

Superblocks in Barcelona



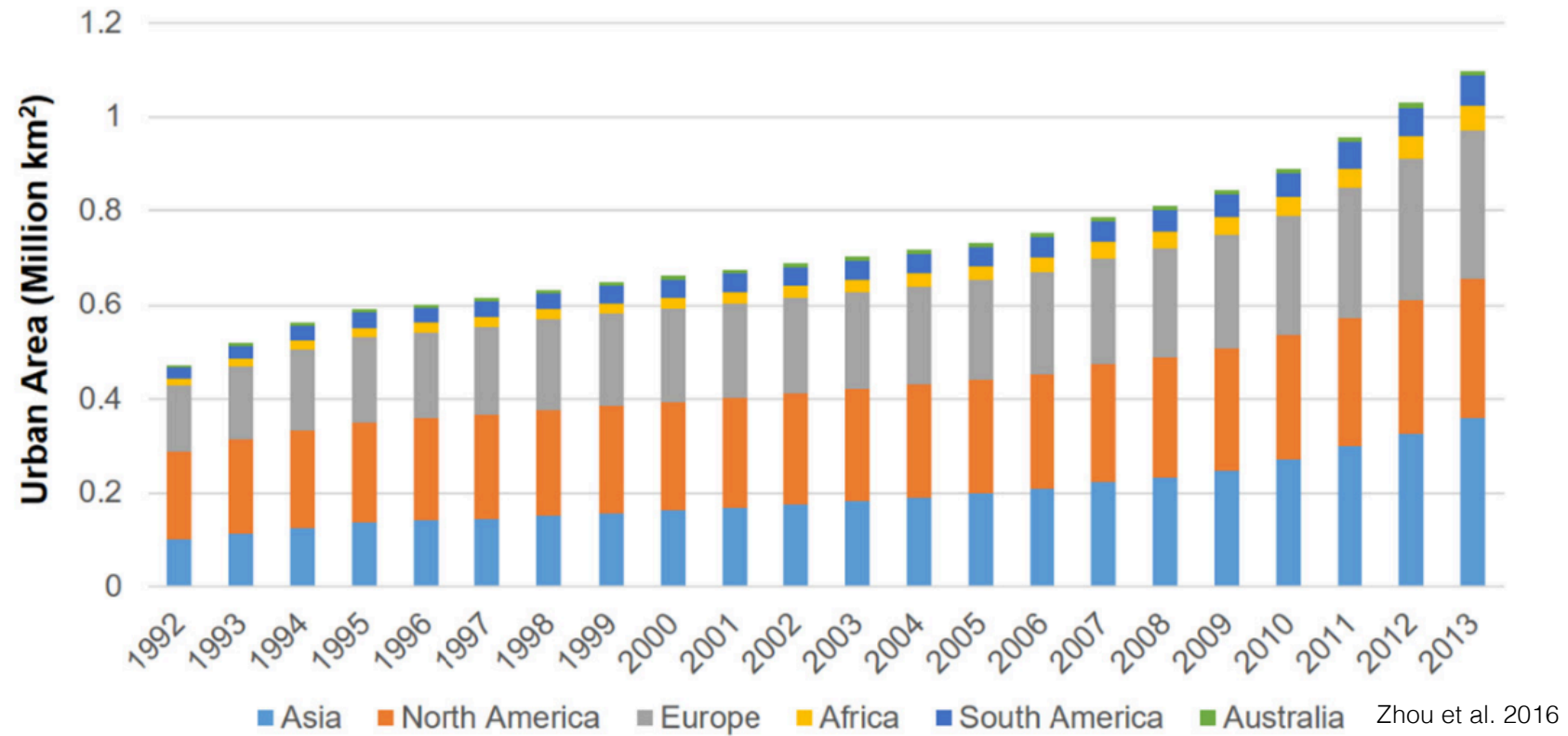
Example, Barcelona



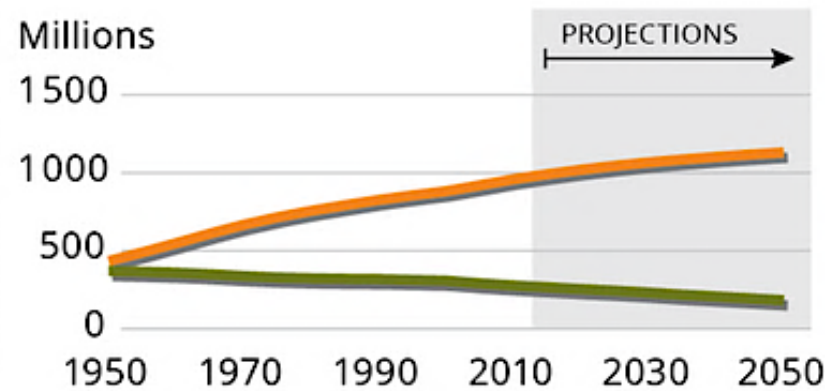
"Cities have evolved naturally in many different cultures and are now the predominant habitat of our species"

Gross, Current Biology 2016

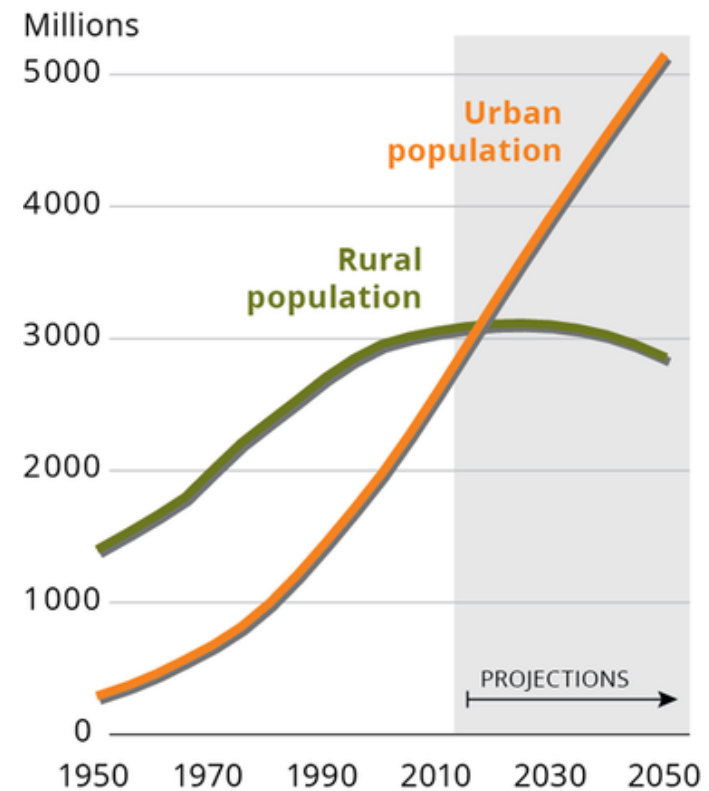
Global urbanisation



More developed regions



Less developed regions



and in Switzerland

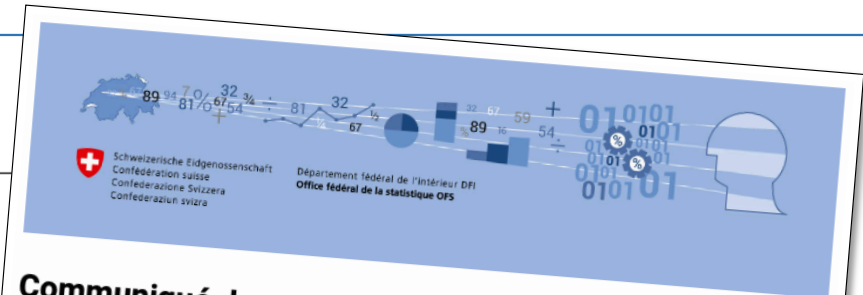
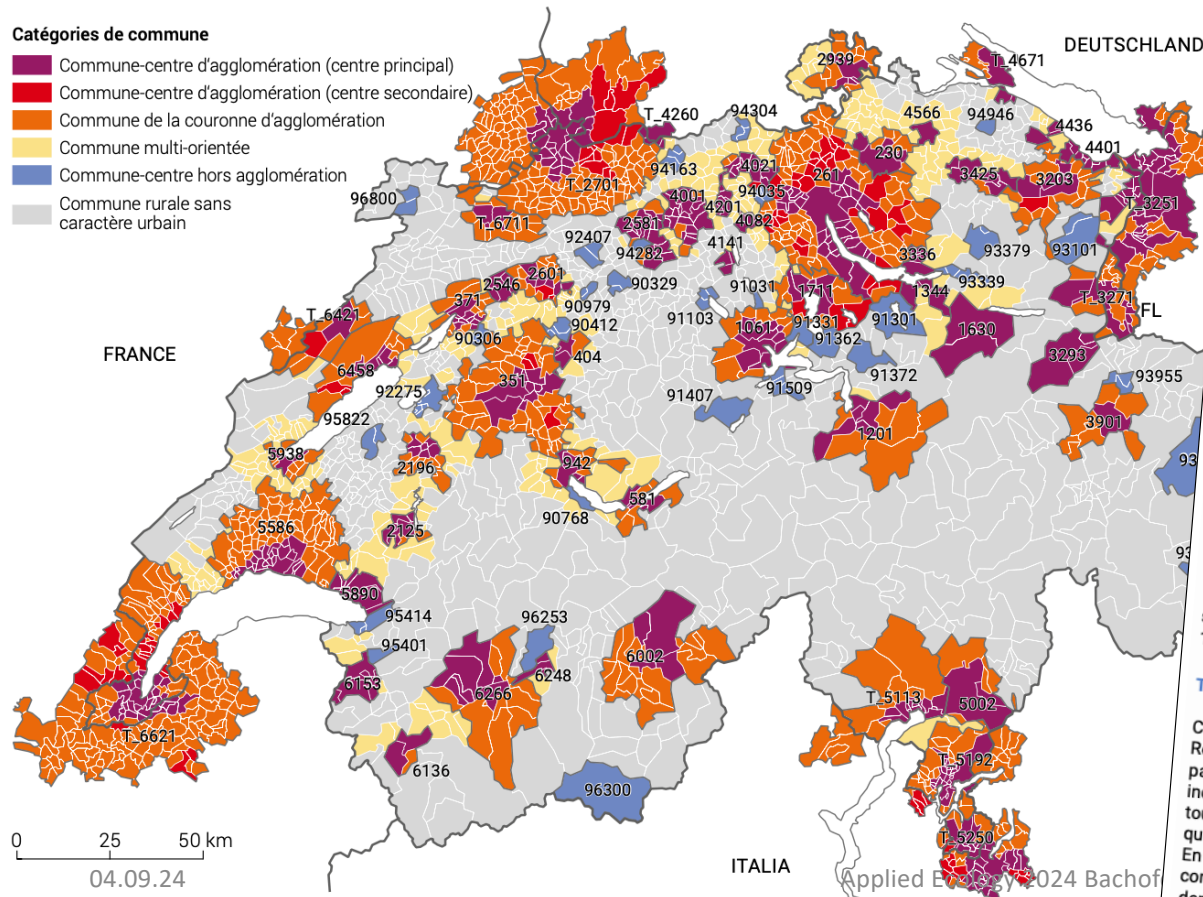
EPFL

Communiqué de presse OFS

Espace à caractère urbain 2020

Catégories de commune

- Commune-centre d'agglomération (centre principal)
- Commune-centre d'agglomération (centre secondaire)
- Commune de la couronne d'agglomération
- Commune multi-orientée
- Commune-centre hors agglomération
- Commune rurale sans caractère urbain



Communiqué de presse

Embargo: 21.3.2024, 8h30

21 Développement durable et disparités régionales et internationales Agglomérations et typologie des communes 2020

Trois nouvelles agglomérations et 10 villes de plus qu'il y a 10 ans: l'urbanisation de la Suisse se poursuit

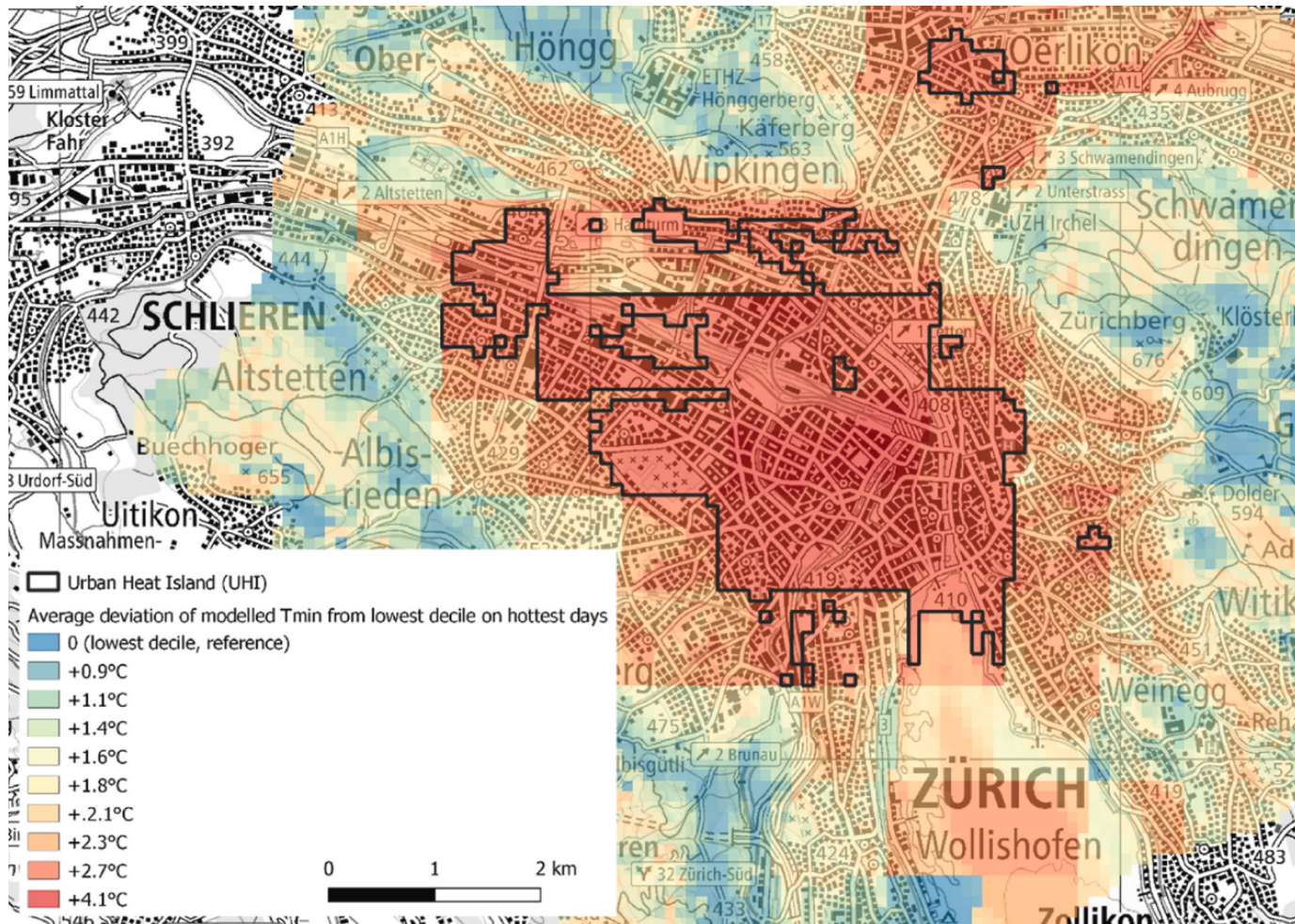
En 2022, 74% de la population de la Suisse vivait dans une des 52 agglomérations du pays. Si cette part reste quasi stable par rapport au début des années 2010, trois nouvelles agglomérations ont été identifiées. Les communes rurales, quant à elles, couvrent 57% du territoire et abritent 14% de la population et 9% des emplois. Ces résultats se basent sur les définitions statistiques 2020 de l'espace à caractère urbain, des périmètres des agglomérations et des typologies de communes de l'Office fédéral de la statistique (OFS).

Chaque agglomération comprend un centre urbain dense formé d'une ou plusieurs communes et des communes de couronne qui sont en relation fonctionnelle avec ce centre. Les 52 agglomérations du pays comptent 6,6 millions d'habitants sur territoire suisse, soit 74% de la population. Presque la moitié (1034) des 2131 communes suisses font partie d'une agglomération. Onze agglomérations sont transfrontalières. Les parties de ces agglomérations situées sur territoire étranger comptent 1,5 million d'habitants et couvrent 367 communes.

Trois nouvelles agglomérations

Cette actualisation fait apparaître trois nouvelles agglomérations: Burgdorf, Mels – Sargans et Reinach (AG). De manière générale, on observe une relative stabilité au niveau des agglomérations. La part de la population vivant dans les agglomérations (sans les parties à l'étranger) reste à peu près inchangée par rapport à la décennie précédente (+1,4%). Les 49 agglomérations définies alors sont toujours présentes. 13 gardent exactement le même périmètre. Les autres gagnent ou perdent quelques communes, dans la plupart des cas avec de faibles conséquences en termes de population. En revanche, et d'une manière générale, le nombre de communes-centres augmente alors que les communes de couronnes diminuent, indiquant une tendance à l'extension des zones centrales densément peuplées.

The urban heat island



"In 2018, only 15 stations out of 576 were located in inner cities"

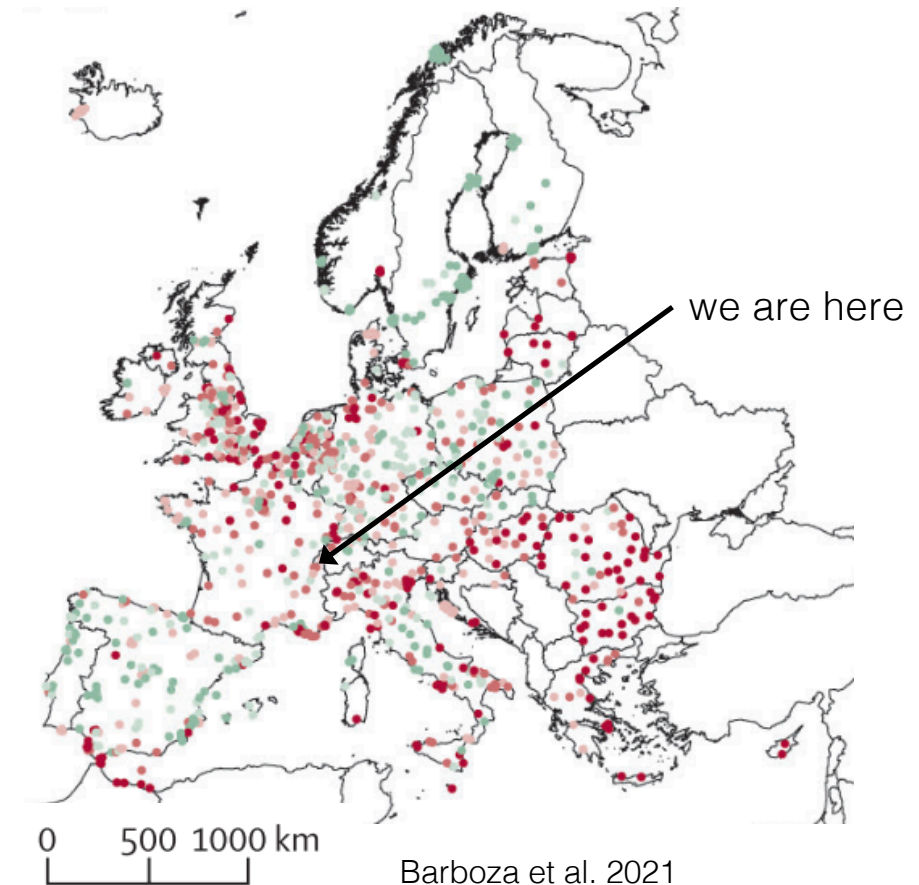
Wicki *et al.* 2024
Flückiger *et al.* 2022

Heat-induced deaths

- 2003 heat wave in Europe lead to more than 70'000 additional deaths
- Big cities were especially affected
- Access to green space could prevent 42'968 deaths annually
- Athens, Brussels, Budapest, Copenhagen, and Riga showed the highest mortality burdens due to the lack of green space

**Percentage of green area
ranking by quintiles**

- 1 (highest mortality burden)
- 2
- 3
- 4
- 5 (lowest mortality burden)



Heat-induced deaths

AB429																		
	A	B	D	E	F	G	H	I	J	K	R	S	T	U	V	W	X	Y
	Impact Group (quintile)	City Ranking (highest to lowest burden)	City Name	City Category	Biome	Total Population	Adult Population	Adult Natural-Cause Deaths	Percentage of GA (mean)	Population below 25% GA (%)	Perc. GA - Years of Life Lost (YLL/100,000 population) (95% CI)		Perc. GA - Preventable age-standardized mortality rate (deaths/100,000 population) (95% CI)		Perc. GA - Principal Component			
1																		
284	4	600	Gdynia	C	Continental	248750	204966	2500	44.65	47.62	76	0	151	8	0	15	0.93	
285	2	180	Gela	C	Mediterranean	81478	64636	639	59.62	82.58	115	0	229	11	0	21	-1.28	
286	2	331	Gelsenkirchen	C	Atlantic	256658	208783	3286	31.10	58.10	117	0	234	10	0	20	-0.34	
287	2	241	Geneve	K	Continental	368188	290377	2454	25.76	82.13	95	0	190	10	0	20	-0.80	
288	3	383	Genova	C	Mediterranean	564254	476388	7658	46.38	60.88	116	0	230	8	0	16	-0.11	
289	2	190	Gent	C	Atlantic	249637	196147	2219	30.22	70.12	118	0	235	11	0	23	-1.24	
290	4	593	Gera	C	Continental	92307	79422	1294	56.79	46.37	90	0	179	7	0	13	0.90	
421	4	610	Landshut	C	Continental	66788	55479	773	45.12	55.76	77	0	155	7	0	14	0.97	
422	3	418	Larisa	C	Mediterranean	144378	114381	1444	34.40	62.49	95	0	190	9	0	17	0.06	
423	2	201	Las Palmas	C	Macaronesia	370616	298778	3070	48.02	64.78	113	0	225	13	0	25	-1.15	
424	5	725	Latina	C	Mediterranean	120345	97692	985	65.10	46.80	58	0	115	6	0	11	1.54	
425	3	481	Lausanne	K	Continental	228687	177961	1560	37.08	64.39	74	0	148	8	0	16	0.39	
426	1	148	Le Havre	C	Atlantic	227479	170671	2209	46.28	67.56	147	0	294	12	0	23	-1.59	
427	1	110	Le Mans	C	Atlantic	177410	133004	1608	42.35	72.07	152	0	303	11	0	22	-1.87	
428	2	257	Lecce	C	Mediterranean	92463	75681	978	60.13	61.82	115	0	230	10	0	20	-0.71	
429	1	39	Lecco	C	Alpine	45374	36795	508	34.24	77.31	172	0	343	15	0	30	-3.06	
430	3	506	Leeds	C	Atlantic	765545	580064	6447	41.90	59.58	79	0	157	9	0	18	0.47	
431	2	247	Leeuwarden	C	Atlantic	106498	81767	874	38.70	70.01	105	0	210	11	0	21	-0.76	
432	1	138	Lefkosia	C	Mediterranean	245080	189495	1600	28.99	75.59	98	0	195	14	0	29	-1.69	
433	4	586	Legnica	C	Continental	105124	83818	978	42.38	47.54	76	0	151	8	0	17	0.87	
434	2	311	Leicester	K	Atlantic	504875	389253	3994	31.42	74.30	97	0	193	9	0	19	-0.44	
435	4	569	Leipzig	C	Continental	512308	429852	5518	38.57	53.76	81	0	161	8	0	15	0.76	

Heat-induced deaths

AB429					
	A	B	D	E	F
	Impact Group (quintile)	City Ranking (highest to lowest burden)	City Name	City Category	Biome
1					
284	4	600	Gdynia	C	Continental
285	2	180	Gela	C	Mediterranean
286	2	331	Gelsenkirchen	C	Atlantic
287	2	241	Geneve	K	Continental
288	3	383	Genova	C	Mediterranean
289	2	190	Gent	C	Atlantic
290	4	593	Gera	C	Continental
421	4	610	Landshut	C	Continental
422	3	418	Larisa	C	Mediterranean
423	2	201	Las Palmas	C	Macaronesia
424	5	725	Latina	C	Mediterranean
425	3	481	Lausanne	K	Continental
426	1	148	Le Havre	C	Atlantic
427	1	110	Le Mans	C	Atlantic
428	2	257	Lecce	C	Mediterranean
429	1	39	Lecco	C	Alpine
430	3	506	Leeds	C	Atlantic
431	2	247	Leeuwarden	C	Atlantic
432	1	138	Lefkosia	C	Mediterranean
433	4	586	Legnica	C	Continental
434	2	311	Leicester	K	Atlantic
435	4	569	Leipzig	C	Continental

Barboza et al 2021

Klimaklage



Nach der Urteilsverkündung vom 9. April 2024 vor dem EGMR.
Foto © Miriam Künzli / Greenpeace

Wir haben gewonnen!

Es ist ein historischer Sieg: Die Grosse Kammer des Gerichtshofs hat am 9. April 2024 in unserem Fall geurteilt, dass die Schweiz die Menschenrechte der älteren Frauen verletzt, weil das Land nicht das Nötige gegen die fortschreitende Klimaerwärmung tut. Konkret stellte das Gericht eine Verletzung von Artikel 8 fest (Recht auf Privat- und Familienleben). Der Gerichtshof stellte ausserdem fest, dass die Klage des Vereins, der derzeit über 2500 Frauen im Alter von 64 Jahren und älter vertritt, Opferstatus hat.

	U	V	W	X	Y
	Perc. GA - Preventable age-standardized mortality rate (deaths/100,000 population) (95% CI)			Perc. GA - Principal Component	
51	8	0	15	0.93	
29	11	0	21	-1.28	
34	18	0	20	-0.34	
90	10	0	20	-0.80	
30	8	0	16	-0.11	
35	11	0	23	-1.24	
79	7	0	13	0.90	
155	7	0	14	0.97	
190	9	0	17	0.06	
225	13	0	25	-1.15	
115	8	0	14	1.54	
148	8	0	16	0.39	
294	12	0	23	-1.59	
303	11	0	22	-1.87	
230	10	0	20	-0.71	
343	15	0	30	-3.06	
157	9	0	18	0.47	
210	11	0	21	-0.76	
195	14	0	29	-1.69	
151	8	0	17	0.87	
193	9	0	19	-0.44	
161	8	0	15	0.76	

Urban heat island mitigation



04.09.24

"îlots de fraîcheur" in Paris, 2018

Applied Ecology 2024 Bachofen

"Plan canopé"



PELLET et al. - Arborisation urbaine lausannoise et changements climatiques.

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Tableau 2. Liste des essences évaluées par classe d'adéquation climatique.

Famille	Essence	Quantile de l'axe 1	Quantile de l'axe 2	Trajectoire climatique	Classe d'adéquation climatique	Potentiel biodiversité	Écart à la distribution naturelle	Écart phylogénétique	Risques
Altingiacée	Liquidambar styraciflua	55 %	50 %	1.34	1	Faible	Élevé	Élevé	
Bétulacée	Betula nigra	35 %	35 %	1.92	1		Élevé	Moyen	
Cupressacée	Taxodium distichum	70 %	50 %	2.24	1		Élevé	Élevé	
Fabacée	Albizia julibrissin	55 %	45 %	2.22	1		Élevé	Élevé	
Fabacée	Cladrastis kentukea	25 %	45 %	1.92	1		Élevé	Élevé	
Fabacée	Gleditsia triacanthos	45 %	25 %	1.95	1	Faible	Élevé	Élevé	Potentiellement envahissant
Fabacée	Gymnocladus dioica	25 %	65 %	1.44	1		Élevé	Élevé	Potentiellement envahissant, fortement drageonnant
Fabacée	Styphnolobium japonicum	75 %	60 %	1.82	1	Faible	Élevé	Élevé	
Magnoliacée	Liriodendron tulipifera	35 %	30 %	1.69	1	Faible	Élevé	Élevé	
Magnoliacée	Magnolia grandiflora	80 %	20 %	1.41	1	Faible	Élevé	Élevé	
Moracée	Morus alba	30 %	65 %	2.11	1		Élevé	Élevé	
Moracée	Morus nigra	25 %	80 %	0.58	1		Élevé	Élevé	
Rosacée	Prunus yedoensis	55 %	75 %	1.48	1	Élevé	Élevé	Moyen	
Rosacée	Pyrus calleryana	40 %	35 %	2.10	1	Très élevé	Élevé	Moyen	Hôte du feu bactérien
Sapindacée	Acer buergerianum	60 %	55 %	2.25	1		Élevé	Moyen	
Ulmacée	Celtis occidentalis	80 %	55 %	0.99	1		Élevé	Élevé	
Ulmacée	Zelkova serrata	55 %	45 %	1.74	1	Faible	Élevé	Élevé	
Cupressacée	Sequoia sempervirens	55 %	95 %	0.14	2		Élevé	Moyen	
Fabacée	Cercis siliquastrum	55 %	10 %	1.29	2	Faible	Moyen	Élevé	
Fagacée	Quercus castaneifolia	50 %	15 %	1.43	2	Élevé	Faible	Faible	
Fagacée	Quercus frainetto	50 %	10 %	1.09	2	Élevé	Faible	Faible	Processionnaire du chêne
Fagacée	Quercus ilex	55 %	90 %	0.50	2	Élevé	Faible	Faible	
Platanacée	Platanus orientalis	50 %	5 %	1.16	2		Moyen	Moyen	Sensible à l'Oïdium du platane
Salicacée	Populus nigra	55 %	5 %	0.27	2	Élevé	Faible	Faible	

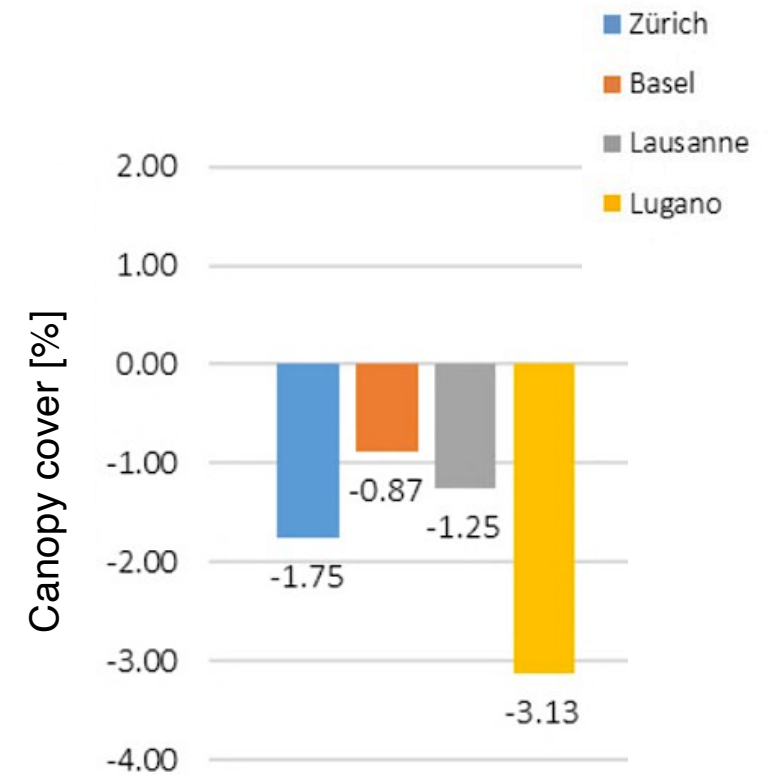
Pellet et al. 2021

Plan vs. reality

Change in canopy coverage in swiss cities 2008 to 2018



Abbildung 21: Dokumentation einer Baumfällung in Lausanne, Standort: 46°32'27.53"N 6°37'54.80"E (Quelle: Google Earth).



Plan vs. reality



04.09.24

Ceci n'est pas un arbre

Plan vs. reality

Change in canopy coverage in the US: 36 million trees lost per year

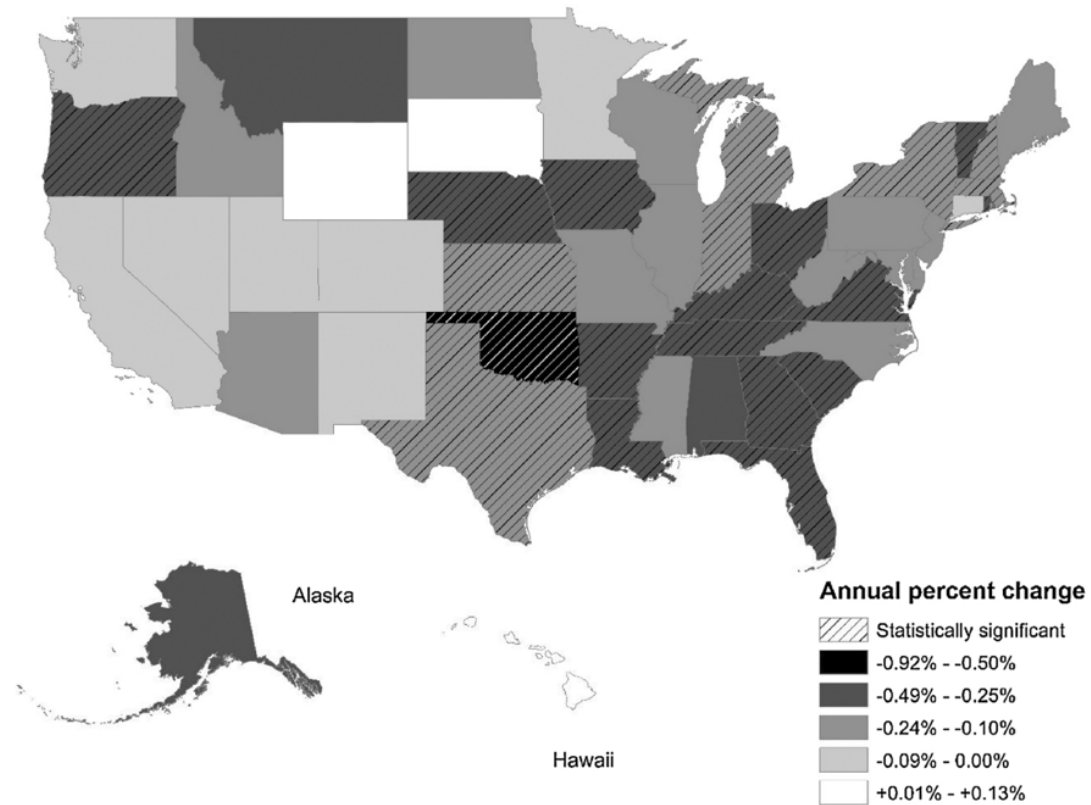


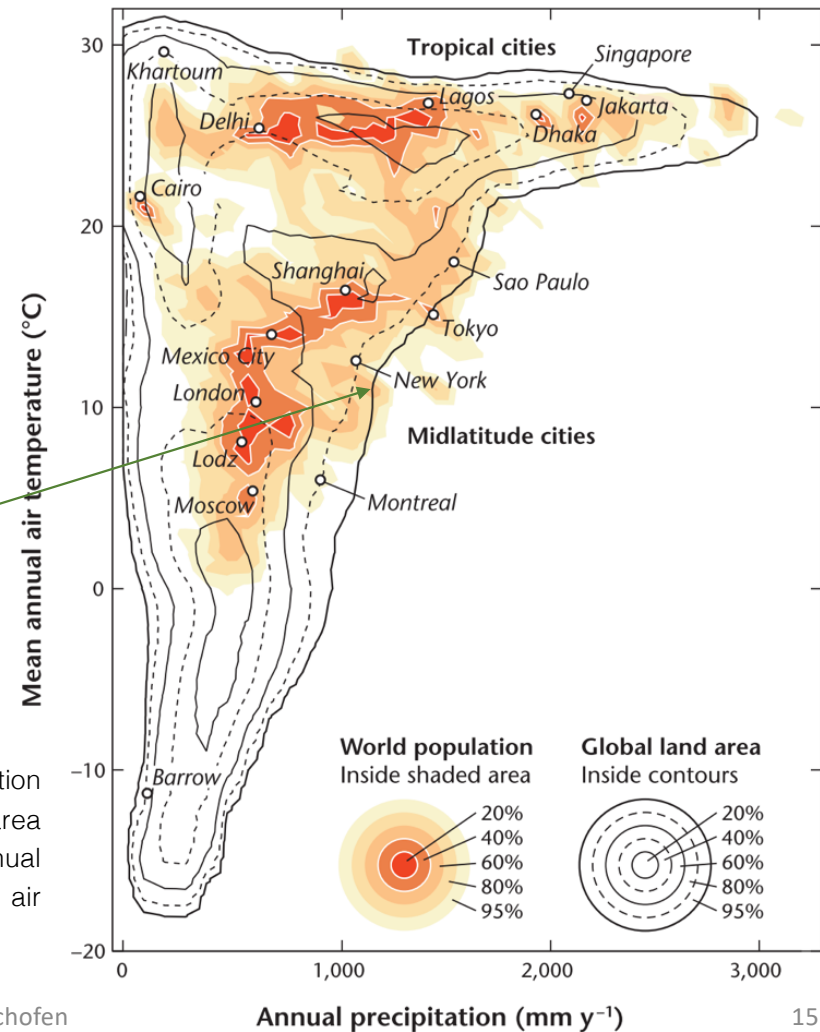
Fig. 3. Tree cover change in urban areas by state. Nowak et al. 2018

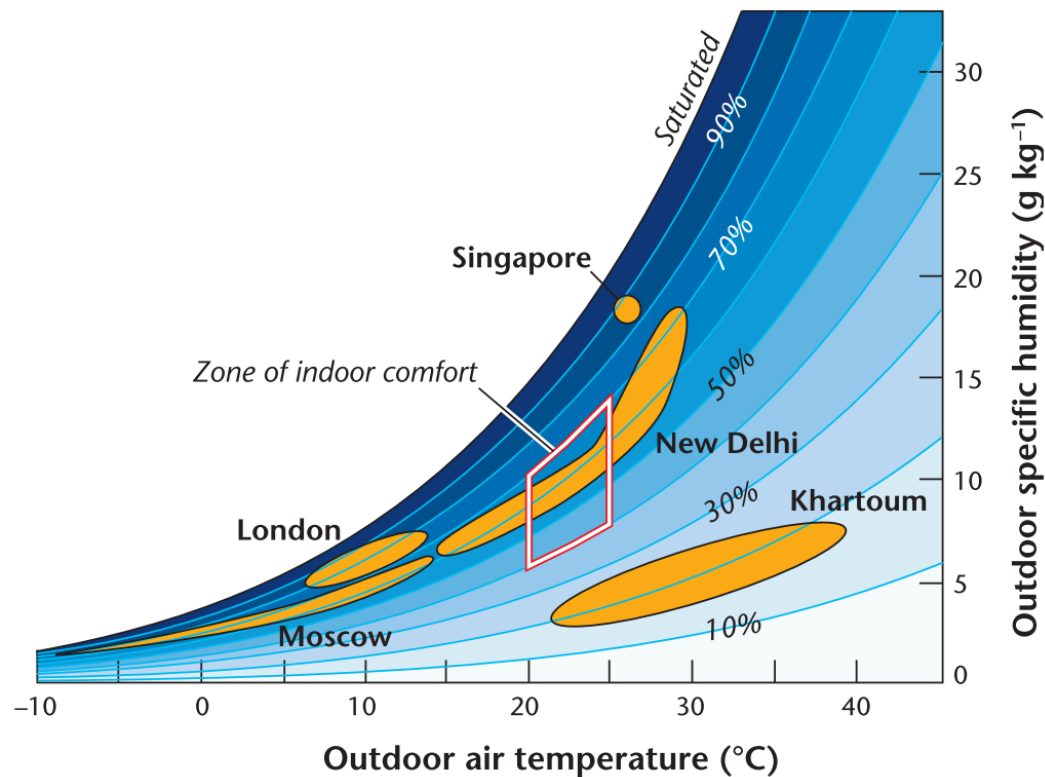
Where are the cities built?

Cities are built in warm ($> 0^{\circ}\text{C}$) and moist ($> 300\text{ mm}$) places with a few exceptions (e.g. Kairo and Khartoum $< 300\text{ mm}$ rain)

Pully meteo swiss station
(MAT 11.3°C , MAP 1132 mm)

Figure 12.4 Map of global population distribution (shaded) and distribution of global land area (contours) in the parameter space of annual precipitation in mm yr^{-1} and annual mean air temperature in $^{\circ}\text{C}$. (Oke et al. 2017)





Distinct climate types give rise to different heating and cooling and (de)humidification needs.

- Singapore is wet and humid throughout the year
- London and Moscow are cool
- Khartoum (Sudan) is warm and dry
- New Delhi is warm at one time of the year and cool at another.

Figure 15.4 The climates of selected cities expressed in terms of the monthly air temperature and humidity. The area in the centre of the diagram represents a zone of indoor comfort that might be a desirable objective. (Oke et al. 2017)

Background climate matters

Urban heat island effect can be harmful or beneficial

- In many cities in Europe urban warming is an advantage (in winter), except the dry and hot locations
- In summer, urban warming is still not desired

→ planning with cooler summers, but still warm winters (have your cake and eat it, too)

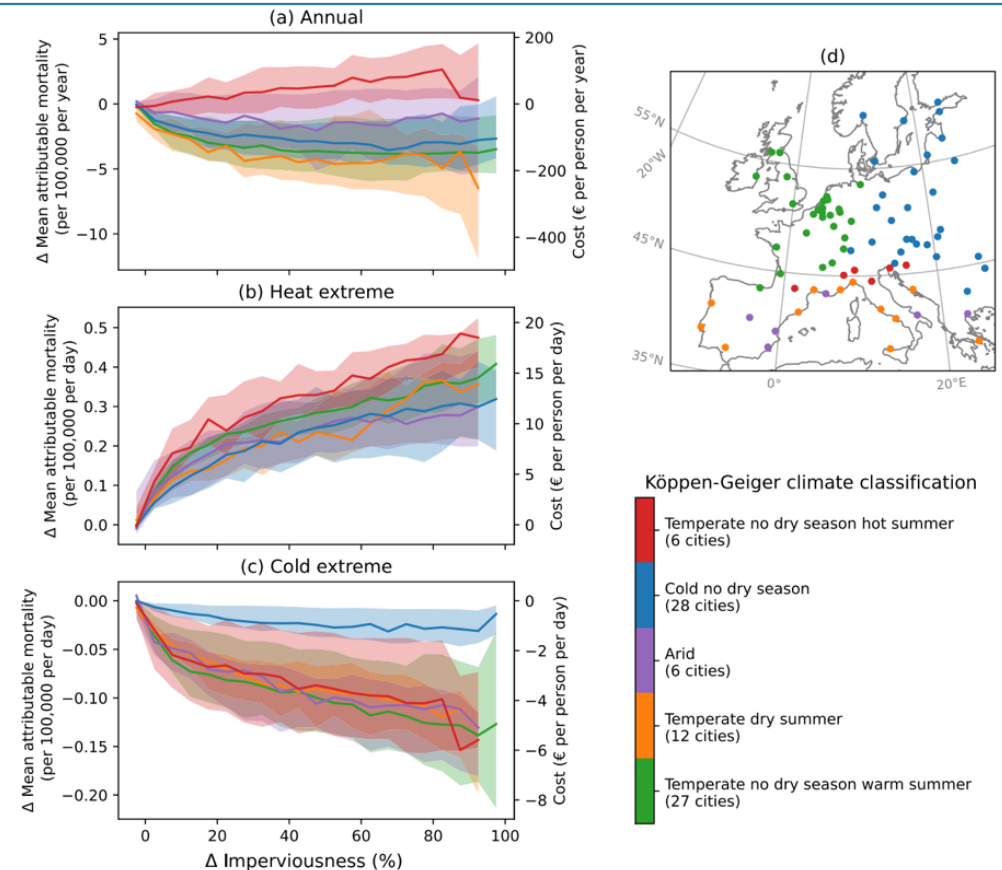
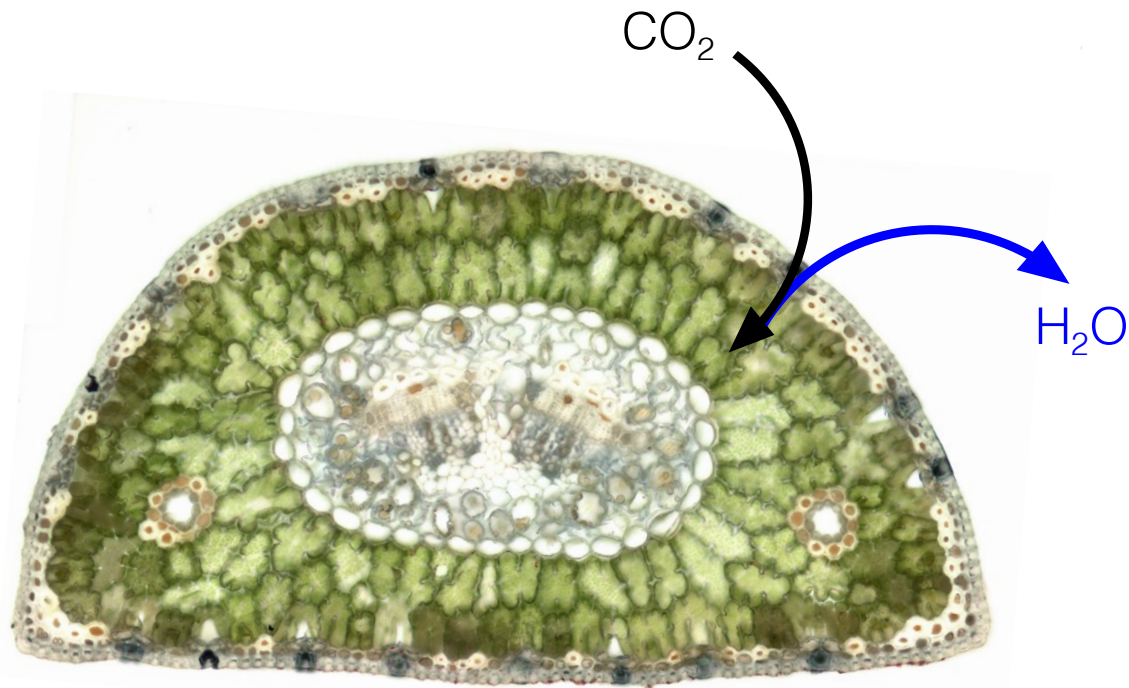
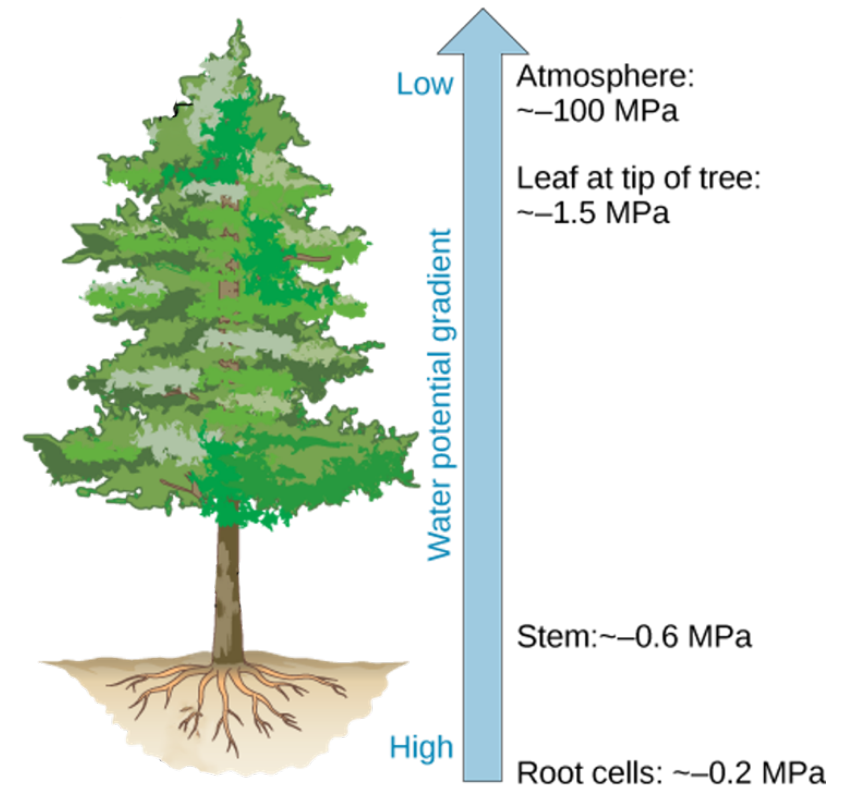


Fig. 2 | Difference in attributable mortality, and associated economic impact, compared to the rural mean, as a function of the difference in land imperviousness from the rural mean. (Huang et al. 2023)

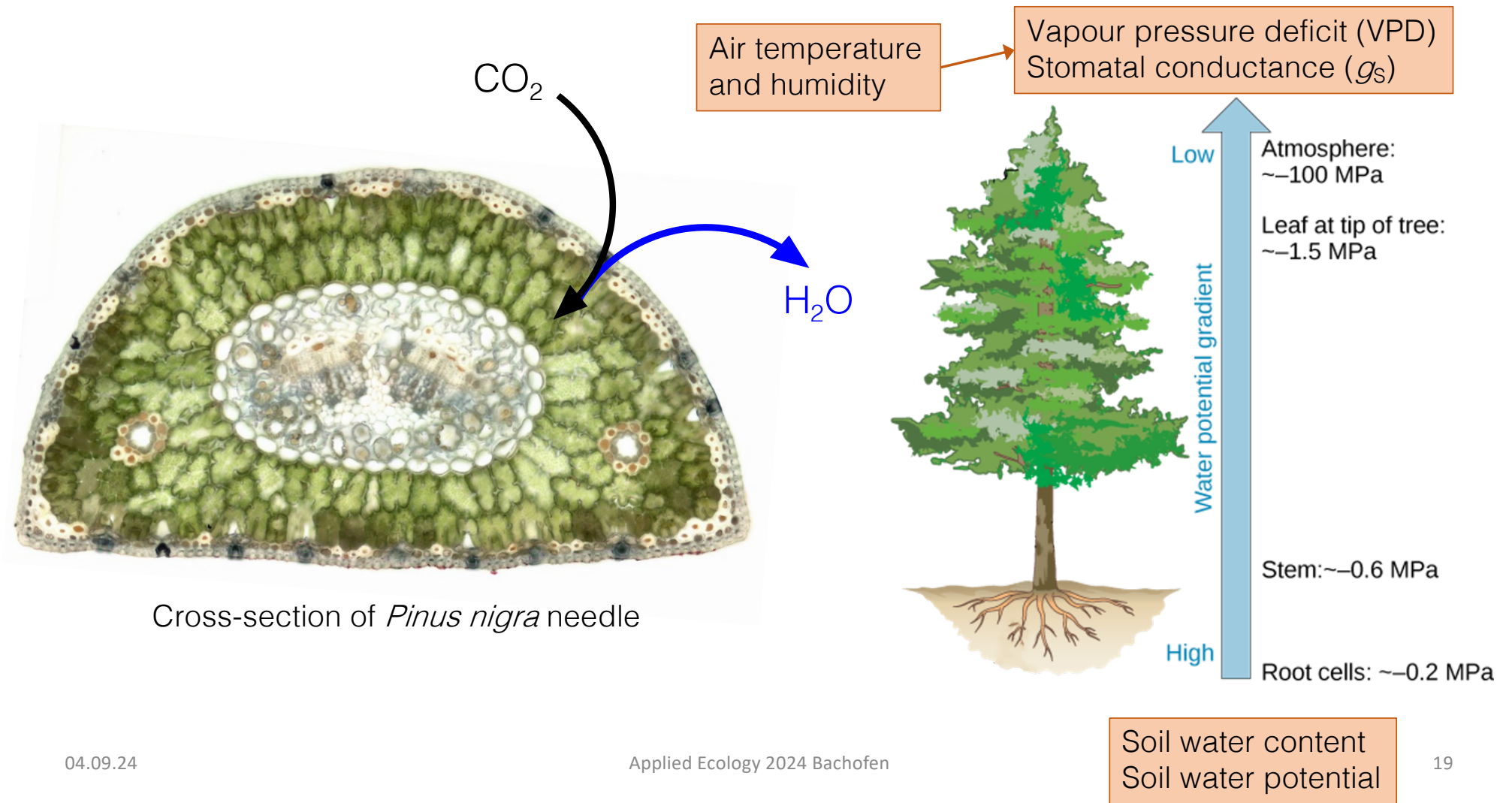
Transpiration cooling of trees



Cross-section of *Pinus nigra* needle

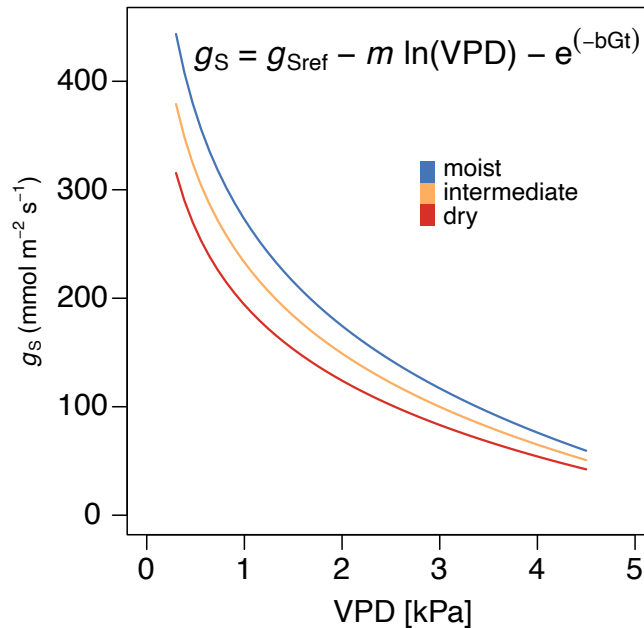
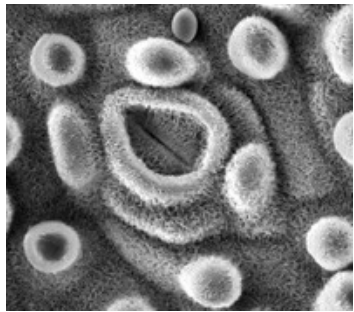


Transpiration cooling of trees

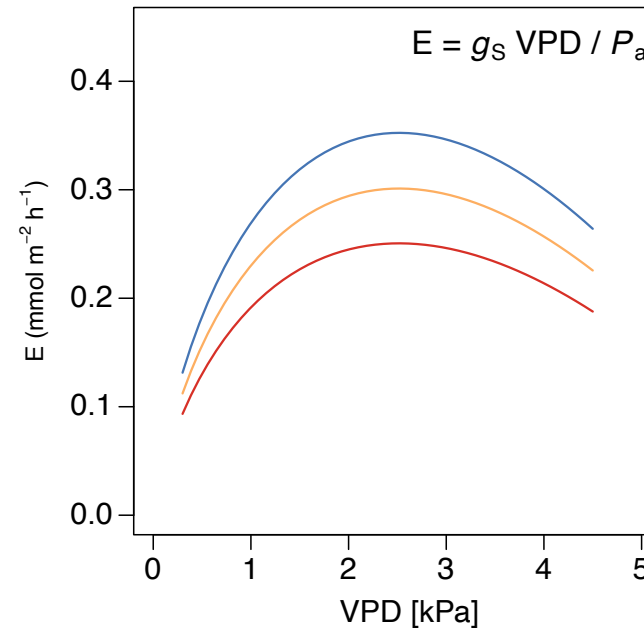


Transpiration responses to VPD and soil water

- Soil moisture modulates the transpiration response and leads to changes in **sensitivity to VPD** and changes in **maximum transpiration**.
- Soil water content and VPD in combination drive tree transpiration



Bachofen et al. 2023



Evapotranspiration

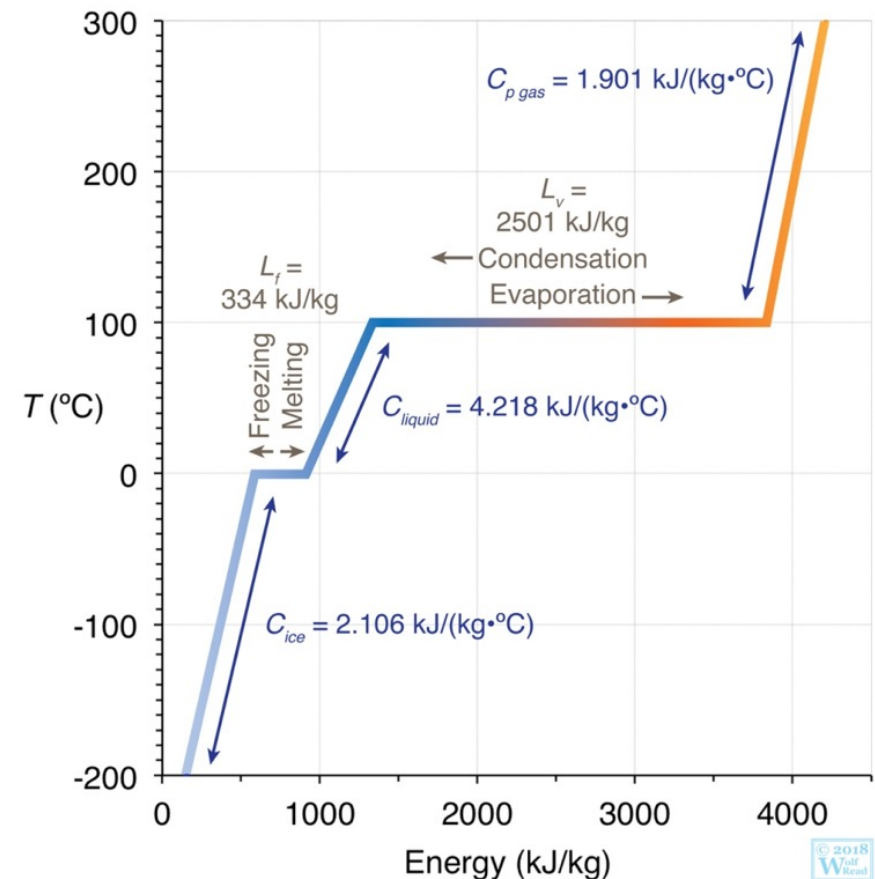
Convert liquid water into water vapour, replacing **sensible heat (E)** with **latent heat (LE)**.

"Heat loss" from state change of liquid water to water vapour:

- Enthalpy of saturated liquid water: 84 kJ/kg at 20 °C
- Enthalpy of saturated water vapour: 2537 kJ/kg °C
- Latent heat of vapourisation: 2452 kJ/kg at 20 °C

→ Multiply the enthalpy difference by the amount of water loss (in kg)

The reduction in sensible heat also lowers **plant canopy surface temperature** and decrease **longwave emission** to surroundings.



Energy required (kJ/kg) for water to go through three phase states: frozen, liquid and gas. Figure adapted from Stull (2017).

Sensible vs. latent heat

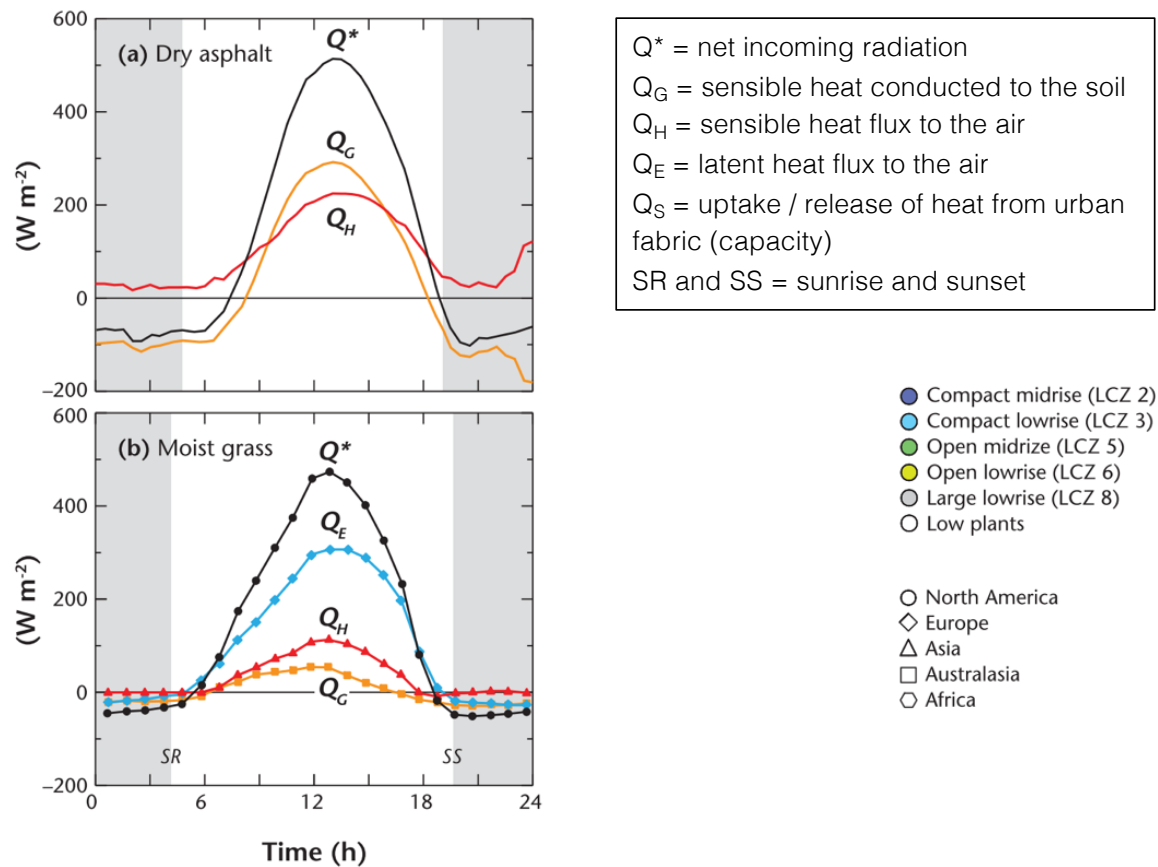


Figure 6.19 Example SEBs of unobstructed urban facets: (a) dry asphalt road near Vienna, Austria. (b) slightly moist grassed site in an urban park in Vancouver, Canada. (Oke et al. 2017)

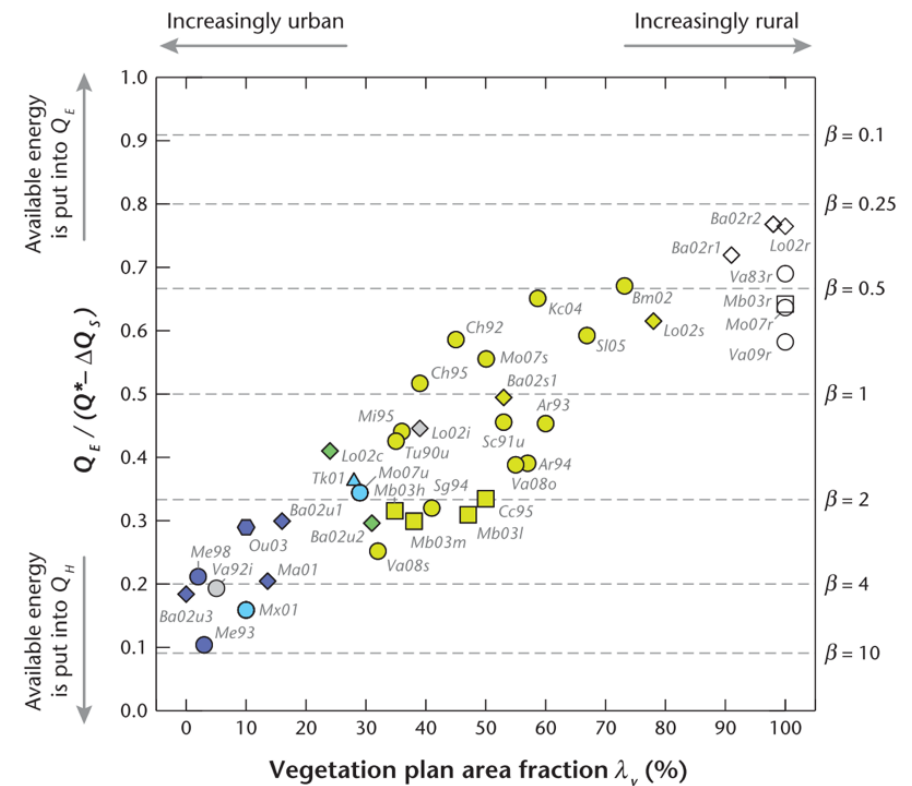
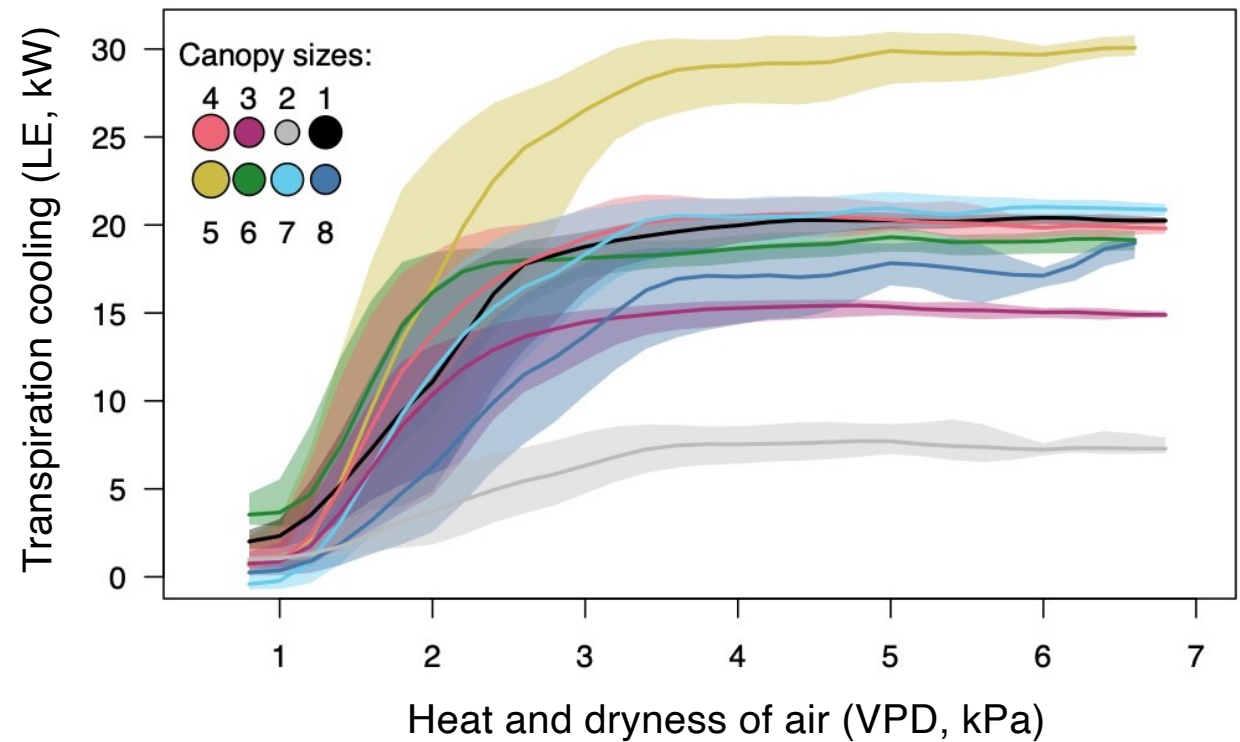


Figure 6.17 Relation between vegetation plan area fraction and partitioning of daily total turbulent fluxes. (Oke et al. 2017)

Transpiration cooling of trees



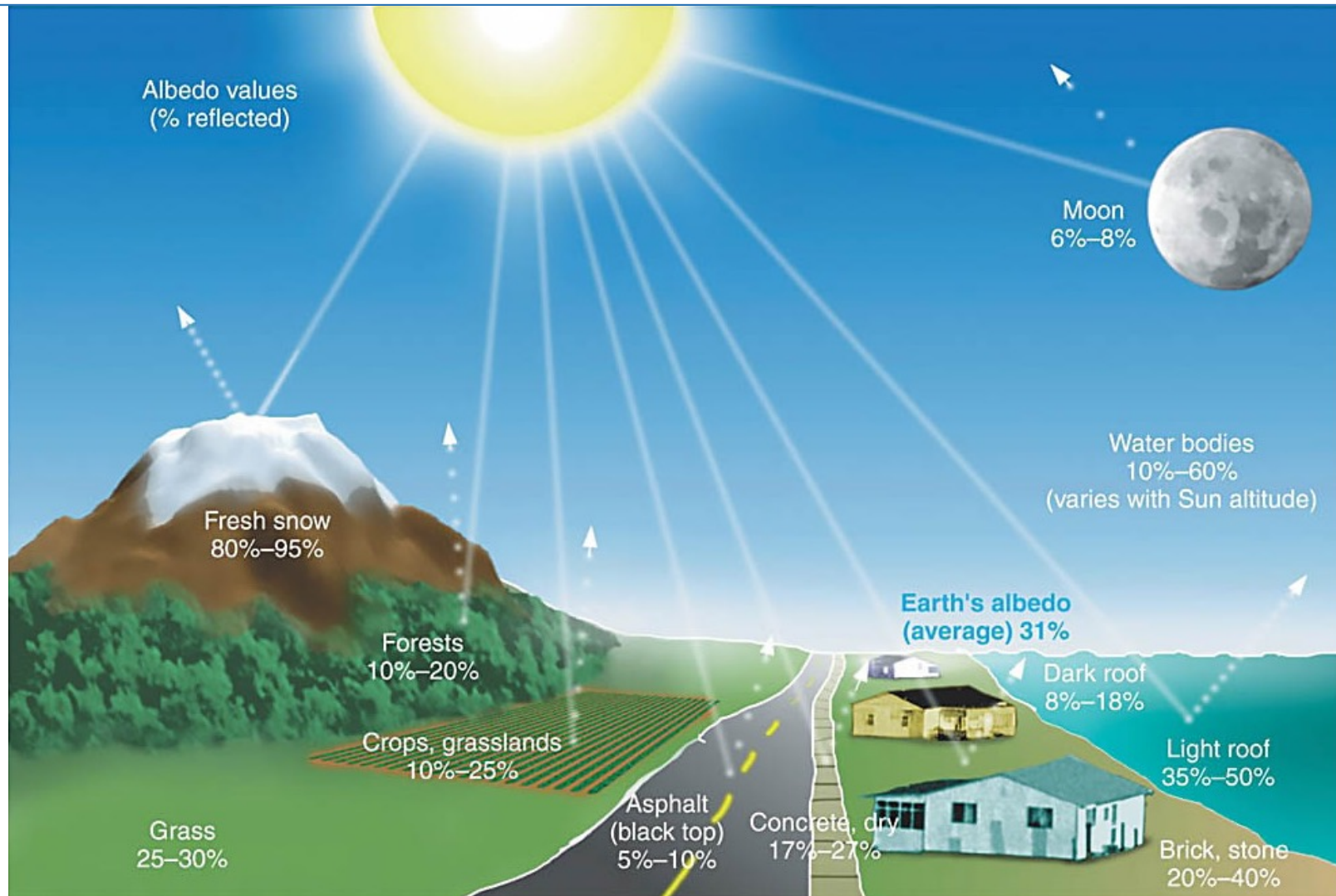
→ Up to 500 liters of water is transpired by the platanus trees per day

Transpiration cooling of trees



→ Up to 500 liters of water is transpired by the platanus trees per day

Albedo



Shade

Trees intercept 70–90% of solar radiation in summer



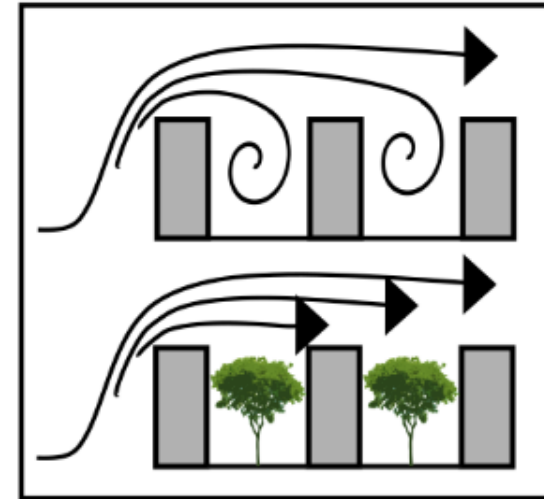
Thermal image on the EPFL campus July 2024

Surface roughness regulates exchanges between the street level air and that above roof level.

- Mid-rise neighbourhoods (LCZ 2 and 5): mature trees are often about the same height as buildings and ‘cushion’ their effects on wind.
 - In streets: a tree canopy disturbs circulations that might otherwise form.
- If the canopy the space between buildings ventilation of street air is greatly restricted.
- This degrades air quality at street level because ventilation of traffic emissions is disrupted.

Evergreen vs. deciduous trees:

The aerodynamic properties of an evergreen canopy remain similar through the year whereas a deciduous canopy provides significant slowing and shelter only in summer.



Meili et al. 2021



Figure 15.22 The seasonal character of deciduous trees can transform streets and their climates. (Oke et al. 2017)

Land surface temperature and heat stress

Pointe de la Jonction

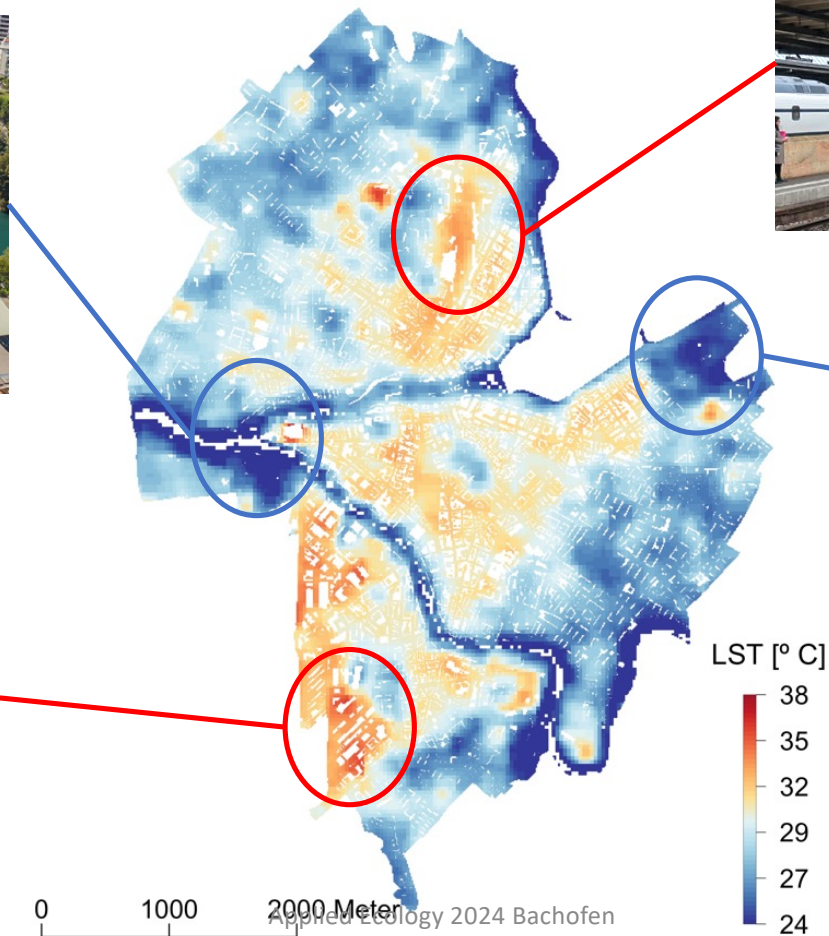


La praille



04.09.24

Mean summer LST, Landsat 8, resampled
from 100 m to 30 m

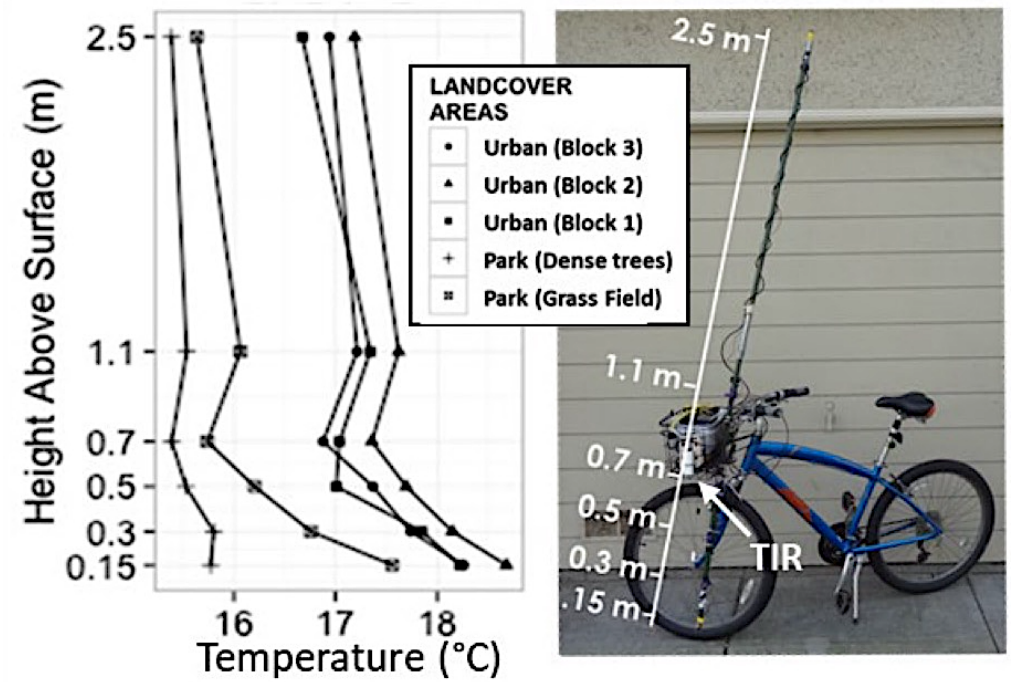
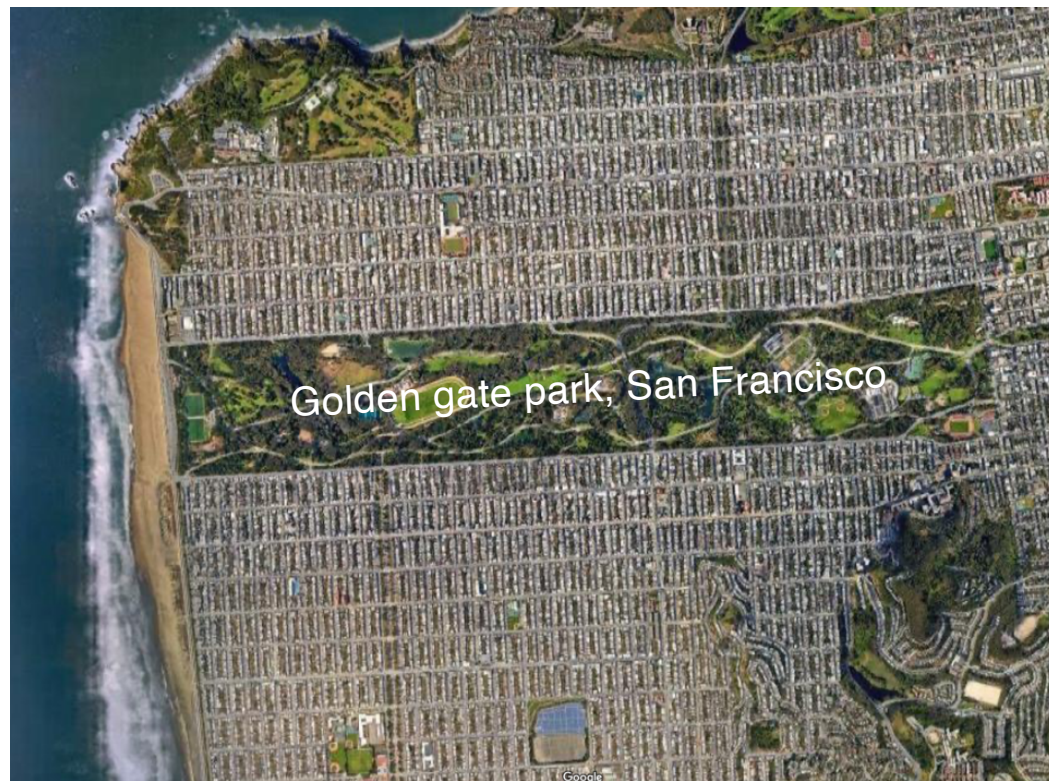


Genève gare



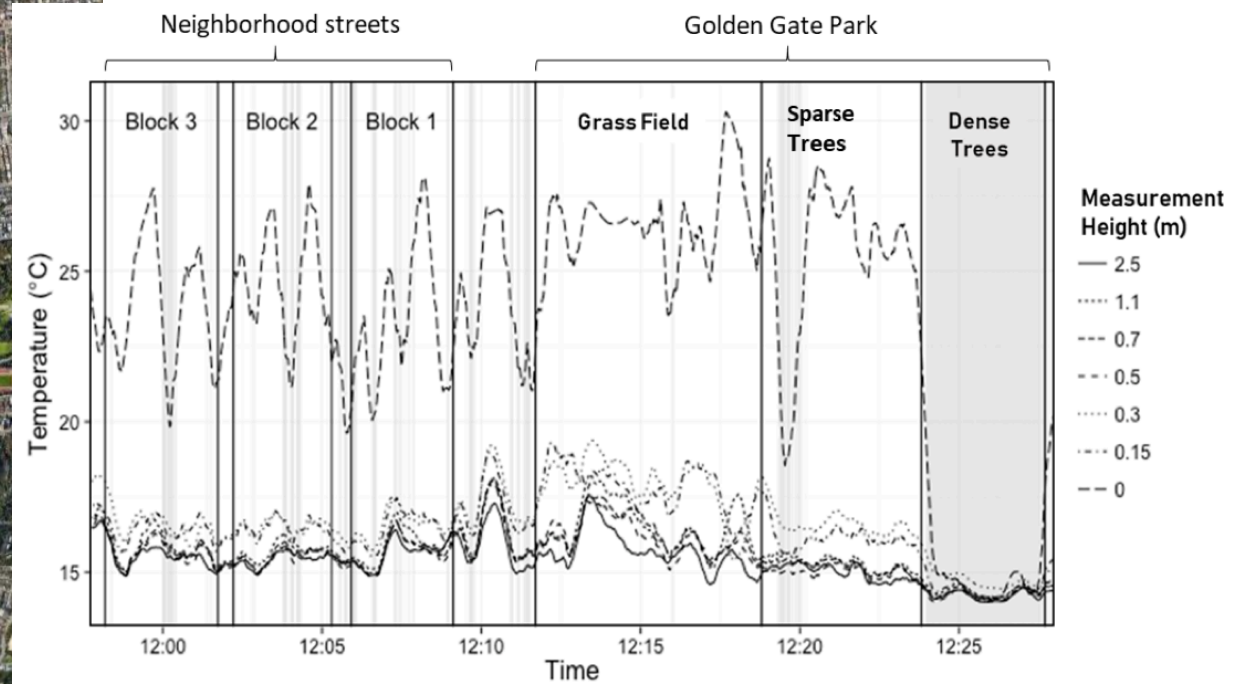
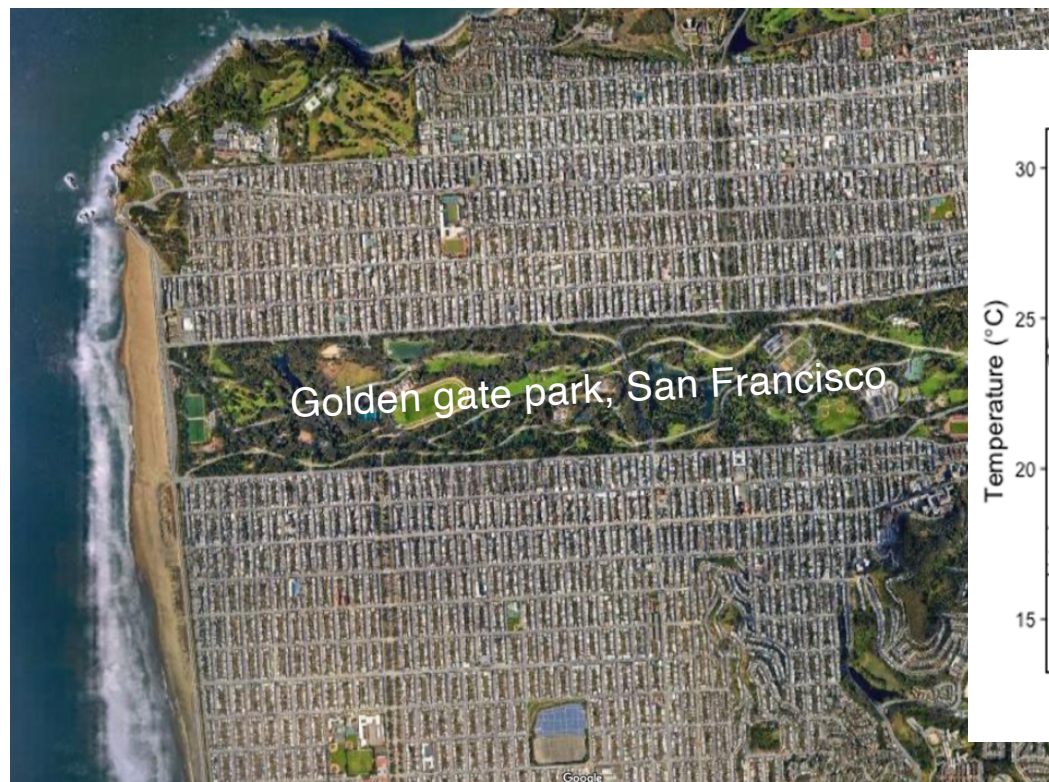
Parc La Grange

Surface temperature vs. air temperature



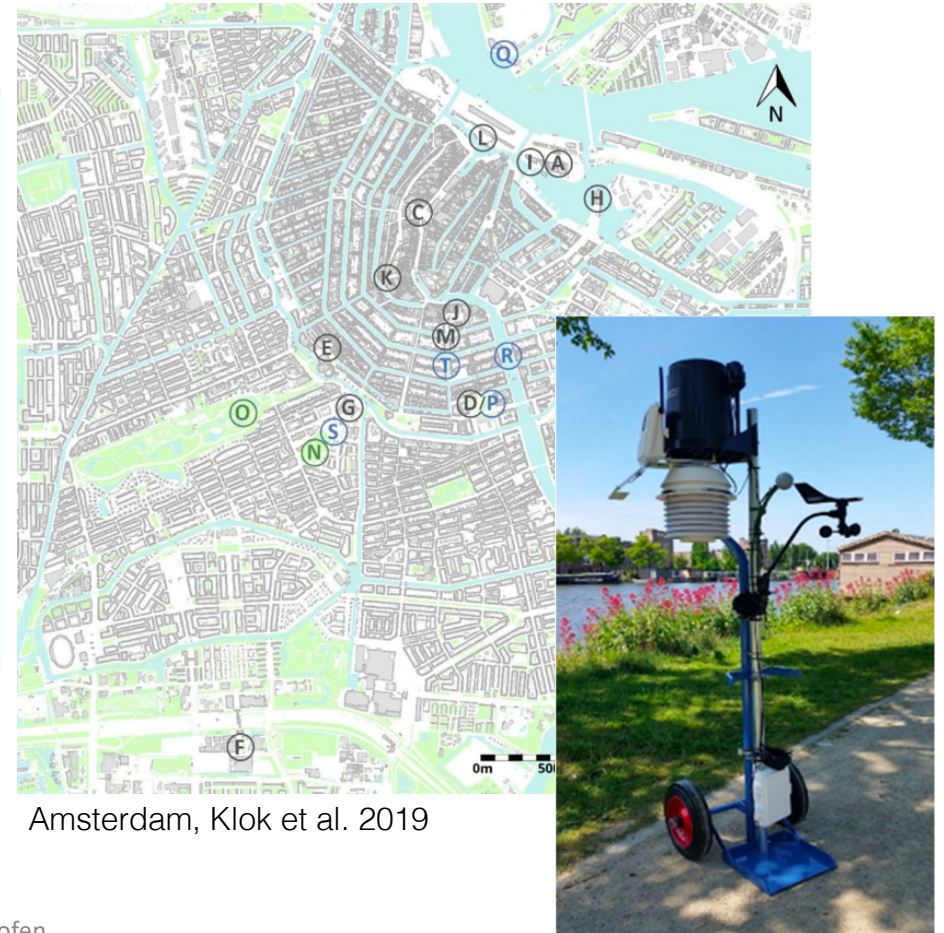
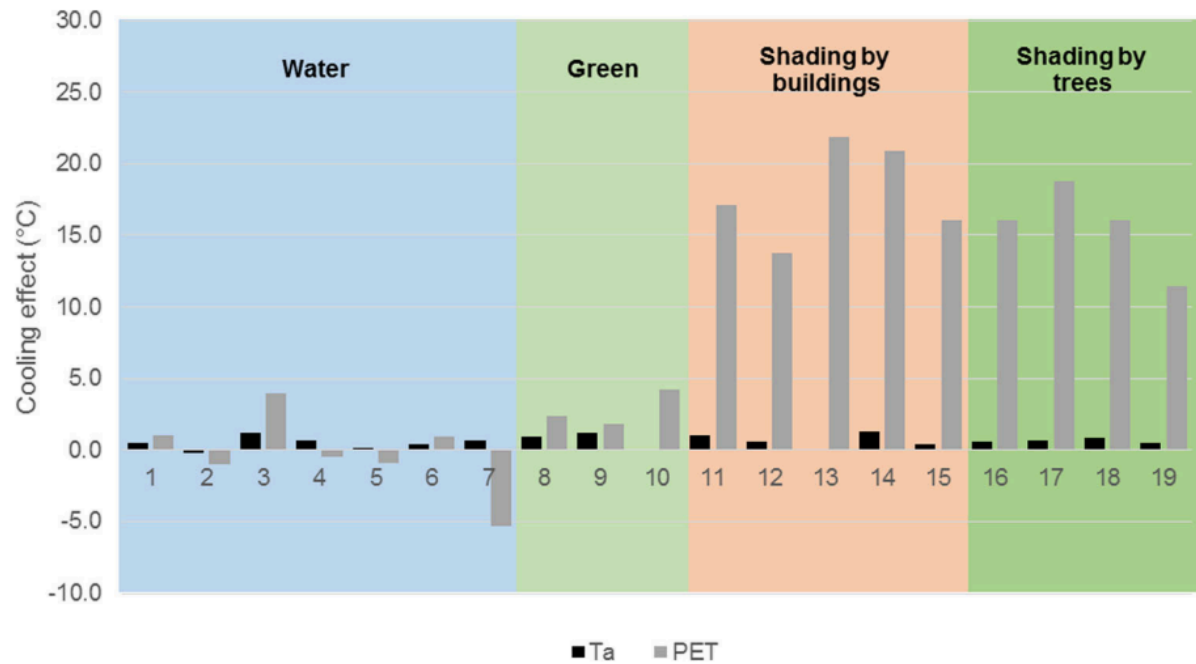
Olifant et al. 2023 AGU

Surface temperature vs. air temperature



Olifant et al. 2023 AGU

Air temperature vs. heat stress

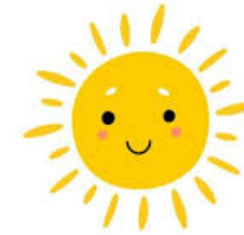


Heat stress: physiological equivalent temperature (PET)

Wind speed



Relative humidity



Solar radiation

Heat Balancing (MEMI): Summer

$T_a = 30\text{ }^{\circ}\text{C}$, $T_{mrt} = 60\text{ }^{\circ}\text{C}$, $RH = 50\%$, $v = 1.0\text{ m/s}$, $PET = 43\text{ }^{\circ}\text{C}$

Internal heat production = 258 W

Mean skin temperature = 36.1 $^{\circ}\text{C}$

Body core temperature = 37.5 $^{\circ}\text{C}$

Skin wettedness: 53%

Water loss: 525 g/h



Respiratory heat loss = -27 W

Imperceptible perspiration = -11 W

Sweat evaporation = -317 W

Convection = -143 W

Net radiation = +240 W

Body Parameters: 1.80 m, 75 kg, 35 years, 0.5 clo, walking (4 km/h)



Air temperature

Höppe et al. 1999

Tree species differ in cooling potential

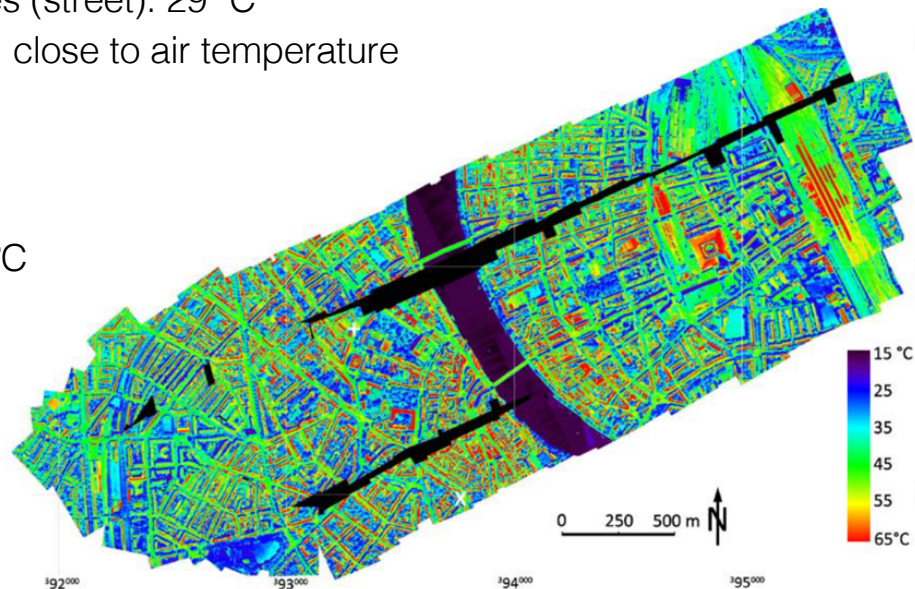
Parts of the city of Basel were scanned from a helicopter using a high-resolution thermal camera. Generally, small-leaved trees remained cooler than large-leaved trees

Crown temperatures

- *Aesculus hippocastanum* (park): 24 °C
- *Acer platanoides* (street): 29 °C
- *Pinus sylvestris*: close to air temperature

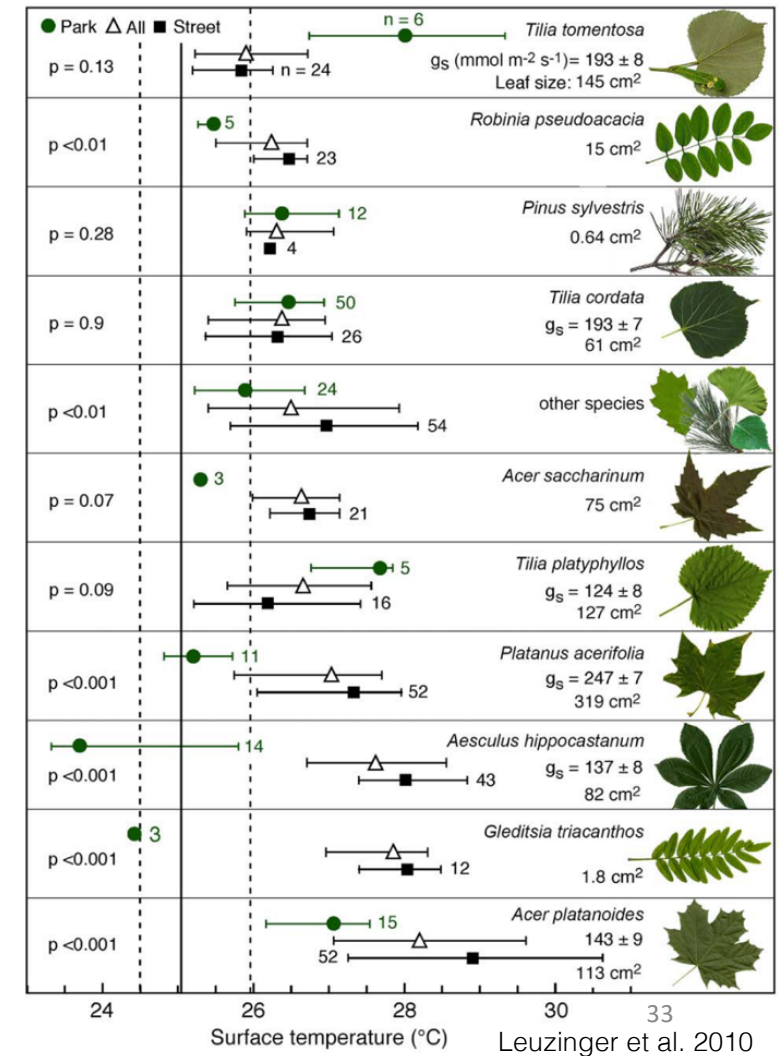
Peak temperatures

- Water: 18 °C
- Vegetation: 26 °C
- Streets: 37 °C
- Roofs: 45 °C



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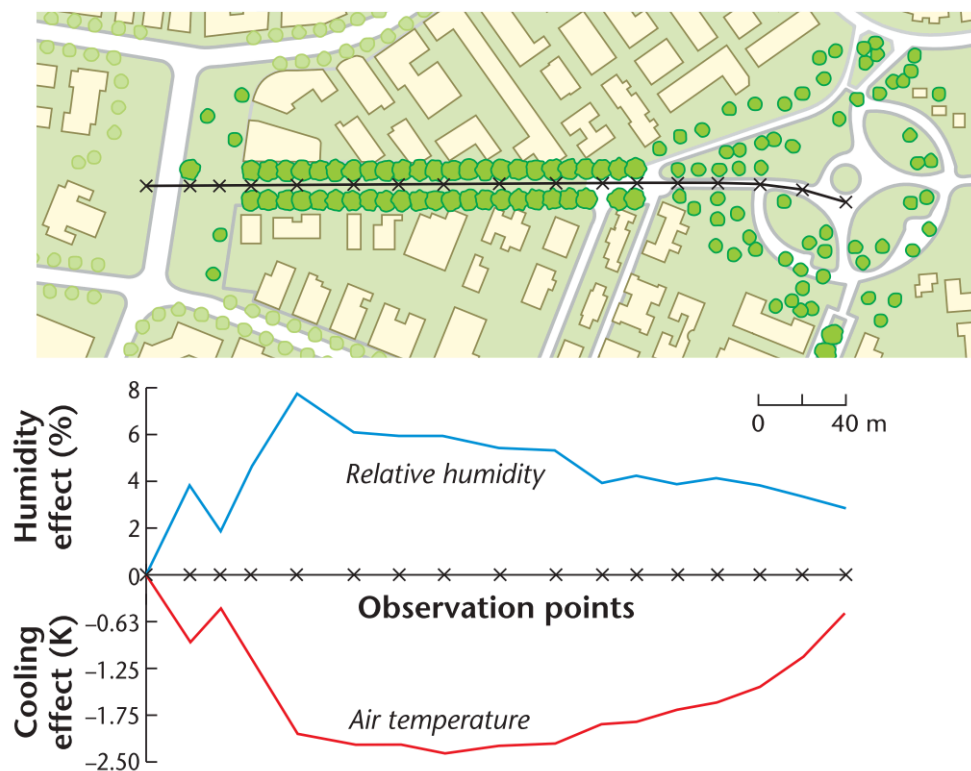


Figure 15.24 The humidity and cooling effects along Hayered Avenue in Tel Aviv, Israel. The lower graph shows deviations from a reference point and the symbols correspond to measurements made at different points along the avenue. (Oke et al. 2017, Shashua-Bar & Hoffmann 2000)

- Cooling impact of the trees on T_a and RH is closely related to the **area of shade**
 - Cooling effect of the trees is confined to the **immediate surroundings** due to weak advection
 - Physiological impact on pedestrians is even greater, because trees reduce radiation directly through **shade**, and indirectly by lowering the mean radiant temperature of the surroundings
- In another climate or during different weather, the thermal impact of the same tree-lined avenue **may be reduced**, for example in **cloudy conditions** the impacts of shade and solar interception by the canopy are less or in **humid conditions** evaporation is suppressed and in **windy conditions** effects are diluted.



- Measurement in two semi-enclosed courtyards in the Negev highlands over a 45-day period during summer (daytime temperatures > 30 °C).
 - Different strategies to test the impact on near-surface air temperature: combinations of trees, grass and shading mesh.
- The most effective scheme (up to 2 K cooler) uses trees that provide both shade and evaporative cooling.
- Using grass alone was largely ineffective and the use of mesh shading produced a counterintuitive warming effect.

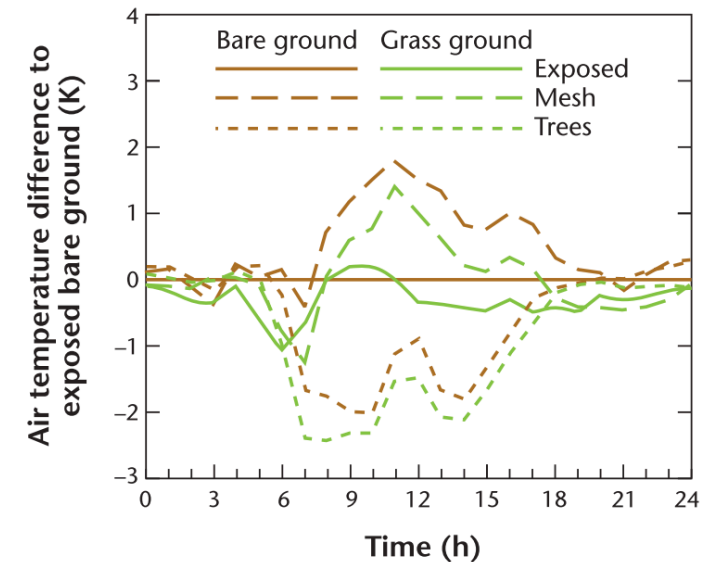
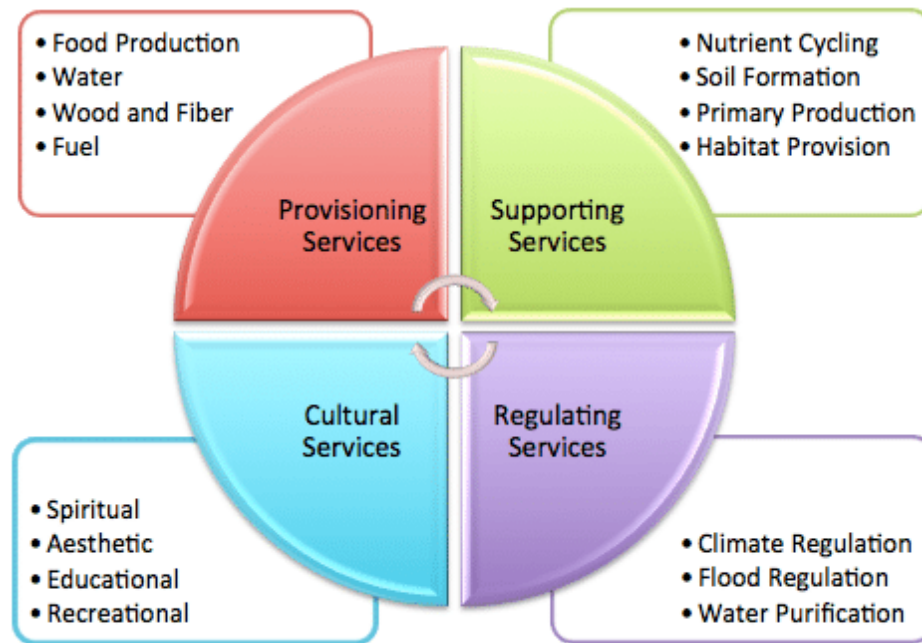


Figure 15.9 Hourly differences in air temperature (K) between courtyards treated with mesh and grass (a) or trees and grass (b), relative to the base case (Shashua-Bar et al. 2009)

Ecosystem services

Benefits to humans provided by an ecosystem



Source: Millenium Ecosystem Assessment, 2005.

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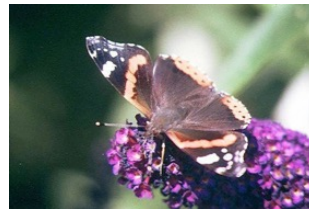
food production



slope stability



fire prevention



biodiversity



pollination



shelter for life stock



fodder production



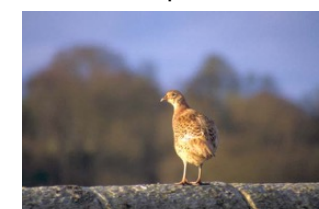
carbon sequestration



water storage



tourist attraction



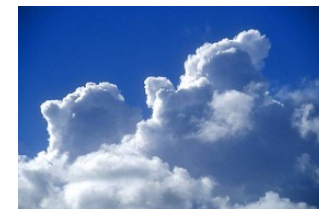
game reserve



fibre production



recreation



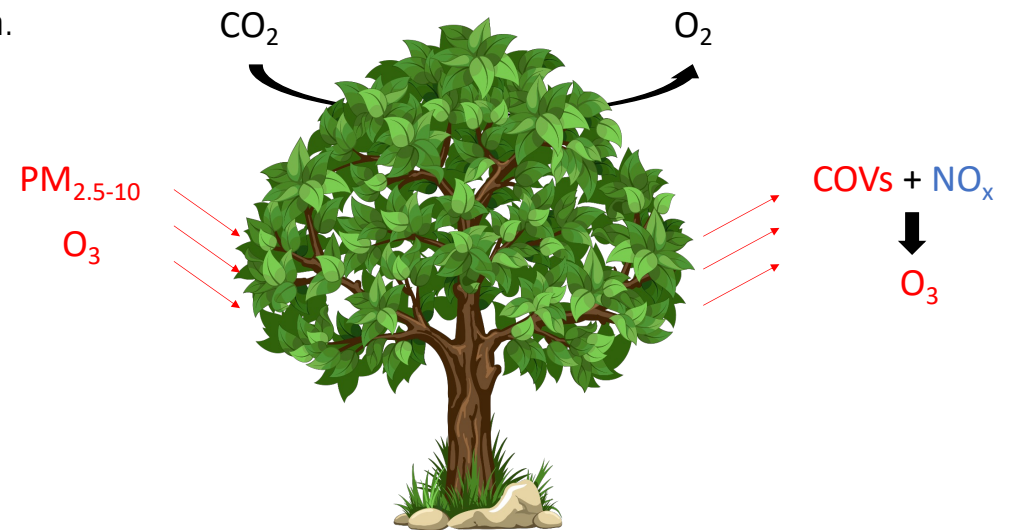
stabilising micro-climate



inspiration

Air pollutants are removed by dry deposition and wet deposition.

- Particulate matter (PM_{10} , $PM_{2.5}$)
 - Ozone (O_3)
 - Nitrogen oxides (NO_x)
 - Sulfur oxides (S_xO_y)
-
- Adherence on the leaves
 - Re-suspension to the air
 - Washed off during rainfall
 - Exchange of gases through open stomata
-
- Transfer of common air pollutants to the plant interior (e.g. ozone, nitrogen oxides and sulfur dioxide)
- Health of plants can be damaged. E.g. excessive PM sedimentation can restrict stomatal gas exchange (water and CO_2)



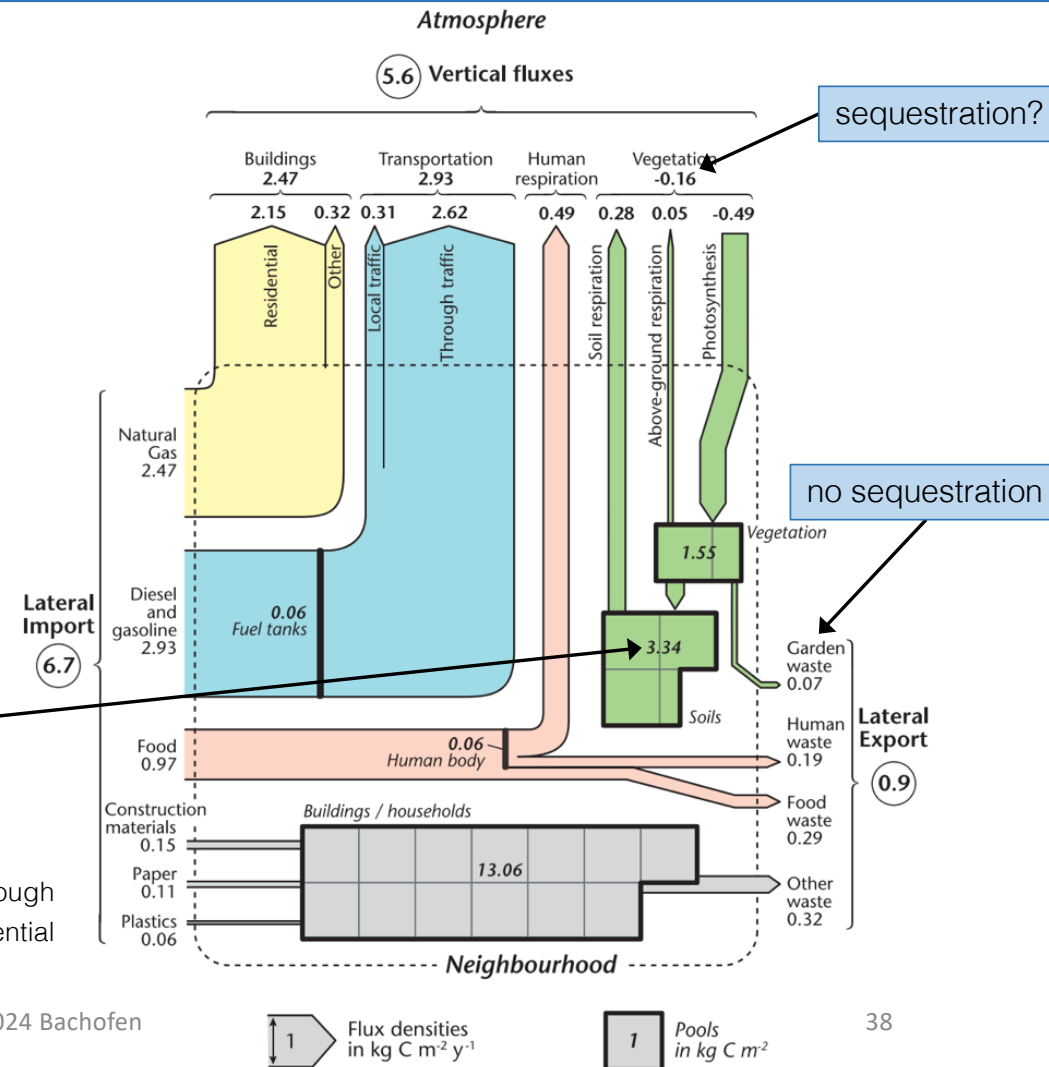
Ozone damage on *Populus nigra* leaf (Novak et al. 2003)

Is carbon sequestration in cities relevant?

- "Urban trees in the US store about 700 million t C and sequester 22.8 million t C y⁻¹, which equates to about 5.5 months and 5 days of national emissions" (Nowak & Crane 2002)
- Forests sequester 0.2–0.6 kg C m⁻² y⁻¹ (Curtis et al. 2018)
- Urban soils are estimated to store three times more carbon than urban trees (1.9 billion tonnes; Nowak 2013)

"sequestration" only if it stays in the soil.
here 0.09 kg C m⁻² y⁻¹

Figure 13.4 Fluxes and pools of carbon cycled through a typical urban ecosystem representing a residential neighbourhood in Vancouver, Canada.



Example of species invasion: Chinese windmill palm

- Since the early 1970s, *Trachycarpus fortunei* is spreading from urban settlements into the deciduous chestnut forests of the low-lands of the southern Alps
- Goal: understand the competitive advantage of *Trachycarpus fortunei* to native evergreen and deciduous trees



in the forests of Ticino

in the cities of Ticino



Superblocks in Barcelona

- 1.6 million people on 100 km²
- 1.4 million trees (152'128 street trees inventorised)
- Little available space for green and public open space
- Temperature in the city center can be up to 8 °C higher in comparison with less urbanized surrounding areas because of the urban heat island (UHI)



Eixample, Barcelona

Superblocks in Barcelona

- Superblocks: Urban and transport planning strategy that aims to reclaim public space for people, provide urban greening and mitigate effects of climate change
- By mid 2019 the Barcelona City Council has implemented three Superblocks

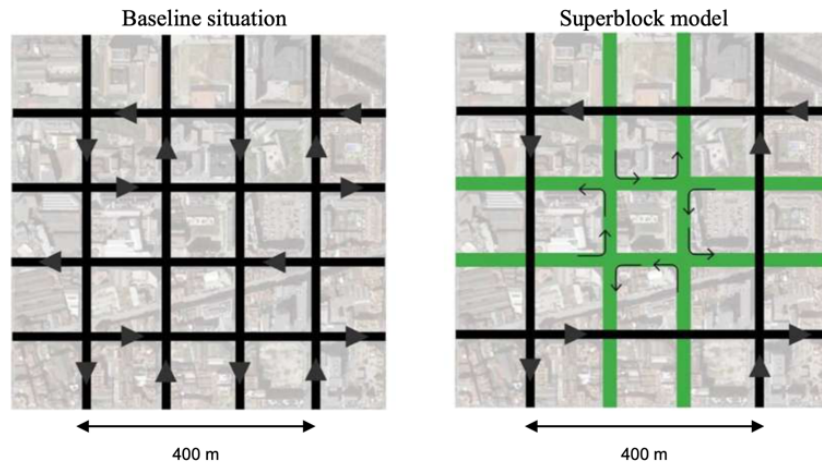


Fig. 2. Road hierarchy and traffic circulation aimed at with the Superblock model.

Mueller et al. 2019



Superblocks in Barcelona

Problems:

- Only three species make almost 50 % of the street trees: very little diversity, high risk of disease spread
- Some of the very frequently planted trees may not be sufficiently drought tolerant under future climate conditions
- Urban greening comes at the expense of traffic, there are examples of superblocks that are going to be removed again
- Public opinion about the superblocks is mixed
- The city halted the development of superblocks!

→ What are possible solutions or alternatives to superblocks?

LA VANGUARDIA

AL MINUTO / INTERNACIONAL / POLÍTICA / OPINIÓN / SOCIEDAD / DEPORTES / ECONOMÍA / LOCAL / GENTE / CULTURA / SUCESOS

ENCUESTA DE IPSOS PARA 'LA VANGUARDIA'

División de opiniones en Barcelona sobre las supermanzanas de Colau

Una mayoría de barceloneses considera que los problemas de inseguridad y vivienda se han agravado los últimos cuatro años



La calle Consell de Cent, donde el Ayuntamiento de Barcelona está urbanizando uno de los ejes verdes del Eixample (Xavier Cervera)

RAMON SUÑÉ
BARCELONA

16/01/2023 06:00 | Actualizado a

369

Presenting group: Urban planners developing a follow-up concept of the Superblocks by taking into consideration all the difficulties, adapting the strategy and weighing the trade-off's of the implementation

Other groups:

- Resident of Eixample (elderly people, parents of children that go to local school, owner of a small grocery shop, street musician)
- Employee of a company relying on car / truck (e.g. supplier of local supermarket, waste disposal, manufacturer, etc.)
- Tourist

Teachers: Officials of the city government (large scale planning, financing, efficiency)

Additional information

Information about implementation of superblocks:

<https://ajuntament.barcelona.cat/superilles/en/content/questions-and-answers>

Map of urban trees in Barcelona:

https://jjvidalmac.carto.com/viz/c3c54164-7fcf-11e4-b04f-0e853d047bba/public_map