

Climate change

'New era of climate change reality' as emissions hit symbolic threshold

CO2 in the atmosphere is expected to be above 400 parts per million on average over 2016 and will not dip below that mark for generations, UN says

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The WMO predicts carbon dioxide concentrations will stay above the symbolic 400ppm for the whole of 2016 and reach new highs. Photograph: Buddhika Weerasinghe/Getty Images

The world is in a new era of “climate change reality”, with carbon dioxide in the atmosphere reaching a symbolic threshold which it will not fall below for many generations, scientists have said.

In 2015, for the first time, carbon dioxide levels in the atmosphere were at 400 parts per million (ppm) on average across the year as a whole, the World Meteorological Organisation's (WMO) annual greenhouse gas bulletin reveals.

The longest established greenhouse gas monitoring station in the world, at Mauna Loa in Hawaii, predicts carbon dioxide concentrations will stay above the symbolic 400ppm for the whole of 2016 and reach new highs.

It will not dip below the 400ppm mark again for many generations, the experts said.



The world passes 400ppm carbon dioxide threshold. Permanently

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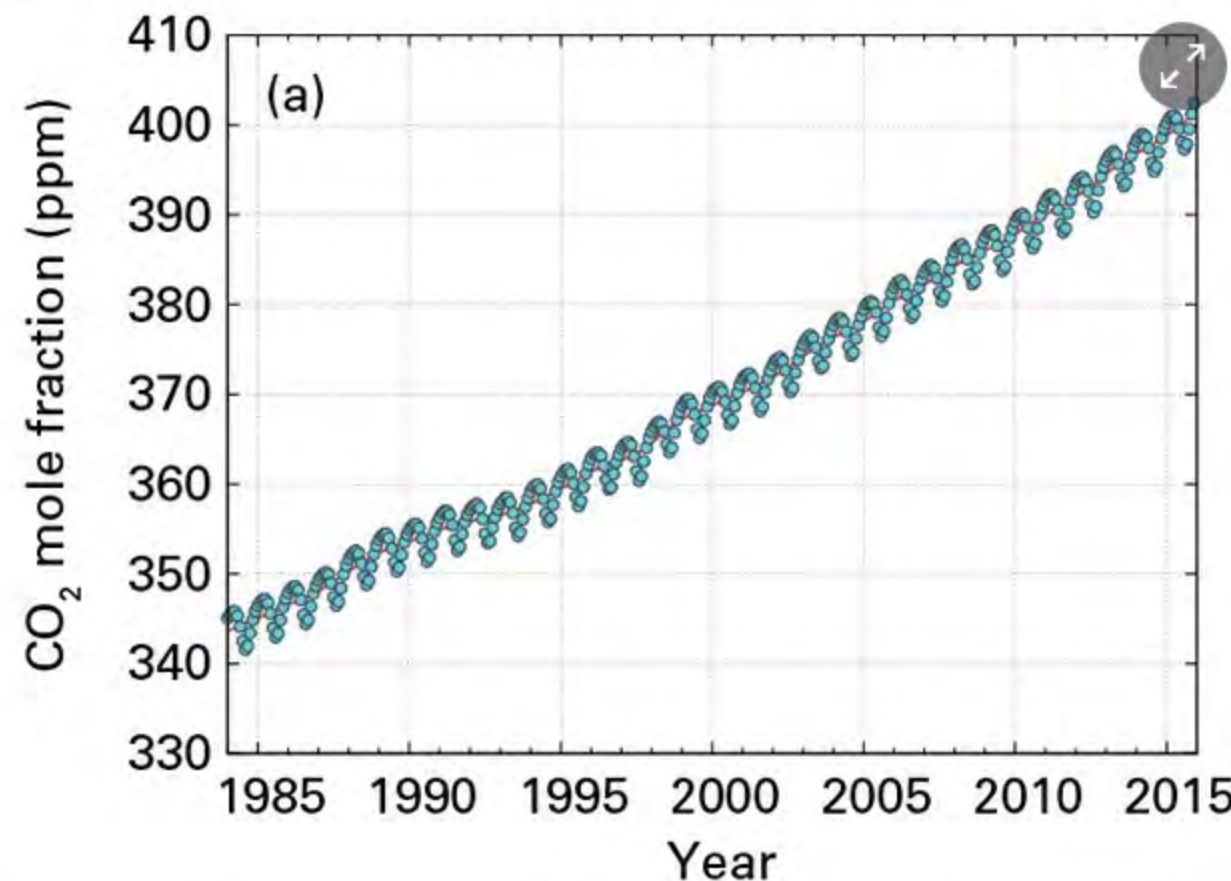
The growth spurt in carbon dioxide levels, which saw a bigger-than-average increase in the greenhouse gas in the atmosphere between 2014 and 2015, was fuelled by the El Niño weather phenomenon in the Pacific.

The strong El Niño, which started in 2015 and continued into this year, triggered droughts in tropical regions and reduced the ability of forests, vegetation and oceans to absorb carbon dioxide, leaving more in the atmosphere.

But over the longer term it is the increase of greenhouse gases such as carbon dioxide, methane and nitrous oxide from human activity including industry and agriculture which caused a 37% increase in the warming effect on the planet between 1990 and 2015.

Around two-thirds of the warming effect, known as radiative forcing, by long-lived greenhouse gases comes from carbon dioxide.

Levels of carbon dioxide in the atmosphere stood at around 278ppm before the industrial revolution, a concentration which the WMO said represented a natural balance on Earth.



Carbon dioxide atmospheric concentrations, parts per million. Photograph: UN WMO

Human activities have altered the natural balance and in 2015 global average levels of carbon dioxide were 44% above pre-industrial levels.

The greenhouse gas bulletin was released ahead of the next round of climate talks, which will mark the early entry into force of the Paris agreement, the world's first comprehensive deal to tackle climate change agreed in the French capital last year.

WMO secretary-general, Petteri Taalas, said: “The year 2015 ushered in a new era of optimism and climate action with the Paris climate change agreement.

“But it will also make history as marking a new era of climate change reality with record high greenhouse gas concentrations.”

He added: “The El Niño event has disappeared. Climate change has not.”

And he said: “Without tackling carbon dioxide emissions, we cannot tackle climate change and keep temperature increases to below 2C above the pre-industrial era.

“It is therefore of the utmost importance that the that the Paris agreement does indeed enter into force well ahead of schedule on 4 November and that we fast-track its implementation.”

The Paris agreement commits countries to keeping temperature rises to “well below” 2C and to pursue efforts to limit increases to 1.5C, by cutting greenhouse gas emissions to net zero in the second half of the century.

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