

## Prof. Dr. Alfred Wiedensohler

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### Head of the Research Group “Tropospheric Aerosol”

**Voice:**

+49 341 235-2467

**Mobile:**

+49 173 564 1482

**Telefax:**

+49 341 235-2361

**Email:** Alfred.wiedensohler@tropos.de

**Address:**

Leibniz Institute for Tropospheric Research  
Permoserstr. 15  
04318 Leipzig  
GERMANY

**Room:**

202



Alfred Wiedensohler studied electrical engineering at the University of Duisburg, Germany, and received his master July 1983. From October 1983 until April 1989, he worked as PhD student in the research group Process and Aerosol Measurement Technology at the University of Duisburg and received his PhD in electrical engineering June 1989. May 1989, he moved to the Department of Nuclear Physics at the University of Lund, Sweden. He worked at the University of Lund first as research scientist and later as Assistant Professor. In January 1996, received a associate professorship at the Institute for Meteorology at the University of Leipzig.

Presently he leads the research group “Tropospheric Aerosol” at the Leibniz-Institute for Tropospheric Research and he is head of the World Calibration Centre for physical aerosol parameters of the WMO (World Meteorological Organization) in the frame of the Global Atmosphere Watch program (GAW).

In December 2004, he received the award of a guest professorship at the College of Environmental Science, Peking University, China. Since May 2005, he is Professor at Institute for Meteorology, Faculty of Physics and Geo-Science, University of Leipzig.

He is author or co-author of more than 220 peer-reviewed publications in the field of aerosol and natural science. His research is presently focused on in-situ characterization, processes, and climatology of atmospheric aerosols as well as on the development of new scientific instrumentation.

## Curriculum Vitae

Oct. 1983 - April 1989	Ph.D. student at the Institute of Process and Aerosol Measurement Technology, at the University Duisburg, Germany
June 1989	Ph.D. in electrical engineering at the University Duisburg, Germany Title: Die bipolare Diffusionsaufladung von Partikeln in chemisch trägen Reinstgasen
May 1989 - June 1992	Research Scientist at the Department of Nuclear Physics, at the University of Lund, Sweden
July 1992 - Dec. 1993	Assistant Professor at the Department of Nuclear Physics, at the University of Lund, Sweden
Jan. 1994 -	Head of the research group Tropospheric Aerosol at the Leibniz-Institute for Tropospheric Research, Leipzig, Germany
Jan. 1996- April 2005	Associate Professor at the Institute for Meteorology at the University of Leipzig, Germany
Jan. 2002 -	Head of World Calibration Centre for Aerosol Physics of the WMO (World Meteorological Organization) in the frame of the Global Atmosphere Watch program (GAW)
Dec. 2004 -	Guest Professor at the College of Environmental Science, Peking University, China
May 2005 -	Professor at the Institute for Meteorology, Faculty of Physics and Geo-Science, University of Leipzig , Germany

## List of recent publications 2008-2010

### 2010

Birmili, W., K. Heinke, M. Pitz, J. Matschullat, A. Wiedensohler, J. Cyrys, H.-E. Wichmann and A. Peters (2010). Particle number size distributions in urban air before and after volatilisation. *ACP* **10**, 4643-4660.

Gong, Y. G., M. Hu, Y. F. Cheng, H. Su, D. L. Yue, F. Liu, A. Wiedensohler, Z. B. Wang, H. Eichler, K. T. Xiao, P. Mi and Y. H. Zhang (2010). The coagulation sink and new particle formation in the Pearl River Delta of China. *Atmos Env.* **44**, 3278-3285.

Hamed, A., W. Birmili, J. Joutsensaari, S. Mikkonen, A. Asmi, B. Wehner, G. Spindler, A. Jaatinen, K. Uhse, A. Wiedensohler, K. E. J. Lehtinen and A. Laaksonen (2010). Changes in the production rate of secondary aerosol particles in central Europe in view of decreasing SO<sub>2</sub> emissions between 1996 and 2006. *ACP* **10**, 1071–1091.

Kerminen, V. M., T. Petäjä, H. E. Manninen, P. Paasonen, T. Nieminen, M. Sipilä, S. Gagné, L. Laakso, I. Riipinen, H. Vehkamäki, T. Kurten, I. K. Ortega, M. Dal Maso, D. Brus, A. Hyvärinen, H. Lihavainen, J. Leppä, K. E. J. Lehtinen, A. Mirme, S. Mirme, U. Hörrak, T. Berndt, F. Stratmann, W. Birmili, A. Wiedensohler, A. Metzger, U. Baltensperger, A. Kiendler-Scharr, T. F. Mentel, P. Winkler, P. Wagner, A. Petzold, A. Minikin, C. Plass-Dülmer, A. Laaksonen and M. Kulmala (2010). Atmospheric nucleation: Highlights of the EUCAARI project and future directions. *ACP* **10**, 10829-10848.

Lee, J. D., G. McFiggans, J. D. Allan, A. R. Baker, S. M. Ball, A. K. Benton, L. J. Carpenter, R. Commane, B. D. Finley, E. Fuentes, K. Furneaux, A. Goddard, N. Good, J. F. Hamilton, D. E. Heard, H. Herrmann, A. Hollingsworth, J. Hopkins, T. Ingham, M. Irwin, C. E. Jones, R. L. Jones, W. C. Keene, M. J. Lawler, S. Lehmann, A. C. Lewis, M. S. Long, A. Mahajan, J. Methven, S. J. Moller, K. Müller, T. Müller, N. Niedermeier, S. O'Doherty, H. Oetjen, J. M. C. Plane, A. A. P. Pszenny, K. A. Read, A. Saiz-Lopez, E. S. Saltzman, R. Sander, R. v. Glasow, L. Whalley, A. Wiedensohler and D. Young (2010). Reactive Halogens in the Marine Boundary Layer (RHaMBLe): the tropical North Atlantic experiments. *ACP* **10**, 1031–1055.

Löschau, G., A. Wiedensohler, B. Wehner, W. Birmili and H. Gerwig (2010). Measurement of the number concentration of ultrafine particles in ambient air in an air quality monitoring network - Part 2: Results of a traffic-orientated long term measurement. *Gefahrstoffe Reinhaltung der Luft* **70**(5), 183-187.

Manninen, H. E., T. Nieminen, E. Asmi, S. Gagné, S. Häkkinen, K. Lehtipalo, P. Aalto, N. Kivekäs, M. Vana, A. Mirme, S. Mirme, U. Hörrak, C. Plass-Dülmer, G. Stange, G. Kiss, A. Hoffer, M. Moerman, B. Henzing, M. Brinkenberg, G. N. Kouvarakis, K. Bougiatioti, C. O'Dowd, D. Ceburnis, A. Arneth, B. Svenningsson, E. Swietlicki, L. Tarozzi, S. Decesari, A. Sonntag, W. Birmili, A. Wiedensohler, J. Boulon, K. Sellegri, P. Laj, U. Baltensperger, A. Laaksonen, J. Joutsensaari, T. Petäjä, V. M. Kerminen and M. Kulmala (2010). Initial steps of particle formation and growth in various environments during EUCAARI project. *ACP* **10**, 7907–7927.

Martin, S. T., M. O. Andreae, D. Althausen, P. Artaxo, H. Baars, S. Borrmann, Q. Chen, D. K. Farmer, A. Guenther, S. S. Gunthe, J. L. Jimenez, T. Karl, K. Longo, A. Manzi, T. Müller, T. Pauliquevis, M. D. Petters, A. J. Prenni, U. Pöschl, L. V. Rizzo, J. Schneider, J. N. Smith, E. Swietlicki, J. Tota, J. Wang, A. Wiedensohler and S. R. Zorn (2010). An overview of the Amazonian Aerosol Characterization Experiment 2008 (AMAZE-08). *ACP* **10**, 11415-11438.

Matsui, H., M. Koike, Y. Kondo, N. Takegawa, J. D. Fast, U. Pöschl, R. M. Garland, M. O. Andreae, A. Wiedensohler, N. Sugimoto and T. Zhu (2010). Spatial and Temporal Variations of Aerosols Around Beijing in Summer 2006: 2. Local and Column Aerosol Optical Properties. *JGR* **115**, **D22207**, doi:10.1029/2010JD013895.

Müller, K., S. Lehmann, D. v. Pinxteren, T. Gnauk, N. Niedermeier, A. Wiedensohler and H. Herrmann (2010). Particle characterization at the Cape Verde atmospheric observatory during the 2007 RHaMBLe intensive. *ACP* **10**, 2709-2721.

Paasonen, P., T. Nieminen, E. Asmi, H. E. Manninen, T. Petäjä, C. Plass-Dülmer, W. Birmili, A. Wiedensohler, U. Hörrak, A. Metzger, A. Hamed, A. Laaksonen, M. C. Facchini, V.-M. Kerminen and M. Kulmala (2010). On the roles of sulphuric acid and low-volatility organic vapours in the initial steps of atmospheric new particle formation. *ACP* **10**, 11223–11242.

Putaud, J.-P., R. V. Dingenen, A. Alastuey, H. Bauer, W. Birmili, J. Cyrus, H. Flentje, S. Fuzzi, R. Gehrig, H. C. Hansson, R. M. Harrison, H. Herrmann, R. Hitzenberger, C. Hüglin, A. M. Jones, A. Kasper-Giebl, G. Kiss, A. Kousa, T. A. J. Kuhlbusch, G. Löschau, W. Maenhaut, A. Molnar, T. Moreno, J. Pekkanen, C. Perrino, M. Pitz, H. Puxbaum, X. Querol, S. Rodriguez, I. Salma, J. Schwarz, J. Smolik, J. Schneider, G. Spindler, H. t. Brink, J. Tursic, M. Viana, A. Wiedensohler and F. Raes (2010). A European Aerosol Phenomenology - 3: physical and chemical characteristics of particulate matter from 60 rural, urban, and kerbside sites across Europe. *Atmos Env.* **44**(10), 1308-1320

Rose, D., A. Nowak, P. Achtert, A. Wiedensohler, M. Hu, M. Shao, Y. Zhang, M. O. Andreae and U. Pöschl (2010). Cloud condensation nuclei in polluted air and biomass burning smoke near the mega-city Guangzhou, China – Part 1: Size-resolved measurements and

implications for the modeling of aerosol particle hygroscopicity and CCN activity. *ACP* **10**, 3365-3383.

Spracklen, D. V., K. S. Carslaw, J. Merikanto, G. W. Mann, S. Pickering, J. A. Ogren, E. Andrews, U. Baltensperger, E. Weingartner, M. Boy, M. Kulmala, L. Laakso, H. Lihavainen, N. Kivekäs, N. Mihalopoulos, G. Kouvarakis, S. G. Jennings, W. Birmili, A. Wiedensohler, R. Weller, P. Laj, K. Sellegri, B. Bonn and R. Krejci (2010). Explaining global surface aerosol number concentrations in terms of primary emissions and particle formation *ACP* **10**, 4775–4793.

Su, H., D. Rose, Y. F. Cheng, S. S. Gunthe, A. Massling, M. Stock, A. Wiedensohler, M. O. Andreae and U. Pöschl (2010). Hygroscopicity distribution concept for measurement data analysis and modeling of aerosol particle hygroscopicity and CCN activity. *ACP* **10**, 7489–7503.

Wehner, B., H. Siebert, A. Ansmann, F. Ditas, P. Seifert, F. Stratmann, A. Wiedensohler, A. Apituley, R. A. Shaw, H. E. Manninen and M. Kulmala (2010). Observations of turbulence-induced new particle formation in the residual layer. *ACP* **10**, 4319–4330.

Whalley, L. K., K. L. Furneaux, A. Goddard, J. D. Lee, A. Mahajan, H. Oetjen, K. A. Read, N. Kaaden, L. J. Carpenter, A. C. Lewis, J. M. C. Plane, E. S. Saltzman, A. Wiedensohler and D. E. Heard (2010). The chemistry of OH and HO<sub>2</sub> radicals in the boundary layer over the tropical Atlantic Ocean. *ACP* **10**, 1555-1576.

Yue, D. L., M. Hu, Z. J. Wu, S. Guo, M. T. Wen, A. Nowak, B. Wehner, A. Wiedensohler, N. Takegawa, Y. Kondo, X. S. Wang, Y. P. Li, L. M. Zeng and Y. H. Zhang (2010). Number size distributions of the regional aerosols in the Pearl River Delta during summertime pollution episodes. *ACP* **10**, 9431-9439.

Yue, D. L., M. Hu, R. Zhang, Z. Wang, J. Zheng, Z. Wu, A. Wiedensohler, L. He, X. Huang and T. Zhu (2010). The roles of sulfuric acid in new particle formation and growth in the mega-city of Beijing. *ACP* **10**, 4953–4960.

## **2009**

Achtert, P., W. Birmili, A. Nowak, B. Wehner, A. Wiedensohler, N. Takegawa, Y. Kondo, Y. Miyazaki, Hu, M. and T. Zhu (2009). Hygroscopic Growth of Tropospheric Particle Number Size Distributions over the North China Plain. *JGR* **114**, DOI: 10.1029/2008JD010921

Allan, J. D., D. O. Topping, N. Good, M. Irwin, M. Flynn, P. I. Williams, H. Coe, A. R. Baker, M. Martino, N. Niedermeier, A. Wiedensohler, S. Lehmann, K. Müller, H. Herrmann and G. McFiggans (2009). Composition and properties of atmospheric particles in the eastern Atlantic and impacts on gas phase uptake rates. *ACP* **9**, 9299-9314.

Birmili, W., K. Schwirn, A. Nowak, T. Petäjä, J. Joutsensaari, D. Rose, A. Wiedensohler, K. Hämeri, P. Aalto, K. M. and M. Boy (2009). Hygroscopic Growth of Atmospheric Particle Number Size Distributions in the Finnish Boreal Forest Region. *Boreal Env. Res.* **14**, 458-480.

Birmili, W., K. Weinhold, S. Nordmann, A. Wiedensohler, G. Spindler, K. Müller, H. Herrmann, T. Gnauk, M. Pitz, J. Cyrus, H. Flentje, C. Nickel, T. A. J. Kuhlbusch, G. Löschau, D. Haase, F. Meinhardt, A. Schwerin, L. Ries and K. Wirtz (2009). Atmospheric aerosol measurements in the German Ultrafine Aerosol Network (GUAN): Part 1: Soot and particle number size distributions. *Gefahrstoffe Reinhaltung der Luft* **69**(4), 137-145.

Cheng, Y. F., M. Berghof, R. M. Garland, A. Wiedensohler, T. Müller, B. Wehner, H. Su, P. Achtert, A. Nowak, U. Pöschl, Y. H. Zhang, T. Zhu, M. Hu and L. M. Zeng (2009). Influence of soot mixing state on aerosol light absorption during air mass aging at a polluted regional site in North Eastern China. *JGR* **114**, doi:10.1029/2008JD010883.

Costabile, F., W. Birmili, S. Klose, T. Tuch, B. Wehner, A. Wiedensohler, U. Franck, K. König and A. Sonntag (2009). Spatio-temporal variability and principal components of the particle number size distribution in an urban atmosphere. *ACP* **9**(9), 3163-3195.

Garland, R. M., O. Schmid, A. Nowak, P. Achtert, A. Wiedensohler, S. S. Gunthe, N. Takegawa, K. Kita, Y. Kondo, M. Hu, M. Shao, L. M. Zeng, T. Zhu, M. O. Andreae and U. Pöschl (2009). Aerosol optical properties observed during Campaign of Air Quality Research in Beijing 2006 (CAREBeijing-2006): Characteristic differences between the inflow and outflow of Beijing city air. *JOURNAL OF GEOPHYSICAL RESEARCH-ATMOSPHERES* **114**, DOI: 10.1029/2008JD010780.

Heinold, B., I. Tegen, M. Esselborn, K. Kandler, P. Knippertz, D. Müller, A. Schladitz, M. Tesche, B. Weinzierl, A. Ansmann, D. Althausen, B. Laurant, A. Massling, T. Müller, A. Petzold, K. Schepanski and A. Wiedensohler (2009). Regional Saharan Dust Modelling during the SAMUM 2006 Campaign. *Tellus B* **61**(1), 307-324.

Jaantinen, A., A. Hamed, J. Joutsensaari, S. Mikkonen, W. Birmili, B. Wehner, G. Spindler, A. Wiedensohler, S. Decesari, M. Mircea, M.-C. Facchini, H. Junninen, M. Kulmala, K. E. J. Lehtinen and A. Laaksonen (2009). A comparison of new particle formation events in the boundary layer at three different sites in Europe. *Boreal Env. Res.* **14**, 481-498.

Kaaden, N., A. Massling, A. Schladitz, T. Müller, K. Kandler, L. Schütz, B. Weinzierl, A. Petzold, M. Tesche, A. Ansmann, S. Leinert and A. Wiedensohler (2009). State of Mixing, Shape Factor, Number Size Distribution, and Hygroscopic Growth of the Saharan Anthropogenic and Mineral Dust Aerosol at Tinfou, Morocco. *Tellus B* **61**(1), 51-63.

Kandler, K., L. Schütz, C. Deutscher, M. Ebert, H. Hofmann, J. Jäckel, R. Jaenicke, P. Knippertz, K. Lieke, A. Massling, A. Petzold, A. Schladitz, B. Weinzierl, A. Wiedensohler, S. Zorn and S. Weinbruch (2009). Size distribution, mass concentration, chemical and mineralogical composition and derived optical parameters of the boundary layer aerosol at Tinfou, Morocco, during SAMUM 2006. *Tellus B* **61**(1), 32-50.

Köppe, M., M. Hermann, C. A. M. Brenninkmeijer, J. Heintzenberg, H. Schlager, T. Schuck, F. Slemr, D. Sprung, P. F. J. van Velthoven, A. Wiedensohler, A. Zahn and H. Ziereis (2009). Origin of aerosol particles in the mid latitude and subtropical upper troposphere and lowermost stratosphere from cluster analysis of CARIBIC data. *ACP* **9**, 8413–8430.

Kulmala, M., A. Asmi, H. K. Lappalainen, K. S. Carslaw, U. Pöschl, U. Baltensperger, O. Hov, J.-L. Brenquier, S. N. Pandis, M.-C. Facchini, H.-C. Hansson, A. Wiedensohler and C. D. O'Dowd (2009). Introduction: European Integrated project on Aerosol Cloud Climate and Air Quality interactions (EUCAARI) - integrating aerosol research from nano to global scales *ACP* **9**(8), 2825-2841.

Laj, P., J. Klausen, M. Bilde, C. Plaß-Dülmer, G. Pappalardo, C. Clerbaux, U. Baltensperger, J. Hjorth, D. Simpson, S. Reimann, P.-F. Coheur, A. Richter, M. De Maziere, Y. Rudich, G. McFiggans, K. Torseth, A. Wiedensohler, S. Morin, M. Schulz, J. Allan, J.-L. Attie, I. Barnes, W. Birmili, P. Cammas, J. Dommen, H.-P. Dorn, D. Fowler, J.-S. Fuzzi, M. Glasius, C. Granier, M. Hermann, I. Isaksen, S. Kinne, I. Koren, F. Madonna, M. Maione, A. Massling, O. Moehler, L. Mona, P. Monks, D. Müller, T. Müller, J. Orphal, V.-H. Peuch, F. Stratmann, D.

Tanre, G. Tyndall, A. A. Riziq, M. Van Roozendael, P. Villani, B. Wehner, A. Wex and A. A. Zardini (2009). Measuring atmospheric composition change. *Atmos Env.* **43**, 5351–5414.

Massling, A., M. Stock, B. Wehner, Z. Wu, M. Hu, E. Brüggemann, T. Gnauk, H. Herrmann and A. Wiedensohler (2009). Size segregated water uptake and total soluble volume of the urban submicrometer aerosol in Beijing. *Atmos Env.* **43**(8), 1578-1589.

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Müller, T., A. Nowak, A. Wiedensohler, P. Sherdian, L. M., C. D.S., A. Marinoni, K. Imre, B. Henzing, J. C. Roger, S. Martins dos Santos, R. Wilhelm, Y. Q. Wang and G. de Leeuw (2009). Angular Illumination and Truncation of three Different Integrating Nephelometers: Implications for Empirical and Size-Based Corrections. *Aerosol Sci. Techn.* **43**(6), 581-586.

Müller, T., A. Schladitz, A. Maßling, N. Kaaden and A. Wiedensohler (2009). Spectral absorption coefficients and refractive index of Saharan mineral dust *Tellus B* **61**(1), 79-95.

Nordmann, S., W. Birmili, K. Weinhold, A. Wiedensohler, S. Mertes, K. Müller, T. Gnauk, H. Herrmann, M. Pitz, J. Cyrus, H. Flentje, L. Ries and K. Wirtz (2009). Atmospheric aerosol measurements in the German Ultrafine Aerosol Network (GUAN) - Part 2: Comparison of measurements techniques for graphitic, light-absorbing, and elemental carbon, and the non-volatile particle volume under field conditions. *Gefahrstoffe Reinhaltung der Luft* **69**(11/12), 469-474.

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Schladitz, A., T. Müller, A. Massling, N. Kaaden, K. Kandler and A. Wiedensohler (2009). In situ measurements of Optical Properties at Tinfou (Morocco) during the Saharan Mineral Dust Experiment SAMUM 2006. *Tellus B* **61**(1), 64-78.

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Wehner, B., M. Berghof, Y. F. Cheng, P. Achtert, W. Birmili, A. Nowak, A. Wiedensohler, R. M. Garland, U. Pöschl, M. Hu and T. Zhu (2009). Mixing state of non-volatile aerosol particle fractions and comparison with light absorption in the polluted Beijing-region. *JGR* **114**, D00G17, doi:10.1029/2008JD010923.

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## **2008**

Birmili, W., K. Schepanski, A. Ansmann, G. Spindler, I. Tegen, B. Wehner, A. Nowak, E. Reimer, I. Mattis, K. Müller, E. Brüggemann, T. Gnauk, H. Herrmann, A. Wiedensohler, D. Althausen, A. Schladitz, T. Tuch and G. Löschau (2008). A case of extreme particulate matter concentrations over Central Europe caused by dust emitted over the southern Ukraine. *ACP* **8**(4), 997-1016.

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