

CHART OF THE WEEK

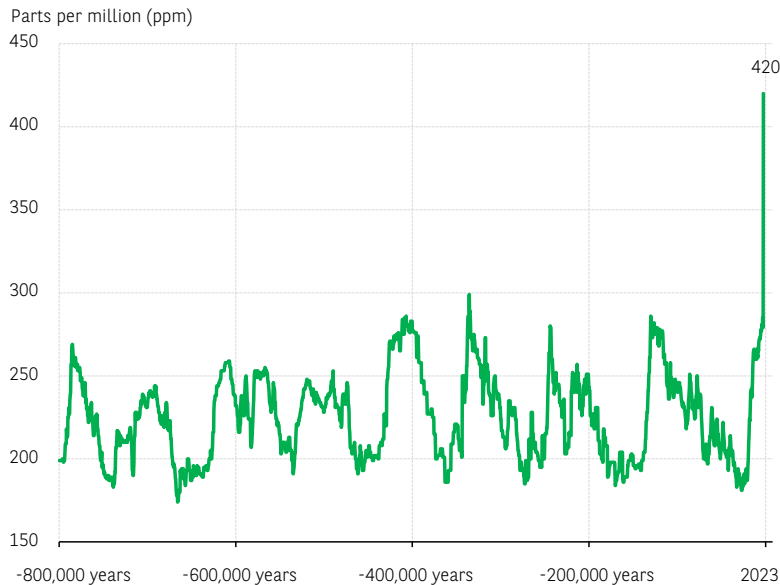
CHART
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WEEK

29 May 2024

420 PARTS PER MILLION

Jean-Luc Proutat

CO2 atmospheric concentration



Source: NOAA; Lüthi et al. (2008) High-resolution carbon dioxide concentration record 650 000-800 000 years before present, Nature, May, BNP Paribas

The climate has always varied. As the Earth has no fixed orbit or inclination (it is influenced by the other planets in the solar system, such as Jupiter and Saturn), its surface temperature evolves with the quantities of radiative energy that reach it, determining, for example, the great glacial cycles of the Quaternary. Like a time-machine, paleoclimatology (the analysis of ocean or glacial cores) traces past climate fluctuations with increasing precision, from the appearance of homo sapiens around 300,000 years ago, and well beyond.

What the scientific record tells us about current conditions is that they are unprecedented, even on a geological timescale. Far more than a change, there has been a decisive break in the composition of the atmosphere, the origin of which is not natural but anthropic, i.e., linked to human activities. Since the pre-industrial era (by convention, the 1850-1900 period), these have generated 2,700 billion tons of cumulative CO2 emissions, leading to an atmospheric concentration of 420 CO2 parts per million (ppm) in 2023, the highest in at least 2 million years (see graph)¹.

The associated rise in temperatures (the greenhouse effect) is averaging 1.3°C across the globe, while it has already exceeded 2°C in Europe, one of the places currently most inclined to warming. Over and above its scale, it is the suddenness of the phenomenon that raises the question of the adaptability of species and is worrying the scientific community. At the rate observed over the last fifty years, the rise in temperatures is 30 to 50 times faster than all those that preceded it.

While the climate has always varied, it has never done so in this way.

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¹ Cf. Intergovernmental Panel on Climate Change (IPCC), 2021, Climate Change 2021: The Physical Science Basis, Contribution of Working Group I to the Sixth Assessment Report, Summary for Policymakers.

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Head office: 16 boulevard des Italiens - 75009 Paris France / Phone : +33 (0) 1.42.98.12.34
Internet: group.bnpparibas - www.economic-research.bnpparibas.com
Head of publication : Jean Lemierre / Chief editor: William De Vijlder