The UK Environmental Change Network

Data, monitoring and research to detect and interpret environmental change

The UK Environmental Change Network (ECN) is the UK's long-term, integrated environmental monitoring and research programme. ECN gathers information about the pressures on and responses to environmental change in physical, chemical and biological systems. It is supported by a consortium of 14 sponsoring organisations and seven research organisations. ECN can provide data relevant to issues such as climate change, air and water pollution, land use change and biodiversity loss.

Objectives

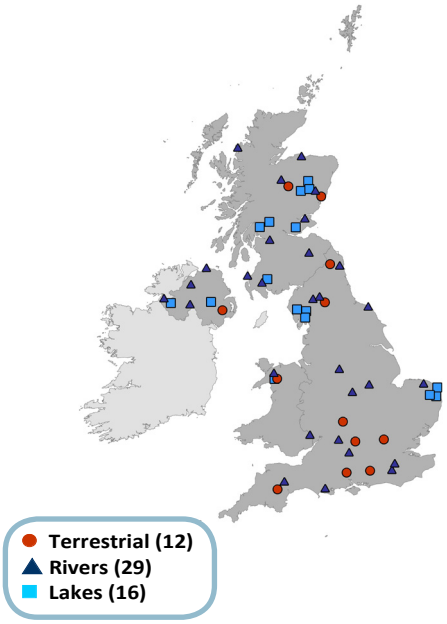
- To establish and maintain a selected network of sites within the UK from which to obtain comparable long-term datasets through the monitoring of a range of variables identified as being of major environmental importance
- To provide for the integration and analysis of these data, so as to identify natural and man-induced environmental changes and improve understanding of the causes of change
- To distinguish short-term fluctuations from long-term trends, and predict future changes
- To provide, for research purposes, a range of representative sites with good instrumentation and reliable environmental information.

www.ecn.ac.uk

Sites

There are currently 12 terrestrial sites and 45 freshwater sites in the ECN network. Sites range from upland to lowland, moorland to chalk grassland, small ponds and streams to large rivers and lakes. Each of the sponsoring organisations provides one or more sites and covers the costs of ECN measurements at those sites. There is no central funding for the network.

ECN sites provide well-instrumented locations for many short and long-term environmental research projects.For further information, visit our website.



Sponsors

ECN is a multi-agency programme sponsored by: AFBI, BBSRC, CCW, DEFRA, DSTL, EA, FC, NE, NERC, NIEA, SEPA, SG, SNH and WG. A full list of ECN sponsors and research partners is shown on the ECN website, www.ecn.ac.uk.

Environmental Change Network

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Measurements

A wide range of measurements are made at ECN sites. Detailed protocols ensure that the measurements made at different sites can be compared and collated and stringent quality controls are applied. The measurements include:

Terrestrial sites

- Manual and automatic meteorological measurements, including air and soil temperature, wind speed and direction, solar radiation, rainfall and soil water potential
- Atmospheric chemistry (nitrogen dioxide and ammonia)
- Precipitation chemistry
- Surface water chemistry
- Soil solution chemistry
- Soil properties including 5-yearly measurements of major ions and 20-yearly measurements of heavy metals and ph,ysical properties
- Vegetation, including species presence at least every 3 years, and more detailed studies every 9 years
- Vertebrates, including bird counts, rabbit monitoring, mapping and behavioural observations of bats, and frog spawn development
- Invertebrates including regular moth, butterfly and ground beetle counts.

Freshwater sites

- Surface water chemistry, including continuous pH, temperature, conductivity and turbidity recording at some sites, dip samples for major ions and temperature and dissolved oxygen sampling for lakes
- Surface water discharge
- Macro-invertebrates: species presence and abundance
- Aquatic macrophytes: species presence, abundance and distribution
- Phytoplankton and zooplankton recorded every two weeks in lakes
- Chlorophyll a concentration measured in lakes and rivers
- Epilithic diatoms.

Outputs

All data are managed in ECN's central database. A summary database and some real-time data are available on the ECN web site (www.ecn.ac.uk) and access to the raw data is provided on request, subject to a licensing agreement. ECN data are used for a range of research related to the understanding of environmental change. ECN data are being used increasingly for education purposes in universities, schools and colleges.

Selected Bibliography

- Morecroft, M., et al. (2009). The UK Environmental Change Network: Emerging trends in the composition of plant and animal communities and the physical environment. Biological Conservation, 142 (12), 2814-2832
- Lane, AMJ. (1997). The UK Environmental Change Network Database. An Integrated Information Resource for Long-term Monitoring and Research. Journal of Environmental Management, 51 (1), 87-105.

An extensive database of ECN-related publications is available on our website.

Further Information

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