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AIR QUALITY

PLANS FOR PARTICLE REVIEW

The UK Air Quality Expert Group is to start a review of particles. The Group will try and find out whether the UK is likely to achieve Air Quality Strategy Objectives and limit values set by the European Union. The first EU air quality daughter directive was adopted in April 1999 and covered nitrogen dioxide, sulphur dioxide, particles and lead, and was implemented during July 2001. The Commission is legally required to review this directive during 2004. The UK Air Quality Expert Group are to provide the technical information for the UK for this review.

The outline of work to be covered by AQEG can be viewed at:

<http://www.defra.gov.uk/environment/airquality/aqeg/aqegpm-report.pdf>

Source: *Air Quality Management, November 2003;*
DEFRA <http://www.defra.gov.uk>

POLLUTION FATTENS CHRISTMAS TREES!

Researcher suggests that nitrogen pollution in the atmosphere is changing the shape of Christmas trees to make them more bushy

rather than wide at the bottom and tapering towards the top.

Scientists at Cambridge University have carried out a three year study on spruce trees. A range of chemicals were sprayed onto the trees to see how pollution affected them. It appears that increased nitrogen levels in the atmosphere, as a result of release from fertilisers and animal manure, act like a fertiliser causing the trees to grow more branches. Dr David Hanke explains that the increased nitrogen causes a five fold increase in the hormone cytokinin which causes Christmas trees to grow more branches. The secretary of the British Christmas Tree Growers' Association, Roger Hay, said the effects of pollution on Christmas trees might even be helpful to the industry because they normally have to prune the lower branches to make them grow into a bushier shape.

Source: *BBC News Online - December 12th, 2003 -*
<http://www.news.bbc.co.uk>

CANCER AND AIR POLLUTION LINK

Norwegian research suggests that men living in polluted areas are more likely to develop lung cancer than those living in areas where air is less polluted. A study of more than 16,000 men over almost three decades highlighted that stronger

concentrations of nitrogen dioxide increased the chance of developing lung cancer.

Experts however still attribute smoking as the greatest risk factor in developing the disease.

The study found that for every rise in concentration of the pollutant nitrogen dioxide (NO₂) around the home of the persons studied (compared to their home at the start of the study) there was roughly an 8% increase in risk. There was no increase in risk associated with levels of sulphur dioxide.

Professor Stephen Spiro, of the British Thoracic Society, commented: "This is yet another study which reinforces a small but significant link between urban air pollution and the risk of developing lung cancer.

Source: *BBC News Online* - December 4th, 2003 - <http://www.news.bbc.co.uk>

US EPA ANNOUNCE NEW EMISSION REDUCTIONS

Measures to reduce sulphur dioxide and nitrogen oxide emissions have been announced by the US Environment Protection Agency (EPA). These policies are similar to those of the Clear Skies proposals which have been stalled by Congress for a year.

The new plans also propose a cap-and-trade system for mercury emissions. It is estimated that mercury emissions will fall by 70%, from 48 to 15 tonnes, when fully implemented in 2018.

The EPA predicts the new 'Interstate Air Quality Rule' will result in emission reductions of 3.7 million tonnes of sulphur dioxide by 2010 (40%) and by another 2.3 million tonnes by 2015, when the rule is fully implemented. Nitrogen oxide would be

cut by 1.4 million tonnes by 2010 and by 1.7 million tonnes (50%) by 2015. The EPA says the emissions will be permanently capped.

EPA Administrator Mike Leavitt said that "These actions are the largest single investment in any clean air programme in history". He also added that the organisation is still committed to the Clear Skies Act.

Source: <http://www.edie.net> - December 5th 2003

CLIMATE CHANGE

STORMIER BRITAIN

Britain has become twice as stormy in the past 50 years as climate change has forced the deep depressions that used to hit Iceland further south, the Hadley Centre revealed last month at the UN Climate Change Conference in Milan, Italy. At the same time, the research data indicated that pressure changes in the atmosphere had caused storms passing over Britain to become more intense.

While low pressure areas which bring high wind and rain are getting deeper, the high pressure areas which bring calm, settled periods are getting stronger. The increased pressure gradients between the two make for more extreme weather. Over the past 50 years, the high pressures have increased on average by three millibars and the lows have deepened by the same amount. This has led to an increase in the winds and in wind damage. Such a change is significantly larger than explicable by natural variation, and can only be accounted for man-made climate change.

Source: *Guardian* (10th December 2003) -

COULD 2003 BE BRITAIN'S HOTTEST YEAR?

According to the Climatic Research Unit (CRU) at the University of East Anglia, 2003 may well prove to be the hottest recorded in Britain during nearly 350 years of reliable records.

2003 is already memorable for continental Europe's hottest summer, which exceeded previous records by an astonishing 4°C, and the recording of Britain's hottest day on 10th August, when the thermometer registered 38.5°C (101.3°F) at Faversham in Kent.

Even though three weeks of temperatures have still to be analysed, 2003 looks set to be the hottest on record. Data maintained by CRU in Norwich show that unless we are hit by a sustained freeze of Arctic proportions in the next three weeks, the current January to December 12-month period will prove the hottest in the whole of the Central England Temperature Record, which goes back to 1659. The year's expected final average temperature of 10.65°C will beat the previous records of 1990 (10.63°C) and 1999 (10.62°C).

According to Professor Phil Jones, co-director of the CRU, such extremes could not be accounted for by natural climate variability alone, and can be attributed to global warming caused by human actions.

Source: *Independent* (8th December 2003) - <http://news.independent.co.uk/>

MAN'S BEEN CHANGING CLIMATE FOR THOUSANDS OF YEARS?

Research published in the December issue of the journal *Climatic Change* suggests that the link between mankind and climate change may extend much further back through history than previously thought.

Bill Ruddiman, emeritus professor at the University of Virginia, explains that measurements of ancient air bubbles trapped in Antarctic ice offer evidence that humans have been changing the global climate thousands of years before the Industrial Revolution. Driving the change was the revolutionary adoption, across both Europe and Asia, of agriculture and animal husbandry.

Even 8,000 years ago, atmospheric levels of carbon dioxide began to rise as humans started clearing forests, planting crops and raising livestock. Methane levels started increasing 3,000 years later, in response to the new and widespread use of flooded rice fields, as well as burgeoning numbers of livestock.

Although the atmospheric increase in carbon dioxide and methane was slow at this time, such changes potentially staved off what should have been a period of significant natural cooling.

Atmospheric levels of carbon dioxide and methane naturally fluctuate, in part because of changes in the orbit of the Earth and the resulting variations in the amounts of sunlight. Human activity apparently thwarted expected decreases in the atmospheric concentrations of both gases. The prehistoric practices apparently overrode a build-up of ice that computer models predict should have occurred about 5,000 years ago.

Source: *Associated Press* (10th December 2003) - <http://www.ap.org/>

RUSSIA PULLING BACK FROM KYOTO

In 1997 nation states around the world drew up an agreement – The Kyoto Protocol – to cut global greenhouse gas emissions from 1990 levels by 5.2% some time between 2008 and 2012.

The United States has already argued that Kyoto would be too costly to implement and wrongly excludes developing countries from its targets. Now Russia, initially warm to the idea of ratification, looks to be pulling back at the last minute.

Without the United States on board, the 1997 Kyoto Protocol cannot enter into force without backing from Russia. To take effect, Kyoto must be accepted by nations responsible for 55% of emissions of carbon dioxide in rich states. It has reached 44% and needs Russia's 17% after the United States pulled out its 36% share.

Russia has pulled back from previous promises to ratify and sent contradictory signals about its intentions, worried that Kyoto might choke economic growth in coming decades.

Source: Reuters (10th December 2003) - <http://www.reuters.com/>

SCIENTISTS ARE THE WORST POLLUTERS

Using data from the Intergovernmental Panel on Climate Change, Lawrence Plug and Borden Scott Dalhousie University in Halifax, Canada have estimated that on average every scientist who attends international conferences, like the United Nations Climate Convention in Milan, releases 0.16 kilograms of carbon dioxide for each kilometre he or she travels by plane.

With 10,000 scientists, ironically many of them working in climate change, attending last month's annual meeting of the American Geophysical Union, Plug and Scott have estimated that collecting them all in San Francisco released more than 12,000 tonnes of carbon dioxide into the atmosphere. In other words, each was

responsible for almost 1.3 tonnes of the gas.

This is a tiny fraction of total human carbon dioxide emissions, but each attendee's contribution for just this one meeting is equivalent to one-sixteenth of the average American's yearly emissions, and one-seventh of the average for Britain or Japan. Many scientists attend several such gatherings each year.

Plug suggested that scientific organisations do something to offset the consequences of the air travel involved in research, such as preserving a chunk of Brazilian rainforest each year. Other scientists are lobbying for increased virtual conferencing.

Source: Nature Science Update (11th December 2003) - <http://www.nature.com/nsu/>

AIR TRAVEL TAX

Friends of the Earth and the Campaign for the Protection of Rural England have urged the UK Government to increase the tax paid by air passengers to make up for the pollution they generate through air travel.

Although air passenger duty currently raises £800m a year, airlines also enjoy significant tax breaks like VAT exemption on fuel. Nevertheless, the aviation industry has warned that any increase in duty will raise flight prices and lead to job losses.

Aviation is currently the fastest growing source of carbon dioxide, the most significant of all the greenhouse gases emitted by man-made processes. The Government estimates that carbon dioxide emissions cost the UK economy £1.4bn a year.

Source: BBC News Online (6th December 2003) - <http://news.bbc.co.uk>