

Curriculum Vitae: Janet F. Barlow

January 2023

A Personal Information

Present appointment:

Professor of Environmental Physics, Department of Meteorology, University of Reading

Education and qualifications obtained:

- 2005 Postgraduate Certificate in Academic Practice (with Distinction)
- 1996-9 PhD on “Turbulent transfer of space charge in the atmospheric boundary layer”, Department of Meteorology, University of Reading.
- 1994-5 MSc in Applied and Agricultural Meteorology (Distinction), University of Reading.
- 1990-4 BSc in Applied Physics and German (2i), UMIST.

Previous appointments:

- 2015-16 Weather Research Division Leader, University of Reading (0.2FTE)
- 2011-14 Director of the Centre for Technologies for Sustainable Built Environments (TBSE), University of Reading (0.5FTE)
- 2009-12 Reader in Urban Meteorology, University of Reading
- 2002-9 Lecturer, Department of Meteorology, University of Reading
- 1999-02 Post-doctoral Research Assistant, Department of Meteorology, University of Reading
- Feb 1996 Research Assistant on a field experiment in Spain, Department of Meteorology, University of Reading
- Jun-Sep 93 Laboratory Assistant, Max Planck Research Institute, Berlin

B Research and Scholarship

My research is mostly concerned with urban meteorology and is motivated by the need to understand fundamental atmospheric processes with application to weather forecasting, urban sustainability, indoor and outdoor air quality, building ventilation, and environmental wind engineering. My work is largely experimental in nature, using both wind-tunnel based physical modelling, and urban observational campaigns. Another significant area is energy meteorology: wind power, boundary layer flow effects around wind farms, integration of renewable energy into the energy system. I have also worked on insect flight in the atmospheric boundary layer.

1. Research Outputs

Contribution indicated by stars: * small (<33%) ** medium (33-66%) *** large contribution (>66%).

Publications in preparation:

- 80. Theeuwes, N., **Barlow, J.F.**....Observations of tall building wakes using a Doppler lidar

Publications submitted or in press:

Publications:

- 79. Drysdale, W. S. , Vaughan, A. R. , Squires, F. A. , Cliff, S. J. , Metzger, S. , Durden, D. , Pingingtha-Durden, N., Helfter, C. , Nemitz, E. , Grimmond, C. S. B. , **Barlow, J.**, Beevers, S., Stewart, G., Dajnak, D., Purvis, R. M. and Lee, J. D. (2022) Eddy covariance measurements highlight sources of nitrogen oxide emissions missing from inventories for central London. *Atmospheric Chemistry and Physics*, 22 (14). 9413-9433. doi: <https://doi.org/10.5194/acp-22-9413-2022> *
- 78. Nicolini, G., Antoniella, G., Carotenuto, F., Christen, A., Ciais, P., Feigenwinter, C., Gioli, B., Stagakis, S., Velasco, E., Vogt, R., Ward, H. C., **Barlow, J.**, Chrysoulakis, N., Duce, P., Graus, M., Helfter, C., Heusinkveld, B., Järvi, L., Karl, T., Marras, S., Masson, V., Matthews, B., Meier, F., Nemitz, E., Sabbatini, S., Scherer, D., Schume, H., Sirca, C., Steeneveld, G.-J., Vagnoli, C., Wang, Y., Zaldei, A., Zheng, B. and Papale, D. (2022) Direct observations of CO₂ emission reductions due to COVID-19 lockdown across European urban districts. *Science of the Total Environment*, 830, 154662. doi: <https://doi.org/10.1016/j.scitotenv.2022.154662> *
- 77. Lean, H. W., **Barlow, J. F.** and Clark, P. A. (2022) The use of 100 m scale NWP models to understand differences between different measures of mixing height in a morning growing clear convective boundary

- layer over London. *Quarterly Journal of the Royal Meteorological Society*, 148 (745). pp. 1983-1995. doi: <https://doi.org/10.1002/qj.4291> *
76. Tsiringakis, A., Theeuwes, N., **Barlow, J.F.**, Steeneveld, G-J. Interactions between the nocturnal low-level jets and the urban boundary layer: a case study over London, *Boundary-Layer Meteorology*, 183, 249-272, <https://doi.org/10.1007/s10546-021-00681-7> *
 75. Blunn, L.P., Coceal, O., Nazarian, N., **Barlow, J.F.**, Plant, R.S., Bohnenstengel, S.I., Lean, H.W. Turbulence characteristics across a range of idealised urban canopy geometries, *Boundary-Layer Meteorology*, 182, 275-307, <https://doi.org/10.1007/s10546-021-00658-6> **
 74. Gentile, E. S., Gray, S. L., **Barlow, J. F.**, Lewis, H. W. and Edwards, J. M. (2021) The impact of atmosphere-ocean-wave coupling on the near-surface wind speed in forecasts of extratropical cyclones, *Boundary-Layer Meteorology*, 180, 105-129, <https://doi.org/10.1007/s10546-021-00614-4> **
 73. Gough, H., Halios, C.H., Grimmond, C.S.B., Luo, Z., Robertson, A., Hoxey, R., Quinn, A. and **Barlow, J.F.** Evaluating single-sided natural ventilation models against full-scale idealised measurements: impact of wind direction and turbulence, *Building and Environment*, 170, 106556, doi: 10.1016/j.buildenv.2019.106556 **
 72. Liu, Z., **Barlow, J.F.**, Pak-Wai Chan, Jimmy Chi Hung Fung, Yuguo Li, Chao Ren, Hugo Wai Leung Mak and Edward Ng (2019) A review of progress and applications of pulsed Doppler wind LiDARs, *Remote Sensing*, 11(21), 2522, doi: 10.3390/rs11212522 *
 71. Shi, Z., Vu, T., Kotthaus, S., Grimmond, S., Harrison, R.M., Yue, S., Zhu, T., Lee, J., Han, Y., Demuzere, M., Dunmore, R., Ren, L., Liu, D., Wang, Y., Wild, O., Allan, J., **Barlow, J.**, et al. (2019) Introduction to Special Issue – In-depth study of air pollution sources and processes within Beijing and its surrounding region (APHH-Beijing), *Atmos Chem Phys*, 19(11), 7519-7546, doi: 10.5194/acp-19-7519-2019
 70. Snow, S., Boyson, A., Paas, K.H.W., Gough, H., Felipe-King, M., **Barlow, J.**, Noakes, C.N. and schraefel, m.c. (2019) Exploring the physiological, neurophysiological and cognitive performance effects of elevated carbon dioxide concentrations indoors, *Building and Environment*, 156, 243-252, doi:10.1016/j.buildenv.2019.04.010 **
 69. Theeuwes, N.E., **Barlow, J.F.**, Teuling, A.J., C.S.B. Grimmond and Kotthaus, S. (2019) Persistent cloud cover over mega-cities linked to surface heat release, *Nature Climate and Atmospheric Science*, 2:15, doi: 10.1038/s41612-019-0072-x **
 68. Hertwig, D, Gough, H., Grimmond, C.S.B., **Barlow, J.F.**, Kent, C.W., Lin, W., Robins, A.R. and Hayden, P. (2019) Wake characteristics of tall buildings in a realistic urban canopy, *Boundary-Layer Meteorol*, 172, 239-270, doi: 10.1007/s10546-019-00450-7
 67. Drew, D.R., Coker, P.J., Bloomfield, H.C., Brayshaw, D.J., **Barlow, J.F.**, Richards, A. (2019) Sunny windy Sundays. *Renewable Energy*, 138, 870-875, doi:10.1016/j.renene.2019.02.029 *
 66. Gough, H., King, M-F., Nathan, P., Halios, C., Grimmond C.S.B., Robins, A., Noakes, C.J., Luo Z., **Barlow J.F.** (2019) Influence of neighbouring structures on building façade pressures: Comparison between full-scale, wind-tunnel, CFD and practitioner guidelines, *J Wind Eng Indust Aerodyn*, 189, 22-33 **
 65. Lean, H.W., **Barlow, J.F.** and Halios, C.H. (2019), The impact of spin-up and resolution on the representation of a clear convective boundary layer over London in order 100m grid-length versions of the Met Office Unified Model, *Quart J Roy Meteorol Soc*, 145(721), doi:10.1002/qj.3519 ***
 64. Kotthaus, S., Halios, C.H., **Barlow, J.F.** and Grimmond, C.S.B. (2018) Volume for pollution dispersion: London's atmospheric boundary layer during Clearflo observed with two ground-based lidar types, *Atmospheric Environment*, 190, 401-414, doi:10.1016/j.atmosenv.2018.06.042 **
 63. Drew D.R., **Barlow, J.F.** and Coker P.J. (2018) Identifying and characterising large ramps in power output of offshore wind farms, *Renewable Energy*, 127, 195-203 doi:10.1016/j.renene.2018.04.064 **
 62. Gough, H., Luo Z., Halios, C., King, M-F., Noakes, C.J., Grimmond C.S.B., **Barlow J.F.**, Hoxey R. and Quinn A. (2018) Field measurement of natural ventilation rate in an idealised full-scale building located in a staggered urban array: Comparison between tracer gas and pressure-based methods, *Building and Environment*, 137, 246-256, doi:10.1016/j.buildenv.2018.03.055 **
 61. Gough, H., Sato, T., Halios, C., Grimmond C.S.B., Luo Z., **Barlow J.F.**, Robertson A., Hoxey R. and Quinn A. (2018) Effects of variability of local winds on cross ventilation for a simplified building within a full-scale asymmetric array: The Silsoe field campaign, *J Wind Eng Indust Aerodyn*, 175, 408-418 doi:10.1016/j.jweia.2018.02.010 **
 60. Halios, C.H. and **Barlow, J.F.**, (2018) Observations of the morning development of the urban Convective Boundary Layer over London, UK taken during the ACTUAL project, *Boundary Layer Meteorology*, 166(3), 395-422 doi: 10.1007/s10546-017-0300-z **
 59. Kent, C. W., Grimmond, C. S. B., Gatey, D., **Barlow, J.F.** (2018) Assessing methods to extrapolate the vertical wind-speed profile from surface observations in a city centre during strong winds, *J Wind Eng Indust Aerodyn*, 173, 100-111, doi:10.1016/j.jweia.2017.09.007 **
 58. King, M-F., Khan A., Delbose, N., Gough, H.L., Halios, C., **Barlow, J.F.** and Noakes, C.J. (2017) Modelling urban airflow and natural ventilation using a GPU-based lattice-Boltzmann method, *Building and Environment*, 125, 273-284, doi: 10.1016/j.buildenv.2017.08.048 *

57. King, M-F., Gough, H.L., Halios, C., **Barlow, J.F.**, Robertson, A., Hoxey, R. and Noakes, C.J. (2017) Investigating the influence of neighbouring structures on natural ventilation potential of a full-scale cubical building using time-dependent CFD, *J Wind Eng Indust Aerodyn*, 169, 265-279 *
56. Drew, D.R., Cannon, D.J., **Barlow, J.F.**, Coker, P.J. and Frame, T. (2017) The importance of forecasting regional power ramping: a case study for the UK, *Renewable Energy*, 114, 1201-1208 **
55. **Barlow, J.**, Martin Best, Sylvia I Bohnenstengel, Peter Clark, Sue Grimmond, Humphrey Lean, Andreas Christen, Stefan Emeis, Martial Haefelin, Ian N Harman, Aude Lemonsu, Alberto Martilli, Eric Pardyjak, Mathias W Rotach, Susan Ballard, Ian Boutle, Andy Brown, Xiaoming Cai, Matteo Carpentieri, Omduth Coceal, Ben Crawford, Silvana Di Sabatino, Junxia Dou, Daniel R Drew, John M Edwards, Joachim Fallmann, Krzysztof Fortuniak, Jemma Gornall, Tobias Gronemeier, Christos H Halios, Denise Hertwig, Kohin Hirano, Albert AM Holtslag, Zhiwen Luo, Gerald Mills, Makoto Nakayoshi, Kathy Pain, K Heinke Schlünzen, Stefan Smith, Lionel Soulhac, Gert-Jan Steeneveld, Ting Sun, Natalie E Theeuwes, David Thomson, James A Voogt, Helen C Ward, Zheng-Tong Xie, Jian Zhong (2017) Developing a research strategy to better understand, observe and simulate urban atmospheric processes at kilometre to sub-kilometre scales. *Bulletin of the American Meteorological Society*, 98(10), ES261-ES264, doi:10.1175/BAMS-D-17-0106.1 *
54. Kent, C. W., Grimmond, C. S. B., **Barlow, J.**, Gatey, D., Kotthaus, S., Lindberg, F. and Halios, C. H. (2017) Evaluation of urban local-scale aerodynamic parameters: implications for the vertical profile of wind speed and for source areas. *Boundary-Layer Meteorology*, 164(2), 183-213 doi: 10.1007/s10546-017-0248-z **
53. Helfter, C., A. H. Tremper, C. H. Halios, S. Kotthaus, A. Björkegren, C. S. B. Grimmond, **J. F. Barlow**, and E. Nemitz, (2016) Spatial and temporal variability of urban fluxes of methane, carbon monoxide and carbon dioxide above London, UK., *Atmospheric Chemistry and Physics*, 16(16), 10543-10557, DOI:10.5194/acp-16-10543-2016 *
52. Drew, D.R., Cannon, D.J., Brayshaw, D.J., **Barlow, J.F.**, Coker, P.J. (2015) The impact of future offshore wind farms on wind power generation in Great Britain, *Resources*, 4(1), 155-171 **
51. Kubik, M.L., Coker, P.J. and **Barlow, J.F.** (2015) Increasing thermal plant flexibility in a high renewables power system, *Applied Energy*, 154, 102-111*
50. Bohnenstengel, SI, SE Belcher, A Aiken, JD Allan, G Allen, A Bacak, TJ Bannan, **JF Barlow**, DCS Beddows, WJ Bloss, AM Booth, C Chemel, O Coceal, CF Di Marco, MK Dubey, KH Faloon, ZL Fleming, M Furger, JK Gietl, RR Graves, DC Green, CSB Grimmond, CH Halios, JF Hamilton, RM Harrison, MR Heal, DE Heard, C Helfter, SC Herndon, RE Holmes, JR Hopkins, AM Jones, FJ Kelly, S Kotthaus, B Langford, JD Lee, RJ Leigh, AC Lewis, RT Lidster, FD Lopez-Hilfiker, JB McQuaid, C Mohr, PS Monks, E Nemitz, NL Ng, CJ Percival, ASH Prévôt, HMA Ricketts, R Sokhi, D Stone, JA Thornton, AH Tremper, AC Valach, S Visser, LK Whalley, LR Williams, L Xu, DE Young, P Zotter (2015) Meteorology, air quality, and health in London: The ClearfLo project, *Bulletin of the American Meteorological Society*, 96(5), 779-804, DOI:10.1175/BAMS-D-12-00245.1 **
49. Drew, D.R., **Barlow, J.F.**, Cockerill, T.T., Vahdati, M.M. (2015) The importance of accurate wind resource assessment for evaluating the economic viability of small wind turbines, *Renewable Energy*, 77, 493-500 DOI:10.1016/j.renene.2014.12.032 **
48. **Barlow, J.F.**, Halios, C.H., Lane, S.E. and Wood, C.R. (2015) Observations of urban boundary layer structure during a strong urban heat island event, *Environmental Fluid Mechanics*, 15(2), 373-398 DOI:10.1007/s10652-014-9335-6 ***
47. Bradley, S, Barlow, J, Lalley, J, Halois, C (2015) A sodar for profiling in a spatially inhomogeneous environment, *Meteorologische Zeitschrift*, 24(6), 615-624, DOI: 10.1127/metz/2015/0657 *
46. Visser, S., JG Slowik, M Furger, P Zotter, N Bukowiecki, F Canonaco, U Flechsig, K Appel, DC Green, AH Tremper, DE Young, PI Williams, JD Allan, H Coe, LR Williams, C Mohr, L Xu, NL Ng, E Nemitz, JF Barlow, CH Halios, ZL Fleming, U Baltensperger, ASH Prévôt (2015) Advanced source apportionment of size-resolved trace elements at multiple sites in London during winter, *Atmospheric Chemistry and Physics*, 15(19), 11291-11309, DOI: 10.5194/acp-15-11291-2015 *
45. Crilley, L.R., W. J. Bloss, J. Yin, D. C. S. Beddows, R. M. Harrison, J. D. Allan, D. E. Young, M. Flynn, P. Williams, P. Zotter, A. S. H. Prevot, M. R. Heal, **J. F. Barlow**, C. H. Halios, J. D. Lee, S. Szidat, and C. Mohr (2015) Sources and contributions of wood smoke during winter in London: assessing local and regional influences, *Atmospheric Chemistry and Physics*, 15(6), 3149-3171, DOI: 10.5194/acp-15-3149-2015 *
44. Visser, S., J. G. Slowik, M. Furger, P. Zotter, N. Bukowiecki, R. Dressler, U. Flechsig, K. Appel, D. C. Green, A. H. Tremper, D. E. Young, P. I. Williams, J. D. Allan, S. C. Herndon, L. R. Williams, C. Mohr, L. Xu, N. L. Ng, A. Detournay, **J. F. Barlow**, C. H. Halios, Z. L. Fleming, U. Baltensperger, and A. S. H. Prévôt (2015) Kerb and urban increment of highly time-resolved trace elements in PM₁₀, PM_{2.5} and PM_{1.0} winter aerosol in London during ClearfLo 2012, *Atmospheric Chemistry and Physics*, 15(5), 2367-2386, DOI: 10.5194/acp-15-2367-2015 *
43. **Barlow, J.F.** (2014) Progress in understanding and modelling the urban boundary layer, *Urban Climate*, 10, 216-240, DOI:10.1016/j.uclim.2014.03.011 ***

42. Nobile, R., Vahdati, M., **Barlow, J.F.**, Mewburn-Crook, A. (2014) Unsteady flow simulation of a vertical axis augmented wind turbine: a two-dimensional study, *Journal of Wind Engineering and Industrial Aerodynamics*, 125, 168-179, DOI:10.1016/j.jweia.2013.12.005 **
41. Dunbar, T.M., **Barlow, J.F.** and Belcher, S.E. (2014) An optimal inverse method using Doppler lidar measurements to estimate the surface sensible heat flux, *Boundary-Layer Meteorology*, 150(1), 49-67, DOI: 10.1007/s10546-013-9858-2 ***
40. Drew, D.R., **Barlow, J.F.** and Lane, S.E. (2013) Observations of wind speed profiles over Greater London, UK using a Doppler lidar, *Journal of Wind Engineering and Industrial Aerodynamics*, 121, 98-105, DOI: 10.1016/j.jweia.2013.07.019 *
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38. Lane, S.E., **Barlow, J.F.** and Wood, C.R. (2013) Assessment of a three-beam Doppler lidar wind profiling method for use in urban areas, *Journal of Wind Engineering and Industrial Aerodynamics*, 119, 53-59, DOI: 10.1016/j.jweia.2013.05.010, **
37. Xie, B., Hunt, J.C.R., Carruthers, D.J., Fung, J.C.H. and **Barlow, J.F.** (2013) Structure of the planetary boundary layer over Southeast England: modeling and measurements, *Journal of Geographical Research-Atmospheres*, 118(14), 7799-7818 *
36. Coker, P.J., **Barlow, J.F.**, Cockerill, T. and Shipworth, D. (2013) Measuring significant variability characteristics: an assessment of three UK renewables, *Renewable Energy*, 53, 111-120, DOI: 10.1016/j.renene.2012.11.013 **
35. Drew, D.R., **Barlow, J.F.** and Cockerill, T.T. (2013) Estimating the potential yield of small wind turbines in urban areas: a case for Greater London, UK., *Journal of Wind Engineering and Industrial Aerodynamics*, 115, 104-111, DOI: 10.1016/j.jweia.2013.01.007 **
34. Kubik, M., Coker, P.J., **Barlow, J.F.** and Hunt, C. (2013) A study into the accuracy of using meteorological wind data to estimate turbine generation output, *Renewable Energy*, 51, 153-158, DOI: 10.1016/j.renene.2012.08.084 *
33. Wood, C.R., Pauscher, L., Ward, H.C., Kotthaus, S., **Barlow, J.F.**, Gouvea, M., Lane, S.E. and Grimmond, C.S.B. (2013), Wind observations above an urban river using a new lidar technique, scintillometry and anemometry, *Science of the Total Environment*, 442, 527-533**
32. Harrison, R.M., Dall'Osto, M., Beddows, D.C.S., Thorpe, A.J., Allan, J., Coe, H., Dorsey, J., Gallagher, M., Martin, C., Whitehead, J., Williams, P., Benton, A.K., Jones, R.L., Langridge, J., Ball, S., Langford, B., Hewitt, C.N., Davison, B., Martin, D., Petersson, K., Henshaw, S.J., White, I.R., Shallcross, D.E., **Barlow, J.F.**, Dunbar, T.M., Davies, F., Nemitz, E.G., Phillips, G. and Helfter, C. (2012) Atmospheric chemistry and physics in the atmosphere of a developed megacity (London): an overview of the REPARTEE experiment and its conclusions, *Atmospheric Chemistry and Physics*, 12(6), 3065 -3114, DOI: 10.5194/acp-12-3065-2012 **
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27. Helfter, C., Famulari, D., Phillips, G.J., **Barlow, J.F.**, Wood, C.R., Grimmond, C.S.B. and Nemitz, E. (2011) Controls of carbon dioxide concentrations and fluxes above central London, *Atmospheric Chemistry and Physics*, 11, 1913-1928, doi:10.5194/acp-11-1913-2011**
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25. **Barlow, J.F.**, Dunbar, T.M., Nemitz, E.G., Wood, C.R., Gallagher, M.W., Davies, F., O'Connor, E. and Harrison, R.M. (2011) Boundary layer dynamics over London, UK, as observed using Doppler lidar, *Atmospheric Chemistry and Physics*, 11, 2111-2125 ***
24. Dall'Osto, M., Thorpe, A., Beddows, D.C.S., Harrison, R.M., **Barlow, J.F.**, Dunbar, T., Williams, P.I. and Coe, H. (2011) Remarkable dynamics of nanoparticles in the urban atmosphere, *Atmospheric Chemistry and Physics*, 10, 30651-30689, doi:10.5194/acp-11-6623-2011, **

23. Martin, D.E., Nickless, G., Price, C.S., Britter, R.E., Neophytou, M.K., Cheng, H., Robins, A.G., Dobre, A., Belcher, S.E., **Barlow, J.F.**, Tomlin, A.S., Smalley, R.J., Tate, J.E., Colville, R.N., Arnold, S.J. and Shallcross, D.E. (2010) Urban tracer dispersion experiment in London (DAPPLE) 2003: field study and comparison with empirical prediction, *Atmospheric Science Letters*, 11(4), 241-248*
22. Wood, C.R., Lacser, A., **Barlow J.F.**, Padhra, A., Belcher, S.E., Nemitz, E., Helfter, C., Famulari, D. and Grimmond, C.S.B. (2010) Turbulent flow at 190 m height above London during 2006-2008: a climatology and the applicability of similarity theory, *Boundary Layer Meteorology*, 137(1), 77-96 **
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20. Martin, D.E., Price, C.S., White, I.R., Nickless, G., Petersson, K.F., Britter, R.E., Robins, A.G., Belcher, S.E., **Barlow, J.F.**, Neophytou, M.K., Arnold, S.J., Tomlin, A.S., Smalley, R.J., and Shallcross, D.E. (2010) Urban tracer dispersion experiments during the second DAPPLE field campaign in London 2004, *Atmospheric Environment*, 44(25), 3043-3052 *
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13. Shallcross, S.E., Martin, D. , Price, C.S., Nickless, G., White, I.R., Petersson, F., Britter, R.E., Neophytou, M., Tate, J.E., Tomlin, A.S., **Barlow, J.F.** and Robins, A.G. (2009) Short-range urban dispersion experiments using fixed and moving sources, *Atmospheric Science Letters*, 10(2), 59-65 *
12. Cai, X-M., **Barlow, J.F.** and Belcher, S.E. (2008) Dispersion and transfer of passive pollutants in and above street canyons – Large eddy simulations, *Atmospheric Environment*, 42 (23), 5885-5895 **
11. **Barlow, J.F.**, Rooney, G.G., von Hunerbein, S. and Bradley, S.G. (2008), Relating urban surface layer structure to upwind terrain for the Salford experiment (Salfex), *Boundary Layer Meteorology*, 127 (2), 173-191 ***
10. Pascheke, F., **Barlow, J.F.** and Robins, A. (2008) Wind tunnel modelling of dispersion from a scalar area source in urban-like roughness, *Boundary Layer Meteorology*, 126, 103-124 ***
9. Wood, C.R., Chapman, J.W., Reynolds, D.R., **Barlow, J.F.**, Smith, A.D. and Woiwod, I.P. (2006) The influence of the atmospheric boundary layer on nocturnal layers of noctuids and other moths migrating over southern Britain, *International Journal of Biometeorology*, 50 (4), 193-204 **
8. Dobre, A., Arnold, S.J., Smalley, R.J., Boddy, J.W.D., **Barlow, J.F.**, Tomlin, A.S. and Belcher, S.E. (2005) Flow field measurements in the proximity of an urban intersection in London, UK, *Atmospheric Environment*, 39(26), 4647-4657 **
7. Reynolds, D.R., Chapman, J.W., Edwards, A.S., Smith, A.D., Wood, C.R., **Barlow, J.F.** and Woiwod, I.P. (2005) Radar studies of the vertical distribution of insects migrating over southern Britain: the influence of temperature inversions on nocturnal layer concentrations, *Bulletin of Entomological Research*, 95(3), 259-274 *
6. Rooney, G.G., Longley, I.D., and **Barlow, J.F.** (2005) Variation of urban momentum roughness length with land use in the upwind source area, as observed in two UK cities, *Boundary Layer Meteorology*, 115(1), 69-84 **
5. **Barlow, J.F.**, Harman, I.N. and Belcher, S.E. (2004) Scalar fluxes from urban street canyons. Part I: Laboratory simulation, *Boundary Layer Meteorology*, 113(3), 369-385 ***

4. Harman, I.N., **Barlow, J.F.** and Belcher, S.E. (2004) Scalar fluxes from urban street canyons. Part II: Model, *Boundary Layer Meteorology*, 113(3), 387-409 ***
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2. Longley, I.D., Gallagher, M.W., Dorsey, J.R. and **Barlow, J.F.** (2004) Short-term measurements of airflow and turbulence in two street canyons in Manchester, *Atmospheric Environment*, 38(1), 69-79 **
1. **Barlow, J.F.** and Belcher, S.E. (2002) A wind tunnel model for quantifying fluxes in the urban boundary layer, *Boundary Layer Meteorology*, 104(1), 131-150 ***

Book chapters:

Barlow, J.F. and Theeuwes, N.E. (2019): “Boundary Layer Meteorology and Atmospheric Dispersion”, in “Atmospheric Science for Environmental Scientists”, 2nd ed., ed. C.N. Hewitt, A.V. Jackson, John Wiley and Sons, ***

Barlow, J.F., Shao, L., and Smith, S.T. (2018) “Climate change, resilience and the built environment”, In “Sustainable Futures in the Built Environment to 2050: A Foresight Approach to Construction and Development.”, ed. Dixon, T.J., Connaughton, J. and Green, S., Wiley Blackwell, Oxford, ISBN 978-1-119-06381-0 ***

Barlow, J.F. (2013) “The wind that shakes the buildings: wind engineering from a boundary layer meteorology perspective”, in Owen, J., Sterling, M., Hargreaves, D and Baker, C.J. (2013). Fifty Years of Wind Engineering. Prestigious lectures from the Sixth European and African Conference on Wind Engineering. ISBN-13: 9780704428348 ***

Grimmond, C.S.B., Best, M., **Barlow, J.**, Arnfield, A.J., Baik, J-J, Belcher, S.E., Bruse, M., Calmet, I., Chen, F., Clark, P., Dandou, A., Erell, E., Fortuniak, K., Hamdi, R., Kanda, M., Kawai, T., Kondo, H., Krayenhoff, S., Lee, S.H., Limor, S-B., Martilli, A., Masson, V., Miao, S., Mills, G., Moriwaki, R., Oleson, K., Porson, A., Sievers, U., Tombrou, M., Voogt, J., Williamson, T., (2010) “Urban surface energy balance models: model characteristics and methodology for a comparison study”, in “Meteorological and Air Quality Models for Urban Areas”, ed. Baklanov, A., Grimmond, S., Mahura, A. and Athanassiadou, M., Springer-Verlag, pp183, DOI: 10.1007/978-3-642-00298-4_11 **

Barlow, J.F. (2009): “Boundary Layer Meteorology and Atmospheric Dispersion”, in “Atmospheric Science for Environmental Scientists”, ed. C.N. Hewitt, A.V. Jackson, John Wiley and Sons, ISBN 1405156902, 9781405156905 ***

Reports:

Dixon, T, Barlow, J., Grimmond, S. and Blower, J. (2015) Smart and sustainable: using Big Data to improve peoples' lives in cities. Discussion Paper, University of Reading, Reading. ISSN 2058-9751

Barlow, J.F. and O. Coceal (2009) A review of urban roughness sublayer turbulence, Technical report 527, Met Office. ***

Book reviews:

Barlow, J.F. Surface-based remote sensing of the atmospheric boundary layer by Stefan Emeis, *Boundary-Layer Meteorology*, DOI 10.1007/s10546-011-9659-4 ***

2. Research students supervised

17 students successfully completed* (as of Feb 2023)

- | | |
|----------|---|
| 2023- | To be recruited (NERC, CASE Award with Met Office, 1 st supervisor, joint with Omduth Coceal, Matteo Carpentieri and UKMO (H.Lean, M.Best)), “Developing an urban canopy model for improved weather forecasts in cities” |
| *2019-22 | Emanuele Gentile (NERC, CASE Award with Met Office, 2 nd supervisor, joint with Sue Gray and UKMO (H.Lewis)), “The impact of atmosphere-wave-ocean coupling on extreme surface wind forecasts” |
| *2016-20 | Lewis Blunn (NERC, NCAS, 3 rd supervisor joint with Omduth Coceal/Bob Plant and UKMO (H.Lean, S.Bohnenstengel)), “Developing high-resolution NWP for local-scale air quality prediction over cities” |

- *2015-19 Christoph Kent (NERC, CASE Award with Risk Management Solutions, CASE supervisor D. Gatey; 2nd supervisor, 1st supervisor Sue Grimmond), “Urban gust estimates for insurance portfolio loss”
- 2014-19 Duick Young (NERC funded, CASE award with Met Office, 2nd supervisor, joint with Peter Clark), “Integrating vegetation in an urban surface energy balance scheme”
- *2013-17 Hannah Gough (EPSRC DTG funded, 1st supervisor, joint with Vincent Luo (SCME)) “The effect of urban climate on building ventilation”
- *2011-15 Judith McConnell (MPhil, NERC/NCAS funded, 1st supervisor, joint with Omduth Coceal) “The turbulent structure of the urban boundary layer”
- *2011-15 Sahm Sawaf (EPSRC funded, EngD, 1st supervisor, joint with Emmanuel Essah) “Energy reduction solutions within retail outlets” (previous student: Elizabeth Mottram)
- *2010-15 Wagner Nogueira Neto (EPSRC, CASE award with Ove Arup (J. Hacker/A. Allsop), sole supervisor) “The dependence of urban climate on building layout and design”
- *2010-14 Aidan Brocklehurst (EPSRC, sole supervisor) “The effect of the urban environment on wind driven infiltration of buildings”
- *2010-14 Sian Lane (EPSRC, CASE award with Met Office (H. Lean), 1st supervisor) “Assessing the validity of urban scale numerical weather prediction”
- *2009-13 Rosario Nobile (EPSRC funded, EngD, 2nd supervisor, joint with Maria Vahdati) “Building integrated wind energy”
- *2009-13 Marek Kubik (EPSRC funded, EngD, 2nd supervisor, joint with Phil Coker) “The impact of high levels of renewable generation on an existing fossil fuel based electricity market”
- *2008-11 Dan Drew (EPSRC funded, 2nd supervisor, joint with Tim Cockerill) “Micro-wind turbines in urban areas”.
- *2007-11 Tyrone Dunbar (NERC funded, 2nd supervisor, joint with Stephen Belcher) “Using inverse modelling techniques with lidar measurements to estimate surface sensible heat flux”.
- *2007-14 Member of PhD. Committee for Sean Arms, University of Oklahoma.
- *2005-9 Anil Padhra (NERC funded, sole supervisor, CASE award with Met Office (D. Thompson, D. Middleton)). “Characterising atmospheric response to urban surface heterogeneity”.
- *2005-11 Phil Coker (EPSRC funded, 2nd supervisor, joint with Tim Cockerill and David Shipworth, School of Construction Management). “Assessing the variability of UK renewables”.
- *2003-7 Curtis Wood (BBSRC funded, 1st supervisor, joint supervision with Rothamsted Research, CASE award with Met Office (P. Clark)). “The influence of the nocturnal boundary layer on insect layering”.
- 2002- Member of Monitoring Committee for more than 30 PhD students, University of Reading.

Visiting international research student supervision:

- 2019-20 Aris Tsiringakis (5 months, University of Wageningen, remote supervision)
- 2016 Sato Tsuyoshi (3 months, University of Kyushu)
- 2011 Luca Caporosa (7 months, University of Bologna)
- 2009-10 Hiroshi Takimoto (6 months, Toyko Institute of Technology)
- 2010-11 Noora Eresmaa (9 months, Finnish Meteorological Institute)

3. Grants and contracts

- 2021-25 “ASSURE – Across-Scale processes in URban Environments”, NERC, £624,437 to Reading £2.3M total, Co-Investigator, co-supervising 1PDRA and 1 Technician. Consortium led by Reading Uni.
- 2021-23 “Fluid dynamics of Urban Tall-building clUsters for Resilient built Environments (FUTURE)”, EPSRC, £536,047 to Reading, Principal Investigator, supervising 1 PDRA. Consortium led by Surrey Uni, with Southampton Uni.
- 2020-23 “Breathing City: Future Urban Ventilation Network”, NERC, £20,829 to Reading, co-I. Consortium led by Leeds Uni.
- 2019-20 “Managing Air for Greener Cities (MAGIC)”, EPSRC, £56,300 (subcontract to Reading), Principal Investigator, supervising 1 PDRA
- 2016-18 “An integrated study of AIR Pollution PROcesses in Beijing (AIRPRO)”, NERC, £152,046 (Reading), Co-Investigator, co-supervising 1PDRA
- 2016-18 “Solar PV forecasting phase 2”, National Grid/NIA, £188,947, Co-investigator supervising 1 PDRA (Dan Drew)
- 2014-16 “Clustering Effects of Offshore Windfarms”, National Grid/NIA, £243,489, Principal Investigator, supervising 1 PDRA
- 2013-19 “Refresh: Remodelling Building Design Sustainability from a Human Centred Approach, EPSRC, £847,176 (Reading), £2.2 million in total, partners Noakes (Leeds), Schraefel (Southampton)
- 2013 “Impact of extreme events on power production at the scale of a single wind-farm”, National Grid, £145,000, Principal Investigator, supervising 1 PDRA

2011-18	“Industrial Doctorate Centre: Technologies for Sustainable Built Environments”, EPSRC Centre for Doctoral Training, £5,967,528, Principal Investigator/Director (from 1.10.11 to 30.09.14; plus 4 Co-Is, Reading)
2010-13	“Clean Air for London: ClearfLo”, Consortium grant, NERC, £488, 654 (Reading), £3.2 million in total, Co-Investigator in charge of BT Tower measurement platform, (PI S. Belcher, Reading, plus 17 others across 10 institutions)
2009-14	“Advanced Climate Technology Urban Atmospheric Laboratory (ACTUAL)”, EPSRC Challenging Engineering award, £1,023,188. Principal Investigator, supervising 1 PDRA, 1 Technician and 3 PhD students, leading an urban climate research group, initiating research across engineering-meteorology disciplines
2008	“Urban Meteorological Impacts for Dispersion”, Met Office, £20,425, Principal Investigator, writing literature review on flow properties in urban streets to inform pollutant dispersion modelling
2006-9	“Dispersion experiments in London: HO-DAPPLE”, Home Office, £117,250 (Reading), £828,637 in total, Co-Investigator, co-supervising 1 PDRA, supervising 1 Technician, designing and co-ordinating full-scale tracer experiments in London (PI A. Robins, Surrey, plus 7 institutions)
2005-8	“All weather Doppler lidar for clouds and boundary layer”, NERC, £149,597. Co-Investigator (PI A. Illingworth, plus 4 Co-I’s, Reading).
2004-6	“Quantifying turbulent ventilation of heat and pollution from urban areas”, EPSRC First Grant Award, £97,581. Principal Investigator, supervising 1 PDRA and 1 Technician, leading wind tunnel experimental design and development of novel methodology
2002-5	“Dispersion of air pollution and penetration into the local environment (DAPPLE)”, EPSRC, £149,478 (Reading), £1,543,360 over 6 Research Organisations. Co-Investigator, co-supervising 2 PDRAs, designing full-scale flow and tracer measurements in London.

4. Evidence of research esteem

Invited talks:

International:

2020	“Breathing Cities: wind climate processes in urban areas”, American Meteorological Society Board for the Urban Environment webinar, 30 Nov 2020. Invited talk.
2020	“Observing the urban boundary layer”, International Association for Urban Climate webinar. 6 Nov 2020. Invited talk as 2019 recipient of Luke Howard Award.
2018	The role of wind shear in the urban boundary layer, International Conference for Urban Climate 10, New York, 7 August 2018
2016	Urban Meteorology, Urban Physics Spring School, Aphrodite Hills, Cyprus, 8-13 May
2016	Urban ventilation – results from a decade of research in London, UK (1); Evaluation of high resolution numerical weather prediction simulations of an urban atmosphere (2), Workshop “Urban microclimate – opportunities and challenges”, Building and Research Institute/Institute for High Performance Computing, Singapore, 14 April 2016
2015	Urban Meteorology, Workshop for architecture students at Chinese University of Hong Kong, 12 December 2015
2015	The Breathing City – ventilation processes from building to city scale, invited speaker and convenor at Croucher Advanced Study Institute on Urban Climate and Urban Comfort, Chinese University of Hong Kong, 7-11 Dec 2015
2015	Urban Meteorology, Urban Physics Winter School, Ascona, Switzerland, 26-30 January 2015
2015	Urban boundary layer flows – from city to neighbourhood to building scale, University of Hong Kong, 2 February 2015
2015	Urban Meteorology, Workshop for architecture students at Chinese University of Hong Kong, 31 January – 1 February 2015
2014	Sustainable built environment research in partnership with industry – a view from the UK, Penn State, USA, 31 March 2014
2014	Observations of urban ventilation at different scales in London, invited speaker at workshop “Ventilation in Cities”, Vietnamese-German University, Ho Chi Minh City, Vietnam, 23 rd January 2014
2014	An intercomparison of urban and rural boundary layers..., Hong Kong Meteorological Observatory, 19 th January 2014
2014	Knowledge of Urban Climate: using it to reduce risks to health and well-being, invited speaker at workshop “Towards a Healthy City”, Chinese University of Hong Kong, 18 th January 2014
2014	Urban Meteorology, Workshop for architecture students at Chinese University of Hong Kong, 17 th January 2014
2013	Urban Meteorology, Urban Physics Autumn School, Halkidiki, Greece, 14-19 October 2013

- 2013 Boundary Layer Meteorology, Prestige lecture, 6th European and African Conference on Wind Engineering, 7-11 July 2013
- 2012 Progress in measuring and modelling the urban boundary layer, 8th International Conference on Urban Climatology, Dublin 6-10th August 2012, keynote talk
- 2012 Technologies for sustainable built environments (TSBE), 15th March 2012, CSIRO Urban Science Symposium, 13-15 March 2012, Melbourne, Australia
- 2012 Building an urban atmospheric laboratory in London: lessons learnt from a decade of experiments, 14th March 2012, CSIRO Urban Science Symposium, 13-15 March 2012, Melbourne, Australia
- 2008 Surface layer response to a heterogeneous urban canopy, 14th May 2008, University of Auckland, New Zealand (paid visit)
- 2008 The DAPPLE experiment: flow patterns controlling dispersion in urban areas, 7th April 2008, CSIRO, Canberra, Australia (paid visit)
- 2007 Flow patterns controlling dispersion in urban areas, Tokyo Institute of Technology, Tokyo, Japan, 17th Oct 2007 (paid visit)
- 2006 Effect of urban morphology on scalar transport in the urban roughness sublayer, invited participant plus talk, Geophysical Turbulence Program Workshop on Turbulence and Scalar Transport in Roughness Sublayers, National Center for Atmospheric Research (NCAR), Boulder, US, 28th September 2006. (paid visit)
- 2006 Scalar transport in urban canopies, University of Oklahoma, 21st September 2006

National:

- 2019 Feeling refreshed: natural ventilation processes in urban buildings, Institute of Physics Workshop on Indoor Air Quality, 17 September 2019
- 2018 The indoor-outdoor connection in Refresh, invited speaker, UK Fluids Network, joint meeting of Urban Fluid Mechanics/Low Energy Ventilation Network SIGs, University of Cambridge, 17-18 Dec 2018
- 2016 The fluid dynamics of urban meteorology, plenary speaker, 1st UK Fluids Conference, Imperial College, 8 Sep 2016
- 2016 The Breathing City – ventilation processes from building to city scale, University of Nottingham, 10 Feb 2016
- 2015 Measuring and modelling urban microclimate, University College London invited seminar, 10 March 2015
- 2015 Urban Climate, Architectural Association: School of Architecture (EmTech), London, 6 March 2015 (honorarium paid)
- 2014 Urban boundary layers – investigating urban flows from building to city scale, University of Cambridge, 11 March 2014
- 2013 Uses of Doppler lidar for urban meteorology, NCAS Forum on Boundary Layer Remote Sensing, 24th September, 2013
- 2013 The effect of urban flows on pollutant ingress into buildings – results from experiments in central London, Atmospheric Dispersion Modelling Liaison Committee Autumn Forum, Harwell, U.K., 17th September 2014
- 2012 Urban Meteorology – lessons learnt from a decade of experiments in London, UK Wind Engineering Society Conference, Southampton 10-12th September 2012, keynote talk
- 2012 Measuring fluxes over urban areas: results from observations in London, 13th February 2012, Prime Minister's Initiative 2 (PMI2) workshop, British Council sponsored, Newcastle University, 13-14th Feb 2012
- 2012 Urban Climate, Architectural Association: School of Architecture (EmTech), London, 22nd February 2012 (honorarium paid)
- 2011 Urban Climate, Architectural Association: School of Architecture (EmTech), London, 16th February 2011 (honorarium paid)
- 2011 Urban Boundary Layer, Wind Engineering Society Technical Meeting, ICE, 19th January 2011
- 2009 Urban Boundary Layer Meteorology, University College London, 19th November 2009
- 2009 Meteorological measurements in urban areas, National Physical Laboratory (Teddington), 21st April 2009
- 2008 Measurements and models of the urban roughness sublayer, University of Southampton, 17th December 2008
- 2007 The DAPPLE experiment: dispersion experiments in central London, Imperial College London, 22nd May 2007
- 2007 Measurements to support dispersion experiments, Royal Meteorological Society Special Interest Group on Instrumentation meeting, University of Birmingham, 19th March 2007
- 2006 SimCity in the wind tunnel: physical modelling of turbulent flow in urban areas, School of Engineering, University of Birmingham, 15th November 2006
- 2006 Experimental investigation of urban boundary layers, The Met Office, 6th October 2006

2005 Transfer processes in urban canopies, ATREUS research project meeting, Cambridge, 20th April 2005

Citations:

My 82 published papers currently have 3599 citations (h-factor 38) to January 2023. Search completed using ISI Web of Science (Name = Janet Barlow, Janet F Barlow, Year = 2002-present, Address = University of Reading).

Contribution to research activities at national/international level:

International:

- 2020 Member of International Association for Urban Climate Awards Committee.
- 2020 PhD examiner, Arjan Droste, Wageningen University, Netherlands
- 2019 Management Committee Substitute, COST Action CA18235 PROfiling the atmospheric Boundary layer at European scale, 29 Oct 2019, Brussels
- 2019 PhD examiner, Antti Manninen, Finnish Meteorological Institute, Finland
- 2012 Member of Scientific Organising Committee for 8th International Conference on Urban Climatology, Dublin, 6-10th August 2012
- 2012 PhD external examiner,
- 2010-14 Member of Board of Urban Environment, American Meteorological Society
- 2003-7 Elected Member of Board of the International Association of Urban Climate. Duties included Chair of Membership Committee
- 2005-6 Member of Scientific Organising Committee for 6th International Conference on Urban Climatology, Gothenburg, 2006
- 2004, 2006 Member of Assessment Committee for Assistant/Associate Professorship candidates, University of Bergen
- Session chair at International Conferences: 2003 ICUC-5 (Poland), 2005 Physmod (Canada), 2005, 2007 Royal Meteorological Society (Manchester, Edinburgh), 2008 Wind and Structures (Korea), 2010 Wind Engineering (UK), 2014 AMS BLT (Leeds)
- Reviewer for many international scientific journals (Boundary Layer Meteorology, Atmospheric Environment, Journal of Applied Meteorology, Journal of Wind Engineering and Industrial Aerodynamics etc.).
- Reviewer of 3 international promotion cases at Professor-level

National:

- 2020 Member of Steering Committee for Urban Fluid Mechanics network, part of EPSRC UK Fluids Network
- 2020 “Urban boundary layer observations and pollutant dispersion”, Online Workshop on Urban Dispersion and Turbulence, organised by UK Met Office, 12 Nov 2020. Invited talk.
- 2020 Member of organising committee and host of Joint Urban Fluid Mechanics SIG/Met Office Urban Working Group workshop on “Weather and climate change at urban scales”, 6-7 Jan 2020, University of Reading
- 2019 Discussion facilitator, Urban Fluid Mechanics SIG workshop, 27-28 June 2019, University of Surrey
- 2019 Participant, Strategic Priorities Fund Clean Air Project workshop, 6-8 Feb 2019, Exeter
- 2017- Member of UK Met Office Scientific Advisory Committee
- 2016 Member of Organising Committee for Met Office/NERC Joint Weather and Climate Research Programme sponsored Workshop on “The integration of urban atmospheric processes across scales”, 16-18 Nov 2016, University of Reading.
- 2016- Member of Steering Committee for Low Energy Ventilation Network, funded through EPSRC UK Fluids Network
- 2016 Grant committee member EPSRC LWEC Challenge Fellowship, 24-25 Feb 2016.
- 2015 Organiser of Wind Engineering Society Research Day, 14th October 2015
- 2015 PhD external examiner, Jian Zhong, University of Birmingham, November 2015
- 2014 PhD external examiner, Matthew Haines, University of Birmingham, August 2014
- 2013-6 Co-opted member of Steering Committee for Wind Engineering Society
- 2013 PhD external examiner, David Tupman, University of Leeds, December 2013
- 2013 PhD external examiner, Joel Millward-Hopkins, University of Leeds, July 2013
- 2012 PhD external examiner, Stella Karra, University College London, October 2012
- 2011 PhD external examiner, Jean Claus, University of Southampton, December 2011
- 2011- Honorary Reader in Energy Institute, University College London
- 2011-15 Co-chair of Air Pollution Research In London (APRIL) knowledge exchange network

- 2010 Organiser of Royal Meteorological Society National Meeting “Adapting our Cities for Future Climates”, 17th Feb 2010
- 2009 Keynote speaker, and Member of Organising Committee for National Centre for Atmospheric Science (NCAS) sponsored Workshop on “Urban roughness sublayers – from measurements and CFD to predictive models”, 30th-31st March 2009, Reading.
- 2008- National Co-ordinator of environmental research conducted on the BT Tower, London
- 2008-11 Member of Steering Committee for Air Pollution Research In London (APRIL) network
- 2008- Member of Wind Engineering Society (Institution of Civil Engineers)
- 2006 Co-author of NERC National Centre for Atmospheric Science Urban Meteorology Programme Strategy
- 2006 Organiser of Royal Meteorological Society Wednesday Meeting on “Urban Meteorology”, 15th February 2006
- 2007 PhD external examiner, Matt Rigby, Imperial College London, December 2007
- Reviewer of proposals for NERC, EPSRC
- Reviewer of 3 promotion cases at all levels nationally

Awards:

- 2019 Luke Howard Award for outstanding contributions to urban climatology
- 1997 C.N Davies Award from The Aerosol Society for PhD work

Collaborative research:

I am a major contributor to field-based research within the UK, particularly engaged with urban fieldwork investigating urban meteorology in UK cities. I am a collaborator in formulating a UK Urban Meteorology Strategy, involving several Universities and the Met Office. This included co-organising an international workshop at Reading in Nov 2016 (Barlow et al. 2017). Previously I was a co-author of the National Centre for Atmospheric Science (NCAS) Urban Meteorology Strategy (2006), until they cut this area from their research programme. I have taken part in the following urban observational campaigns: PUMA (2000), Salfex (2002, fieldwork manager), DAPPLE (2003-2006), DAPPLE-HO (2006-2009), REPARTEE (2007), ACTUAL (2009-2014), ClearLo (2010-2013), Refresh (2013-2019). I have always had a major role in experimental design.

Research leadership within the School:

I lead a group of urban climate researchers and am a member of the Boundary Layer Meteorology and Urban Climate research groups, and recently started the Turbulence Group. I was Research Division Leader (Weather) from 2015-6, a senior management role overseeing the delivery of University Research Strategy at School level. Through my role as Laboratories Manager (2008-2011), I was responsible for co-ordinating technical support of PhD and funded research projects and maintaining a well-found laboratory. I successfully negotiated contracts for lab- and field-based research support services with DEFRA and Whitfield Solar totalling £17k p.a.

Contribution to research activities within the University:

I was Director of the TSBE from 2011-14 (budget £6M) overseeing the EngD programme (>40 research engineers) and responsible for driving industrially co-sponsored interdisciplinary research in the area of sustainable built environments. I have co-supervised MSc and PhD projects with colleagues in the School of Construction Management and Engineering (now School of Built Environment). I helped to set up the inter-School Energy Research Group in 2008. I have been a Walker Institute Research Associate since 2007 and was engaged in the Climate-KIC project. I have been an interview panel member for numerous lectureships, professorships and RCUK fellowships. I have been an internal examiner for more than 10 PhD students, and have been staff development reviewer or mentor for 16 staff members. I have submitted papers and esteem indicators to all RAEs/REFs since becoming a lecturer (2003, 2008, 2014, 2021). I led the submission (with Prof Peter Clark) of a UoA7 Impact Case Study for REF2021 entitled “Novel model improves Met Office urban weather forecasting and informs strategic planning for urban heatwaves and climate projections”.

C Knowledge transfer, enterprise and outreach

Government and Industry:

- 2015 Talk at Annual Review of Indoor and Outdoor Air Pollution, organised by Public Health England, Sep 2015
- 2015 Wagner Nogueira-Neto’s thesis delivered as part of Arup CASE award
- 2014 Sian Lane’s thesis delivered as part of Met Office CASE award
- 2014 Talk to local group of Chartered Institution Of Builders, September 2014
- 2014 Invited speaker at Smart and Sustainable Cities event, organised by Commonwealth Environmental Investment Platform, 6th May 2014

2014	Invited speaker at workshop for Chartered Institute of Building Services Engineers, UCL, London, April 2014
2013	“Urban Climate Research” presentation to visiting DEFRA civil servants including Prof. Ian Boyd, July 2013
2013	Invited speaker at Cleaner Air event, Greater London Authority, January 2013
2012	“London and Climate Change”, presentation at Cushman and Wakefield, London, 8 th October 2012
2011	Organiser of APRIL network meeting “The role(s) of vegetation in urban areas”, 3rd October 2011
2011-15	Sahm Sawaf, EngD project with Johnson Construction
2010	“Urban Climate Research” presentation to visiting DEFRA civil servants, 14 th April 2010
2010	Organiser of APRIL network meeting “Science outcomes from research on the BT Tower, London”, 26 th January 2010
2010	Anil Padhra’s PhD thesis delivered as part of Met Office CASE award.
2009-13	Marek Kubik, EngD project with AES (Alternative Energy Supplies)
2009-13	Rosario Nobile, EngD project with Matilda’s Planet
2009	Witness for Renewable Energy Systems, Ltd. at public inquiry into Den Brook wind farm, report writing/inquiry appearance, £3840
2008-11	Laboratory Manager, Department of Meteorology: negotiated service contracts for DEFRA, Whitfield Solar (total £17k p.a.)
2007	Curtis Wood’s PhD thesis delivered as part of Met Office CASE award.
2006-9	Contributed to interim reports delivered to Home Office as part of DAPPLE-HO project.
2006-	“The impact of buildings on local wind flows”, £6,048. Consultancy Agreement with Peter Brett Associates.
2006	Gave two presentations to audience including members of London local authorities, Westminster City Council, Greater London Authority, Transport for London, etc. at DAPPLE conference, 16 th May 2006, organised through the APRIL network.
1998	Consultancy Agreement with Arboricultural Advisory and Information Information Service. Report written (Barlow, J.F. and Harrison, R.G. (1998) Measuring tree shadow length, Arboricultural Advisory and Information Service.)

Wider community:

2016	Contributor to MOOC “Come rain or shine: understanding the weather”, first run autumn 2016
2015	Article in Weatherwatch column in The Guardian, 23 rd Feb 2015
2015	Interview on ITN News at Ten, commenting on Committee on Climate Change report, 30 June 2015
2014	Contributor to MOOC “Our changing climate: past, present and future”, first run autumn 2014.
2014	Interview on BBC Chris Evans Breakfast Show on “snoozing in the heat”, 24 th July 2014
2013	Interview on BBC Five Live on heatwave, 22 nd July 2013
2013	Interview on BBC News 24 regarding heatwave, 17 th July 2013
2013	Royal Meteorological Society, SE Group, Reading Town Hall, June 2013
2013	Contribution to New Scientist article “Oases of Cool” by Kat Austen, 20 th April 2013
2012	“Hot in the City: Urban Heat Islands Explained”, public lecture, University of Reading, 14 th Nov 2012 (plus interview on BBC Berkshire ahead of event)
2012	Interview on BBC News at Ten on Clearflo project, 8 th Aug 2012
2012	One of the “Experts” in The Cabaret of Ideas, Milton Keynes International Festival, 20-29 th July 2012
2011	Appearance in BBC programme “Horizon – What is One Degree?”, 10 th January 2011
2010	Appearance in BBC London programme “Wild Weather – Climate in the City”, 20 th September 2010
2010	Member of panel discussion at Royal Society, “Our buildings, our neighbourhoods, our cities?”, 13 th September 2010
2010	Exhibition piece “Ice-Traffic”, at Royal Festival Hall as part of Royal Society “See Further” festival, July 2010
2008	Exhibition piece “The Breathing City”, at Lighthouse, Brighton as part of the Expo Brighton Arts Festival, 4-6 th July 2008.
2007	“Urban Atmospheres”, talk given to Reading Friends of the Earth group, 8 th August 2007
2006-	Annual talks to Emmbrook Court (Sheltered Housing Scheme) in Reading on weather-related topics.
2006	“Pollution: from city streets to the global scale”, talk and laboratory demonstrations given as part of Department of Meteorology 40 th Anniversary Open Day, 6 th May 2006
2004	Laboratory demonstrations given at Department of Meteorology Open Day, as part of National Science Week.

2001- Laboratory and Atmospheric Observatory demonstrations given to Friends of the University, French National Weather Service visit, Talented and Gifted Children visits, etc.

D Teaching

Teaching load (in brackets: credits, approx. student numbers, contact hours):

2020- MTMG49 Boundary Layer Meteorology and micrometeorology (NB: 2020/21 teaching moved online due to Covid-19 lockdown)

2015 MTMA32 Measurements and Instrumentation, (10cr, 29, 25hrs)

2014 MTMG34 Experiencing the Weather (10cr, ~30-50, 40hrs)

2010-13 MT37J/MT49E Boundary Layer Meteorology (Part B: practicals) (10cr, ~23, 25hrs)

2010-11 CEMRUS Sustainable Urban Systems, contributed 2 hour lecture

2009-11 MT374XH Arran fieldcourse (10cr, ~25, 55hrs)

2009-10 MTMG49 Boundary Layer Meteorology and Micrometeorology (10cr, ~30, 25hrs)

2006-08 Co-supervision of visiting U.S. undergraduate project students, with Petra Klein at University of Oklahoma

2006-07 ES2X6 Environmental Earth Science field class, Tenerife (10cr, ~20, 60hrs)

2005-08 ES2A5 Environmental Systems, contributed 2 hour lecture, exam questions

2004-09 MT36E Boundary Layer Meteorology (20cr, ~23, 42hrs) (became MT37J/MT49E in 2010)

2004-10 CEMIB9: Module 9: Sustainable Design, Construction and Operation, MSc Intelligent Buildings, contributed 3 hour lecture

2004- MTMG05 Professional Skills, MSc Team project supervisor, biennial, (10cr, ~4, 5hrs)

2003-04 MT26F Atmospheric Analogues (10cr, ~20, 17hrs)

2002-06 Academic tutor for MSc students

2002-05 MTMW20 Fluid Dynamics of the Atmosphere and Oceans (Practicals) (10/20cr, ~25, 12hrs)

2002-05 MTMG34 Experiencing the Weather (10cr, ~30, 40hrs)

2002-03 MT626 Microscale Meteorology (10cr, ~23, 20hrs) (became MT36E in 2004)

2002-03 MT627 Surface Layer Processes (10cr, ~23, 20hrs) (became MT36E in 2004)

2002- Supervisor or co-supervisor of more than 15 BSc project students

2002- Weather and Climate Discussion – presenter, contributor

2000- Supervisor or co-supervisor of more than 20 MSc dissertation students

Other teaching support activities include Undergraduate Personal Tutor. NB: teaching load reduced as of 1.10.11 to 30.09.14 due to starting as Director of TSBE Centre 0.5 FTE.

Quality of teaching and commitment to CPD at University and national level:

I have taught in a wide range of teaching methods (e.g. lectures, small group tutorials, problem classes) but have a special interest in teaching and learning science through practical methods (i.e. lab and field based practical work). This was the focus of my PGCAP project, for which I was nominated for the Project Prize in 2005. My ability to explain my science area clearly has been consistently highly rated in student feedback, and led to my being invited to write a chapter for the textbook “Atmospheric Science for Environmental Scientists” (published 2009, John Wiley), and to give a postgraduate level lecture at the NCAS Summer School, Sep 2011. Since 2013 I have been a regular contributor to postgraduate-level teaching at international level in urban climate.

2011 NCAS Summer School, contributed lecture on “Urban Meteorology” (Sep 2011)

2009 Barlow, J.F.: “Boundary Layer Meteorology and Atmospheric Dispersion”, in “Atmospheric Science for Environmental Scientists”, ed. C.N. Hewitt, A.V. Jackson, John Wiley and Sons, ISBN 1405156902, 9781405156905 ***

2005 Post-Graduate Certificate in Academic Practice (with Distinction). Project Dissertation: “Efficiency vs. Efficacy: teaching practical courses in the face of increasing student numbers”, nominated for project prize. Reflective Portfolio used within CSTD courses as example of best practice.

2004 Departmental representative to Periodic Review Panel (Library Co-ordinator), contributor to report on use of library in support of student learning.

2002- Feedback from students across all my taught modules consistently states that my teaching is well paced, “very clear explanations”, I supply “clear notes”, and I am described as being “very enthusiastic”.

Enhancement to curriculum development and delivery:

I am committed to pulling research excellence into teaching excellence. This underpinned two successful bids to upgrade Departmental instrumentation (total £25k) to research-grade equipment for use in the field and wind tunnel laboratory, and subsequent redevelopment of module material. I have involved both undergraduate and postgraduate students in my field-based research consortium projects.

- 2010-11 Secured Departmental funds (£15k) to buy infra-red gas analyser, developed its use in MSc dissertation, undergraduate and postgraduate practical classes to give experience of research grade experimentation. Rewrote MT37J module to teach latest micrometeorological research methods.
- 2009-11 Re-timetabling of MT37J/MT49E Boundary Layer Meteorology to provide more consistent fieldwork-based learning (improved timing with regard to pre-requisite module MT26E Surface Energy Exchange and optional MT374XH Arran fieldcourse).
- 2004 Development of MT36E Boundary Layer Meteorology module out of MT626 Microscale Meteorology and MT627 Surface Layer Processes which I had previously been teaching. Re-designed to satisfy the more intensive timetabling of the practical content (3 weeks instead of 7 weeks) without compromising on learning quality. Used as example in PGCAP project dissertation.
- 2004 Secured Departmental funds (£10k) to replace wind tunnel instrumentation to allow research grade flow measurement for use in student projects.

Supporting students' learning and development:

Since being a lecturer I have always taken on substantial roles at Departmental level in supporting the infrastructure for student learning. As Laboratories Manager I developed a good rapport with technical staff and implemented changes in staffing structure to produce a better functioning team in support of lab- and field-based teaching. Through my efforts I led a nomination bid in 2009 which resulted in a CDoTL Team Award for Outstanding Contributions to Teaching and Learning Support for two Lab and two IT staff comprising the MetFiDAS (Meteorology Field Data Acquisition System) team. Their meteorological data acquisition system now supports student projects across the University.

- 2008-11 Manager of Laboratories and Atmospheric Observatory, Department of Meteorology. Responsible for annual budget of £20-30k, team of 6 technicians, delivering technical support for teaching (7 modules lab/field-based content, BSc and MSc practical projects, demonstrations) and research. Implemented restructuring of staff responsibilities with considerable personnel-related challenges (retirements, disciplinary issues, budgeting)
- 2004-7 Examinations Officer, Department of Meteorology. Responsible for co-ordination of 3 secretaries, delivery of examination papers and results, organisation of MSc level examinations.
- 2002-4 Library Representative, Department of Meteorology. Responsible for annual budget of £20-30k, supervision of Departmental Librarian. Member of Faculty of Science Library Committee.