Catherine Ganzleben / 8 September 2021

The state of air quality in Europe

Clean Air Regions Initiative Boot Camp

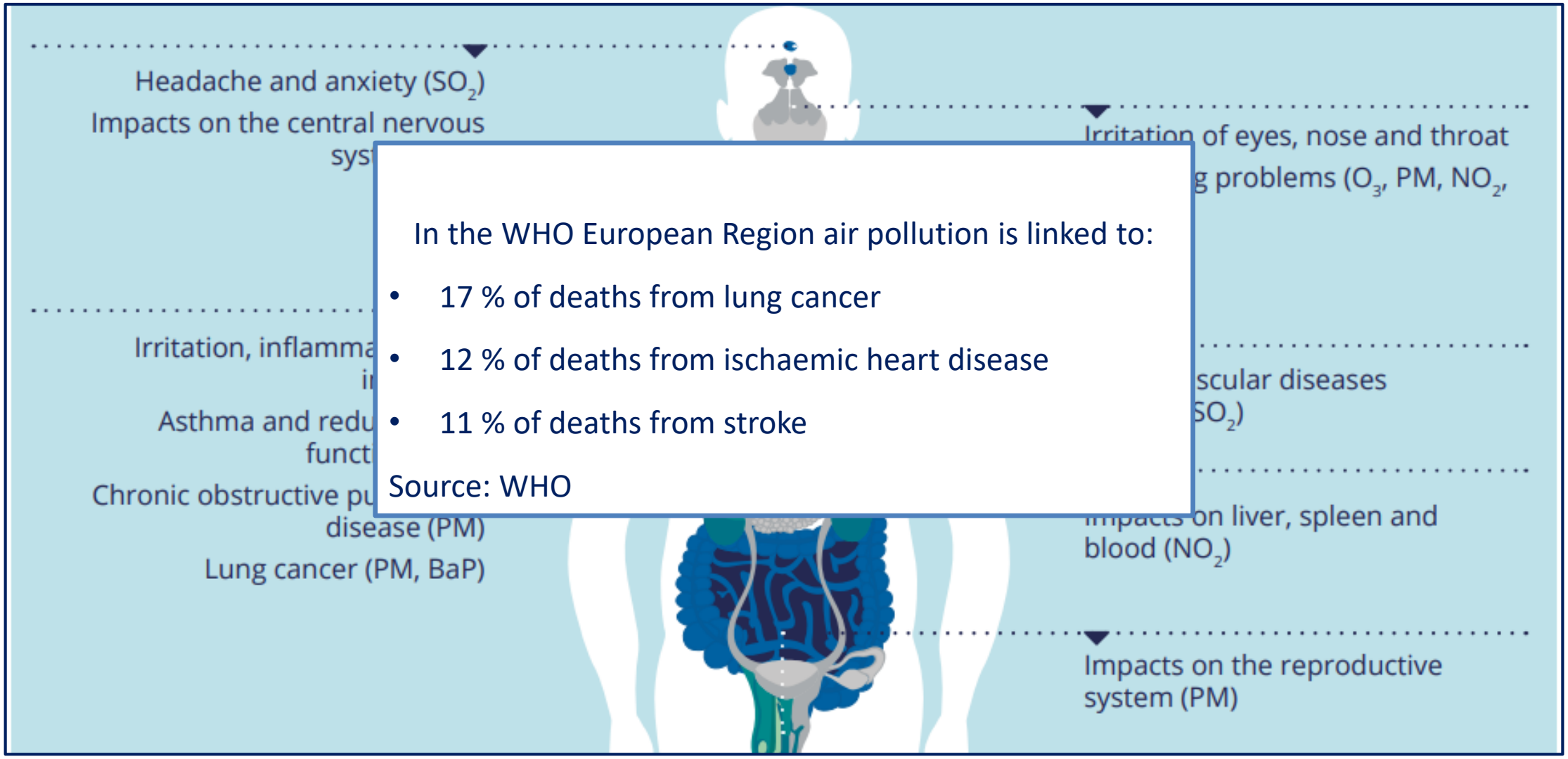
The European Environment Agency

EEA collects air quality data from 37 countries, representing over 3,000 monitoring stations

- Assess air quality across Europe
- Estimate the burden on health and ecosystems
- Identifying upstream sources of emissions
- Look at good practice to improve air quality
- Make information accessible to the public
- Inform EU policies

* This designation is without prejudice to positions on status and is in line with UNSCR 1244/1999 and the ICJ Opinion on the Kosovo declaration of independence.

Impacts of air pollutants on human health



In the WHO European Region air pollution is linked to:

- 17 % of deaths from lung cancer
- 12 % of deaths from ischaemic heart disease
- 11 % of deaths from stroke

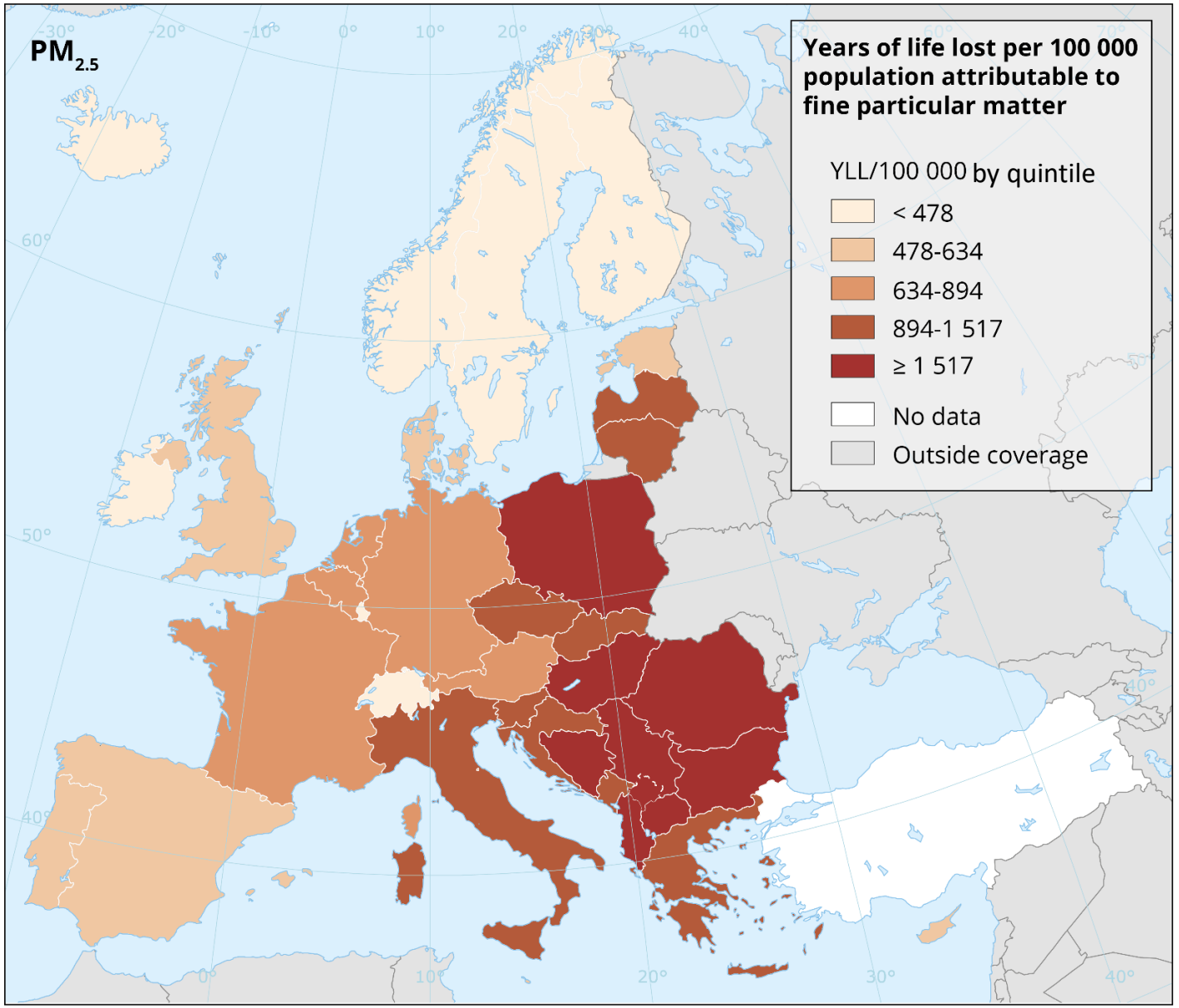
Source: WHO

Health impacts of air pollution in Europe

400 000 premature deaths per year in Europe in 2018

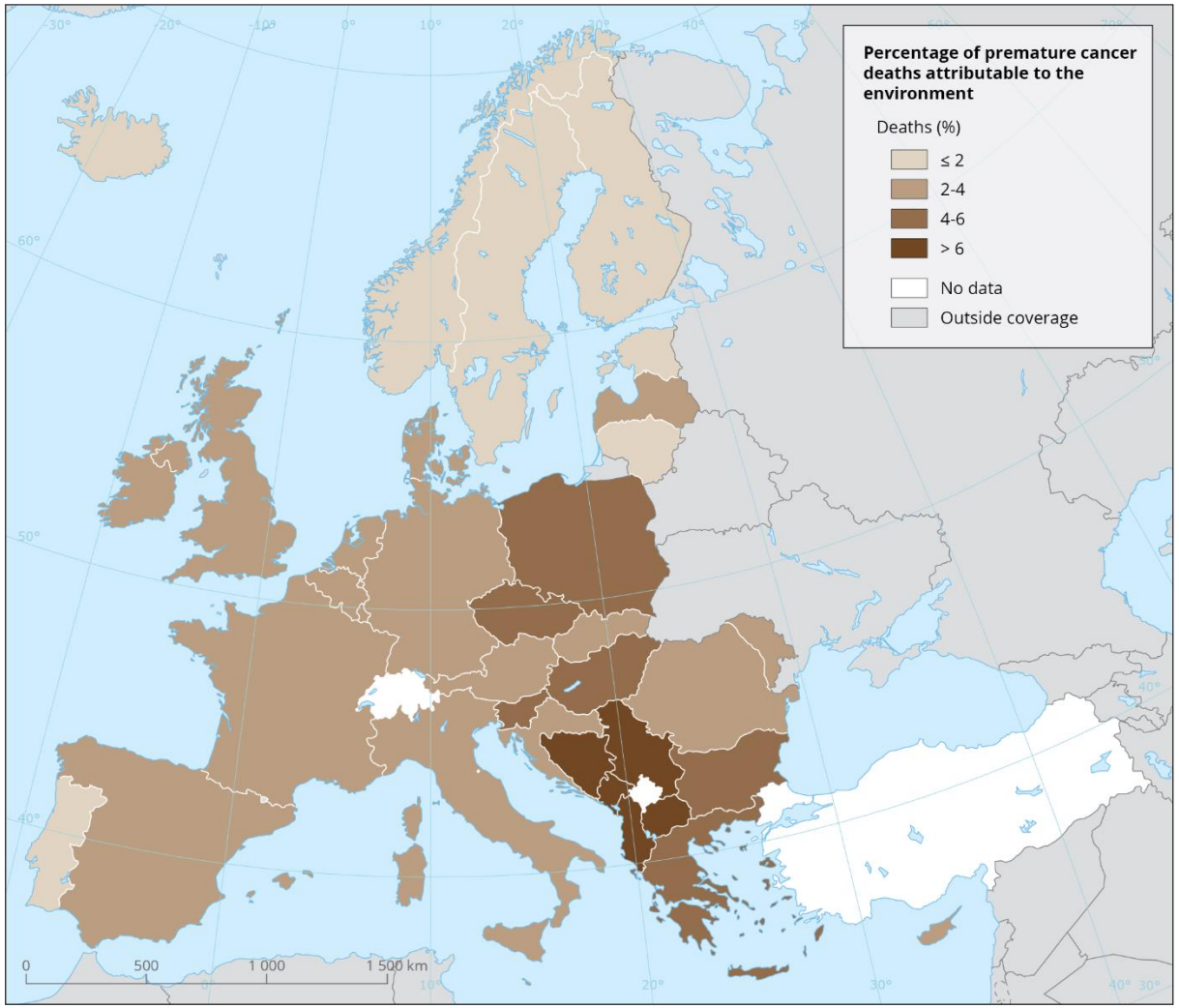
Estimates of premature deaths attributable to specific pollutants in 2018

Fine particulate matter, $PM_{2.5}$	
EU-28	379,000
41 European countries	417,000
Nitrogen dioxide	
EU-28	54,000
41 European countries	55,000
Ozone	
EU-28	19,400
41 European countries	20,600



Cancer deaths attributable to the environment

EUROPE'S BEATING CANCER PLAN
LET'S STRIVE FOR MORE

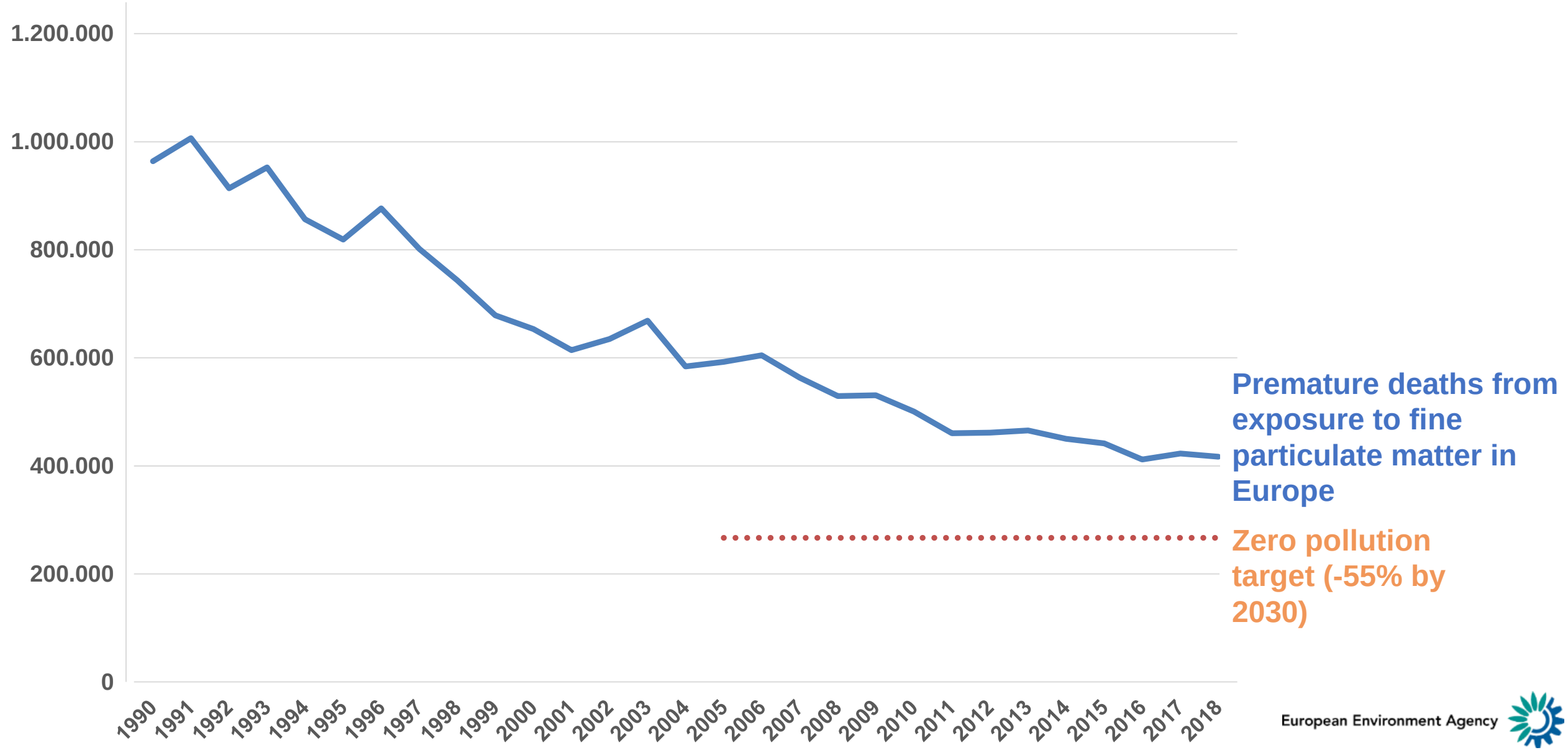


Reference data: ©ESRI

Institute for Health Metrics, 2021
data for 2019

European Environment Agency

Policies are working: reducing air pollution saves lives



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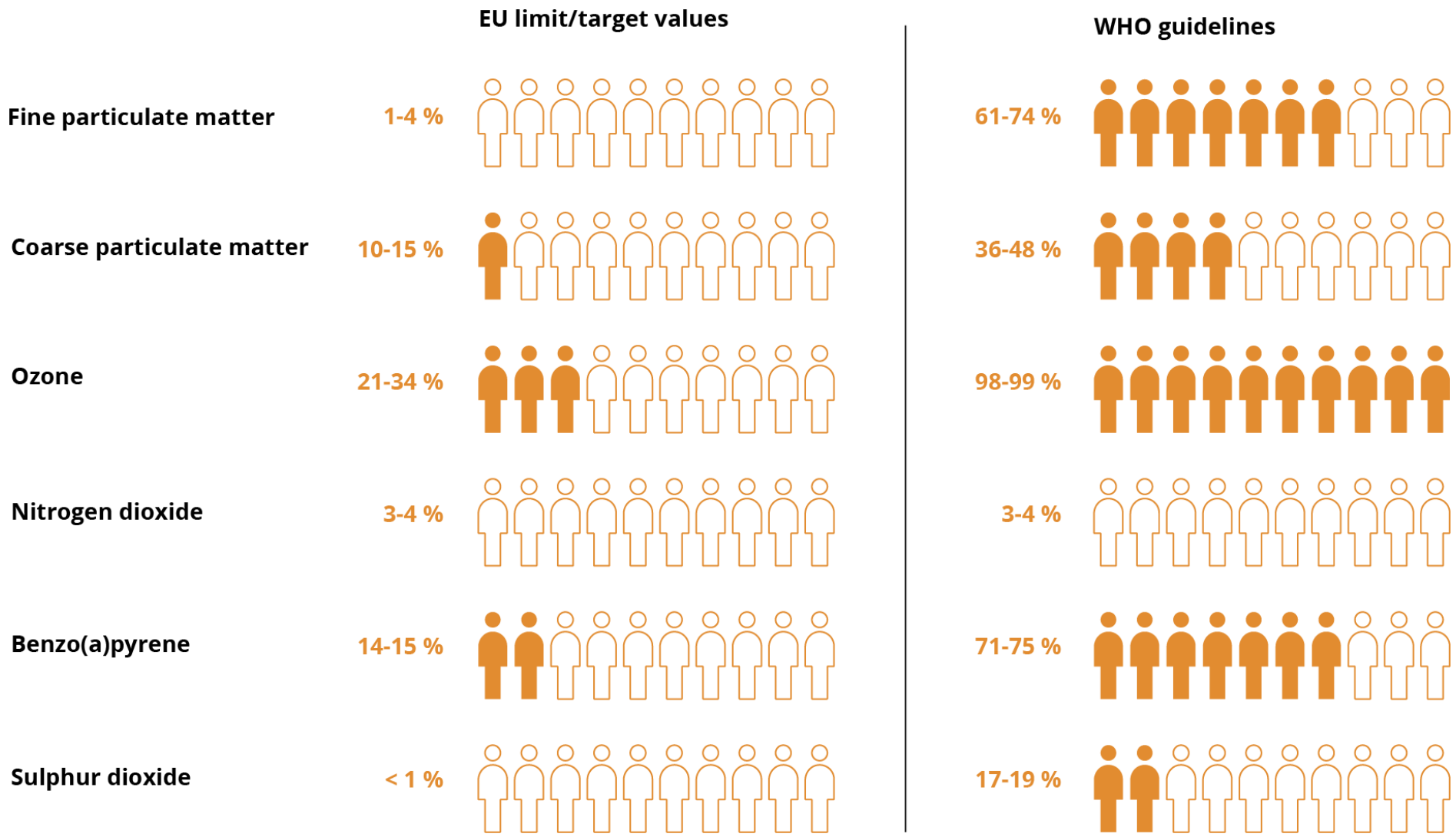
Source: EEA

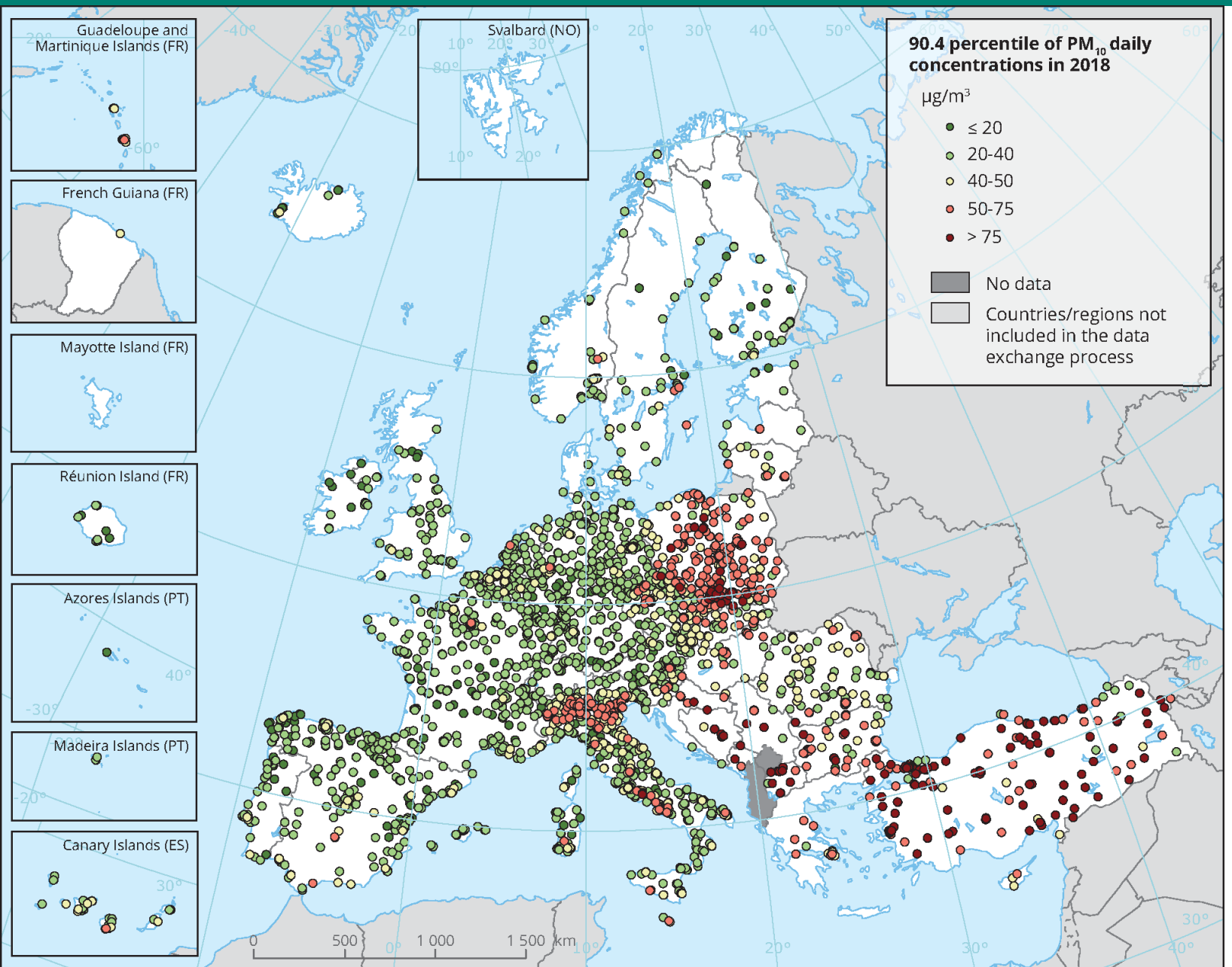
EU-28 urban exposure to harmful levels of air pollution, 2018-2019



Source:

European Environment Agency

PM_{10} concentrations over Europe in 2018



PM_{10} – EU daily limit value 50 µg/m³

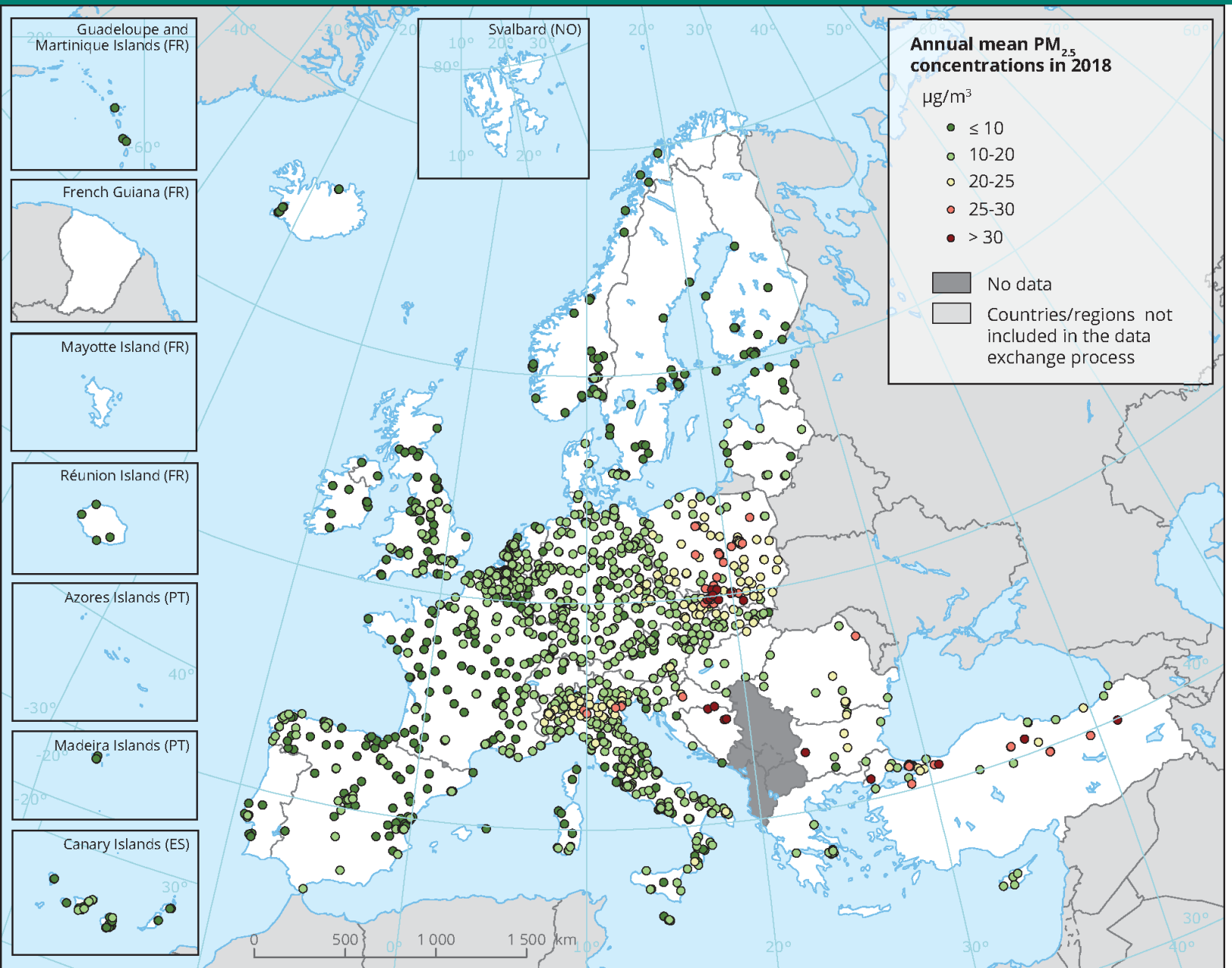
20 EU Member States and 6 other reporting countries reported PM_{10} concentrations above the daily limit value

Representing 19 % of reporting stations

Of these, 97 % were in urban or suburban areas

European Environment Agency

$PM_{2.5}$ concentrations over Europe in 2018



$PM_{2.5}$ annual limit value 25 µg/m³

6 EU Member States and 2 other reporting countries above the annual limit value

Representing 4 % of reporting stations

Primarily in urban and sub-urban areas

Estonia, Finland, Iceland and Ireland below the WHO air quality guideline of 10 µg/m³ per calendar year

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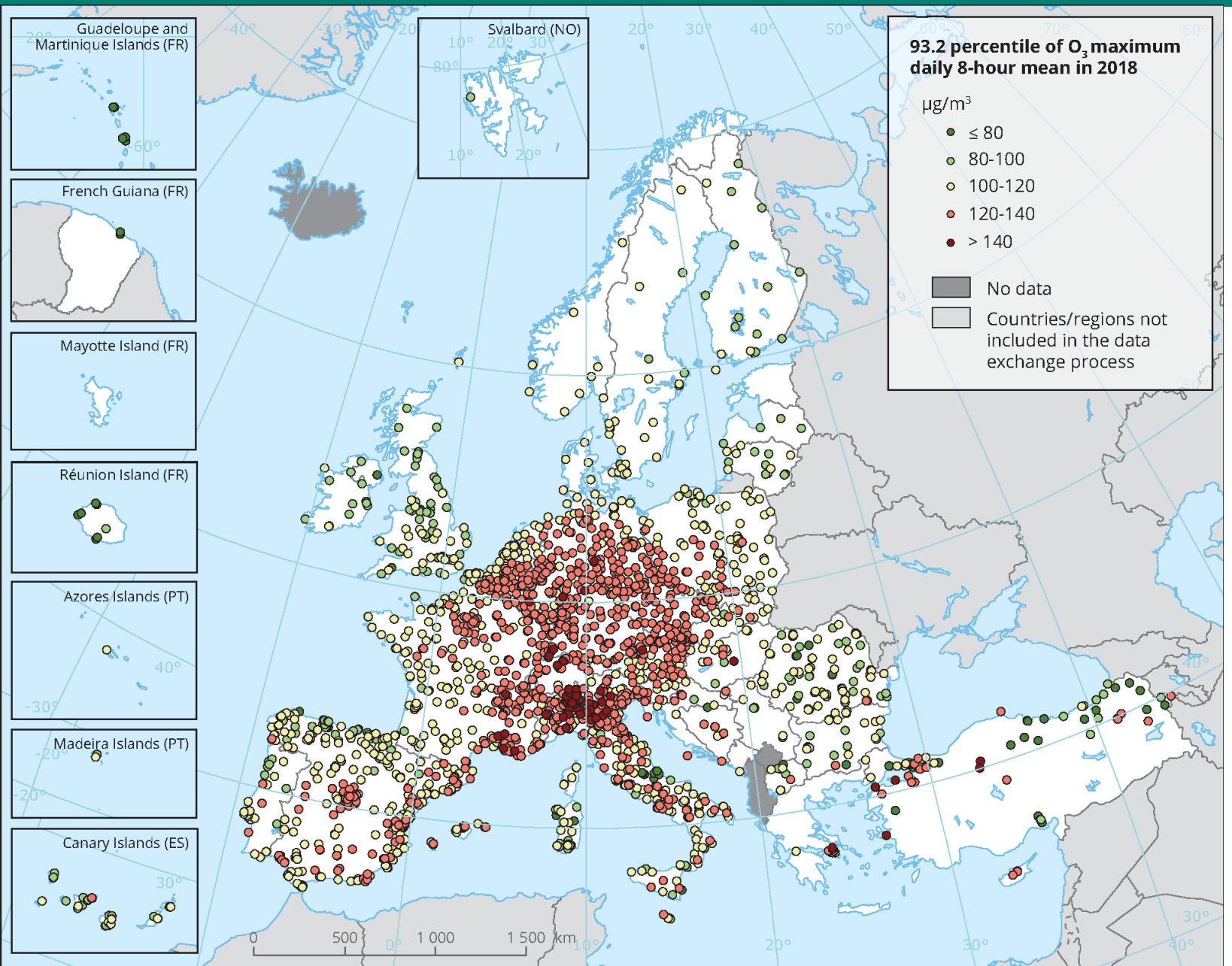
Ozone concentrations over Europe in 2018



O_3 target value for the maximum daily 8-hour mean 120 µg/m³

20 EU Member States and 5 other reporting countries had stations above the target value

Representing 41 % of reporting stations

Mainly background stations

Only 13 % of stations fulfilled the EU long-term objective of 120 µg/m³

2018 was the 3rd warmest year on record in Europe – driving ozone formation

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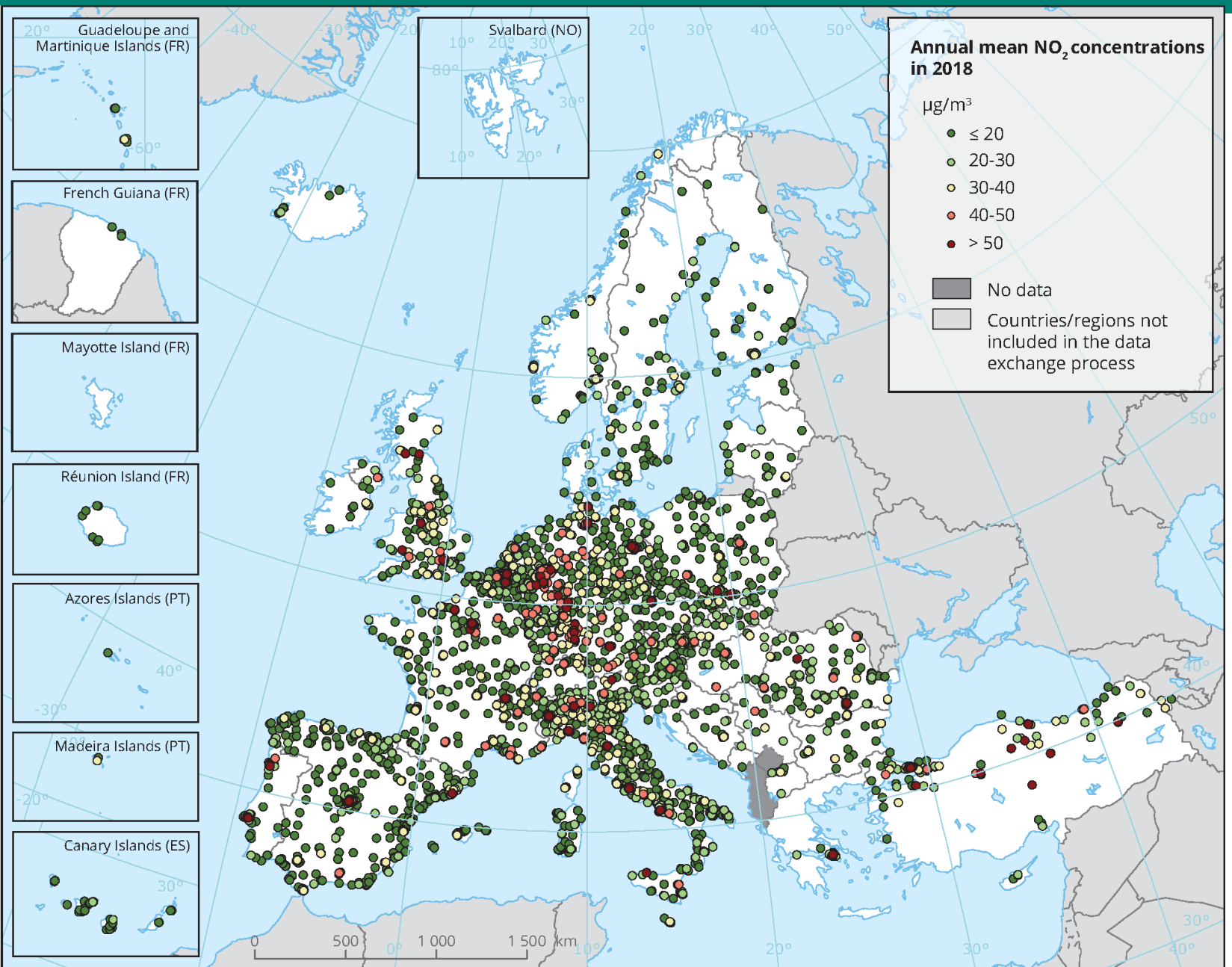
NO_2 concentrations over Europe in 2018



NO_2 EU annual limit value 40 µg/m³

16 EU Member States and 3 other reporting countries above the EU annual limit value

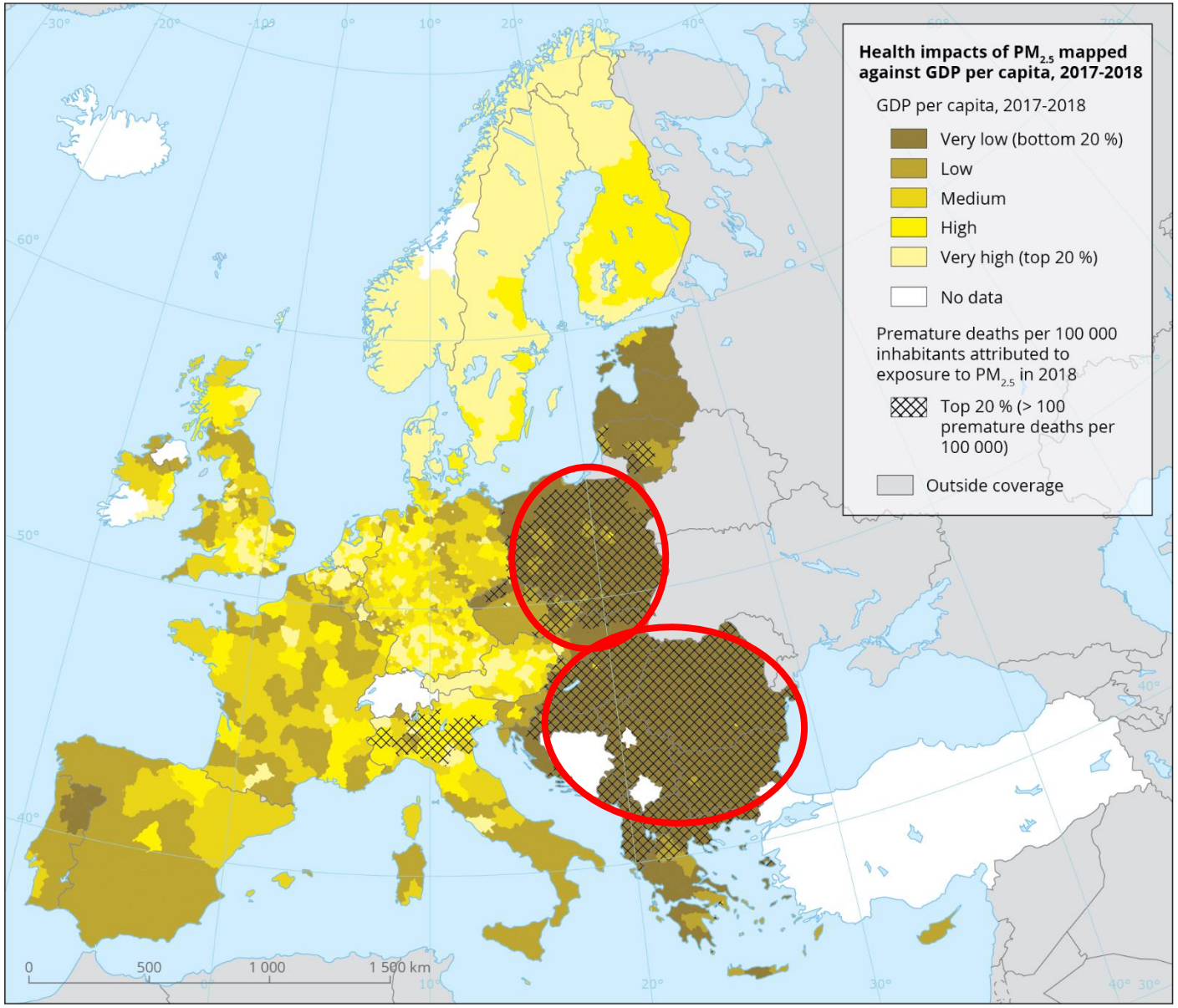
Representing 8 % of reporting stations

95 % of exceedances were seen at traffic stations in urban areas

NO_2 is an urban air quality issue linked to road traffic

European Environment Agency

Air quality and affluence: a just transition



Reference data: ©ESRI

Air quality and socio-economic dimensions

- identifying populations most affected by air pollution
- devising clean air measures in a fair and equitable way
- links to energy poverty
- links to emissions of greenhouse gases

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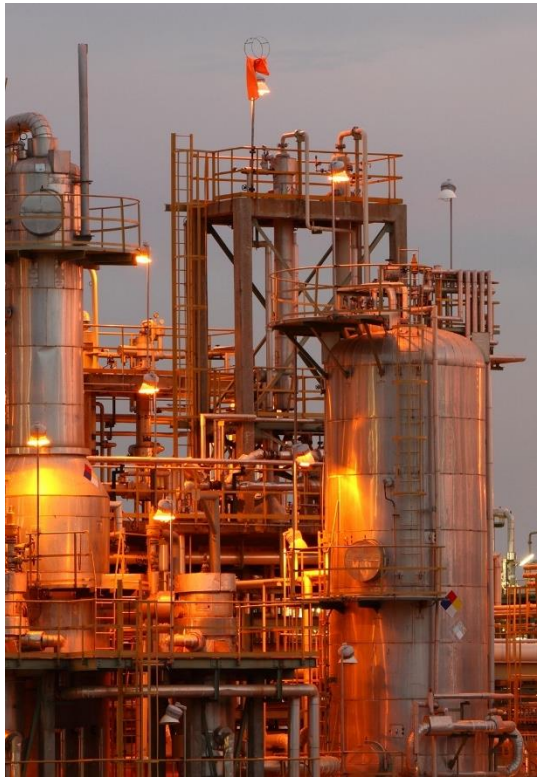
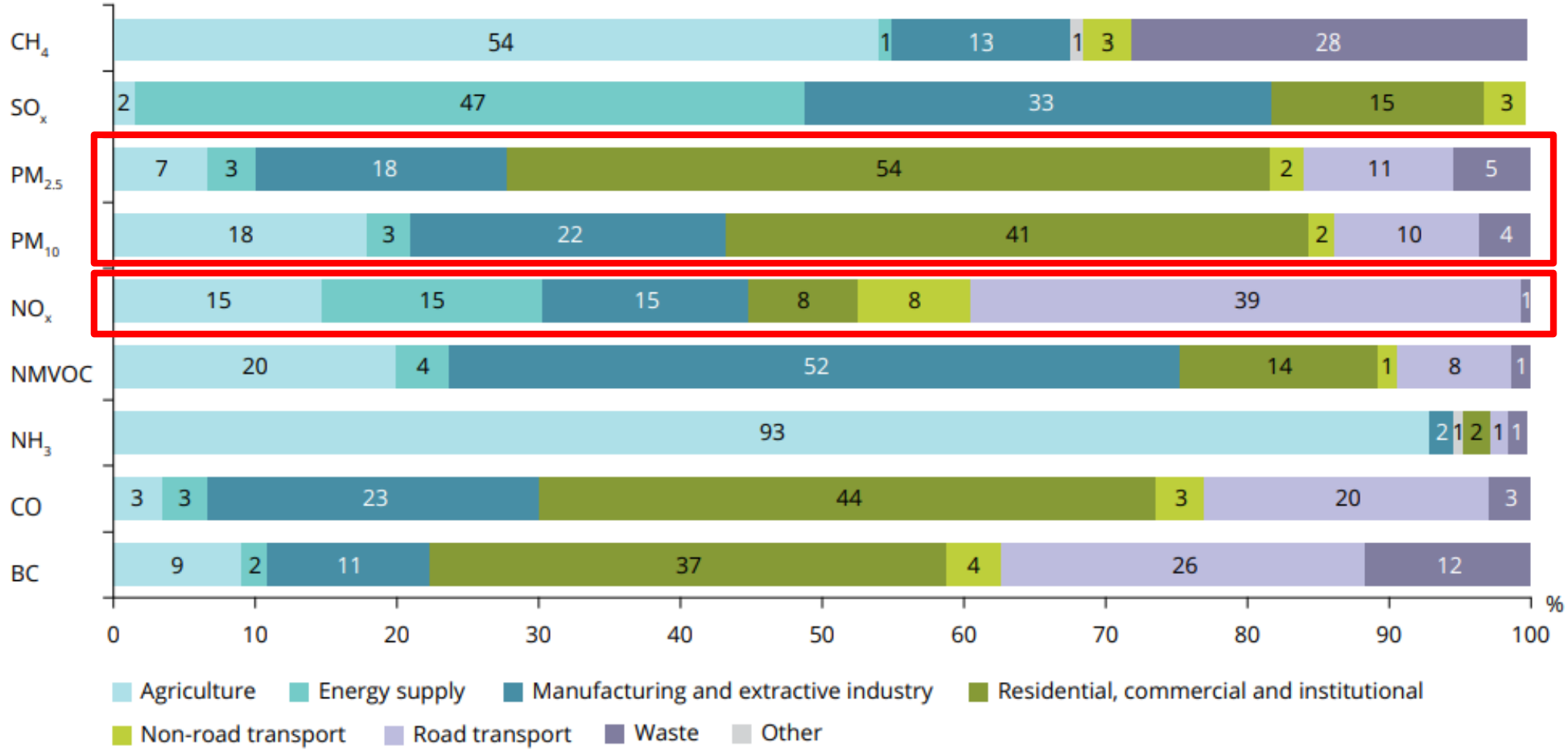
Drivers of pollution: Europe’s energy, food, mobility and industrial systems



Source: EEA, 2019

Main contributing sectors in 2018



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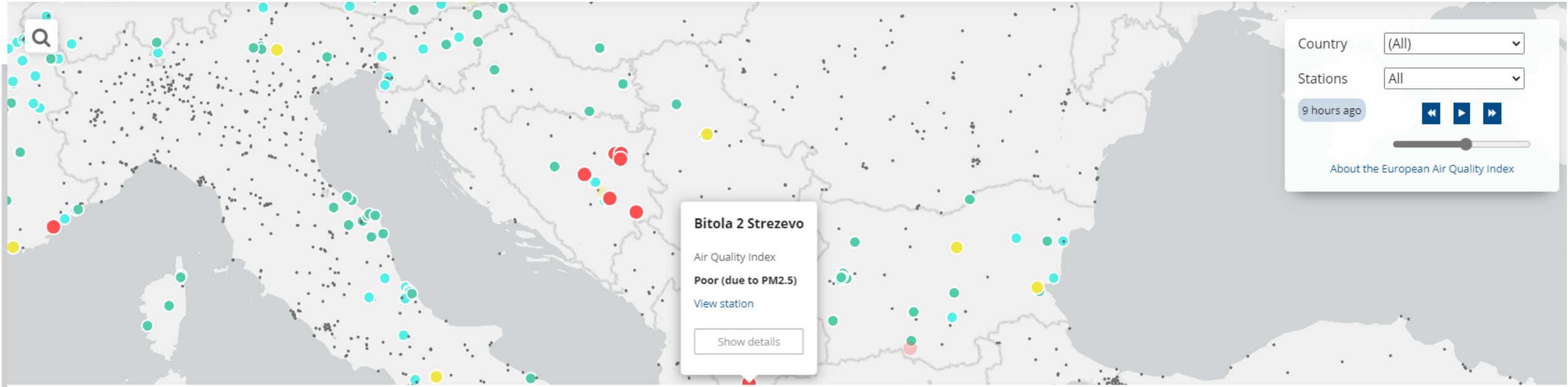
European Air Quality index - access to up-to-date air quality information



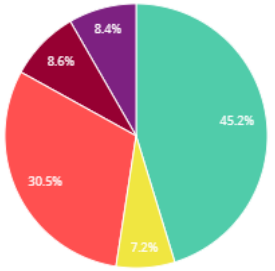
Bitola 2 Strezevo (MK0038A)

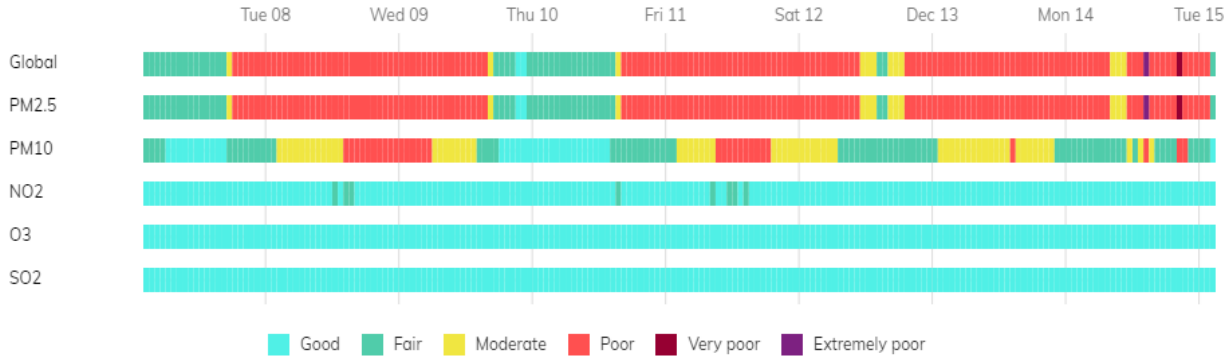
Air Quality Index	Poor (due to PM2.5)
Date	2020-12-14 03:00 UTC+1
Country	North Macedonia
Location	Битола
Classification	Traffic
Area	Urban

General population
Consider reducing intense activities outdoors, if you experience symptoms such as sore eyes, a cough or sore throat.

Sensitive population
Consider reducing physical activities, particularly outdoors, if you experience symptoms.

Accumulated past 365 days





Country fact sheet North Macedonia Organization website

https://www.eea.europa.eu/themes/air/air-quality-index

European Environment Agency

A new frontier of data

FULL, FREE AND OPEN ACCESS TO DATA

- ATMOSPHERE MONITORING
- MARINE ENVIRONMENT MONITORING
- LAND MONITORING
- CLIMATE CHANGE
- EMERGENCY MANAGEMENT
- SECURITY

Coordination of in situ EIONET data across services

Implementation of European and local land monitoring

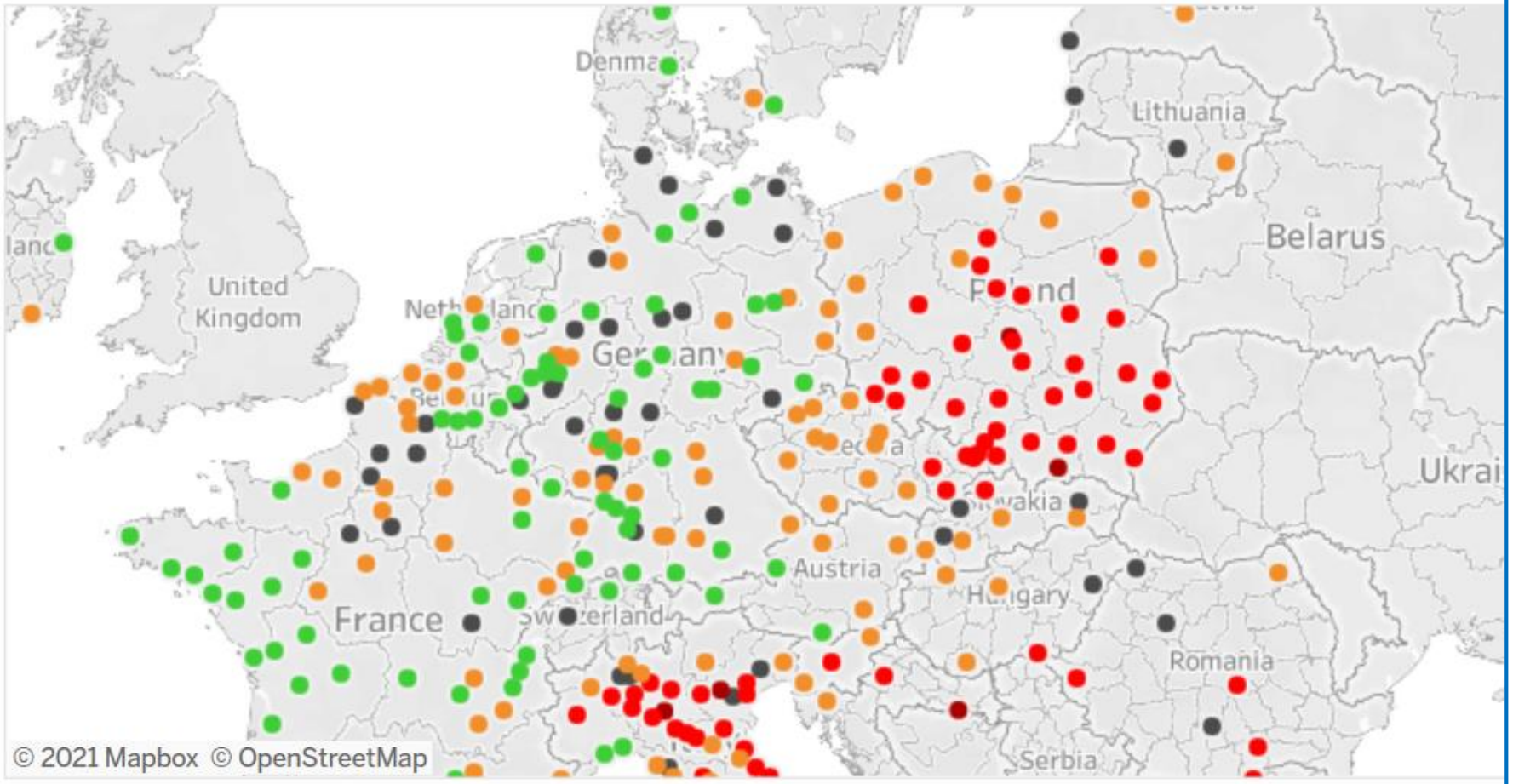
Key user of Copernicus Data and Information Products

Copernicus
Europe's eyes on Earth

Digital tools: benchmarking cities on long term air quality

How clean is the air in my city?

based on the levels of fine particulate matter measured in the air in cities in 2019 and 2020



PM2.5 annual mean concentration, µg/m3

0 - 10	good	
10 - 15	moderate	
15 - 25	poor	
25 - 35	very poor	
no data	-	

European Environment Agency

Ranking – top 10 cleanest

City name	Country	Rank	Fine particulate matter in µg/m3	Population of the city
Umeå	Sweden	1	3.7	117,137
Tampere / Tammerfors	Finland	2	3.8	208,108
Funchal	Portugal	3	4.2	113,256
Tallinn	Estonia	4	4.4	390,369
Bergen	Norway	5	4.6	259,360
Uppsala	Sweden	6	4.6	202,058
Narva	Estonia	7	4.8	58,396
Salamanca	Spain	8	4.9	151,871
Stockholm	Sweden	9	5.0	1,602,639
Tartu	Estonia	10	5.2	95,864

Ranking – bottom 10 most polluted

City name	Country	Rank	Fine particulate matter in µg/m3	Population of the city
Pavia	Italy	312	22.9	68,114
Brescia	Italy	313	24.0	189,762
Kraków	Poland	314	24.7	760,089
Zory	Poland	315	24.9	62,003
Piotrków Trybunalski	Poland	316	24.9	76,171
Zgierz	Poland	317	25.2	58,355
Vicenza	Italy	318	25.6	114,986
Slavonski Brod	Croatia	319	25.7	57,773
Cremona	Italy	320	25.9	70,682
Nowy Sacz	Poland	321	27.3	84,978

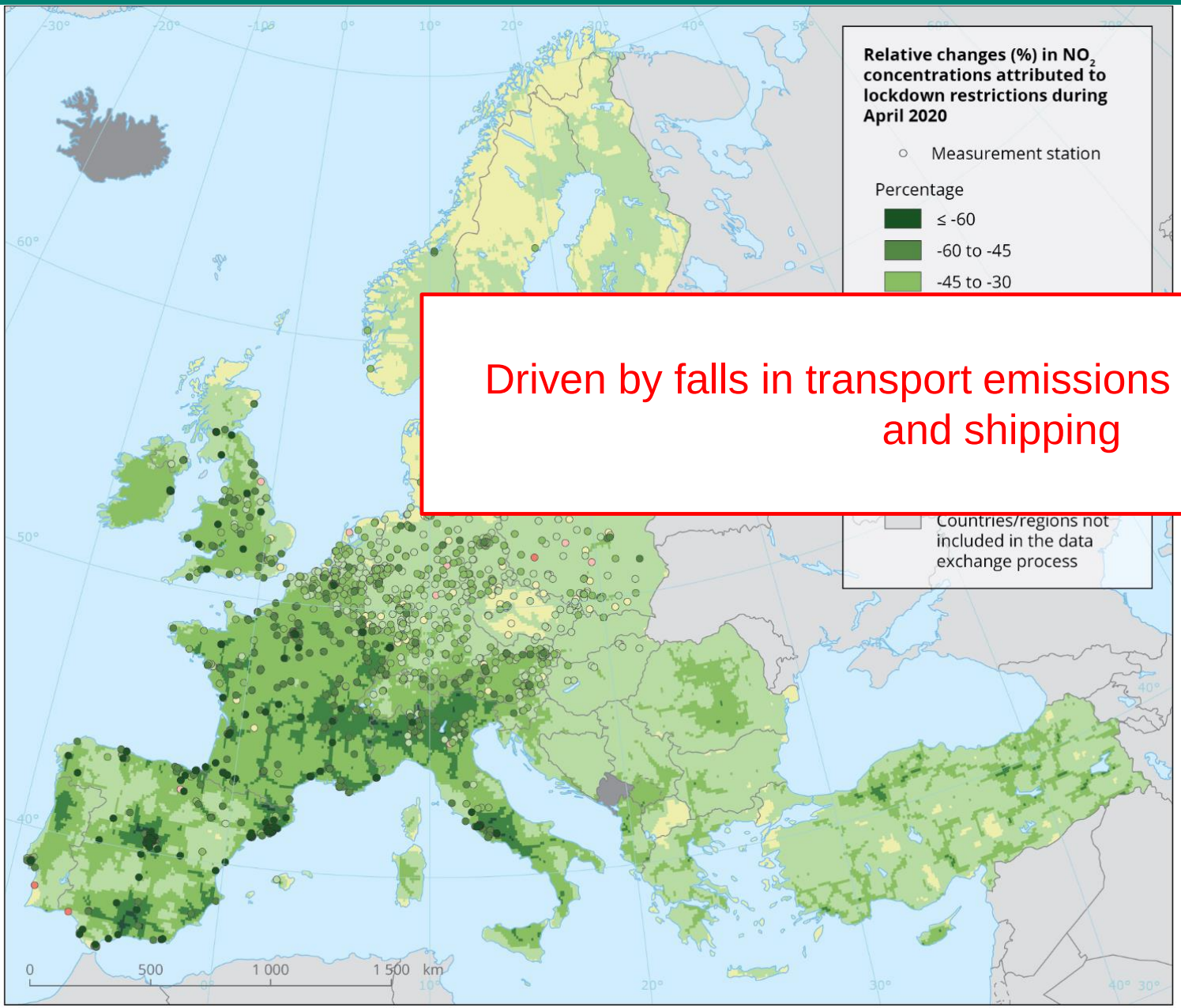
CleanAir@School

European Environment Agency

EU EnvironmentAgency ✓
@EUEnvironment

How can schools help to monitor #airquality? Through the #CleanAir@School project, students, teachers and parents used simple low-cost devices to measure nitrogen dioxide levels around their schools. In our next #EEAaskanexpert we will discuss how👉
facebook.com/events/8654912...

Air pollution and COVID-19: impact of lockdown measures



Differences across countries, cities and within cities

NO_2 concentrations

- Up to 70 % ↓ at traffic stations in Spain
- ackground

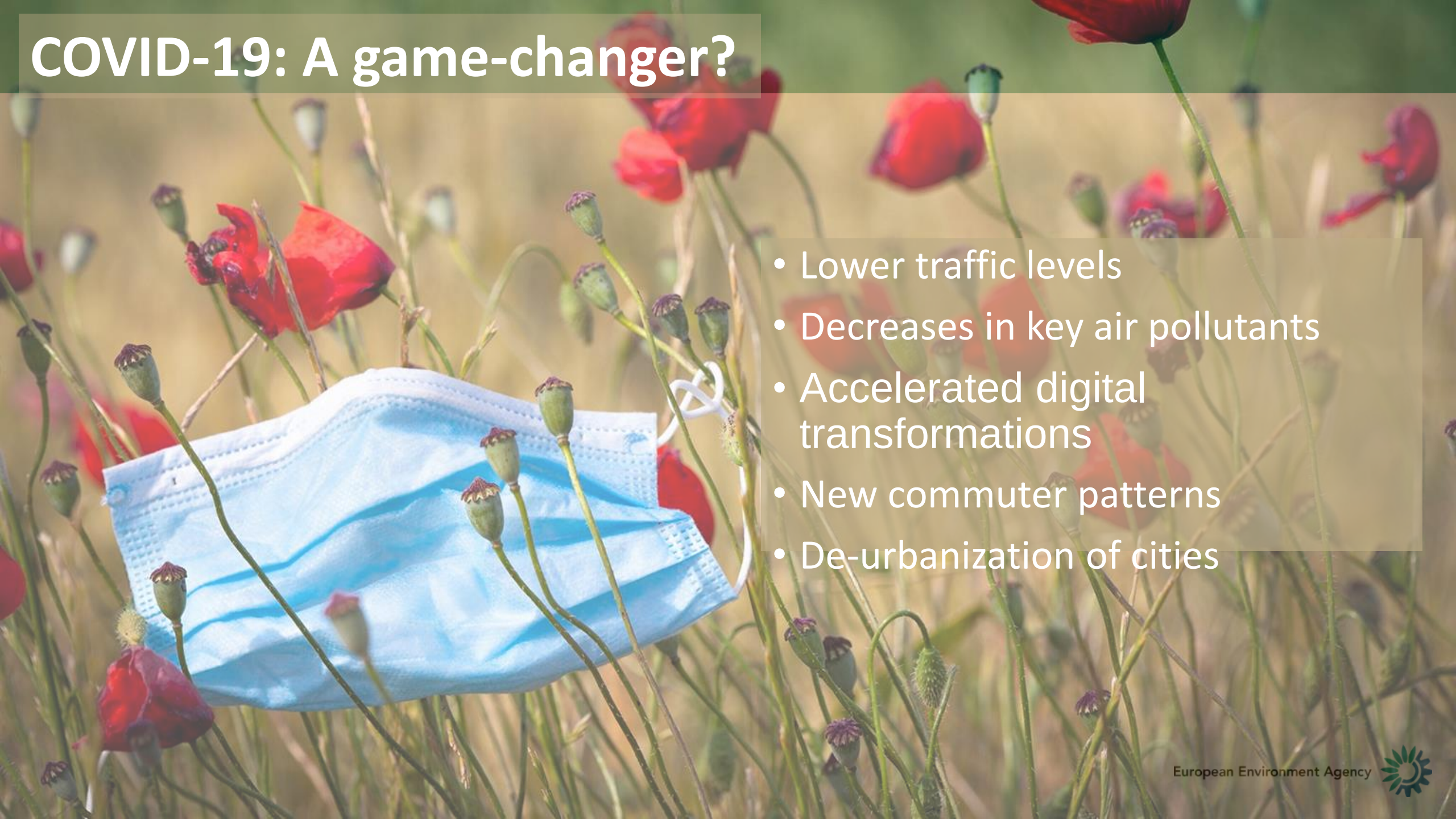
Driven by falls in transport emissions from road, aviation and shipping

PM_{10} concentrations

- Smaller reductions in PM_{10}
- Up to 35 % ↓ at traffic stations
- Around 20 % ↓ in background concentrations

European Environment Agency

COVID-19: A game-changer?



- Lower traffic levels
- Decreases in key air pollutants
- Accelerated digital transformations
- New commuter patterns
- De-urbanization of cities

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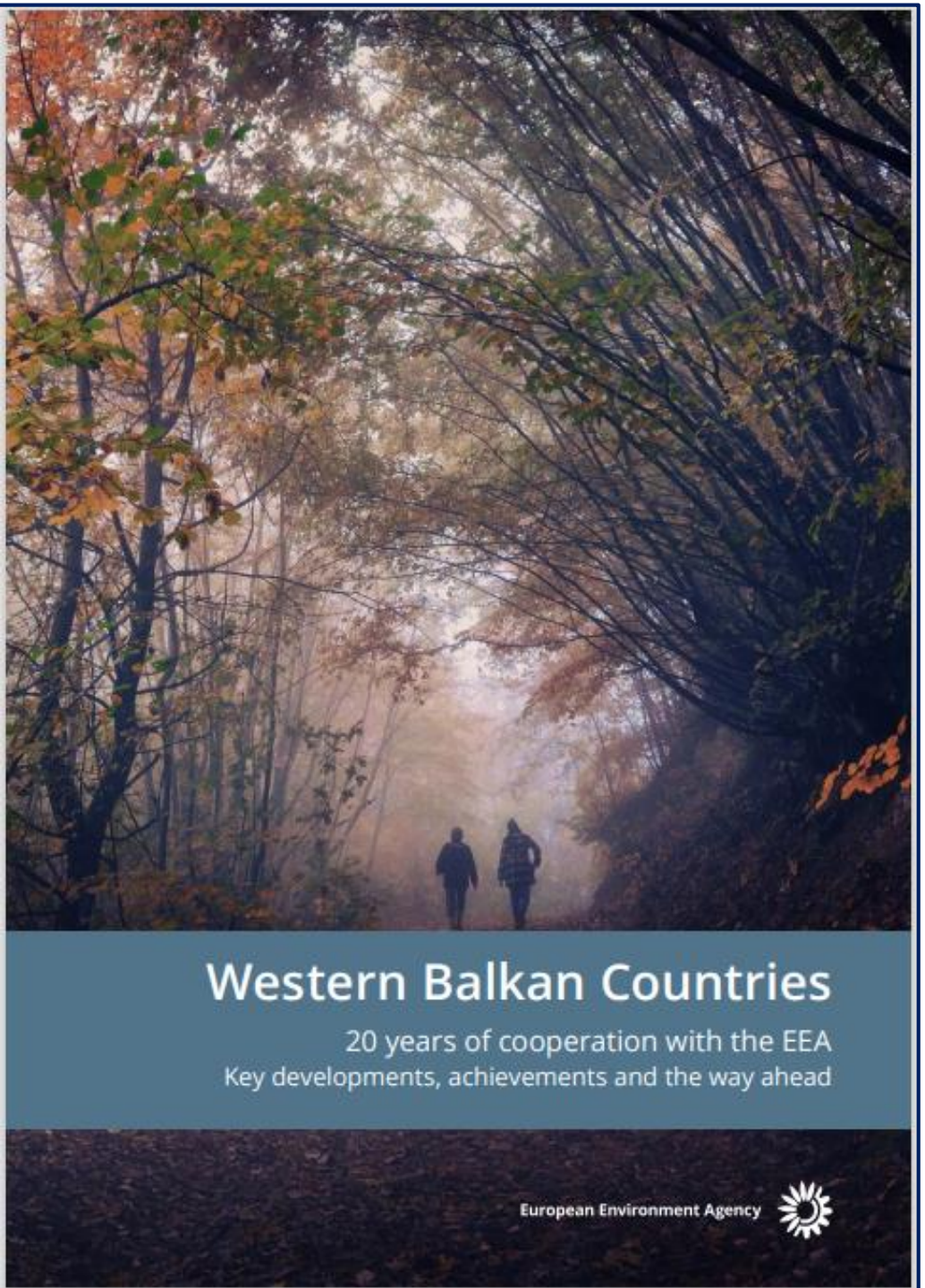

EEA cooperation with the Western Balkan Countries

EEA Western Balkan countries

EEA Eionet includes the six cooperating countries

- Albania
- Bosnia and Herzegovina
- North Macedonia
- Montenegro
- Serbia
- Kosovo*

Long-term cooperation, whereby EEA delivers support to these partners under **the European Union's Instrument for Pre-Accession Assistance**

* This designation is without prejudice to positions on status and is in line with UNSCR 1244/1999 and the ICJ Opinion on the Kosovo declaration of independence.

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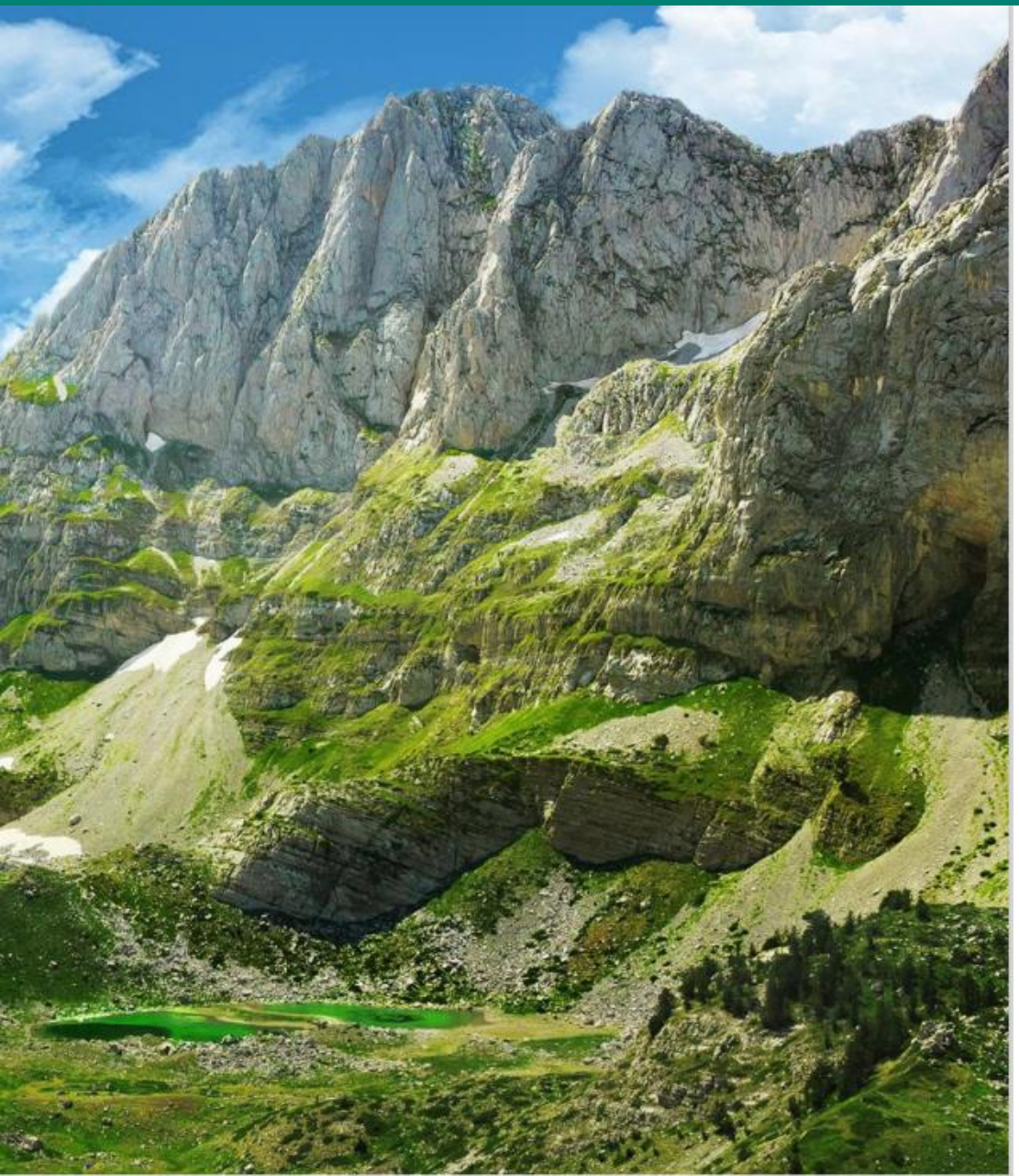
Support on air quality e-reporting delivered in 2020

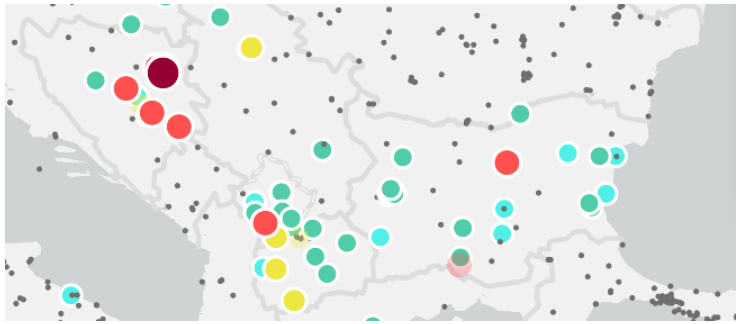


Raven 2 installed in Albania, Bosnia and Herzegovina, Kosovo*, Montenegro and Serbia

North Macedonia using Enviro software

All six countries reporting air quality data to EEA

Submission of real time data from Bosnia and Herzegovina, North Macedonia, Kosovo* and Serbia for inclusion in the European Air Quality Index



Forthcoming new WHO Global Air Quality Guidelines to strengthen health argument for climate action

3

07-09-2021

On the International Day of Clean Air for blue skies, WHO is looking ahead to the launch of the new WHO Global Air Quality Guidelines to help guide legislation and policies to reduce levels of air pollutants and decrease the burden of disease that results from exposure to air pollution worldwide.

The new guidelines, to be launched on 22 September 2021, provide clear evidence of the damage air pollution inflicts on human health and recommend new air quality levels to protect the health of populations, by reducing levels of key air pollutants, some of which also contribute to climate change.

WHO/Faith Kilford Vorting

Thanks for your attention!!

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EEA 2020 air quality in Europe report
www.eea.europa.eu/air