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*AGM and Wind Effects on Sports Stadia: 11 May 2011*

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## ❖ Chairman's Column

John Owen, University of Nottingham

### Chairman's Column

I am delighted to say that we have had a very encouraging start to 2011, we've held two well attended and very interesting technical meetings in London and have held a special regional meeting in Scotland thanks to the efforts of Graham Knapp and Ian Taylor. I am very keen that we increase our activities and with this start to the year we are on track to achieve this. The January meeting, at which Janet Barlow spoke about some of her recent work measuring the urban wind environment in London, was particularly interesting as it highlighted how rapidly some aspects of meteorology are advancing. These advances can only be helpful to the Wind Engineer and so I'm delighted that our Scruton Lecture in December will further develop this theme.

We are several changes to the committee taking place this year, perhaps more than normal, and I would like to take this opportunity to thank those who are stepping down. Graham Knapp, Melissa Burton and Nick Waterson are all moving overseas with work and Brian Smith has decided that the time is now right to hand on the baton. Graham and Melissa have served as newsletter editor and honorary treasurer respectively and I particularly thank them for their contributions in these roles. Brian has been a real stalwart of the Society, a past chairman and a Scruton Lecturer. Thank you Brian for all that you have done for WES over the years.

Finally, let me make my usual plea for greater participation in the Society. Members of the committee are always happy to hear suggestions for new technical meetings and even new venues if you think WES could hold a meeting in your region. WES also needs more members, so please do encourage colleagues to sign up or get your company to join as a corporate member.

[John.Owen@nottingham.ac.uk](mailto:John.Owen@nottingham.ac.uk)

## ❖ CROSS / Safety Reports

Every issue we try to bring relevant recent wind-related safety announcements to the wind engineering community. The principal source is the [Standing Committee on Structural Safety](#), which gathers information through a confidential reporting scheme. All contributions should be sent to [graham.knapp@cstb.fr](mailto:graham.knapp@cstb.fr)

### ***Council responsible for death of child in wall collapse***

A London council has been ordered to pay £137,000 after a wall it owned collapsed and killed a two year old child during a storm in 1997. The Council admitted two breaches of health and safety legislation. It was fined £72,000 and ordered to pay £65,000 prosecution costs. The council had claimed it was a sub-contractor's duty to maintain the wall but the court was told the wall was too thin for its height and was doomed to failure from the day that it was built in the mid-1970s because it did not conform to prevailing design standards for structural engineering safety.

CROSS comments: This report should remind owners of their responsibilities to assure proper designs and maintenance.

## ❖ Future WES Events

[www.windengineering.org.uk/events-future.php](http://www.windengineering.org.uk/events-future.php)

At the Institution of Civil Engineers, One Great George Street London SW1P 3AA, unless otherwise stated

**Wednesday 11<sup>th</sup> May 2011 at 6.15pm**

**This meeting will be preceded by the WES AGM at 6.00pm**

*(Refreshments available from 5.30pm in the Brasserie)*

### **Wind Effects on Sports Stadia**

Convenor: John Macdonald

#### **Wind Engineering for Stadia**

Dr Graham Knapp

Senior Wind Engineer, Buro Happold

Fergus McCormick

Associate Director, Buro Happold

#### **Use of the Wind Tunnel as a Design Tool**

Dr Graeme Flynn

Manager Wind Environment & Stadia Group,  
BMT Fluid Mechanics

**Chair: Dr John Owen**

There is no charge and non-members of the Society are welcome to attend.

For further information or to express an interest in attending, please contact Tim Fuller at the ICE on:

Tel: 020 7665 2234 Fax: 020 7799 1325 Email: [tim.fuller@ice.org.uk](mailto:tim.fuller@ice.org.uk)

**It is our intention to transmit a webcast of the technical meeting.** Further details of this will be circulated to WES members prior to the event.



### **Wind Energy**

**Monday 20th June 2011**

Convenor: Gordon Breeze

#### Tentative Programme

Professor MJR Graham, Dept of Aeronautics, Imperial College *The wind turbine as a structure in the natural wind and its interaction with other structures*

David Sharman, Ampair *Practical, commercial, regulatory and planning issues*

Stephen Crosher, Quite Revolution *Vertical axis wind turbines*

## **WES Wind Engineering Research Day & Research Student Prize**

2pm, Wednesday 19<sup>th</sup> October 2011. Faculty of Engineering, University of Nottingham

### **Abstracts from research students due by 31<sup>st</sup> July**

The biennial Wind Engineering Society Research Day will be held on Wednesday 19<sup>th</sup> October 2011. This is a half day meeting with the aim of encouraging and stimulating research in the field of Wind Engineering. This year the Faculty of Engineering at the University of Nottingham will be hosting the event and we will be broadening the scope of the day by including invited presentations giving more background on the developing Wind Engineering research strategy, including an industry perspective on research needs. Presentations by current research students and research assistants will remain a key feature of the event – and as usual presenters will be competing for a prize offered by the Wind Engineering Society. Research students and assistants working on any aspect of Wind Engineering (wind loads on structures, pollution dispersion, boundary layer meteorology, pedestrian level wind environment, response of structures to wind etc.) are invited to submit a short abstract of 250 words describing their research. Abstracts should be submitted not later than 31<sup>st</sup> July 2011 by email to [john.owen@nottingham.ac.uk](mailto:john.owen@nottingham.ac.uk).

## **Scruton Lecture 2011: Professor Stephen Belcher**

### **How can urban meteorology help engineering design for the city?**

**5th of December 2011**

New Yorkers often complain that “In the city the wind is always in your face”. The wind is usually turbulent and driven by a combination of synoptic forcing, surface heating and moving traffic, all within the complex geometry of the city landscape.

Urban Meteorology aims to understand and predict winds and temperatures within cities and provides the atmospheric context for much engineering design and practice. The urban boundary layer has particular wind and temperature characteristics that are very different from outlying rural areas. Our understanding of these characteristics has developed very rapidly over the last 10 years through fundamental improvements in our understanding, in the ability of models to simulate the turbulent flow through groups of buildings, particularly large-eddy simulation, and in new measurement techniques, particularly remote sensing. London is one of Europe’s mega cities and has become a focus for research activity, with large-scale measurement and modelling campaigns aiming to develop long-term data sets and predictive models.

In this lecture I will review the particular features of the urban atmospheric boundary layer with a particular focus on London, and the new tools now available for measurement and modelling, and how urban meteorology can influence design and engineering practice, particularly sustainability, natural ventilation and wind loads on structures.

### **Biography**

Stephen Belcher is Joint Met Office Chair in Weather Systems at the Department of Meteorology, University of Reading, where he has served as Head of Department and Head of School of Mathematics, Meteorology and Physics. He is an expert in atmospheric turbulence and boundary layer meteorology, with a particular interest in the meteorology of urban areas. He has published nearly 100 papers and is currently leading the ClearLo project which aims to measure and model London’s urban air quality.



## ❖ Codes and Standards

### *Eurocodes on Climatic actions*

**Brian Smith**

With the full set of structural Eurocodes and National Application documents now published, work is already beginning to improve these documents and remove inconsistencies.

The 'Evolution' Group in TC250/SC1 (the 'Actions' Subcommittee) on "Climatic Actions" has now been established and an initial meeting has been planned in June 2011. The official UK representatives are Chris Baker and Brian Smith (with John Rees and Andrew Allsop as experts as required) and the Convenor is Svend Ole Hansen. A proposed scope of the activities as far as Wind Actions are concerned has been drafted by the Chairman of the 'Actions' Subcommittee covering:

- A systematic review of force coefficients and exterior pressure coefficients including influence areas/zoning considering the national and experts' comments. This to include coefficients specified in other Eurocodes Parts, e.g. for towers and masts, chimneys and other structures (e.g. lightweight). CENELEC standards for overhead electric lines will also be considered.
- Force coefficients for global wind loads, e.g. for the design of foundations.
- Influence lines / mode shapes with changing signs.
- Additional rules for vortex-induced vibrations.
- Identification and, as far as possible, removal of inconsistencies in determining wind actions and wind action effects on structures covered in different Eurocode Parts and in CENELEC standards, as well as other CEN or ISO standards
- Gathering of available information from the relevant National Annexes of the Member States, followed by a review of the discrepancies with tentative proposals to achieve harmonization.
- Editorial improvements.

In addition the Chairman has identified the need to consider the interdependence of climatic actions through the establishment of an informative document in an appropriate form (e.g. a European Climatic Load Combination Map) for the load combination factors  $\psi_0$ ,  $\psi_1$  and  $\psi_2$  based on existing National values.

Corresponding scopes of activities for snow and thermal actions have been drafted. The proposed scopes will be discussed at the initial meeting.





## ❖ WES Event reports

[www.windengineering.org.uk/events-past.php](http://www.windengineering.org.uk/events-past.php)

### ***Introduction to Wind Engineering, March 2011***

On a warm, sunny March evening in Glasgow, incidentally one of many 'old firm' nights this year, the Institution of Civil Engineers (ICE) hosted our society at their offices in the centre of the city. Despite the competing attractions on offer that evening we had a good turnout and the number of questions at the end showed that people had been interested in the presentations.

Dr Ian Taylor of the University of Strathclyde presented a range of computational work including bridge aerodynamics and screen design as well as an analysis of pedestrian comfort for a development in the host city. He highlighted the importance of using appropriate boundary conditions, mesh sensitivity checks and turbulence modelling techniques in computational work.

Graham Knapp showed a selection of work carried out by Buro Happold over the last 10 years including computational, wind tunnel and theoretical studies. He gave project examples including stadia, tall buildings and master plans around the world. He emphasised the need to follow best practice through use of the "wind engineering chain", considering the quality of wind data, site shelter, microclimate and resulting impacts feeding into design. He also gave examples of how wind engineering studies had directly influenced the design of these projects.

The Wind Engineering Society would like to thank the Institution of Civil Engineers in Glasgow for hosting this technical meeting and looks forward to hosting more events in regional branches of the ICE.

## ❖ Announcements

### ***Job Opportunity***

RWDI is seeking people with experience using CFD in the built environment (internal and external) to join the Building Performance team, executing flow analysis using CFD, analytical relationships, and other tools. Openings are available at RWDI's Guelph, Ontario and Dunstable, Bedfordshire offices. Interested parties can find details at [www.rwdi.com/job\\_listings](http://www.rwdi.com/job_listings).

### ***Short Course: An introduction to Wind Engineering***

Having attended the wind engineering course delivered by the University of Birmingham in 2003, I can heartily recommend the following to anyone looking to broaden their understanding of wind engineering, or to academic supervisors and managers looking to develop their staff. *Graham Knapp, Editor*

#### **Wednesday 6th July to Friday 8th July**

Nationaal Lucht- en Ruimtevaartlaboratorium (NLR), Amsterdam

In conjunction with JDH consulting, the Wind Engineering research group at the University of Birmingham have developed a unique series of master classes in Wind Engineering, which aim to provide a broad introduction and overview of the subject. These classes will be delivered in the week before the International Conference on Wind Engineering in Amsterdam. Further information concerning the programme and registration details can be found at [www.windresearch.org/course.html](http://www.windresearch.org/course.html)

## ❖ Forthcoming Conferences

See [www.iawe.org/](http://www.iawe.org/) for more

### **UK Events**

#### **IABSE/IASS Symposium London September 2011 Special Session on Wind Engineering**

The Olympics will be held in London in 2012. This was one reason why the International Association for Bridge and Structural Engineering (IABSE) and the International Association for Shell and Spatial Structures (IASS) both decided to hold their 2011 Symposium in the UK, taking advantage of the opportunity to explore the structures under construction for the Olympics. The decision was made to hold a joint event for the first time since 1994, and the Organisers are delighted that members of both associations and delegates from around the world will come together in September 2011 in London for what promises to be a truly unique occasion. The event also incorporates the 6<sup>th</sup> International Conference on Space Structures normally held at Surrey University.

The Symposium will be held in the Queen Elizabeth II Conference Centre, in Westminster from Tuesday 20th to Friday 23rd September. The main theme of the Symposium is "Taller, Longer, Lighter", with an added emphasis on meeting growing demand with limited resources. To this end more than 600 papers have been accepted for presentation, there will be an exhibition of product and material suppliers, and technical tours will be arranged to relevant places of interest.

Within the technical programme there will be a special session on Wind Engineering which is being jointly organised by IAWES and WES. Some 10 papers will be presented in this session and in addition there will be papers in the general programme covering wind aspects of many current and future projects, such as Messina Bridge, Forth Crossing and the Shanghai tower.

Details of the Symposium and how to register can be found on the Symposium web-site: [www.iabse-iass-2011.com](http://www.iabse-iass-2011.com)

#### **Brian Smith**

Joint Chairman of the Organising Committee

### **International Events**

#### **13th International Conference on Wind Engineering**

**July 10-15, 2011 Amsterdam, The Netherlands**

The wind engineering community in the Netherlands and Flanders is very pleased to cordially welcome you to Amsterdam for the next International Conference on Wind Engineering. Amsterdam is the capital of a country with a long history in wind engineering, as demonstrated by the large number of windmills used in land reclamation. The conference is intended to gather researchers and engineering consultants who will share the latest results of research and successful case studies in which wind is a relevant engineering and design phenomenon. The field ranges from fluid dynamics, applied meteorology, wind energy, civil engineering and city planning to design of cladding and roofing. This broad field makes this conference an interesting gathering place for all parties involved in wind-related engineering and design. The venue is very much worth visiting and a social programme organised during the conference will include cultural and historical highlights.



We are looking forward to welcoming you.

Chris Geurts, Conference Chairman

Deadline registration and payment June 1, 2011

[info@icwe13.org](mailto:info@icwe13.org)

[www.icwe13.org](http://www.icwe13.org)