

Diese sollen an Hand eines standardisierten Fragebogens statistisch ausgewertet werden.

Betreiber, die sich an der Umfrage beteiligen wollen können den Fragebogen auf der "New Icetools"-Homepage als PDF-Datei downloaden. Der Fragebogen ist zurzeit in den Sprachen Deutsch, Englisch, Spanisch und Schwedisch verfügbar. Alle Einsender des Fragebogens erhalten als "kleines Dankeschön" die Tagungsbeiträge der Konferenz BOREAS VI^r als CD-Rom zugeschickt.

Die Internetadresse lautet:

www.iset.uni-kassel.de/icetool.

Hier finden sich auch weitere Informationen zum Projekt NEW ICETOOLS. Wer über keinen Internetanschluss verfügt kann den Fragebogen auch telefonisch oder per Fax bestellen. Weitere Informationen erteilt:

Dipl.-Ing. M. Durstewitz
Königstor 59, D-34119 Kassel
mdurstewitz@iset.uni-kassel.de
Tel. +49 (0) 561 7294-204,
FAX: +49 (0) 561 7294-260

load the questionnaire as a PDF-file from the "New Icetools"-homepage. The questionnaire is available in English, German, Spanish and Swedish. All participants will receive the proceedings of the Boreas VI^r conference (CD-Rom).

URL: www.iset.uni-kassel.de/icetool.

The homepage also provides additional information on the New Icetools project. Alternatively the questionnaire can be ordered by fax or telephone. For further information call:

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BOREAS VI **BOREAS VI**

B. Tammelin, Finnish Meteorological Institute (FIN)

Wednesday, 9 April

08:00–10:00 Registration

09:00–10:00 OPENING SESSION

B. Tammelin, Organizing committee
Chairman's opening
N.N., European Wind Energy Association,
EWEA (Brussels)
Wind energy in Europe
E. L. Petersen, Risø National Laboratory
(DK)
European Academy of Wind Energy

10:00 - 10:30 Coffee

10:30 - 12:00 SESSION A : National and International activities

E. Peltola¹, T. Laakso¹, G. Ronsten², L. Tallhaug³, R. Horbaty⁴, I. Baring-Gould⁵ and A. Lacroix⁶
¹VTT Processes (FIN), ²FOI (S), ³Kjeller Vindteknikk (N), ⁴ENCO (CH), ⁵NREL (USA), ⁶Natural Resources Canada
IEA co-operation on Wind turbines in icing and cold climates

B. Tammelin¹, H. Dobesch², M. Durstewitz³, G. Kury⁴, E. Peltola⁵, G. Ronsten⁶ and K. Säntti¹

¹ Finnish Meteorological Institute (FIN), ² IMG (A), ³ ISET (D), ⁴ Enairgy (A), ⁵ VTT Processes (FIN), ⁶ FOI (SE)

NEW ICETOOLS - Experimental wind energy data from cold climate sites in Europe

M. Durstewitz, ISET - Institut für Solare Energieversorgungstechnik e.V., (D)
A Statistical Evaluation of Icing Failures in Germanys "250 MW Wind"-Program

T. Laakso and Esa Peltola, VTT Processes (FIN)

A Statistical Evaluation of Icing and Low Temperature Failures in Finland 1991-2002

Discussion

12:00 – 13:00 Lunch break

13:00 - 14:30 **SESSION B: Icing effects on wind turbine operation**

J. Trauttmansdorff, Tauernwind Windkraftanlagen GmbH (A)

Tauernwindpark Oberzeiring 19,25 MW - highest windfarm in the world: Erection and operational experience from Winter 2002/3"

G. S. Dmitriev, Institute for Physical and Technological Problems of Energy in Northern Areas of KSC RAS (RUS)

First experience from one-year operation of grid connected wind turbine near Murmansk.

M. Durstewitz, ISET - Institut für Solare Energieversorgungstechnik e.V. (D)

Preliminary Results of the New Icetools Inquiry on Operator's Experiences with Turbine Icing

M. Durstewitz, ISET - Institut für Solare Energieversorgungstechnik e.V. (D)

On-Site Cold Climate Problems

Discussion

14:30 – 15:00 Coffee

15:00 – 17:00 **SESSION C: Technical development of wind turbines**

T. Laakso, E. Peltola, P. Antikainen and S. Peuranen, VTT Processes (FIN)

Prevention of icing effects

P. Brondstedt¹, E. Peltola², A. van Wingerde³ and D. van Hemelrijck⁴

¹ Risø (DK), ² VTT Processes (FIN), ³ TUDelft (NL), ⁴ Vrije Universiteit Brussels (BE)

Properties of blade materials under extreme conditions

S. Kimura, Kanagawa Institute of Technology (JP)

The effect of anti-icing paint on the adhesion force of ice accreted on a wind turbine blade

H. Seifert, Deutsches Windenergie-Institut GmbH (D)

Technical Requirements for Rotor Blades Operating in Cold Climate

G. Botura, Goodrich Corporation (USA)

Development of ice protection system applied for wind turbine

Discussion

Thursday, 10 April

09:00 – 10:30 **SESSION D: Experience and technical development of instrumentation**

B. Tammelin¹, A. Heimo², M. Leroy³, A. Peltomaa¹ and J. Rast²

¹ Finnish Meteorological Institute (FIN), ² Meteo Swiss (CH), ³ Meteo France (FR)

Ice-free wind sensors

J. Maissan and J.-P. Pinard, Yukon Energy Corporation (CAN)

Experience from use of heated wind sensors and rime detectors over the past 12 years

L. Jacobs and B. N. Merle-Smith, NRG Systems (USA)

Electrically Heated Wind Sensors for Cold Climates

10:30 – 11:00 Coffee

11:00 – 12:30

L. Makkonen, VTT Building and Transport (FIN)

Evaluations of ice-free anemometers and ice detectors

B. Tammelin¹, K. Säntti¹, T. Laakso² and E. Peltola²

¹Finnish Meteorological Institute (FIN), ²VTT (FIN)

Experiences in measurements on atmospheric icing

T. Laakso, E. Peltola, P. Antikainen and S. Peuranen, VTT Processes (FIN)

Comparison of ice sensors for wind turbines

Discussion

12:30 - 13:30 Lunch break

13:30 - 14:00 **SESSION E: Atmospheric icing and wind power meteorology**

K. Harstveit, Norwegian Meteorological Institute (N)

Calculating Duration of Ice Weights at Reference Objects along the Norwegian Coast originated with In-Cloud Rime

L. Tallhaug, Kjeller Vindteknikk AS (N)

Calculation of potential Ice Risk

H. Dobesch¹, S. Zach² and H. Viet Tran²

¹Institute for Meteorology and Geophysics, University of Vienna (A), ²Central Institute for Meteorology and Geodynamics, Vienna (A)

A New Map of Icing Potentials in Europe

14:00 - 14:30 Coffee

14:30 - 16:00

R. Cattin¹, B. Schaffner¹, Dr. S. Kunz¹ and R. Horbaty²¹ METEOTEST (CH), ² Swiss Wind Energy Program, c/o ENCO GmbH (CH)**Wind measurements and modeling in the Swiss Alps**

B. Tammelin and R. Hyvönen, Finnish Meteorological Institute (FIN)

No wind power during cold weather?

B. Tammelin, K. Jylhä and R. Hyvönen, Finnish Meteorological Institute (FIN)

Effect of climate change on wind power potential in Finland

Discussion

16:00 - 17:00 **SESSION F: Aerodynamics and loads**E. Peltola¹, P. Antikainen¹, S. Peuranen¹, T. Laakso¹, G. Ronnsten², J.-Å. Dahlberg² and H. Ganander³¹ VTT Processes (FIN), ² FOI (S),³ Teknikgruppen AB (S)**Modelling, verification and classification of ice loads in wind turbines**

S. Peuranen, P. Antikainen, B. Lemström and S. Uski, VTT Processes (FIN)

Wind turbine dynamics in power system studies – or the other way around

Discussion

19:00 -Conference dinner outdoors

Friday, 11 April10:00 – 11:00 **SESSION G: Standards and requirements**

G. Kury, ENAIRGY - Mag. Kury OEG (A)

Legislation and regulation on operation of WEC in cold climate in Austria, Germany and other EC countriesH. Seifert¹, A. Westerhellweg¹ and J. Kröning²¹Deutsches Windenergie-Institut (D), ² TÜV-Nord Gruppe (D)**Hit by a Piece of Ice or Win the Jack Pot Risk analysis of ice throw from wind turbines**

Discussion

11:00 – 11:30 Coffee

11:30 – 12:30 **CLOSING SESSION**
Summary of the meeting

12:30 – Lunch

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