James Dorsey

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E-mail: j.dorsey@umist.ac.uk Date of Birth: 2nd January 1977 Nationality: British

EDUCATION AND QUALIFICATIONS

1998 - 2002 UMIST, Physics Department, (Atmospheric Physics Research Group).

- Ph.D. research project entitled "Aspects of Biosphere Atmosphere Exchange and Chemical Processing of Aerosol".
- Thesis based on measurements taken in several field projects in Britain and abroad. The work involved development of an aerosol eddy covariance measurement system based on a commercial sensor modified for high frequency use. An extensive suite of data analysis tools was developed as part of the system. The resulting data were interpreted using microphysical and micrometeorological models.
- Participated in several international experiments on cloud microphysics and trace gas and aerosol fluxes. Published the first ever direct measurements of urban aerosol fluxes. Consultancy work on aerosol in power station plumes for a UK power generation firm.
- Experience of operation, maintenance, calibration and software development for numerous aerosol and micrometeorological instruments.
- Presentations made as part of the research resulted in two research council awards.
- Laboratory demonstrator for various undergraduate courses and the MSc Physics of the Atmospheric Environment course. Experiments included introduction to cutting edge research instrumentation, and basic physics and statistics.

1995 - 1998 UMIST, Physics Department. BSc (Hons) Physics, - 2(i)

- Courses included: Meteorology and Atmospheric Physics, Climate and Energy, Remote Sensing and Radiation Pollution, Computation and Approximate Numerical Methods, Statistical Mechanics, Optics and Fourier Methods, Electromagnetism.
- Research projects on the electrical properties of rime ice with reference to thunderstorm electrification.

1993 - 1995 Harrogate College

- A-levels: Physics, Chemistry, Maths, English Law.

WORK EXPERIENCE

2001 – Date:

- Research Associate, Atmospheric Physics Research Group, Physics Department, UMIST.
- Working on EU Framework V programme on Oxidised Nitrogen emission from European forests. Research largely self directed according to the needs of a large consortium.
- Responsible for eddy covariance flux measurements of NO, NO_2, O_3, CO_2 and H_2O fluxes. Co-ordinated an international field experiment involving several European research groups, and state of the art instrumentation.

- Responsible for development of a multi-layer canopy micrometeorological model in response to the results of these field measurements. Further parameterisation of this model for inclusion in a regional climate / circulation scheme (EMEP) in collaboration with a large European consortium. Responsible for project budget.
- Seconded to TNO division of Environment, Energy and Process Innovation, the Netherlands, working with Dr. J.H. Duyzer on modelling the response of soil chambers to trace gas emission. Worked on written reports and research papers as a "language consultant".
- Designed and constructed an automated dynamic chamber system for gas flux measurements.

1998:

- Industrial project on quality control and testing for a carpet manufacturer in Preston.
- Research on the variability of industry standard test results on the electrical properties of carpets. Communication of these results and their implications to a commercial, non-scientific customer.

1995 – 1999:

- Hang gliding instructor (TI) and part time operations manager for Pennine Hang Gliding Centre in West Yorkshire. Responsible for practical and theoretical training of up to thirty student pilots per day. Arranged appropriate staffing levels and planned training activities in the UK and abroad.
- Maintained both the sales and operational aspects of the business in the chief instructor's absence. Worked as part of a large team delivering high quality instruction and sales support.

OTHER SKILLS

- Extensive experience of general Windows and UNIX "Office" type applications.
- Experience in developing biogeophysical and meteorological models in FORTRAN under Windows, Linux and Solaris. Comprehensive knowledge of Matlab programming.
- Proficient in LabView programming for data acquisition and analysis.
- Some knowledge of ANSI C, Pascal, Visual Basic and PCB design software.
- Full clean driving licence (car and motorcycle).
- Undergone laser safety training including medical examination for laser operations to class 3(b).
- Excellent written and verbal communication skills. Working knowledge of German language.

INTERESTS

- Currently under training for JAR (UK) private pilot licence.
- Motorcycling, classic MG sports cars, vehicle maintenance.
- Hill based un-powered and foot launched powered hang gliding, qualified coach.
- Playing guitar (badly), reading, occasional substitute for local pool team.

REFEREES

- Dr. J.H. Duyzer, Senior Scientist, TNO Milieu, Energie en Procesinnovatie, Postbus 342, 7300 AH, Apeldoorn, the Netherlands. Tel: + 31 (0) 55 549 3944. E-mail: j.h.duyzer@mep.tno.nl
- Dr. M.W. Gallagher, Reader, Physics Department, UMIST, Manchester, M60 1QD, UK. (Current supervisor). Tel: + 44 (0) 161 200 3937. E-mail: martin.gallagher@umist.ac.uk
- Dr. K. Pilegaard, Head of Plant - Environment Interactions Programme, Risø National Laboratory, Building PRD-309, P.O. Box 49, Frederiksborgvej 399, DK-4000 Roskilde, Denmark. Tel: + 45 4677 4175. E-mail: kim.pilegaard@risoe.dk

Publications

Refereed

Dorsey, J.R., E.G. Nemitz, M.W. Gallagher, D. Fowler, P.I. Williams, K.N. Bower, K.M. Beswick.
2002 Direct measurements and parameterisation of aerosol flux, concentration and emission velocity above a city. Atmospheric Environment 36 (5), 791-800.

Dorsey, J.R., J.H. Duyzer, M.W. Gallagher, H. Weststrate, P.T. Hummelshoj, K. Pilegaard, H. Coe, S. Walton.
2003 Oxidised nitrogen and ozone interaction with forests I: Experimental observations and analysis of exchange with Douglas Fir. Quarterly Journal of the Royal Meteorological Society 130 (in press).

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2002 Measurements and parameterizations of small aerosol deposition velocities to grassland, arable crops, and forest: Influence of surface roughness length on deposition. Journal of Geophysical Research - Atmospheres 107 (D12): Art. No. 4154

Longley, I.D., M.W. Gallagher, J.R. Dorsey, M. Flynn, J.D. Allan, M.R. Alfarra, D. Inglis.
2003 A case study of aerosol (4.6 nm < Dp < 10 μm) number and mass size distribution measurements in a busy street canyon in Manchester, UK. Atmospheric Environment 37, 1563-1571.

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2004 Short term measurements of airflow and turbulence in two street canyons in Manchester. Atmospheric Environment 38, 69-79.

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Nemitz E., K.J. Hargreaves, A.G. McDonald, J.R. Dorsey, D. Fowler.
2002 Meteorological measurements of the urban heat budget and CO2 emissions on a city scale. Environmental Science & Technology 36 (14): 3139-3146.

Abstracts

Allan, J.D., H.Coe, M.R.Alfarra, P.I.Williams, K.N.Bower, J.R.Dorsey, G.B.McFiggans, M.W.Gallagher, T.W.Choularton, A.A.Garforth.
2001 A quantitative aerosol mass spectrometer: Results and analysis from recent field studies. Proceedings of the 12th Annual Conference and AGM of the UK Aerosol Society, University of Bath, 18th-19th June 2001.

Bower, K.N., T.W. Choularton, H. Coe, G. McFiggans, P.I. Williams, M. Alfarra, J.D. Allan, M.W. Gallagher. J.R. Dorsey, R.A. Burgess, M.J. Flynn, A.A. Garforth, S. Fuzzi, M.C. Facchini, S. Decesari, A. Berner.
2001 ACE-Asia: The cloud aerosol interaction experiment on Cheju Do. Proceedings of the 8th Scientific Assembly of IAMAS (International Association of Meteorology and Atmospheric Sciences), Innsbruck, Austria, 10th-18th July 2001. S05.1-1 06, p61.

Bower, K.N., G. McFiggans, P.I. Williams, M. Alfarra, J.D. Allan, M.W. Gallagher. J.R. Dorsey, H. Coe, R.A. Burgess, M.J. Flynn, S. Fuzzi, M.C. Facchini, S. Decesari, A. Berner.
2001 The aerosol-cloud interaction Experiment during ACE-Asia 2001. Abstracts of the 20th Annual American Aerosol Association for Aerosol Research (AAAR) Conference, Portland, Oregon. (AAAR 2001), October 15th-19th, 2001, 11PL12, p45

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2001 The ACE Asia aerosol-cloud interaction experiment. Abstracts of the European Aerosol Conference, Leipzig, Germany, September 3rd-11th 2001 Journal of Aerosol Science, Vol. 32, Supplement 1, S971-972. (ISSN 0021-8502)

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Nemitz, E.G., D. Fowler, J.R. Dorsey, M.R. Theobald, A.G. McDonald, K.N. Bower, K.M. Beswick, P.I. Williams, M.W. Gallagher.
2000 Direct measurements of size segregated particle fluxes above a city. Abstracts of the European Aerosol Conference, Dublin, Ireland 3rd-8th September 2000. Journal of Aerosol Science, Vol. 31, Supplement 1, S116-117. (ISSN 0021-8502).

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2000 Fine and ultrafine aerosol characterization and source interpretation in an urban Environment. Abstracts of the European Aerosol Conference, Dublin, Ireland 3rd-8th September 2000. Journal of Aerosol Science, Vol. 31, Supplement 1, S305-306. (ISSN 0021-8502).

Williams P.I., E.G. Nemitz, J.R. Dorsey, H. Coe, M.W. Gallagher, K.N. Bower, D. Fowler.
2001 Diurnal evolution of ultra fine, fine and accumulation mode aerosol size distributions in the city of Edinburgh. In: P.M. Midgeley, M. Reuther, M. Williams (Eds.) Proceedings of EuroTrac Symposium 2000. Springer Verlag, (Berlin Heidelburg).

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2001 Chemical and physical properties of aerosol on the Korean island of Cheju during ACE-Asia. Abstracts of the European Aerosol Conference, Leipzig, Germany, 3rd-11th September 2001 Journal of Aerosol Science, Vol. 32, Supplement 1, S351-352. (ISSN 0021-8502)