

Global warming may become unstoppable even if we stick to Paris target

By Michael Le Page, [New Scientist, Aug 6, 2018](#)

We could be on the verge of triggering a series of cascading tipping points that result in the planet warming 4 or 5°C hotter than the pre-industrial benchmark.

That, at least, is the view of a group of 16 climate scientists, who have spelled out a scenario in which [sea levels would be 10 to 60 metres higher than today](#). This warming would continue even if we ceased pumping CO₂ into the atmosphere – and the threshold could be as low as 2°C.

If they are right, it means that the supposed “safe” limit for global warming set out in the Paris agreement might be anything but. “Two degrees may actually be very dangerous,” says Johan Rockstrom of Stockholm University, who is one of the 16.

For most of the past half billion years, Earth was much hotter than today, with no permanent ice at the poles: [the hothouse Earth state](#). Three million years ago, as carbon dioxide levels fell, it began oscillating between two cooler states: ice ages in which great ice sheets covered much land in the northern hemisphere, and interglacials like the present.

Unstable

The aim of the Paris agreement is to limit warming to 2°C by 2100. But if Rockstrom and co are right, we might be on the brink of pushing the planet out of the present interglacial state and into the hothouse earth state. This means it might not be possible to stabilise global temperature at this level.

Even if we manage to limit warming to 2°C by 2100 – we are [currently on course for 3 or 4°C by 2100](#) – warming would continue over the next few centuries even if all our greenhouse gas emissions ceased.

“The first cluster of tipping points in the climate system is centered around 2°C warming,” says team member John Schellnhuber of the Potsdam Institute for Climate Impact Research. “The perturbation could push the planetary machinery out of the glacial cycle.”

The team stress that they are pointing out a potential danger that needs study, not that they have shown conclusively that this will happen. “We are discussing a possibility, not a probability, and ask the scientific community to put our scenario to the test,” says Schellnhuber. Indeed, other climate scientists that New Scientist spoke to – who did not wish to be named – expressed scepticism at its findings although others thought it was reasonable.

“It is plausible that if we exceed some temperature threshold we will place Earth in a different climate state,” says Jeffrey Kiehl of the National Center for Atmospheric Research in the US, who studies climate change in the past and present, and was not involved in the study.