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Feeling the heat in Swiss cities

Heatwaves are becoming more common as a result of climate change. This is particularly true of cities, where summer is an increasingly sweltering affair. Vegetation, open-water areas and urban air corridors can all help to keep people cool.

THEODORA PETER

On hot summer days, the water display on Berne's Bundesplatz is popular among tourists and locals alike. In front of the imposing sandstone facades of the Federal Palace and the Swiss National Bank, children flit between the 26 fountains that symbolise Switzerland's cantons. They then lie face down, drying themselves on the sun-baked stone. From the restaurant verandas of the old town, to the ice cream vendors lining the banks of the River Aare – the vibe is distinctly Mediterranean. In Berne and other northern hemisphere cities, this is but a taste of things to come. According to

a study by ETH Zurich, which pairs the predicted climatic conditions of 520 major cities around the world in 2050 with their closest climatic likeness today, Berne will have a similar climate to that of present-day Milan in three decades' time. London will feel like Barcelona, Stockholm like Budapest, and Madrid like Marrakech.

The latest climate scenarios reveal a likely rise in Swiss summer temperatures of between 0.9°C and 2.5°C, meaning that the number of days the mercury hits 30°C will continue to increase. Cities will bear the brunt and turn into veritable heat islands. Shadeless streets and asphalted

By 2050, Berne will have much the same climate as Milan's today. Photo: Keystone

squares heat the air like a furnace. This air is slow to cool at night, with temperatures consequently unable to dip below 20°C.

Trees – the new air conditioners

As far as Switzerland is concerned, the impact of climate change is particularly evident in Sion. No other Swiss city has recorded a sharper increase in temperature over the last 20 years. For example, the number of days with temperatures reaching at least 30°C in the capital of Valais has risen from 45 to 70 since 1984. The city launched the government-funded pilot project

AcclimataSion six years ago in order to adapt urban development as well as building regulations more effectively to climate change. As city planner Lionel Tudisco puts it, the aim was “green and blue in place of grey”. This involved planting more trees in public spaces. “A tree has the same cooling effect as five air-conditioning units,” Tudisco explains. In the daytime, it can be up to seven degrees cooler where trees cast shade than in the immediate vicinity. Waterways, fountains, lakes and ditches are the ‘blue’ helping to irrigate the city. “These features create microclimates and reduce temperature fluctuations,” he says. The objective is not only to lessen the urban heat but also to mitigate the impact of floods. This is because climate change also leads to more frequent heavy rains in addition to higher temperatures – the violent thunderstorm that caused flash floods on Sion’s lower-lying roads in August 2018 being a case in point.

The landscaped Cours Roger Bonvin is the showcase feature of the AcclimataSion project. This 500-metre-long pedestrian promenade situated on the roof of a motorway tunnel used to be a rather uninviting concrete heat trap. Today, some 700 trees provide welcome shade in a public space dotted with islands of greenery. An artificial beach and generous seating and lounging areas create a holiday vibe as kids splash around in a specially constructed paddling pool.

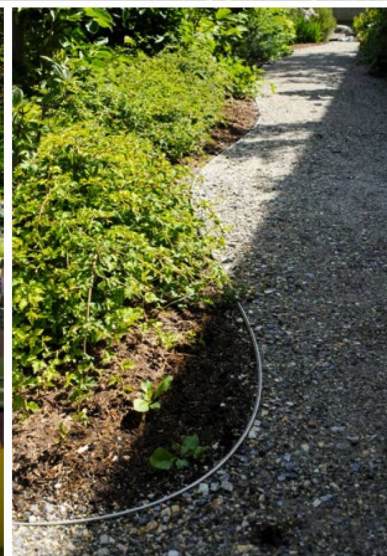
Mapping the urban climate

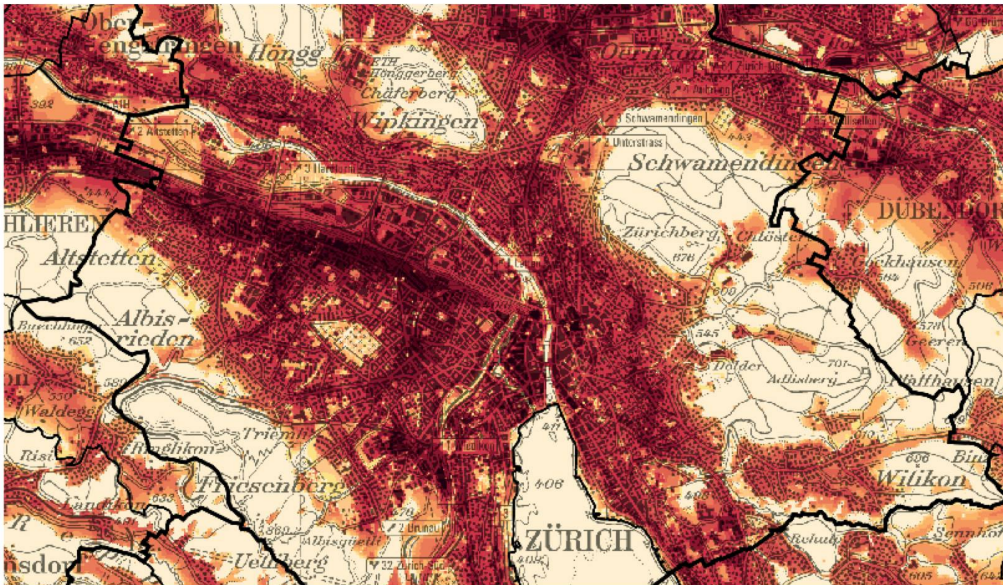
Larger urban areas in Switzerland are also having to contend with climate change. Officials in Zurich want to take action – they expect a twofold



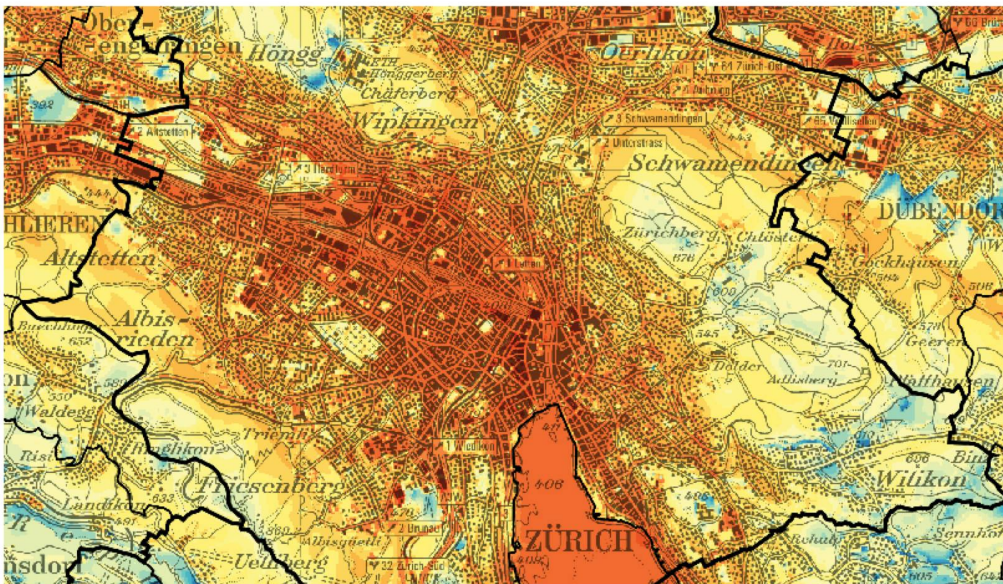
An artificial beach, a paddling pool and green islands dot the asphalt – AcclimataSion is a pioneering project in the Valais capital of Sion.

Photos: Flurin Bertschinger





Air temperature in and around Zurich at 4 a.m. <=22° 22° 23° 24° 25° 26° 27° 28° 29° 30° 31° 32° >=32°



Air temperature in and around Zurich at 2 p.m. <=13° 13° 14° 15° 16° 17° 18° 19° 20° 21° >=21°

These two images show temperatures that are now typical of calm high-pressure summer weather in Zurich. Source: canton of Zurich; Office of Waste, Water, Energy and Air; maps.zh.ch (GIS browser)

increase in the average number of 30°C days from 20 to 44. “We need to stop heat from smothering the entire city,” says the head of Zurich’s environmental and health protection department, Christine Bächtiger. Specifically, this means minimising asphalt and other forms of paving, because paved surfaces are liable to heat their surroundings from all the solar radiation that they absorb. The authorities also want to relieve parts of the city that are densely populated or

have a high proportion of older inhabitants who find it harder to cope in hot weather. Other options include expanding the network of paths and parks as well as enlarging less heat-prone areas of the city. Zurich has a favourable geography compared to other places, with three quarters of the city benefiting from the cool air that flows down at night-time from the wooded slopes of Zürichberg, Käferberg and Uetliberg. To preserve this natural ‘cold air system’, Zurich’s

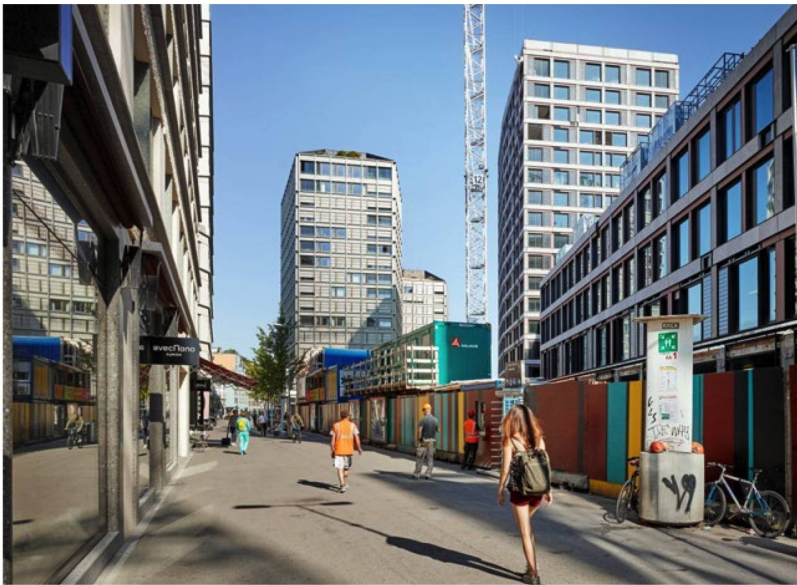
urban planners intend to keep certain air corridors free and ensure that new builds do not exceed a certain height.

The authorities in Basel have also conducted an analysis that maps the city’s ‘heat islands’, ‘green lungs’ and prevailing air flows. Spatial planners and architects used these findings to build the Erlenmatt district from scratch, positioning the buildings in such a way as to ensure that fresh air continued to blow in from the Wiesental valley. Constructed according

Adapting urban development to climate change

Extreme summer heat is harmful to public health. The mortality risk increases markedly during heatwaves. Hundreds of people in Switzerland died from the extreme temperatures in 2003 and 2015, with the elderly in urban areas particularly affected. Such heatwaves will be longer, hotter and more frequent due to climate change. The challenge for urban developers is to ensure that towns and cities continue to offer a good quality of life in a warmer climate. The Federal Office for the Environment (FOEN) drew up guidelines for adapting urban development to climate change in a 2018 report that uses examples in Switzerland and abroad to illustrate how the urban heat island effect can be reduced. However, none of this will stop the rise in summer temperatures. Excessive CO2 emissions are the root cause of climate change. A massive reduction in greenhouse gases – as prescribed in the Paris climate agreement – is the only way to counter global warming. (TP)

Link to the FOEN report “Hitze in Städten” (in German): [ogy.de/stadthitze](https://www.ogy.de/stadthitze)



Europaallee in Zurich – shadeless urban canyons and concrete surfaces heat the city air like a furnace. Photo: Keystone

to sustainable principles, the new neighbourhood also has a spacious park and other notable areas of greenery.

Vegetation and water

Meanwhile, the focus in Geneva is on increasing local vegetation. Last summer, officials approved a strategy that underpins the planting of greenery as part of an urban master plan, while the Urbanature project has already seen Geneva's municipal gardeners plant around 1,200 trees and 1.7 million plants around the city. The Geneva government also believes that there has to be a fundamental shift away from the use of personal motorised transport. Residential courtyards that serve as car parks could then be transformed into green oases. Trees not only provide the city with fresh air, but their leaves also filter out particulate matter from the atmosphere.

The city of Berne is also applying a range of measures. For example, the authorities will only permit paved surfaces if these are necessary for traffic or disabled access. Rainwater begins to dry immediately when it lands

on asphalt, whereas it will seep into gravel and evaporate later. "We need to rethink our approach to water," says Christoph Schärer, director of parks and green space in Berne. Rain should no longer be drained directly into the sewers but remain where it falls, because evaporation has a cooling effect. It will also water the vegetation. "There is no benefit to covering everything in asphalt," he says. Berne's numerous fountains and watercourses also help to freshen the air. For example, the Stadtbach stream has been partially 'daylighted' along its route through the old town.

More 'exotic' trees are being planted in the Swiss capital. These can withstand climate change, whereas many native trees such as the large-leaved lime and the sycamore are particularly sensitive to heat and drought. The Turkey oak is one of the new tree species being used in Berne. Native to south-east Europe, this deciduous tree is resistant to cold winters and hot summers. It can also cope with the late spring frosts that have become a frequent occurrence in recent years. As far as Schärer is concerned, planting palm trees is certainly not the answer.

A summer like no other

"Down with the Alps – we want to see the sea!" The 1980s youth movement used this slogan to protest against Switzerland's so-called culture of narrow-mindedness. The country has certainly taken a peep over the mountains and



broadened its outlook since then. Now the Mediterranean is inching nearer to Switzerland, at least in climatological terms. Scorching hot days and balmy nights are no longer confined to southern

Europe. And, like our Mediterranean neighbours, we have lived our lives increasingly outdoors in recent summers. Cities have enhanced the al-fresco vibe by filling their public spaces with all manner of furniture. Entire streets have turned into open-air bars, parks into open-air cinemas, river- and lakesides into barbecue and hang-out areas. Thousands embrace the summery feel; others bemoan the noise and stink.

Things are very different this year. The coronavirus epidemic has confined people to their homes in recent months – a lockdown that puts everything into perspective. How will our experience of social distancing change the everyday life of towns and cities? Sociologists and cultural experts will surely study this question one day. At best, the emergency will soon be over with community togetherness stronger than ever. Urban areas will not only be more Mediterranean, they will also be more people-friendly. The climate crisis and the challenges facing overheating cities are, on the other hand, far from over.

THEODORA PETER, EDITOR SWISS REVIEW