

Early warnings of an out-of-control climate

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Global warming is edging perilously close to out-of-control, according to a growing number of scientific reports from round the planet, a leading science writer has warned.

"Time is running out if we want to preserve our world in a stable, healthy and productive state, capable of feeding and supporting us all," says Julian Cribb, author of *Surviving the 21st Century*, a book on the ten greatest challenges facing humanity and what we can do about them.

"The great concern is the rapid rise, over the last three years, in [methane](#) levels in the atmosphere. Methane is a gas with 28 times the planet-heating power of carbon dioxide. Scientists estimate there may be as much as 5 trillion tonnes of it locked in permafrost and seabed deposits.

"There is mounting evidence that, as the planet warms due to human activity, these vast reserves of greenhouse gas are now starting to melt and vent naturally. The Earth's past history shows this could unleash runaway [global warming](#), driving up planetary temperatures by as much as 9 or 10 degrees Celsius.

"At such temperatures, some scientists consider there is a high risk the planet would become uninhabitable to humans and large animals," Mr Cribb says.

"Runaway heating and nuclear war are the two most likely triggers for human extinction – and it is time everyone took them both a lot more seriously."

Reports of methane escaping into the atmosphere have been growing steadily, ever since a group of students demonstrated the risks by setting fire to venting Arctic gas in 2008. However, scientists report a sudden surge in global methane emissions in the last three years, 2014-16.

"So far the rise in methane has been attributed mainly to cattle raising, rice farming and gas extraction – but there is now disturbing evidence that more gas is emerging from Arctic soils as the permafrost melts, and from the seabed where methane has been trapped as ice for millions of years.

"Russian scientists have reported the discovery of thousands of potential 'methane-bombs' – frozen gas-filled mounds – across Siberia, primed to erupt as the ground thaws out.

"Swedish scientists have observed the waters of the Arctic oceans 'fizzing like soda water' as the ocean waters warm, causing frozen seabed methane to turn back into gas and erupt."

Mr Cribb says that so far humans have released about 2 billion tonnes of CO₂, which has warmed the planet by one degree C. By 2040, we will release another billion tonnes and push the planet's temperature up by 2 degrees or more.

"This we can possibly control, by cutting back on our use of fossil fuels and by ceasing to burn coal," he says. "However, there is no way to stop the methane venting naturally from the seabed and permafrost once it starts – and there are potentially 5 trillion tonnes of it.

"This phenomenon is known to scientists as the 'clathrate gun'. If it fires, the fate of the entire human species is in question."

Mr Cribb said that technical difficulty in measuring the Earth's natural

methane emissions and estimating the size of its reserves has until now led to the gas being discounted, or downplayed, in warnings about dangerous [climate change](#) by the Intergovernmental Panel on Climate Change and other agencies.

"That time is over. We are now witnessing early warning signs of major methane release. If it gets out of control, there will be nothing humans can do to prevent the planet overheating quite rapidly."

Mr Cribb said it was more urgent than ever that governments and corporations of the world unite to combat climate change. "The recent Climate Turning Point report says the world has until 2020 – just two and a half years – to reverse [global carbon emissions](#) by cutting fossil fuel use. Time is running out – and the methane gun makes matters all the more urgent.

"This means that countries like America and Australia have to cease their dangerous do-nothing policies, countries like India and China need to stop building coal-fired power stations immediately – and every country and business needs to make a far greater effort to scale back its carbon emissions.

Surviving the 21st Century (Springer International 2017) is a powerful new book exploring the main risks facing humanity: ecological collapse, resource depletion, weapons of mass destruction, climate change, global poisoning, food crises, population and urban overexpansion, pandemic disease, dangerous new technologies and self-delusion – and what can and should be done to limit them.

More information: Surviving the 21st Century: Humanity's Ten Great Challenges and How We Can Overcome Them.
www.springer.com/us/book/9783319412696

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