Mark C. Kelly - DTU Orbit (02/12/2017)

Kelly, Mark C.
mkel@dtu.dk
Department of Wind Energy - Senior Researcher
Resource Assessment Modelling

Publications:

A new k-epsilon model consistent with Monin-Obukhov similarity theory
Publication: Research - peer-review › Journal article – Annual report year: 2016

Coupling atmospheric and ocean wave models for storm simulation
Publication: Research › Ph.D. thesis – Annual report year: 2017

Cross-Cutting Activities 2016 on Wind Turbine Noise, Summary Report
Publication: Research - peer-review › Report – Annual report year: 2017

Effects of wind turbine wake on atmospheric sound propagation
Publication: Research - peer-review › Journal article – Annual report year: 2017

Extreme winds and waves for offshore turbines: Coupling atmosphere and wave modeling for design and operation in coastal zones
Publication: Research - peer-review › Report – Annual report year: 2017

Impact of the interfaces for wind and wave modeling - interpretation using COAWST, SAR and point measurements
Publication: Research › Sound/Visual production (digital) – Annual report year: 2017

Modeling Atmospheric Turbulence via Rapid Distortion Theory: Spectral Tensor of Velocity and Buoyancy
Publication: Research - peer-review › Journal article – Annual report year: 2017

Statistical characterization of roughness uncertainty and impact on wind resource estimation
Publication: Research - peer-review › Journal article – Annual report year: 2017

An experimental and numerical study of the atmospheric stability impact on wind turbine wakes
Publication: Research - peer-review › Journal article – Annual report year: 2015

Comparison of OpenFOAM and EllipSys3D for neutral atmospheric flow over complex terrain
Demonstration of a Basis for Tall Wind Turbine Design, EUDP Project Final Report
Publication: Research › Report – Annual report year: 2016

Elements of extreme wind modeling for hurricanes
Publication: Research › Report – Annual report year: 2016

Extreme Wind Calculation Applying Spectral Correction Method – Test and Validation
Publication: Research › Report – Annual report year: 2016

Extreme Wind Calculation Applying Spectral Correction Method – Test and Validation
Publication: Research - peer-review › Article in proceedings – Annual report year: 2016

MyWindTurbine – Energy Yield Calculations
Publication: Research › Report – Annual report year: 2016

On Displacement Height, from Classical to Practical Formulation: Stress, Turbulent Transport and Vorticity Considerations
Publication: Research - peer-review › Journal article – Annual report year: 2015

Probabilistic stability and “tall” wind profiles: theory and method for use in wind resource assessment
Publication: Research - peer-review › Journal article – Annual report year: 2015

Uncertainty in vertical extrapolation of wind statistics: shear-exponent and WAsP/EWA methods
Publication: Research › Report – Annual report year: 2016

Validation of buoyancy driven spectral tensor model using HATS data
Publication: Research - peer-review › Conference article – Annual report year: 2016

Addressing Spatial Variability of Surface-Layer Wind with Long-Range WindScanners
Publication: Research - peer-review › Journal article – Annual report year: 2015

An improved k-ε model applied to a wind turbine wake in atmospheric turbulence
Publication: Research - peer-review › Journal article – Annual report year: 2014
Evaluating and improving WASP using tall wind measurements
Floors, R. R., Troen, I., Kelly, M. C., Pena Diaz, A. & Gryning, S.-E. 2015
Publication: Research › Sound/Visual production (digital) – Annual report year: 2015

Mesoscale modeling for the Wind Atlas of South Africa (WASA) project
Publication: Research › Report – Annual report year: 2014

Model of wind shear conditional on turbulence and its impact on wind turbine loads
Publication: Research - peer-review › Journal article – Annual report year: 2014

The k-ε-EP model applied to wind farms
Publication: Research - peer-review › Journal article – Annual report year: 2015

The k-ε-fP model applied to double wind turbine wakes using different actuator disk force methods
Laan, van der, P. M., Sørensen, N. N., Réthoré, P-E., Mann, J., Kelly, M. C. & Trolldborg, N. 2015 In : Wind Energy. 18, 12, p. 2223–2240
Publication: Research - peer-review › Journal article – Annual report year: 2015

Publication: Research › Sound/Visual production (digital) – Annual report year: 2015

WASA international collaboration as an example of reciprocal skills transfer through wind energy development in South Africa
Publication: Research › Sound/Visual production (digital) – Annual report year: 2015

Wind profile modelling using WASP and “tall” wind measurements
Publication: Research - peer-review › Conference abstract in proceedings – Annual report year: 2015

Complex terrain wind resource estimation with the wind-atlas method: Prediction errors using linearized and nonlinear CFD micro-scale models
Publication: Research - peer-review › Article in proceedings – Annual report year: 2015

Complex terrain wind resource estimation with the wind-atlas method: Prediction errors using linearized and nonlinear CFD micro-scale models
Troen, I., Bechmann, A., Kelly, M. C., Sørensen, N. N., Réthoré, P-E., Cavar, D. & Ejising Jørgensen, H. 2014
Publication: Research › Sound/Visual production (digital) – Annual report year: 2015

Coupling Atmosphere and Waves for Coastal Wind Turbine Design
Publication: Research - peer-review › Article in proceedings – Annual report year: 2015
Efficient Turbulence Modeling for CFD Wake Simulations
van der Laan, P., Sørensen, N. N., Réthoré, P.-E., Kelly, M. C. & Mann, J. 2014 DTU Wind Energy. 156 p. (DTU Wind Energy PhD; No. 0047(EN)).
Publication: Research › Ph.D. thesis – Annual report year: 2015

Modifications to the current WAsP engine for Online WAsP
Peña, A., Troen, I., Bechmann, A., Kelly, M. C., Rathmann, O. S. & Heathfield, D. 2014 DTU Wind Energy. 20 p. (DTU Wind Energy I; No. 0206(EN)).
Publication: Research › Report – Annual report year: 2015

New high-res resource map for the WASA domain and improved data for wind farm planning and development
Publication: Research › Sound/Visual production (digital) – Annual report year: 2015

On the Structure and Adjustment of Inversion-Capped Neutral Atmospheric Boundary-Layer Flows: Large-Eddy Simulation Study
Publication: Research - peer-review › Journal article – Annual report year: 2014

On the Temperature and Humidity Dissimilarity in the Marine Surface Layer
Publication: Research - peer-review › Journal article – Annual report year: 2014

Probabilistic Meteorological Characterization for Turbine Loads
Publication: Research - peer-review › Conference article – Annual report year: 2014

Vertical cross-spectral phases in atmospheric flow
Publication: Research - peer-review › Conference article – Annual report year: 2014

Weibull-k Revisited: “Tall” Profiles and Height Variation of Wind Statistics
Publication: Research - peer-review › Journal article – Annual report year: 2014

Wind Atlas for South Africa (WASA) Observational wind atlas for 10 met. stations in Northern, Western and Eastern Cape provinces
Mortensen, N. G., Hansen, J. C., Kelly, M. C., Szewczuk, S., Mabille, E. & Prinsloo, E. 2014 DTU Wind Energy. 64 p. (DTU Wind Energy I; No. 0243(EN)).
Publication: Research › Report – Annual report year: 2014

Wind Atlas for South Africa (WASA) Observational wind atlas for 10 met. stations in Northern, Western and Eastern Cape provinces
Publication: Research › Report – Annual report year: 2015

Wind Atlas for South Africa (WASA) Station and Site Description Report
Mortensen, N. G., Hansen, J. C., Kelly, M. C., Prinsloo, E., Mabille, E. & Szewczuk, S. 2014 Roskilde: Risø DTU – National Laboratory for Sustainable Energy. 70 p. (Risø-i; No. 3271(ed.4)(EN)).
Publication: Research › Report – Annual report year: 2012
WAsP online course notes: Final report
Publication: Research › Report – Annual report year: 2013

Comparison of Large Eddy Simulations of a convective boundary layer with wind LIDAR measurements
Publication: Research - peer-review › Conference article – Annual report year: 2012

Consistent Two-Equation Closure Modelling for Atmospheric Research: Buoyancy and Vegetation Implementations
Publication: Research - peer-review › Journal article – Annual report year: 2012

Discovering the true wind resource: including hi-res terrain effects for a new and global wind atlas
Publication: Research - peer-review › Conference abstract in proceedings – Annual report year: 2012

How fine is fine enough when doing CFD terrain simulations
Publication: Research - peer-review › Article in proceedings – Annual report year: 2012

Idealized Mesoscale Model Simulations of Open Cellular Convection Over the Sea
Vincent, C. L., Hahmann, A. N. & Kelly, M. C. 2012 In : Boundary-Layer Meteorology. 142, 1, p. 103-121
Publication: Research - peer-review › Journal article – Annual report year: 2011

The modeling and observation of the long-term offshore vertical wind profile and wind shear
Publication: Research - peer-review › Conference abstract in proceedings – Annual report year: 2012

Vertical cross-spectral phases in neutral atmospheric flow
Publication: Research - peer-review › Journal article – Annual report year: 2012

Wind Atlas for South Africa (WASA) Observational wind atlas for 10 met. stations in Northern, Western and Eastern Cape provinces
Mortensen, N. G., Hansen, J. C., Kelly, M. C., Szewczuk, S., Mabille, E. & Prinsloo, E. 2012 Danmarks Tekniske Universitet, Risø Nationalaboratoriet for Bæredygtig Energi. 42 p. (Risø-I; No. 3273(ed.2)(EN)).
Publication: Research › Report – Annual report year: 2012

Challenges in wind modelling for modern wind turbines
Publication: Research › Conference abstract in proceedings – Annual report year: 2011
Long-term vertical wind shear observed by wind lidars at several locations in the North Sea
Publication: Research › Poster – Annual report year: 2011

"Tall" wind profiles and related issues
Publication: Research › Article in proceedings – Annual report year: 2011

Wind farm wake effects estimations by a mosaic tile wake model
Publication: Research › Article in proceedings – Annual report year: 2011

Applications of Self Organizing Maps in Wind Energy Meteorology
Publication: Research › Article in proceedings – Annual report year: 2010

From M-O Theory toward long-term Mean Wind Profiles
Publication: Research › Conference abstract in proceedings – Annual report year: 2010

Long-Term Mean Wind Profiles Based on Similarity Theory
Publication: Research - peer-review › Journal article – Annual report year: 2010

Meso- and Micro-scale Modelling in China: Wind atlas analysis for 12 meteorological stations in NE China (Dongbei)
Mortensen, N. G., Yang, Z., Hansen, J. C., Rathmann, O. & Kelly, M. C. 2010 Risø National Laboratory for Sustainable Energy, Technical University of Denmark. 72 p. (Risø-I; No. 3072(EN)).
Publication: Research › Report – Annual report year: 2010

Application of a subfilter-scale flux model over the ocean
Publication: Research › Conference abstract in proceedings – Annual report year: 2009

Application of a Subfilter-Scale Flux Model over the Ocean Using OHATS Field Data
Publication: Research - peer-review › Journal article – Annual report year: 2009

Subfilter scale fluxes in the marine surface layer: Results from the Ocean Horizontal Array Turbulence Study (OHATS)
Publication: Research - peer-review › Article in proceedings – Annual report year: 2006

Two-dimensional spectra in the atmospheric boundary layer
Publication: Research - peer-review › Journal article – Annual report year: 2006

Scattering of sonic booms by anisotropic turbulence in the atmosphere
Publication: Research - peer-review › Journal article – Annual report year: 2000
Projects:

Large scale atmospheric structures in space-time over flat terrain
15/11/2017 → 14/11/2020
Project: PhD

Coupling atmospheric and wave models for storm conditions
15/04/2014 → 07/09/2017
Project: PhD

Probabilistic wind characterization and wind turbine design
Hannesdóttir, Á., Kelly, M. C., Natarajan, A. & Mann, J.
01/04/2014 → 30/05/2018
Project: PhD

WAsP e-learning courses
Mortensen, N. G., Rathmann, O. S., Nielsen, M., Kelly, M. C., Gryning, S., Troen, I., Lundtang Petersen, E., Peña, A., Hansen, B. O. & Larsen, S. E.
10/02/2014 → 31/12/2017
Project

Online WAsP
01/01/2013 → 31/12/2015
Project

Development of Efficient Turbulence Models for CFD Wake Simulations
van der Laan, P., Sørensen, N. N., Kelly, M. C., Réthoré, P., Mann, J., Mikkelsen, R. F., Madsen, J. I. & Masson, C.
15/12/2011 → 24/04/2015
Project: PhD

Virtual Campus Hub
01/10/2011 → 30/09/2013
Project

Numerical modelling of the boundary-layer wind profile
Pedersen, J. G., Gryning, S., Kelly, M. C., Larsen, S. E., Rutgersson, A. & Zagar, M.
15/10/2010 → 21/02/2014
Project: PhD

Atmospheric turbulence and wind energy
Chougule, A. S., Mann, J., Kelly, M. C., Sørensen, J. N. & Cheng, P. W.
15/04/2010 → 20/09/2013
Project: PhD

Wind Atlas for South Africa (Phase 1)
01/11/2008 → 31/03/2014
Project
WAsP courses and certification
Mortensen, N. G., Rathmann, O. S., Nielsen, M., Kelly, M. C., Gryning, S., Troen, I., Lundtang Petersen, E., Peña, A., Hansen, B. O. & Larsen, S. E.
01/01/1991 → 31/12/2017
Project

WAsP development and support
Hansen, B. O., Mortensen, N. G., Rathmann, O. S., Troen, I., Kelly, M. C., Nielsen, M., Lundtang Petersen, E. & Bechmann, A.
23/07/1987 → 31/12/2017
Project

Activities:

Test of universality of roughness length and displacement height formulations regarding stability
Sogachev, A. (Speaker), Kelly, M. C. (Other)
30 Aug 2017
Activity: Talks and presentations › Conference presentations

IEC 61400-15 and TC-88 (External organisation)
Kelly, M. C. (Participant)
2015 → …
Activity: Membership › Membership of committees, commissions, boards, councils, associations, organisations, or similar

Microscale Meteorology: Atmospheric turbulence, measurement, and boundary-layer parameterization
Kelly, M. C. (Lecturer)
2015 → …
Activity: Talks and presentations › Guest lectures, external teaching and course activities at other universities