European Metrology Research Programme

Environment II

An overview of the funded projects from the Targeted Environment Programme

Improved mercury measurements

Tackling new requirements for mercury measurements (ENV51)

Human activity has led to increased environmental levels of mercury, which is highly toxic to humans, animals and the environment. Traceable measurements are lacking and new technologies are needed for the next generation of advanced mercury measurements. This project will develop a measurement infrastructure for mercury in the environment to support European legislation as part of a treaty aimed at reducing global mercury emissions.

Greenhouse gas measurement

Measuring the critical gases for global monitoring of climate change (ENV52)

The World Meteorological Organisation (WMO) has identified a series of greenhouse gases that are critical for global monitoring and require measurements traceable to the SI units. This project will develop high accuracy reference standards and novel methods for measuring the isotopic composition of these gases which will help understand their impact on air quality and public health.

Observing the Earth from space

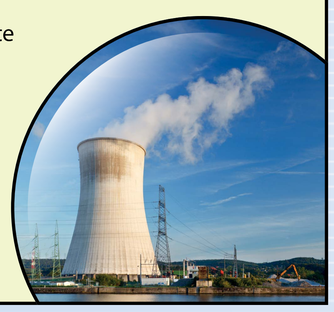
Improving satellite measurements for climate change monitoring (ENV53)

Remote sensing of the Earth from space is vital for obtaining data needed to underpin climate change research and identify potential environmental issues. Following on from ENV04, this project will establish the tools, methods and infrastructure to help assign trustworthy confidence levels to climate change monitoring data. It will also progress the development of a prototype climate and calibration satellite called TRUTHS.

End of life support for nuclear power

Enabling the safe, timely and cost effective decommissioning of nuclear facilities (ENV54)

There is low public confidence in the nuclear industry and its ability to dispose of nuclear waste. Reliable measurements of strict criteria are the only way to restore public trust. Following on from ENV09, this project will implement and test industrial prototypes on site under real conditions, enabling decommissioning measurements to be carried out using standard methods with traceability to national standards. This will improve uniformity and accuracy of measurements across Europe.



Ammonia in air

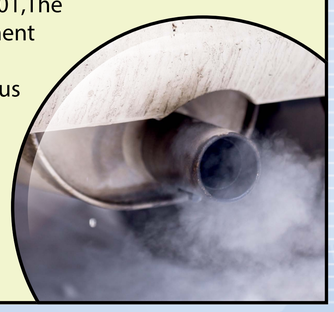
Developing traceable measurements of ammonia in air for environmental policy makers (ENV55)

Ammonia has harmful effects on ecosystems and human health, contributing to problems such as eutrophication and acidification of land and water and conditions such as heart and lung diseases. This project will develop traceable measurements of ammonia in air and provide standards for the measurement of ammonia concentrations under ambient conditions, thereby helping identify changes caused by environmental protection policies.

Volatile Organic Compounds

Supporting air quality monitoring networks with new measurements of VOCs (ENV56)

Volatile Organic Compounds (VOCs) can be dangerous to human health and cause damage to the environment. Measurements of VOCs are complex and stable gas reference standards are difficult to produce. Following on from ENV01,The project will validate new measurement systems to support atmospheric monitoring for key VOCs, with a focus on benzene, a harmful air pollutant and carcinogen.



Early warning of nuclear accidents

Improving Europe's ability to detect and respond to radiological incidents (ENV57)

All European countries operate early warning networks for nuclear accidents, with about 5 000 monitoring stations currently active. This project will develop devices and methods to harmonise the data collected and improve comparisons between different stations and networks, resulting in the faster and more coordinated response of European authorities in the event of a nuclear emergency.

Essential measurements for climate monitoring

Improving measurements of key climate variables in water, land and air (ENV58)

Long-term observations of essential climate variables (ECVs) are vital as society becomes increasingly affected by climate change. This project builds upon the previous work of ENV07 to develop devices and investigate sensor characteristics and calibration uncertainties, extending atmospheric ECVs to include soil and oceanic variables. The results will benefit European agriculture, energy, and transport, as well as public health.

Ozone layer recovery

Updating the long-term monitoring systems for ozone in the atmosphere (ENV59)

Careful long-term monitoring of the ozone layer remains crucial to verifying the success of the Montreal Protocol, which regulates against destructive chlorofluorocarbons (CFCs). Following on from ENV03, this project will assist in the development of new types of ground-based instruments to measure atmospheric ozone to replace the ageing models currently used, which will aid recovery of the ozone layer and provide significant health benefits.

Emissions from industry

Supporting future regulation to reduce industrial pollution and its climate impact (ENV60)

The European Climate Change Programme is targeting an 80-95 % reduction in pollution and greenhouse gases by 2050. This project will develop new monitoring technologies to support industry, regulators and standardisation committees, removing many of the current obstacles in the way of emissions reporting and helping to control emissions within the framework of tighter regulation.

Europe's National Measurement Institutes working together

The European Association of National Metrology Institutes (EURAMET) has implemented the European Metrology Research Programme (EMRP), a programme with a value of over 400 M€, organised by 23 NMIs and supported by the European Union.

Full details can be found at: **www.euramet.org**

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