



CITYCLIM UPDATES

WINTER 2023/2024

THIS ISSUE

Surface Temperature data

Citizen Science Projects

UltraHD

Brochures of CityCLIM

RTL Luxembourg Report

DELIVERABLES

We have prepared deliverables regarding the Pilot integration of our services (D7.3), the reporting of KPIs and Evaluation (D7.6) and others that are concerned with the business application and the general description of our services for business (D1.5).



WHAT HAVE WE WORKED ON?

During these last months the consortium has been split into four main tasks: 1) the creation of business and marketing related concepts to ensure the sustainability of the project's various outcomes for the market 2) the ongoing set-up of weather sensors in Valencia and Karlsruhe 3) the implementation of Citizen Science programs and outreach events and 4) the heavy development of the UltraHD model (enhanced parametrisation, radiation transfer modelling and soil moisture modelling) as well as the further development of the GCC-platform to deliver the urban heat island services on both: backend and frontend.

Furthermore, the consortium has attended conferences and events to disseminate the preliminary results of CityCLIM and to raise awareness to our project and Urban Heat Island modelling in general ("Arbeitskreis Energie und Umwelt" des Bremer VDI e.V., and InterGEO conference „Bremen lebenswert gestalten: Lösungen für ein verbessertes Stadtklima“, the KIT Science week and others). The consortium is also proud to be featured on the EU Green Deal website:



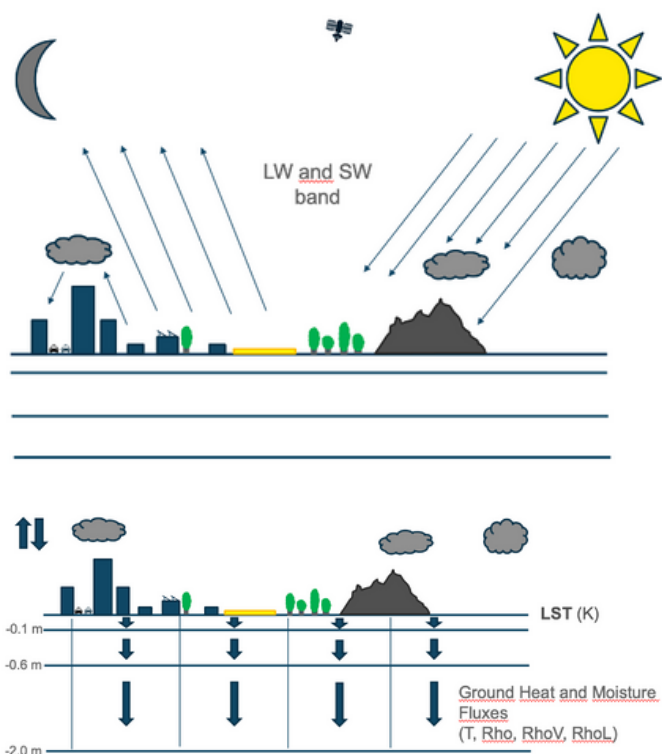
THESSALONIKI: CITIZEN SCIENCE CAMPAIGNS IN SCHOOLS

Good news! The citizen science project has already started after some initial delays caused by special permissions and requests to the central administration of primary schools and the respective municipalities.

At the end of November we installed the first National Geographic weather station at the 3rd primary school of Diavata/Thessaloniki where more than 90 students had the chance to see how a weather station works and how it looks like! Our colleague Chrisostomos Paranos from the Pilot Region RGM held a 1h presentation to the students and teachers with topics related to weather, weather forecasting, climate, climate change, urban heat islands and the CityCLIM project.



PICTURES DEPICT INSTALLATION OF NATIONAL GEOGRAPHIC STATIONS AND CITIZEN SCIENCE TALKS IN SCHOOLS OF THESSALONIKI

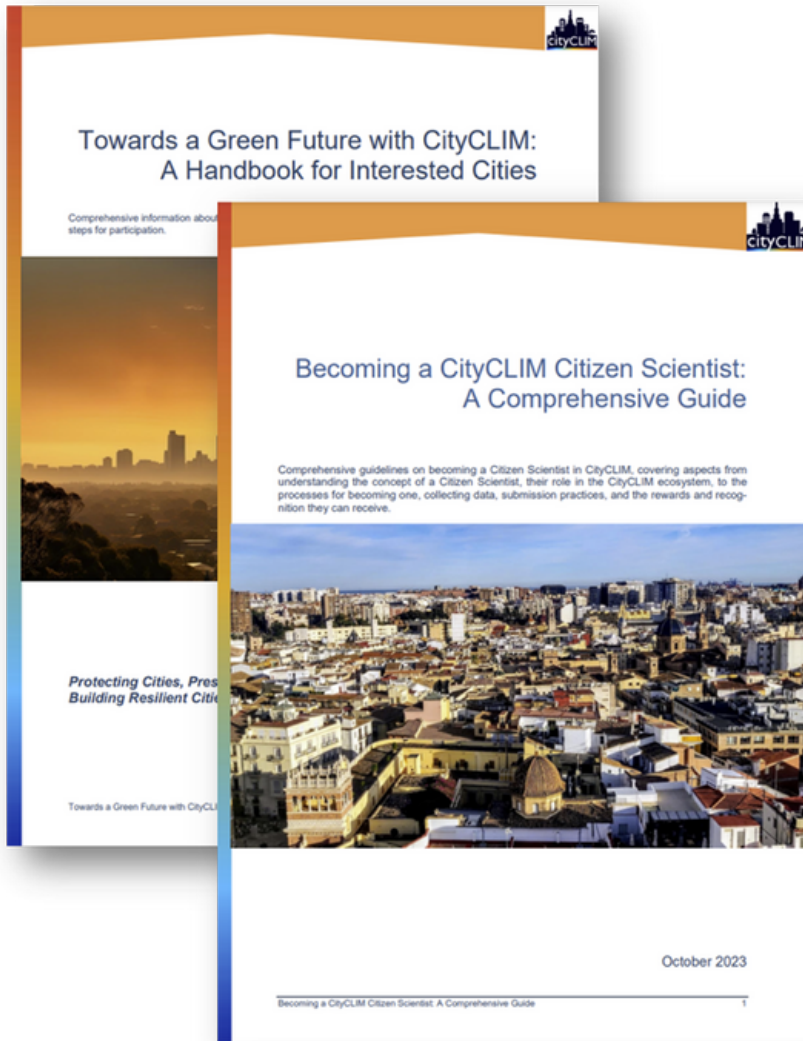


PICTURES SHOW SOIL MODEL DEVELOPMENT

ULTRA-HD DEVELOPMENTS

The UltraHD Developments in the last months focused on the implementation of a radiative transfer model, a soil model, and a suite of chemical reactions for pollution modelling. For the radiative transfer calculations in two spectral bands a 3D Monte Carlo Raytracing algorithm was implemented. The chemical reactions include 8 important compounds for atmospheric chemistry like ozone, nitrous oxides and equations for the transport and sedimentation of particle matter like PM10 and PM25. A heat and moisture diffusion soil model with 4 soil layers was implemented to solve the energy budget at the surface. An additional surface layer allows the parameterisation of effects like canopy vegetation or surface water and with that a better representation of surface fluxes for heat and moisture.

HANDS-ON GUIDES TO JOIN CITYCLIM PROJECT

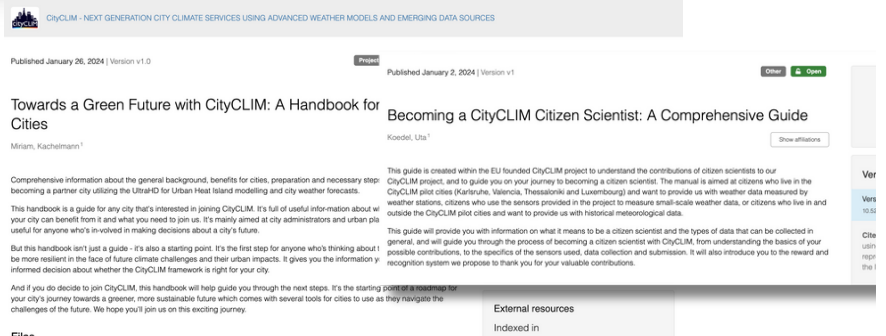


We published two handbooks that provide first consolidated most important information for (1.) cities who are interested in joining the CityCLIM initiative and (2.) for citizens who want to participate in the initiative as citizen scientists:

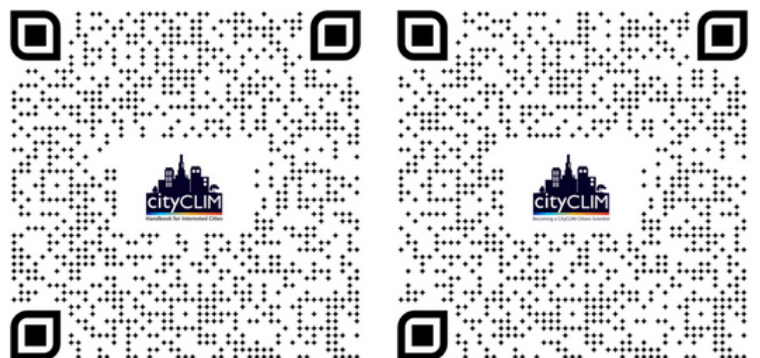
The handbook "Towards a Green Future with CityCLIM: A Handbook for Interested Cities" includes comprehensive information about the general background, benefits for cities, preparation and necessary steps for participation. It addresses city administrators and urban planners, but it's also useful for anyone who's involved in making decisions about a city's future.

The handbook "Becoming a CityCLIM Citizen Scientist: A Comprehensive Guide" includes comprehensive guidelines on becoming a Citizen Scientist in CityCLIM.

It covers aspects from understanding the concept of a Citizen Scientist, their role in CityCLIM, the process of becoming one, to data collection, submission practices, and the rewards and recognition they can receive and addresses Citizens & Citizen Science Facilitators & Multipliers (e.g., educational institutions, governmental agencies, non-profit organizations, community groups, museums and science centers). Both handbooks can be downloaded via the www.cityclim.eu website or directly via the QR codes.



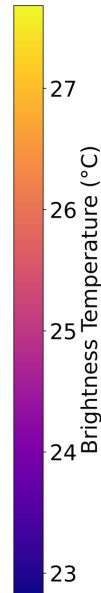
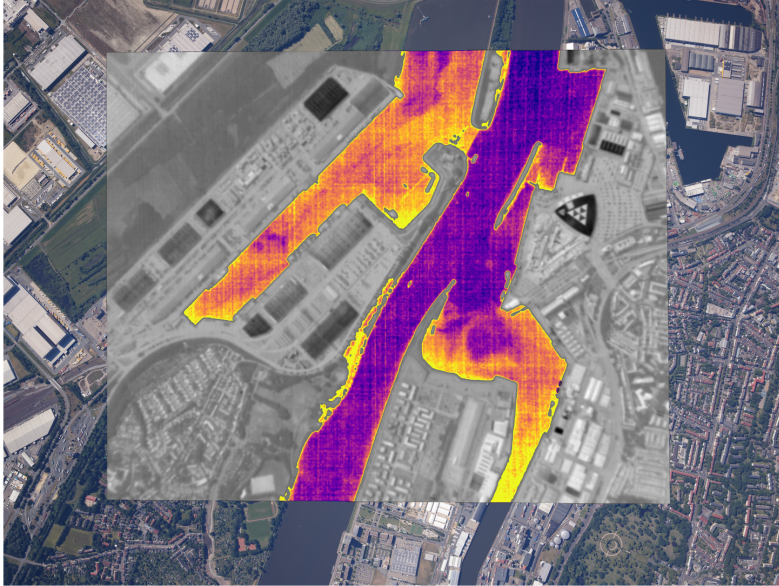
BOTH DOCUMENTS HAVE A DOI BY ZENODO AND THUS CAN BE EASILY REFERENCED IN OTHER PUBLICATIONS.





OHB-DC FLIGHT CAMPAIGNS

Water bodies are an important part of the urban ecosystem and impact urban climate. Lin et al. (Journal of Cleaner Production, 2020) conclude that all water bodies may be viewed as urban heat sinks with a strong cooling effect on surrounding urban heat islands with rivers, in particular, acting as urban ventilation corridors.



A significant difference in surface temperature between standing and flowing water bodies can also be seen in aerial infrared images provided via the CityCLIM Airborne Data Processor. The imagery shows the surface temperature of flowing and standing branches of the Weser River in the city of Bremen, highlighting a temperature difference of up to 4°C. In the central basin (“Getreidehafen”), partial mixing and turbulence of water of different temperatures is visible.

ANALYSIS OUTPUT OF THE OHB-DS FLIGHT CAMPAIGN OVER BREMEN IN WINTER 2023

RTL LUXEMBOURG TV REPORT

The RTL Luxembourg team around Pitt Wagner has interviewed the consortium at their last meeting in Thessaloniki and created a great overview of the project for their viewers.

FIND THE VIDEO ON CITYCLIM.EU



CITIZEN SCIENCE: MOBILE TRACKERS IN KARLSRUHE

Karlsruhe has run several Citizen Science campaign with meteo-trackers on bicycles generating a plethora of temperature data throughout the city that perfectly depicts the different weather states in each part of the city:



THE CITIZEN SCIENCE MEASUREMENT CAMPAIGN TOOK PLACE, FROM WHICH FIRST RESULTS ARE DISSEMINATED AND NOW THE BULK OF DATA WILL BE ANALYSED.



Besides the Citizen Science campaigns, Karlsruhe has managed to install their first rain gauge.

This data is supposed to support the so-called “initializing fields” of the UltraHD if assimilated into the model. There are several gauges planned throughout Karlsruhe

