Troubling milestone for CO_2

On 9 May 2013, the daily average concentration of CO_2 in our planet's atmosphere, measured at the famous Mauna Loa Observatory in Hawaii, crept above 400 parts per million for the first time since humans walked the Earth.

Researchers have kept tabs on the atmosphere's climbing CO_2 levels since Charles Keeling set up this Hawaiian lab in 1958. Back then, levels were at 316 ppm, a little higher than the 280 ppm that was typical for thousands of years before the industrial revolution. In the 1990s, researchers started to talk about 450 ppm as a long-term upper limit for avoiding dangerous climate change. Then, in 2008, when levels were about 385ppm, James Hansen of the NASA Goddard Institute for Space Studies in New York and colleagues argued that 350ppm or lower will probably be required to "preserve a planet similar to that on which civilization developed and to which life on Earth is adapted".

We are now past that point and the 'Keeling curve', as the Mauna Loa CO_2 record is called, shows no signs of reversing or even slowing its upward trend. In the early 1960s, humans released about 2.5 billion tonnes of carbon into the air each year, and CO_2 levels rose about 0.8 ppm annually; today, we spew out more than 10 billion tonnes, and CO_2 is climbing at about 2 ppm per year.

The daily average CO_2 concentration is just one of many 400 ppm milestones on the road of rising greenhouse gas concentrations. Atmospheric CO_2 levels vary around the planet and throughout the year: they are higher where there are industrial emissions, fires, or little vegetation to soak up the gas, and they peak in May (Fig. 1), before summer foliage grows in the Northern Hemisphere. CO_2 levels exceeded 400 ppm in the Arctic in 2012, and global averages are expected to stay above 400 ppm year-round by 2017.

The last time global levels of CO_2 hit 400 ppm is thought to have been more than 2.5 million years ago during the Pliocene, when temperatures were about 3 degrees warmer than today. Our current climate has not yet had a chance to catch up with our high CO_2 levels. ❐

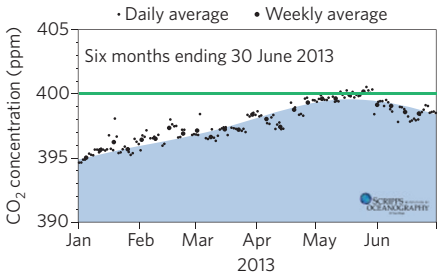

Figure 1 | Carbon dioxide concentration at Mauna Loa Observatory. Image © Scripps Institution of Oceanography.

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The journalist's take

Anniversaries and milestones are sometimes considered lame pegs in the newsroom: just because something passes an arbitrary mark in time or space doesn't mean there's anything new to say about it. That said, these pegs can provide useful opportunities to publish big-picture overviews, revisit juicy historical stories, or focus on topics that don't typically get the coverage they deserve because scientific progress is lacking in headline-grabbing discoveries.

The 400 ppm landmark in atmospheric CO_2 concentrations could be seen from miles away, simply by looking at the steady progress of the Keeling curve. If journalists hadn't noticed the upcoming event for themselves, the Scripps Institution of Oceanography, which analyses the Mauna Loa Observatory data, put out an anticipatory press release on 23 April 2013, and started tweeting daily CO_2 values to increase awareness, weeks before the 9 May event.

Some news editors might have felt their arms twisted into covering this psychological landmark simply because they knew everyone else would too, and they didn't want their readers to have to go elsewhere for the news. This 'me-too' effect played a role in coverage of the Conferences of the Parties (COPs) to the Kyoto Protocol from Durban 2011 onwards: although some science journalists decided to skip the increasingly disappointing meetings, others felt obliged to go. Many editors will have been genuinely interested — in both the COPs and the 400 ppm event. Either way, news organisations need to find the best way to cover something they know will get a lot of coverage elsewhere.

One strategy is to cover an event as early as possible. The press release made it hard for anyone to be first. Even journalists who were closely following the Keeling curve probably wouldn't have planned to write anything earlier than the end of April, just before the anticipated event in May. The trick is to cover something early enough to ensure that you are first to tell your readers about it, but not so early that they — as well as the search engines — forget about your coverage by the time the event rolls along. When the press release came out, many jumped on it at once — others followed over the following couple of weeks.

Another approach is to use the peg to focus on interesting side issues: *Nature* highlighted recent research on carbon sinks, for example. The *Economist* used it to remind readers of the importance of funding long-term monitoring programmes, and linked the news to a coincident piece about disappearing glaciers.

An alternative is to vary the type of coverage. *New Scientist*, for example, published a Q&A with Charles Keeling's son, Ralph Keeling, who heads the Scripps Institution of Oceanography CO_2 programme. This approach allowed for a balanced exploration of the news, the science, the history and the personal story behind it all.

Scientific American has made the event the focus of a year-long 'occasional series', meaning they will continue to publish material on climate change and put it under a '400 ppm' banner. They may or may not be publishing any more than they would have without the 400 ppm event, but now they have a nice way to brand and collect the material.

Science decided not to enter the fray, and did nothing — not even a blog entry.

Leaving stories such as this for others to cover can help to conserve resources for more exclusive pieces. Covering them creatively or authoritatively adds something of value for readers. But covering them simply and indistinguishably from everyone else? It is questionable whether that sort of story should count as journalism at all.