

## News focus

# Atmospheric carbon dioxide at record high

Researchers are finding the rate of increase of carbon dioxide in the atmosphere is rising and methane is on the increase too, raising growing concerns about the environmental impacts and efforts to cut emissions. **Nigel Williams** reports.

The concentration of carbon dioxide in the atmosphere has reached a record level — increasing by 0.6 per cent last year alone — and methane levels are rising for the first time in a decade according to new results, renewing fears about global climate change prospects.

Researchers at the Mauna Loa observatory in Hawaii say that carbon dioxide levels in the atmosphere are now at 387 parts per million (ppm), up almost 40 per cent since the industrial revolution and the highest for at least 650,000 years.

The figures, published by the National Oceanic and Atmospheric Administration (NOAA), also confirm

that carbon dioxide, the chief greenhouse gas, is accumulating in the atmosphere faster than expected. The annual mean growth rate for 2007 was 2.14 ppm — the fourth year in the last six to see an annual rise greater than 2 ppm. From 1970 to 2000, the concentration rose by about 1.5 ppm each year, but since 2000 the annual rise has increased to an average of 2.1 ppm.

Methane levels rose last year for the first time since 1998, the researchers say. Methane is 25 times more potent as a greenhouse gas than carbon dioxide, although there is much less of it in the atmosphere — about 1,800 parts per billion. When related

climate effects are taken into account, methane's overall climate impact is nearly half that of carbon dioxide, however.

“Rapidly growing industrialisation in Asia and rising wetland emissions in the Arctic and tropics are the most likely causes of recent methane increases,” said Ed Dlugokencky at NOAA's Earth Systems Research Laboratory.

“It's too soon to tell whether last year's spike in emissions includes the start of such a trend,” he says.

Permafrost, or permanently frozen ground, contains vast stores of carbon. Scientists are concerned that as the Arctic continues to warm and permafrost thaws, carbon could seep into the atmosphere in the form of methane, possibly fuelling a cycle of carbon release and temperature rise.



**Sky high:** NOAA scientists report rising atmospheric carbon dioxide and increased amounts of methane. (Photo: Shire Pictures/Alamy)