The role of the ICP Vegetation

Thirty four countries of Europe plus the USA contribute experimental data and modelling expertise to the ICP Vegetation, an International Cooperative Programme reporting to the United Nations Convention on Long-range Transboundary Air Pollution (LRTAP Convention) on the effects of air pollution on natural vegetation and crops. Data and maps are used to inform international policy on the effectiveness of air pollution control and future requirements, leading ultimately to improvements in air quality across Europe.

Data collection and maps

The Programme Coordination Centre for the ICP Vegetation has collated data on the heavy metal concentrations in mosses since 2000. Naturally growing mosses were sampled according to a standardised protocol and their heavy metal concentrations were determined. Results were mapped on the EMEP 50 km x 50 km grid.

Nitrogen and POPs

In 2005, the majority of countries also determined the total nitrogen concentration in mosses for the first time. The total nitrogen concentration in mosses complement deposition measurements, helping to identify areas in Europe at risk from high nitrogen deposition at a high spatial resolution. In 2010, six countries determined also the concentration of selected persistent organic pollutants (POPs), particularly polycyclic aromatic hydrocarbons (PAHs), to assess whether mosses can be used as biomonitors of POPs deposition. **The results of the 2010 moss survey will be published in 2013.**

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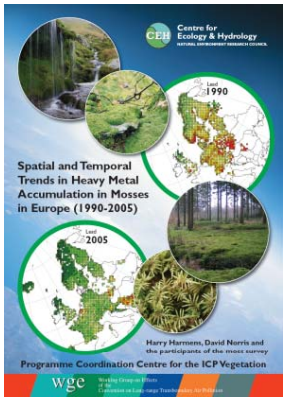
Further Information

For further information and a copy of the recent report, please visit our website (**icpvegetation.ceh.ac.uk**) or contact:



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LRTAP
Long-range Transboundary Air Pollution

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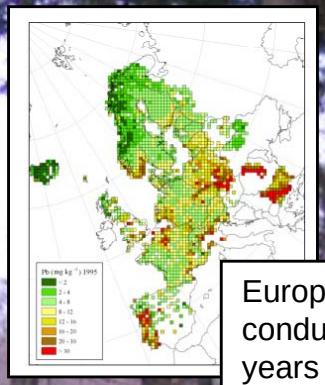
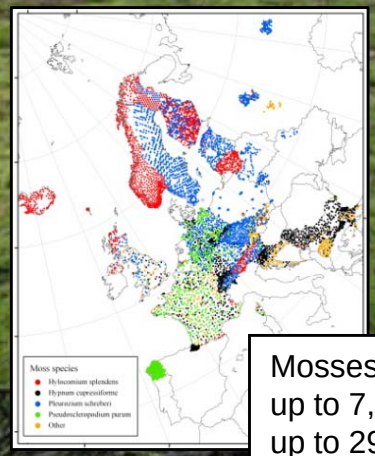


European surveys conducted every five years since 1990

Mosses as biomonitors of atmospheric heavy metal pollution in Europe



Mosses sampled at up to 7,300 sites in up to 29 countries

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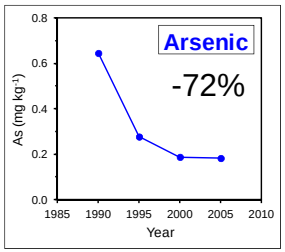

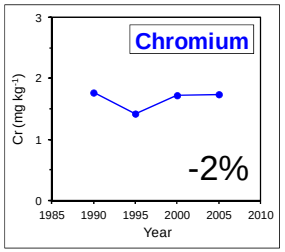

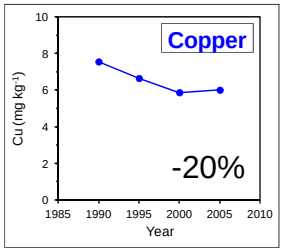

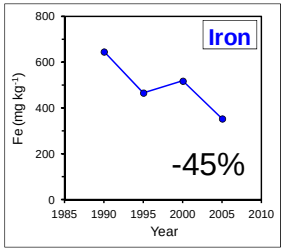

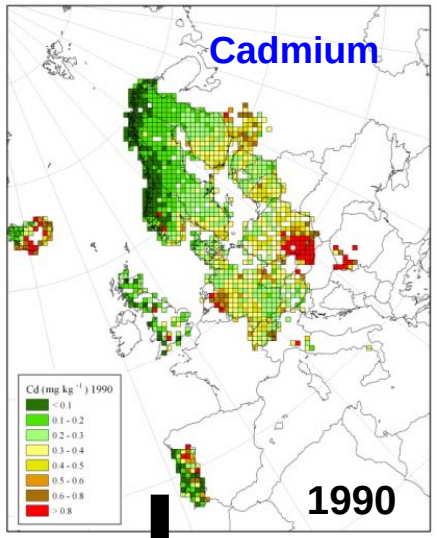

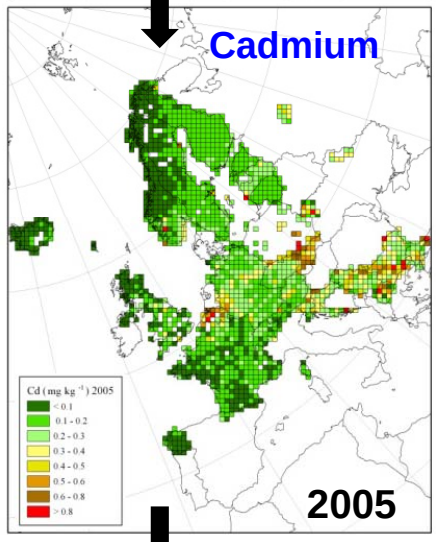

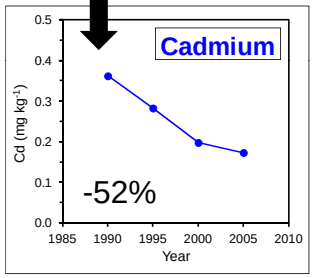

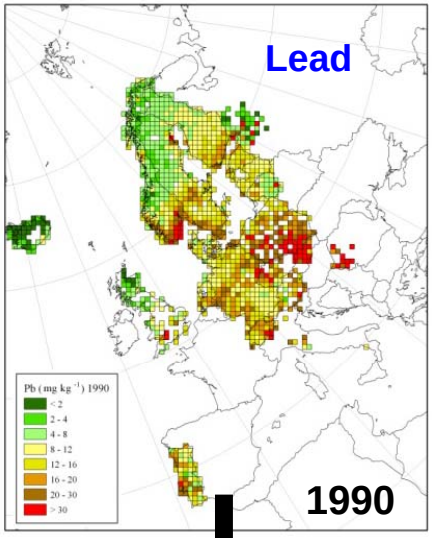

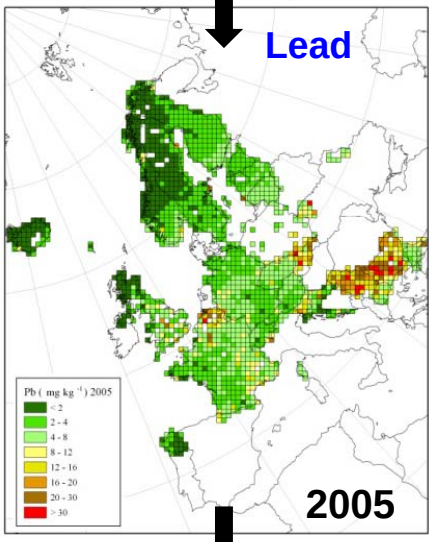

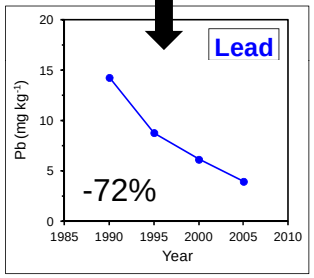

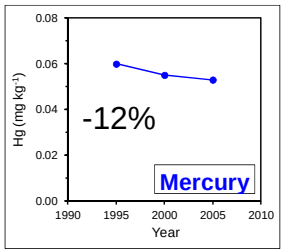

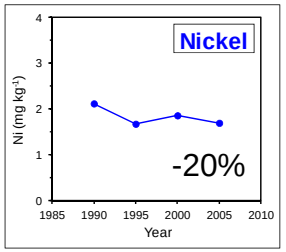

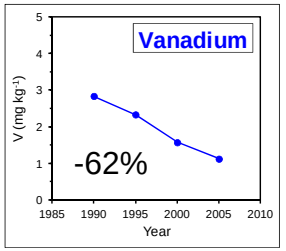

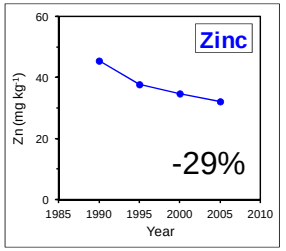

Mosses provide a complementary method to assess spatial patterns and temporal trends of atmospheric heavy metal deposition:

- Carpet forming mosses obtain trace elements and nutrients directly from the atmosphere.
- In recent years, the lowest concentrations of heavy metals in mosses were found generally in northern Europe and the highest concentrations in Belgium and eastern Europe .
- Europe-wide the concentration in mosses of arsenic, cadmium, lead and vanadium has declined the most between 1990 and 2005, with hardly any reduction being observed for chromium and mercury.
- Temporal trends were country-specific.
- Spatial patterns and temporal trends for cadmium and lead agree quite well with those modelled by the European Monitoring and Evaluation Programme (EMEP).

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