

# HAS A RUNAWAY GREENHOUSE EFFECT BEGUN?

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*From:* Dr. Jai Maharaj ([usenet\\_at\\_mantra.com](mailto:usenet_at_mantra.com))

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HAS A RUNAWAY GREENHOUSE EFFECT BEGUN?

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[ Subject: Has a runaway greenhouse effect begun?  
[ From: [moderator@portside.org](mailto:moderator@portside.org)  
[ Date: Thu, 18 Nov 2004

Has a 'runaway' greenhouse effect begun?

Norm Dixon  
Green Left Weekly  
November 3, 2004

In recent weeks, scientists have released two separate findings that indicate the consequences of global warming due to the emission of "greenhouse gases" — primarily carbon dioxide (CO<sub>2</sub>) from the industrial burning of fossil fuels — may be far greater than previously estimated.

The new findings underscore the need for governments around the world, in particular the industrialised First World countries that are responsible for more than 80% of past emissions and 75% currently, to take urgent action to massively reduce the world's industrial greenhouse gas emissions by 60–80%.

Rajendra Pachauri, chairperson of the United Nations' Intergovernmental Panel on Climate Change (IPCC), which pools the expertise of more than 2000 of the world's climate scientists, warned on October 25 that the greenhouse gas emission reduction targets established in the 1997 Kyoto agreement do not go far enough and far more radical solutions must be found.

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Pachauri welcomed the Russian parliament's October 22 ratification of the Kyoto agreement, which will allow the treaty to come into legal force despite the refusal by the world's major polluter, the United States, to sign. However, "this mustn't lull us into thinking that the problem is solved", Pachauri told Reuters. "Kyoto is not enough. We have to look at the problem afresh." The Kyoto treaty aims for a reduction in greenhouse gas emissions of around 5% of 1990 levels, far short of the 60–80% over the next 50 years necessary to arrest global warming.

The new evidence on the pace of global warming suggests that world governments may have even less time to act than previously estimated. The October 11 British Guardian reported that CO<sub>2</sub> in the atmosphere is at record levels and increasing at an accelerating rate, while the September 23 edition of Science revealed that glaciers in western Antarctica flowing into sea are speeding up, indicating an increased level of melting.

The scientists who make up the IPCC estimate that unless levels of greenhouse gases in the atmosphere are stabilised by mid-century, Earth's average temperature will rise by up to 5.8°C by 2100. According to the IPCC figures, if unchecked, CO<sub>2</sub> levels in the air will be between 650 and 970 parts per million (ppm). However, these estimates may be too conservative.

According to the October 11 Guardian, measurements of average atmospheric CO<sub>2</sub> levels in 2002 and 2003 may confirm that the rate of CO<sub>2</sub> accumulation is now increasing at an alarming rate. Scientists at Hawaii's Mauna Loa Observatory reported that average CO<sub>2</sub> levels increased by 2.08 ppm in 2002, to 373.1 ppm, and by 2.54 ppm in 2003, to an average of 375.64 ppm. This is the first recorded example of the average CO<sub>2</sub> level jumping more than 2 ppm in two consecutive years. The average increase in the CO<sub>2</sub> level over the last few decades, reports the Guardian, has been 1.5 ppm. The current level of CO<sub>2</sub> is the highest in at least 420,000 years!

Associated Press reported earlier this year, on March 20, that scientists at Mauna Loa Observatory had recorded the CO<sub>2</sub> level in the atmosphere peaking at a record of 379 ppm, compared to 376 ppm a year earlier and 373 ppm in 2002.

The increase has raised the spectre of a "runaway" greenhouse effect already underway. Previous increases

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of CO<sub>2</sub> levels of above 2 ppm — 1973, 1988, 1994 and 1998 — have coincided with the El Nino weather pattern in the Pacific. However, this cannot explain the latest rises.

Weather scientist Charles Keeling, who began measuring atmospheric CO<sub>2</sub> at Mauna Loa in 1958, told the Guardian that "it is possible that this is merely a reflection of natural events like previous peaks in the rate, but it is also possible that it is the beginning of a natural process unprecedented in the record ... [The rise] could be a weakening of the Earth's carbon sinks, associated with world warming, as part of a climate change feedback mechanism. It is cause for concern."

Piers Forster, senior research fellow at the University of Reading's department of meteorology, added that "if this is a rate change ... it will be of enormous concern, because it will imply that all our global warming predictions for the hundred years or so will have to be redone".

Friends of the Earth's Scotland head Duncan McLaren, speaking to Agence France Presse on October 11, demanded action to achieve the 60–80% reductions in industrial greenhouse gas emissions required within 30 years: "Instead of just keeping our fingers crossed, these findings should send an urgent reminder to governments everywhere of the urgent need to tackle the growing threat of climate change."

Predictions about the rate of CO<sub>2</sub> accumulating in the atmosphere might not be the only estimates that have to be revised. Based on the IPCC's present forecasts, global warming triggered by unchecked greenhouse gas emissions will cause a sea level rise of between 20 centimetres and almost 1 metre by the end of the century. However, the IPCC's prediction is based on an assumption that the polar ice caps will not melt significantly.

However, according the September 23 journal Science, NASA researchers have found that six vast glaciers in the west Antarctic are flowing into the Amundsen Sea at a rate up to 25% faster than in the 1970s. The Pine Island Glacier is entering the ocean at a rate of six metres a day and as more enters the sea, the remainder speeds up further. Glaciologists told Science that within five years, 700 square kilometres of the thick Pine Island Glacier alone will be floating (and melting) in the ocean.

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According to Eric Rignot, a glaciologist at NASA's Jet Propulsion Laboratory, should the six glaciers completely melt, they alone will cause the world's sea level to rise by more than a metre. Researchers using ice-penetrating radar also found that the glaciers are on average 430 metres thicker than previously thought, meaning they are dumping considerably more fresh water into the ocean.

One reason why Antarctic glaciers are entering the sea at a much faster rate is because floating 500-metre ice shelves, which significantly slow the entry of the glaciers into the sea, have begun to collapse and melt. Antarctica has warmed by an average 2.5°C since the 1940s, and winter temperatures have jumped by almost 5°C.

The Larsen A ice shelf suddenly collapsed in 1995. The Wilkins Ice Shelf is shrinking. In 2002, the 3400-square kilometre Larsen B shelf -- at least 12,000 years old and up to 70 storeys thick -- disintegrated into the Weddell Sea in the space of a few months (satellite images of the collapse are available at < <http://nsidc.org/iceshelves/larsenb2002/animation.html> >).

The calving of monster icebergs is now common. Ted Scambos, an expert from the University of Colorado's National Snow and Ice Centre, found that after Larsen B's collapse, nearby glaciers began entering the sea up to eight times faster than previously.

According to NASA's Robert Thomas, the ice shelves are melting rapidly and have been thinning at the rate of 10 to 15 metres a year since the 1990s. The rate of thinning today is double that in the 1990s, he added.

The Larsen and Wilkins ice shelves are relatively insignificant in Antarctic terms, but their demise may indicate that similar processes may be underway on the massive Ross and the Filchner-Ronne ice shelves. "Ice-shelf thinning could be happening elsewhere in the Antarctic, but we just don't know", Scambos told Science.

The Ross and the Filchner-Ronne ice shelves prevent the gigantic land-based Western Antarctic Ice Sheet from rapidly entering the ocean and melting. The Western Antarctic Ice Sheet, the smaller of Antarctica's two vast ice sheets, contains a mind-boggling 3.2 million cubic kilometres of ice, about 10% of the world's total

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ice — enough to raise the sea level six metres. (If the more secure Eastern Antarctic Ice Sheet melted, the sea would rise more than 60 metres!)

Within the western sheet are five ice streams — enormous glaciers more than 50 kilometres wide and one kilometre thick. The Ross Ice Shelf — floating ice nearly the size of New South Wales — and the similarly sized Filchner–Ronne Ice Shelf prevent them sliding into the sea where they would rapidly melt.

The West Antarctic Ice Sheet may have melted at least once before, between 110,000 and 130,000 years ago, causing the sea level to rise about five metres higher than today's level. An article in the August 1995 Scientific American pointed out that the five-metre rise was followed by a 10-metre decrease — all in the space of 100 or so years!

The May 2002 edition of Science reported that researchers from the Oregon State University, the University of Toronto and the University of Durham in Britain had found that a massive and unusually abrupt 23-metre rise in the sea level about 14,200 years ago was caused by the partial collapse of both major ice sheets in Antarctica. The sea level took just 500 years to reach that height.

<http://www.greenleft.org.au/back/2004/605/605p13.htm>

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Jai Maharaj  
<http://www.mantra.com/jai>  
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<http://www.hindu.org>  
<http://www.hindunet.org>

The truth about Islam and Muslims  
<http://www.flex.com/~jai/satyamevajayate>

The terrorist mission of Jesus stated in the Christian bible:

"Think not that I am come to send peace on earth: I came not so send peace, but a sword.

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"For I am come to set a man at variance against his father, and the daughter against her mother, and the daughter in law against her mother in law.

"And a man's foes shall be they of his own household.

– Matthew 10:34–36.

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