

Marina Kyriacou-Angelas Neophytou



Current position: Professor (with tenure),
Environmental Fluid Dynamics Laboratory – Isle of Excellence (Head),
Department of Civil and Environmental Engineering (Vice-Chair),
Energy Technologies and Sustainable Design Inter-departmental
Graduate Program (Coordinator),
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Personal details Born in Cyprus on November 23rd 1974;
Cypriot (EU) citizen;

Scholar Profile Citations: 1878 | h-index: 22 | i-10 index: 33

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I. Academic Profile

Education

- 2002** **PhD** in Engineering
University of Cambridge, United Kingdom; Department of Engineering,
 Division of Fluid Mechanics and Thermodynamics (Area: Environmental Fluid Dynamics)
 Ph.D Thesis: Buoyancy- and momentum-driven turbulent flows in semi-enclosed regions;
 Thesis advisor: Prof. Rex E. Britter
- 2002** **M.A** in Engineering
University of Cambridge, United Kingdom; Department of Engineering
- 1997** **M.Eng & B.A. (Honors)** in Engineering
University of Cambridge, United Kingdom;
 Department of Engineering, Division of Fluid Mechanics and Thermodynamics;
 M.Eng Thesis: The flow of oil-water droplets in inclined confined regions

Professional Employment and Affiliations

- 12/2020-** **Professor**, Environmental Fluid Mechanics Laboratory-Isle of Excellence (Head) ,
 Department of Civil and Environmental Engineering, School of Engineering,
University of Cyprus, CYPRUS
- 7/2015-11/2020** **Associate Professor**, Environmental Fluid Mechanics Laboratory
 Department of Civil and Environmental Engineering
 School of Engineering, **University of Cyprus**, CYPRUS
- 9/2014-6/2015** **Visiting Professor**,
ETH-Zurich, Switzerland (*on sabbatical leave from University of Cyprus*)
 Jointly appointed at: Department of Mechanical and Process Engineering (Institute of
 Fluid Dynamics) & Department of Architecture (Chair of Building Physics)
- 6/2009-6/2015** **Assistant Professor**, Environmental Fluid Mechanics Laboratory (Head)
University of Cyprus, CYPRUS
 Department of Civil and Environmental Engineering, School of Engineering
- 1/2009- 8/2009** **UNESCO Visiting Research Fellow** (*on sabbatical leave from University of Cyprus*)
Massachusetts Institute of Technology (MIT), US
 Department of Urban Studies and Planning
 &
Los Alamos National Laboratory, New Mexico, US
 Systems Engineering and Integration Group
- 3/2005 -5/2009** **Lecturer**, Environmental Fluid Mechanics Laboratory (Founder & Head)
 Department of Civil and Environmental Engineering, School of Engineering,
University of Cyprus, CYPRUS
- 2/2003-2/2005** **Post-doctoral Research Associate**, Division of Energy, Fluid Mechanics and
 Thermodynamics, Department of Engineering, **University of Cambridge**, UK
- 7/2001-2/2003** **Research Associate**, Institute of Chemical Engineering and High Temperature Processes,
 Foundation for Research and Technology, Patras (Platani), Greece
- 6/1995-9/1995** **Training Engineer**, Fluid-Cementing Technology Department

Schlumberger-Clamart Research and Production Center, Paris, France

6/1994-9/1994 **Training Engineer**, Fluid Mechanics Department
Schlumberger Cambridge Research, Cambridge, UK

Awards, Scholarships, Distinctions

- Best Paper Award in the 6th International Conference on Renewable Energy Resources and Energy Efficiency for the paper Relationship of urban micro-climate with energy consumption and CO₂ emissions using Local Climate Zones data P. Mouzourides, A. Eleftheriou, M. K.-A. Neophytou, J. Ching, A. Kyprianou, (2018); first two authors members of the EFM laboratory (post-doctoral researcher and PhD student)
- World Women Economic Forum, Award: Iconic Women Creating a Better World for All, New Delhi – India, 8-13 May 2017; granted on work in academia towards Sustainable Development
- Best Paper Award in the 34th International *Air Infiltration and Ventilative Cooling* Conference on: Energy conservation technologies for mitigation and adaptation in the built environment: the role of ventilation strategies and smart materials, for the paper *Toward designing strategies for Urban Heat Island mitigation using multi-scale flow analysis* by Neophytou et al. (2013)
- UNESCO International Research Fellowship at MIT (USA) & Los Alamos National Lab (USA)(2009).
- Cambridge Commonwealth Trust Honorary Scholarship for doctoral studies (1997-2000),
- Schlumberger Cambridge Research Ltd Grant-Award for doctoral studies (1997-2000),
- Cambridge University Engineering Department PhD studentship Award (1997-2001)
- AG Leventis Foundation Scholarship for doctoral studies (1997-2000),
- New Hall College (Cambridge University) Bursary for doctoral studies (1997-2000)
- US Fulbright Full-Expense Scholarship for Masters degree in the USA (1997, offered but not opted)
- European Grant Award “Women in Technology”, for research work carried out at Schlumberger-Dowell Research and Production Center, Paris, France (1995)
- Cambridge Commonwealth Trust Full-Expense Scholarship, towards BA (Honors) and MEng degrees in Engineering at Cambridge University, UK (1993-97)
- Cyprus State Foundation Scholarship (1992, towards Dpl.Ing studies in Civil Engineering at the National Technical University of Athens based on top entrance ranking; offered but not opted)
- Prizes in the Cyprus National Competitions of Mathematics, Physics, Chemistry and represented Cyprus in the Mathematics Olympiad (1989-92)

II. Research Activity

Research Interests

Urban fluid dynamics and multi-scale interactions: Air flow and pollution dispersion in urban areas and multi-scale interactions – from building to regional and global scales; urban meteorology and air pollution transport in urban areas with transboundary contributions such as desert dust storms; atmospheric turbulence and turbulence modelling, buoyancy-driven flows and stratification in the urban environment; urban heat transfer, urban heat island studies and mitigation measures, strategies for urban and building design for future urban climate considerations and energy-related impacts;

Research Approach

My overall research approach aims to respond to real-life challenges stemming from environmental fluid dynamics providing scientifically sound and operational viable solution-proposals; the approach entails the complementary use of laboratory experiments, field measurements, and computational simulations, based on appropriate theoretical premises relevant to the problem addressed – to be developed, if needed and not available. Specifically:

- controlled laboratory experiments (using primarily Particle Image Velocimetry) are used in order to understand and model fundamental phenomena,

- field experiments and in-situ measurements are conducted for understanding and evaluating (wherever appropriate) the natural-field variability and uncertainty, and
- computational simulations (using mainly Computational Fluid Dynamics & Weather Research Forecasting simulations) in order to investigate the problems of both fundamental scientific research interest and of practical real-life decision-making relevance.

International Committees and Memberships

European Mechanics Society (Fluids Section), EUROMECH (Member)

International Association of Urban Climate (Member)

American Meteorological Society (Member)

EU Network of Excellence ACCENT for Atmospheric Composition Change: Associate Member (2005-10)

EU Consorted Action COST 732: Invited Working Group Member (2005-2010)

Isaac Newton Institute of Mathematical Sciences, Cambridge, UK: Junior Fellow (2000-05)

Selected Invited Talks (at international level)

- T1. Neophytou, M.K.-A. (2019). Clean Air Engineering for Cities (CArE-Cities) Workshop. *A collaborative effort towards 'Clean Air for All'*, The American University in Cairo, Egypt (June 19).
- T2. Neophytou, M.K.-A. (2017). Wind tunnel or Water channel for urban fluid dynamics? Keynote-Speech in the Mini-Symposium on Wind Tunnel Inaugural Opening in the Technical University of Eindhoven, Eindhoven, The Netherlands, 14 December 2017.
- T3. Neophytou, M.K.-A. (2017). Excelling in Science and Engineering in Academia. World Women Economic Forum, Invited Talk at Plenary, New Delhi, India, 9th May 2017.
- T4. Neophytou, M.K.-A (2015). Recent progress from multi-scale considerations of urban fluid dynamics. Technical University of Eindhoven, Eindhoven, The Netherlands (April '15).
- T5. Neophytou, M.K.-A (2014). Urban fluid dynamics and implications for urban-scale environmental and energy-efficient design. University of Notre Dame , U.S.A (August '14).
- T6. Neophytou, M.K-A (2013). Toward designing strategies for Urban Heat Island mitigation using a multi-scale flow analysis. ETH-Zurich (Chair of Building Physics) & EMPA (June'13)
- T7. Neophytou, M.K-A (2013). Urban Climate and multi-scale interactions. University of Cambridge, Department of Engineering Seminars (March '13)
- T8. Neophytou, M.K-A (2012). Towards optimization of urban planning parameters for urban energy use minimization: results from recent multi-scale field measurements. Invited Talk at the University of Notre Dame, IN; Department of Civil and Environmental Engineering and Earth Sciences Seminars (June '12)
- T9. Neophytou, M.K.-A (2011). Recent findings in urban-scale modelling of air flow and dispersion. Invited talk at KTH Research School- University of Gävle, Sweden (May '11)
- T10. Neophytou, M.K-A (2010). Understanding and predicting wind and air-pollution dispersion in urban areas: from tracers to models and simulations. Invited Talk at the University of Cincinnati, OH; Department of Civil and Environmental Engineering Seminar Series (May '10)
- T11. Neophytou, M.K-A (2009). Understanding and predicting wind and air-pollution dispersion in urban areas: from tracers to models and simulations. Invited Talk at the University College London, UK; Department of Civil and Environmental Engineering Seminar Series (Oct '09)
- T12. Neophytou, M.K-A (2009). Modeling air-pollution dispersion in urban areas: experiments, analysis, simulations. Invited Talk at the ETH-Zurich | EMPA Seminar Series (Sept. '09)
- T13. Neophytou, M.K-A (2009). Modeling urban air-pollution dispersion: recent findings from urban field experiments. Invited Talk at the U.S. Environmental Protection Agency-Air Quality Section, Research Triangle Park, NC (April '09)
- T14. Neophytou, M.K-A (2005). The DAPPLE model comparison study: results from a tracer release experiment in London (UK) and comparisons with predictions from urban dispersion models. Invited Talk at the International Workshop on Quality Assurance of Microscale Meteorological models, Hamburg, 28-29 July 2005, Hamburg Germany -European Science Foundation.
- T15. Neophytou MK and Britter RE (2003) Confined particle-laden turbulent flows: a simple model to a complex problem. Invited talk at the Isaac Newton Institute Program "*Flow regimes, Transitions and*

Segregation in granular and particle-laden flows", Isaac Newton Institute, Cambridge, UK, September, 2003.

T16. Neophytou MK (2003). The dynamics of confined tunnel fires. Invited talk at the French Government Research Institute *Centre d'Études de Tunnels*, Bron, France, September 2003.

International Collaborations

Currently active collaborations:

Prof. Jan Carmeliet, ETH-Zurich, Switzerland

Prof. Bert Blocken, Technical University of Eindhoven, The Netherlands

Dr Jason Ching, Environmental Protection Agency & National Center of Atmospheric Research, U.S.A.

Prof. Dr. Jos Lelieveld, Max Planck Institute, Mainz, Germany

Prof. Prashant Kumar, University of Surrey, U.K.

Dr Ruchi Choudhary, University of Cambridge, U.K.

Past collaborations:

Prof. Harindra J.S. Fernando, University of Notre Dame, U.S.A.

Dr Christos Markides, Imperial College, London, U.K.

Dr Bernard Carissimo, ParisTech, Paris, France

Dr. Mats Sandberg, K.T.H Research School, Stockholm, Sweden

Dr Michael Brown, Los Alamos National Laboratory, U.S.A.

Prof. Rex Britter, Massachusetts Institute of Technology, U.S.A.

Organization of International Conferences and Workshops

8th Urban Physics (Fluid Dynamics) International PhD School Annual Series (Upcoming), Organizers: Blocken, Carmeliet, Neophytou; 3rd - 8th May 2020, Larnaca, Cyprus; (Host: M. Neophytou, University of Cyprus)

7th Urban Physics International PhD School Annual Series; Organizers: Blocken, Carmeliet, Neophytou; 4-9 February 2019, Ascona, Switzerland (Host: J. Carmeliet, ETH-Z)

6th International Conference on Renewable Energy Sources & Energy Efficiency, 1-2 November 2018

6th Urban Physics International PhD School Annual Series; 23-27 October 2017 (Host: B. Blocken, TU/e)

5th Urban Physics International PhD School Annual Series; Organizers: Neophytou, Carmeliet, Blocken; 8-13 May 2016, Paphos, Cyprus (Host: M. Neophytou, UCy)

4th Urban Physics International PhD School Annual Series; Organizers: Carmeliet, Blocken, Neophytou; 24-29 January 2015, Ascona, Switzerland (Host: J. Carmeliet, ETH-Z)

3rd Urban Physics International PhD School Annual Series; Organizers: Blocken, Carmeliet, Neophytou; 13-18 October 2013, Halkidiki- Greece (Host: B. Blocken, TU of Eindhoven)

2nd Urban Physics International PhD School Annual Series and EuroMech Specialised Workshop; Organizers: Neophytou, Blocken, Carmeliet; 13-18 May, 2012, Limassol, Cyprus (Host: M. Neophytou, UCy)

1st Urban Physics International PhD School Annual Series (Organizers: Prof. J. Carmeliet-ETH Zurich, Prof. B. Blocken- Technical University of Eindhoven and Asst. Prof. Marina Neophytou, University of Cyprus), 6-11 January, 2011 Ascona, Switzerland (Host: J. Carmeliet, ETH-Z)

9th International Congress on Mechanics (Hellenic Section of the International Union of Theoretical and Applied Mechanics), 12-14 July 2010, Limassol, CYPRUS

4th International Conference on Sustainable Development and Planning, 13-15 May 2009, Limassol, CYPRUS

5th International Conference on Urban Air Quality, 27-31 March 2007, Limassol, CYPRUS

Reviewing for International Scientific Journals & Organizations

Reviewer for International Journals:

- i) Int. Journal of Fluid Mechanics (Cambridge University Press)
- ii) Boundary Layer Meteorology (Springer)

- iii) Atmospheric Environment (Elsevier)
- iv) International Journal of Wind Engineering and Industrial Aerodynamics (Elsevier)
- v) Science of the Total Environment (Elsevier)
- vi) Int. Journal of Environmental Fluid Mechanics (Springer)
- vii) Int. Journal of Building and Environment (Elsevier)
- viii) Experimental Thermal and Fluid Science (Elsevier)
- ix) International Journal of Numerical Methods in Fluids (John Wiley & Sons),
- x) Int. Journal of Urban Climate (Elsevier)
- xi) Int. Journal Energy and Buildings (Elsevier)
- xii) Journal of Hazardous Materials (Elsevier),
- xiii) International Journal of Fire Safety (Elsevier),
- xiv) Int. Journal of Low-Carbon Technologies (Oxford University Press)
- xv) Journal of Applied Meteorology and Climatology (American Meteorological Society)
- xvi) Int. Journal of Engineering Applications of Computational Fluid Mechanics
- xvii) Int. Journal of Environment and Pollution (Inderscience Publishers)
- xviii) Int. Journal of Sustainable Energy (Taylor & Francis)
- xix) Int. Journal of Transport Management (Elsevier)
- xx) Int. Journal of Applied Rheology (Kerschensteiner Verlag)
- xxi) Int. Journal of Atmosphere (MDPI AG, Basel - Switzerland)
- xxii) Int. Journal of Urban Studies Research (Hindawi Publishers)
- xxiii) Int. Journal of Building Research and Information

Reviewer for funding agencies and external evaluations

- i) Member of the 3-year Evaluation panel for Flanders Research Agency for Scholarships and Fellowships in the Mechanical Engineering Division on Fluid Mechanics & Energy thematic area (2019-22)
- ii) Invited External PhD thesis examiner at the University of Sardinia, Italy (February 2019).
- iii) Member of the evaluation committee for the Research Executive Agency Horizon2020 for Prize Awards(2018)
- iv) Member of External Promotion Evaluation Committee for UCL academic to the rank of Associate Professor (Department of Civil, Geomatic and Environmental Engineering: February 2018)
- v) Member of the Evaluation Panel for Flanders Research Agency for Scholarships and Fellowships (November 2017)
- vi) Swiss National Science Foundation (Reviewer-evaluator for research proposals)
- vii) Belgian (Flanders) National Research Funding Agency , Research Proposal Reviewer
- viii) Invited External PhD Thesis Examiner for École Nationale des Ponts et Chaussées – ParisTech
- ix) Invited External Evaluator of EU - ERASMUS Projects

Research Funding attracted

External Funding (~1.25million euros as Principal Investigator)

1. Project title: Urban Micro-Climate and the Design of Sustainable Built Environments
Duration: 3/2019-3/2022; *Ongoing*
Funding Agency: Hubs of Excellence Call; European Structural Funds through Cyprus Research Promotion Foundation
Budget: 250000 Euros
Coordinator – Principal Investigator: Dr M. Neophytou, EFM Laboratory, University of Cyprus
Partners: Cyprus Institute, Cyprus University of Technology, ETH-Zurich, University of Cambridge
2. Project title: “Mitigation of Health Effects from Desert Dust Storms through Exposure Reduction Measures”;
Duration: 5/2018-5/2022; *Ongoing*

Funding Agency: European Structural Funds through Cyprus Research Promotion Foundation, Research Infrastructure Upgrade Call;

Budget: 3.1 M Euros (UCy_Budget: 1.3 M euros – 100K euros to EFM lab)

Coordinator of Work Package on Forecasting – Co- Investigator: Dr M. Neophytou, EFM Laboratory, University of Cyprus

Partners: University of Cyprus (Coordinator), University of Crete, University of Beer-Shava

3. Project title: “Multidisciplinary Center for Energy Efficiency in Sustainable Built Environment”; Duration: 5/2009-5/2013;
Funding Agency: European Structural Funds through Cyprus Research Promotion Foundation, Research Infrastructure Upgrade Call;
Budget: 400K Euros.
Coordinator - Principal Investigator: Dr M. Neophytou, EFM Laboratory, University of Cyprus
Partners: University of Cambridge (UK), Massachusetts Institute of Technology, Cyprus Professional Board of Engineers, Cyprus Ministry of Commerce, Industry and Tourism (Cyprus Energy Service)
4. Project title: “Towards optimisation of urban planning and architectural parameters for energy-use minimization in Mediterranean Cities”; Duration: 11/2008-11/2010;
Funding Agency: European Union, European Research Area, URBAN-NET Call;
Budget: 300K Euros.
Coordinator - Principal Investigator: Dr M. Neophytou, EFM Laboratory, University of Cyprus
Partners: University of Gavle (SWEDEN), National Institute of Hydrometeorology and Physics (BULGARIA), EXA High Performance Computing Ltd (CYPRUS), ATLANTIS Environmental Consultants Ltd (CYPRUS);
5. Project title: “Transformation of wave energy into unidirectional rotational motion”; Duration: 1/2010-1/2012;
Funding Agency: Cyprus Research Promotion Foundation, Thematic Research Areas Call(Energy/Technology);
Budget: 140K Euros.
Coordinator - Principal Investigator: Dr M. Neophytou, EFM Laboratory, University of Cyprus
Partners: Frederick Research Center (CYPRUS), Cyprus Ministry of Transportation – Department of Sea Works, Cyprus Ministry of Commerce, Industry and Tourism (Cyprus Energy Service)
6. Project title: “Categorisation and Labelling of Building Energy Efficiency in Cyprus”; Duration: 1/2009-6/2010;
Funding Agency: Cyprus Research Promotion Foundation, Thematic Research Areas Call (Sustainability);
Budget: 120K Euros (30K to UCY).
Coordinator - Principal Investigator: Prof. Agis Papadopoulos
Partners: University of Cyprus-EFM Lab (M.Neophytou), Cyprus University of Technology (TEPAK), Cyprus Scientific and Technical Chamber of Engineers, Cyprus Ministry of Commerce, Industry and Tourism (Energy Service)
7. Project title: “Urban Pollution Dispersion Modelling in the Urban Environment through experimental field campaigns”; Duration: 11/2005-11/2009;
Funding Agency: Cyprus Research Promotion Foundation, Research Infrastructure Call;
Budget: 160K Euros.
Coordinator - Principal Investigator: Dr M. Neophytou, EFM Laboratory, University of Cyprus
Partners: University of Cambridge (UK), Ministry of Labour and Social Insurance, Cyprus Meteorological Service, ATLANTIS Environmental Consultants Ltd;
8. Project title: “Joint Cypriot-Romanian Research Studies for EU Harmonisation on the evaluation of Urban Pollution Dispersion Models”; Duration: 3/2008-3/2010;
Principal Investigator: Dr M. Neophytou, EFM Laboratory, University of Cyprus
Funding Agency: Cyprus Research Promotion Foundation, Cyprus-Romania Bilateral Call;
Budget: 15K Euros
Partner: National Institute of Aerospace Research “Elie Carafoli”, Bucharest, Romania

List of Publications

Journal Publications

- J1. Mouzourides P., Kyprianou A., and Neophytou M. K.-A. (2021). Exploring the multi-fractal nature of the air flow and pollutant dispersion in a turbulent urban atmosphere and its implications for long range pollutant transport, *Chaos: An Interdisciplinary Journal of Nonlinear Science*, 31(1), 013110.
- J2. Kouis, P., Papatheodorou, S. I., Kakkoura, M. G., Middleton, N., Galanakis, E., Michaelidi, E., **Neophytou M.** ... & Yiallourous, P. K. (2021). The MEDEA childhood asthma study design for mitigation of desert dust health effects: implementation of novel methods for assessment of air pollution exposure and lessons learned. *BMC pediatrics*, 21(1), 1-9.
- J3. Achilleos, S., Mouzourides, P., Kalivitis, N., Katra, I., Kloog, I., Kouis, P., Middleton N, Mihalopoulos N, **Neophytou M**, Panayiotou A, Papatheodorou, Savvides C., Tymvios F., Vasiliadou E., Yiallourous P. & Koutrakis, P. (2020). Spatio-temporal variability of desert dust storms in Eastern Mediterranean (Crete, Cyprus, Israel) between 2006 and 2017 using a uniform methodology. *Science of the total environment*, 714, 136693.
- J4. Antoniou, N., Montazeri, H., **Neophytou**, M., Blocken, B. (2019). CFD simulation of urban microclimate: Validation using high-resolution field measurements. *Science of the Total Environment*, 133743. <https://doi.org/10.1016/j.scitotenv.2019.133743>
- J5. P. Mouzourides, A. Eleftheriou, A. Kyprianou, J. Ching, M.K-A **Neophytou** (2019). " Linking Local Climate-Zones mapping to Multi-Resolution-Analysis to deduce associative relations at intra-urban scales through an example of Metropolitan London", *Urban Climate* <https://doi.org/10.1016/j.uclim.2019.100505>
- J6. Mouzourides P., Kyprianou A., **Neophytou** M.K-A., Ching J. and Choudhary R. (2019). Linking the urban-scale building energy demands with city breathability and urban form characteristics. *Sustainable Cities and Society*, 49, p.101460
- J7. Ching, Aliaga, Mills, Masson, See, **Neophytou**, Middel, Baklanov, Ren, Ng, Fung, Wong et al. (2019), Yuan Bo. Huang, A. Martilli, Oscar Brousse, I. Stewart, Xiaowei Zhang, Aly Shehata, Shiguang Miao, Xuemei Wang, Weiwen Wang, Yoshiki Yamagata, Denise Helena Silva Duarte, Yaqiao Li, Johan J. Feddema, Benjamin Bechtel, Julia Hidalgo, Yelva Roustan, Youngseob Kim, Herbert A. Simon, Tim Kropp, Michael Bruse, Fredrik Lindberg, Sue Grimmond, Matthias Demuzure, Fei Chen, Chen Li, Jorge Gonzales-Cruz, Bob Bornstein, Qiaodong He, Tzu-Ping, Antoin Hanna, Evyatar Erell, Nigel Tapper, Rajesh Kumar Mall, Dev Niyogi (2019). Pathway using WUDAPT's Digital Synthetic City tool towards generating urban canopy parameters for multi-scale urban atmospheric modeling. *Urban Climate*, 28, 100459
- J8. J. Ching, G. Mills, L. See, B. Bechtel, J. Feddema, I. Stewart, A. Hanna, X. Wang, E. Ng, C. Ren, O. Brousse, A. Martilli, M. **Neophytou**, G. Milcinski, M. Foley, P. Alexander, J. Hidalgo, V. Masson, D. Aliaga, M. Andrade, A. Sreevestava, A. Baklanov, P. Mouzourides, P. Bhalachandran, J. Dai, W. Dai, K. Hammerberg, D. Niyogi (2017) "WUDAPT: An urban weather, climate, and environmental modeling infrastructure for the anthropocene. *Bulletin of the American Meteorological Society*, 99(9), pp.1907-1924
- J9. Antoniou, N., Montazeri, H., Wigo, H., **Neophytou**, M., Blocken, B. J. E. & Sandberg, M., (2017) CFD and wind-tunnel analysis of outdoor ventilation in a real compact heterogeneous urban area: Evaluation using "air delay" 13 Oct 2017, In : *Building and Environment*. 126, December 2017, p. 355-372
- J10. Karra, Malki-Epshtein, **Neophytou** (2017). Air flow and pollution in a real, heterogeneous urban street canyon: A field and laboratory study. *Atmospheric Environment*. <https://doi.org/10.1016/j.atmosenv.2017.06.035>

- J11. Kubilay, **Neophytou**, Matsentides, Loizou, Carmeliet (2017). The pollutant removal capacity of urban street canyons as quantified by the pollutant exchange velocity. *Urban Climate*. <http://dx.doi.org/10.1016/j.uclim.2017.06.003>
- J12. Kakoniti, Georgiou, Marakkos, Kumar, **Neophytou** (2016). The role of materials selection in the Urban Heat Island effect in dry mid-latitude climates. *Int. J. of Environmental Fluid Mechanics* (Springer)
- J13. Mouzourides, Kumar, **Neophytou** (2015). Assessment of long-term measurements of particulate matter and gaseous pollutants in South-East Mediterranean. *Atmospheric Environment*, Vol. 107, pg.148-165 ([doi:10.1016/j.atmosenv.2015.02.031](https://doi.org/10.1016/j.atmosenv.2015.02.031)).
- J14. **Neophytou**, Markides, Fokaides (2014). The flow through homogeneous urban street-canyon geometries and deductions for urban-scale parameterizations for atmospheric boundary layer modeling: an experimental study using Particle Image Velocimetry. *Physics of Fluids*, Vol.26, 086603; <http://dx.doi.org/10.1063/1.4892979>
- J15. Mouzourides, Kyprianou, Brown, Carissimo, Choudhary, **Neophytou** (2014). Searching for the distinctive signature of a city: Could the MRA provide the DNA of a city? *Urban Climate*; DOI: 10.1016/j.uclim.2014.04.001
- J16. Kumar, Morawska, Martani, Biskos, **Neophytou**, Di Sabatino, Bell, Norford, Britter (2014). The rise of low-cost sensing for managing air pollution in cities. *Environment International* 75, 199205. Online link: <http://dx.doi.org/10.1016/j.envint.2014.11.019>
- J17. Mouzourides, Kyprianou, **Neophytou** (2013). A scale-adaptive approach for spatially-varying urban morphology characterization in the boundary layer parameterization using Multi-Resolution Analysis. *Boundary-Layer Meteorology*, Vol 149, Issue 3, pp 455-481; DOI : 10.1007/s10546-013-9848-4
- J18. Panagiotou, **Neophytou**, Hamlyn, Britter (2013). City breathability as quantified by the exchange velocity and its spatial variation in real inhomogeneous urban geometries: an example from central London area. *Science of the Total Environment*, Volume 442, January 2013, Pages 466-477.
- J19. Fokaides, Miltiadous, **Neophytou**, Spyridou (2013). Promotion of wind energy in isolated energy systems: the case of the Orites wind farm. *Clean Technologies and Environmental Policy*, Vol. 16, Issue 3, pp 455-481; DOI 10.1007/s10098-013-0642-2
- J20. **Neophytou**, Gowardan, Brown (2011). An inter-comparison of three urban wind models using the Oklahoma City Joint Urban 2003 wind field measurements. *Wind Engineering and Industrial Aerodynamics*, Volume 99, Issue 4, April 2011, Pages 357-368
- J21. Fokaides, Maxoulis, Panayiotou, **Neophytou**, Kalogirou (2011). Comparison between measured and calculated energy performance for dwellings in a summer dominant environment. *Int. Journal of Energy and Buildings*, Volume 43, Issue 11, November 2011, Pages 3099-3105
- J22. Martin, G. Nickless, Price, Britter, **Neophytou**, Cheng, Robins, Dobre, Belcher, Barlow, Tomlin, Smalley, Tate, Colville, Arnold, Shallcross (2010). Urban tracer dispersion experiments in London (DAPPLE) 2003: field study and comparison with empirical prediction. *Atmospheric Science Letters* (Royal Meteorological Society), Volume 11, Issue 4, pp 241-248.
- J23. Martin, Price, White, Nickless, Petersson, Britter, Robins, Belcher, Barlow, **Neophytou**, Arnold, Tomlin, Smalley, Shallcross (2010). Urban tracer dispersion experiments during the second DAPPLE field campaign in London 2004, *Atmospheric Environment*, Volume 44, Issue 25, August 2010, Pages 3043-3052.

- J24. **Neophytou**, Pourgouri, Kanellopoulos, Petrou, Ioannou, Georgiou, Alexandrou (2010). Determination of the rheological parameters of self-compacting concrete matrix using slump flow test. *Appl. Rheol.* 20:6 (2010) 62402
- J25. Panagiotou, Kalogirou, Florides, Maxoulis, Papadopoulos, **Neophytou**, Fokaidis, Georgiou, Symeou, Giorgakis (2010). The characteristics and the energy behaviour of the residential building stock of Cyprus in view of Directive 2002/91/EC, *Energy and Buildings*, Volume 42, Issue 11, November 2010, Pages 2083-2089
- J26. Wood, C. R., Arnold, S. J., Balogun, A. A., Barlow, J. F., Belcher, S. E., Britter, R. E., Cheng, H., Dobre, A., Lingard, J. J. N., Martin, D., **Neophytou**, M. K., Petersson, F. K., Robins, A. G., Shallcross, D. E., Smalley, R. J., Tate, J. E., Tomlin, A. S. and White, I. R. (2009) Dispersion Experiments in Central London: The 2007 DAPPLE project. *Bulletin of the American Meteorological Society*, 90 (7). pp. 955-970. ISSN 1520-0477 1520-0477
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1. **Neophytou**, Mouzourides, Marakkos (2019). Buoyancy-driven and momentum-driven flows in heated urban street-canyons. *J. of Fluid Mechanics*, Cambridge University Press (under review)
2. **Neophytou**, Tryphonos, Fokaidis, Panagiotou, Antoniou, Fernando, Batchvarova, Sandberg, Lelieveld, Zittis (2015). Urban Heat Island Phenomenon and interactions with multi-scale meteorological phenomena: analysis and interpretation of the TOPEUM field measurements-2010. Multi-scale atmospheric dynamics. *Nature Communications Geoscience*, Springer (to be submitted)
3. A. Eleftheriou, P. Mouzourides, G. Biskos, P. Yiallourous, P. Kumar, **M. K.-A. Neophytou**, "Sand and dust storms in the Eastern Mediterranean Region: a review of mitigation and adaptation measures and

strategies pointing to the future" (under submission – Critical Reviews in Environmental Science and Technology)

Articles in Conference Proceedings

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- C4. A. Eleftheriou, P. Mouzourides and M. K.-A. **Neophytou**. (2019). How accurate are dust surface concentrations forecasts from numerical models? A preliminary analysis of the Multi-Model Median forecasting in Eastern Mediterranean Region, Proceedings, ITM, 2019 - 37th International Technical Meeting, Hamburg, Germany.
- C5. P. Mouzourides, A. Eleftheriou, M. K.-A. **Neophytou**, J. Ching, A. Kyprianou, (2018) Relationship of urban micro-climate with energy consumption and CO₂ emissions using Local Climate Zones data. 6th International Conference on Renewable Energy Sources & Energy Efficiency, 1-2 November 2018, Nicosia, Cyprus
- C6. P. Mouzourides, A. Kyprianou, R. Choudhary, J. Ching, M. K.-A. **Neophytou** (2018) The multi-scale character in building energy demand as a guide to urban design. 6th International Conference on Renewable Energy Sources & Energy Efficiency, 1-2 November 2018, Nicosia, Cyprus
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- C8. M. **Neophytou**, N. Antoniou, H. Montazeri, B. Blocken (2018). An urban microclimate analysis for a real compact heterogeneous urban area: Comparison between field measurements and Computational Fluid Dynamics simulations. Proceedings of the 10th International Conference on Urban Climate & 14th Symposium on the Urban Environment 6-10 August 2018, New York, U.S.A.
- C9. Antoniou, N., Montazeri, H., **Neophytou**, M. & Blocken, B., (2018), Urban microclimate analysis of a real compact urban area: CFD and on-site measurements 10 Aug, 10th International Conference on Urban Climate/ 14th Symposium on the Urban Environment.
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- C41. Markides , Fokaides , **Neophytou** (2010). Flow and Exchange Processes in Homogeneous Urban Street Canyon Geometries: An Experimental Study Using Particle Image Velocimetry”, Proceedings of 9th HSTAM International Congress on Mechanics, 2010, Limassol- Cyprus
- C42. Panayiotou, Maxoulis, Kalogirou, Florides, Papadopoulos, **Neophytou**, Fokaides, Georgiou, Symeou, Georgakis (2010). The energy performance of the residential building stock in Cyprus in view of the EPBD Directive. Proceedings of the 10th Central Europe towards Sustainable Building (CESB’ 10) International Conference, 30 June-2 July 2010, Prague, Czech Republic.
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- C49. London, **Neophytou**, Britter (2007). Formal evaluation of urban dispersion models using BOOT evaluation methodology and the DAPPLE 2003 field data in London (UK). Proceedings of the 6th International Conference on Urban Air Quality, Limassol, Cyprus ,27-29 March. *Editors: Sokhi and Neophytou*
- C50. Kannas, Demetriou, **Neophytou** (2007). Sensitivity studies and Evaluation of Sources of Uncertainty in scoping modelling for urban pollution dispersion prediction in Cyprus. Proceedings of the 6th International Conference on Urban Air Quality, Limassol, Cyprus ,27-29 March. *Editors: Sokhi and Neophytou*
- C51. **Neophytou**, Hamlyn, Britter (2006). Turbulent flow structures in transport and mixing process in complex urban geometries. Proceedings of the International Symposium of the International Union of Theoretical and Applied Mechanics (IUTAM) on “Computational Physics and New Perspectives in Turbulence”, Nagoya, Japan, September 16-19.
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- C53. **Neophytou**, Britter, Martin, Shallcross, Robins (2005). Results from a field experiment in London (UK) and comparisons with predictions from Urban Dispersion Models. Proceedings of the 5th International Conference on Urban Air Quality, Valencia. *Editors: Sokhi, Millan, Moussiopoulos.*
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Edited Proceedings

- E1. Brebbia, **Neophytou**, Beriatis, Ioannou (2009). “Sustainable Development and Planning IV”, 2 Volumes; WIT Press
- E2. Sokhi and **Neophytou** (2007). Proceedings of the 6th International Conference on Urban Air Quality, Limassol, Cyprus, 27-29 March 2007 (ISBN: 978-1-905313-46-4).

Articles in Edited Scientific Reports

- R1 **Neophytou** M. (2005). Overview of past and present model evaluation activities. Proceedings of the International Workshop on Quality Assurance of Microscale Meteorological Models, COST732 and European Science Foundation, Ed: Schatzmann and Britter; ISBN: 3-00-018312-4
- R2 **Neophytou** M. (2005). The DAPPLE model comparison study: Results from a tracer release experiment in London (UK) and comparisons with predictions from urban dispersion models. Proceedings of the International Workshop on Quality Assurance of Microscale Meteorological

Models, COST732 and European Science Foundation, Ed: Schatzmann and Britter; ISBN: 3-00-018312-4

- R3 Hanna SR, Chang J, Britter RE and **Neophytou** MK (2003). Overview of Model Evaluation History and Procedures in the Atmospheric Air Quality Area, *QNET-CFD Network Newsletter*, Vol.2, No.1 pp.26-28.

Selected Recent Newspaper Popularized Articles

- N1. In Greek: «Τι δεν συζητήσαμε για την προοπτική εξόρυξης φυσικού αερίου» | In English: «What we have not discussed regarding the prospect of the natural gas exploration», Marina Neophytou, Haravgi, 28 July 2019
- N2. In Greek: «Που πήγαν οι διανοούμενοι;» | In English: “ Where have intellectuals gone?”, Marina Neophytou, Haravgi, 12 June 2019
- N3. In Greek: «Κλιματική Αλλαγή, Κύπρος και Κοινωνικοπολιτικές δυναμικές» | In English: “ Climate Change, Cyprus, and Sociopolitical dynamics”, Marina Neophytou, Haravgi, 31 March 2019
- N4. In Greek: «Διεκδικώντας την αναγνώριση της γυναίκας-ερευνήτριας στις θετικές επιστήμες και μηχανική» | In English: “Asserting the recognition of women researchers in sciences and engineering”, Marina Neophytou, Haravgi, 14 October 2018
- N5. In Greek: «Από τη θύελλα της Σαχάρας στη θύελλα των θαλασσινών σπηλιών» | In English: From the Saharian Dust Storms to the Storms of the Sea Caves”, Marina Neophytou, Haravgi, 1 April 2018

III. Teaching Experience

International Teaching Activities

Initiated and currently undertaking a joint PhD program with the Department of The Built Environment, Technical University of Eindhoven, The Netherlands with the Department of Civil and Environmental Engineering (as part of my PhD student supervising, Nestoras Antoniou)

Regularly co-organizing the international annual PhD school series on Urban Physics (2011, 2012, 2013 and 2015, 2016,2017, 2019) together with ETH-Zürich (Switzerland) and the Technical University of Eindhoven (The Netherlands).

Invited university partner (as Environmental Fluid Mechanics lab, University of Cyprus) in the design and consolidation of a new joint European Masters program on *Leading Sustainability in the Urban Environment* (funded by ERASMUS) together with the University of Salento (Italy), Ecole Centrale de Lyon (France), Glasgow University (UK).

Initiated bi-lateral agreements and have undertaken hosting of visiting students and staff teaching exchanges taking place in the last 5 years amongst others with:

- University of Cambridge, UK
- University of Genoa, Italy,
- University of Surrey, UK,
- University of Utrecht, The Netherlands
- Technical University of Eindhoven, The Netherlands
- Imperial College London, UK
- University College London, UK
- KTH Research School

University Course Teaching and Research Advising

Course Teaching (University of Cyprus, Department of Civil and Environmental Engineering)

Undergraduate courses taught (initiated, designed, organised and instructed):

CEE270 Fluid Mechanics for Civil and Environmental Engineers (currently taught every Fall Semester)
CEE272 Experimental Fluid Mechanics (initially taught for the first 5 years and since till currently supervising it every Fall Semester)
CEE483 Flow Transport Phenomena for Environmental Engineers (currently taught every Spring Semester)

Postgraduate courses taught (initiated, designed, organised and instructed):

CEE576 Environmental Fluid Mechanics
CEE580 Dynamics of the Atmosphere and Air Pollution Dispersion
CEE586 Sustainable Built Environment

Research Advising

Supervision of Post-doctoral research associates at EFM-Lab, CEE-UCy:

1. Dr Petros Mouzourides, Environmental Fluid Mechanics Laboratory (since 2018)
2. Dr Athina Kattimeri, Environmental Fluid Mechanics Laboratory (2013-14); jointly with Oceanography Center of the University of Cyprus
3. Dr Costas Marakkos, Environmental Fluid Mechanics Laboratory (2011-12); currently Research Scientist at the Cyprus Institute
4. Dr Evagoras Xydias, Environmental Fluid Mechanics Laboratory (2010-11); currently Special Scientist at the Department of Mechanical and Manufacturing Engineering at the University of Cyprus
5. Dr Paris Fokaides, Environmental Fluid Mechanics Laboratory (2008-12); currently Lecturer at Frederick University, Cyprus

PhD thesis advisor for the following CEE-UCY postgraduate students:

1. Andreas Eleftheriou, Tentative Thesis title: Understanding Desert Dust Storms from local to transboundary scales effects; Ongoing since January 2019
2. Nestoras Antoniou; Tentative thesis title: "Design strategies for urban heat island mitigation and energy demand minimization based on multi-scale climate considerations"; Ongoing since January 2013; (Joint Advisor based on joint-PhD program with Technical University of Eindhoven, Prof. B. Blocken, Technical University of Eindhoven)
3. Petros Mouzourides; Thesis title: "Multi-scale phenomena in the atmosphere and implications for urban design", 2012-18); Graduated (Secondary advisor: Assoc. Prof. A. Kyprianou, University of Cyprus)

MSc Thesis advisor for the following CEE-UCY postgraduate students:

1. Ms N. Londou (Sept05-Sept07); 1st MSc graduate of the Department: 2007
2. Ms A. Kakoniti (Jan06-Jan08)
3. Ms Gregoria Georgiou (Sept 08-10)
4. Ms Stella Pourgouri (Sept08- Jan11; co-supervised with Prof. M. Petrou)
5. Ms Eleonora Tryphonos (Jan 2010- Jan 2012)
6. Ms Erma Valanidou (Sept 2010- Dec 2013)
7. Ms Demetra Petsa (Jan2012- Dec 2013)
8. Mr Stelios Matsentides (Sept2012- June2014)
9. Ms Marianna Loizou (Sept2012- June2014)
10. Mr Giorgos Markatzi (Sept2014-Jan 2017)

MEng Thesis advisor for the following CEE-UCY postgraduate students:

1. Mr Zenonas Kannas (June 2009)
2. Ms Maria Demetriou (June 2009)
3. Mr Savvas Vlachos (May 2010; co-supervised with Dr P. Fokaides - EFM Lab research associate)
4. Mr Christos Tinis (June 2010)
5. Ms Eleana Hadjiandreou (Dec 2010; co-supervised with Prof. M. Petrou)
6. Ms Miltiadous Irene-C. (Dec2010; co-supervised with Dr P. Fokaides - EFM Lab research associate)
7. Mr Neoklis Antoniou (Dec 2010)
8. Mr Sotiris Michael (Dec 2010)
9. Ms Stella Argyrou (May 2011; co-supervised with Dr P. Fokaides - EFM Lab research associate)

10. Ms Georgia Gregora (May 2012; co-supervised with Dr P. Fokaides - EFM Lab research associate)
11. Mr Giorgos Elia (June 2013)
12. Mr Solonas Christodoulou (June 2014)
13. Mr Constantinos Kalogerou (June 2014)
14. Mr Andreas Petrou (June 2015)

Visiting Students

1. Ms Ioanna Kyprianou, MSc student, University of Utrecht, Netherlands (Sept. 2014 – March 2015)
2. Ms Stella Karra, PhD student, University College London, UK (Jan. 2010 – Jan.2012)
3. Mr Ioannis Panagiotou, MEng student, University of Bath, UK (Sept 2008- June 2009)
4. Mr Anant Kapoor, BA(Honours) student, University of Cambridge, UK (summer 2012)
5. Mr Leonidas Aristodemou, BA(Honours) student, University of Cambridge, UK (summer 2012)
6. Mr Vassilis Ioannou, BA(Honours) student, University of Cambridge, UK (summer 2012)
7. Ms Christiana Smirilly, BA(Honours) student, University of Cambridge, UK (summer 2011)
8. Mr Zacharias Nicolaou, BA(Honours) student, University of Cambridge, UK (summer 2009)
9. Mr Antonis Sergis, BA(Honours) student, University of Cambridge, UK (summer 2008)

2000-05 University of Cambridge, Department of Engineering

Course Supervisor: 3rd- and 4th-year Fluid Mechanics undergraduate courses (Part I & Part II: Boundary Layers, Incompressible flow, Compressible Aerodynamics); 3rd-year paper of Environmental Engineering undergraduate course (Waves; Water and Air Pollution; Groundwater Contamination)

Laboratory Demonstrator: 2nd-year undergraduate coursework of the experimental Fluid Mechanics subject

IV. Administrative Experience & Service

- Vice-Chair of the Department of Civil and Environmental Engineering, University of Cyprus since November 2017
- First and founding Director of the newly-established Interdepartmental Graduate Program “Energy Technologies and Sustainable Design” of the University of Cyprus Engineering School (June 2012 - June 2014; 2018-2020)
- Head of the Environmental Fluid Mechanics Laboratory (since 2006-ongoing)
- Member of the Health & Safety Committee of the University of Cyprus (since 2019)
- Member of the Coordinating Inter-departmental of the Graduate Program Committee of the “Energy Technologies and Sustainable Design” of the University of Cyprus Engineering School (2016-2018)
- Member of “Mechanics” Jury in the Cyprus National Council for the Recognition of Higher Education Qualifications (KY.S.A.T.S.); (2011-14)
- Coordinator of the Departmental (CEE) Seminar Series (2011-2013 and 2005-09)
- Member of the Engineering School Committee on Health and Safety; CEE Department Representative (2010 – 12)
- Member of the University Committee on Cyprus University Press; Representative of the Engineering School (2011 - 14)
- Member of the Departmental (CEE) Erasmus Committee (2010-12)
- Member of the University Senate Committee on Health and Safety; Representative of the Engineering School (2007-09)
- Member of the Engineering School Council; CEE Department Representative (2008-09)
- Member of the CEE Department Graduate Studies Committee (2007-09)

