Air Quality in Cities: EEA's data viewers and products

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Ragnhildur G Finnbjornsdottir (EEA)

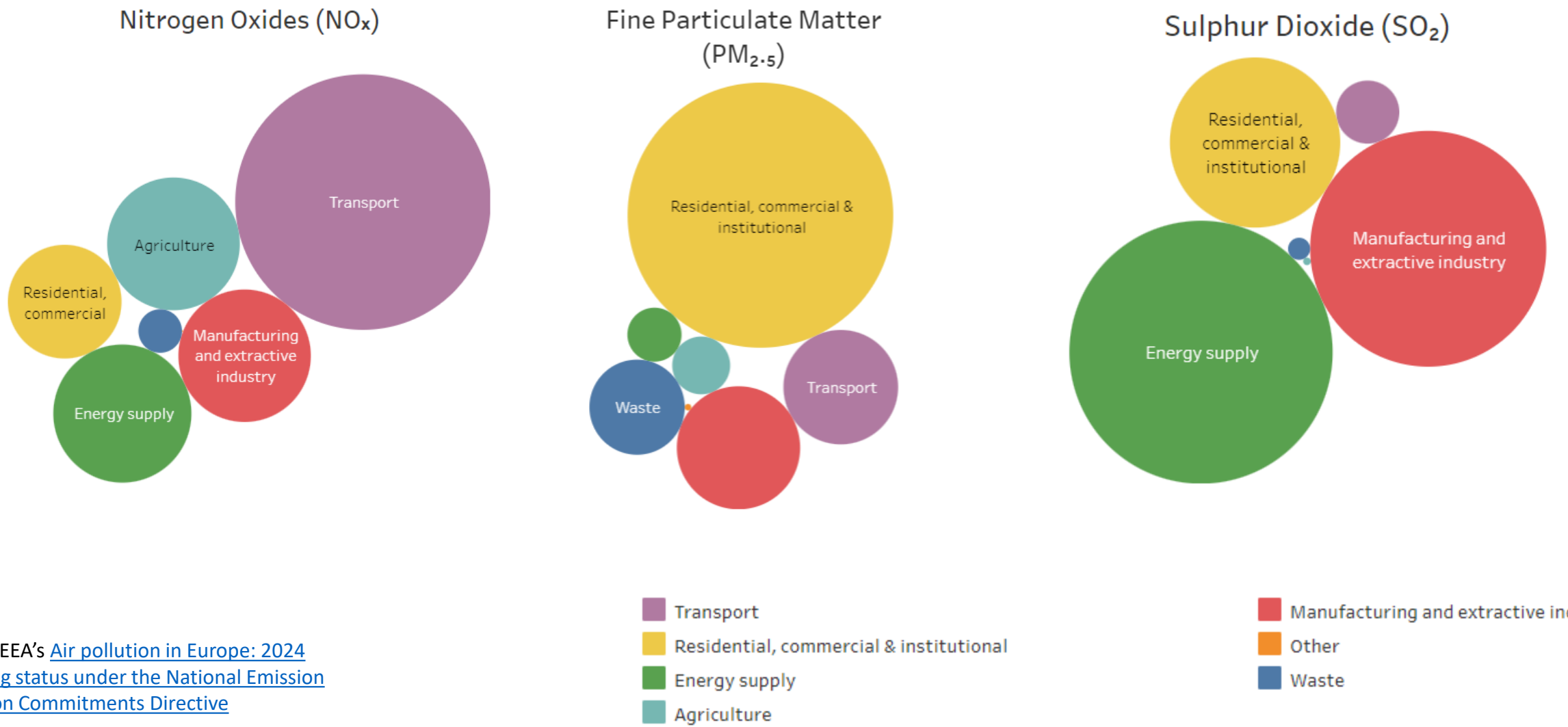
5th Expert Panel on Clean Air in Cities (EPCAC) / September 26, 2024

European Environment Agency

Overview

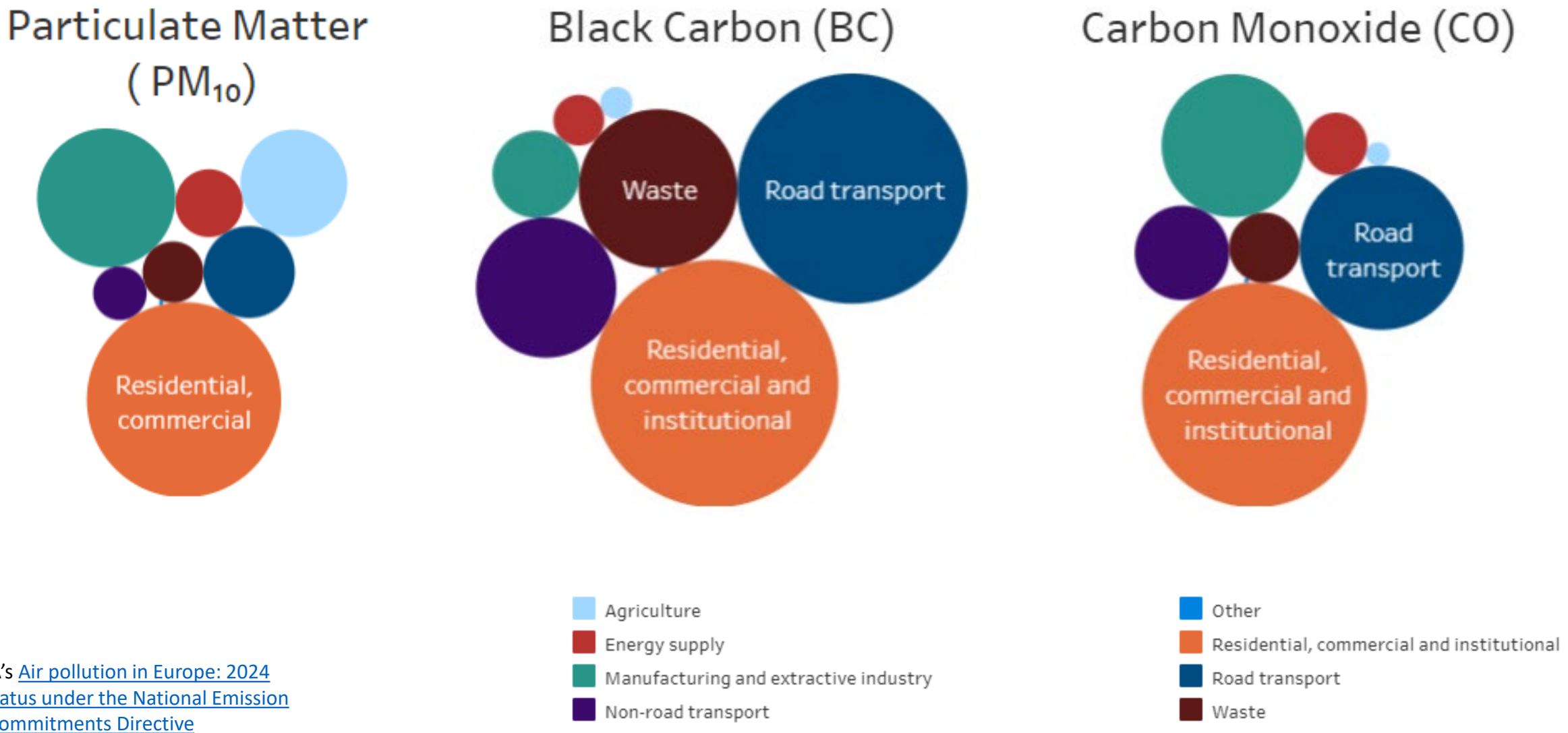
- Main sources of air pollution in cities
- Air quality data reported to the EEA
  - What is reported and why
- EEA viewers related to cities
- Other related EEA‘s products

Main urban emissions in 2022



Source: EEA's Air pollution in Europe: 2024 reporting status under the National Emission reduction Commitments Directive

Main urban emissions in 2022



Source: EEA's Air pollution in Europe: 2024 reporting status under the National Emission reduction Commitments Directive

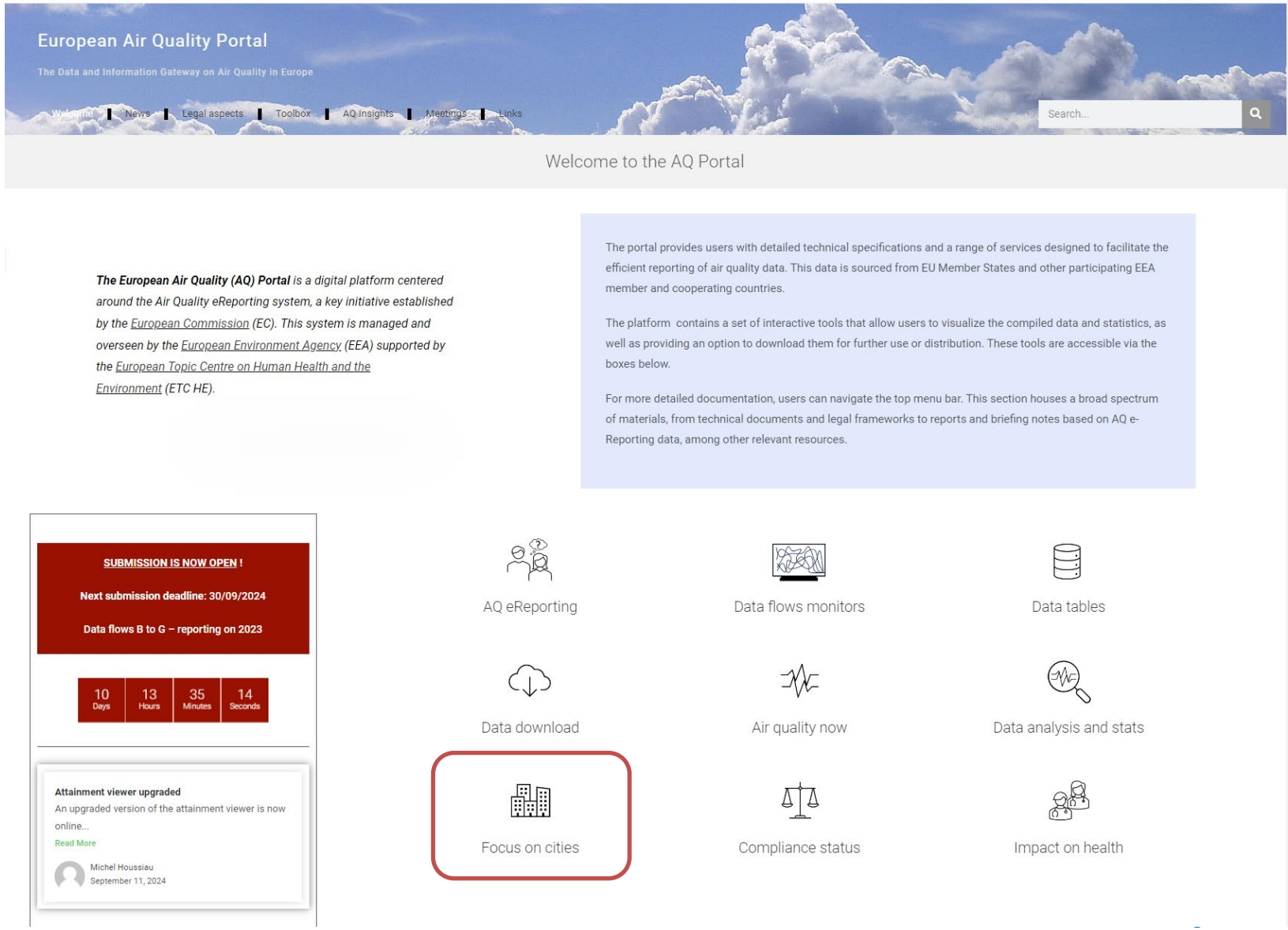
What is reported and why?

- Air quality is monitored all over Europe
  - In accordance as per Directive 2008/50/EC and Directive 2004/107/EC (under revision)
- Ambient air quality measurements are annually reported by member states to the EEA
  - Range of pollutants: $PM_{2.5}$, PM_{10}, NO_2, NO_x, SO_2, O_3, CO, benzene, lead, arsenic, cadmium, nickel, B(a)P and others
  - Up-To-Date hourly data also reported

Air Quality data tables and viewers

EEA viewers related to cities

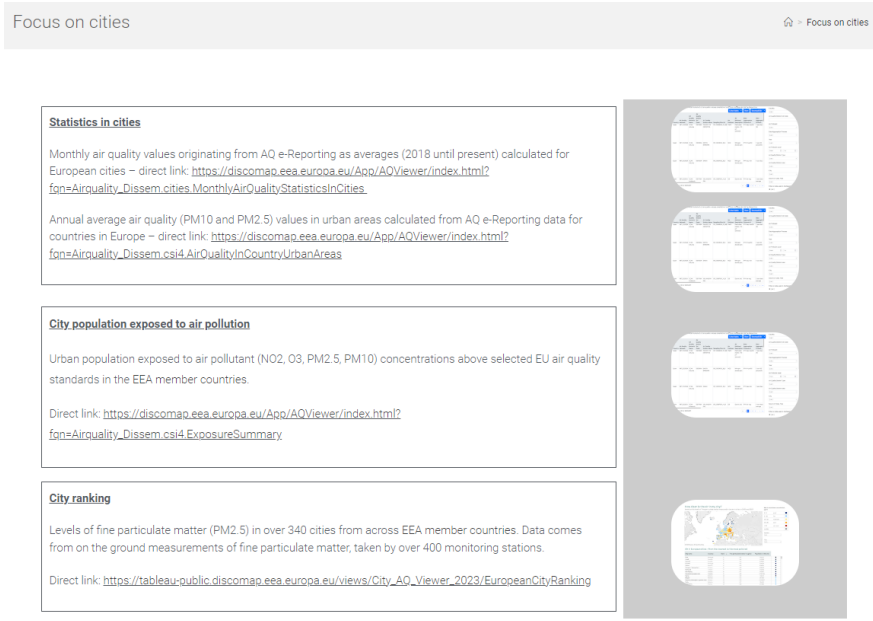
[Air Quality Portal]



EEA viewers related to cities

Focus on cities

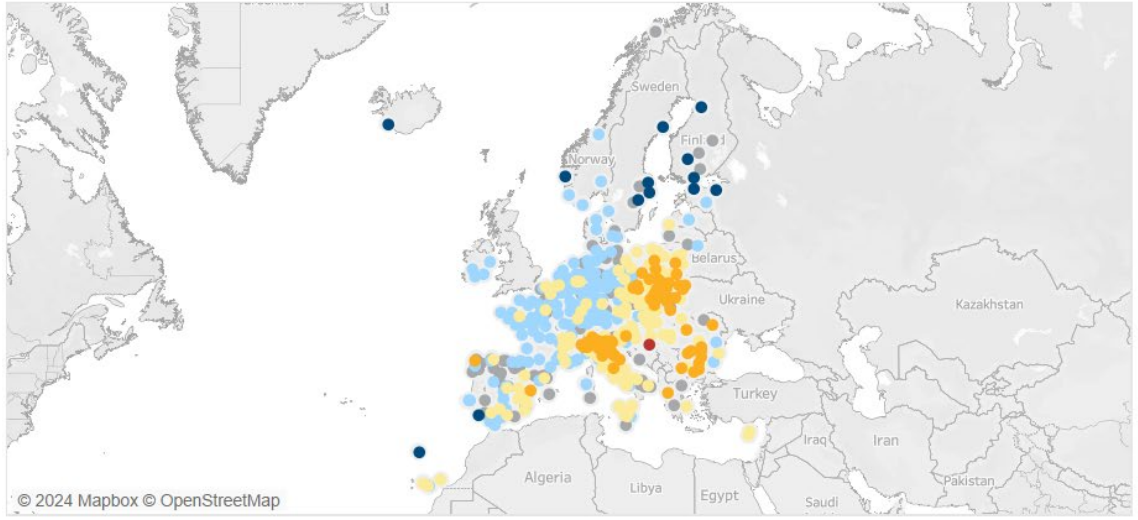
- Statisitcs in cities (monly air quality levels and annual means tables)
  - Monthly and annual values calculated from AQ e-Reporting for European cities
- City population exposed to air pollution (table)
  - Urban population exposed to air pollutant (NO_2, O_3, $PM_{2.5}$, PM_{10}) concentrations above selected EU air quality standards in the EEA member countries
- Eurpoean City Air Quality ranking (viewer)
  - Presents levels of fine particulate matter in over 350 cities from across EEA member countries. Data comes from on the ground measurements of fine particulate matter, taken by over 500 monitoring stations.



The European City Air Quality viewer

How clean is the air in my city?

based on the levels of fine particulate matter measured in the air in cities in 2022 and 2023



PM2.5 annual mean concentration, µg/m3

0 - 5	good
5 - 10	fair
10 - 15	moderate
15 - 25	poor
> 25	very poor
no data	-

Country
All

City
All

Air in European cities – from the cleanest to the most polluted

City name	Country1	Rank	Fine particulate matter in ug/m3	Population in the city
Stockholm (greater city)	Sweden	11	4.6	1745766
Helsinki / Helsingfors (greater city)	Finland	12	4.9	1154967
Bergen	Norway	13	5.0	267950
Saint Denis	France	14	5.1	147931
Cork	Ireland	15	5.2	118713
Trondheim	Norway	16	5.2	179692
Tartu	Estonia	17	5.7	95430
Greater Heerlen	Netherlands	18	6.1	198168
Göteborg	Sweden	19	6.1	564039
Bayonne	France	20	6.1	115561
Sassari	Italy	21	6.2	125273
Kiel	Germany	22	6.2	246794
Greater 's-Gravenhage	Netherlands	23	6.4	769888
Vilnius	Lithuania	24	6.5	561836

European Environment Agency

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City
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Air in European cities – from the cleanest to the most polluted

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Uppsala	Sweden	1	3.5	219914	●
Umeå	Sweden	2	3.6	125080	●
Faro	Portugal	3	3.6	61015	●
Reykjavik	Iceland	4	3.9	132252	●
Oulu	Finland	5	4.0	205489	●
Tampere / Tammerfors	Finland	6	4.0	238140	●
Norrköping	Sweden	7	4.1	140927	●
Funchal	Portugal	8	4.4	104024	●
Tallinn	Estonia	9	4.4	438341	●
Narva	Estonia	10	4.6	53424	●
Stockholm (greater city)	Sweden	11	4.6	1745766	●
Helsinki / Helsingfors (greater city)	Finland	12	4.9	1154967	●
Bergen	Norway	13	5.0	267950	●

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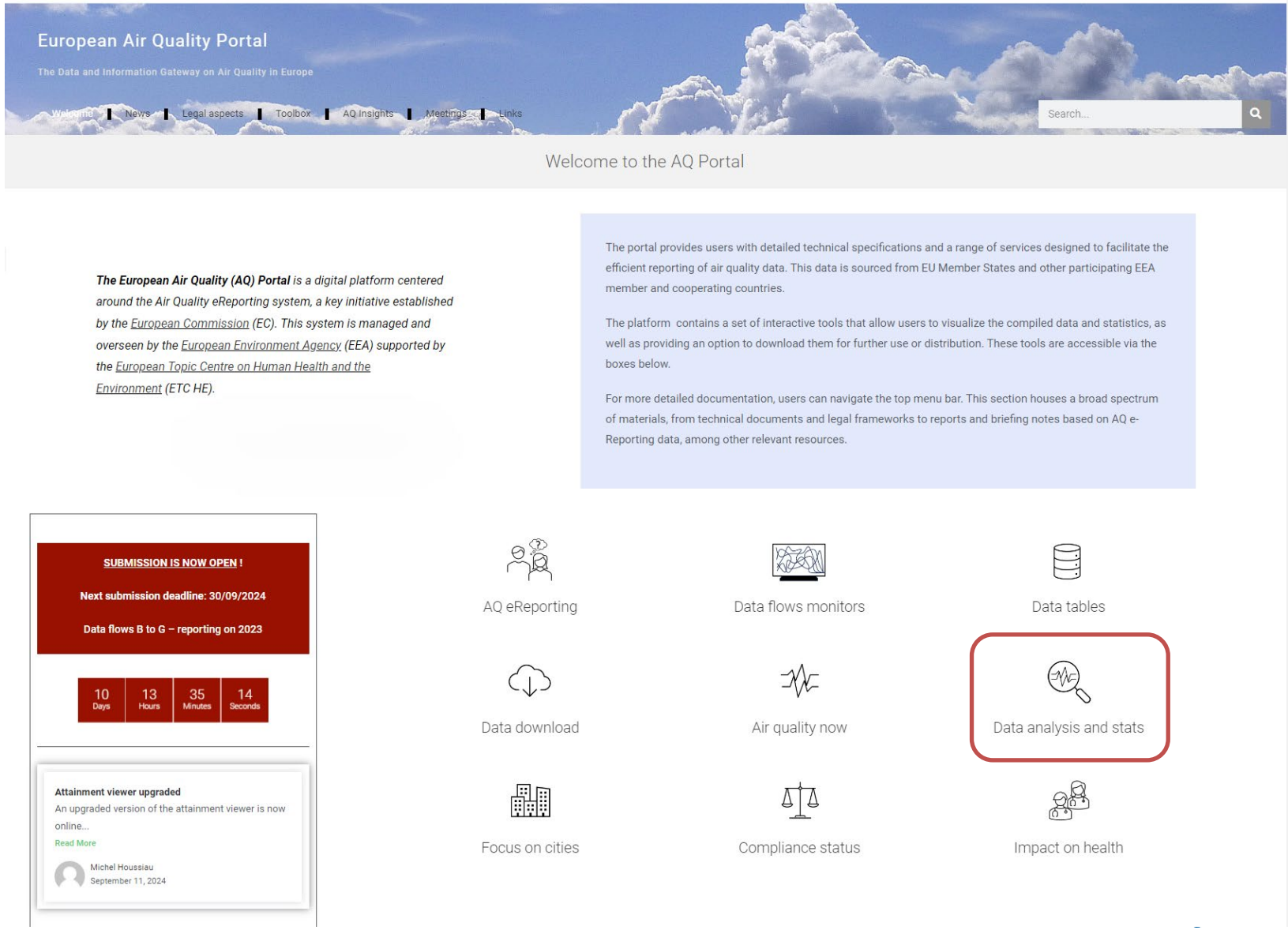
EEA viewers related to cities

[Air Quality Portal]



EEA viewers related to cities

Data & statistics

Data and statistics

- Various tables with different types of statistics
  - Most tables can be filtered on city

Statistics – country / city / station levels

These viewers give a **quick overview of the air pollution levels** for Particulate Matter (PM10 and PM2.5), Nitrogen Dioxide (NO2) and Ozone (O3) as transmitted by the participating countries to the EEA in the frame of AQ eRep..

The results are presented:

- at the **country level**: the values are averaged on all measuring stations – direct link: https://tableau-public.discomap.eea.europa.eu/views/AQeRep_for_public_for_portal/Countrydashboard
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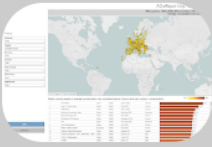
- at the **station level** – direct link: https://tableau-public.discomap.eea.europa.eu/views/AQeRep_for_public_for_portal/Stationdashboard



Daily – weekly – monthly viewer

The evolution throughout the year(s) of the daily, weekly or monthly air pollution concentrations can be followed with this viewer at station level. Stations are also ranked according to their level of pollution.

Direct link: https://tableau-public.discomap.eea.europa.eu/views/data_viewer_ng/Home



General statistical viewer

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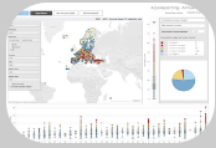

Correlation tool

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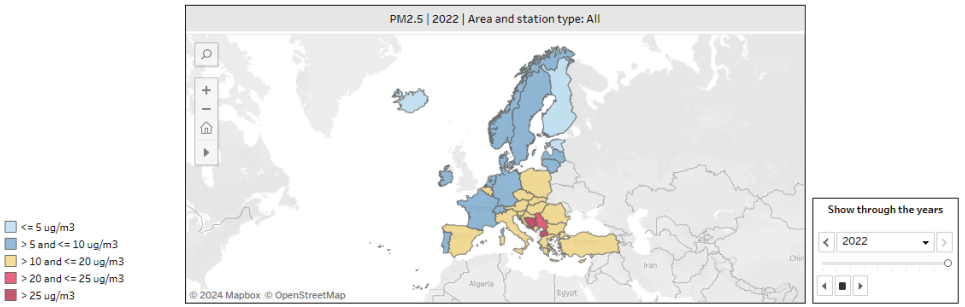
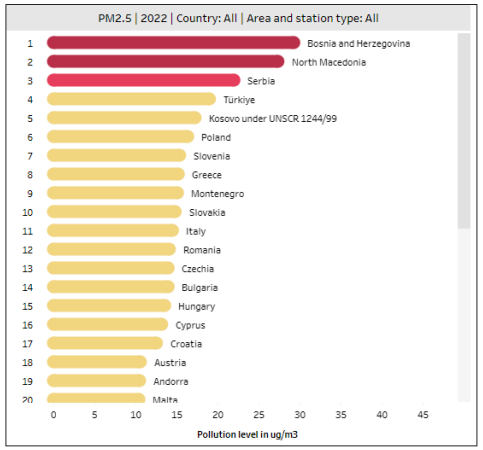
Statistics at the city level

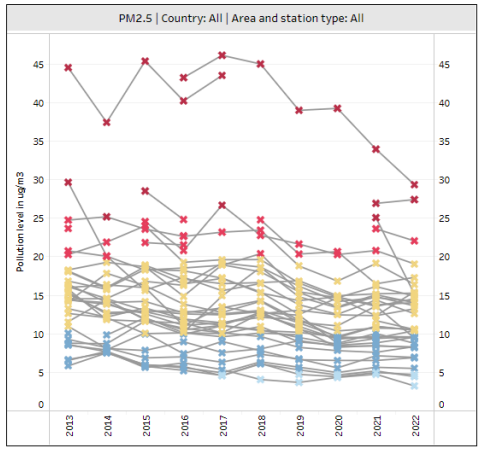
- Annual mean values at country/city/station level.

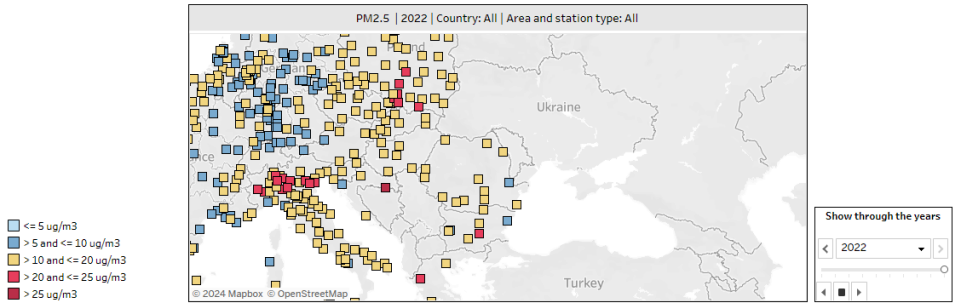


Bars showing the pollution level in each country.



Graph showing the evolution the pollution level throughout the years for each country.





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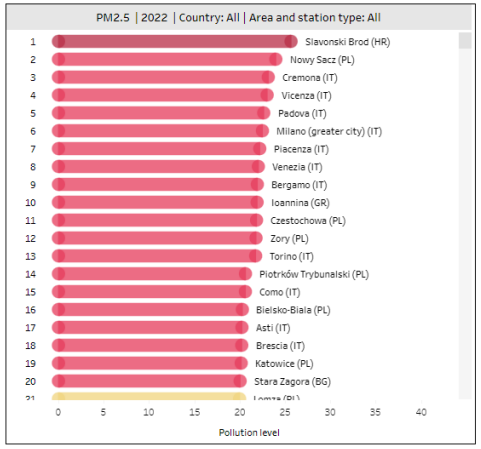

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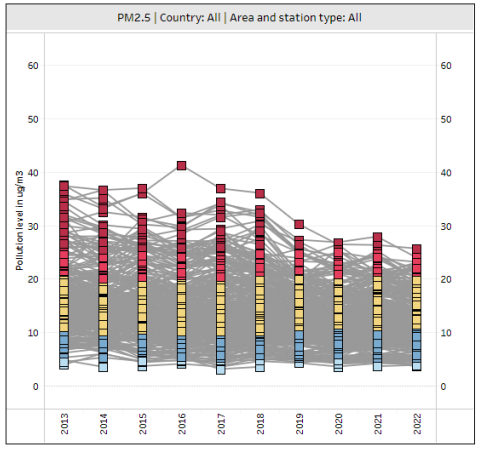

European Environment Agency

EEA viewers related to cities

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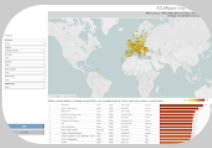

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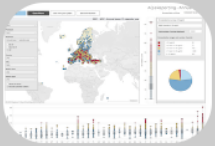

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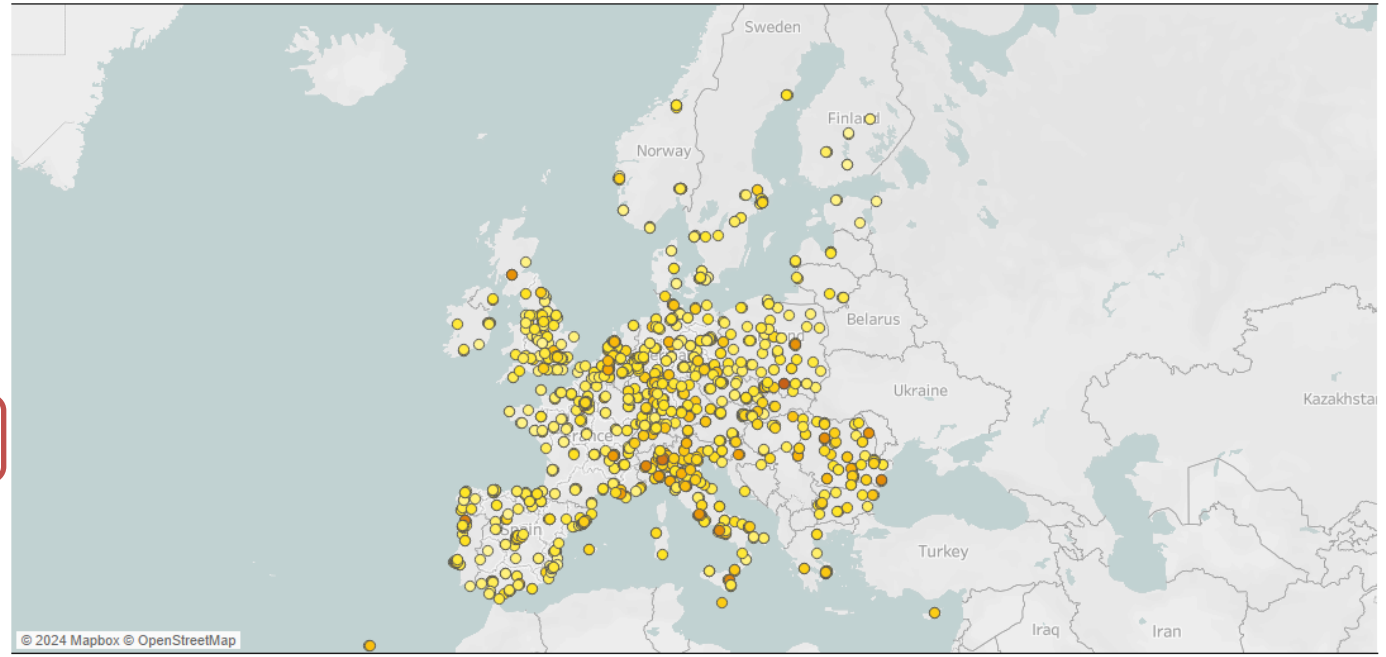
Daily – Weekly – Montly viewer

European Environment Agency

AQ eReporting - data viewers

NO2 | year(s): **2020, 2021, 2022** | month(s): **All** | country(ies): **All**
Average concentration over selected period



Filters

Pollutant
NO2

Year(s)
Multiple values

Month(s)
All

Country
All

City (country)
All

Station type
All

Station area
All

Info

Viewers

Station ranking based on average concentration over considered period (column and color coding = concentration)

3.9 — 69.1

1	PATISION	Urban	Traffic	Athina (GR)	Greece	69.1
2	Auto A1 -Saint-Denis	Urban	Traffic	Paris (FR)	France	56.5
3	PIREAUS-1	Urban	Traffic	Athina (GR)	Greece	55.5
4	München/Landshuter Allee	Urban	Traffic	München (DE)	Germany	51.6
5	Bld peripherique Est	Urban	Traffic	Paris (FR)	France	51.4
6	CORSO EUROPA - VIA S. MARTINO - GEN..	Urban	Traffic	Genova (IT)	Italy	50.9
7	PA - Di Blasi	Urban	Traffic	Palermo (IT)	Italy	50.5
8	Kraków, Aleja Krasińskiego	Urban	Traffic	Kraków (PL)	Poland	49.5
9	RN20 - MONTLHERY	Suburban	Traffic	Paris (FR)	France	48.9
10	NA07 ENTE FERROVIE	Urban	Traffic	Napoli (IT)	Italy	48.5
11	Lyon Périphérique	Urban	Traffic	Lyon (FR)	France	48.4
12	Montpellier Liberté	Urban	Traffic	Montpellier (FR)	France	48.3
13	Perpignan bd Pyrénées	Urban	Traffic	Perpignan (FR)	France	48.2
14	Torino - Rebaudengo	Urban	Traffic	Torino (IT)	Italy	47.5
15	FERMI	Urban	Traffic	Roma (IT)	Italy	46.4

0.0 10.0 20.0 30.0 40.0 50.0 60.0 70.0
Air Quality Level (ug/m3)

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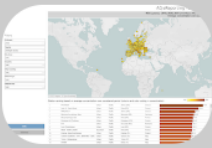

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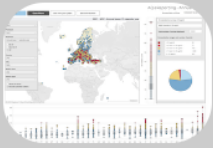

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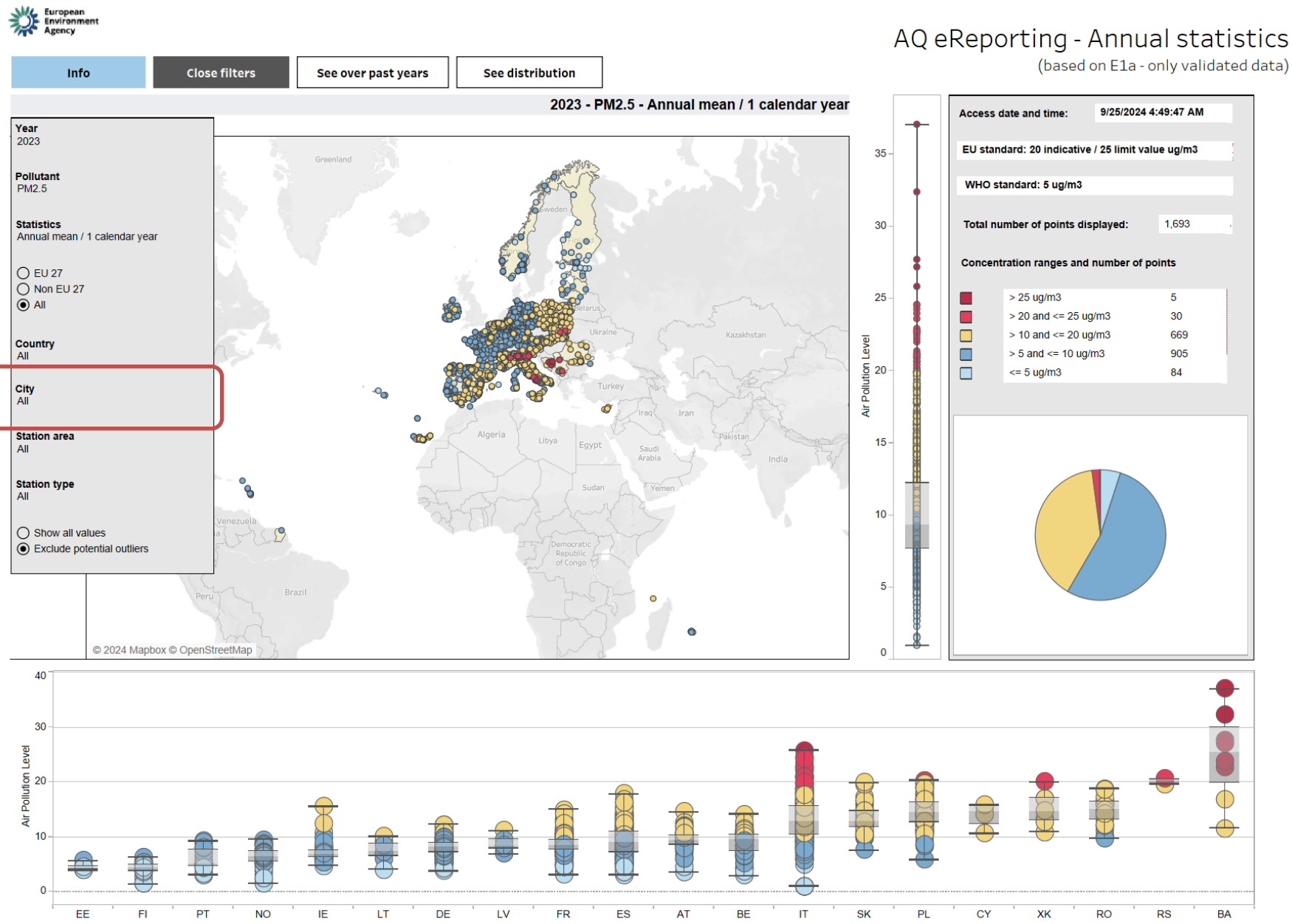
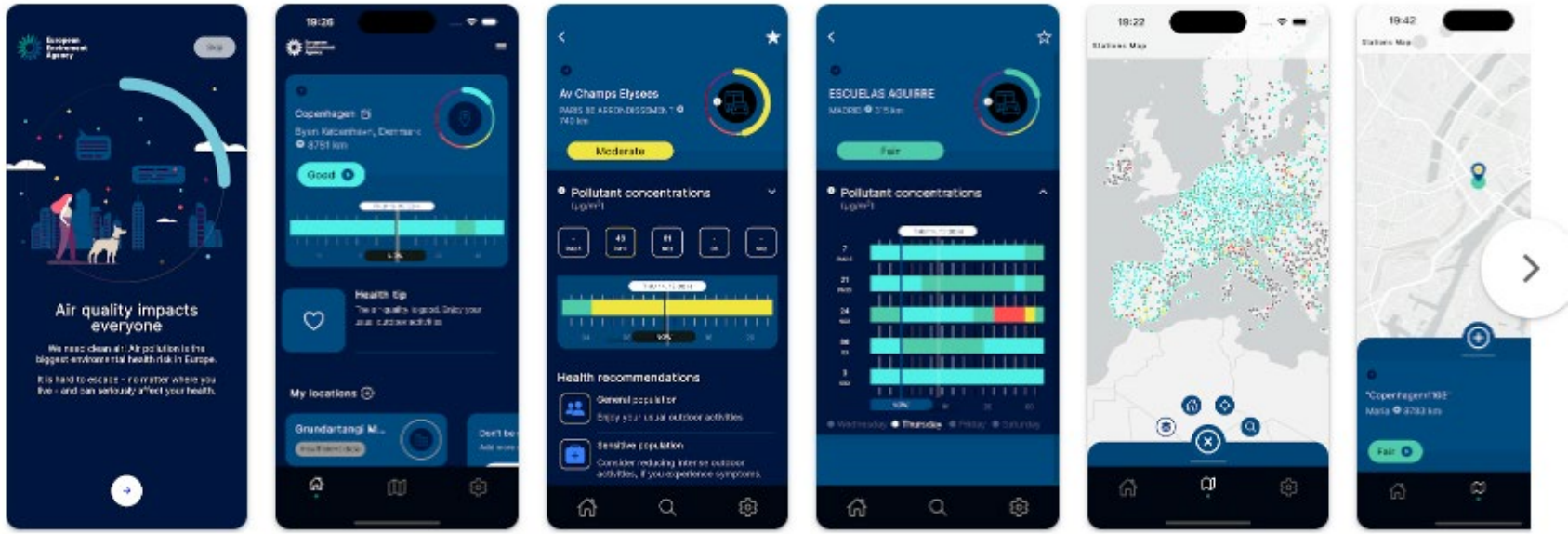


European Environment Agency

External use of the EEA's air quality data: data products

- European Air Quality Index APP



More information

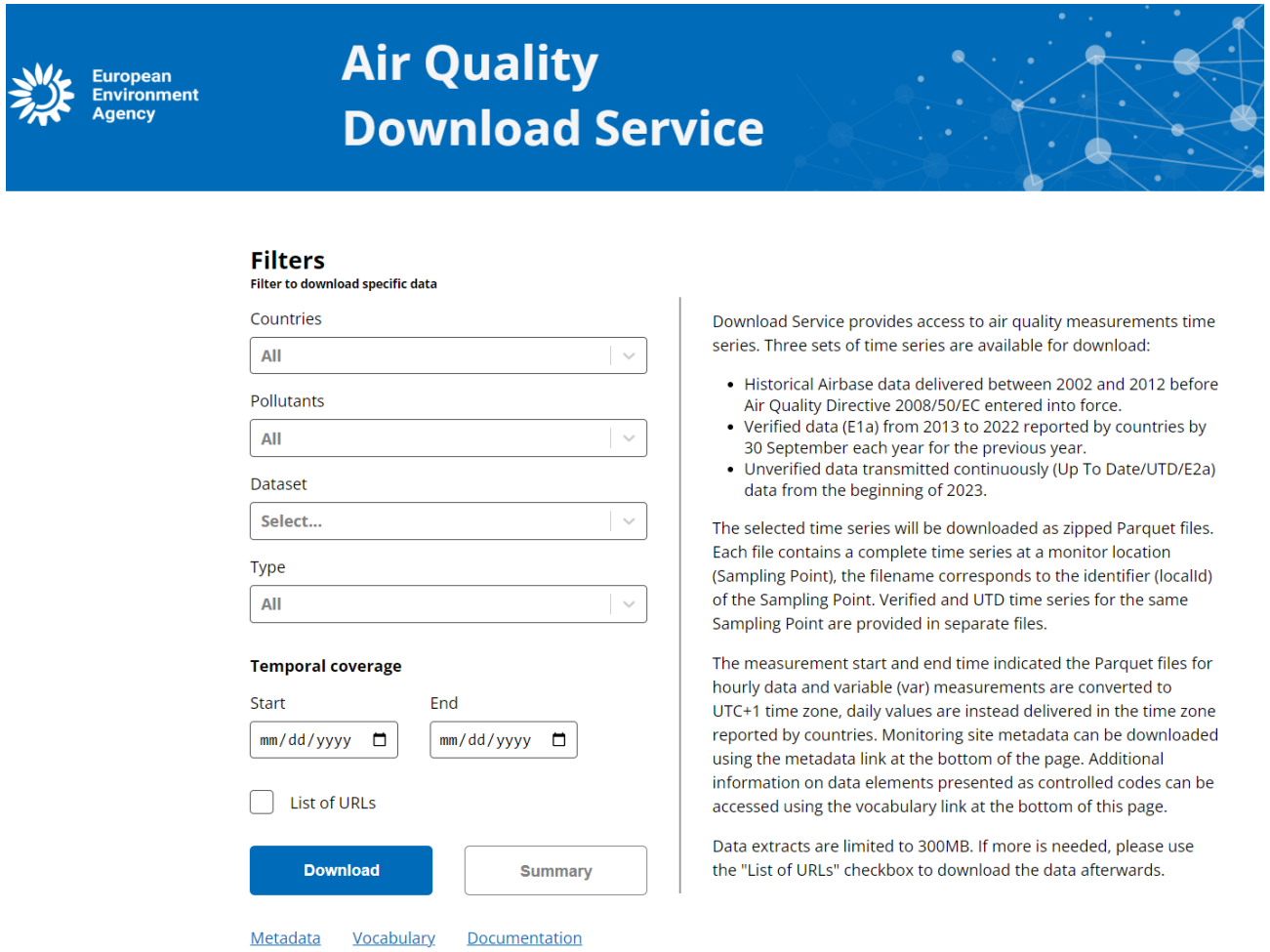
Download the **Air quality index mobile app**

- For Android
- For iphone/ipad

[European Air Quality Index - Apps on Google Play]

[European Air Quality Index on the App Store (apple.com)]

Download Service



Country selection

- Select one or more

City selection

- Select one or more

Pollutant selection

- Select one or more

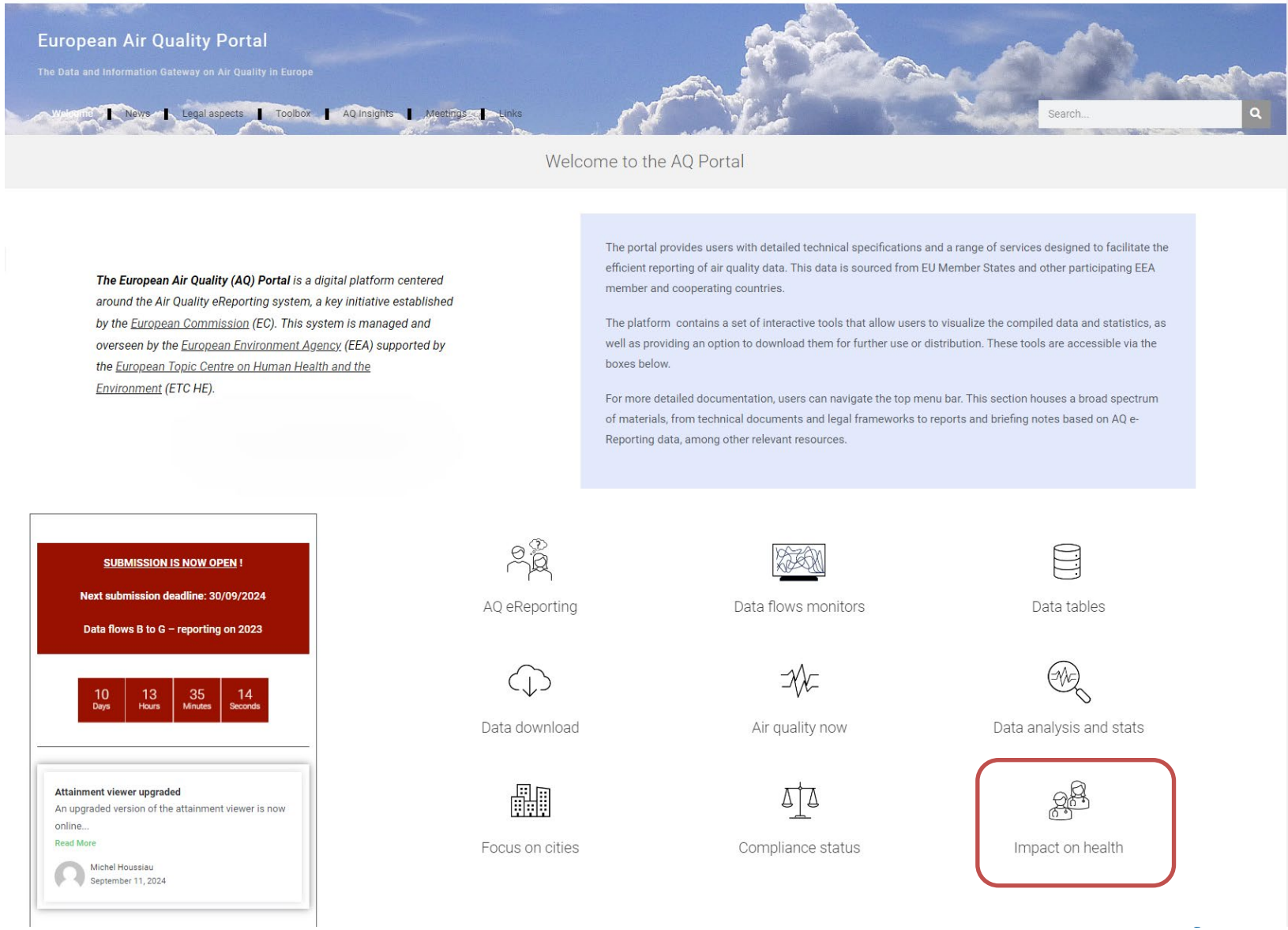
Dataset selection

- E1a Primary validated data
- E2b Up-to-date (unvalidated) data
- Historical Airbase data (from2002 and 2012)

Air Quality assessments and indicators

EEA viewers related to cities

[Air Quality Portal]



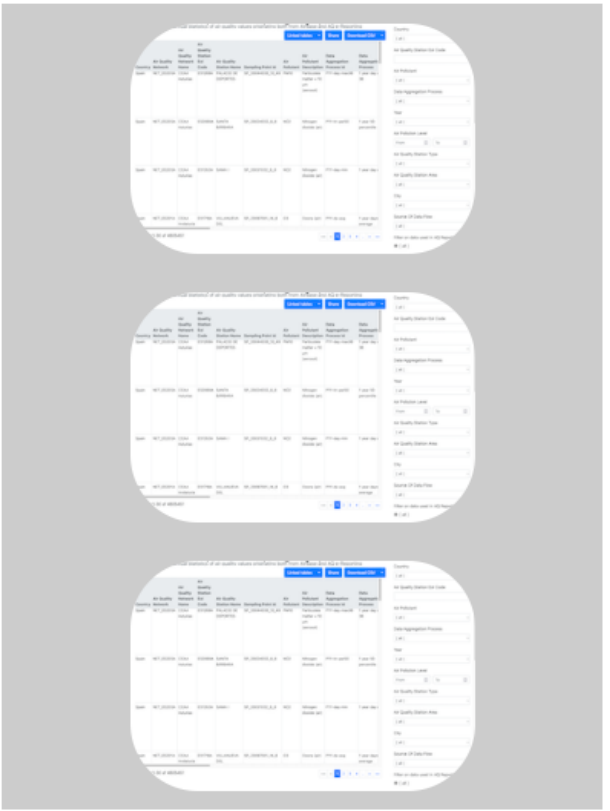
EEA viewers related to cities

Health Risk assessment

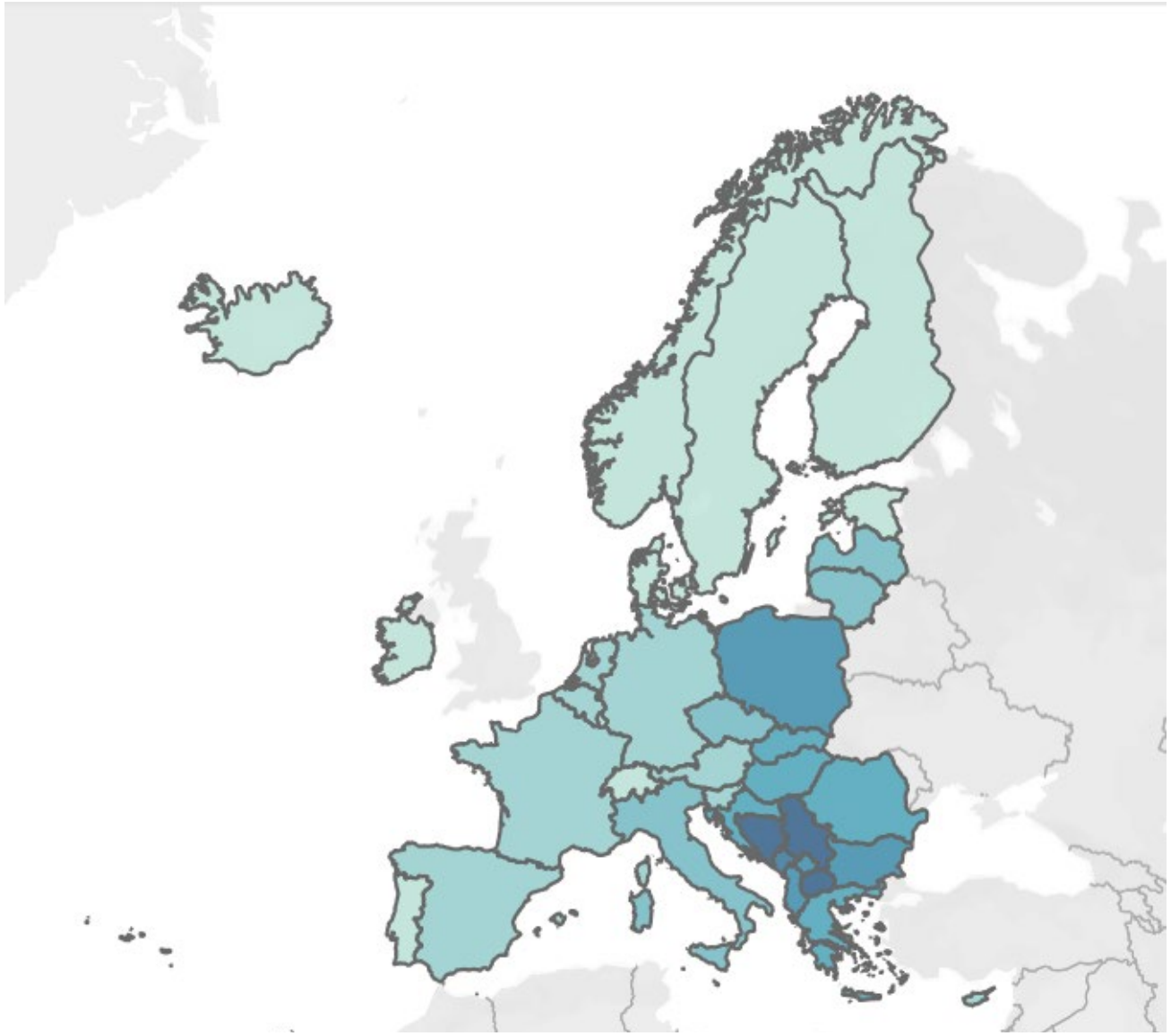
Health Risk Assessment

Information on air quality Health Risk Assessments (HRA) in terms of premature deaths and years of life lost calculated for different scenarios at:

- **Country level** – direct link: https://discomap.eea.europa.eu/App/AQViewer/index.html?fqn=Airquality_Dissem.hra.countries_sel
- **NUTS 3 level** – direct link: https://discomap.eea.europa.eu/App/AQViewer/index.html?fqn=Airquality_Dissem.hra.nuts3_sel
- **City level** – direct link: https://discomap.eea.europa.eu/App/AQViewer/index.html?fqn=Airquality_Dissem.hra.cities_sel



Burden of disease as mortality



In 2021, in Europe, mortality attributable to concentrations of **$PM_{2.5}$** above the 2021 WHO air quality guideline level of **5 µg/m³** was as follows:

253,000 attributable deaths in EU-27 (293,000 in 40 countries)

2,584,000 years of life lost (2,936,000)

584 years of life lost per 100,000 inhabitants (618)

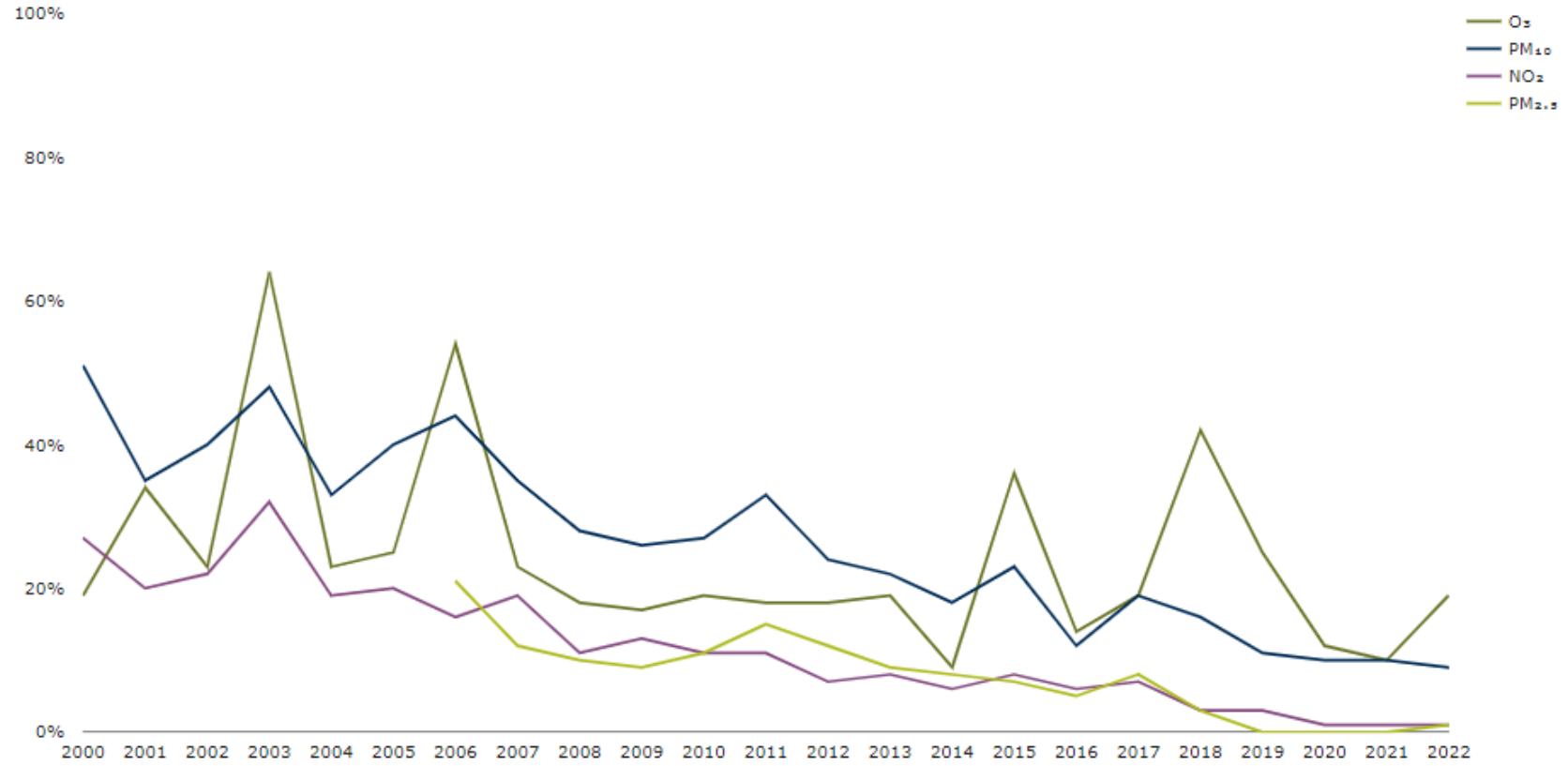
NO_2 (>10 µg/m³): **52,000 attributable deaths in EU-27** (69,000 in 41 countries)

O_3 (short-term >70 µg/m³): **22,000 attributable deaths in EU-27** (27,000 in 41 countries)

European Environment Agency

Exposure of EU urban population in 2022

Figure 1. Urban population exposed to air pollutant concentrations above selected EU air quality standards, EU-27



Source: AIR003

European Environment Agency

Thank you for your attention!

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