

International Conference of
“Atmospheric Transport and Chemistry in Forest Ecosystems”
Castle of Thurnau, Germany
Oct 5 to Oct 8, 2009



Conference Program

Update Sep 18, 2009



Hosts

The joined DFG Project Group EGER (Exchange processes in mountainous Regions)
in cooperation with the
Bayreuth Center of Ecology and environmental Research (BayCEER), the University of Bayreuth and the
Max Planck Institute for Chemistry Mainz

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Monday, Oct 5

Welcome and Opening session

13:15 - 13:30 * Opening address by the University of Bayreuth Administration Office



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13:30 - 14:00 * Thomas Foken, Franz X. Meixner, Eva Falge, Cornelius Zetzsch (Univ. of Bayreuth, MIP of Chemistry Mainz)

ExchanGE processes in mountainous Regions (EGER) – An overview





Monday, Oct 5

Session 1 * Heterogeneous Photochemical Processes and Aerosols (Chair: C. Zetzsch)

14:00 - 14:40 * (Key Note) Christian George, Barbara D'Anna (Université de Lyon)

Photo enhanced deposition of trace gases at the interface of organic surfaces

14:40 - 15:05 * Matthias Sörgel, A. Serafimovich, A. Moravek, I. Trebs, F. X. Meixner, C. Zetzsch (Univ. of Bayreuth, MPI Mainz)

Effects of coupling regimes and humidity on HONO concentrations in and above a spruce forest

15:05 - 15:30 * Jörg Kleffmann, T. Gavriloaiei, A. Hofzumahaus, F. Holland, R. Koppmann, L. Rupp, E. Schlosser, M. Siese, A. Wahner (Univ. of Wuppertal)

Gradient measurements of HONO in a forest

15:30 - 16:00 * Coffee break

16:00 - 16:25 * Eiko Nemitz, A. Huffman, J. Jimenez, B. Baker, J.T. Walker, A. Delia, D. Toohey, T. Karl, C. Stroud, A. Guenther (Centre for Ecology & Hydrology, Penicuik)

Size and composition resolved aerosol fluxes above a pine forest and their response to biogenic chemistry

16:25 - 16:50 * Andreas Held, A. Guenther, E. Patton, J. Smith, A. Turnipseed (Leibniz Institute for Tropospheric Research, Leipzig)

Aerosol fluxes in a walnut orchard during CHATS

16:50 - 17:15 * Veronika Wolff, I. Trebs, F.X. Meixner (MPI Mainz)

Concentrations and exchange processes of the ammonia-nitric acid-ammonium nitrate triad above a forest canopy

17:15 - 17:40 * Ana Alebic-Juretic (Air Pollution Division, University of Rijeka, Croatia)

Deposition of Sulphur and Nitrogen in the forest area (Highland District) of Croatia

18:30 * Dinner

20:00 - 22:00 * Time for small discussion groups and welcome meetings



Tuesday, Oct 6

Session 2 * Turbulence structure in and above forests (Chair: Th. Foken)

09:00 - 09:40 * (Key note) Monique Leclerc (Univ. of Georgia)

Unexpected Teleconnection between Vegetation Canopies and the Free Atmosphere

09:40 - 10:05 * Roger Shaw, J. Finnigan, N. Patton (University of California)

Canopy/roughness sublayer turbulence

10:05 - 10:30 * John Finnigan, R. Shaw, N. Patton (Marine and Atmospheric Research, Canberra)

The Origins of Coherent Eddy Structure in and Above Plant canopies

10:30 - 10:50 * Coffee break

10:50 - 11:15 * Andrei Serafimovich, L. Siebicke, T. Biermann, Th. Foken (Univ. of Bayreuth)

Vertical and horizontal transport of energy and matter by coherent motions in a tall spruce canopy

11:15 - 11:40 * Pavel Sedlak, K. Potuznikova, R. Czerny, D. Janous (Institute of Atmospheric Physics, Prague)

Canopy airflow and turbulence near the top of a forested ridge

11:40 - 12:05 * Peter Werle (IMK-IFU, Garmisch-Partenkirchen)

Quality assurance aspects for laser based eddy covariance measurements of atmospheric trace gases

12:05 - 12:30 * Vanessa Haverd, R. Leuning, E. van Gorsel, D. Griffith, M. Cuntz (Marine and Atmospheric Res., Canberra)

The turbulent Lagrangian time scale in forest canopies constrained by fluxes, concentrations and source distributions

12:30 - 14:00 * Lunch



Tuesday, Oct 6

Session 3 * Horizontal and vertical trace gas advection (Chair: F.X. Meixner)

14:00 - 14:40 * (Key Note) Marc Aubinet, C. Feigenwinter, C. Bernhofer, A. Lindroth, L. Montagnani, C. Rebmann (Gembloux Agricultural University)

Direct advection measurements do not help to solve the nighttime CO₂ closure problem – evidence from three inherently different forests

14:40 - 15:05 * Lukas Siebicke, M. Hunner, A. Serafimovich, J. Schröter, J. Ruppert, Th. Foken (Univ. of Bayreuth)

Advection experiments at the Waldstein/Weidenbrunnen FLUXNET site

15:05 - 15:30 * Ronald Queck, A. Bienert, S. Harmansa (TU-Dresden)

Calculating advective fluxes in tall canopies – Towards better wind speed distribution using 3D vegetation scans in high resolution

15:30 - 16:00 * Coffee break

16:00 - 16:25 * Uta Moderow, C. Bernhofer, C. Feigenwinter (TU Dresden)

The true mean vertical wind velocity - a miracle?

16:25 - 16:50 * Ian Harman, J. Finnigan, E. van Gorsel, S. Belcher (Marine and Atmospheric Research, Canberra)

Limits to accuracy and optimal instrument deployment for eddy flux measurement in complex terrain

16:50 - 17:15 * Ralph Dlugi, G. Kramm, M. Berger, M. Zelger (Arbeitsgruppe Atmosphärische Prozesse, München)

Segregation Effects and their Impact on Chemical Transformation Rates and Vertical Eddy Fluxes of Atmospheric Trace Constituents

18:30 * Dinner

Discussion forum * Energy talk (Chair: Foken)

20:00 - 22:00 * The effect of the energy balance closure problem on trace gas fluxes



Wednesday, Oct 7

Session 4 * Forest biogeochemistry of reactive trace gases (Chair: E. Falge)

09:00 - 09:40 * (Key note) Jose D Fuentes (Pennsylvania State University)

Forest biogeochemistry of reactive trace gases

09:40 - 10:05 * James Ryder, B. Langford, D. Oram, P. Misztal, C. Helfter, G. Phillips, M. Coyle, J. Whitehead, D. Lowe, G. McFiggans, E. Nemitz (Centre for Ecology & Hydrology, Penicuik)

Sources, sinks and chemical processing of volatile organic compounds within a South-East Asian rainforest canopy

10:05 - 10:30 * Thomas Pugh, R. MacKenzie, N. Hewitt, B. Langford (Lancaster University)

Simulating atmospheric composition over a South-East Asian tropical rainforest

10:30 - 10:50 * Coffee break

10:50 - 11:15 * Zhilin Zhu, A. Tsokankunku, D. Plake, E. Falge, Th. Foken, F.X. Meixner (Chinese Academy of Science, MPI Mainz)

Multi-level eddy covariance measurements for ozone fluxes above, within and below spruce forest canopy

11:15 - 11:40 * Anywhere Tsokankunku, Z. Zhu, F.X. Meixner, I. Trebs, Th. Foken, M. Welling, D. Plake, M.O. Andreae (MPI Mainz)

Eddy covariance fluxes of the NO-NO₂-O₃ triad above a spruce forest canopy in south-eastern Germany

11:40 - 12:05 * Christof Ammann, M. Kortner, A. Thielmann, U. Rummel, F.X. Meixner (Agroscope Reckenholz-Tänikon Res. Stat.)

What controls the discrepancy between biogenic emission/uptake and above-canopy fluxes of NO and NO₂?

12:05 - 12:30 * Claudia Breuninger, F.X. Meixner, J. Kesselmeier (MPI Mainz)

Exchange of NO₂ between spruces and the atmosphere is dominated by deposition

12:30 - 14:00 * Lunch



Wednesday, Oct 7

Session 5 * Poster presentations (Chair: J. Lüers)

14:00 - 16:00 * Poster presentations (alphabetical order): Quick shots 2 min each

15:30 - 16:00 * Coffee break

16:00 - 18:00 * **Social EVENT** * Guided tour * “Töpfermuseum Thurnau”



18:30 * Dinner

Participant	Title	Authors
Aaltonen, Hermann	Boreal Scots pine (<i>Pinus sylvestris</i>) forest floor BVOC emissions peak in early summer and autumn	Hermann Aaltonen, Jaana Bäck, Jukka Pumpanen, Mari Pihlatie, Hannele Hakola, Heidi Hellén
Adriaenssens, Sandy	Seasonal canopy uptake of dry deposited $^{15}\text{N-NH}_3$ under different N loads and the interaction with leaf physical properties	Sandy Adriaenssens, Jeroen Staelens, Shari Van Wittenberghe, Pascal Boeckx, Roeland Samson, Kris Verheyen
Arriga, Nicola	Wavelets and high frequency meteorological data to estimate mass and energy fluxes	Nicola Arriga, Dario Papale
Bargsten, Anika	Biogenic NO emission from a spruce forest soil in the Fichtelgebirge under influence of different understory types	Anika Bargsten, Thomas Behrendt, Franz X Meixner
Biermann, Tobias	Turbulence parameter inside and above a tall spruce site	Tobias Biermann, Katharina Staudt, Andrei Serafimovich, Thomas Foken
Dellwik, Ebba	Flow angles measured at a fetch-limited beech forest with clearings	Ebba Dellwik, Jakob Mann, Ferhat Bingöl, Klaus Larsen
Dellwik, Ebba	The next generation field experiment technology: WINDSCANNER.DK	Ebba Dellwik, Torben Mikkelsen, Jakob Mann, Petter Lindelöv



Wednesday, Oct 7

Session 5 * Poster presentations (Chair: J. Lüers)

14:00 - 16:00 * Poster presentations (alphabetical order): Quick shots 2 min each (continuation)

Participant	Title	Authors
Dlugi, Ralph	On the Recognition of Fundamental Physical Principles in Recent Atmospheric-Environmental Studies	Ralph Dlugi, Gerhard Kramm, Michael Zelger
Eigenmann, Rafael	Free convection events on a spruce forest clearing	Georg Jocher, Rafael Eigenmann, Andrei Serafimovich, Thomas Foken
Foken, Thomas	Local wind phenomena at the Waldstein/Weidenbrunnen FLUXNET site	Stephanie Schier, Franz X. Meixner, Thomas Foken
Frumau, Arnoud	Evaluation of gradient measurements of ammonia with direct flux measurements above a coniferous forest in the Netherlands	Arnoud Frumau, Eiko Nemitz, Gavin Phillips, Chiara Di Marco, Max McGillen, Carl Percival, Arjan Hensen, Piet Jongejan, Stolk Arien
Gerken, Tobias	Multilevel Investigation of Subcanopy Respiration Flux by Relaxed Eddy Accumulation Conditional Sampling above and within a Spruce Forest	Tobias Gerken, Andrei Serafimovich, Thomas Foken
Gupta, Sandeep	Source Apportionment of Total Suspended Particulate in Coarse and Fine Size Ranges Over Delhi	Sandeep Gupta, Arun Srivastava, V.K Jain
Jahromi, Sima Torab	The effects of transport systems on natural park ecosystems in Tehran	Sima Torab Jahromi
Karunaharan, Arunasalam	Peroxy radical concentration in the tropical troposphere over the South East rainforest in April and July 2008 (0P3-Danum-08)	Arunasalam Karunaharan, Paul Monks
Klemm, Otto	Carbon dioxide and water vapor fluxes above a subtropical mountain cloud forest: The influence of fog	Katrin Mildenerberger, Eva Beiderwieden, Yue-Joe Hsia, Otto Klemm
Murayama, Shohei	Examination of CO ₂ transport processes in a mountainous cool temperate deciduous forest in central Japan using atmospheric ²²² Rn measurement	Shohei Murayama, Hiroaki Kondo, Nobuko Saigusa, Akira Wada, Kentaro Ishijima, Hidekazu Matsueda, Yousuke Sawa
Nemitz, Eiko	Turbulence, heat and trace gas fluxes above a South-East Asian rainforest	Carole Helfter, Eiko Nemitz, Gavin Phillips, Chiara Di Marco, Mhairi Coyle, Jamie Whitehead, Michael Flynn, Jennifer Mueller, Martin Gallagher



Wednesday, Oct 7

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14:00 - 16:00 * Poster presentations (alphabetical order): Quick shots 2 min each (continuation)

Participant	Title	Authors
Ofner, Johannes	HUmic-Like Secondary Organic Aerosol from catechol and guaiacol as model substances for heterogeneous atmospheric chemistry	Johannes Ofner, Heinz-Ulrich Krüger, Cornelius Zetzsch
Oswald, Robert	Fast detection of ozone: Improving a solid-phase chemiluminescence ozone sensor	Robert Oswald, Thorsten Hoffmann, Michael Welling, Franz X. Meixner
Petroff, Alexandre	A mechanistic model to predict aerosol dry deposition with a special attention to forests	Alexandre Petroff, Leiming Zhang, Jennifer Murphy
Plake, Daniel	Vertical Profiles of Reactive Trace Gases (NO, NO ₂ , O ₃) in a Forest Ecosystem	Daniel Plake, Alexander Moravek, Anywhere Tsokankunku, Claudia Breuning, Michael Welling, Thomas Foken, Meinrat O. Andreae, Franz X. Meixner
Riederer, Michael	Fluxes of reactive and non-reactive trace gases close to the forest floor	Michael Riederer, Korbinian Hens, Franz Xaver Meixner, Thomas Foken
Riederer, Michael	Trace gas exchange at the forest floor	Korbinian Hens, Franz Xaver Meixner, Michael Riederer, Alexander Moravek, Anika Bargsten, Zhilin Zhu, Meinrat O. Andreae
Rotenberg, Eyal	Significant contribution of largely neglected semi-arid forests to the climate system	Eyal Rotenberg, Dan Yakir
Siebicke, Lukas	Influence of coordinate rotation on calculation of vertical advection	Martina Hunner, Lukas Siebicke, Thomas Foken
Siebicke, Lukas	A statistical approach applied to trace gas gradients with low signal to noise ratios	Lukas Siebicke, Martina Hunner, Thomas Foken
Sogachev, Andrey	CFD modelling of airflow and flux footprint over complex hilly terrain	Andrey Sogachev, Hans Ejsing Jørgensen, Oleg Panferov
Sörgel, Matthias	Statistical analysis of HONO and relative humidity time series measured in the EGGER-Project	Matthias Sörgel, Ivonne Trebs, Alexander Moravek, Franz X. Meixner, Cornelius Zetzsch



Wednesday, Oct 7

Session 5 * Poster presentations (Chair: J. Lüers)

14:00 - 16:00 * Poster presentations (alphabetical order): Quick shots 2 min each (continuation)

Participant	Title	Authors
Soubie, Rémy	Species effect on the water use efficiency of a mixed forest of beech (<i>Fagus sylvatica</i> L.), Douglas fir (<i>Pseudotsuga menziesii</i> Mirb. Franco) and silver fir (<i>Abies alba</i> Mill.) in Belgian Ardennes	Rémy Soubie, Marc Aubinet, Bernard Heinesch, Caroline Vincke
Spano, Donatella	Determination of scalar fluxes using Surface Renewal	Tom Shapland, Donatella Spano, Costantino Sirca, Serena Marras, Pierpaolo Duce, Richard L Snyder, Kyaw Tha Paw U
Staudt, Katharina	Sensitivity and predictive uncertainty of the ACASA model at a spruce forest site	Katharina Staudt, Eva Falge, R. David Pyles, Thomas Foken
Stella, Patrick	Stomatal, soil and cuticular ozone deposition over a mature pine forest and an agricultural field	Patrick Stella, Benjamin Loubet, Eric Lamaud, Patricia Laville, Jean-Marc Bonnefond, Pierre Cellier
Sundqvist, Elin	Methane exchange of a boreal forest	Elin Sundqvist, Anders Lindroth
Taipale, Risto	Upscaling of shoot scale volatile organic compound emissions to the ecosystem scale and beyond	Risto Taipale, Michael Boy, Taina M. Ruuskanen, Maija K. Kajos, Johanna Patokoski, Jaana Bäck, Pasi Kolari, Janne Rinne
Tanny, Josef	Effect of plant height on microclimate, evapotranspiration and water use efficiency of a banana plantation in a greenhouse	Uri Dicken, Josef Tanny, Shabtai Cohen
Tóta, Julio	Observations of subcanopy flow and the carbon budget in two Amazon Rain Forest: Santarém and Manaus Sites	Julio Tóta, David R. Fitzjarrald
Vestin, Patrik	Effects of storms on soil CO ₂ efflux in boreal forests	Patrik Vestin, Lindroth Anders
Zeeman, Matthias J.	Conditional flux analysis and stable isotopes	Matthias J. Zeeman, Alexander Knohl, Nina Buchmann, Patrick Sturm, Christoph Thomas



Thursday, Oct 8

Session 6 * SVAT-Modeling and scale interactions (Chair: F.X. Meixner)

09:00 - 09:40 * (Key Note) Kyaw Tha Paw U, R.D. Pyles, L. Xu (Univ. of California, Davis)

SVAT-Modeling and scale interactions

09:40 - 10:05 * Serena Marras, D. Spano, C. Sirca, P. Duce, R.L. Snyder, R.D. Pyles, K.T. Paw U (Univ. of Sassari, Italy)

ACASA simulations and comparison with measured fluxes over Mediterranean maquis

10:05 - 10:30 * Katharina Staudt, E. Falge, R.D. Pyles, A. Schäfer, Th. Foken (Univ. of Bayreuth)

Modeling the exchange of energy and matter within and above a spruce forest site with ACASA

10:30 - 10:50 * Coffee break

10:50 - 11:15 * Eva Falge, K. Staudt, F.X. Meixner (MPI Mainz)

Validation of gas exchange models for a Picea abies canopy in the Fichtelgebirge, Germany

11:15 - 11:40 * Laurens Ganzeveld (Wageningen University and Research Centre)

Local- to global scale canopy interactions relevant to the exchange of reactive compounds and aerosols

11:40 - 12:05 * Catherine Van den Hoof, M. Aubinet, B. Heinesch, C. Vincke (Belgian Nuclear Research Centre)

Evaluation of the suitability of the land surface model JULES for climate impact studies in Belgian ecosystems

12:05 - 12:30 * Ulrike Falk, C. Conrad, J. Hendrickx (Univ. of Bonn)

Cross-scale intercomparison of different approaches for measuring and modeling heat energy fluxes in West-Africa

12:30 - 12:45 * Closing statement (F.X. Meixner)

13:00 - 14:00 * Lunch



Thursday, Oct 8

Optional program point

Excursion to the BayCEER Research fields (FLUXNET-Station Waldstein-Weidenbrunnen) located in the mountain region “Fichtelgebirge”.

Shuttle-bus transfer (app. 1 h distance)

Departure time: 14:30

Back passage from the research field at 17:00

Arrival at the Castle or Bayreuth train station app. 18:00



Bayreuth Center of Ecology
and Environmental Research

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MAX-PLANCK-GESELLSCHAFT