Report: Climate change set to breach 1.5 C limit for first time by 2027

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The world is rapidly running out of time on climate change.

For many years, scientists have been warning that the rise in global temperature must be kept to below 1.5^{0}C above pre-industrial levels in order to avoid the worst effects of climate change. However, a new

report from the World Meteorological Organization (WMO) reveals that this limit is about to be breached.

It estimates there is a 66% chance that global temperatures will breach the 1.5^{0}C limit in the next five years. While it's likely that this will only be temporary as the temperature of the planet naturally fluctuates, it's a warning that the world is getting closer to a time when this will be permanent.

Prof. Petteri Taalas, WMO Secretary-General, says, "While this report does not mean that we will permanently exceed the long-term 1.5°C level specified in the Paris Agreement, we are sounding the alarm that we will breach the 1.5°C level on a temporary basis with increasing frequency."

"A warming El Niño is expected to develop in the coming months and this will combine with human-induced climate change to push global temperatures into uncharted territory. This will have far-reaching repercussions for health, food security, water management and the environment, and we need to be prepared."

The report also found that there is a 98% chance that one of the next five years will be the warmest ever recorded, pushing people, wildlife and ecosystems to the brink around the globe.

How is the world's temperature predicted to change?

At the moment, the average global temperature is about 1.15°C warmer than it was at the turn of the twentieth century. As the world has become more industrialized over the past century, the increasing emissions of greenhouse gases like carbon dioxide and methane have caused the Earth to trap more heat.

Rising temperatures have been linked to a variety of effects, including heat waves, storms and other extreme weather. They're also having an impact on our ecosystems, contributing to the melting of the polar ice caps, coral bleaching, and the spread of invasive species.

However, the rise in global temperatures is not a straight line. The temperature of the Earth fluctuates naturally over time due to factors such as the strength of the sun and changes in ocean currents.

Nevertheless, the average temperature is continuing to rise, and has picked up sharply in recent years. It's not entirely certain why this is the case, but may show that the Earth is approaching climate tipping points, where higher temperatures will be locked in for hundreds or thousands of years.

For instance, the oceans have been absorbing excess heat for the past century, but appear to be reaching their limit. A recent report revealed that the oceans are warming more rapidly than ever before, lessening their ability to buffer the climate.

This is one of the reasons why the 1.5°C mark will likely be breached for the first time. It's a significant change from 2015 when the chance of the planet exceeding this temperature were practically zero. This increased to 10% between 2017 and 2021, before rising to 66% for the next five years.

While it's likely that this will just be a temporary, there is a one in three chance that the average temperature of the next five years will consistently be above 1.5°C. Without urgent change, it's likely that this will be permanent by 2034.

Dr. Leon Hermanson, a Met Office expert scientist who led the report, says, "Global mean temperatures are predicted to continue increasing,

moving us further and further away from the climate we are used to."

"These new highs will be fueled almost completely by the rise of heat-trapping greenhouse gases in the atmosphere, but the anticipated development of the naturally occurring El Nino event will also release heat from the tropical Pacific."

The difficult route to 1.5°C

While the outlook may seem bleak, the ability to turn things around is within our grasp.

A recent report from the Intergovernmental Panel on Climate Change (IPCC) found that while it is difficult, a pathway to 1.5°C is still a possibility. To achieve this, emissions need to be halved within the next seven years.

Developed nations will need to reach net zero by 2040—10 years earlier than current goals—and phase out fuels such as coal by the end of the decade.

The main way to ensure this is to change how our energy systems are funded. Subsides for fossil fuels need to be rapidly replaced with equivalents for green energy, while investment needs to be driven into storage technologies that can even out unpredictable sources of renewable power.

Money also needs to be found for research into negative emissions technology, such as carbon capture, to bring down levels of greenhouse gases in the atmosphere. To keep the goal of 1.5°C alive, the capacity of this technology needs to be eight times greater than it is at the moment.

While developed countries start making cuts immediately, they also need

to provide a much greater level of investment to developing nations so that they can do the same. Almost all coal, oil and natural gas needs to be left in the ground to keep within the world's carbon budget, so no country can be left behind.

Though the main changes needed to limit climate change must come from governments and politicians, there are also ways individuals can contribute. Taking fewer flights, eating less meat, and making homes more energy efficient can all make a small but valuable difference in the fight against rising temperatures.

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