WIND TURBINE NOISE 2013
PROVISIONAL PROGRAMME

Tuesday 27 August 2013

13.00 – 17.00 Short Course on Noise
15.00 – 19.00 Registration
17.30 – 19.30 Exposition Reception (Joint with Noise-Con 2013)

Wednesday 28 August 2013

08.00 – 09.30 Plenary Lecture (Joint with Noise-Con 2013)
Wind Turbines: What’s all the noise about? An American retrospective and prognostication
Mark Bastasch, USA

Low Frequency Noise and IS: Measurements
09.45 Infrasound measurement, interpretation and misinterpretation
Bruce Walker, USA
10.00 Measuring and analyzing wind turbine infrasound and audible immissions at a site experiencing adverse community response
George Hessler, USA
10.15 The measurement of infrasound and low frequency noise for wind farms
Steven Cooper, Australia
10.30 – 10.45 Discussion
10.45 – 11.15 Coffee Break

Low Frequency Noise and IS: Effects
11.15 Infrasound and the ear
Geoff Leventhall, UK
11.30 A proposed theory to explain some adverse physiological effects of the infrasonic emissions at some wind farm sites
Paul D. Schomer et al, USA
11.45 Perception of low frequency components contained in wind turbine noise
Sakae Yokoyama, Shinichi Sakamoto and Hideki Tachibana, Japan
12.00 – 12.15 Discussion
12.15 – 13.30 Lunch

Amplitude Modulation
13.30 Amplitude modulation and complaints about wind turbine noise
Joachim Gabriel et al, Germany
13.45 Audible amplitude modulation - results of field measurements and investigations compared to psycho-acoustical assessment and theoretical research
Mike Stigwood, Sarah Large and Duncan Stigwood, UK
14.00 Amplitude modulation noise analysis and first look at off-shore wind turbine aeroacoustics simulation study
Sidney Xue et al, China
14.15 Thump noise prediction
Rufin Makarewicz, Poland
14.30 Application of phased array techniques for amplitude modulation mitigation
Steven Buck, Scott Palo and Patrick Moriarty, USA
14.45 – 15.15 Discussion
15.15 – 15.45 Coffee Break

Transducers Instrumentation
15.45 Evaluation of secondary windshield designs for outdoor measurement of low frequency noise and infrasound
Kristy Hansen, Branko Zajamek and Colin Hansen, Australia
16.00 Improvement of regression analysis on wind noise effects for low frequency sound measuring in natural wind
Noboru Kamiakito et al, Japan
16.15  How frequency response influences measurement and audibility of periodic wind turbine sound
       Werner Richarz, USA and Harrison Richarz, UK
16.30  Wind turbine noise measurements in practice
       Carsten Thomsen and Simon Møller Nielsen, Denmark
16.45  Highly distributed data acquisition on wind turbines with PAK
       Dejan Arsic and John Huff, Germany
17.00 – 17.30 Discussion
Thursday 29 August 2013
Session Room A

Aerodynamic Noise Generation and Control
08.00  Review of NACA 0012 turbulent trailing edge noise data at zero angle of attack
Con Doolan and Danielle Moreau, Australia
08.15  Wind turbine noise modelling based on Amiet’s Theory
Y. Tian, B. Cotté and A. Chaigne, France
08.30  Broadband noise prediction of small horizontal wind turbine rotor
Bavuudorj Ovgor and Seungbae Lee, Republic of Korea
08.45  Hybrid methods for noise prediction in aeroacoustic simulations of small vertical axis wind turbines
Johannes Weber et al, Germany and Austria
09.00  Wake patterns and noise in a dual rotor wind turbine
K. Asfar and A. Mahasneh, Jordan
09.15  The effect on noise emission from wind turbine due to ice accretion on rotor blades
Peter Arbinge and Paul Appelqvist, Sweden
09.30  Noise prediction of wind turbine and low noise blade design
Kentaro Hayashi et al, Japan
09.45  Aeroacoustic noise mitigation investigation for wind turbine blades
Michael Asheim, Patrick Moriarty and David Munoz, USA
10.00 – 10.30 Discussion
10.30 – 11.00 Coffee Break

Structureborne Noise/Vibration
11.00  Noise from one stage of helical gears by wind turbine load
Chan IL Park, Republic of Korea
11.15  A validated virtual prototyping approach for avoiding wind turbine tonality
Goris Sonja et al, Belgium and Germany
11.30  Suppression of the structure-borne sound from a wind turbine generator using active vibration control devices: model experiment
Tetsuya Miyazaki et al, Japan
11.45 – 12.00 Discussion

Source Identification
12.00  Noise source localization on a 8kW wind turbine using a compact microphone array with advanced beamforming algorithm
Rakesh Chandran Ramachandran et al, USA
12.15  Acoustic array design for wind turbine noise measurements
Steven Buck et al, USA
12.30  Identification of wind turbine noise through signal analysis
Michael Medal et al, Canada
12.45 – 13.00 Discussion
13.00 – 13.45 Lunch

Session Room B

Effects of WTN on Individuals
08.00  Audit report: Literature reviews on wind turbine noise and health
Brett Horner, Carmen Krogh and Roy Jeffrey, Canada
08.15  Wind turbine noise: What has the science told us?
Loren D. Knopper et al, Canada
08.30  Perception change of soundscape as wind turbine alters community sound profile
William K.G. Palmer, Canada
08.45  Trading off human health: Wind turbine noise and government policy
Carmen Krogh et al, Canada
09.00  Wind turbine facilities’ perception: a case study from Canada
Peter N. Cole and Carmen Krogh, Canada
09.15  Correlation between people perception of noise from large wind turbines and measured noise levels
Federica Andreucci et al, Italy  Enrico Mazzocchi will give this paper.
09.30  Masking of sage-grouse display calls by noise from wind turbines
Scott Noel, USA
09.45 – 10.15 Discussion
10.15 – 10.45 Coffee Break
Sound Immission Measurements Part 1
10.45  Noise’s measure inside homes generated by the functioning of wind farm in southern Italy
       Amelia Trematerra and Gino Iannace, Italy
11.00  Hiding wind farm noise in ambient measurements - noise floor, wind direction and frequency limitations
       Steven Cooper, Australia
11.15  Tonality assessment at a residence near a wind farm
       Jonathan Cooper, Tom Evans and Dick Petersen, Australia
11.30  Evaluation of wind turbine-related noise in western New York State
       Martin T. Schiff et al, USA
11.45  The variability factor in wind turbine noise
       Jim Cummings, USA
12.00  Annoyance from wind turbine noise – what can we learn from different assessment methods?
       Sabine von Hünerbein, UK
12.15 – 12.45 Discussion
12.45 – 13.45 Lunch

Sound Immission Measurements Part 2
13.45  Simultaneous indoor low-frequency noise, annoyance and direction of arrival monitoring
       Branko Zajamsek et al, Australia
14.00  Generating a better picture of noise immissions in post construction monitoring using statistical analysis
       Payam Ashtiani, Canada
14.15  Wind farm noise commissioning methods: A review of methods based on measuring at receiver locations
       Christophe Delaire et al, Australia
14.30  Assessment of wind turbine noise in immission areas
       Hideki Tachibana, Hiroo Yano and Akinori Fukushima, Japan
14.45 – 15.15 Discussion
15.15 – 15.45 Coffee Break

Sound Emission Measurements
15.45  Wind turbine noise measurements - how are results influenced by different methods of deriving wind speed?
       Sylvia Broneske, UK
16.00  RoBin: Meeting the requirements of the IEC 61400-11 standard for measuring the acoustic emission of wind
turbines with a one-man operated system
       D. Vaucher De La Croix, France and T. Klaas, Germany
16.15  Tonality in wind turbine noise. IEC 61400-11 ver. 2.1 and 3.0 and the Danish/Joint Nordic method compared
       with listening tests
       Lars Sommer Søndergaard and Torben Holm Pedersen, Denmark
16.30  The production of a good practice guide to assess wind turbine noise in the United Kingdom using
       ETSU-R-97
       Richard Perkins et al, UK
17.00 – 17.30 Discussion
19.00 – 22.30 Reception and Banquet at Denver Art Museum
Friday 30 August 2013

Propagation Wind Effects Modelling Part 1
08.30 Sound propagation from wind turbines under various weather conditions
Olof Öhlund and Conny Larsson, Sweden
08.45 Proposed method for characterizing wind turbine noise and their dependence on meteorological effects for validation of existing studies
David S. Woolworth, Roger Waxler and Jeremy Webster, USA
09.00 Wind farm layout optimization in noise constrained areas
Andrew Brunskill, Canada
09.15 Validation of WindPRO implementation of Nord2000 for low frequency wind turbine noise
Lars Sommer Søndergaard and Thomas Sørensen, Denmark
09.30 Environmental noise assessment of proposed wind farms using annual average Ldn
Mark Bliss, Canada
09.45 – 10.00 Discussion
10.00 – 10.30 Coffee Break

Propagation Wind Effects Modelling Part 2
10.30 Accuracy of noise predictions for wind farms
Jonathan Cooper and Tom Evans, Australia
10.45 Large-scale calculation of possible locations for specific wind turbines under consideration of noise limits
Fabian Probst, Wolfgang Probst and Bernd Huber, Germany
11.00 The new good-practice-guide to help assessment of wind turbine noise in Finland
Denis Siponen et al, Finland
11.15 Physics based spatial acoustics in virtual scenes with application to wind farm noise
Kevin Nelson and Steven G. Mattson, USA
11.30 – 11.45 Discussion
11.45 – 13.00 Lunch

Regulations & Policies Part 1
13.00 Which limits for wind turbine noise? A comparison with other types of sources using a common metric
Gaetano Licitra and Luca Fredianelli, Italy
13.15 International legislation and regulations for wind turbine noise
Kevin Fowler, USA, Erik Koppen, The Netherlands and Kyle Matthias, USA
13.30 New environmental regulation for wind turbines in Flanders (Belgium)
Arjan Goemé, Belgium
13.45 Danish regulation of low frequency noise from wind turbines
Jørgen Jakobsen and Jesper Mogensen, Denmark
14.00 Low frequency noise from wind turbines: Do the Danish regulations have any impact?
Bo Søndergaard, Denmark
14.15 – 14.30 Discussion
14.30 – 15.00 Coffee Break

Regulations & Policies Part 2
15.00 Low frequency noise proposed wind farm in Maastricht, The Netherlands
Erik Koppen, The Netherlands
15.15 How does noise influence the design of a wind farm?
Matthew Cassidy, Aliden D’Souza and Jeremy Bass, UK
15.30 Wind power development trends in Denmark: Targets, legislation and social acceptance
Karina Lindvig, Denmark
15.45 Projected contributions of future wind farm development to community noise and annoyance levels in Ontario, Canada
Melissa L. Whitfield Aslund, Christopher A. Ollson and Loren D. Knopper, Canada
16.00 State of wind turbine developments in northeastern USA – 2013
James D. Barnes, Marc S. Newmark and Bill Yoder, USA
16.15 Recent developments in wind farm noise in Australia
Chris Turnbull and Jason Turner, Australia
16.30 – 17.00 Discussion
17.00 – 17.15 Closing Ceremony