

Greenhouse gas levels rising at fastest rate since 1984

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By **Matt McGrath** Environment correspondent, BBC News



Concentrations of CO₂ in the atmosphere rose rapidly in 2013

A surge in atmospheric CO₂ saw levels of greenhouse gases reach record levels in 2013, according to new figures.

Concentrations of carbon dioxide in the atmosphere between 2012 and 2013 grew at their fastest rate since 1984.

The World Meteorological Organisation (WMO) says that it highlights the need for a global climate treaty.

But the UK's energy secretary Ed Davey said that any such agreement might not contain legally binding emissions cuts, as has been previously envisaged.

The WMO's annual Greenhouse Gas Bulletin doesn't measure emissions from power station smokestacks but instead records how much of the warming gases remain in the

atmosphere after the complex interactions that take place between the air, the land and the oceans.

About half of all emissions are taken up by the seas, trees and living things.

According to the bulletin, the globally averaged amount of carbon dioxide in the atmosphere reached 396 parts per million (ppm) in 2013, an increase of almost 3ppm over the previous year.

"The Greenhouse Gas Bulletin shows that, far from falling, the concentration of carbon dioxide in the atmosphere actually increased last year at the fastest rate for nearly 30 years." said Michel Jarraud, secretary general of the WMO.

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Oksana Tarasova WMO

"We must reverse this trend by cutting emissions of CO₂ and other greenhouse gases across the board," he said.

"We are running out of time."

Atmospheric CO₂ is now at 142% of the levels in 1750, before the start of the industrial revolution.

However, global average temperatures have not risen in concert with the sustained growth in CO₂, leading to many voices claiming that global warming has paused.

"The climate system is not linear, it is not straightforward. It is not necessarily reflected in the temperature in the atmosphere, but if you look at the temperature profile in the ocean, the heat is going in the oceans," said Oksana Tarasova, chief of the atmospheric research division at the WMO.

'More worrying'

The bulletin suggests that in 2013, the increase in CO₂ was due not only to increased emissions but also to a reduced carbon uptake by the Earth's biosphere.

The scientists at the WMO are puzzled by this development. That last time there was a reduction in the biosphere's ability to absorb carbon was 1998, when there was extensive burning of biomass worldwide, coupled with El Nino conditions.

"In 2013 there are no obvious impacts on the biosphere so it is more worrying," said Oksana Tarasova.

"We don't understand if this is temporary or if it is a permanent state, and we are a bit worried about that."

"It could be that the biosphere is at its limit but we cannot tell that at the moment."

The WMO data indicates that between 1990 and 2013 there was an 34% increase in the warming impact on the climate because carbon dioxide and other gases like methane and nitrous oxide survive for such a long time in the atmosphere.



SPL

Among the network used by WMO is the Mauna Loa atmospheric station in Hawaii

For the first time, the bulletin includes data on the acidification of the seas caused by carbon dioxide.

Every day, according to the WMO, the oceans take up about 4kg of CO₂ per person. They believe the current rate of acidification is unprecedented over the last 300 million years.

The evidence of the atmosphere and oceans underlines the need for urgent, concentrated political action to tackle the problem says Michel Jarraud.

"We have the knowledge and we have the tools for action to try keep temperature increases within 2C to give our planet a chance and to give our children and grandchildren a future," he said.

"Pleading ignorance can no longer be an excuse for not acting."

Road to Paris

The world's political leaders will gather in New York on 23 September for a special summit called by UN secretary general Ban Ki-moon.

The hope is that this meeting will kick-start longstanding negotiations that aim to deliver a new international climate change by the end of 2015.

The exact legal nature of this agreement is still the subject of contentious debate.

UK climate secretary Ed Davey has outlined the UK government's roadmap to an agreement set to be agreed in Paris at the end of next year.

While stressing the need for that agreement to be "legally binding", Mr Davey explained that actual targets for emissions reductions may not be covered by that term.

"We do believe that the foundations of the agreement have to be legally binding, so what that might be? That might be the rules. That might include the measurements, the monitoring and the verification and those sorts of things.

"We would prefer the targets to be legally binding, we already have legally binding targets in the UK and we are trying to argue for more ambitious legally binding targets for the EU, but we recognise that other countries find that a little bit more challenging.

"I think there's a lot of support for having something that is legally binding, it's just the extent of what is covered by that, is where the negotiations will be."

Mr Davey stressed that a deal in Paris would not just help limit the impacts of global warming, it would kick-start a massive transition to low carbon energy production around the world.

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