The Australasian Wind Engineer

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Welcome Wind Engineers to the November 2010 edition of the AWES Newsletter.

The main item of business in this edition is notice of the AWES Committee, and our Secretary, Katrina Swalwell, has provided all the details.

The 14th Australasian Wind Engineering Society Workshop, coinciding with the Southern Hemisphere Extreme Winds workshop, was recently held in Canberra, and Bob Cechet and John Holmes have all the info on these.

The revised wind-loading standard, AS/NZS 1170.2, has presently seen some development and review, and details are inside this edition.

Finally, George Walker and Richard Flay have written a tribute to Derek Freeston, who would be known to number of the older generation of the wind engineers in Australia and New Zealand, who has recently passed away in Auckland at the age of 81.

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The Australian War Memorial hosts the AWES14 Workshop dinner

AWES Committee Election

Contributor: Katrina Swalwell

The new committed for the term 2010-11 has now been elected and consists of:

Chair: John Ginger
Secretary: Katrina Swalwell
Treasurer: Graeme Wood
Newsletter: Leighton Aurelius
Webpage: Matt Mason
Workshop Liaison: Bob Cechet
Co-opted Member (Membership): Mick Chay
Co-opted Member (PastChair): Chris Letchford

Congratulations to the new committee.

Many thanks must go to the outgoing president Chris Letchford, and also to Michael Eaddy who after very long service resigned his webpage duties during the year. Also, many thanks must go to Matt Glanville who has coordinated the membership lists for the last two years.

AWES14 Workshop 2010

Contributor: Bob Cechet

More than seventy delegates (including many AWES veterans and a number of students) attended the Southern Hemisphere Extreme Winds (SHEW) Workshop on 4 August 2010, followed by the 14th AWES Workshop on 5 & 6 August, 2010, hosted by Geoscience Australia in Canberra.

The SHEW Workshop, coordinated by John Holmes, focussed on the wind climate in the southern hemisphere with attention given to recent storms that caused damage in countries such as Brazil, Uruguay, Argentina, South Africa and southern Australia. A session also discussed the intricacies and peculiarities of the Dines Anemometer, on which a significant length of record regarding extreme wind measurement record is based (chiefly in Commonwealth countries); measurements from the Dines underpin the wind loading standard.

This was followed by the 14th AWES Workshop, which contained two days of presentations on wind engineering with an emphasis on building vulnerability. Keynotes talks included the UWO Wind Dome by Horia Hangan, Long term wind variability over Australia by Alberto Troccoli, Computational modelling of wind flow by Keith Ayotte, and Hurricane risk management in Florida by Jean-Paul Pinelli. Presentations on the Current Knowledge on Climate change effects on windstorms by John McBride, and Wind Engineering and Regulation by Lam Pham also generated much discussion. A highlight was the quality of presentations by student members.

The Workshop dinner was held at the Australian War Memorial where John McBride explained his liking for two-tone shoes and Andrew King suggested innovative ways of teaching Maths to primary school kids. The 2nd World War “lights and sounds” show featuring an aircraft battle re-enactment preceded the Workshop Dinner and made the workshop a truly memorable event.

The 15th AWES Workshop will be held in Sydney in February 2012, and is being coordinated by Steve Cochard from the University of Sydney.

Southern Hemisphere Extreme Winds Workshop

Contributor: John Holmes

Nearly fifty people attended the first ever Southern Hemisphere Extreme Winds Workshop on August 4th 2010 at Geoscience Australia, Canberra. This was a new concept that brought together meteorologists and wind engineers from several countries in the Southern Hemisphere. To quote the Workshop flier: ” Southern Hemisphere land masses (i.e. Southern Africa, South America, Australia, New Zealand) are essentially affected by the same synoptic weather systems producing strong winds – these well may differ in some respects from the Northern Hemisphere due to the much greater proportion of open ocean in the Southern Hemisphere. The prevalence of severe local wind events due to thunderstorms and their effect on structures such as transmission line towers in Argentina, Brazil, South Africa and Australia has also been noted, and has been the subject of previous workshops associated with the transmission line industry”.

Thanks to the financial support of GA and AWES, an impressive array of invited speakers participated. These were:

- *Valeria Duranona – University of the Republic, Uruguay*

- *Jeff Kepert - CAWCR, Bureau of Meteorology, Australia*
- *Acir Loredo-Souza, UFRGS, Porto Alegre, Brazil*
- *Bruno Natalini, National University of the Northeast, Argentina*
- *Andries Kruger, South African Weather Service*
- *Richard Turner, NIWA, New Zealand*

Most unfortunately Professor Jorge Riera (UFRGS, Brazil) had his flight leg from Santiago, Chile, cancelled, and didn't make it to the Workshop. However, Michael Chay from CPP very kindly stepped in at short notice, and delivered most of Professor Riera's Powerpoint presentation on a windfield model for an intense downburst.

Valeria Duranona, Bruno Natalini and Acir Loredo-Souza all gave interesting, and well-illustrated, presentations on extreme wind events in their respective countries. Acir's slides on Brazil's one-and-only tropical cyclone in 2004 sparked considerable interest, since the South Atlantic does not normally suffer from such events, in contrast to the Indian and South Pacific Oceans. Andries Kruger's paper described an extreme value analysis of extreme winds in the mixed climates of certain regions of South Africa.

Jeff Kepert's interesting presentation on modeling the dynamic response of the Dines anemometer preceded a series of paper presenting preliminary results from the project funded by the Department of Climate Change and Energy Efficiency on the response of that instrument, (used extensively by the Bureau of Meteorology u to the early 1990s), to extreme wind gusts. Finally a presentation by John McBride on the official 'world's highest wind gust' of 113 m/s recorded at Barrow Island, WA, in 1996 provoked considerable interest, and perhaps a little skepticism.

Whether or not there are any follow-up Workshops of this kind, I believe the sharing of experiences across the hemisphere, and between wind engineers and meteorologists, was a great success. Geoscience Australia (Bob Cechet in particular) should be congratulated on organizing the event in conjuction with AWES14.

AS/NZS 1170.2 - Update

Contributor: John Holmes

The revised version of AS/NZS1170.2 went through a public review in October - December 2009, and a ballot by Committee BD006 in June-July 2010. There were three negative votes resulting from the ballot - however these now appear to have been resolved, and it is expected that the new version of AS/NZS1170.2 will be published by Standards Australia and Standards New Zealand very shortly. There are changes from AS/NZS1170.2:2002 relating to torsion/eccentricity, windborne debris criteria, internal pressures, local pressure factors, action combination factor, structural damping and cantilevered roofs, as well as many smaller revisions/corrections.

Eulogy for Derek Freeston

Contributors: George Walker and Richard Flay

Derek Freeston, who would be known to number of the older generation of the wind engineers in Australia and New Zealand, recently passed away in Auckland at the age of 81.

During the 1960's the pioneers of the development of the boundary layer wind tunnel had established it as state-of-art tool for use in estimating the wind response of proposed tall buildings which were then beginning to be built in the central business districts of major cities. This created a demand for wind tunnel testing which led to an expansion of wind tunnel facilities, mainly within universities, accompanied by an increase in wind engineering researchers. Derek joined the Mechanical Engineering Department at the University of Auckland in 1969 just as engineers working on the design of the early tall buildings in Auckland and Wellington were beginning to express a need for wind tunnel studies of the proposed buildings. He quickly became involved in this work and for the next decade wind engineering became the primary focus of his research activities.

By the late 1970's New Zealand had become an international leader in the development of geothermal power and was anxious to back this up through the establishment of an internationally recognised centre of education and research in the field of geothermal engineering. Derek saw this as an opportunity to be an international pioneer in an emerging field of study and in 1979 was

closely involved in the establishment of the Geothermal Institute at the University of Auckland, one of the first such centres in the world outside of Iceland. Within a few years he had earned a reputation as an international expert in this field and it became his abiding interest for the remainder of his academic life and beyond his retirement as a full-time academic in 1992.

Derek had a background quite unlike most modern academics, but it underpinned much of his academic success in both teaching and research. Derek was born and educated in the UK. On leaving school he took up a government training award at the Royal Aircraft Establishment, Farnborough, where he was both apprentice and scholar. Here he completed his trade qualification as an aeronautical fitter and his degree in engineering from University of London. In 1952 he took up a three year commission in the Royal Air Force in Transport Command at Hendon where he was the engineering officer in charge of the maintenance of a squadron of aircraft, as well as developing an interest in model aeroplanes and sailing, two hobbies he pursued enthusiastically for the remainder of his life. He then moved to Bristol where he worked in the aircraft industry as a young engineer for Bristol Aero Engines working on the design of gas turbines. In 1958 Derek began his academic career at the Rugby College of Engineering Technology where he enjoyed not only the challenges of engineering research and its applications, but also found his vocation as a teacher. He and his colleagues ran a course on diesel design that attracted students from around the world, and he undertook research on ventilation systems for large engines. He remained in this position until he emigrated with his family to New Zealand in 1969.

My earliest memory of Derek is meeting him in 1975 at Bristol University where he was spending a year on study leave working with Tom Lawson, who would also be known to some of the older generation of wind engineers. I was also on study leave, working at the Building Research Station in Garston with Keith Eaton, John Mayne and Nick Cook. Like me Derek was using his study leave to come to grips with the fundamentals of wind engineering, both of us having been thrust into it initially at the user end by external circumstances. I stayed in wind engineering, he didn't, but we established a lasting friendship.

While his primary involvement in wind engineering only lasted about 10 years he remained interested in it, particularly in relation to boundary layer wind tunnel studies, and it was often the subject of our discussions.

During the 1980's Derek was also involved in wind tunnel testing with the University of Auckland. At that time he was a Corresponding Member on the ESDU Wind Engineering Panel, and was also on the Editorial Board of the JWEIA. As he was very involved in the Geothermal Institute at that time, he recommended that Richard Flay take over both of those wind engineering roles.

Derek was a big person physically but he was a gentle giant. A more humble gracious person it would be hard to find. While experts in his areas of expertise may remember his research contributions it is these qualities which his large circle of academic colleagues, friends and former students will remember – qualities which in association with his trade training and professional engineering background underpinned his ability to inspire younger generations to excel in their professional engineering careers.

Derek is survived by Yvonne, his three children Marion, Mark and Janet, and their families comprising 9 grandchildren and one great grandchild. I am indebted to Mark for much of the material in this tribute.

Well, that's it for this edition of the AWES Newsletter. Many thanks must go to our contributors.

As always, a newsletter cannot exist without news, so any stories, photos or information on upcoming events will always be appreciated.

Cheers,

Leighton Aurelius
AWES Newsletter Editor.

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