



Wood smoke major source of pollution in winter

Over half of organic air pollution in Europe during winter comes not from fossil fuel burning, but from home fires, and burning of agricultural and garden waste products, according to new results published by the EU-funded CARBOSOL¹ project. Restricting these sources of human-made emissions could cut pollution significantly, with immediate benefits to public health and a positive impact on climate change.

This is the first Europe-wide effort to identify the source of air pollutants. The French and Austrian investigators found that pollution from residential wood burning was surprisingly high during winter months, with between 50 and 70 per cent of carbon in the atmosphere derived from burnt cellulose.

Most efforts to reduce pollution tend to focus on fossil fuels, but the CARBOSOL project, which ran from 2001 to 2005, has identified biomass burning as a crucial man-made pollutant which has, so far, been underestimated. Many countries already ban the burning of agricultural and garden waste. Addressing these sources of emissions throughout Europe, using a combination of legislation and technological advances, could cut air pollution considerably.

The public's health would improve too, since epidemiological studies show that biomass pollution has similar effects to well-known problems caused by fossil fuel emissions, such as breathing difficulties and lung cancer.

The goal of the CARBOSOL project was to calculate the contribution of different polluting sources to the air in western and central Europe. Samples were taken from a number of sites across Europe to pinpoint the contribution of different sources of carbon-derived aerosols in the air.

The scientists used chemical tracers to identify the source of pollution. The sugar levoglucosan, which is produced when cellulose is burnt, allowed them to identify emissions resulting from burning biomass. The radioactive carbon 14 isotope was also used as an indicator of carbon pollution from wood and agricultural burning.

These Europe-wide results support findings from a 2004 study conducted in Zurich, Switzerland, where 40 per cent of carbon pollution was found to be due to biomass burning.

¹ The CARBOSOL project (<http://www.vein.hu/CARBOSOL/>) received €1,299,965 in funding from the Fifth Framework Programme's 'Energy, environment and sustainable development' thematic programme.

Source: Legrand, M., and H. Puxbaum (2007), "Summary of the CARBOSOL project: Present and retrospective state of organic versus inorganic aerosol over Europe", Journal of Geophysical Research 112, doi:10.1029/2006JD008271.

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