louisiana State University. It is located on the Mississippi River, 75 miles northwest of New Orleans. The region is famous for its blues and jazz music scenes, its culinary delights, nightlife and Southern and Cajun heritage.

Presidents Corner

Bogusz Bienkiewicz

It is a pleasure for me to express my thanks to Marc Levitan for his willingness to take over the editorship of this newsletter. I am confident that Marc and his team will skillfully carry out this duty and will exceed the standards set up by the past editorial teams. Please extend your support for these activities by forwarding to Marc your contributions to the newsletter and encouraging your colleagues – AAWE members and friends of wind engineering – to submit contributions to this publication.

I would also like to thank Steve Cai for agreeing to serve as the Secretary/Treasurer. Steve's exemplary wind engineering research and outreach record are true assets to our association. I am sure his service will enhance our membership drive efforts and solidify the AAWE fiscal standing and legal status.

My thanks also go to Mark Powell, who provided invaluable input serving as the member of the AAWE Board of Directors. Upon advice of a legal counselor at his institution, Mark resigned from the Board this summer in view of regulations restricting

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Hurricane Evacuations

(Continued from page 1)

ricane Isidore and Hurricane Lili were both very intense storms with the potential to cause catastrophic losses of lives. Fortuitously, Isidore lingered over the Yucatan peninsula for several days, disrupting the circulation enough that it was not able to re-intensify back to a major hurricane status. Even so, this tropical cyclone caused storm surge flooding as great as 3m along the Mississippi coast. A week later, Hurricane Lili rapidly intensified in the warm waters of the central Gulf of Mexico to strong Category 4 status. It threatened to continue to intensify to become the most powerful storm to make landfall in Louisiana. The storm was forecast to strike southwestern Louisiana, and evacuations had been ordered for those areas. On the evening of Wednesday October 2, 2002, the storm began to change course for more heavily populated southeastern Louisiana. The Governor and LOHSEP decided it was too late to order an additional evacuation. Most fortunately, the storm unexpectedly began to weaken in the early morning hours, and to shift course back to the west. Recent experiences with Hurricanes Isidore and Lili reinforce how vulnerable our coastal cities are, and how important it is to plan hurricane evacuation in advance to mitigate the hurricane-induced hazards.

Long-span bridges are often the backbones of transportation lines and bottleneck controlling traffic capacity. Maintaining the highest transportation capacity of these bridges is vital to support hurricane evacuations. Strong winds and rain, combined with road grade, curvature, and unevenness of the road surface, may cause safety problems for vehicles on the road, including overturning, skidding and loss of control of the vehicle. For this reason, transportation authorities may choose to reduce the speed limit on roads or even close bridges and roads. However, in most cases, decisions are based on intuitive or subjective experience due to the lack of research results and guidelines in this area. For example, according to The Times-Picayune, in December 12, 2002, "police restricted the travel of RVs, motorcycles and glass trucks on the bridge [Lake Pontchartrain Causeway] shortly after 5 p.m. when wind gusts reached 35 mph." Why 35 mph? What is the safe driving speed on highways and on bridges at a given wind velocity?

Performance of Highway Transportation System in Strong Wind

For regular *aerodynamic* study of long-span bridges, no traffic load is typically considered, assuming that bridges will be closed to traffic at high wind speeds, even though the bridge is usually designed with fully loaded *static* traffic (plus impact factor). Therefore, bridges are usually tested in wind tunnels or analyzed numerically without considering moving vehicles on them. However, coastal bridges may be occupied by stalled or moving traffic in modest or high wind during the arrival of tropical storm/hurricane winds. No adequate previous research has been performed on the dynamic interaction of vehicle-bridge and vehicle-road in hurricane type of high- and large-turbulence wind which considers the safety of both bridges and vehicles. Although emergency management officials generally plan to halt evacuations so that roads are cleared shortly before the onset of tropical storm-force winds (Wolshon et al, 2002), there are numerous possible scenarios under which vehicles may still be on the bridge when higher wind speeds occur. These scenarios include an unexpected increase in hurricane forward speed or intensity, evacuation traffic gridlock, accidents/stalled vehicles or rainfall flooding blocking the road ahead, etc.

On one hand, the aerodynamic shape of the bridge section will be modified by numerous mass blocks (cars and trucks) that make the section a bluffer one. It is well-known that the aerodynamic behavior of bridges largely depends on the section shape and details, and will thus be negatively affected by the existence of the vehicles. This negative effect of vehicles combined with special wind characteristics of hurricanes may affect the aerodynamic performance to a level significantly different from our current knowledge. On the other hand, the moving vehicles may act like mass dampers that may help damp out some vibrations. Even though the effect of a single vehicle acting as a mass damper may be weak, collective damping effects due to many vehicles on the bridge could be significant. The resultant effect from the traffic is not clear and deserves study.

In addition, to make decisions regarding open-

ing or closing the transportation lines in high winds, one needs not only to understand the bridge vibration, but also the vehicle response on bridges and roads. Another important issue is thus to understand the response of vehicles to the wind-induced bridge vibrations and road conditions (such as surface roughness, turning curvatures, surface wetness etc.). This information will be helpful for hurricane evacuation planning. For example, emergency management agencies need to know when to put up a warning or suggested driving speed, or when to close the bridges or highways. There has been essentially no research in this area except some preliminary work in Europe about vehicles on highways and trains on railways (not on bridges) in windy environment (Baker, 1986, 1991, 1992), or research on vehicle-bridge interaction without wind (Guo et al. 2001). Most recently in US, the stability of emergency vehicles on highways has been studied in a *static* approach (Pinelli and Subramanian 2003). In all previous works, only quasi-static wind loads were considered on the vehicles while buffeting effects of wind should be considered. In summary, a systematic study and analysis framework considering both bridge and vehicle dynamics is desirable.

Proposed Research

To investigate long-span bridge performance under strong wind condition and in evacuation scenarios, the LSU research team (PI: C. S. "Steve" Cai; co-PIs: Marc Levitan and Dimitris Nikitopoulos; RAs: Suren Chen and Sage Liu), supported by the National Science Foundation, has initiated a three-year research project. The major tasks include:

(a) Characterization of hurricane-induced strong winds
(b) Wind loading on bridges considering vehicle effects
(c) Numerical simulation of bridge performance under the action of wind and traffic loads
(d) Developing mitigation measures

Preliminary Results

To study the interaction between the wind-bridge-vehicle system, a general dynamic 3D model of vehicles consisting of up to 17 independent degrees of freedom as shown in Figure 1 has been developed. Such a model is applicable from common cars to five-axle truck trailers that can be used either on highway roads or bridges, considering grade of road section, curvature and road surface roughness, to investigate vehicle accidents in terms of sliding, roll over, etc.

The equation of motion of the coupled bridge-traffic–wind system has been developed as (Chen 2004):

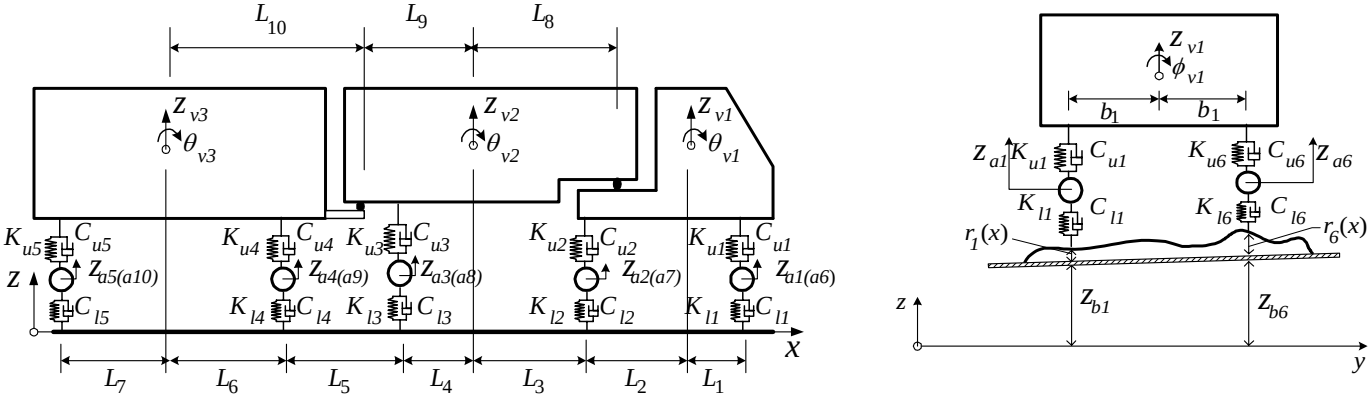

Figure 1. 3D model of vehicle

$$\begin{bmatrix} \mathbf{M}_v & \mathbf{0} \\ \mathbf{0} & \mathbf{M}_b \end{bmatrix} \begin{Bmatrix} \ddot{\boldsymbol{\gamma}}_v \\ \ddot{\boldsymbol{\gamma}}_b \end{Bmatrix} + \begin{bmatrix} \mathbf{C}_v & \mathbf{C}_{vb} \\ \mathbf{C}_{bv} & \mathbf{C}_b^s + \mathbf{C}_b^v \end{bmatrix} \begin{Bmatrix} \dot{\boldsymbol{\gamma}}_v \\ \dot{\boldsymbol{\gamma}}_b \end{Bmatrix} + \begin{bmatrix} \mathbf{K}_v & \mathbf{K}_{vb} \\ \mathbf{K}_{bv} & \mathbf{K}_b^s + \mathbf{K}_b^{vk} + \mathbf{K}_b^{vc} \end{bmatrix} \begin{Bmatrix} \boldsymbol{\gamma}_v \\ \boldsymbol{\gamma}_b \end{Bmatrix} = \begin{Bmatrix} \{\mathbf{F}\}_r^v + \{\mathbf{F}\}_w^v \\ \{\mathbf{F}\}_r^b + \{\mathbf{F}\}_w^b + \{\mathbf{F}\}_G^b \end{Bmatrix} \quad \textit{Eq. 1}$$

where subscript/superscript *v*, *b*, *s*, *r*, *w*, *G*, *k*, and *c* represents vehicle, bridge, structure, roughness, wind, gravity, stiffness, and damping related variables, respectively.

Typical vehicle vibrations on the road and bridge predicted in this analysis frame are shown in Figure 2. Obviously, larger vehicle vibrations are observed on the bridge than on the road due to the effect of vehicle-bridge interaction.

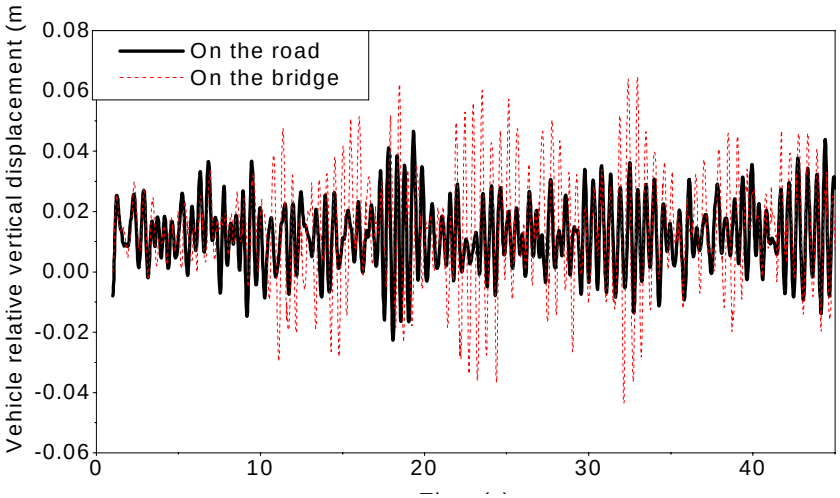

Figure 2. Relative vertical displacements of rigid body of vehicle on bridge and on road

For vehicles driving on the bridge with wind, it is desirable to know the highest allowable driving speed under any particular wind speed to help avoid risks of accidents. Such critical driving speed is called "accident driving speed" in the present study. Three types of typical accidents (overturning accident, rotational accident, and side slipping accident) may happen concurrently or sequentially. The first occurrence is the critical one and the corresponding driving speed is the accident driving speed. As shown in Figure 3, the accident driving speed generally decreases with the increase of wind speed. Accident analysis is also conducted for the same truck on the road, and the results are also plotted in Figure 3. It shows that vehicles on the road have higher accident driving speeds, and the upper limit wind speed under which the truck cannot keep safe is the same. At this maximum wind speed (about 35 m/s), the driving speeds are approaching zero no matter if on the road or on the bridge, which means the truck cannot safely move on the bridge or on the road. This kind of information will help the related authorities in deciding the posted driving speed, considering certain safety factor and other factors.

One exploratory mitigation measure is to investigate an alternative, namely movable Tuned Mass Damper (TMD), to improve the bridge performance in extreme wind events. The placement of a movable TMD system on an existing bridge during an evacuation may block a lane of traffic if the shoulder is not wide enough to accommodate the TMDs. However, it is better than the alternatives, to close the bridge completely during an evacuation or for the bridge to be damaged or collapse. In an extreme case, to protect the

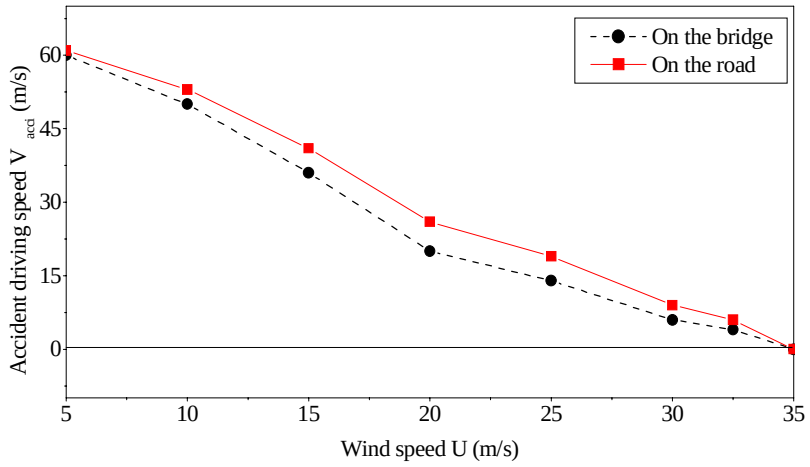

Figure 3. Accident driving speed versus wind speed

bridge from damage or failure, the movable TMDs can also be placed on the bridge when the traffic is completely closed. Certainly, some issues as to how to fix the movable TMDs on the bridge under strong wind need to be addressed before actual implementation. Figure 4 shows the concept of the proposed TMD system (Cai and Chen 2004).

ACKNOWLEDGMENTS

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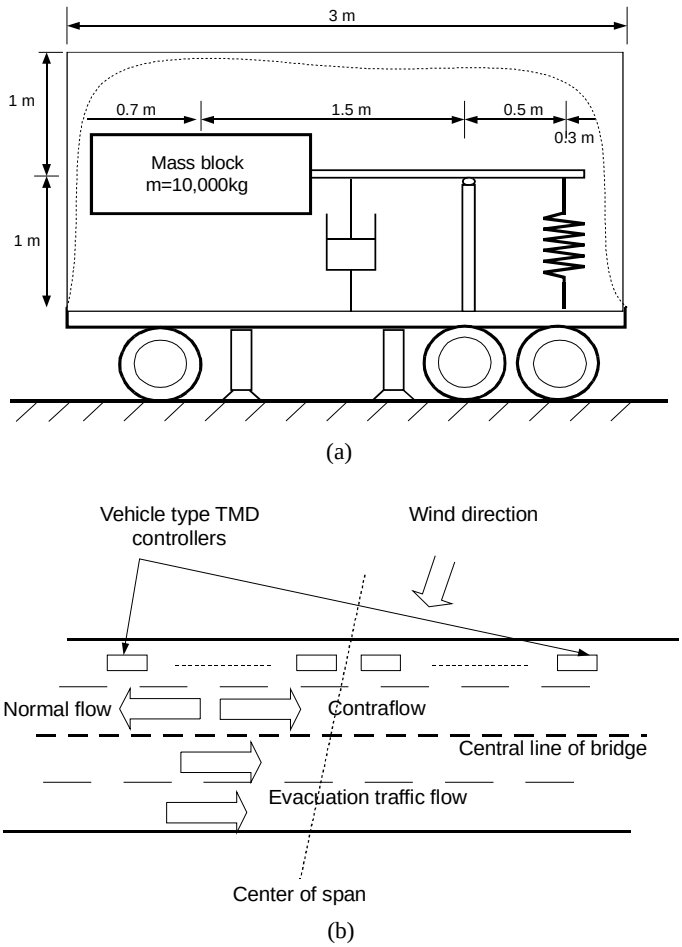
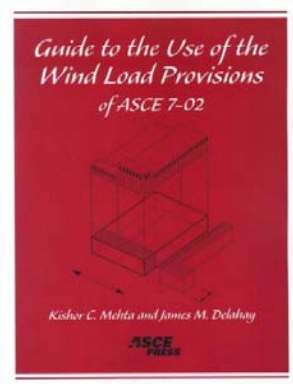


Figure 4. Outline of movable TMDs (a) Conceptual diagram of vehicle-mounted TMD controller, (b) Placement of TMD controller vehicles on bridge

Updated Guide to ASCE 7-02 Wind Load Provisions Now Available



Kishor Mehta has teamed up with Jim Delahay for the latest edition of the venerable wind loading 'users manual', titled *Guide to the Use of the Wind Load Provisions of ASCE 7-02.* The publication is available from ASCE Press at www.asce.org (ISBN # 0784407037).

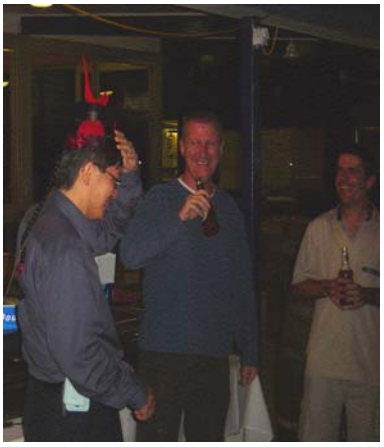
Conference Report- 11th Australasian Wind Engineering Society Workshop

Elizabeth English, Ph.D
Associate Professor, LSU Hurricane Center

Darwin, Australia, was the site of the recent 11th Australasian Wind Engineering Society (AWES) Workshop, held June 28-29, 2004. There were 40-plus attendees from Australia, New Zealand, Hong Kong, Taiwan, Korea, China, Japan and the US. The location was beautiful, the weather was close to perfect, and a great time was had by all, as might be expected at a conference organized by Peter Hitchcock and Roy Denoon.

The conference location of Darwin was chosen in acknowledgement of the 30th anniversary of Cyclone Tracy, which killed 65 people and damaged or destroyed most of the buildings in the city. George Walker, who led the team that did the initial damage investigations, gave an excellent talk on "The Impacts of Cyclone Tracy on Building Design in Australia." Another highlight of the conference was an evening tour of the local museum's permanent exhibit on the devastating storm. As an interesting historical footnote, the 1974 Christmas Eve cyclone was actually the second time the city was nearly destroyed in the 20th century -Darwin was subjected to two years of heavy bombing during World War II. Keynote speakers at the workshop were Marc Levitan of the LSU Hurricane Center, on the topic "Engineering for Tropical Cyclones: A Multi-Hazard, Integrated Approach", and Tristram Carfrae, a structural engineer with Ove Arup's Sydney office, speaking on "Wind on the Big Roof". The quality of the technical papers at the Workshop was particularly high.

The attendees were delighted to applaud Kenny Kwok's elevation to Life Membership in AWES. He joins the distinguished company of Bill Melbourne, John Holmes, and George Walker as the fourth Life Members Among the attendees were AAWE members Leighton Cochran, Elizabeth English, John Holmes, Marc Levitan, George Walker and Michael Young. The Society has targeted February 2006 in Queenstown, New Zealand, for the next AWES Workshop (*www.awes.org*).



Kenny Kwok (left) being inducted as a Life Member.Note Kenny's ceremonial headgear created for this event by his former students --11 AWES conference organizers and co-conspirators Peter Hitchcock (center) and Roy Denoon (right).

Presidents Corner

(Continued from page 3)

participation of governmental employees on boards of non-governmental entities. I am pleased to say that Mark pledged to continue providing his input on AAWE initiatives, on an informal basis.

As reported in this newsletter, AAWE continues to be involved in Congressional activities related to establishment of the National Windstorm Impact Reduction Program. The Wind Bill (H.R. 3980) has been moved from the U.S. House of Representatives to the Senate. Deliberations on this Bill are expected to be continued in the Senate in September 2004, after the Congressional summer recess. We will inform you on progress on this matter.

Looking into the future, AAWE has two new initiatives: (1) Forming of an Awards Committee and (2) Planning for elections to be held in Fall 2004 (the terms of the current AAWE Officers and Board Members expire on December 31, 2004). In the forthcoming issue of the newsletter we will provide you with an update on these activities.

Progress in the Congressional initiative to establish the national program focused on mitigation of wind hazards. Reinvigoration of US wind engineering by the emerging new generation of wind engineering researchers and practitioners points towards exciting new opportunities (and challenges) for the US wind engineering community. There is a role for constructive contributions to the above processes by all the AAWE members and friends of wind engineering. We count on your input on way(s) by which this challenge can be met by AAWE in the most effective way.

NEWS NOTES: People, Research, Publications, etc.

Steve Cai Appointed Secretary/Treasurer

Dr. Steve C.S. Cai, Assistant Professor of Civil and Environmental Engineering at Louisiana State University, has been appointed by the AAWE Board of Directors to fill the vacant position of Secretary/ Treasurer for the next two and a half years.

Steve has a strong background in bridge aerodynamics and many other aspects of bridge analysis and design. He has authored and co-authored 31 papers in peer-reviewed journals and 22 in conference proceedings, of which about 20 are wind-related. His professional engineering experience prior to joining academia includes three years with Michael Baker Jr., Inc. in complex bridge design and four years with Florida DOT in R&D.

Collaborating with Drs. Marc Levitan and Dimitris Nikitopoulos at LSU, he is investigating wind-bridge-vehicle interaction under hurricane-induced strong wind (supported by NSF) as described in the article on page 1. He is also developing smart dampers for cable vibration reduction (supported by the NCHRP IDEA program) and serving as PI for several other DOT supported projects related to bridge engineering.

Roy Denoon Joins CPP, Inc.

Congratulations to Roy Denoon, who has announced that he will be joining Cermak, Peterka, Peterson, Inc. as a Principal. He comes to the U.S. from Ove Arup and Partners in Hong Kong, where he consulted on the wind design of many large structures throughout Asia.

Roy is active in research and in the professional community. He was a co-organizer of last month's 11th Australasian Wind Engineering Society Workshop (see page 8) and serves as Secretary of AWES. At the 2003 ASCE Structures Congress in Seattle, Roy's colorful delivery of his paper on two Arup skyscraper projects won him the award for the best paper presentation at the conference.

You may also recall Roy from another role that displayed his dedication to the wind engineering profession - he was one of the Flying Elvii at the 11th International Conference on Wind Engineering. The three Elvis-look-alikes were part of the marketing campaign for the bid that successfully landed the 12th ICWE in Cairns Australia in 2007.

Tim Reinhold Headed for Florida

Dr. Tim Reinhold has departed Clemson University to become the new Vice President of Engineering at the Institute for Business and Home Safety in Tampa. IBHS is a nonprofit association funded by the insurance industry. Its mission is to "to reduce deaths, injuries, property damage, economic losses and human suffering caused by natural disasters."

LSU Hurricane Center Welcomes Back Dr. John D. Holmes

For the fourth time since Fall 2001, John Holmes is returning to Louisiana State University for a semester. John holds the Laborde Endowed Visiting Professorship from Louisiana Sea Grant. He is studying aerodynamics of wind-borne debris with applications to hurricane resistant construction.

Elizabeth English Leaves Tulane for LSU

Dr. Elizabeth English was appointed as Associate Professor - Research in the LSU Hurricane Center in Fall 2003. She has been working with John Holmes on his study of wind-borne debris and contributing to LSU's NSF-funded Hurricane Engineering curriculum project. She is also active on several hurricane sheltering projects and has been teaching in the Department of Civil & Environmental Engineering.

Aynsley Takes Over Chairmanship of ASCE Aerodynamics Committee

At the ASCE Structures Congress in Nashville in May 2004, Dr. Richard Aynsley was elected to replace outgoing chair Jack Cermak to lead the ASCE Aerodynamics Committee. Dick is Director of Research and Development at Big Ass Fans in Lexington, Kentucky. Marc Levitan was elected as Vice Chair (and he vows to get even with Elizabeth English for nominating him).

Newsletter Changes: A vote of thanks—and help wanted

Marc Levitan

I will put it bluntly, *I need your help*. With this issue, I am taking over duties as editor of the AAWE Newsletter. Dr. Bogusz Bienkiewicz, who has served as editor since January 2000, has done an absolutely fantastic job. The Association and its membership owes him a tremendous vote of thanks for producing such an informative, professional, and well written newsletter over the past several years. Bo realized that this newsletter is a very important part of AAWE service to its membership. He put forth significant efforts to increase the publication frequency to six issues per year, while maintaining a high standard of quality.

Bo's outstanding work on this newsletter has created something of a problem for me - high expectations! I unfortunately am not as talented a writer as Bogusz, nor as prolific. I am therefore asking for assistance from the entire AAWE membership in creating this newsletter.

Please consider submitting articles, announcements, meeting notices, reports from conferences, grant announcements, job opportunities, positions wanted, and any other wind related materials that you think would be of interest to our membership.

Professors—please consider writing a short article on one of your research projects, and ask your students to consider writing articles as well. Practitioners—send in an article about an interesting or challenging wind design issue you have come across in a recent project.

In short, the more input received from the membership, the better the newsletter will serve the membership. Additionally, if you have any other ideas on how to improve the newsletter, such as format or features—please send in your suggestions.

To submit suggestions and/or materials for inclusion in the newsletter, send them to me preferably via email (levitan@hurricane.lsu.edu), or submit via fax or snail mail (coordinates given on the back page). The newsletter is published six times per year, in January, March, May, July, September, and November. Please submit notices or articles by the 15th of the month prior to publication to be considered for inclusion in that issue.

Calls for Papers - IAWE Regional Wind Engineering Conferences

4th European-African Conference on Wind Eng (EACWE4)

Prague, Czech Republic, July 11-15, 2005

The deadline for submission of abstracts has been extended to August, 31, 2004. Abstracts should be approximately 200 words long. A maximum of two papers by one corresponding/presenting author can be accepted.

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6th Asia-Pacific Conference on Wind Eng (APCWE VI)

Seoul, South Korea, September 12-14, 2005

Abstracts are due February 28, 2005. Abstracts should be one page in length, and submitted along with the Paper Submittal Form available on the conference web site.

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AMERICAN ASSOCIATION FOR WIND ENGINEERING

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American Association for Wind Engineering

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American Association for Wind Engineering

Objectives:

- The advancement of science and practice of wind engineering.
- The solution of national wind engineering problems through transfer of new knowledge into practice.

Established in 1966

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