

"We used stellar evolution models to estimate the end of a planet's habitable lifetime by determining when it will no longer be in the habitable zone. We estimate that Earth will cease to be habitable somewhere between 1.75 and 3.25 billion years from now. After this point, Earth will be in the 'hot zone' of the sun, with temperatures so high that the seas would evaporate. We would see a catastrophic and terminal extinction event for all life.

"Of course conditions for humans and other complex life will become impossible much sooner - and this is being accelerated by anthropogenic climate change. Humans would be in trouble with even a small increase in temperature, and near the end only microbes in niche environments would be able to endure the heat.

"Looking back a similar amount of time, we know that there was cellular life on earth. We had insects 400 million years ago, dinosaurs 300 million years ago and flowering plants 130 million years ago. Anatomically modern humans have only been around for the last 200,000 years - so you can see it takes a really long time for intelligent life to develop.

"The amount of habitable time on a planet is very important because it tells us about the potential for the evolution of complex life - which is likely to require a longer period of habitable conditions.

"Looking at habitability metrics is useful because it allows us to investigate the potential for other planets to host life, and understand the stage that life may be at elsewhere in the galaxy.

"Of course, much of evolution is down to luck, so this isn't concrete, but we know that complex, intelligent species like humans could not emerge after only a few million years because it took us 75 per cent of the entire habitable lifetime of this planet to evolve. We think it will probably be a similar story elsewhere."

"Almost 1,000 planets outside our solar system have been identified by astronomers. The research team looked at some of these as examples, and studied the evolving nature of planetary habitability over astronomical and geological time.

"Interestingly, not many other predictions based on the habitable zone alone were available, which is why we decided to work on a method for this.