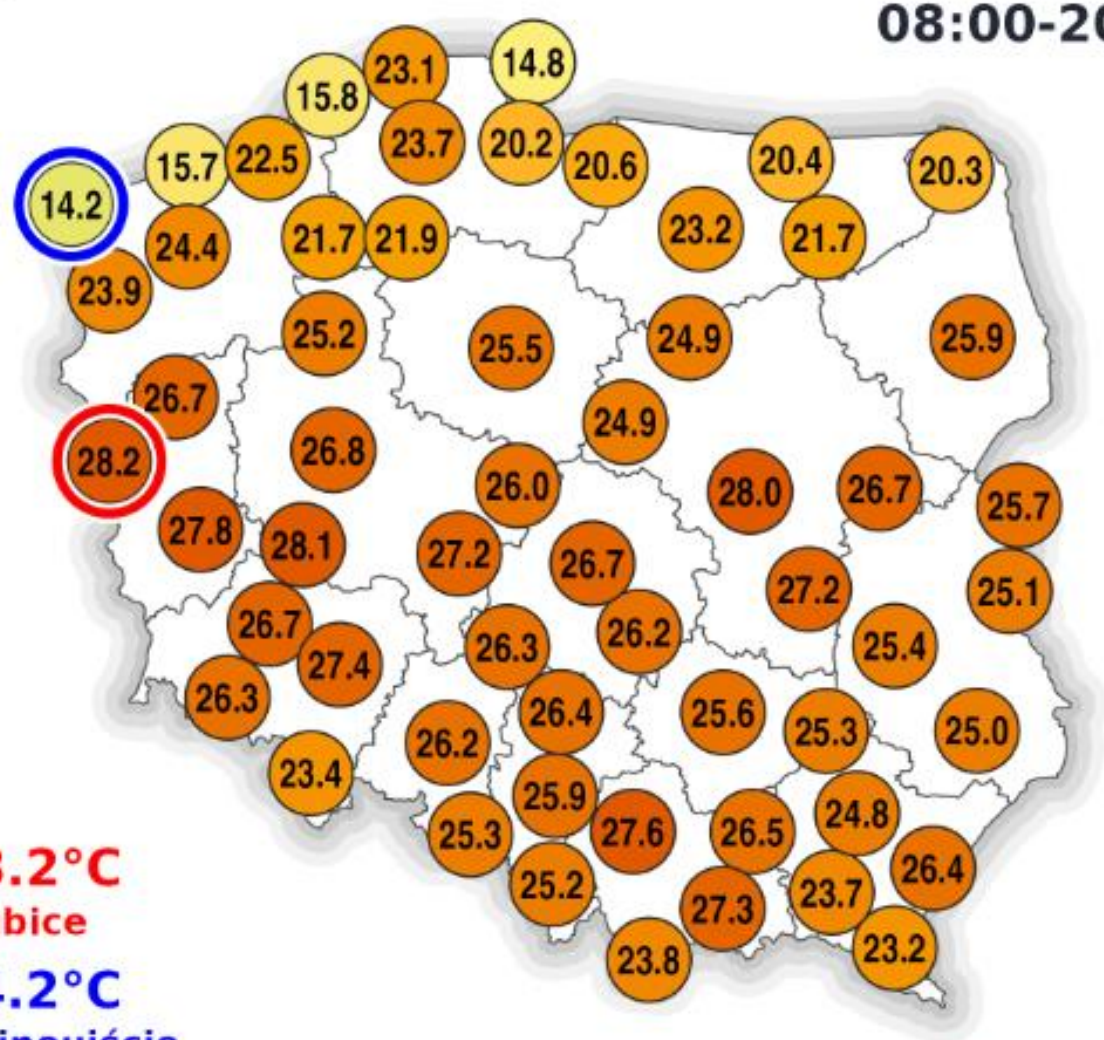
Temperatura maksymalna

Poniedziałek

08.04.2024

08:00-20:00



28.2°C
Słubice

14.2°C
Świnoujście

Dane operacyjne ze stacji synoptycznych. Prezentowane wartości w procesie kontroli i weryfikacji mogą ulec zmianie. Czas lokalny.

Wizualizacja danych: dr Alan Mandal

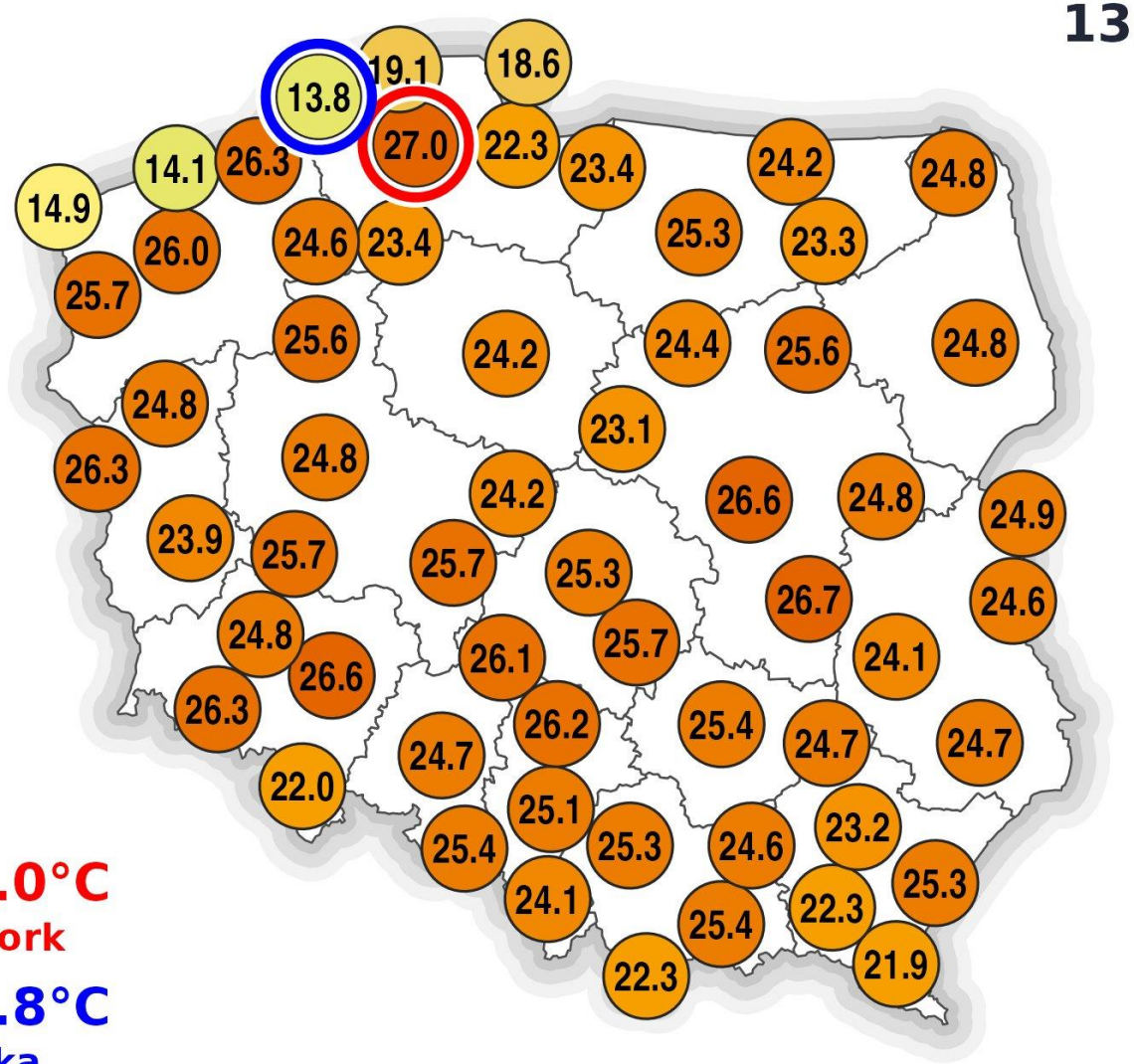
MODELE IMGW-PIB
modele.imgw.pl

Temperatura powietrza

Wtorek

09.04.2024

13:00



27.0°C
Lębork

13.8°C
Ustka

Dane operacyjne ze stacji synoptycznych. Prezentowane wartości w procesie kontroli i weryfikacji mogą ulec zmianie. Czas lokalny.

Wizualizacja danych: dr Alan Mandal

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modele.imgw.pl

Centrum Badań Kosmicznych
Polskiej Akademii Nauk

Space Research Centre
of the Polish Academy of Sciences

Miejska Powierzchniowa Wyspa Ciepła

monitoring satelitarny

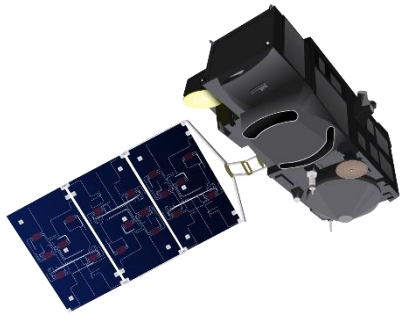
Michał Krupiński

Zakład Obserwacji Ziemi| CBK PAN

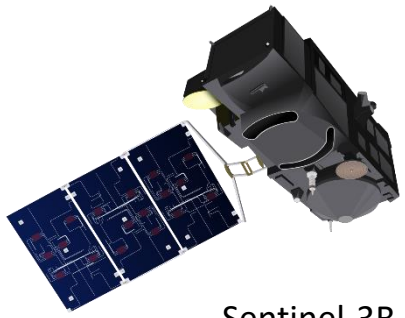
e-mail: mkrupinski@cbk.waw.pl | http://zoz.cbk.waw.pl

Framework Partnership Agreement
for Copernicus User Uptake

- Komponent satelitarny – satelity i sensory mierzące temperaturę powierzchni (LST – Land Surface Temperature)



Sentinel-3A



Sentinel-3B

Więcej …

- Serwisy Copernicus – produkty i narzędzia dla użytkowników różnego typu

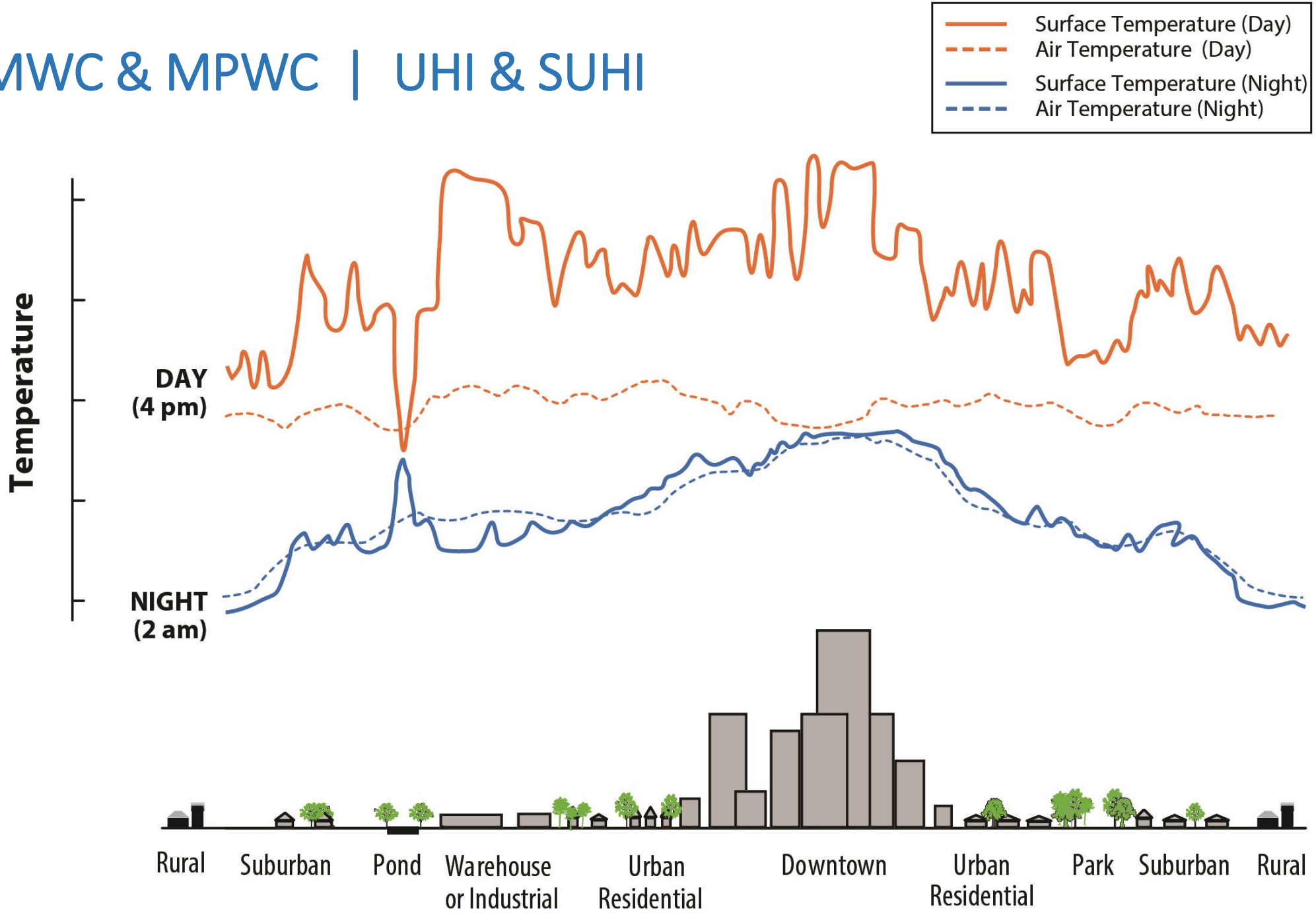
Land Monitoring Service

land.copernicus.eu

Climate Change Service

climate.copernicus.eu

MWC & MPWC | UHI & SUHI



Source: https://www.epa.gov/heatislands/learn-about-heat-islands

UHI vs SUHI (SUHI is actually part of UHI)

MWC / UHI

- Różnice temperatury powietrza pomiędzy terenem miejskim i podmiejskim
- Pomiar co 5 minut (?)
- ~1-5 stacje w mieście

MPWC / SUHI

- Różnice temperatury radiacyjnej temperatury powierzchni pomiędzy terenem miejskim i podmiejskim
- Pomiar co 15 minut | 2 razy dziennie| 2 razy w miesiącu
- Setki pikseli w mieście

Canopy (UHI) and surface UHI intensities are similar at the annual scale
but
may have different diurnal and seasonal variabilities

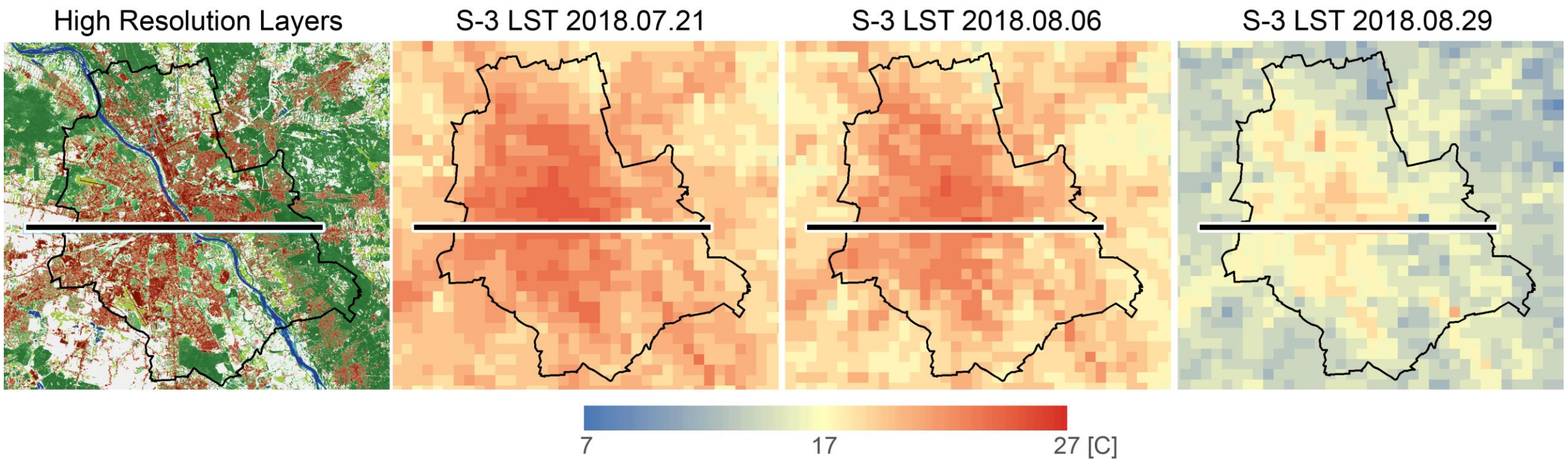
Analiza Miejskiej Wyspy Ciepła (UHI)

- modelowanie
- pomiary/obserwacje

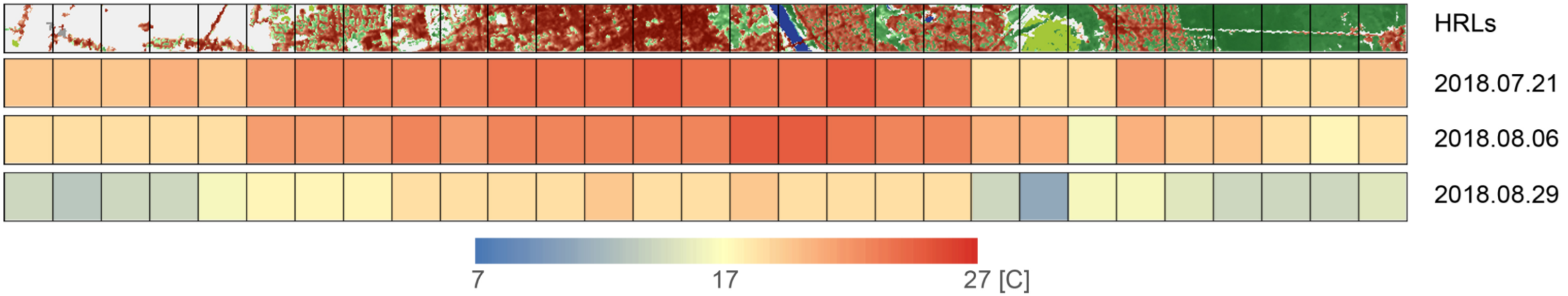
Analiza Miejskiej Wyspy Ciepła (UHI)

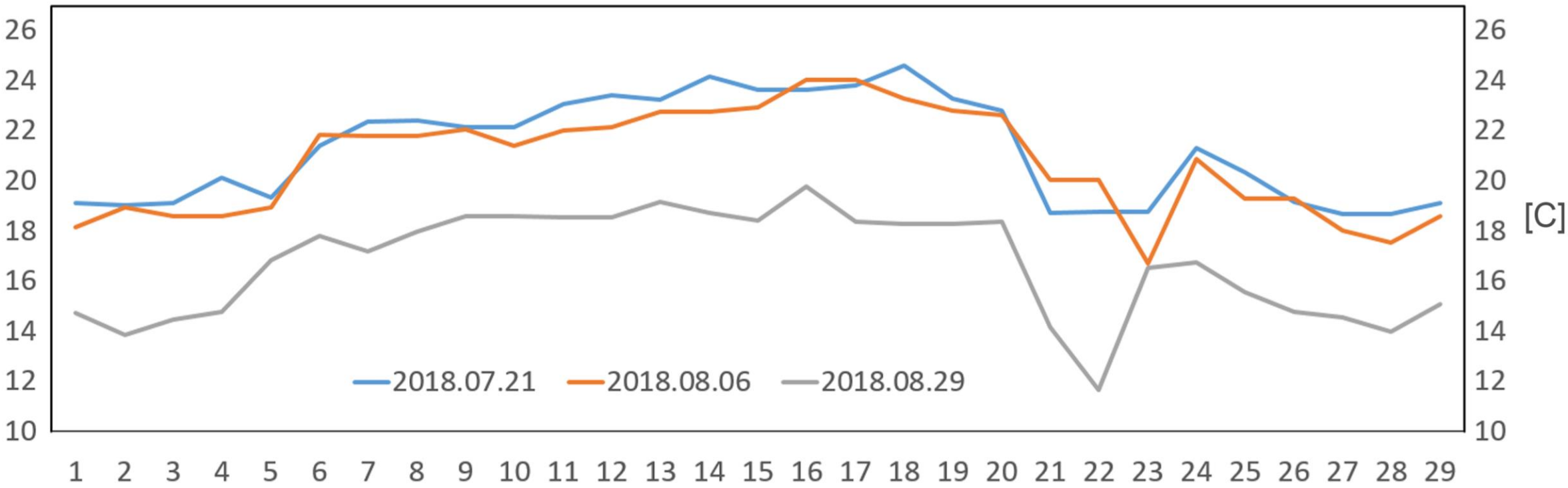
- modelowanie
- pomiary/obserwacje – CBK PAN

Temperatura powierzchni w mieście – Warszawa

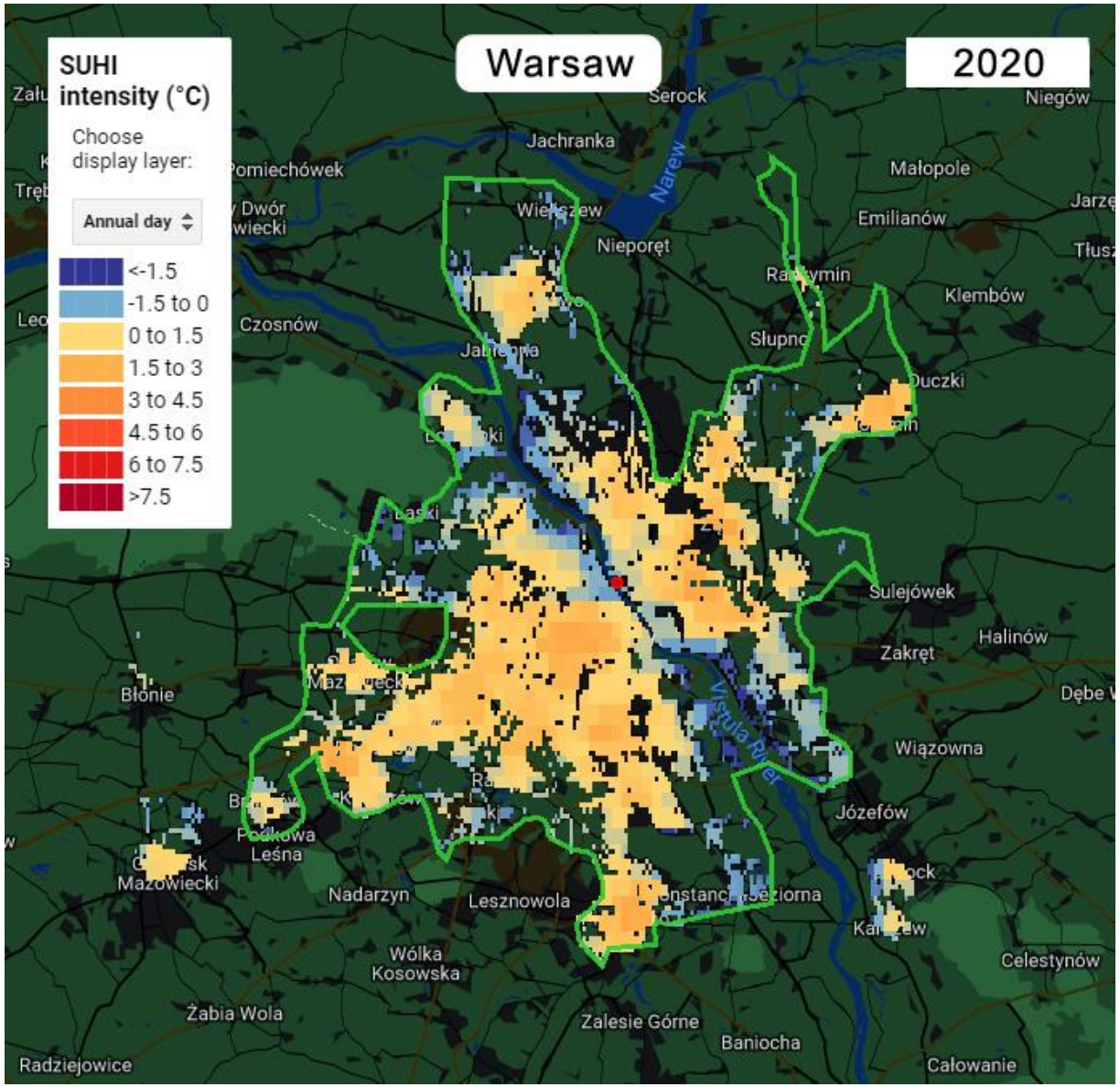


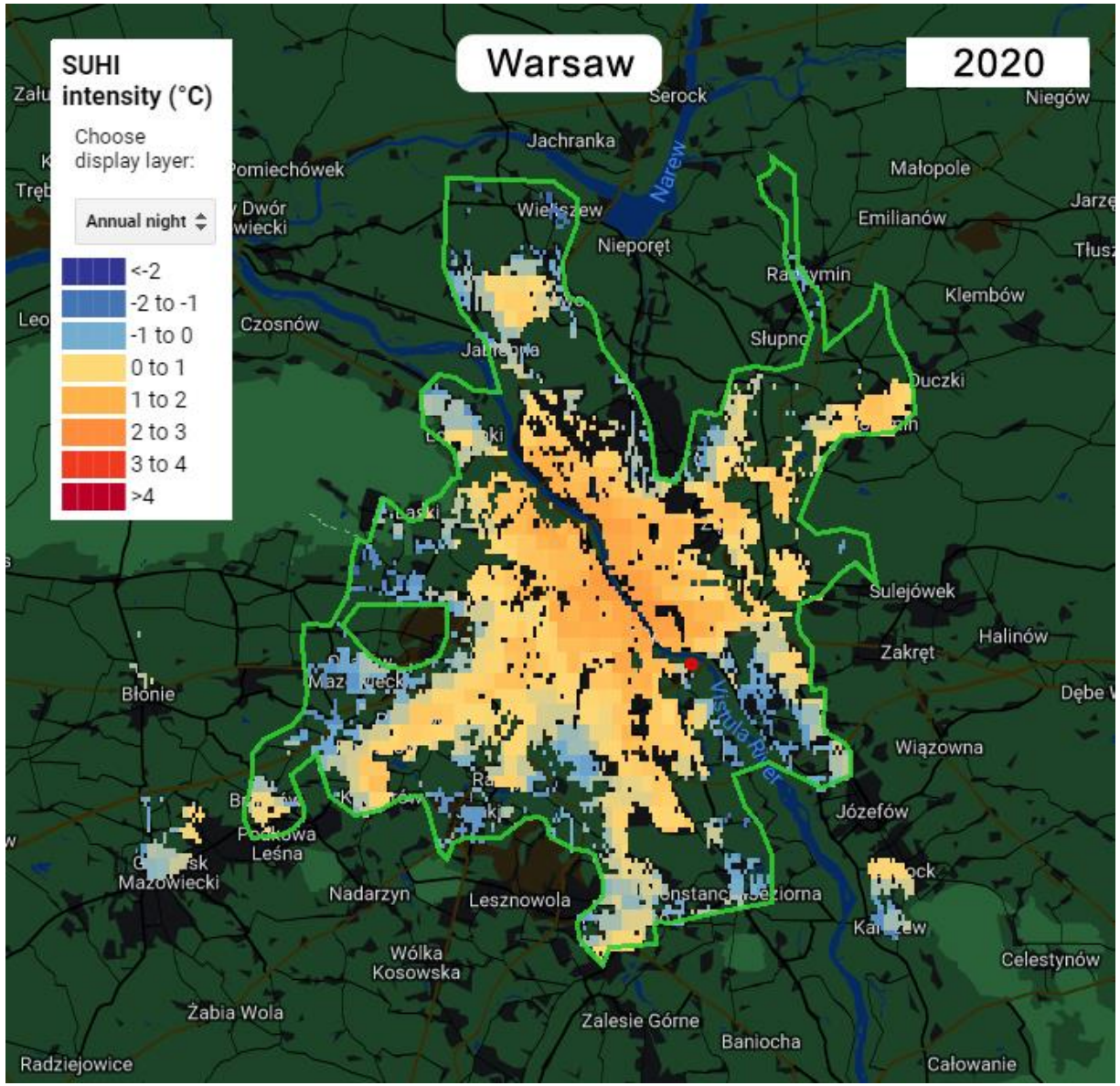
Temperatura powierzchni w mieście – Warszawa



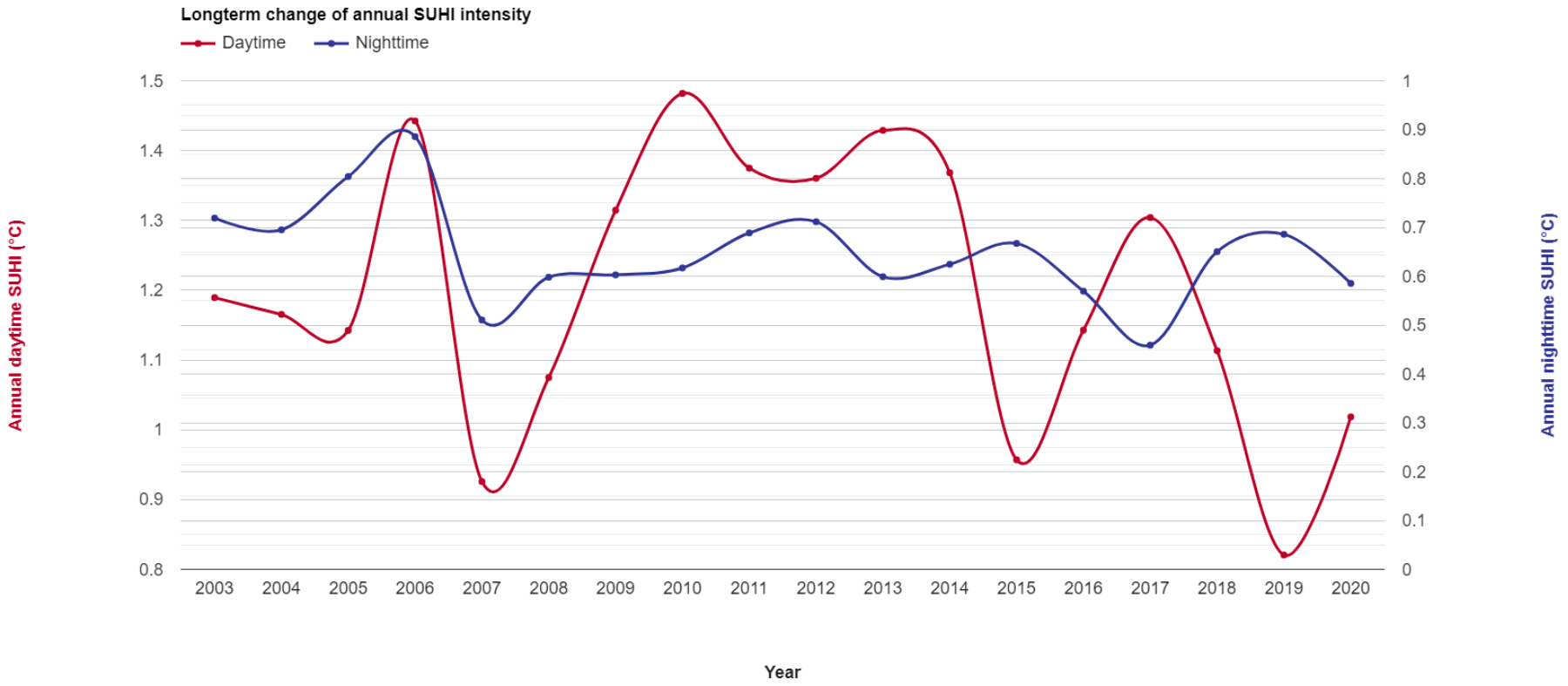


Intensywność MPWC





Intensywność MPWC w Warszawie - rocznie



Lat: 52.21 Lon: 21.08

Annual daytime SUHI: 1.20 °C

Annual nightime SUHI: 0.65 °C

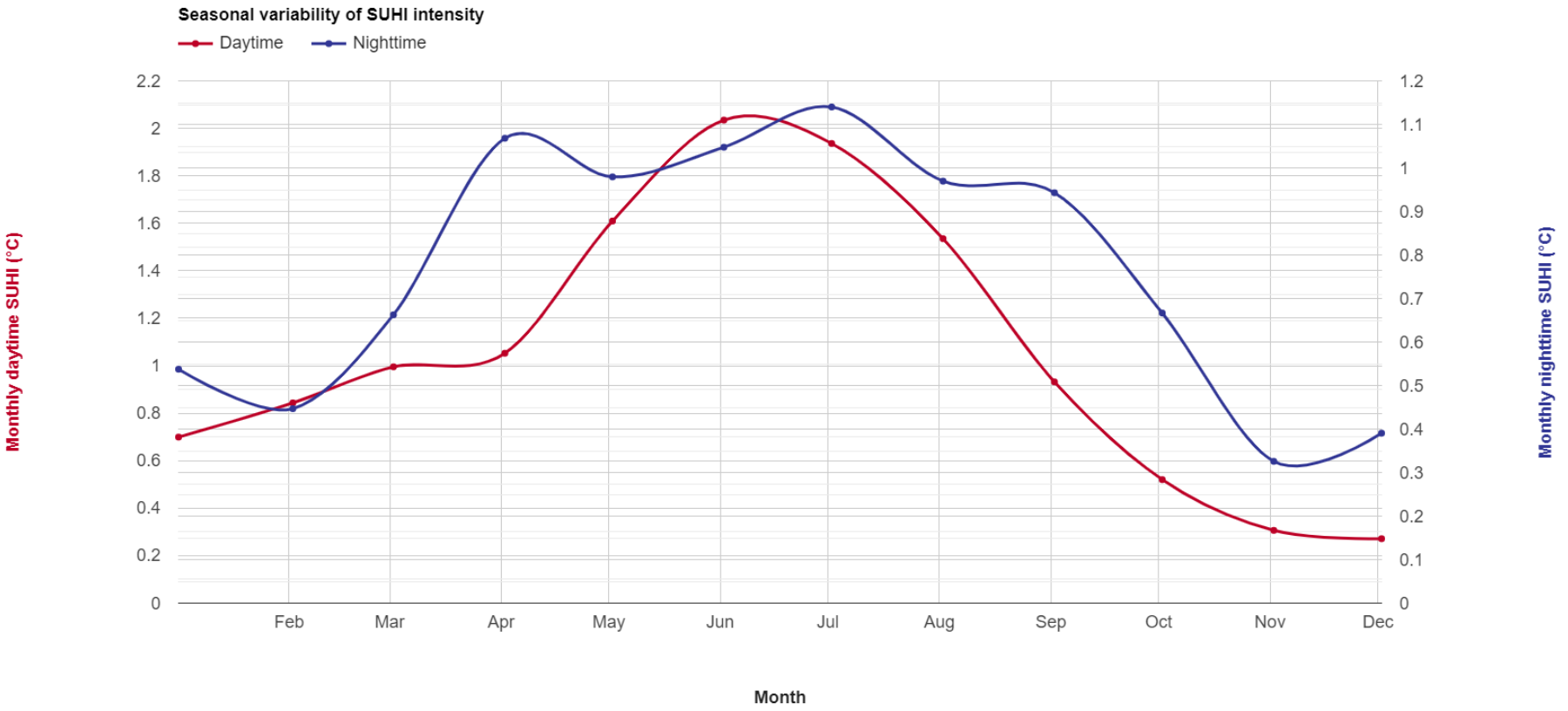
Summer daytime SUHI: 1.83 °C

Summer nighttime SUHI: 1.05 °C

Winter daytime SUHI: 0.57 °C

Winter nighttime SUHI: 0.47 °C

Intensywność MPWC w Warszawie - miesięcznie



Lat: 52.21 Lon: 21.08

Annual daytime SUHI: 1.20 °C

Annual nighttime SUHI: 0.65 °C

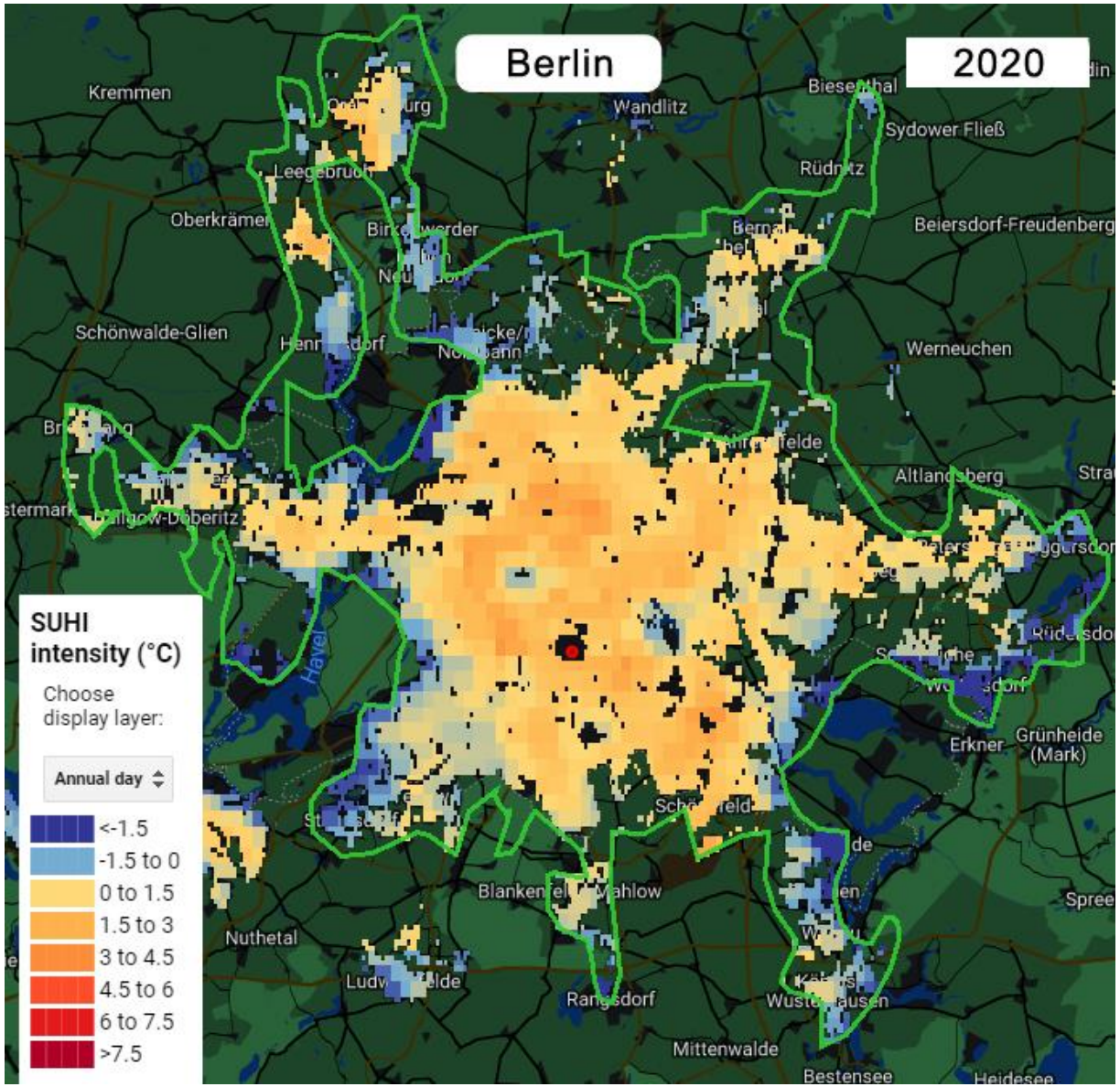
Summer daytime SUHI: 1.83 °C

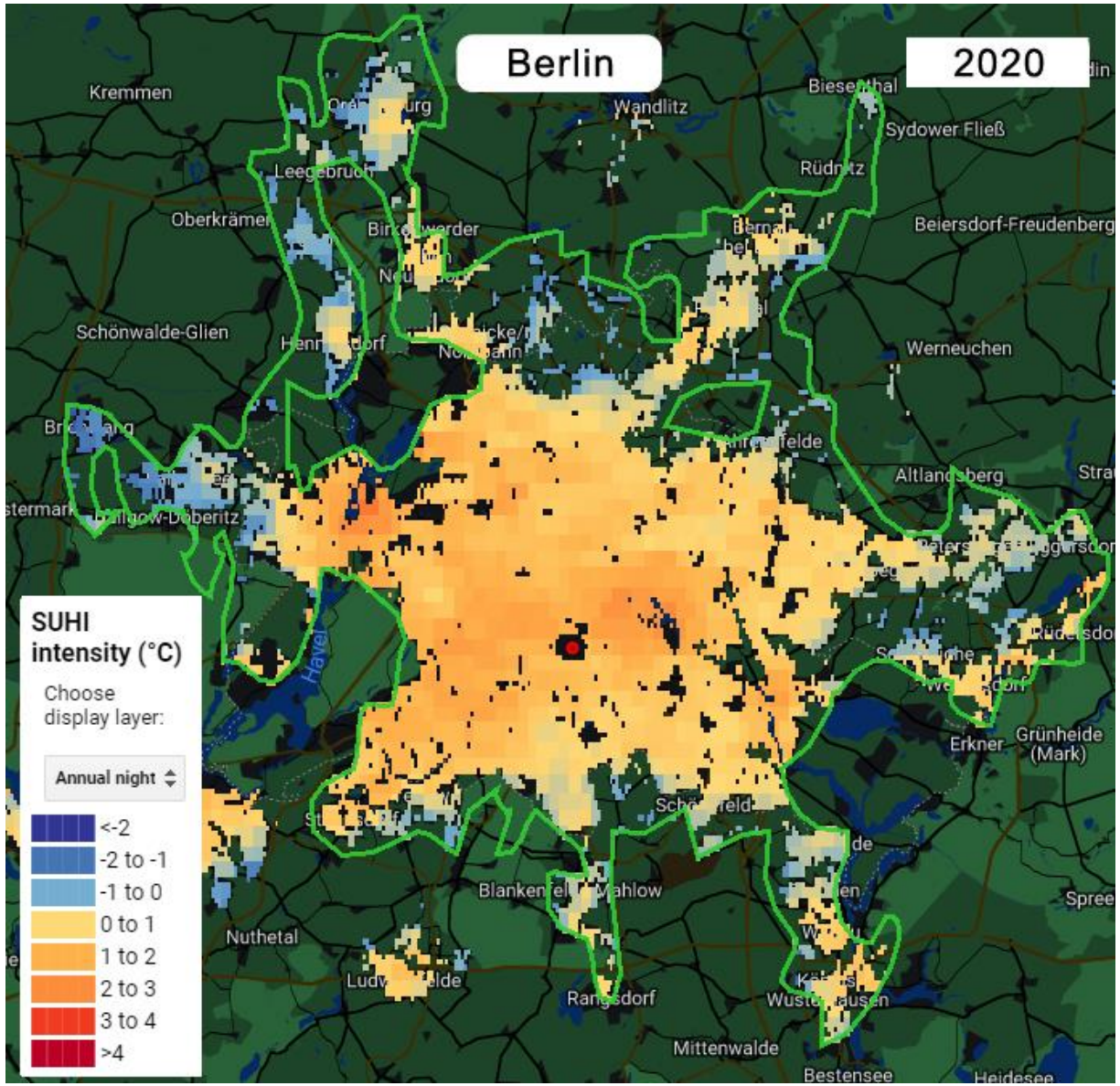
Summer nighttime SUHI: 1.05 °C

Winter daytime SUHI: 0.57 °C

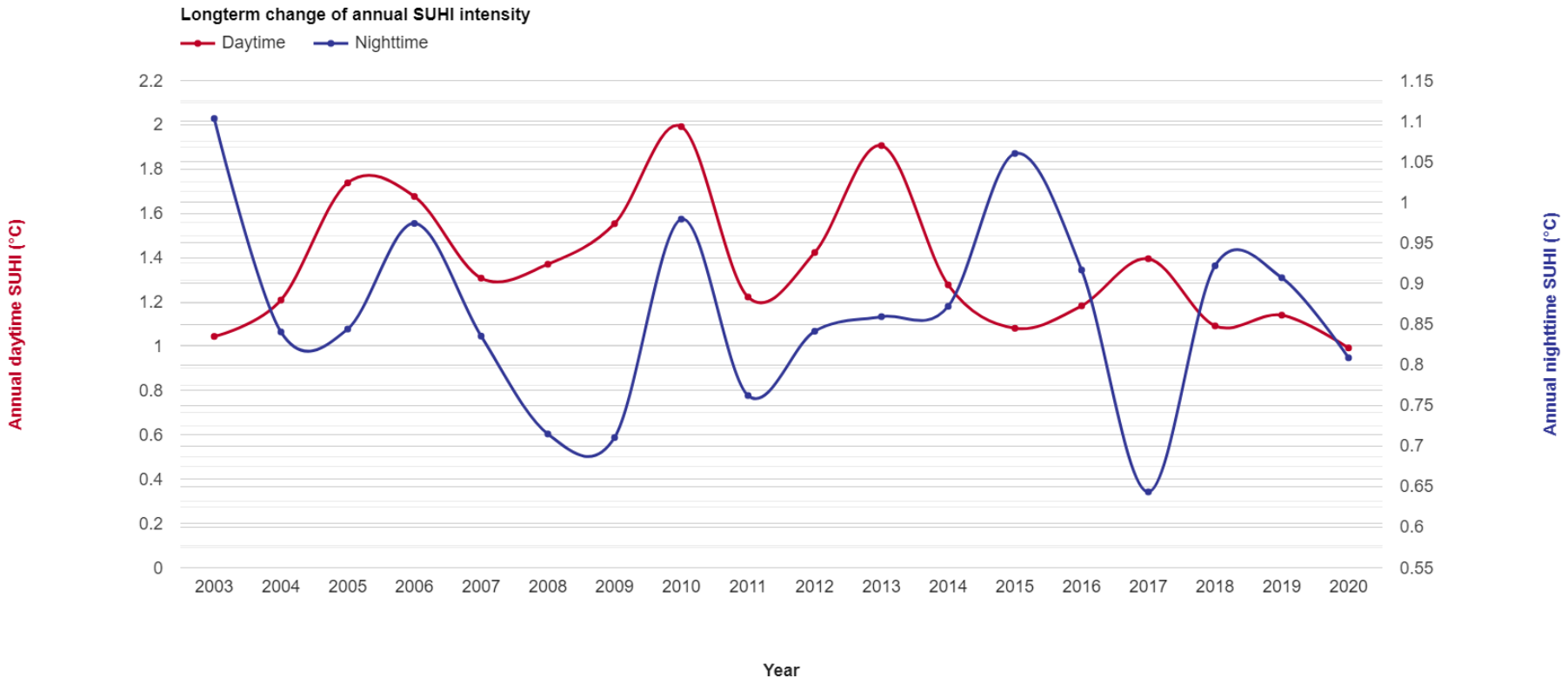
Winter nighttime SUHI: 0.47 °C

SUHI intensity in Berlin





Annual SUHI in Berlin – annually



Lat: 52.47 Lon: 13.41

Annual daytime SUHI: 1.37 °C

Annual nightime SUHI: 0.87 °C

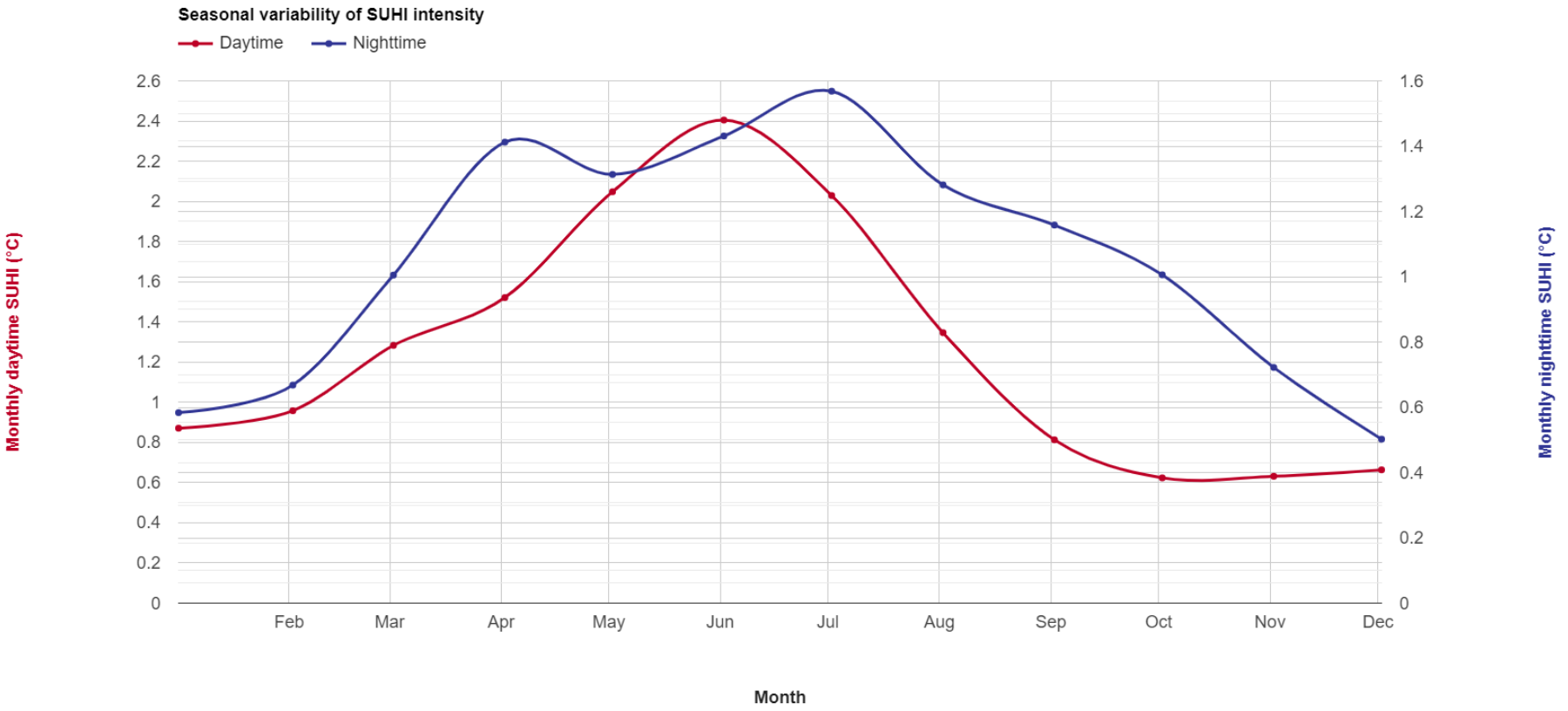
Summer daytime SUHI: 1.87 °C

Summer nighttime SUHI: 1.43 °C

Winter daytime SUHI: 0.88 °C

Winter nighttime SUHI: 0.57 °C

Annual SUHI in Berlin – monthly



Lat: 52.47 Lon: 13.41

Annual daytime SUHI: 1.37 °C

Annual nighttime SUHI: 0.87 °C

Summer daytime SUHI: 1.87 °C

Summer nighttime SUHI: 1.43 °C

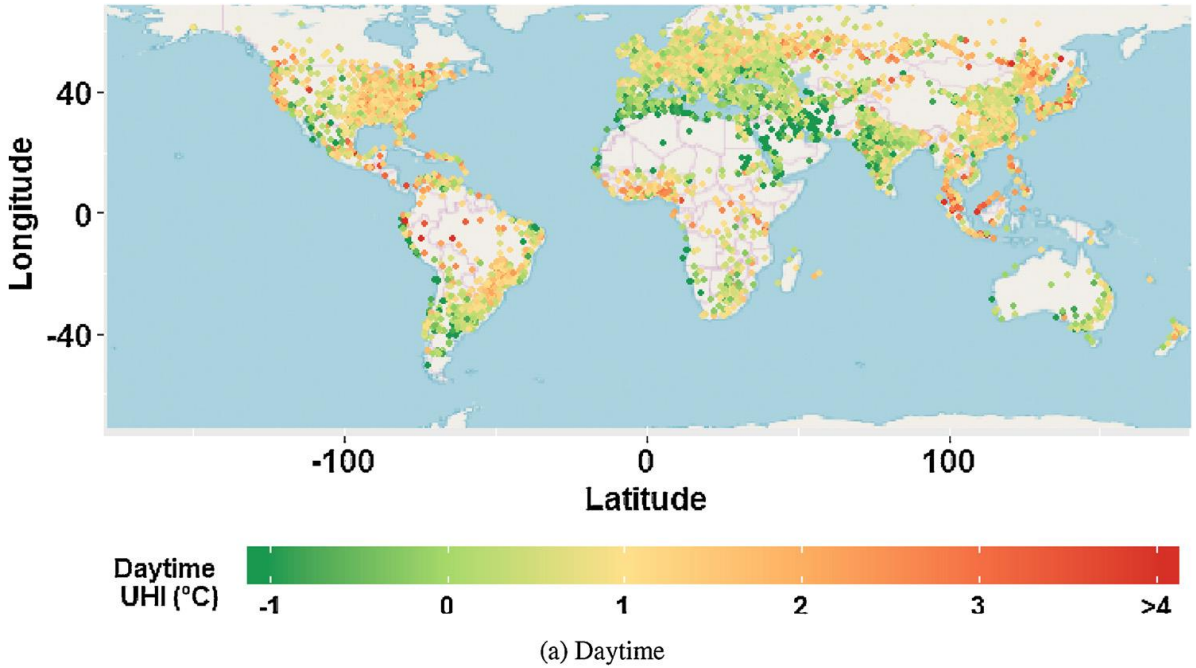
Winter daytime SUHI: 0.88 °C

Winter nighttime SUHI: 0.57 °C

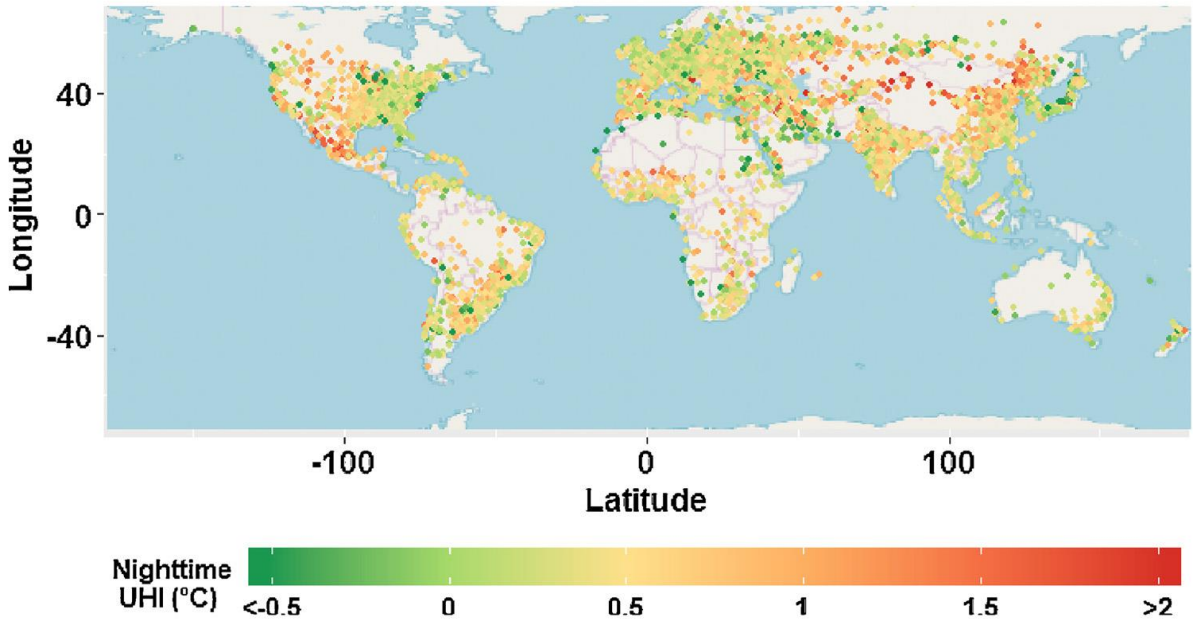
Co z resztą świata?

Global study

7374 urban clusters



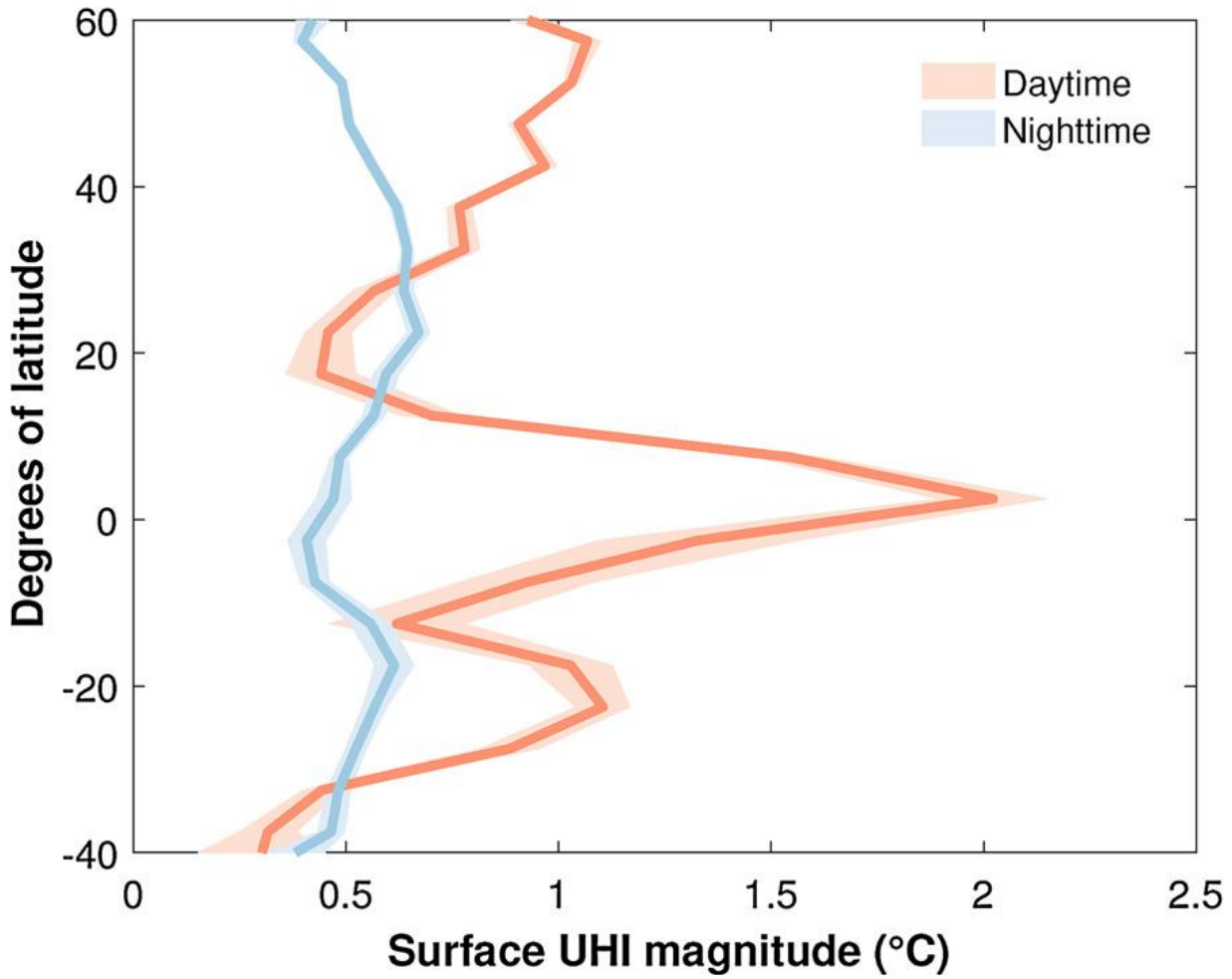
(a) Daytime



(b) Nighttime

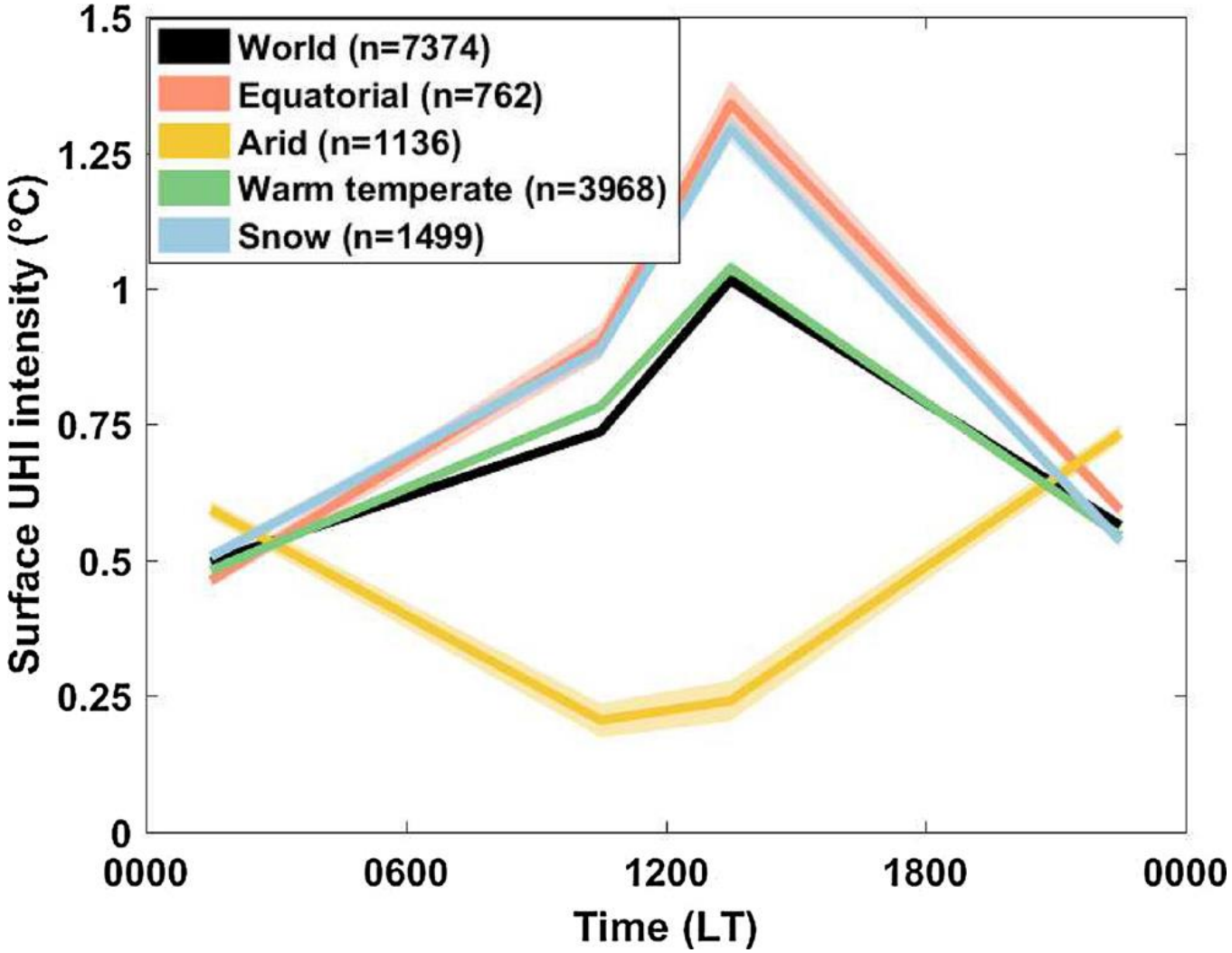
https://doi.org/10.1016/j.jag.2018.09.015

Global study



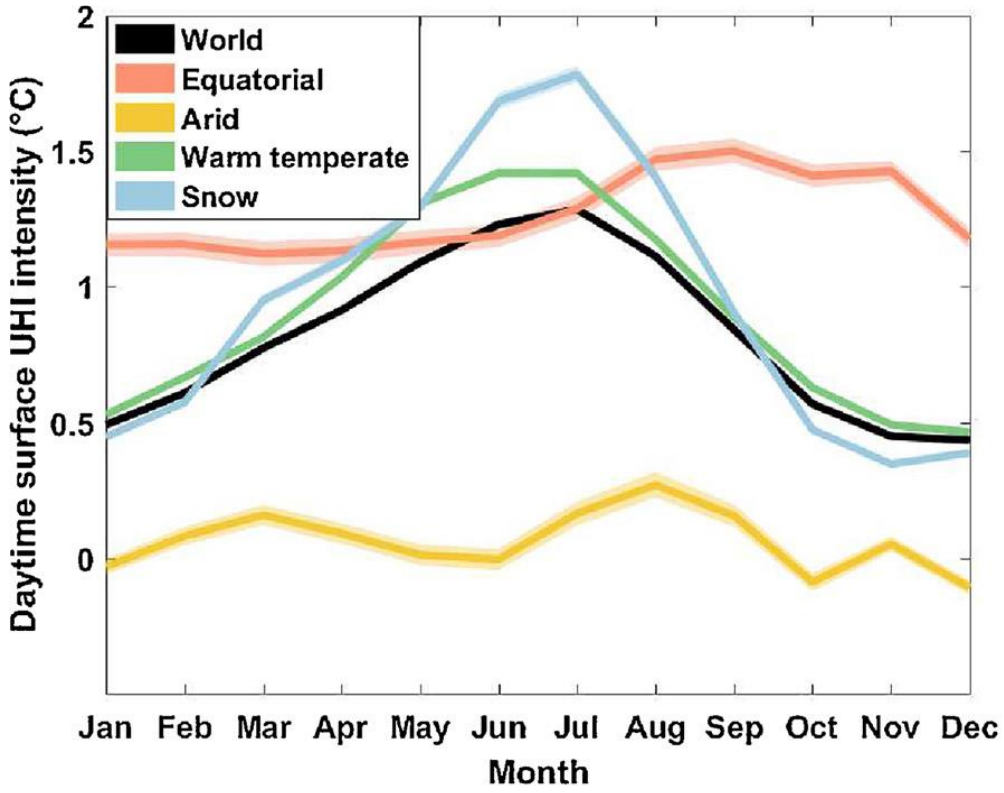
https://doi.org/10.1016/j.jag.2018.09.015

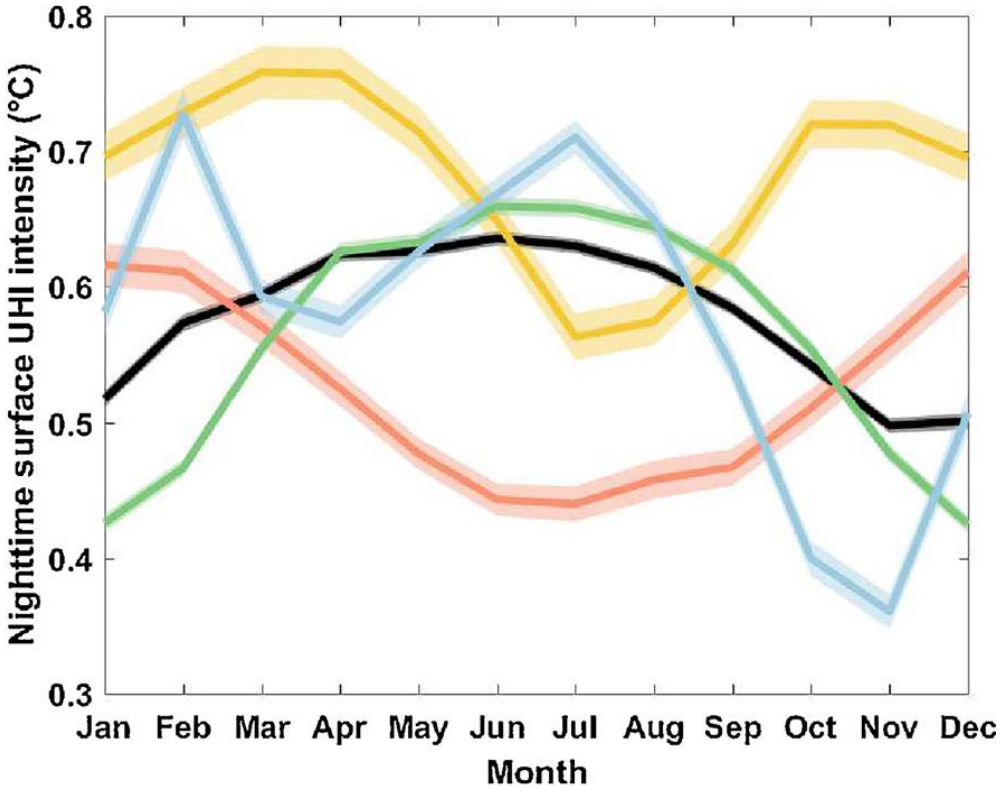
Global study



https://doi.org/10.1016/j.jag.2018.09.015

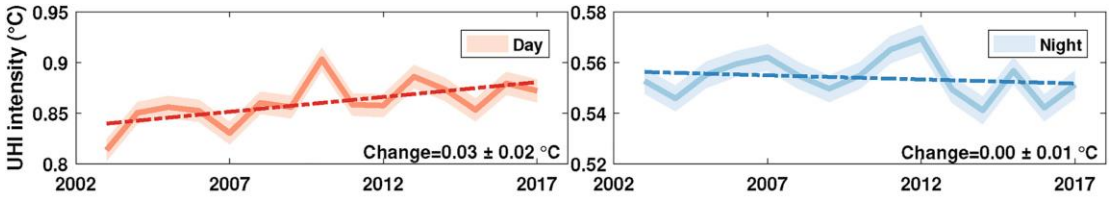
Global study



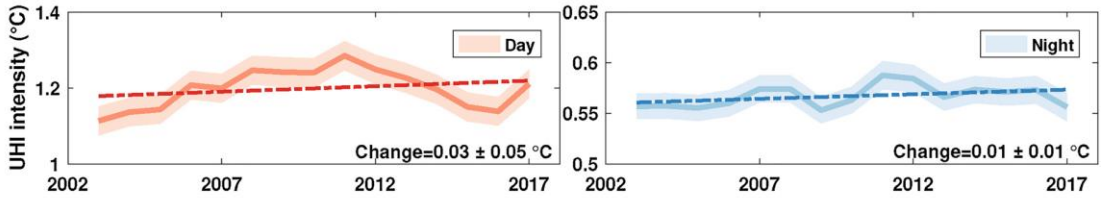


https://doi.org/10.1016/j.jag.2018.09.015

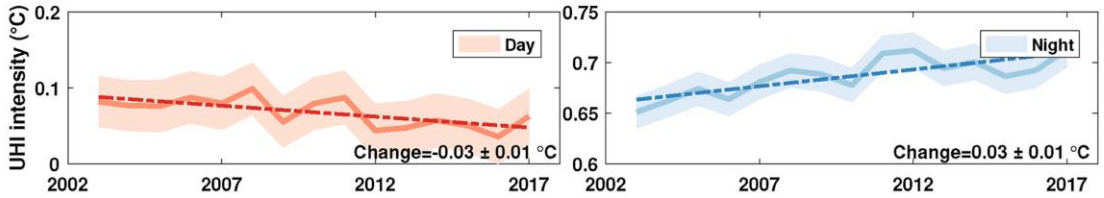
Global study



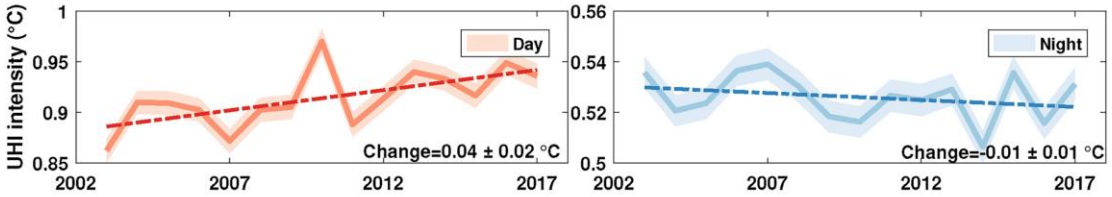
(a) World



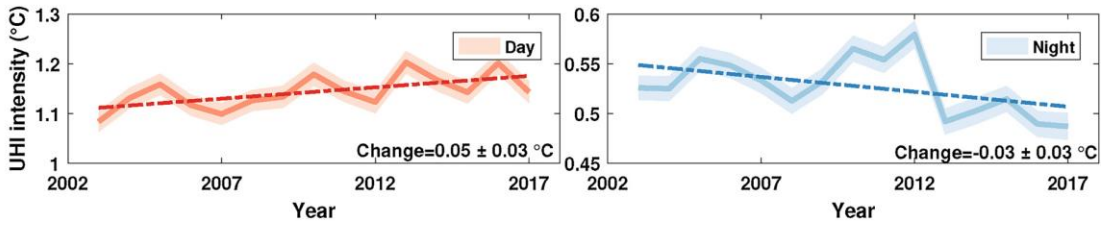
(b) Equatorial climate zone



(c) Arid climate zone



(d) Warm temperate climate zone



(e) Snow climate zone

https://doi.org/10.1016/j.jag.2018.09.015

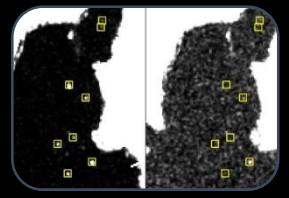

Home
SUHI
Maps
Contact Us
SUHI: Surface Urban Heat Islands
Understanding urban climate through satellite monitoring
https://suhi.cbkpan.pl

Michał Krupiński | mkrupinski@cbk.waw.pl

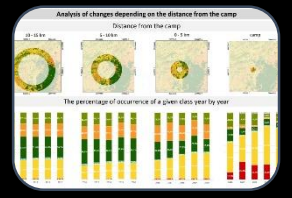
Zakład Obserwacji Ziemi

https://zoz.cbk.waw.pl

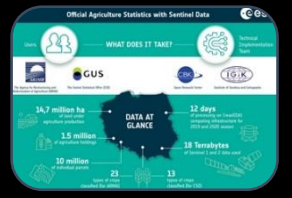
Land Cover / Land Use



Object Detection

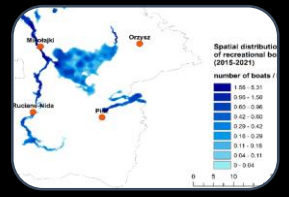


Environment Monitoring



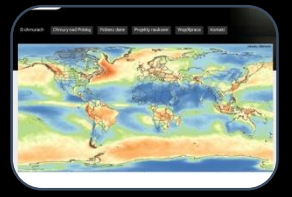
Crops mapping

Marginal Lands

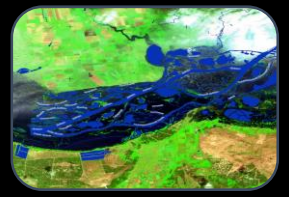


Ecosystem Services

Snow Cover

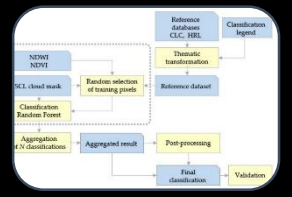


Cloud Cover



Crisis Management

Light Pollution



Machine Learning / AI

Capacity Building