

# Experts set out to find 'golden spike' which will herald a new epoch for the earth

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LONDON: A worldwide hunt for a "line in the rock" that shows the beginning of a new geological epoch defined by humanity's extraordinary impact on planet Earth is expected to get under way in the next few weeks.

The idea that we are now living in the Anthropocene epoch has been gaining ground in recent years. The surge in global temperatures by an average of one degree Celsius in little over a century, the burning of vast amounts of fossil fuels, the extinction of many animal species, the widespread use of nitrogen fertilisers, the



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deluge of plastic rubbish and a number of other factors have all caused changes that will remain visible in rocks for millions of years.

Later this month, an expert working group – set up to investigate whether these changes are so significant that the 11 500-year-old Holocene epoch

is now at an end – will present its latest findings to the 35th International Geological Congress (IGC) in South Africa.

They then plan to search for what is known as a "golden spike" – a physical point in the geological record that shows where one epoch changed to another – which could win over any remaining doubters among the geology community. This would set in train a process that could see a formal declaration that we are living in the Anthropocene by the International Union of Geological Sciences in just two years.

Dr Colin Waters, secretary of the Anthropocene Working

Group who will address the IGC, said: "The key thing to us is the scale of the changes that have happened. It's of comparable scale with what happened with the Holocene and the transition from the last ice age."

A key factor in defining the boundaries of the different chapters in Earth's geological history has been climate as Earth moved from ice age to warm periods.

In the past, humans had "no input into that and all the changes have been because of that natural oscillation", said Dr Watson, a geologist at the British Geological Survey.

"But really in the last century we have had such a huge

impact that we're actually taking the planet away from that natural oscillation and changing the trend for global temperatures from what should have been a cooling trend to a warming trend."

The mid-20th century has emerged as the favourite time for the beginning of the Anthropocene partly because of the number of different indications that will be written into our planet. Radioactive particles from the open-air nuclear bomb blasts, which began in 1945, were scattered all over the planet. The same is true of smoke from the burning of fossil fuels, which increased dramatically after World War II.

Discarded plastic, which is expected to last for thousands of years, and blooms of algae caused by chemical fertilisers washed and blown into rivers, lakes and the sea are already caught up in sediments that will make the rocks of the future. Pesticides have also left their own chemical signature. Global warming has melted glaciers, enabling plants to grow and create a sharp dividing line in the sediment, and raised the temperature and altered the acidity of the oceans. It is also thought the golden spike might be found in corals, which have suffered widespread bleaching because of the warmer water. They

have also been damaged by trawlers' nets and pollution.

In a paper in the journal *Science* earlier this year, Dr Waters and others said an age range of 1945 to 1964 had been proposed for the start of the Anthropocene. The working group's convener, Professor Jan Zalasiewicz, a palaeobiologist at Leicester University, said: "There's a majority of opinion on the working group to say the Anthropocene is real."

However there is still a debate about when it started and some experts believe it is premature to formally declare a new epoch. – The Independent