

# CARBON DIOXIDE: TOO LATE TO STOP A SILENT KILLER?

A new report hints at problems with current assumptions and reveals we're headed down a dangerous path.

**C**arbon dioxide: an invisible, odorless gas, and perhaps the greatest threat mankind has ever faced. In recent years, a rapid increase in carbon emissions has led many scientists to predict catastrophic climate change within our lifetimes. But this change is by no means inevitable. Understanding current predictions is the first step to changing our relationship with the planet for the better.

## Challenging current assumptions

Until recently, atmospheric carbon dioxide levels in March 2004, at 377.7 ppm, were considered to follow the largest decade-spanning increase recorded until then, at a startling 4.63% higher than the 1994 value.

However, a new report for Scientific Today indicates that this wasn't the case: in fact, it was a drop from the 1993-2003 increase (4.74%). This is little consolation; since then, the annual increase in carbon dioxide concentration (ppm), has only risen year-on-year at an alarming rate.

Fossil fuel consumption is the largest contributor to global CO<sub>2</sub> emissions. Still, oil-based infrastructure continues to account for most of our energy use today. ►

According to the report, current projections for CO<sub>2</sub> levels are also mistaken. Readings likely won't reach 685 ppm by 2050, as was previously thought. Conservative estimates suggest we won't reach this until about 2081 – or even as late as 2095. We're starting to change things, but not nearly fast enough. It's important to consider, too, that this 685 ppm figure included multiple greenhouse gases – so it was an overestimate for CO<sub>2</sub> levels to begin with. By the end of the century, CO<sub>2</sub> levels are expected to reach a devastating 701 ppm. This means we're on track for rapid increases in the average global temperature: by 2058, it'll have risen by 1.5 degrees Celsius. By 2100, the world will be 2.2 degrees hotter.

The promises of the 1.5-degree target, long-forgotten, will haunt us all too soon. 2.2 degrees means irreversible species loss, an unpredictable and violent climate, and thousands of square kilometers lost under a rising sea. This must serve as a jarring reminder that our current systems are not endlessly sustainable. Far from it. We are in urgent need of change.

## Understanding the data: sources and sinks

The carbon dioxide system is complex. Huge quantities of CO<sub>2</sub> constantly enter the atmosphere through sources like energy consumption and transportation, and are absorbed by sinks, including the oceans and forests. To change our CO<sub>2</sub> future, we need to address human sources and protect carbon sinks.

## Finding a way forward

Most importantly, the report underlines the importance of recommendations for the future. At a micro-level, individuals and communities should minimize their carbon footprints. This calls for significant reductions in waste, whether that's through recycling efforts or more responsible consumption. Try, for example, to buy food that was sourced locally – not moved halfway around the world on a petroleum-guzzling cargo ship.

But carbon emissions have reached a scale where individual actions are no longer enough. First and foremost, the issue needs to be addressed through policy changes. We need to reduce our reliance on coal, oil, and gas, gradually replacing them with a combination of renewable resources. Transportation infrastructure must also shift, in favor of clean electric vehicles. As fires ravage the Amazon, protecting our rainforests has never been more important. And marine pollution, which reduces the oceans' effectiveness as a CO<sub>2</sub> sink, must be addressed. This calls for nothing short of a global collaborative effort – one that stretches across countries, continents, and beyond simple greed and economic progress. The idea is a daunting one; nothing of this scale has ever been done before. But unless we can manage it, the threat of human extinction looms large. The data foretells a difficult century ahead. We have the means to counter this change, to alter our ways of life. What will we do with them? ■

