

A photograph of a sunlit path in a forest. Two people are running away from the camera on the path. The scene is dappled with sunlight and shadows from the trees.

European Climate and Health Observatory

Climate change and health indicators

Aleksandra Kazmierczak
14 November 2022



European Environment Agency



Reference data: ©ESRI

EEA member and cooperating countries, 1 February 2020

- Member countries
- Cooperating countries

*Kosovo under UNSCR 1244/99

- An independent EU agency
- Analysing, assessing and providing information about the environment
- An interface between science and policy

European Climate and Health Observatory



European Environment Agency

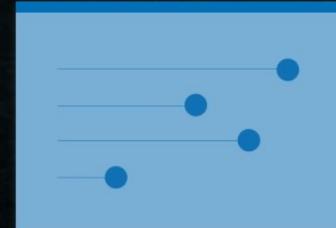


European Climate and Health Observatory

We provide easy access to a wide range of relevant publications, tools, websites and other resources related to climate change and human health.



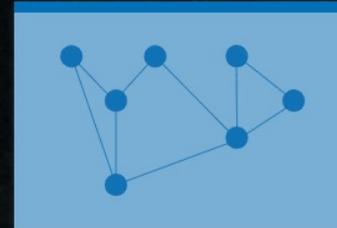
DISCOVER THE MAIN TOPICS AND TOOLS OF THE OBSERVATORY



NEW INDICATORS

View climate and health indicators from different trusted information providers

[Learn More](#)



PARTNERS

Discover who is contributing to the Observatory

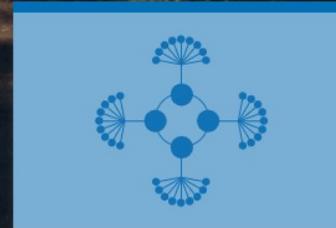
[Learn More](#)



COUNTRY PROFILES

See how countries are addressing climate change adaptation in public health

[Learn More](#)



RESOURCE CATALOGUE

Search and access the Observatory's database containing case studies, publications, indicators, research projects and other

[Learn More](#)

<https://climate-adapt.eea.europa.eu/observatory>

Indicators in the Observatory

EU Climate Law: *the Commission has launched a European climate and health observatory (...) to better understand, anticipate and minimise the health threats caused by climate change.*

Objective 1. Observatory users can monitor key climate-related health risks, impacts and adaptive responses through robust indicators

To help reach this objective, the Observatory partners will continue to collate, develop and spread knowledge on key climate change related health risks, impacts and adaptive responses in a format that allows distinguishing regional differences across Europe and changes over time.

This includes, in particular, the joint development of indicators in the domains of:

- trends and projections (until the end of the 21st century) of the geographical distribution and intensity of climate hazards relevant to health;
- exposure of population and health systems to those climate hazards;
- vulnerability of population and health systems to climate hazards;
- impacts of weather- and climate-related hazards on the population and on the health systems;
- adaptive capacity, preparedness, and resilience of the population and health systems to climate change.

<https://climate-adapt.eea.europa.eu/en/observatory/About/observatory-strategic-objectives-until-2030.pdf>

Indicators on climate change and health

Here you can consult climate-health related indicators relevant for Europe.

Currently, the Observatory includes indicators from three sources:

- **EEA indicators** are developed to support EEA's reports and the Observatory's thematic pages. More EEA indicators related to climate change adaptation are accessible from the [Climate ADAPT database](#).
- **Lancet Countdown indicators** are adapted from the extensive [Lancet Countdown Indicator set](#) on Health and Climate Change for application in Europe.
- **Copernicus climate indices** are a subset of the indicators provided in the [European Climate Data Explorer](#) with particular relevance for human health.

The list of indicators, and institutions and networks providing them, is continuously being expanded.

 European Environment Agency AIR POLLUTION DUE TO OZONE: HEALTH IMPACTS AND EFFECTS OF CLIMATE CHANGE (NO... Year: 2015 Source:	 European Environment Agency VECTOR-BORNE DISEASES (NO FURTHER UPDATES) Year: 2016 Source:	 European Environment Agency EXTREME TEMPERATURES AND HEALTH (NO FURTHER UPDATES) Year: 2016 Source:	 European Environment Agency FLOODS AND HEALTH (NO FURTHER UPDATES) Year: 2016 Source:
 European Environment Agency WATER- AND FOOD-BORNE DISEASES (NO FURTHER UPDATES) Year: 2016 Source:	 Lancet Countdown VULNERABILITY TO EXTREMES OF HEAT IN EUROPE Year: 2021 Source: Lancet Countdown	 Lancet Countdown CLIMATE SUITABILITY FOR INFECTIOUS DISEASE TRANSMISSION - DENGUE Year: 2021 Source: Lancet Countdown	 Lancet Countdown CLIMATE SUITABILITY FOR INFECTIOUS DISEASE TRANSMISSION - VIBRIO Year: 2021 Source: Lancet Countdown
 Copernicus EXPOSURE OF VULNERABLE POPULATIONS TO HEATWAVES Year: 2021 Source: Lancet Countdown	 Copernicus THERMAL COMFORT INDICES - MEAN RADIANT TEMPERATURE, 1979-2020 Year: 2021 Source: Copernicus Climate Change Service	 Copernicus THERMAL COMFORT INDICES - UNIVERSAL THERMAL CLIMATE INDEX, 1979-2020 Year: 2021 Source: Copernicus Climate Change Service	 Copernicus HEALTH HEATWAVE (HIGH TEMPERATURE AND HUMIDITY), 1971-2099 Year: 2021 Source: Copernicus Climate Change Service
 Copernicus FIRE WEATHER INDEX - MONTHLY MEAN, 1979-2020 Year: 2021 Source: Copernicus Climate Change Service	 Copernicus CLIMATIC SUITABILITY FOR THE TIGER MOSQUITO - SUITABILITY INDEX, 1971-2099 Year: 2021 Source: Copernicus Climate Change Service	 Copernicus CLIMATIC SUITABILITY FOR THE TIGER MOSQUITO - SEASON LENGTH, 1971-2099 Year: 2021 Source: Copernicus Climate Change Service	

Climate hazard indicators

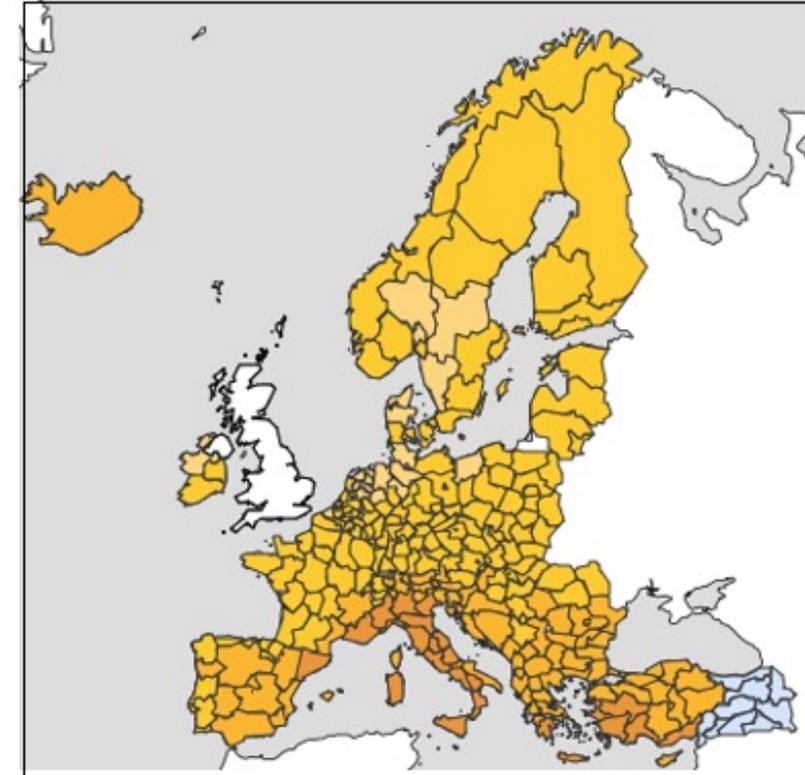
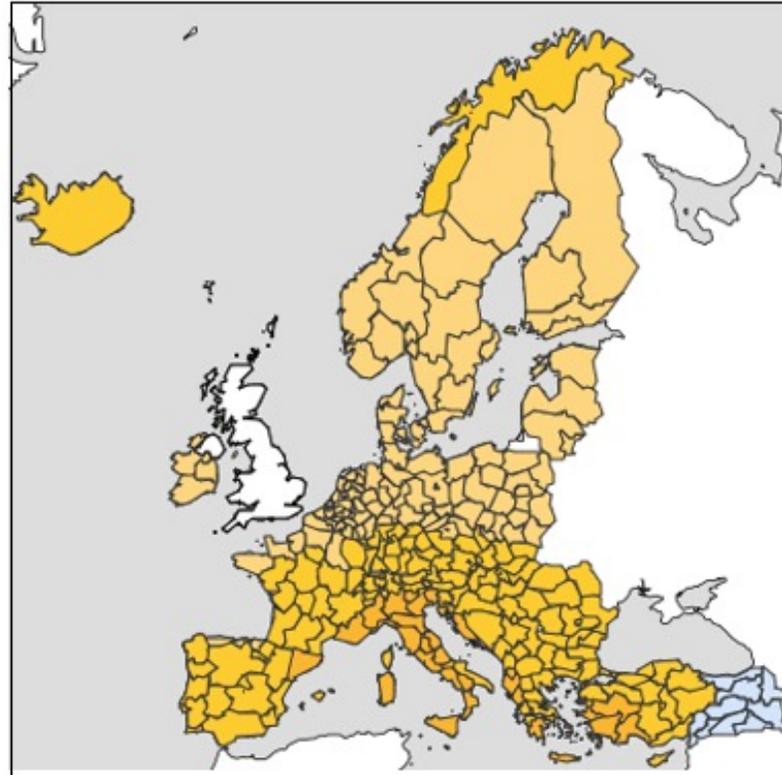
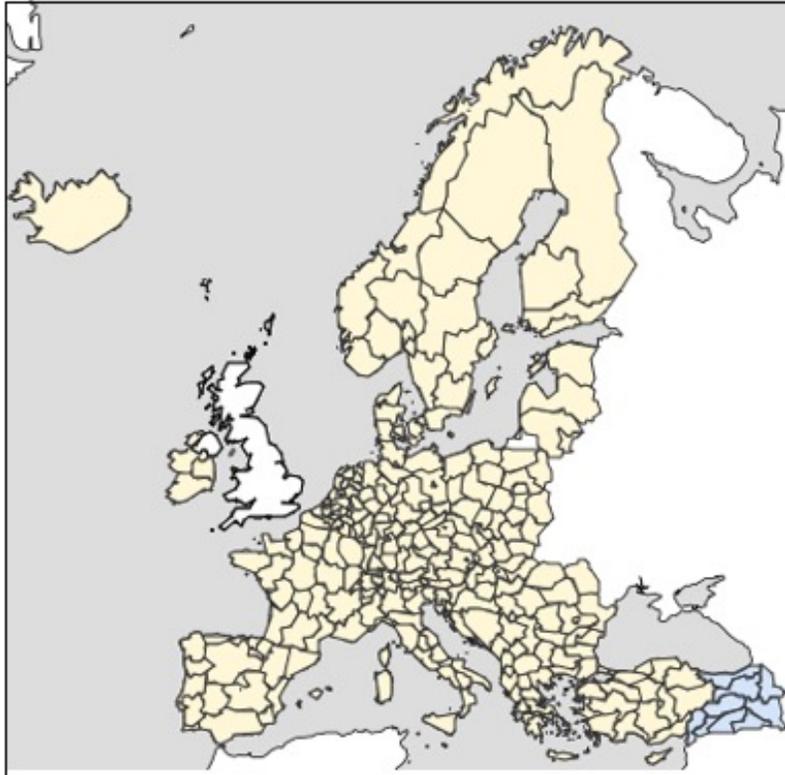
Number of health-related heatwave days
(RCP 4.5 scenario, ~2.4°C by 2100)



1971-2000

2031-2060

2070-2099



0 5 10 20 30 40 50

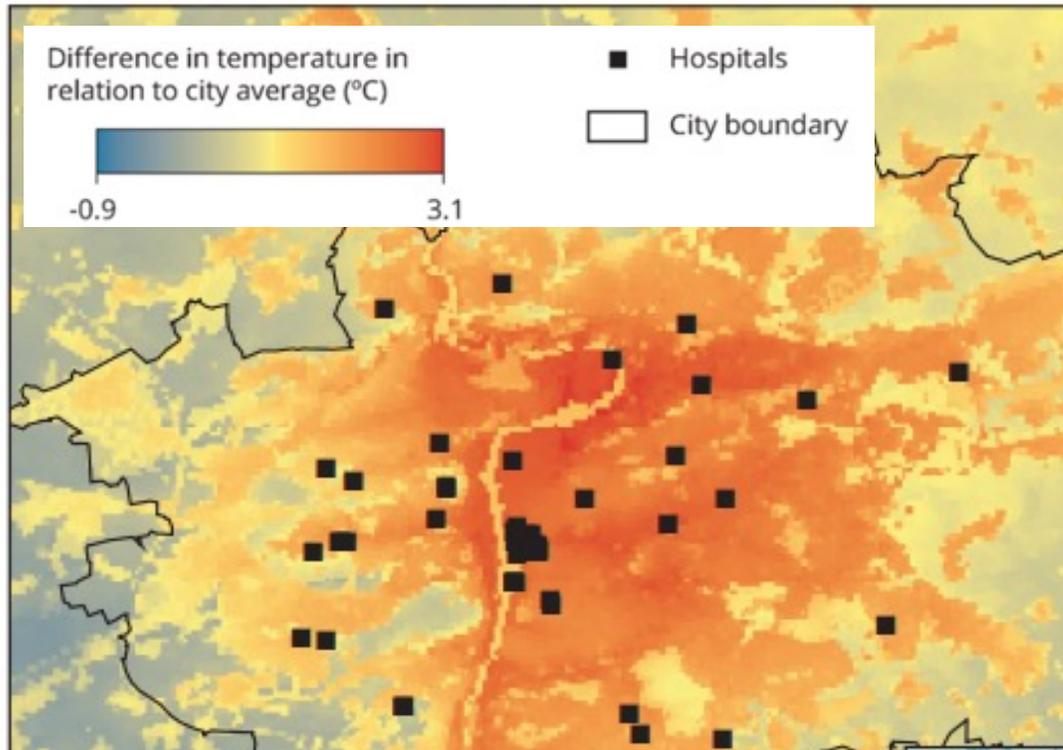


<https://climate-adapt.eea.europa.eu/en/observatory/++aq++metadata/indicators/health-heatwave-high-temperature-and-humidity-1971-2099?bs=0>

European Environment Agency

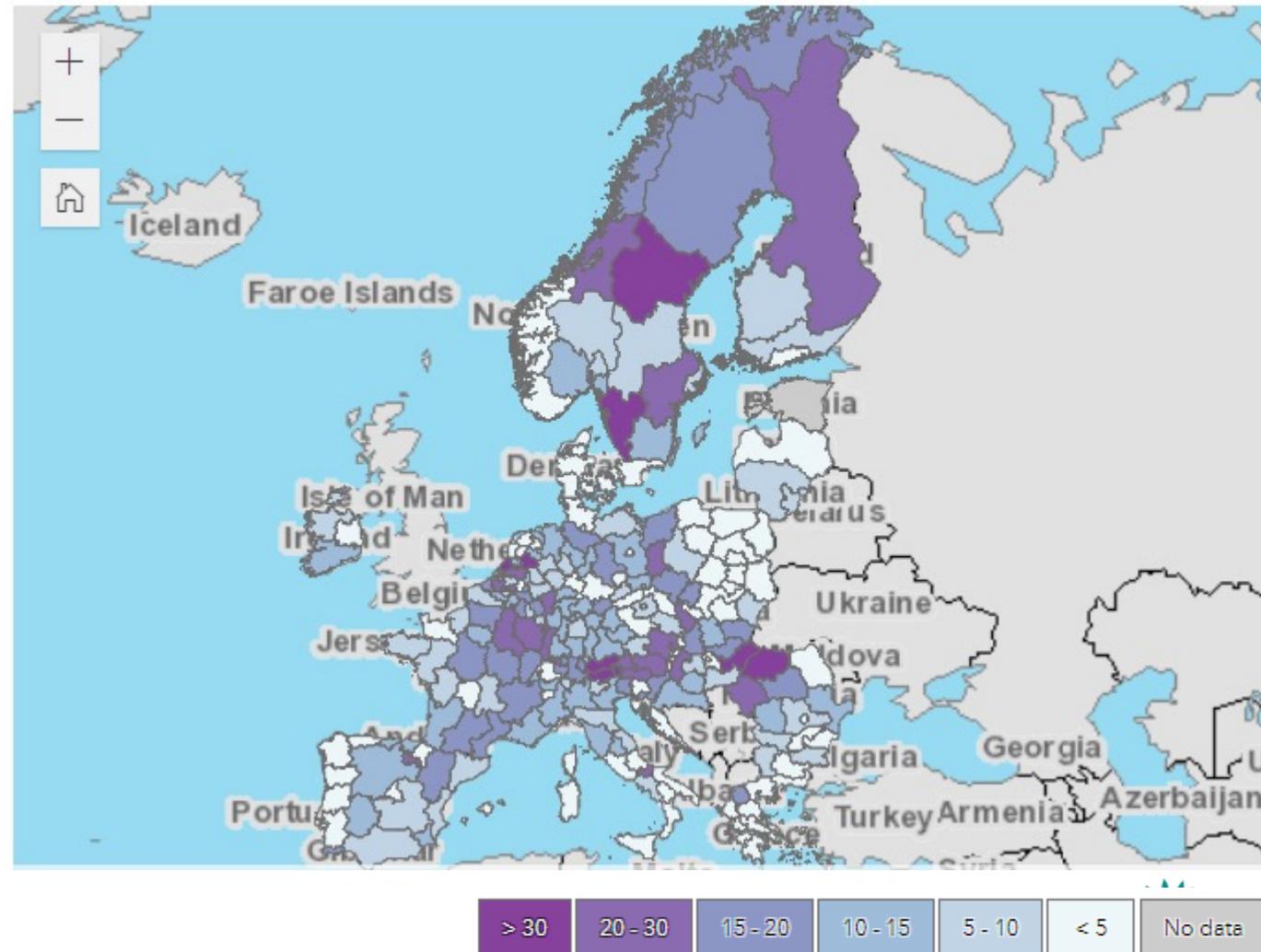


Exposure indicators



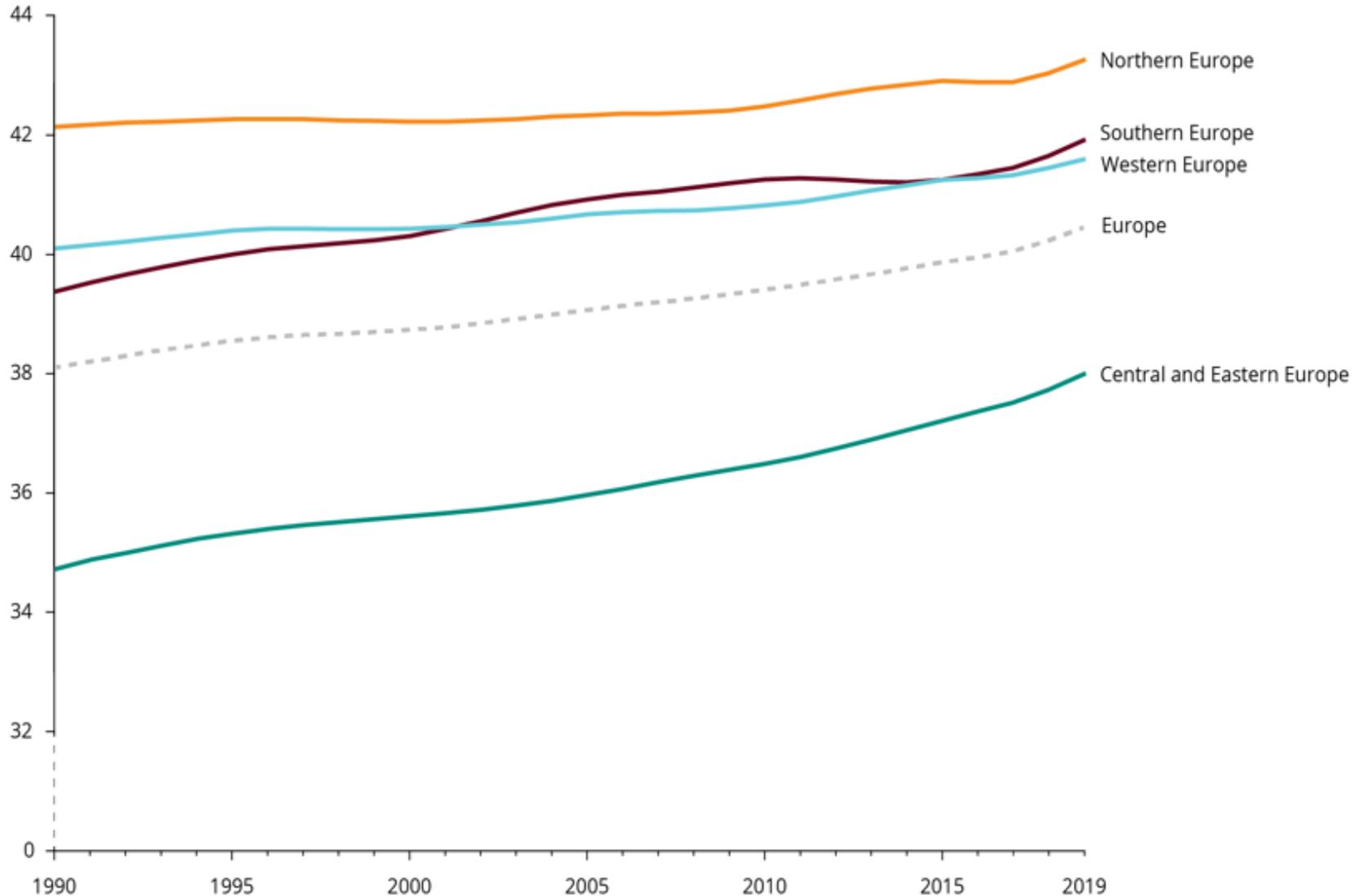
Across 100 European cities:
46% of hospitals and
43% of schools are in areas at least
2°C warmer than the city average

Out of the over 15,000 of healthcare facilities, 11% are located in potential flood-prone areas.



Vulnerability indicators

Vulnerability Index (0-100)



Van Daalen et al., 2022

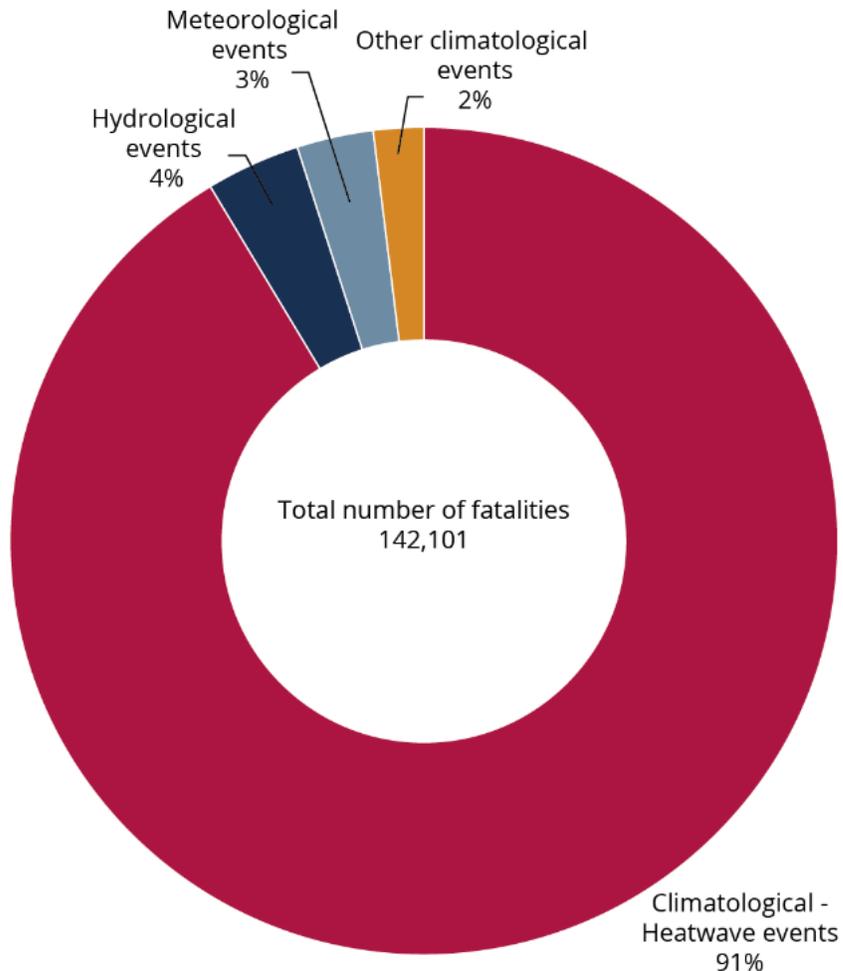
Vulnerability driven by:

- Aging society
- Chronic diseases
- Urbanisation



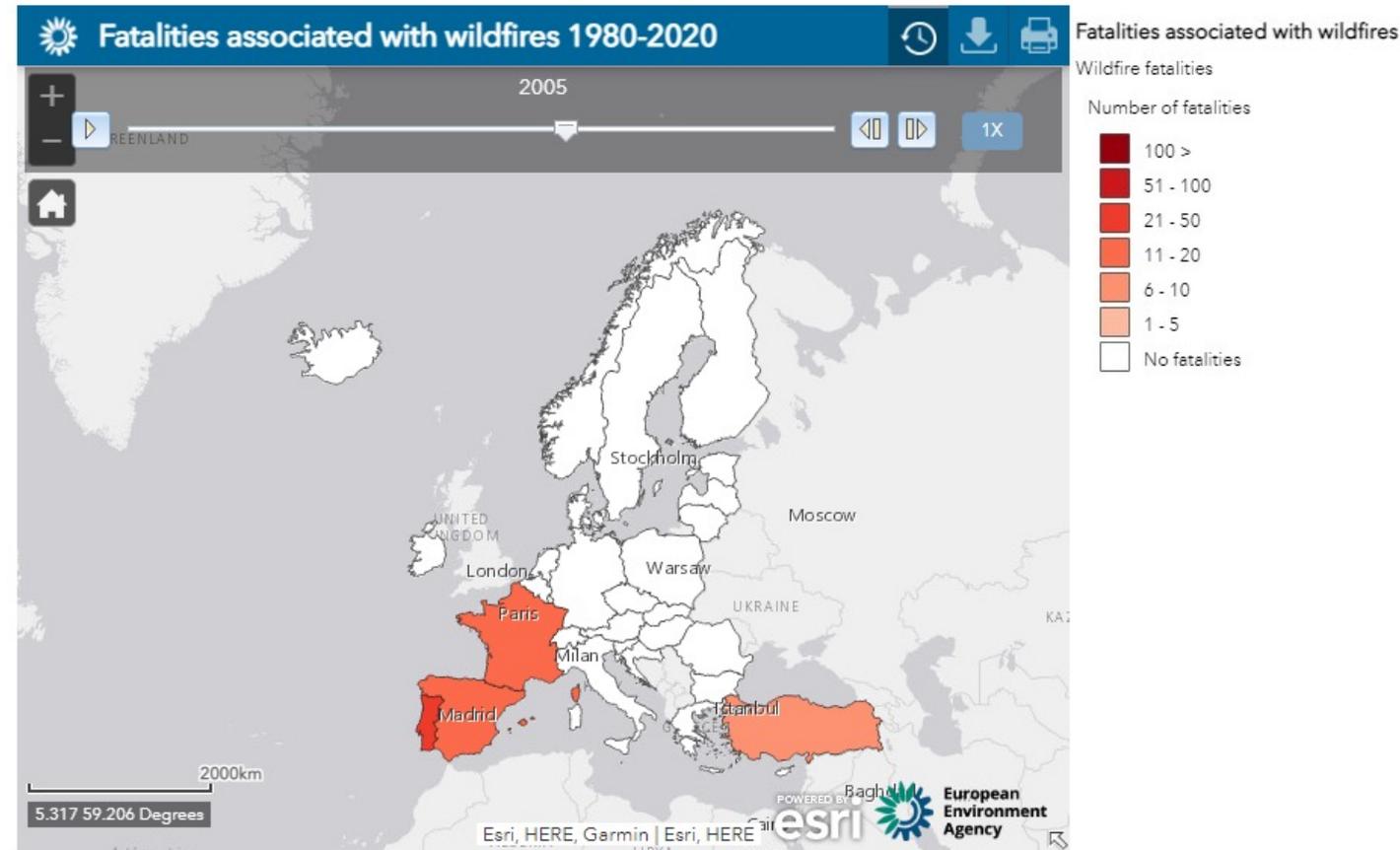
Impact indicators

Fatalities associated with heatwaves 1980 – 2020 (NatCatSERVICE by MunichRE)



<https://www.eea.europa.eu/publications/economic-losses-and-fatalities-from-economic-losses-and-fatalities-from>

Fatalities associated with wildfires/flooding (CATDAT by RiskLayer GmbH)



<https://climate-adapt.eea.europa.eu/en/observatory/evidence/health-effects/wildfires>

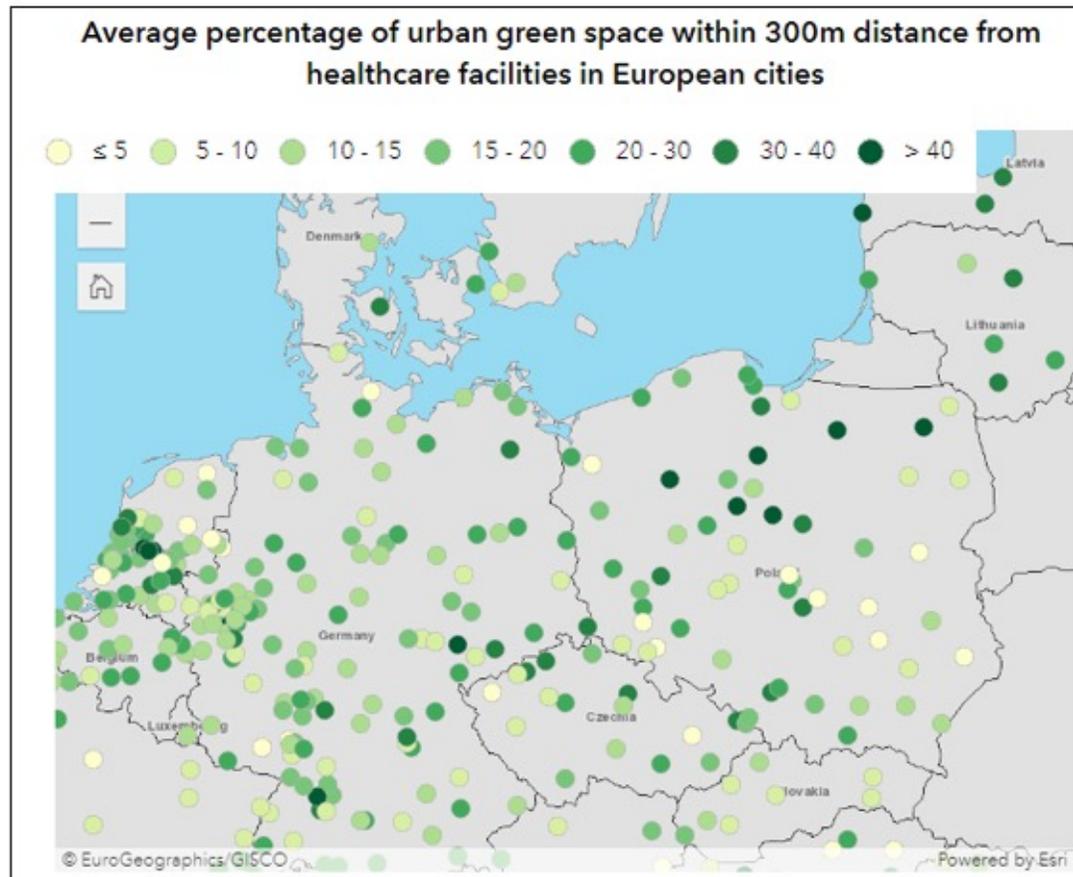
Adaptation response indicators: policy



Adaptation response indicators: access to green space

Only **16%** of the area within 300m from **healthcare facilities** is green space, and **11%** is tree cover.

Only **9%** of the area in close proximity of **schools** is green, with urban tree cover constituting **6%**.



<https://climate-adapt.eea.europa.eu/en/observatory/evidence/projections-and-tools/availability-urban-green-spaces-to-vulnerable-groups>

Conclusions

EEA Report | No 07/2022

Climate change as a threat
to health and well-being in Europe:
focus on heat and infectious diseases

Major data gaps on impacts attributable to climate change and on effectiveness of solutions

Working with NPHIs:

- Objective 2. National and sub-national health policies and systems can integrate adaptation more systematically and consistently
- Objective 4. The health community in Europe is climate-literate and better involved in adaptation decision-making
- Objective 5. Evidence-based efficient, effective and inclusive adaptation solutions and public health and healthcare interventions are widely known

European Environment Agency





Thank you

<https://climate-adapt.eea.europa.eu/observatory>

climate.adapt@eea.europa.eu

Aleksandra Kazmierczak
11 November 2022