

Welcome to age of human influence

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CHICKEN bones stacked in landfills, ubiquitous microplastic, erosion, widespread fertiliser use, ash from the burning of fossil fuels, radioactive particles from nuclear waste and the effects of unfolding climate change.

When our descendants study fossilised records buried in rocks and in soil, this is likely to be the evidence signalling the dawn of the age in which humanity dominated the Earth.

This week, members of the Anthropocene working group announced at the 35th International Geological Congress in Cape Town that the beginning of a new epoch, or geological era – the Anthropocene – should provisionally be declared because man-made influences on the “state, dynamics and future of the Earth system” are as significant as events that occurred nearly 12 000 years ago, at the conclusion of the last Ice Age.

Dr Matthys Dippenaar, a geologist with the department of geology at the University of Pretoria, said the announcement was “exciting and we are privileged it happened in South Africa”.

He and his colleague, Louis van Rooy, said the geological time-scale was subdivided according to major climatic (ice ages), evolutionary (the Cambrian explosion of biodiversity) or deposition environments shaping the planet and its biodiversity, as well as major extinction events, such as that which formed the boundary between the Permian and Triassic periods.

“To announce the Anthropocene as an epoch dating from the 1950s implies geologists have decided we have indefinitely entered a new (period) in the geological time-scale,” they said.

“Man’s impact is now considered one that will be reflected in the geological record of rocks and soils in the geological future. The Anthropocene can be characterised by changes in how sediments are deposited and how we disrupt the Earth’s subsurface, and by the chemical nature of these deposits.

“The term does not imply adverse impacts induced on the planet, but rather the indistinguishable reflection of man’s influence on the changing geological processes shaping the planet.”

The relevance of this is that it provides a new chronostratigraphic or time-based sequencing and classification of earth materials, the basis for placing the influence of humankind into the context of the shaping of the planet, “not necessarily now, but in the short geological or long-term anthropological future”, the geologists say.

“Our deep excavations, our man-made construction materials, our use of nuclear energy and our carbon footprint are now part of how the future’s rocks are being formed.”

The term “Anthropocene” was coined in 2000 to “denote the present time, in which geologically significant conditions and processes are profoundly altered by human activities”.

The effects, the working group note, include perturbations of the cycles of elements, such as carbon, nitrogen, phosphorus and various metals.

These perturbations lead to climate change, ocean acidification and spreading oceanic “dead zones”.