Dr Maarten van Reeuwijk (MSc PhD)

Condensed Curriculum Vitae

Personal details

Nationality: Dutch
Work address: Department of Civil and Environmental Engineering, South Kensington Campus, SW7 2AZ London
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Employment History

2018 – Reader in Environmental Fluid Mechanics
Department of Civil and Environmental Engineering, Imperial College London

2013 – Senior Lecturer in Environmental Fluid Mechanics
Department of Civil and Environmental Engineering, Imperial College London

2007 – 2013: Lecturer in Fluid Mechanics
Department of Civil and Environmental Engineering, Imperial College London

Education and qualifications

2010 Certificate of Advanced Study in Teaching and Learning, Imperial College London

2007 PhD, Faculty of Applied Physics, Delft University of Technology
Direct simulation and regularization modelling of turbulent thermal convection

2002 MSc in Fluid Mechanics, Faculty of Civil and Environmental Engineering, Delft University of Technology

1999 BSc in Civil and Environmental Engineering, Faculty of Civil and Environmental Engineering, Delft University of Technology

Research interests

Maarten leads a research group that works on problems in environmental fluid mechanics with a particular emphasis on buoyancy driven flows and wall-bounded turbulence. Application areas are transport processes in urban areas (urban heat island, dispersion, microclimate), atmospheric convection, urban air quality and problems involving turbulent entrainment (volcanic releases, plumes/jets, clouds, ocean overflows, building ventilation). Maarten and his group use a wide range of simulation techniques, ranging from Direct Numerical Simulation (DNS), Large-Eddy Simulation (LES) to Reynolds-Averaged Navier-Stokes (RANS). He specialises in parameterisation and uses the data from high-fidelity simulations to develop simple models that can be used in an operational context.

Projects and activities

Maarten is CO-I of the EPSRC-sponsored UK Turbulence Consortium (grant number EP/L000261/1), the EPSRC Centre for Doctoral Training in Fluid Dynamics Across Scales at Imperial College London (grant number EP/L016230/1) and the EPSRC project Multi-scale dynamics at the Turbulent/Non-turbulent Interface of Jets and Plumes (grant number EP/R043175/1). He is involved in the Marie-Sklodowska Curie Innnovative Training Network COMPLETE (Grant no 675675), which investigates the role of aerosols on cloud formation and evolution. He was involved in the climate-KIC funded Blue Green Dream project (https://bgd.org.uk/) which brought together industry and academia to develop healthy and resilient cities using blue-green solutions.

MvR is the co-lead for the Urban Fluid Mechanics Special Interest Group of the EPSRC supported UK Fluids Network (grant number EP/N032861/1). He was part of the team that was awarded the first Wim Nieuwpoort award for High Performance Computing in 2008. Maarten has been CO-I and PI of several PRACE supercomputing grants and was PI of an ARCHER Leadership grant.

Membership of professional bodies

2007- American Physical Society, Member
2011- Higher Education Academy, Member
2013- UK Turbulence Consortium, Member
2016- American Meteorological Society, Member

Publications

Currently 43 journal papers and 53 conference contributions. Selected publications:

1. GRYLLS, T., LE CORNEC, C. M. A., STETTLER, M. E. J., SALIZZONI, P., SOULHAC, L., VAN REEUWIJK, M. (2019), Evaluation of an operational air quality model using large-eddy simulation, *Atmos. Env. X* **3**, 100041
2. VAN REEUWIJK, M., HOLZNER, M., CAULFIELD, C. P. (2019), Mixing and entrainment are suppressed in inclined gravity currents, *J. Fluid Mech.* **873***,* 786--815*.*
3. SUTER, I. L., MAKSIMOVIC, C., VAN REEUWIJK, M (2017) A neighbourhood-scale estimate for the cooling potential of green roofs *Urban Climate* **20**, 33--45
4. HOLZNER, M., VAN REEUWIJK, M. (2017) The turbulent/nonturbulent interface in penetrative convection, *J. Turbulence* **18**:3, 260--270
5. VAN REEUWIJK, M., SALIZZONI, P., HUNT, G. R., CRASKE, J. (2016), Turbulent transport and entrainment in jets and plumes: a DNS study, *Phys. Rev. Fluids* **1**, 074301
6. CRASKE, J., VAN REEUWIJK, M. (2016), Generalised unsteady plume theory, *J. Fluid Mech.* **792**, 1013-1052
7. VAN REEUWIJK, M., CRASKE, J. (2015), Energy-consistent entrainment relations for jets and plumes, *J. Fluid Mech.* **782**, 333-355.
8. CRASKE, J., DEBUGNE, A.L.R., VAN REEUWIJK, M. (2015), Shear-flow dispersion in turbulent jets, *J. Fluid Mech.* **781**, 28-51
9. VAN REEUWIJK, M., HOLZNER, M. (2014) The turbulence boundary of a temporal jet, *J. Fluid Mech.* **739***, 254-275*
10. JONKER, H.J.J., VAN REEUWIJK, M., *et al.,* (2013) On the scaling of shear-driven entrainment: a DNS study, *J. Fluid Mech.* **732***, 150-165.*
11. VAN REEUWIJK, M, JONKER, H.J.J., HANJALIC, K. (2008) Wind and boundary layers in Rayleigh-Bénard convection. II. Boundary layer character and scaling, *Phys. Rev. E* ***77***, 036312