European Metrology Programme
for Innovation and Research

EURAMET

Environment - Projects

An overview of the funded projects from the Targeted Programme Environment.

Monitoring complex forms of mercury pollution (16ENV01)

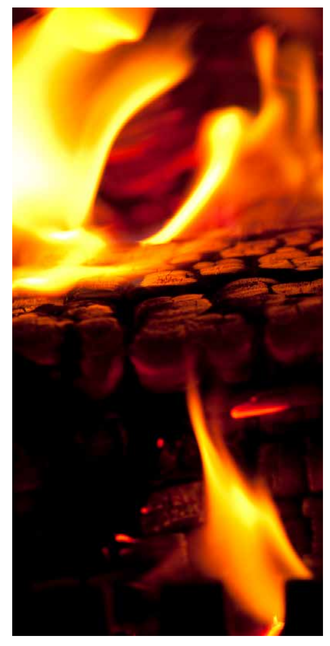
New measurements of reactive forms of mercury will support enforcement of effective air pollution monitoring

Highly toxic and reactive mercury is regulated by numerous EU Directives. Following ENV02 PartEmission and ENV51 MeTra, this project will develop traceable measurements, monitoring and control of mercury, in both industrial flue gases and in the atmosphere. The results will provide crucial support to the enforcement of future global and European regulations governing mercury pollution and the protection of human health and the environment.

Harmonising measurements of black carbon (16ENV02)

Harmonised measurements of black carbon will help refine climate models and mitigation proposals

Black carbon emitted from sources such as diesel engines and wood burning is a major contributor to climate change, and known to cause premature deaths. However, the instruments used for measuring black carbon in the atmosphere give results that differ by up to 30 %. This project will develop black carbon measurement traceability and calibration mechanisms which can be used to refine climate change models and improve the quality of studies investigating the health effects of air pollution.



Improving climate observations from space (16ENV03)

Further improvements to measurements from remote climate sensors will provide reliable data for policy makers

The full extent of the impact of climate change on society, and the most effective strategies to mitigate it, remain uncertain. Following ENV04 Met-EOC1 and ENV53 Met-EOC2 this project will improve pre- and post-launch calibration and validation of remote climate sensors, and establish a method for assigning quality metrics to climate data. The results will support strategies that ensure a sustainable environment and quality of life for European citizens.

Ensuring fast, effective action in nuclear events (16ENV04)

New radioactivity measurements will support fast, effective protection of the environment following nuclear events

After a nuclear or radiological event, decision makers need quick and reliable information on the areas affected. This project will develop new measurement techniques and traceable calibration methods for determining ground surface activity concentrations and radioactivity in air. The results will be adopted by nuclear regulatory bodies, environmental agencies and international standards organisations, and support action that protects the public and environment.

Direct measurements of nitrogen dioxide pollution (16ENV05)

First direct measurements of harmful pollutant will aid the development of evidence-based mitigation policies

Nitrogen dioxide (NO_2) is produced when fuels are burned, and has a negative impact on human health. Following ENV01 MACPoll, this project will develop direct measurement capabilities for NO_2 using innovative techniques, and direct calibration with more accurate and stable primary reference standards. This will support the evidence-based mitigation policies needed to reduce NO_2 pollution levels, to improve quality of life and to reduce the economic burden of health problems.

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The European Metrology Programme for Innovation and Research (EMPIR) follows on from the successful European Metrology Research Programme (EMRP), both implemented by EURAMET. The programmes are jointly funded by the participating countries and the European Union and have a joint budget of over 1000 M€ for calls between 2009 and 2020.
EURAMET e.V. is a non-profit organisation under German Law.

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EMPIR EURAMET
The EMPIR initiative is co-funded by the European Union's Horizon 2020 research and innovation programme and the EMPIR Participating States

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Environment - Projects

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Identifying the source of greenhouse gas emissions (16ENV06)

New capabilities to identify source of carbon dioxide and nitrous oxide will improve emissions monitoring

To prevent irreversible changes to the Earth's climate from greenhouse gas emissions, researchers need to be able to discriminate man-made from natural emissions. This project will develop the infrastructure needed to underpin measurements of stable isotopes of carbon dioxide and nitrous oxide and enable their origin to be identified. This improved identification of sources of greenhouse gas emissions will enable governments to comply with legislation and help prevent climate change.

Better measurement of airborne particles (16ENV07)

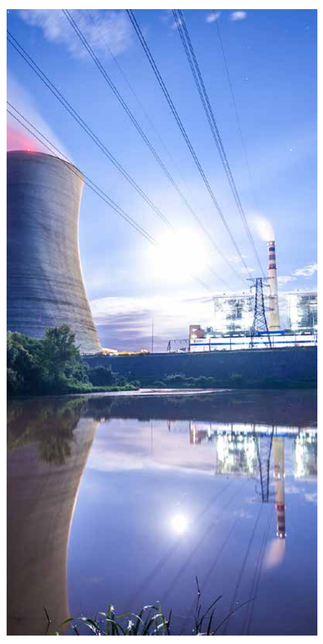
Improved measurements will support the enforcement and introduction of air pollution regulation to protect European citizens

Accurate measurements of airborne particles are vital for enforcing EU air quality regulations. Current methods need improving to ensure results given by instrumentsbased on different working principles can be compared. Following ENV01 MACPoll and ENV02 PartEmission, this project will improve the uncertainty of particle mass, size and number concentration measurements of regulated and unregulated components in airborne particles. This will enable Europe's air quality networks to better understand health risks and the effect on climate change.

Future-proof emissions monitoring (16ENV08)

Standardised pollutant measurements to meet the requirements of current and future air quality regulations

To protect citizens' quality of life, limits on air pollutants are continually becoming more stringent. Following ENV60 IMPRESS, this project will develop measurement methods for newly regulated pollutants, such as ammonia and hydrogen fluoride, address the lack of uncertainty characterisation in flow measurements and develop next-generation techniques for increasingly stringent limits. The results will enable regulators to comply with emission limits and monitoring requirements, supporting cleaner air across Europe.



Safe and cost-effective disposal of nuclear waste (16ENV09)

Improved radioactivity measurement capabilities will help nuclear site operators manage waste quickly and effectively

The key to safe and cost-effective disposal of radioactive waste, estimated to cost more than €150 billion, is accurate quantification of its radioactivity content. Following ENV09 MetroRWM and ENV54 MetroDecom, this project will provide validated techniques for measuring radioactivity on site, and segregating and monitoring waste. The results will facilitate improved planning of decommissioning projects and minimise the risk of radioactive exposure to people and the environment.

Supporting introduction of new radon regulation (16ENV10)

New radon measurements will enable regulators to reliably assess and limit public exposure

Radon in indoor air is estimated to cause between 3 % and 14 % of all lung cancer cases. In Europe, this corresponds to around 15,000 to 20,000 deaths every year. This project will provide traceable measurements and calibration procedures, enabling regulators to meet new EU requirements relating to low radon activity concentration levels and help to mitigate the serious health effects of this pollutant.

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