

PHYSMOD2009

24-26 August 2009

<http://www.vki.ac.be/physmod2009/index.php>

Draft Programme

MONDAY 24 August 2009

9:00 | Registration + Welcome Address

SESSION 1 : KEYNOTE LECTURE

9:30 | ID32 Validating an LES-based Puff Dispersion Model
F. Harms, B. Leidl, M. Schatzmann, , G. Patnaik

10:00 Coffee

SESSION 2 : QUALITY ASSURANCE IN DISPERSION MODELING

10:15 | ID 13 Atmospheric dispersion simulation: the Dutch Round-Robin Wind Tunnel Test
K. Artois, N.L.S. Moonen, S.W. van Ratingen

10:45 | ID 8 Wind tunnel experiment to validate numerical simulation for unsteady gas dispersion in urban area
S. Kato, K. Nakao, K. Hiyama, T. Takahashi, Z. Bu, R. Ohba

11:15 | ID31 Quality (and quantity) requirements for compiling LES-specific validation data sets from systematic wind tunnel modeling
I. Bastigkeit, D. Hertwig, B. Leidl, M. Schatzmann

11:45 | ID 35 Generation of spatio-temporally high resolved validation datasets for large eddy simulations of flow and dispersion phenomena within the lower atmospheric boundary layer
R. Fischer, I. Herbst, B. Leidl, M. Schatzmann

12:15 | Short communications

ID10 Wind tunnel simulation of atmospheric dispersion – Study of Dispersion Characteristics at Low Terrain Roughness Numbers -
N.L.S. Moonen, S.P.M. van den Akker

ID26 Troubles with symmetry in wind-tunnel modeling
R. Kellnerová, Z. Jaňour

12:30 Lunch

SESSION 3: DISPERSION IN COMPLEX URBAN AREAS – PART 1

13:30 | ID30 Quantifying the unknown - estimating mean wind conditions in complex urban areas
K. Kiepert, B. Leidl, F. Harms, M. Schatzmann

- 14:00 ID24 Measurement of turbulent fluxes and pollutant mass exchanges in urban areas
M. Carpentieri, A. Robins
- 14:30 ID4 Dispersion modelling of a 9 km long section of the Budapest ring motorway
M. Balczó, M. Balogh, I. Goricsán, J.M. Suda, T. Lajos
- 15:00 ID17 CFD modelling of natural ventilation and CO₂ gas removal from a semi-enclosed multifunctional stadium
T. van Hooff, B. Blocken
- 15:30 Coffee

SESSION 4: DISPERSION IN COMPLEX URBAN AREAS – PART 2

- 15:45 ID 23 Validation of a neighbourhood scale dispersion model through comparison with wind tunnel data
M. Carpentieri, P. Salizzoni, A. Robins, L. Soulhac
- 16:15 ID 37 Dispersion of traffic-related pollutants in a wind-tunnel model of a Las Vegas field site
D.K. Heist, S.G. Perry, L.A. Brixey
- 16:45 **Short communications**
- ID38 Water channel modeling of flow and dispersion of traffic related emissions in Southern Californian cities
M. Princevac, H. Pan, R. Edwards, M. Boarnet, J. Wu
- ID18 Emission and dispersion in the near-field of naturally ventilated livestock buildings
M. Fiedler, H.-J. Müller
- 17:00 Reception @ VKI
- 18:00 VKI bus leaves VKI for Place Rogier (hotels)

TUESDAY 25 August 2009

SESSION 5: DISPERSION IN IDEALIZED URBAN AREAS – PART 1

- 9:00 ID27 Role of individual buildings in scalar transfer
K. Jurčáková, M. Ohba, Z. Jaňour
- 9:30 ID22 Influence of heat fluxes on the flow and dispersion within a two-dimensional street canyon
P. Salizzoni, C. Scavone, V. Garbero, L. Soulhac, P. Mejean, R. Perkins
- 10:00 ID34 Detecting coherent flow structures within and above a simplified urban roughness
D. Hertwig, I. Bastigkeit, B. Leidl, M. Schatzmann
- 10:30 ID11 Impact of wall heating on air flow in urban street canyons
A. Sato, H. Takimoto, T. Michioka
- 11:00 coffee

SESSION 6: DISPERSION IN IDEALIZED URBAN AREAS – PART 2

- 11:15 ID25 Experimental investigation of the interaction between slope flows and urban heat islands via image analysis techniques
A. Cenedese, M. Giorgilli, P. Monti, M. Moroni
- 11:45 ID33 Systematic analysis of puff dispersion in a semi-idealized urban roughness
M. Mei, B. Leidl, R. Fischer, M. Schatzmann
- 12:15 ID43 Pollutant dispersion in different urban geometries
V. Garbero, P. Salizzoni, L. Soulhac
- 12:45 **Short Communications**
- ID2 Validation of numerical simulation system for gas diffusion in urban area
R. Ohba, A. Kouchi, T. Hara, J. Yoneda, S. Kato
- ID7 PIV measurements on the effects of fetch lengths and atmospheric stabilities on turbulent flow over building arrays
H. Takimoto, A. Sato, T. Michioka, M. Kanda
- ID16 Mean and fluctuating wind pressures on a low-rise building with flat roof
Y. Ozmen, E. Baydar
- 13:00 Lunch + group photo

SESSION 7: JETS AND PLUMES

- 14:00 ID6 Influence of Reynolds number on the rise of small scale models of stack plumes
D. Contini, D. Cesari, A. Donateo, A. Robins
- 14:30 ID28 Experimental and numerical modeling of flow and dispersion in a horizontal, non-buoyant, turbulent surface jet
E. Savory, S. Gholamreza-Kashi, I.Z. Naqavi, R. Martinuzzi, H. Rajakumar

15:00 | **Short Communications**

ID9 Measurement on the flow and dispersion of plume crossing an array of semi-circular structures
B.S. Shiau, W.C. Chang

ID12 Wind tunnel experiment for gas dispersion atmospheric boundary layer with larger-scale turbulent motion
T. Michioka, A. Sato

ID44 The intermittency of pollutant dispersion process from a plume emission model
A.R. Wittwer, A.M. Loredou-Souza, E.B.C. Schettini

15:15 coffee

SESSION 8: NEW TECHNOLOGY SOLUTIONS – PART 1

15:30 | ID5 Laboratory study of the atmospheric boundary layer with stable and unstable conditions
Y. Ohya, T. Uchida, T. Karasudani

16:00 | ID15 Experimental validation of a new approach to scalar diffusion modeling
P. Sarathi, R. Gurka, P.J. Sullivan, G.A. Kopp

16:30 | ID19 Determination of concentration and velocity field by means of light scattering and digital image processing
I. Horvath, P. Audier, J. van Beeck

17:00 VKI Bus leaves VKI for Place Rogier (hotels)

19:30 Dinner @ La Manufacture, <http://www.lamanufacture.be>

WEDNESDAY 26 August 2009

SESSION 9: NEW TECHNOLOGY SOLUTIONS – PART 2

- 9:00 ID21 Wind tunnel measurements of high order moments of the concentration distribution due to the transport of tracer gas puffs in a turbulent steady flow
F.X. Cierco, L. Soulhac, P. Méjean, P. Armand, P. Salizzoni
- 9:30 ID45 Tornado boundary layer development in a laboratory simulator
F.L. Haan, M. Ketcham, P.P. Sarkar, Ch.D. Karstens, X. Yang, T.M. Samaras
- 10:00 ID36 Microclimate assessment by sand erosion and Irwin probes for atmospheric boundary layer wind tunnels
J. van Beeck, G. Dezső, Ph. Planquart
- 10:30 **Short Communications**
- ID48 Determining gas concentrations on board of a chemical tanker by means of flow visualization in a wind tunnel
W. Jacobs, C. Reynaerts, P. Bueken, L. De Kerf, C. Brichart, I. Horvath, Ph. Planquart, J. van Beeck
- 10:45 Coffee

SESSION 10: WAKES AND TREES – PART 1

- 11:00 ID14 How the atmospheric turbulence length scales are responsible of the meandering of wind turbine wakes
G. España, S. Aubrun, Ph. Devinant
- 11:30 ID41 Influence of ABL characteristics on wind turbine wakes: surface roughness and stratification
F. Pascheke, Ph. E. Hancock
- 12:00 **Short Communications**
- ID42 Some aspects on CFD simulation of pollutant dispersion around an isolated building
B. Blocken, T. Stathopoulos
- ID1 Numerical investigation of the flow and pollutant dispersion in the wake region behind an isolated building
M. F. Yassin
- 12:10 Lunch + short lab visit

SESSION 11: WAKES AND TREES – PART 2

- 14:00 ID20 Wind tunnel modelling of traffic pollutant dispersion in street canyons with trees
Ch. Gromke, C. Frank, B. Ruck
- 14:30 ID40 Flow development and interactions through, over and after a forest canopy
A. Sayer, Ph.E. Hancock
- 15:00 **Short Communication**
- ID47 Proper physical modeling of urban greenery - What techniques are reasonable?
A. Schrön, B. Leidl, M. Schatzmann

15:05 Adjourn

15:30 VKI Bus leaves VKI to Place Rogier (hotels)