



Milestone 29 - At least 8 training events for local government specialists dealing with spatial planning and project development and 2 international training events or remote sensing data use for data professionals organised

Report of Seminar

“Karstuma riska izaicinājumi un risinājumi pilsētvidē”

“Challenges and solutions of urban heat risk”

Report of T7.1. - Training for developing follow-up projects to replicate project results in other Baltic Sea Region cities

LIFE LATESTadapt (LIFE21-CCA-EE-LIFE LATESTadapt/101074438)

(MoSARD (BEN), RTU (BEN), TaiTech (BEN), Baltic Coasts (BEN), BEF-Latvia (BEN), BEF-Estonia (BEN))

16 - 17 October 2025



REPUBLIC OF ESTONIA
MINISTRY OF CLIMATE

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Table of Contents

General description	3
1. Summary of the seminar programme	4
2. Summary and conclusions of the seminar	18
3. Photos of the event	19



General description



Seminārs "Karstuma riska izaicinājumi un risinājumi pilsētvidē"

16. oktobrī "Koka Rīga" (Krāsotāju iela 12)

- klimata pārmaiņas un to prognozes Latvijā
- karstuma viļņi to modelēšana un analizēšana
- karstumsalu kartēšana
- dabā balstīti risinājumi un karstuma risks
- pilsētvides dizaina risinājumi pret karstumu

Eiropas Padomes Ainavas balvas nacionālās atlasēs noslēgums



17. oktobrī ekskursija-pastaiga

Iepazīsim Rīgu un aplūkosim dabā balstītos risinājumus pilsētvidē, kas saistīti ar karstuma riska novēršanu!



Piesakies dalībai
seminārā!
Vietu skaits ierobežots!



Aim of the seminar: Inform about the urban heat risk – why is it important, how can we map and calculate it and how different are the solutions including nature-based solutions

Project specific activity: Milestone 29 - At least 8 training events for local government specialists dealing with spatial planning and project development and 2 international training events or remote sensing data use for data professionals organised

Participants: seminar: 59; excursion: 25 - municipalities from Latvia (~12), planning regions, different maintenance companies of municipalities, MoSARD, Baltic Environmental Forum, environmental experts, landscape architects

Who organised: MoSARD

When: 16. - 17.10.2025.

Where: Riga, Latvia

Which partners/experts participated: Baltic Environmental Forum, MoSARD, Baltic Coasts, Institute of Environment Solutions

1. Summary of the seminar programme

Karstuma riska izaicinājumi un risinājumi pilsētvidē

Eiropas Padomes Ainavas balvas 9. sesijas nacionālās atlasē noslēgums

16.10.2025., plkst. 10.00 – 17.00
Koka Rīga, Krāsotāju ielā 12
SEMINĀRA DIENAS KĀRTĪBA

9.30 - 10.00	Ierašanās un reģistrācija
10.00	Pasākuma atklāšana
10.10 - 10.30	Klimata pārmaiņu un to prognozes Latvijā Latvijas Vides, ģeoloģijas un meteoroloģijas centrs
10.30 - 11.00	Karstuma viļņi un iedzīvotāju veselība Rīgas Stradiņa universitāte
11.00 - 11.30	Karstuma viļņi Latvijā – to modelēšana un analizēšana Latvijas Universitāte
11.30 - 12.00	Kafijas pauze
12.00 - 12.30	LIFE LATESTadapt projekta pašvaldību karstumsu kartēšana Vides risinājumu institūts
12.30 - 13.00	Urban Releaf – Rīgas karstumsu kartēšana Rīgas pilsdomsvaldes reģions
13.00 - 13.30	Dabā balstīti risinājumi un karstuma risks Balijas Vides forums
13.30 - 14.00	Pilsētvides dīrains risinājumi pret karstumu ALPS ainavu darbnīca
14.00 - 15.00	Pusdienu pauze
15.00 - 15.15	Eiropas Padomes Ainavas balvas nacionālās atlasē ievadruna
15.15 - 16.00	Īsas (smiņ) pieteikto projektu prezentācijas: Daugavpils vairospilētas pašvaldība, Jēgavas novads pašvaldība, Valmieras novada pašvaldība, Hirmas vairospilētas pašvaldība, Īsāpils novada pašvaldība, Latvijas Dubas fonds, Atēniskās novada pašvaldība, Līpājas vairospilētas pašvaldība
16.00 - 16.15	Ainavu koordinācijas pārvaldības padomes vērtējums un Eiropas Padomes Ainavas balvas nacionālās atlasē uzvarētāja nosaukšana Raimonds Čuliers, VARAM ministrs
16.30	Pasākuma noslēgums

Karstuma riska izaicinājumi un risinājumi pilsētvidē

Eiropas Padomes Ainavas balvas 9. sesijas nacionālās atlasē noslēgums

17.10.2025., 9.00 - 15.00
semināra otrā diena
EKSKURSĪJAS DIENAS KĀRTĪBA

8.45 - 9.00	Ierašanās (Satikties biznesa centra iekšpagalmā, iecīn no E. Birziņika-Upīša ielas puses)
9.00	Ekskursijas sākšana
9.00 - 10.00	Satikties biznesa centra un Oriģo ēka Līstov / darbnīca ALPS
10.15 - 11.00	Mērķļa ielas dižstādīs un jaunais skvērs pie Printful Labiē koki
11.00 - 12.00	Līvu laukums, Kronvalda parks Rīgas dīrains parki
12.00 - 12.45	Pusdienu pauze, INMM kafējnīca
12.45 - 13.30	Tierbatas ielas parklēcīn un Ģertrūdes ielas parveide Darbnīca ALPS
13.30 - 14.15	Dižstādī Stabu ielā, Baznīcas ielā, Lāčplēšes ielā, Kr. Valklemāra ielā Labiē koki
14.30	A. Čaka ielas iekšpagalmā
14.45	Ģertrūdes ielas sab. transportu pieturu ar zāļo jumtu
15.00	Ekskursijas noslēgums

16.10.2025. - seminar

Semināra atklāšana

Opening of the seminar

Diāna Rasuma, MoSARD (VARAM)

The seminar was administered by the Director of the Department of Spatial planning and Land Management of the Ministry of Intelligent Administration and Regional Development. This department also manages both the progress of the LIFE LATESTadapt project and the organisation of the national selection of the Council of Europe landscape award.

Within the framework of the [LIFE LATESTadapt](#) project, seminars and training for specialists, local governments and all other stakeholders are organised, taking a more detailed look at both flood and heat risks in the urban environment. This Seminar was given the focus on risk of heat, which is harder to pick up because it increases slowly, gradually and most often residents are happy to enjoy warmer summers. However, it's important to remember that heat can be harmful to both life and nature, changing the surrounding climate, comfort and having consequences like drought and heating up.

Klimata pārmaiņas un to prognozes Latvijā

Climate change and projections thereof in Latvia

Dace Zandersone, Latvian Environment, Geology and Meteorology Centre
(*Latvijas Vides, ģeoloģijas un meteoroloģijas centrs*)

As from the meteorological viewpoint the future scenarios and the methodology was presented. It was shown how many different weather observation stations are in Latvia, after which data is also compiled for Latvia.

It was the summary of air temperature rise observations, both globally and directly in Latvia, that was presented, showing that air temperature has increased, especially after the industrial period. Although it may not be possible to observe an increasingly hot summer every year in Latvia, which would suggest that there is no change in air temperature, it was pointed out that it must be viewed together with rainfall. There are probably periods that are too hot, followed by extreme and large amounts of rainfall that the soil is unable to absorb due to drought. The duration of precipitation is also prolonged, as is the increasing occurrence of extreme precipitation, but due to warming air temperatures, tropical nights are observed especially in urban environments.

It was explained how future climate change scenarios are modelled, which has been decided to reduce to 3 in the framework of Latvian policy: small, medium and significant changes.

It was also presented that although changes in wind speed and frequency are not observed in the scenarios, it was concluded that sudden and very strong wind surges are becoming more frequent, causing storms and dangerous situations.

On the LVGMC website, it is possible to find and test the climate change analysis tool using different indicators: <https://klimats.meteo.lv/>

Karstuma viļņi un iedzīvotāju veselība

Heatwaves and population health

Darja Kaļūznaja, Riga Stradins University (*Rīgas Stradiņa universitāte*)

Heatwaves were also presented from a health and medical perspective. It was defined what is understood in the medical field by heatwaves and heat islands. It was noted that consideration should be given to the fact that temperature differs in the shadows and in the sun, as well as to professions whose heat affects very directly everyday life, while others who are affected by this according to the statutory maximum air temperature in the workplace by category of work. Our body is a physiological mechanism, and thermoregulation is possible by producing, receiving

or giving away heat. Usually, at an increase in air temperature, the blood vessels of the skin expand, the temperature of the skin increases and sweats intensify, which prompts an increase in heat output so that the body does not overheat.

The following prevention options during heat were provided: selecting lightweight, breathable materials with long sleeves, wearing glasses and a hat, turning devices off as much as possible, limiting physical activity, babysitting others, and being in the shadows while taking plenty of water.

Potential effects of heat risk on human health: acute body overheating, heat jab. The most affected groups of the population are older people and children, people who are in dense urban environments with the possibility to develop a thermal island, as well as professionals who need to stay most outdoors.

A 2020 study on Riga and its mortality as a population was linked to heatwaves, considering data from 2009 to 2015. The study says that the summer had increased mortality rates in months and of the total, 73% had been directly residents over 65, while of the total, 53% had been under the influence of the cardiovascular system.

It is possible to assess the conditions in a heat-generated online tool that analyses how much time should be devoted to the work process, how much rest and how much water should be absorbed under specific air temperature and humidity conditions: https://www.ohcow.on.ca/edit/files/general_handouts/heat-stress-calculator.html

Karstuma viļņi Latvijā – to modelēšana un analizēšana

Heat waves in Latvia – modelling and analysis thereof

Maksims Pogumirskis, *University of Latvia (Latvijas Universitāte)*

To base the topic of this seminar on existing data and studies, a master's work of 2025 on heat wave modelling in Latvia was also presented.

The typical temperatures of Latvia were presented and the temperature thresholds above the characteristic are too high or too low, affecting the climate and environment. It goes hand in hand with the fact that 3 heatwave warnings have been set in Latvia: yellow warning at 27c, orange warning at 31c, red warning at 35C.

The Master's work study has shown that the temperature of 32 °C will be reached in Latvia every year, 35 °C every 8 years, while 38 °C at the current climate is impossible to achieve. The average temperature in Latvia has also increased by 2 degrees since the middle of the last century.

In urban environments, a heat island effect caused by additional heat from transport, electrical equipment, and heating, as well as by heating of urban materials is produced. Both the height of buildings, the cover, and the amount of planting play a significant role in urban design.

The work concluded that the difference between some degrees at lower temperatures of 21 °C or 23 °C is not relevant, but already at higher temperatures of 30 °C or 32 °C, the difference between 1-2 degrees is already more significant. It is also possible to read from LVGMC data that at temperatures above 31 °C, hospitalisation due to heat increases significantly at each degree.

When it comes directly to heat risk forecasting and modelling, it is said that predicting weather conditions is possible 1-2 weeks ahead, scenarios are already being developed in the future. Modelling options vary and differ from their scale. Heatwaves are one of the most predictable natural phenomena, but the challenge is in data detail to identify affected areas. You can model in both 9x9 km regions, 2 km and 1 km resolution. Even more detailed resolution is limited due to physical and computer capacity considerations.

It was concluded that dangerous heatwaves are rare and real in Latvia, yet they are inevitable and require preparation.

Kafijas pauze

Coffee break

LIFE LATESTadapt projekta pašvaldību karstumsalu kartēšana

Mapping of local heating Islands of the LIFE LATESTadapt Project

Dainis Jakovels, Institute of Environment Solutions (*Vides risinājumu institūts*)

As part of the LIFE LATESTadapt project partners who directly mapped heat islands in 3 Latvian municipalities – Riga, Valmiera and Cesis – a representative of the Institute of environmental solutions presented both methodologies and conclusions in practical experience of mapping heat islands.

It was set out how the assessment of green areas from satellite data was conducted, as well as the assessment of ground cover temperature from satellite data that complement each other. As we know, green areas do not heat up as much as built-up areas, so it was important to identify these areas to be able to identify differences and to look more accurately at the built-up areas where a thermal island is possible.

Following observations, it was concluded that there are large forest and nature areas around Riga, which allow a large area within the boundaries of the city not to heat up, however, where there is an increasingly dense building and fewer green solutions on both the right and left banks of Daugava, there are large variations in land cover temperature. The project identifies the areas of the city with an average heat island effect as well as a significantly high heat island effect. According to these data, within the framework of the project, each municipality are creating its own

demonstration sites using nature-based solutions, as well as creating greening plans to form a forward-looking strategy to mitigate the effects of heat in the areas where it is most needed.

Urban Releaf – Rīgas karstumsalu kartēšana

Urban Releaf - Riga heat Island Mapping

Sabīne Skudra, Riga Planning Region (*Rīgas plānošanas reģions*) un Nora Gāgane, Municipality of Riga (*Rīgas valstspilsētas pašvaldības Pilsētas attīstības departaments*)

The previously presented heat island materials have already been used by other projects and the Urban ReLeaf project is one of them. The project targets the transition of a population-driven data ecosystem and an inclusive and green urban environment. As part of the project, Riga is one of the pilot cities where both air quality and temperature and humidity are measured, involving city residents.

In 2024, several air quality sensors were installed in Riga as part of the project, involving organisations, companies, institutions and every citizen of interest. You can already view real-time data from these sensors on PurpleAir: <https://map.purpleair.com/air-quality-standards-us-epa-aqi?opt=%2F1%2F1p%2Fa10%2Fp604800%2FcC0#11.13/56.938/24.1147>

In 2025, a thermal comfort mapping began with 80 portable sensors that anyone interested could receive, pinned to their bag or clothing, and collect data on air temperature and humidity in the urban environment on the exact route they have travelled on while out. This data can already be viewed in a common map that combines data from all sensors: <https://platform-urbanreleaf.iccs.gr/public/map/#/home>

Additional seminars and discussions on urban planning, sustainability, and green solutions have also been organised as part of this campaign. As part of this project, it has already been concluded that public science is an excellent tool both for data mining and for raising public awareness on specific topics, as is the need for public participation in ambitious urban greening and the promotion of resilience.

Dabā balstīti risinājumi un karstuma risks

Nature-based solutions and heat risk

Anda Ruskule, Baltic Environment Forum (*Baltijas Vides Forums*)

In the introduction definitions of "nature-based solutions" were presented to have the same understanding what is meant by that in these project matters. Nature-

based solutions are a tool for climate change mitigation, in LIFE LATESTadapt project the focus is most on flood risks and heat waves.

"Keep what is there" – is the main nature-based solutions' implementation approach. Not to decrease the existing green and blue infrastructure, but only preserve it, use it and increase it. As nature-based solutions are very flexible they can be mixed as well as implemented within different other functions, in the end working for many aspects and aims.

Research-based facts about the exact role of trees in the urban ecosystem and how much different benefits they can bring were also presented.

Examples of nature-based solutions were presented to show the variety in the quality, expenses and value of different climate factor and especially heat risk mitigation and improvement: green spaces, parks and tree rows; bioswales and rain gardens; artificial wetlands; green walls and green roofs; urban meadows; community gardens; urban landscaping etc.

Main topic - integrating nature-based solutions in urban greening. Through the project Baltic Environmental Forum has mapped green infrastructure and ecosystem in Valmiera, Cesis and Riga ([now available in map browser online](#)). After mapping process, the territories were prioritised and a selection of specific nature-based solutions for each of them was done.

Pilsētvides dizaina risinājumi pret karstumu

Urban design solutions against heat

Marīte Sprudzāne, *ALPS landscape studio (ALPS ainavu darbnīca)*

Looking beyond green solutions, too, other factors were presented to be considered when creating an urban outdoor space to prevent or at least mitigate the risk of heat. This can also be influenced by the choice and colour of surface material, the creation of the living space itself and the use of water elements.

Several studies, as well as any hot summer day, have already shown a difference in temperature in the sun and shade, and the same can also be observed when comparing materials of different colours. The more natural and lighter the colour materials are chosen, the less heated it is. In recent years, the selection of such materials has played a particularly key role in the development of children's playgrounds, which usually use many rubber surfaces.

It is also possible to create the environment space itself with more shading by means of overhanging, shaded areas, vertical planting. Water cells can also benefit from both helping to reduce air temperature and empowering people to vape with cool water. Examples of best practices of landscape workshops ALPS and other authors were presented both in Latvia and abroad.

17.10.2025. – site visits

Satekles biznesa centra apskate

Business Centre of Satekle



Andis Kublačovs, Linstow (Linstow)

Site visitors were guided through 2 new development areas by the central station of Riga. The first one was the newest building – Business Centre of Satekle, which still have some free space to be rented out, but the main renter is SEB bank that had a lot of specific rules while constructing the building. The building creates a small courtyard that is available to anyone from the street, but for the workers in the offices different roof terraces with tables, chairs and greenery has been provided. By the building sculptural pots of plantings and small are positioned on the street level as there were no options to plant them in the ground soil, a small bioswale and a green wall masking an old brick wall on the neighbour land also has been created.

Origo One apskate

Origo One



Andis Kublačovs, Linstow (Linstow)

The other building is just across the street and is the place for many offices for a couple of years now. By the one of the entrances there are also different sizes of plantings in big pots and greenery by the accessible entry to the building. For planting native species has been used that don't need much attention. By the entrance wall an improvised wall system with plantings in pots has been created to add greenery also vertically.

Also, in this building almost on every roof a passive green roof has been created using mostly succulents. In the corridor of the building high moss wall installations have been created that bring the greenest and nature really close to the office workers.

Printful skvēra apskate

Square of Printful

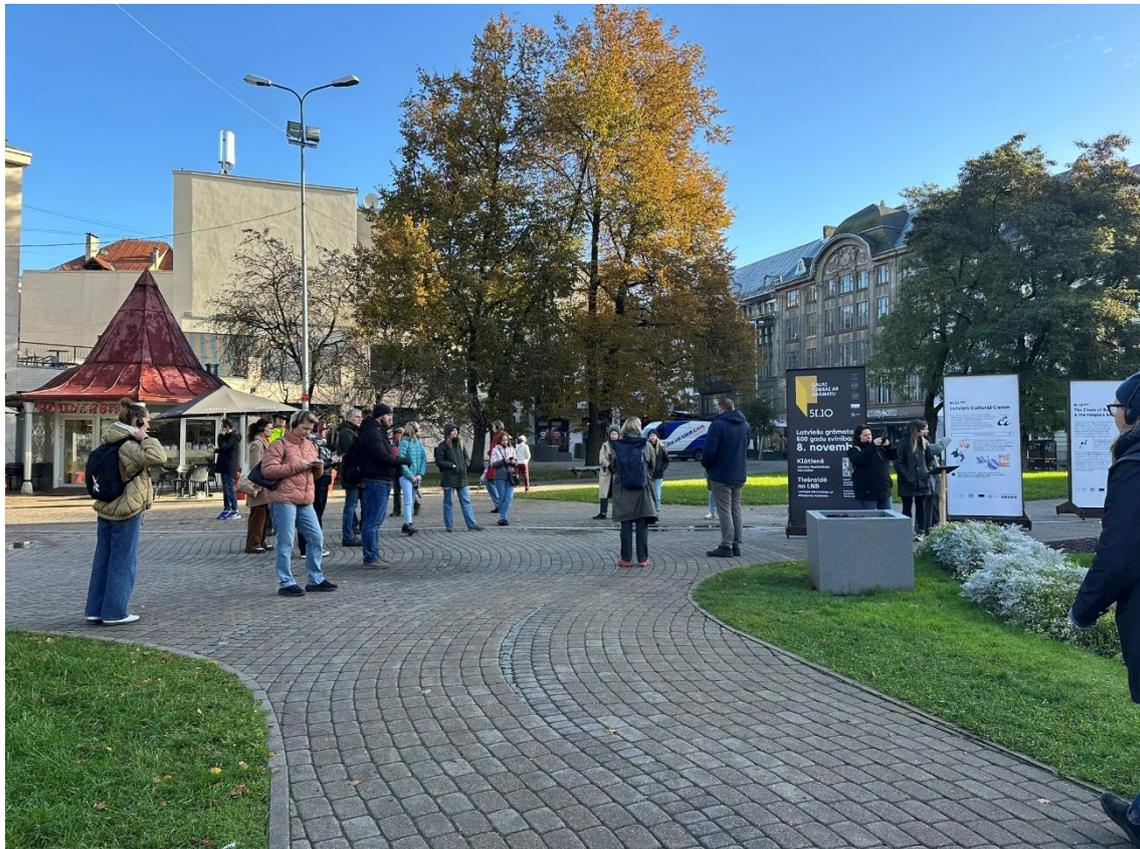


Edgars Neilands, Labie Koki (Labie Koki)

Arborist side of view was presented about new tree planting in Riga as well as improvised new green squares. One of them is also a square by the Printful office building that has been a car parking, but after restoring and renting the building by the car park Printful has created and developed the idea to replace it with a green square for the workers of the office as well as for the city itself. As the owner of the building wasn't so satisfied about a square that maybe after the renting period of Printful would be maintained by the owner. So, to have a green square all the planting was done in big planting pots including the big tree (*Robinia pseudoacacia*). The tree has a story of itself – it was rescued from being cut down in an area in Latvia, company Labie Koki stored it on their property to replant it. This tree was lucky to get its chance to continue its life and bring more greenery in Riga.

Līvu laukuma un skvērs pie Bastejkalna

Square of Līvi and by Bastejkalns



Aigars Pencis, Arta Krūmiņa, Gardens and parks of Riga (Rīgas parki un dārzi)

Gardens and parks of Riga is the main maintainer of the different green areas of the city. They are trying to research and experiment with various innovative solutions to create a more comfortable climate and territories as for plants, visitors as for maintaining them. They have been experimenting with a fog installation in the Līvi square. It is great for cooling and water the plants, but it is most interesting for the visitors to get a cool down in the heat as there are few trees in the square. In another place they are trying for the first time to use different watering technic by digging small water tanks in the soil that can provide plantings with water slowly when needed.

Tērbatas ielas parkletu un Ģertrūdes ielas apskate

Parklets of Tērbata street and Ģertrūde street



Māriete Sprudzāne, ALPS landscape studio (ALPS ainavu darbnīca)

The walk continued through Tērbata street where ALPS studio has developed many of the parklets. They are modular, created to be aligned with the pavement and used wood for natural materials. These were created together with the project when Tērbata street was opened just for pedestrians on summer, but especially parklets have helped food companies to get some income in COVID time.

Another street that has been developed by ALPS studio is Gertrude street where historically many trees have been along the street. In the project that finished not so long time ago many new trees have been planted, the pavement has been changed and there is at least 5cm difference between the pavement and road to get some feeling of the different users and safety.

Rīgas dižstādu apskate

New trees in Riga



Edgars Neilands, Labie Koki (Labie Koki)

Many of the newly planted trees (just in the summer of 2025) were visited as each of them has a different story as well as each of them was planted as a part of a separate construction project. This was a very important experience for Labie Koki by planting trees in the heart of the city, seeing different situations as well as using different solutions for each of the places. In one of the areas, they have also installed an experiment by collecting rainwater from a building that can be transferred to the nearest planting spot and full the water tanking system that is in the soil.

Čaka ielas 22 iekšpagalms

Courtyard of Čaka 22



Ilmārs Millers, architect, building contractor (arhitekts, būvuzņēmējs)

To see also some private areas with great urban green examples a courtyard was visited on Čaka street together with the creator. The courtyard is a true green oasis that can't be seen from the street. It is calm, bright, contains different type of green elements as well as recycled materials, for example the pavement has been taken from the left out of one of the squares in Riga that was renewed.

The courtyard has been recreated from a trashy place to a comfortable outdoor place for the residents of the building, a small fountain, benches and planting pots. Many climbing vines have already grown across the courtyard and by one of the walls. An extra urban design element is also a metal installation on the wall that provide extra light in the higher apartments that are missing some daylight because of the dense architecture.

Zaļā jumta sabiedriskā transporta pietura uz Ģertrūdes ielas

Green roof public transport stop on Ģertrūde street



The excursion concluded in the smallest nature-based solution of the day – a green roof on a public transport stop. These kinds of stops are only 3 now in Riga as an experiment. They were installed only this summer, but they already have developed in full green roofs. It mostly contains succulents that don't need much of watering and maintenance.

If these stops will be successful there will be more of these kinds of stops located in the city. They provide city with more green surfaces, decreasing heating up, having a more aesthetic view of stops as well as helping the biological diversity.

2. Summary and conclusions of the seminar

Heat is an Inevitable Threat

Dangerous heatwaves are rare and real in Latvia, but they are inevitable and require preparation. Heat can be harmful to life and nature, altering the surrounding climate, reducing comfort, and leading to consequences such as drought and localized heating. Although consistently hot summers may not be observed every year, the warming trend results in increased frequency of tropical nights, especially in urban environments. Extreme and large amounts of rainfall are also increasing, often following periods of drought.

Heat can impact health

Heatwaves pose significant risks to human health, leading to acute body overheating and heat stroke. The most vulnerable groups are older people, children, and those working outdoors. Hospitalization rates due to heat increase substantially above 31 °C. The Urban Heat Island (UHI) Effect is generated by additional heat from transport, electrical equipment, and heating systems, as well as the heating of urban materials.

Data, Mapping, and Public Engagement can help to prioritize interventions and plan strategically

Mapping heat islands (identifying areas with average or significantly high UHI effects) using satellite data is crucial for developing forward-looking strategies and mitigating effects where they are most needed. The results of the heat island mapping enable municipalities to define demonstration sites and create greening plans to strategically mitigate heat effects. Public science is an excellent tool both for data mining and for raising public awareness of specific topics.

Nature-Based Solutions (NBS) and Urban Design can be very flexible

NBS are highly flexible and multifunctional, allowing them to be mixed and integrated within different urban functions. Other factors in urban design are critical for mitigating heat risk, including the use of lighter, more natural colors for surface materials (which heat up less) and the strategic use of water elements (like fountains or fog installations).

Site visits showcased practical NBS applications

- The use of modular parklets and vertical plantings in dense urban areas.
- Innovative maintenance solutions, such as collecting rainwater from buildings to supply specialized water tanking systems for new trees.
- The creation of small-scale interventions like green roof public transport stops (often using low-maintenance succulents) to increase green surfaces and decrease heating.
- The necessity of planting trees in large pots when ground soil is unavailable.

3. Photos of the event





