

Air Quality in Ireland

Report 2023



Key Messages

Air Quality
Monitoring

Air Quality in
Ireland 2023

Problem
Pollutants

What can I do?
What's needed?

Communicating
Air Quality

New EU Legislation

Citizen Science CAT

Learn More

Acknowledgements
and Disclaimer



Key Messages

Air pollution can be a major environmental risk to people's health, with approximately 1,600 premature deaths annually in Ireland due to poor air quality.

Ireland's latest monitoring shows we are in compliance with current EU standards.

Ireland is not on track to achieve its ambition, set out in the National Clean Air Strategy, to meet the health-based WHO air quality guideline limits in 2026. Achieving future targets will be very challenging.

Main pollutants of concern are fine particulate matter (PM_{2.5}) from solid fuel combustion and nitrogen dioxide (NO₂) from vehicle emissions/traffic.



What can we do?

We can all help improve the quality of the air we breathe by:

Using less solid fuel and cleaner fuels to heat our homes.

Reducing our use of cars to go to school, work and play.

There are supports to encourage us to move to:



Better
alternatives
to solid fuel
combustion



Public
and active
transport



Better
insulated
homes



Electric
vehicles

Air Quality Monitoring

What and how we monitor air quality in Ireland

Key Messages

Air Quality Monitoring

Air Quality in Ireland 2023

Problem Pollutants

What can I do?
What's needed?

Communicating Air Quality

New EU Legislation

Citizen Science CAT

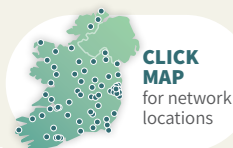
Learn More

Acknowledgements and Disclaimer



The monitoring network

The national ambient air quality monitoring network has almost quadrupled in size since 2017 from 29 stations to the representative 115 station network.



The monitoring network provides real-time air quality results and generates public health advice. The results and advice can be viewed on the Air Quality Index for Health (AQIH) at www.airquality.ie, where you can see what air quality is like in your locality.



What did we monitor in Ireland's air in 2023?

SO₂ PM₁₀ NO₂ O₃
CO PM_{2.5} NO_x PAH
C₆H₆ Heavy Metals

 **CLICK HERE**
for a description of each parameter

Dioxins

The main source of dioxin is combustion particularly residential and backyard burning of waste. Dioxin concentrations, as in recent years, were well below European limit values.



 **WATCH THE VIDEO**

Air Quality Monitoring



 **SEE HOW WE MONITOR AIR QUALITY**



Air Quality in Ireland 2023

Cleaner Air For Europe Directive (CAFE Directive)¹

The CAFE Directive¹

Ireland met all of its EU CAFE legal requirements in 2023 but failed to meet [WHO guidelines](#) values for health in 2023 and is not on track to meet the [Clean Air Strategy](#) Targets for 2026 which is equivalent to WHO IT3.

The [CAFE Directive](#) establishes objectives on how to assess ambient air quality in order to reduce, prevent, and avoid harmful effects on our health and on the environment. See how Ireland met the CAFE legal limit values for selected pollutants measured in 2023 (see opposite table).



EXAMINE
EU CAFE legal
limits



**SUPPLEMENTARY
DATA TABLES 2023**
Read more detail

Selected pollutants measured in 2023 and their adherence to EU legal limit values (CAFE Directive)

Pollutant	Number of stations where parameter monitored in 2023	EU legal limit values
PM ₁₀	106	No exceedances
PM _{2.5}	101	No exceedances
NO ₂	36	No exceedances
Ozone (O ₃)	23	No exceedances
Sulphur dioxide (SO ₂)	15	No exceedances
PAHs	5	No exceedances
Heavy metals	5	No exceedances
Dioxins	22	No exceedances

Air Monitoring Trends

Air Quality in Ireland is moving in a positive direction although Ireland has not yet met the Clean Air strategy and WHO values.

CLICK EACH PARAMETER
to see long-term trends

Monthly Bulletins

Each month Air Quality Bulletins are published on www.epa.ie and www.airquality.ie to give a snapshot of air quality across Ireland.



**CLICK
HERE**

to see monthly bulletins
on Air Quality

¹The CAFE Directive was transposed into Irish legislation by the Air Quality Standards Regulations 2011 (S.I. No. 180 of 2011). The 4th Daughter Directive was transposed by the Arsenic, Cadmium, Mercury, Nickel and Polycyclic Aromatic Hydrocarbons in Ambient Air Regulations 2009 (S.I. No. 58 of 2009).A

Problem Pollutants

Particulate matter and Nitrogen dioxide are the most significant pollutants in Ireland.A

Particulate matter (PM)

What is Particulate matter (PM): PM₁₀ and PM_{2.5}?

Particulate matter (PM) are tiny particles of solid or liquid suspended in the air. The EPA monitors PM₁₀ and PM_{2.5}.

Where does it come from?

Fine particulate matter (PM_{2.5}) in Ireland mainly comes from the burning of solid fuels, such as coal, peat, and wood to heat our homes.

How will it impact my health?

PM_{2.5} is the more important pollutant as it causes most health issues. These tiny particles are inhaled deep into the lungs and cause damage. Chronic exposure can also contribute to stroke and heart disease.

When is it at its worst?

PM levels, in our towns and villages, are at their highest during winter because of human activity, with increased burning of solid fuels using fires and stoves for heating.

Nitrogen dioxide (NO₂)

What is Nitrogen dioxide?

Nitrogen dioxide is a significant air pollutant (NO₂).

Where does it come from?

The main source of NO₂ in our towns and cities is from traffic (petrol and diesel engines).A

How will it impact my health?

NO₂ can affect our lungs and breathing.

When is it at its worst?

High concentration of NO₂ occurs in our cities, where traffic is heaviest.



WATCH
How we monitor PM



WATCH
How we monitor NO_x



WATCH Clean air is
important for good health

What can I do? What's needed?

We can all help improve the quality of the air we breathe



Key Messages

Air Quality
Monitoring

Air Quality in
Ireland 2023

Problem
Pollutants

**What can I do?
What's needed?**

Communicating
Air Quality

New EU Legislation

Citizen Science CAT

Learn More

Acknowledgements
and Disclaimer



Reduce Home Heating Pollution (PM)



**Avoid using solid
fuels**

if you have an alternative
cleaner heating system



**Change how you heat
your home**

by using cleaner fuel choices



**Make your home more
energy efficient**

and more comfortable



**Home energy upgrade
one stop shop**

**See the effects of
solid fuel burning**
on the air monitoring
network



WATCH THE VIDEO

Reduce Car Pollution (NO₂)



**Leave the car
at home**

if you can for 1
day a week



Carpool

and reduce the
amount of cars
on the road



**Take public
transport**

or walk,
or cycle



**Work from
home**

for part of your
working week



**Go
electric**



**Reduce
idling**

What's needed? Help is needed to facilitate people to make cleaner and healthier air quality choices.



Local authorities
Prioritise allocation of
resources to advance
enforcement



**Solid Fuel
regulations**
Full implementation



See regulations



Air Quality plans
Full implementation
of Air Quality Plans



**Dublin Region
Air Quality Plan**



**Clean public
transport**
maintain and
increase investment



Active travel
create more and
safer footpaths and
cycle lanes



Communicating Air Quality

Air Quality Modelling

Air quality modelling is an effective way to communicate air quality data in a format that is easy to understand. It fills in gaps between monitoring stations, providing air quality values across the entire country.

EPA's LIFE Emerald project has developed state of the art air quality models which will be used by the EPA for years to come. These models will provide daily forecast, hourly updated and annual high-resolution maps for air quality in Ireland.



WATCH OVERVIEW
of airquality.ie

These maps are all readily available through epa.ie and on airquality.ie



Daily Air Quality Forecasts



Hourly Updated Air Quality Index for Health



High-resolution air quality maps have been produced for the entire country for 2019, 2021, 2022 and 2023. These maps will be produced annually and will not only provide greater detail across the country, but can also be used for:

Improved Mapping of Emissions

LIFE Emerald studies carried out in Dungarvan and Edenderry improved our understanding of where air pollutants were coming from.





New EU Legislation

Proposed new Directive on air quality



The EU has proposed a new Cleaner Air for Europe Directive, key points include:

- Lower limit values for 2030 for key health impacting pollutants including fine particulate matter (PM_{2.5}) and nitrogen dioxide (NO₂), more closely aligned with WHO guidelines.
- New pollutants added to monitoring requirements including Ultrafine Particles (UFP), black carbon and ammonia.
- Further improvements to the EU legal framework for air quality including better public information on air quality, strengthened air quality plans, requirements for air quality modelling and air quality road-maps to improve air quality management.
- A review of air quality limit values must be carried out by 2030 to look at options for alignment with WHO guidelines and the latest scientific evidence.



EU Zero Pollution Fact Sheet

[READ HERE](#)



Questions and Answers on New Air Quality Rules



Provisional agreement for cleaner air in the EU



Proposed new CAFE Directive



[READ HERE](#)

EU CleanAir Forum



EEA ask an expert
Air pollution and
health



[WATCH VIDEO](#)

Citizen Science - CAT

Key Messages

Air Quality Monitoring

Air Quality in Ireland 2023

Problem Pollutants

What can I do? What's needed?

Communicating Air Quality

New EU Legislation

Citizen Science CAT

Learn More

Acknowledgements and Disclaimer



Following successful campaigns in Dublin in 2021 and Cork city in 2022, the EPA's citizen science project Clean Air Together moved to Galway city in 2023 and will roll out in Limerick city in late 2024. The project involves citizen scientists measuring levels of the nitrogen dioxide (NO₂) in their local area in October.



Clean Air Together moved to Galway in 2023 with full details @Cleanairtogether.ie

- Results from all three Clean Air Together (CAT) campaigns to date clearly show that higher NO₂ levels are linked to higher volumes of vehicular traffic.
- Results for CAT-Galway City show that 71% of locations sampled were 0-10 µg/m³ and 24.5% (10 - 20 µg/m³) for NO₂.
- CAT-Limerick City was launched on Wednesday August 21st, 2024 to carry out NO₂ measurements during the month of October. Results are expected to be published in early 2025.
- CAT results are being used by the EPA to support air quality modelling and by local authorities to support air quality management.



Key Messages

Air Quality
Monitoring

Air Quality in
Ireland 2023

Problem
Pollutants

What can I do?
What's needed?

Communicating
Air Quality

New EU Legislation

Citizen Science CAT

Learn more

Acknowledgements
and Disclaimer




Learn more


If you want more information


Go to the EPA Air Quality Frequently Asked Questions



USEFUL LINKS

 Supplementary information for the 2023 Air Quality Report in Ireland

 EPA's Air Quality Index for Health (AQIH)A

 Real Time Air quality data for Ireland

 The National Investment Framework for Transport in Ireland


 Ireland's Climate Action Plan

 Clean Air Strategy

 Clean Air Day Cork


 The National Retrofitting SchemeA


AIR QUALITY RESEARCH


 EPA funded research in Air Quality


EU & WHO

 The Cleaner Air For Europe Directive (CAFE Directive) (2008/50/EC)A

 EEA Report: Europe's air quality status 2023

 WHO Air Quality Guidelines

 WHO: Breathe Life - How air pollution impacts your body

 EU Air Quality Index for Health

Europe as part of the Green Deal and the EU's zero pollution visions for 2050 is revising its air quality standards to align them more closely with the lower WHO recommendations.



Key Messages

Air Quality
Monitoring

Air Quality in
Ireland 2023

Problem
Pollutants

What can I do?
What's needed?

Communicating
Air Quality

New EU Legislation

Citizen Science CAT

Learn More

Acknowledgements
and Disclaimer



Acknowledgements and Disclaimer

Acknowledgments: The Principal authors, Lin Delaney, Patrick Kenny and Emilia Hanley, wish to acknowledge the contributions of their colleagues Cathal Ruane, Sarah Boylan, Ken Murphy, Kevin Harte, Daithí Kelleghan, Dermot Burke, Patrick Malone, Roni Hawe and Director Micheál Lehane, in the National Ambient Air Quality Unit. EPA contractors, Hugh Baxter, Dylan Halpin, and Peter Mooney, Fiona O'Rourke EPA Evidence Programme, Emily Williamson, Communications Team, Leo McKittrick and Aisling O'Connor EPA Clean Air Together.

Additional support in monitoring, analysis and input was provided by EPA staff in Dublin, Kilkenny, Wexford, Castlebar, Monaghan, Cork and Limerick with support in data collection and reporting from colleagues in the EPA Research, Emissions, Air Cross Office, Ecosystem Services, Enforcement, Catchments, IT and Geographic Information System teams. The authors also acknowledge the input of personnel from local authorities, DECC, the Health Service Executive, Met Éireann, UCC, MTU, TCD, MU, UoG amongst others who provided data for this report. The authors wish to also acknowledge all the site personnel who assisted in gaining access to our monitoring sites and enabling us to carry out our routine work, which in turn assisted us greatly in the development of this report. FUSE Graphic Design.

Disclaimer: Although we in the Environmental Protection Agency have tried our best to make sure this publication is accurate, we cannot guarantee complete accuracy. Neither we nor the authors are in any way responsible for any loss or damage caused by, or claimed to have been caused by, anyone doing anything or failing to do anything based on information in this publication. You may reproduce all or part of this publication without further permission, provided you acknowledge the source.