



Newsletter

Gwenaëlle Ambühl and Graham Knapp, Editors

Index :

- Chairman's Column
- Codes and Standards
- Recent Events
- Snippets
- Conference Update
- Obituary: Arthur N.L. Chiu
- Forthcoming Events



L' Arche de La Défense Paris, with the 'cloud' – see page 3

Photo © Graham Knapp 2006

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❖ Chairman's Column

Professor Peter Bearman, Imperial College, London

Not being a member of the Institution of Civil Engineers (ICE) I was particularly interested to attend a meeting on 25th May of Chairmen of the Associated Societies called by Dr Scott Steedman, a Vice President of ICE. There are 14 Associated Societies and all were represented. Dr Steedman gave a presentation on the proposed future strategy for ICE which will put more emphasis on the Institution as a source of knowledge for the civil engineering sector. He had encouraging words for the Associated Societies who he felt had been generally undervalued by ICE and that they had a vibrancy and breadth of outlook which was sometimes missing from ICE's own Engineering Boards. I am sure that most of us will not wish to dissent from this view. The interesting next stage is to see how ICE proposes to increase the involvement of the Associated Societies in its Knowledge Strategy.

ICE has asked all the Societies to assess their impact in the 5 areas given below from 1 (totally useless) to 10 (superlative). Rather than my rough descriptions you may find the labels at the foot of the table more informative. Before anybody asks me, I do not have rigorous definitions of what each of the 5 categories mean but hopefully it is obvious. I would be delighted to receive emails from members giving their scores (p.bearman@imperial.ac.uk) and we will endeavour to publish the results in the next newsletter.

ICE Knowledge Excellence Assessment Tool

External	<input type="checkbox"/>									
Best Practice	<input type="checkbox"/>									
Research	<input type="checkbox"/>									
Building Capacity	<input type="checkbox"/>									
Networking	<input type="checkbox"/>									
	Ad hoc			Some coordination				Fully engaged		

A traditional item at meetings of Associate Society Chairmen is the administration fee levied by ICE for its support of the Societies, and this year was no exception. With its pledge to give more support to the Associated Societies there was a fleeting hope that it might reduce the fee but this was short lived. For the coming year ICE intends to offer three levels of service: Gold, Silver and Bronze. Our finances dictate that we will have to opt for the Bronze service but if this maintains the level of service we have enjoyed over the past year then I will be perfectly satisfied.

Finally may I remind you of the WES Conference to be held in Glasgow in September. The call for papers has been very successful and I look forward to seeing you all at Glasgow.



❖ Cover Story

by Gwenaelle Ambuhl, Editor

L'Arche de La Défense, Paris

Length: 108 m, height: 110 m, width: 112 m. Weight: 300.000 metric tons
Architect: Johann Otto von Spreckelsen (1929-1987)

Completed on the 14th of July 1989 during the G7 summit and to celebrate the bicentenary of the French Revolution the "Arche de La Défense" was constructed on an east-west axis in Paris, aligned with the "Arc de Triomphe" and the Tuileries gardens. It was constructed by the French contractor Bouygues and it includes panes of glass of 5cm thickness treated to avoid optical deformation and to resist strong wind. The cladding panels are made of white marble and grey granite.

Telling Spreckelsen that his project won the design competition proved difficult; a French delegate had to travel to the isle in Denmark where Spreckelsen was staying and where there were no communication systems. Unfortunately he did not live to see the building completed as he died on the 16th of March 1987. The architect Paul Andreu completed the project.

The fibreglass cloud created by Paul Andreu and the engineer Peter Rice is suspended by a steel cable system and is designed to protect pedestrians from strong winds channelled through the arch.

❖ Codes and Standards

by Brian Smith, Flint and Neill Partnership

The draft National Annex to the Eurocode on Wind Actions (BS EN 1991-1-4) has now been published for public comment.

The deadline for comments is the 15th September 2006. This will be the last opportunity for people to comment on this document which will be the vehicle for implementing the Eurocode on Wind Actions in the United Kingdom.

The National Annex can be obtained from British Standards BSI Customer Services (Tel: 020 8996 9001 or email: orders@bsi-global.com), unless you have access to their on-line Committee information. The Committee Secretary is Dr. John Tait (BSI) (Tel: 020 8996 7392).



❖ Recent Events

Vehicle Aerodynamics: A half day informal seminar

Report by Dr. Mark Sterling, University of Birmingham

On the 22nd May 2006 an informal seminar sponsored by the WES and Rail Research UK (www.railresearchuk.org.uk) on Vehicle Aerodynamics was held at the University of Birmingham. Twenty individuals attended and there was approximately a 40:60 split between industry and academia.



Sinsia Krajnovic

After a few brief words from Chris Baker (University of Birmingham) the audience were treated to a Presentation on Time-dependent simulations of flows around road and rail vehicles by Sinsia Krajnovic of Chalmers University, Sweden. Sinsia is part of the Division of Fluid Dynamics (<http://www.chalmers.se/am/EN/research/divisions/fluid-dynamics>) located in the Department of Applied Mechanics. Sinsia's presentation gave an overview of the research and applied work that he undertakes and focused largely on the benefits and drawbacks of using Large Eddy Simulations (LES) to predict the flow around vehicles. Sinsia clearly demonstrated that in conjunction with good experimental data, LES could be used to give a clear insight into the physics of the flow.

The next three presentations related to a Rail Safety and Standard Board sponsored project on the safety of slipstream effects produced by trains. Clive Pope (formally of Mott Macdonald) gave an overview of the whole project and demonstrated the complex and varied nature of the work. Gienia Figura-Hardy (AEA Rail) presented the results from a series of full-scale experiments and demonstrated that the maximum one second slipstream gust (with no cross winds) is highly dependant on train type and train speed. It was interesting to note that based on the current analysis the maximum slipstream velocities appear to arise from freight trains; it was shown that the slipstream from a freight train travelling at 80mph could be approximately 50% greater than that of a passenger train travelling at 140 mph. Mark Sterling (University of Birmingham) outlined a numerical approach for simulating the fluctuating time varying nature of the slipstreams. Details relating to how such a time series could be used to assess the stability of a person or object positioned to the side of the train were given. Mark then outlined the significant complications that arise when cross winds are considered.

Two presentations from Rob Pallin and Angus Lock both of MIRA were given on unsteady road vehicle aerodynamics. Rob briefly outlined some aspects of the current work undertaken at MIRA and gave an interesting presentation relating to the use of CFD to predict the unsteady aerodynamic forces on a full-scale car. Angus built on Rob's presentation and presented the results of full-scale wind tunnel work used to inform and validate the numerical predictions.

Yuxing Ding (University of Birmingham) outlined a new conceptual model to determine the risk of trains overturning in cross winds. Further details relating to this will be presented at the next WES conference. Hassan Hemida (Chalmers University) built on the work presented earlier and gave an excellent presentation on the use of LES modelling to understand and predict the flow around high-speed trains under cross winds. Hassan presented numerous simulations which clearly demonstrated the points made earlier and helped to keep the audience entertained. Last and by no means least Andrew Quinn (University of Birmingham) presented work pertaining to full-scale measurements of the cross wind forces on a yellow lorry. Unlike the previous work which had mainly focussed on simulations or experiments undertaken in controlled conditions, Andrew demonstrated that full-scale experiments performed in the ABL can not only test one's patience but also reveal the true level of variability that arises in real life conditions.

As with most informal seminars the day overran by approximately 40 minutes, however this was due to the enthusiasm of the audience – many people stayed well after the event finished despite having large distances to travel. The day was a resounding success and it was good to see such an event supported by industry and also to hear people admitting to the drawbacks of their work rather than just pretending that no limitations existed!



Hurricanes and Tornadoes: An eventful year in wind engineering

Report by Dr. Andrew Quinn, University of Birmingham

The meeting following the AGM focused on two major events on either side of the Atlantic Ocean over the past year, namely Hurricane Katrina and the "Birmingham" tornado. The meeting was very well attended and generated a great deal of discussion.

Elizabeth English from the Hurricane Centre at Louisiana State University gave a very powerful presentation of the events in Louisiana, Mississippi and in particular New Orleans which followed the landfall of Katrina. The detailed picture which emerged was uniquely illustrated by her first hand pictures from the devastated areas accessible only because of an LSU fluorescent jacket and a motor boat. Although the widespread damage of Katrina was largely attributable to flooding caused by the failure of levees these effects were clearly exacerbated by the wind conditions, both in terms of storm surge and windborne debris. The latter was very clearly illustrated by a fascinating series of investigations in the downtown area of New Orleans where a group of high-rise structures had suffered extensive glass façade damage. The pattern of damage, and the remaining debris, clearly linked this to the use of ballasted roofing on several buildings, particularly City Hall. Evidence of extensive scour from the gravel on metal panels as well as the glass breakage and subsequent internal wind damage were surprisingly directional in nature, allowing a clear understanding of the causes and timeline to be established. Although this method of construction is no longer used for such buildings this clearly illustrated the long period required to allow improvements in building design methodology to reach fulfilment on the ground and the serious consequences that can result from delays. Finally Dr English described the threat to the social heritage of New Orleans which the recovery work poses and the extremely slow progress that is being made in regenerating the hardest hit neighbourhoods.

2005 was also a meteorologically significant year in the UK, with the strongest tornado recorded in the UK over the past 30 years causing a trail of destruction over one kilometre in length through the suburbs of Birmingham. John Wright, of the University of Birmingham School of Geography, gave a fascinating description of tornado formation mechanisms and explained that the path they follow is not random but may tend to follow features in the landscape such as river valley ridges. Following on from this John Goodman, of the Emergency Planning Unit in Birmingham City Council, explained the devastation which resulted during those few minutes and the council's extensive efforts to ensure the safety and security of local residents over those traumatic times. Fortunately there were no fatalities and this is probably due to the timing of the storm, during the day in the school holidays. As was apparent from the pictures of collapsed bedrooms and damaged school classrooms the situation could have been even more serious at another time.

Readers might also be interested in two further meetings on these topics. The first was on the 29th July 2006 at the Avon Conference Room, University of Birmingham - a free one day conference hosted by TORRO (www.torro.org.uk) on the Birmingham Tornado. The second is the joint WES/SECED (www.seced.org.uk) meeting in October (details yet to be finalised) which will include a discussion of Katrina and Rita.

Attendees at the 2005 Scruton Lecture

Compiled by P. Bearman, Chairman

During last year's very successful Scruton Lecture, delivered by Peter Irwin, a request was passed round the audience to provide names and affiliations. It proved impossible to decipher everybody's handwriting but from the large number we could work out, an analysis has been prepared of the attendees. Not surprisingly, lumping universities together provided the largest group. If WES had an award for Wind Engineering Company of the Year then with 13 participants Arup would have to be a very strong contender.

Given their obvious interest in wind engineering, it would be nice to be able to announce that all the firms listed below were corporate members of WES, but sadly this is not the case. However, the list does provide useful information on those we should be targeting. The WES Executive Committee is heartened by the large spread of companies with an interest in wind engineering and thought it might be useful to members to reproduce the list in the Newsletter.



Alan Baxter	1	KW Ltd	1
Alan Dick (5 th =)	5	Laing O'Rourke	1
Arup (2 nd)	13	Mott MacDonald (5 th =)	5
Bierrum International	2	National Grid	2
BMT	3	PFCE	1
BRE	1	Robert Bird	1
Buro Happold	3	RWDI	4
Capita Symonds	1	Scott Wilson	1
EEL	1	Taylor Woodrow	2
Expedition Engineering	1	Terrell International	1
Faber Maunsell	3	Thames Water	1
Flint and Neill	1	Universities (1 st)	19
Gifford	1	Whitby Bird	3
Halcrow (3 rd)	7	WS Atkins (4 th)	6
HSE	1	WSP	4
Kier	1		

Notes from the 2005 Scruton Lecture are now available to download from the WES website.

❖ Snippets

From CROSS Newsletter No 3, July 2006 - www.scoss.org.uk/cross

Wind damage

A report from a client which owns a number of large industrial buildings says that a period of storm force winds, with wind speeds approaching design levels, resulted in damage to secondary roofing and cladding elements. The gross areas of roofing and wall cladding performed well. Certain secondary elements however did suffer damage in the extreme wind conditions. Inspections by the owner have shown that localised areas of secondary metal components such as flashings, trims, cappings and the like did become detached or distorted. Investigations by the owner have also revealed that secondary elements may not attract the same attention in the design, installation and inspection process as do the main roof or wall areas. The detailing, fixing, and inspection of secondary elements must be rigorous to avoid potential damage in high winds and to avoid the resulting hazard of flying debris and any consequential weakening of the main areas of wall and roof coverings.

Comment This emphasises the need for designers and contractors to be careful with the detailing and selection of fixings for secondary components. Fixings have been mentioned in previous reports (Newsletter No 1, DI 006 and 007) and SCOTCROSS have had many reports (DI 031) of items falling off buildings. The frequency and severity of strong winds are predicted to increase as climates change so more incidences of such damage may be expected. (Report DI 042)

Department for Environment, Food And Rural Affairs (National) 10/05/2006 18:08

Russian Fires Affecting UK Air Quality

Seasonal agricultural fires across Russia are thought to be responsible for an increase in the levels of particles (PM10) which have been recorded at sites in Scotland and the North of England.

Seasonal agricultural fires across Russia are thought to be responsible for an increase in the levels of particles (PM10) which have been recorded at sites in Scotland and the North of England.

Standard monitoring, carried out for the Government by AEA Technology, has revealed concentrations high enough to breach the air quality standards in some locations.

The fires, which have been burning for several days, are likely to be a result of seasonal agricultural burning which takes place every year. This impact on UK air quality is unusual, and may have been exacerbated by uncontrolled spread of the fires due to dry conditions, leading to a rapid expansion of the burning area, and by prevailing weather. Information from the Met Office suggests that the easterly air mass flows which have brought the particles to the UK are likely to remain over the next few days but that this will change by Saturday. Until then the levels of PM10 may depend on how quickly the fires are brought under control.

The impacts of emissions from one country on another are addressed through the United Nations Economic Commission for Europe (UNECE) by the Convention on Long Range Transboundary Air Pollution. The Government is working with the UNECE towards future agreements that may more effectively address incidents of this type.

❖ Conference Update:

Readers are reminded that the 7th UK Wind Engineering Conference will be held at the University of Glasgow's Kelvin Conference Centre from 4th to 6th September 2006. Following the terrific response to the call for abstracts, our team of expert reviewers has provided feedback on the submissions. A draft programme has now been generated, covering a wide range of topics in keeping with the broad scope of industrial and academic interests.

Dr. Marco Vezza, University of Glasgow



KEYNOTE LECTURES

We are delighted to announce that the following keynote lectures will be presented at the conference.

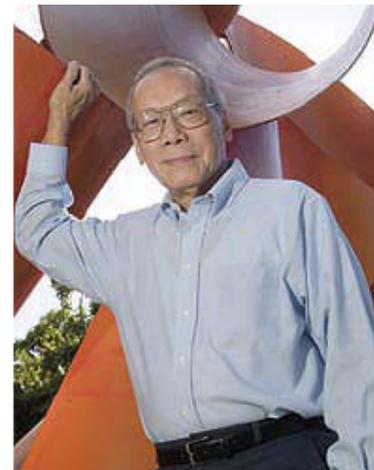
"Cognitive Performance : Is it Affected by the Motion of a Tall Building in a Wind Storm?"
Prof. Kenny Kwok, Dept. of Civil Engineering, The Hong Kong University of Science and Technology, Hong Kong.

"Is Global Climate Change Making Tropical Cyclone Damage Worse?"
Prof. Brian Lee, Dept. of Civil Engineering, University of Portsmouth, Portsmouth, UK.

See overleaf for contact details

❖ Obituary

Arthur N. L. Chiu, a professor emeritus at the University of Hawaii at Manoa, passed away on January 30, 2006. Art was a native of Singapore; he earned his bachelor's degree from Oregon State University in 1952, a master's degree from MIT in 1953 and a doctorate from the University of Florida in 1961. His doctoral studies involved full-scale measurements of towers, an interest which he continued through his long, illustrious career at the University of Hawaii, where he taught a total of 42 years. During 1966-68 he served on the faculty of Asian Institute of Technology in Bangkok, Thailand. He also held administrative positions at Hawaii that included Chair of the Department of Civil Engineering and Associate Dean. He retired from Hawaii in 1995, but remained very active in professional societies and maintained regular office hours when he was in Honolulu. His professional involvement included service as the National Chair of Chi Epsilon, Member of the Board of Directors of the Applied Technology Council, and Chair of the National Research Council's Committee on Natural Disasters. He was awarded in 1982 the University of Hawaii Award for his accomplishments as a teacher and a Hawaii Council of Engineering's Lifetime Achievement Award. For those of you who entered the world of wind engineering around my time may recall that he edited a publication called the Wind Engineering Digest under the auspices of then WERC (Wind Engineering Research Council), the predecessor of AAWE. He is survived by his wife, a son (Dr. Greg Chiu) and a daughter.



On a personal note, I arrived at the University of Hawaii as an East West Centre (a Fulbright Program) scholar in August of 1971. I did not have the opportunity to meet with Art or to take any course from him as he was in the Dean's office during that period. I was introduced to him by Dr. Jack Cermak (my doctoral advisor) at Colorado State University in perhaps 1974, during his visit as a seminar speaker. Art was very kind to remember me from Hawaii. It was a beginning of a great friendship in which we always kidded with each other. He was very generous with his time and served as my advisor and a confidant from personal matters to the politics of academic world. I can vividly recall his telephone calls from Honolulu at the end of our day as he began histhose calls are being missed.



We served for an extended period on the Committee on Natural Disasters of the National Research Council, which brought us together twice a year. He always had very insightful contributions to these meetings and people sought his opinion. Full-scale measurements were his main interest from his doctoral studies in Florida to measurement programs in Taipei and Honolulu. He made major contributions in these areas, as full-scale measurements are perhaps the most challenging research fraught with uncertainties and things beyond one's control.

On a flight from Madras to Delhi, we went through very rough weather, and I kept on nudging Art about the severity of the storm and possible consequences as he was sleeping or trying to. He finally said jokingly to me to settle down kid the plane is not going anywhere as long as the Indians do not know that you (a Pakistani) are aboard! Upon arrival in Delhi for the International Wind Conference in 1995, searching for a room in Samrat Hotel was a real undertaking (We went through several rooms but did not like any!). The manager finally gave Art a bunch of keys so we could find a room we liked.

Since my early days in academics, Art criticized my sloppy handwritten multi-color transparencies. I am delighted that he finally gave me thumbs up in April 2005 at Structures Congress in New York. He told my student that her slides were great and left the room and then came back and advised her against the use of red, as it is hard to read from distance. A perfectionist...wasn't he! This trip to New York also gave us and our families the opportunity to have dinner together, kindly hosted by Les Robertson and his wife. Later last year, I had the pleasure of Art's company for the last time in Baton Rouge for the Americas Conference on Wind Engineering.

Before closing, I must add that Art acted as a great physician for us as well. During long travels, when one felt a little slow or when there were early symptoms of cold, Art always insisted that we took vitamin C, which worked miracles for us. I can go forever remembering our interactions, but I recall what Art would have said now..... "Time is over kid," while waving his hands (this was our signal in conferences for me to wind up my presentations that went often beyond allotted time, especially when the transparencies started flying, making the audience dizzy and the contents lost their coherence!).....May his soul rest in peace as he has left us with great memories!
Mahalo!

Ahsan Kareem, Notre Dame

A further tribute to Professor Chiu is presented in the newsletter of the American Association of Wind Engineering, available on www.aawe.org

❖ Future WES Events

4–6 September 2006

7th UK Conference on Wind Engineering (WES 06)

Strathclyde, James Weir Building, Montrose Street, Glasgow G1 1XJ, UK

Contact: Dr. Ian J Taylor, Department of Mechanical Engineering, University of

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❖ Other Forthcoming Conferences

2007

12th International Conference on Wind Engineering (ICWE12)

Cairns, Queensland, Australia, 1 – 6 July

www.awes.org/icwe12