Sue Hare / Joe Buchdahl - Co-ordinators
Atmosphere, Climate & Environment Information Programme
ARIC
Dept. of Environmental & Geographical Sciences
Manchester Metropolitan University
Chester Street
Manchester M1 5GD

Tel: 0161 247 1590/3, Fax: 0161 247 6332
E-mail: aric@mmu.ac.uk
Internet: http://www.ace.mmu.ac.uk/

Atmospheric Issues

September 2004 Volume 10, Issue 5

AIR QUALITY

UK UNLIKELY TO MEET AIR POLLUTION OBJECTIVES

A leading expert on air quality, Professor Mike Pilling has said that the UK is likely to fail to meet key objectives on reducing air pollution. In particular he highlighted that levels of nitrogen dioxide, small particles and ozone were too high to meet official targets for 2005 and 2010. Professor Pilling of the Air Quality Strategy Group was addressing participants at the BA Festival of Science in Exeter. He suggested that this would result in further damage to health. At present, thousands of deaths in the UK are attributable to air pollution, particularly amongst the elderly.

London is the most likely city to show excess levels of nitrogen dioxide and particulate matter. Professor Pilling highlighted that a major cause of this excess will be derived from motor vehicles but that this was not the only source. Particulate matter or 'dust' arises from many processes both natural and from human sources. Professor Pilling also focused on the global nature of air pollution, explaining that some pollutants are reaching the UK from America making the air pollution an inter-continental problem. This is not a new idea, since it has long been known that acidic pollutants are transported many thousands of kilometres, but Professor Pilling suggests that a new approach is needed to tacking air pollution. Rather than trying to reduce nitrogen dioxide or reduce particulate matter we should focus on how these pollutants. For example, increases in nitrogen dioxide may lead to increases in ozone.

Source: http://news.bbc.co.uk/ (Sept. 7th 2004).

EU ENVIRONMENT MINISTERS WANT CLEANER, QUIETER AND MORE FUEL EFFICIENT VEHICLES

The EU environment ministers have agreed that they would like the European Commission to propose extra measures to make road traffic cleaner, quieter and more fuel efficient at a meeting in October 2004. The Ministers said that these measures were vital if Member States are to achieve the compulsory European environmental objectives and meet standards for air pollution, noise and carbon dioxide emissions. Their main concern was that increasing levels of road traffic were placing greater pressures on the environment and on the health of European cities and populations.

Supported by the Department for Environment, Food & Rural Affairs (DEFRA)

State Secretary Van Geel, the Chair of the meeting, feels that European policy is developing far too slowly in this area. "A radical change like switching to bio-fuels may seem expensive if we think only in terms of climate objectives. But it suddenly looks far more attractive if we consider that it will make us less dependent on imported fossil fuels. It is tempting to commit ourselves to a single option like bio-fuels or hydrogen. But, if there is a silver bullet of this kind, we are not yet in a position to identify it. We don't know enough to say which fuel will eventually turn out to be the most cost-effective option for the environment. Market forces must decide which technologies get developed. It is not for government to promote a particular technology, but to solve the problems of society."

To reduce pollution, Ministers called for more stringent standards for particulate matter and nitrogen oxides, as well as stricter noise standards. In addition the ministers suggested setting a more stringent ceiling of 120 grams of carbon dioxide per kilometre instead of the present 140 grams per litre to help cut greenhouse gases.

European governments are becoming increasingly open to the idea of discouraging car use, for example London's congestion charging zone and recent discussions in the Italian government over levying taxes on larger 'gas guzzling' vehicles.

Source: www.edie.news.net (Oct 22 2004)

CLIMATE CHANGE

LATIN AMERICA TO LOSE 8% OF FORESTS BY 2020

Latin America, home of the Amazon rainforest, will lose 8% of its natural forest cover by 2020, the United Nations Food and Agriculture Organisation (FAO) said last month. The area of natural forests in the region is predicted to decrease from 964 million hectares in the year 2002 to 887 million hectares in 2020.

Environmentalists say the expansion of soy plantations and cattle ranches are putting massive pressure on a region which has half of the world's tropical forest and almost half of its plant and animal species. The destruction of forests also releases carbon dioxide, the main greenhouse gas linked to climate change, robs poor communities of essential resources, and causes soil erosion and landslides.

Meanwhile, planted rather than natural forest areas would increase, from 12 million to more than 16 million hectares by 2020, and that more areas would be designated protected as the region develops.

Source: Reuters http://www.alertnet.org 20th October 2004.

RUSSIA RATIFIES KYOTO PROTOCOL

Environmentalists have hailed the Russian parliament's ratification of the Kyoto Protocol on climate change as a huge step forward. Russia's lower house, the State Duma, voted 334-73 to approve the treaty, meaning enough nations have signed up to bring it officially into force.

The protocol still has to pass through Russia's upper parliament and be signed into law by President Vladimir Putin. Both further stages should be a formality meaning the Kyoto protocol could get final approval from Russia within the month. President Putin agreed to fast-track the ratification of Kyoto in May, when the EU promised to support Russia in its bid to join the World Trade Organisation.

Within 90 days of Russia's ratification, Kyoto signatories must start making cuts that will reduce emissions of six key greenhouse gases to an average of 5.2% below 1990 levels by 2012. Countries which fail to meet the targets will face penalties and the prospect of having to make deeper cuts in future.

However, many experts believe that Kyoto will be largely ineffective as the world's two biggest emitters, the US and China, will not cut their outputs. Although China did sign the Protocol, as a developing country it is not yet required to begin reducing emissions. Even if fully implemented to 2012, Kyoto would only curb the projected rise in temperatures by 0.15 C, requiring far deeper cuts likely to cost trillions of dollars. Critics say this money could be better spent on combating diseases like AIDS or malaria.

Source: http://news.bbc.co.uk 22nd October 2004; http://www.reuters.com/ 25th October 2004.

GLOBAL WARMING THREAT TO BRITAIN

According to a joint report from The Energy Saving Trust and the UK Climate Impacts Programme the problem of global warming could cost Britain £200 billion in property and infrastructure damage from flooding and coastal erosion over this timescale.

Forecasting The Future reveals the changing climate in the UK now and over the rest of this century, which could damage the ecology and environment. The report explains that, without a step change in how we consume energy and in adapting the way we live, the UK could see spiralling climate change costs by 2050.

- Around £200 billion of assets, including more than two million homes would be at risk from flooding and coastal erosion.
- Wind damage to buildings could result in annual insurance claims of £800 million.
- The national bill for subsidence, exacerbated by weather extremes, could top £600 million per year.

The picture is also bleak for Britain's ecology. Daffodils, bluebells and crocuses appear to be particularly at risk from warmer winter temperatures. Cod may have to be replaced with tuna, as dwindling cod stocks are further affected by warmer seas. Spruce plantations could die as they no longer have sufficient cold spells in the winter to allow them to grow in the spring. This would hit the Christmas tree trade.

Source: http://www.manchesteronline.co.uk 25th October 2004.

SUSTAINABLE DEVELOPMENT

WIND ENERGY COULD CREATE 76,000 BRITISH JOBS

The growing offshore wind power industry could bring up to 76,000 new jobs to the UK, according to a report released last

month by the Department for Trade and Industry and Greenpeace. Offshore Wind – Onshore Jobs, was produced by Europe's leading authority on sustainable energy and carbon management, Energy for Sustainable Development Ltd.

Nearly half of the jobs could be created in the North East of England, where some offshore turbines are already in operation. With its long history of manufacturing capacity, strong skills base and access to seaports, the region is ideally placed to reap the benefits of the wind power industry, which is the world's fastest growing energy source.

Energy for Sustainable Development looked at three different scenarios in which the contribution from offshore wind power provides 10%, 20% and 30% of the UK's electricity supply by 2020. The top case scenario shows that 76,000 jobs could be created. The Government already has a commitment of having up to 20% of the UK's energy supplied by renewable resources by 2020.

Source: http://news.scotsman.com 19th October 2004.

UK CHEMISTS FIND HYDROGEN STORE

UK scientists think they have taken a major step forward in making hydrogen a practical replacement for petrol. Hydrogen has zero greenhouse emissions when "burned" in the novel car engines now under development - but being a gas it is expensive to compress or liquefy.

Now, Newcastle and Liverpool University teams have shown how to store large quantities in super-porous materials based on carbon and nickel. Their work is described in the journal *Science*.

An uncompressed hydrogen gas fuel tank that contained a store of energy equivalent to a petrol tank would be more than 3,000 times bigger than its conventional cousin. Scientists are now trying to get around this. The options include metal alloys that can be persuaded to absorb up to 1,000 times their own volume of hydrogen; and minuscule cylinders of carbon atoms, known as nanotubes, that are more efficient still. Unfortunately, both of these solutions have their drawbacks, and the UK team have come forward with another approach.

They have investigated a number of synthetic materials including a blue solid containing carbon, nickel, nitrogen and a little oxygen which together form a crystalline "tongue and groove" structure. Within this lattice there are tiny gaps that are millionths of a millimetre in size where the hydrogen can sit. Furthermore, these pores are protected by "windows" that "close" once the hydrogen is inside. The whole lattice behaves like a molecular cat-flap.

"After allowing the hydrogen molecule - the 'cat' - in, the structure closes shut behind it. The important point is that the hydrogen is loaded into the materials at high pressure but stored in them at a much lower pressure - a unique behaviour." Hydrogen can then be released by a change in temperature. If and when its storage difficulties are overcome, hydrogen is likely to be used in fuel cells, which convert the chemical energy contained in the gas into electrical energy that can drive a car.

Source: http://news.bbc.co.uk 15th October 2004.