

Urban-M4 Symposium: Integrating Urban Morphology for Weather Modelling – A Vision for 2030

Wageningen University, The Netherlands, & Online

24-25 FEB 2025

Supported by the NLeScience center [Urban-M4 project](#)

About Symposium:

The NLeScienceCenter project “[Urban-M4](#)” aims to develop spatially and high resolution thermographic data to feed numerical models for urban weather and climate. The project will host a symposium in which experts in urban climate modeling and urban morphology will discuss integrating urban morphological data into urban weather models, with a focus on 2030. The event will promote knowledge sharing and collaboration, highlighting innovative data gathering techniques, open datasets (e.g., global street images) and model applications such as WRF and PALM-4U. Participants will brainstorm future research directions and explore collaborative opportunities, aiming to advance urban climate science. The meeting will take place 24+25 Feb 2025 on Wageningen University Campus, Wageningen, The Netherlands.

Organizers: Wageningen University Meteorology & Air Quality, TU Twente, faculty ITC, & NLeScience Center through project [Urban-M4 project](#)

Registration link: <https://forms.gle/MecSqTPyuayARtpf8>

Contact: dragan.milosevic@wur.nl and gert-jan.steeneveld@wur.nl

Day 1: Urban Morphology for Urban Climate and Weather Modeling

Location: ATLAS 1 building (Droevendaalsesteeg 4, Building 104, 6708 PB Wageningen, <https://maps.app.goo.gl/m8mJcsU2urYKgFMF7>) and online from 9 to 17 h

[Join the meeting now](#)

Meeting ID: 351 020 407 548

Passcode: 8pq9pT92

Timetable:

09:00 h - 09:15 h: Welcome

9:15 h – 09:30 h: Introduction to Urban-M4 Project (*Gert-Jan Steeneveld, Wageningen University*)

09:30 h – 10:15 h: “Microscale urban climate simulations: opportunities and challenges” (*Pavel Krč, Institute of Computer Science, Czech Academy of Sciences, Prague, Czech Republic*)

10:15 h – 11:00 h: “Citizen Science and AI-driven approaches to model and map human perceptions of urban environments” (*S.M. Labib, Utrecht University*)

11:00 h – 11:15 h: Coffee break

11:15 h - 12:00 h: “Emerging Data Sources for Urban Microclimate Analysis: Imagery-Based Prediction and 3D City Model Generation Integrating Open Geospatial Data” (*Kunihiko Fujiwara, National University of Singapore, Urban Analytics Lab / Takenaka Corporation, Research and Development Institute*)

12:00 h – 12:30 h: “Learning from global streetscapes and visualizing local climate zones in 3D” (*Peter Kalverla, NLeScience Center*)

12:30 h – 13:30 h: Lunch break

13:30 h – 14:15 h: TBD

14:15 h – 15:00 h: “Towards better representation of urban morphology in mesoscale models through global datasets” (*Andrea Zonato, KNMI*)

15:00 h – 15:15 h: Coffee break

15:15 h – 16:00 h: “UT-GLOBal Building height for Urban Studies (UT-GLOBUS) dataset for city and street scale urban modeling” – lecture & demonstration (*Harsh Kamath and Dev Niyogi, University of Texas at Austin – joining online*)

16:00 h – 16:30 h: Wrap-up and preparation for Symposium Day 2

Dinner

Day 2: Interactive Session

Location: Building FORUM (Droevendaalsesteeg 2, Building 102, 6708 PB Wageningen, <https://maps.app.goo.gl/sqpkTEvjk8rExw1t6>); room B0771 and online from 9 to 17 h

[Join the meeting now](#)

Meeting ID: 375 594 474 525

Passcode: Yw3284ZZ

Timetable:**9:00 h – 9:15 h: Welcome**

9:15 h – 09:30 h: Introduction to Day 2 and formation of groups

09:30 h: Interactive session “Challenges and Hurdles in Integrating Urban Morphology for Climate and Weather Modelling” in breakout groups

Interactive session “Group Reports on Challenges and Hurdles in Integrating Urban Morphology for Climate and Weather Modelling”

Drafting the meeting summary paper for the Journal of the European Meteorological Society (JEMS)

12:00 – 13:00 h: Lunch break

13:00 h: Interactive session “Solutions and Ways Forward in Integrating Urban Morphology for Climate and Weather Modelling” in breakout groups

Interactive session “Group Reports on Solutions and Ways Forward in Integrating Urban Morphology for Climate and Weather Modelling”

Plenary Discussion and Way Forward - drafting the meeting summary paper in JEMS

16:00 h: Closing drinks

List of Speakers:



Gert-Jan Steeneveld is an associate professor at the Meteorology and Air Quality Section of Wageningen University, and president of the national meteorological society, and he is active in the European Meteorological Society. Since 2008 his research focus is on understanding the urban atmosphere through modeling and observations.



Pavel Krc studied computer science at Charles University and the Czech Technical University in Prague. Since 2007, he has been working at the Institute of Computer Science at the Czech Academy of Sciences, specializing in atmospheric modeling. He developed key components of the widely used PALM model system, which have enabled it to perform street-level microscale urban climate simulations.



Dr Labib is an Assistant Professor of Data Science and Environmental Health at the Human Geography and Spatial Planning department at Utrecht University. He combines multidisciplinary theoretical and quantitative methodological approaches (e.g., GIS, Remote Sensing, Artificial Intelligence) in studying urban phenomenon and their impact on health. He is leading the Spatial Data Science and Geo-Intelligence Lab.



Dr. Kunihiro Fujiwara is a Visiting Research Fellow in the Urban Analytics Lab at NUS, seconded by Takenaka Corporation. He holds a Ph.D. in Urban Design and Built Environment and a Master's in Environmental Science and Technology from the Institute of Science Tokyo (previously Tokyo Institute of Technology). His research focuses on the urban microclimate, heat mitigation, and optimization of landscape design.



Peter Kalverla is a Research Software Engineer at the Netherlands eScience Center. Building on his background in meteorology, he collaborates with researchers in environmental sciences to enhance the quality of their code. His work ranges from the development of state-of-the-art simulation models to the incorporation of best (coding) practices that enable an open and reproducible research process.



Dr. Andrea Zonato is currently a Post-Doc researcher at the Koninklijk Nederlands Meteorologisch Instituut (KNMI, De Bilt, NL). After obtaining his MSc. Degree in Physics of the Earth System at the University of Bologna, he completed his Ph.D. at the University of Trento, dealing with the modeling of mountainous and urban boundary layers. During these positions, he has been collaborating with international research institutions, such as the Research Center for Energy, Environment and Technology (Madrid, Spain), the National Center for Atmospheric Research (Boulder, US), and the University College Dublin. His main research topics involve the modeling of the urban boundary layer, focusing on the improvements in the reproduction of the urban heat island effect, the development of new parameterization for the estimation of the effect of mitigation strategies within the urban environment, and advances in the reproduction of atmospheric flows in complex terrain, through novel turbulence parameterization schemes.



Harsh Kamath is a PhD student at the Department of Earth and Planetary Sciences in Jackson School of Geosciences, University of Texas at Austin. He studies the urban heat and how cities influence the weather.



Prof. Dev Niyogi is William Stamps Farish Chair Professor at the Jackson School of Geosciences, University of Texas at Austin where he leads The University of Texas Extreme weather and Urban Sustainability "TexUS" Lab. His research seeks to significantly contribute to our understanding of the Earth system, particularly the urban and agricultural landscapes, and the dynamic role of coupled land surface processes on regional hydroclimatic extremes. Translate the scientific work undertaken into decision tools and portals with a particular focus on sustainable climate-ready/resilient coastal, cities, and agricultural systems.