

# Climate: The Anomaly

by GWYNNE DYER

It was bound to happen sometime, and the time could well be now. We know that when there was strong warming on our planet (like at the end of the last Ice Age around 11,000 years ago), there were sudden big leaps in the global temperature. It wasn't a smooth process at all.

The worrisome part of the current warming is not just that it has given us the hottest year on record. We've been breaking old records for some time now, as you would expect when you keep putting forty billion tonnes of greenhouse gases into the atmosphere every year. It's the scale of the rise in temperature this year: two-tenths of a degree Celsius (0.2°C).

Climate scientists are calling it an 'anomaly', which is not so much an explanation as an admission that they can't explain it. Changes in average global temperature from one year to another tend to be quite small. This one is gigantic.

Through all the decades since the 1950s, as the carbon dioxide, methane and other warming gases piled up, the actual rise was calculated to be 0.18 of a degree C per decade. Not per year, per decade.

Renowned climate scientist James Hansen recently claimed that around 2010 the rate of warming increased to 0.27 of a degree per decade - a 50% acceleration in the warming, and well worth worrying about. But Hansen's number still implies that it would take almost four decades to raise average global temperature by one full degree.

Whereas if this year's rate of warming persists, it would give us two full degrees of extra warming by 2034. Add the warming we have already caused (1.5 degrees), and average global temperature in 2034 would be 3.5 degrees C higher. That's mass dieback at the very least, and probably the collapse of our current civilisation.

I'm not trying to scare you, and I don't think we are really on that catastrophic track. But it is clearly a very big deal, and the climate scientists have no ready explanation for why this is happening at all.

There are also other signs that something big is happening to the climate. The sea surface temperature over much of the world has also been hotter than ever before - by a full degree or more, and for the entire past year.

There is a list of likely tipping points that covers all the known contingencies - permafrost thawing, Amazon rainforest dieback, loss of the West Antarctic ice sheet, etc - but this anomaly doesn't fit any of the known categories.

Scientists simply don't know what is causing the anomaly, and they don't like making guesses. However, a recent hypothesis by James Hansen may be relevant, even though he wrote his latest paper before the scale and longevity of the anomaly became clear.

Hansen suggested that cleaning up sulfur dioxide emissions over the past 10-15 years both in industrial cities, especially in China, and in emissions at sea from 60,000 large commercial vessels has been too successful. The sulfurous clouds were hard on people's health, but they also reflected a lot of sunlight back into space and cooled the climate.

Cutting the sulfur emissions considerably worsened the planet's energy imbalance (more energy coming in than going out again), and that translates directly into more heat. Whether that is a big enough change to account for the current anomaly remains to be seen, because measuring cloud effects is a murky business, but that would be a reassuring answer.

If it's the sulfur dioxide, then at least it's a known and self-limiting event. We could choose to live with it, or we could try to get that lost cooling back by putting some alternative, harmless aerosol into the air, but either way it's not a world-changing phenomenon.

If, on the other hand, it's not the lost sulfur dioxide, then it could mean practically anything, including even large and rapid jumps in global temperature. The brutal truth is that the Intergovernmental Panel on Climate Change, the United Nations' main instrument for dealing with the climate crisis, has systematically downplayed the risks we are running.

The predictions it makes are almost all based on the assumption that global warming will be a slow, smooth, predictable process, whereas everybody there knows that it is unlikely to be true. The tipping points are real, they may be quite abrupt, and sooner or later we are bound to trip over them if emissions are not cut drastically in the near future.

As Gavin Schmidt, the director of NASA's Goddard Institute for Space Studies, wrote recently: 'If the anomaly does not stabilise by August, then the world will be in uncharted territory.'