This is a transcript of The Conversation Weekly podcast ‘The Anthropocene epoch that isn’t – what the decision not to label a new geological epoch means for Earth’s future,’ published on April 4, 2024.

NOTE: Transcripts may contain errors. Please check the corresponding audio before quoting in print.

Gemma Ware: The word “Anthropocene” was coined at the turn of this millennium. It caught on and has now become a common way to describe the influence that humans are having on the planet. But nowhere was it discussed more passionately and contentiously than in the science world. For almost 15 years, scientists have debated whether the Anthropocene should be an official epoch, a new mark in geological time. And in March, that debate came to a formal end. We are not officially in a new Anthropocene epoch. In this episode, two scientists give us their different opinions on whether that was the right decision and what it means for the future.

I’m Gemma Ware and you’re listening to The Conversation Weekly, the world explained by experts.

Today I’m joined by Will de Freitas, Environment and Energy Editor for The Conversation in the UK. Hey, Will.

Will de Freitas: Hey, Gemma. Thanks for having me.

Gemma Ware: So, Will, you’ve been covering this scientific controversy over the past few weeks about the Anthropocene. Before we get into that, let’s start off with some definitions, because a lot of this has to do with the word, Anthropocene. So where did the Anthropocene, this word actually come from?

Will de Freitas: The term was first coined by a guy called Paul Crutzen, a Nobel Prize-winning atmospheric chemist. Legend has it that he originally came up with it sort of almost off the cuff, in a scientific meeting, almost as an aside. It describes the incredible impact that humans are having on the planet. Besides just the
climate, it’s things like microplastics being discovered in every little corner of the world at the bottom of oceans, building dams across massive rivers, and nuclear radiation spreading to everything on the planet. All these things will show up on geological scales. So if an alien visits our planet years after humans have gone extinct, they will still see signs of humanity written in layers of rocks. It’s such an enormous impact that scientists set up an Anthropocene working group to look into whether it should be declared an official geological epoch, that is, a marker in the geological timescale.

**Gemma Ware:** And this has been going on for a couple of years. I think over a decade ago this Anthropocene working group was set up. But there’s been a lot of attention paid to the term over the last year. Where did that attention come from?

**Will de Freitas:** Last summer, the working group, they look for what’s called Golden Spike, which is a sign in the record of the sort of rocks that will mark the transition from one epoch to another. And one that the working group settled on was a lake in Canada, which is called Crawford Lake, and it’s not the world’s deepest or most remote lake or anything, but various factors mean that the bottom of the lake is unusually undisturbed and has a very, very accurate record of what conditions were like on the surface at any given time. The sharpest sign in the lake’s record of sudden increase in human activity comes from around 1950. For instance, fly ash from coal plants rapidly increases in the layers, acid rain diminishes calcite layers, and you can see radioactive plutonium in sediment at the bottom of the lake that would have come from nuclear tests thousands of miles away. So, using this as the golden spike would start the Anthropocene epoch in the 1950s. That’s a time that some scientists talk about as the Great Acceleration, which is the idea that humans in the midpoint of last century suddenly started using huge amounts more stuff, and our impacts in all sorts of ways massively, massively accelerated.

**Gemma Ware:** It does feel like quite a specific time period, 1950, when you think of the whole of humanity. Was it the only start date on the table?

**Will de Freitas:** It is. It’s also incredibly precise when you think about this in, sort of, geological terms. I don’t think anyone’s dating the precise year that, you know,
we transitioned from one geological era to another millions or billions of years ago. There were various other suggestions. For instance, the start of the Industrial Revolution, or European colonization of the Americas, which will show up in the fossil records in the far future because we moved many species to and from the Old World. There’s been a sort of wide debate among geologists and earth scientists. Ultimately, the Anthropocene Working Group chose Crawford Lake, took that proposal to the Geological Commission that votes on whether to declare new epochs, and that was happening over the past year. And in March, the scientists on that commission voted no, so there will be no Anthropocene epoch.

**Gemma Ware:** And you’ve been covering this for a few years now, Will. Were you surprised when that vote came back “No, we’re not in the Anthropocene”?

**Will de Freitas:** I was a little bit, yeah. Partly because I’ve been working with quite a lot of the academics who are broadly on the pro-Anthropocene side of things, who thought we should declare it a new epoch. And partly because it feels like popular culture has almost overtaken geology in this sense. It’s already quite a widely used word and phrase and so on. You often got the sense that the geologists recognizing it would be something of a formality.

**Gemma Ware:** And you’ve been working with one academic in particular who’s on the Pro side, haven’t you?

**Will de Freitas:** So, one guy I’ve worked with a lot over the years is Jan Zalasiewicz. Jan is an emeritus professor of Paleobiology at the University of Leicester in the UK. He’s a former chair of the Anthropocene Working Group, and he’s also currently chair of the very sub-commission which voted on the Anthropocene epoch.

**Gemma Ware:** Well, great. Thank you very much, Will, for giving us all of that context.

**Will de Freitas:** Thanks, Gemma. Thank you very much for having me.
**Gemma Ware:** Jan is actually one of the two researchers that we’ve been speaking to for this episode. As you say, he’s very much in the ‘Anthropocene is an epoch’ camp. And when I spoke to him, I asked him what the word Anthropocene actually means to him.

**Jan Zalasiewicz:** It’s about a change to the planet and planetary conditions. The agent of change this time is humans. It is collectively the effects of all the things we do, changing in the atmosphere, the oceans, the biosphere. Other things have changed the earth before—volcanoes, meteorites. It’s the change that’s important and this time it happens to be us.

**Gemma Ware:** And how rapidly is this happening and how long will it last?

**Jan Zalasiewicz:** It’s extraordinarily rapid. If you look at the graphs of these fundamental parameters of Earth, like temperature and sea level, and the amount of greenhouse gas in the air, they stayed steady for thousands of years. And then a little bit over a hundred years ago in the mid-19th century as the Industrial Revolution took effect, the graph of carbon dioxide in the air began to lift up. And then, from just 70 years ago from the mid-20th century, that really zoomed upwards. And lots of other things zoomed upwards, you know, the production of everything, of concrete, of plastics, the amount of nitrogen and phosphorus we spread around the earth, the rate of extinctions and species invasions. It’s been called The Great Acceleration, and it’s that Great Acceleration which is taking the earth out of the conditions it’s known and that we’ve enjoyed since the dawn of civilization, if you like, since the beginning of the Holocene.

**Gemma Ware:** And we’re talking to you today because there’s been an academic question and series of debates about the Anthropocene and what it actually is in scientific terms. So, can I ask you first of all, what makes something an epoch?

**Jan Zalasiewicz:** An epoch is most simply understood as a separate dynasty within Earth history that has things like climate, sea level, and biological composition, that can be captured in strata, as things like fossil remains and therefore make those strata distinctive from strata below and strata above.
**Gemma Ware:** And why do you think that science shows that the Anthropocene is an epoch?

**Jan Zalasiewicz:** Because it, it exists. There’s so much evidence now that the Earth’s operating system is different from these long thousands of years of stability, relative stability of the Earth. I’d say, particularly, climate is a major driver, and that is clearly changing. The Earth’s surface composition is changing. And I think there are two things here. One is that those changes are geology. They’re being imprinted in hundreds of different ways into recent strata now forming. That’s one aspect which makes them represent a, if you like, a de facto epoch. And the other is that the repercussions will carry on for many thousands of years, even billions of years. The climate repercussions of what is happening now will last at least many thousands of years. And the biological repercussions, the scrambling of the Earth’s biology through species invasion extinctions, that has permanently altered the course of biological history and therefore of the history of the fossil record that will develop from the future.

**Gemma Ware:** So in early March, the sub-commission that you chair voted not to declare the Anthropocene as a new epoch. The vote was four people in favor of declaring it an epoch and 12 against, and you and the vice chair, one of your colleagues Martin Head, abstained from the vote. Did the outcome of the vote surprise you?

**Jan Zalasiewicz:** The outcome didn’t, of the vote, because having worked with this now for 15 years, one is aware that the Anthropocene is a very new idea, and there is a lot of resistance to it, you know. And geologists, we’re used to working with millions of years. The idea you can have an epoch of just 70 years can seem bizarre and surreal. And the idea that you can have an epoch defined by things like radionuclides and plastics and concrete is also hard to accept for somebody who works in deep-time geology. But nonetheless, we think the case is good, and like many of the previous great changes in our understanding of the earth, the idea that there has been an Ice Age, for instance, was resisted for decades until it became accepted. The idea of plate tectonics, when it first came in, sounded bizarre and surreal to many geologists, and it was fiercely contested. It’s the same with the Anthropocene. I think we’re at the beginning of a long set of discussions, debate,
analysis, simply because it’s real, it won’t go away, it’s intensifying. So, we have to deal with it.

**Gemma Ware:** You abstained from the vote as we’ve established, but then you challenged the validity of the vote a couple of days after it happened. On March 20, the International Commission of Stratigraphy decided that the vote is valid. Given that the Anthropocene now won’t be declared as an official epoch, what do you think is the best way forward in terms of how we relate and interact with the word?

**Jan Zalasiewicz:** I think to keep working, to using it, is a de facto epoch. It is geological, it is changing the planet, and so the work simply goes on. It’s a shame the chance was missed to formalize and stabilize the Anthropocene in its original and primary meaning, but the reality doesn’t go away. So we have to keep on working with that reality.

**Gemma Ware:** With that in mind, you think it’s a shame that it wasn’t labeled as an epoch, but do you think it matters in people listening, in everyone’s lives that it isn’t an epoch?

**Jan Zalasiewicz:** If the Anthropocene, let’s say, is said to be formally refuted, then that might give the impression that, oh, you know, the planet isn’t really changing so much after all. But of course, that is not the case. The changes over the last 70 years on a different scale to those which happened throughout human history. They’re changing the nature of the planet. And that wasn’t the case before. Humans did all kinds of things. They built empires, built cities, farmed, and cut down forests. And yet, those fundamental characteristics of climate, of sea level, of carbon cycle, nitrogen cycle, phosphorus cycle, stayed pretty much steady. A horizontal line on the graph, came the Anthropocene, then they zoomed for a vertical line on the graph. That’s the difference. The rejection of the Anthropocene idea may, in many people’s minds, obscure that central reality.

**Gemma Ware:** We’re speaking, as you know, both to yourself and to Erle Ellis, who’s a former member of the Anthropocene Working Group. You disagree on several things. What do you think you both agree on?
Jan Zalasiewicz: One thing that I agree with, is in the description of how he measures and shows the scale of human change. Erle developed a lovely concept called The Anthrome, a bit like a biome, to, if you like, demonstrate and measure the human changes to geography, if you like, which translates ultimately into geology changes. So, that’s a nice bit of science that we still use, even though we disagree with Erle on the fundamental meaning of the Anthropocene and how one should treat it. The work he’s done in this kind of descriptive work and this idea he’s introduced, I think will stay part of Anthropocene science.

Gemma Ware: Thank you so much for your time today, Jan.

Jan Zalasiewicz: You’re very welcome. A pleasure to speak with you.

Gemma Ware: So it’s very clear from this conversation with Jan that he’s on the pro side. He really believes that the Anthropocene should be an epoch. To get the other side of this scientific debate, I reached out to Erle Ellis. He’s a professor of geography and environmental systems at the University of Maryland, Baltimore County in the U.S., and he’s a former member of the Anthropocene Working Group.

Erle Ellis: I’ve been working on global changes in ecology produced by human societies for many decades now, and I joined the Anthropocene Working Group in 2009 at the very beginning, and just recently resigned in 2023.

Gemma Ware: Could you very briefly explain why you resigned?

Erle Ellis: I resigned for two reasons. One was that the spirit of the group really did change as we got very close to the final Anthropocene proposal. The tolerance for alternate views about defining the Anthropocene kind of went down very far. There were two other resignations around the same time. But the most important reason of all is that the long-term goal of The Anthropocene Working Group was to define the Anthropocene in a way that would broadly be useful to society. But what I saw happening is that it ended up in this very narrow track of breaking Earth’s history into two parts. A part that is considered to be transformed and a part before
it where things are natural or untransformed. That became the narrative of the group. That narrative is regressive and harmful politically, as it makes it sound like the kinds of changes that were brought about by societies like the colonial industrial societies, a hundred years ago, don’t count. The only things that count in transforming the planet are things that happened after 1950. So, that kind of silencing of the past in the Anthropocene and kind of ignoring the deeper roots of the transformative changes human societies have been making over the long term was something that I just felt was unconscionable. I couldn’t be… I didn’t want to be a promoter of that sort of idea.

**Gemma Ware:** Okay. And you call the Anthropocene an event. Can you describe how it is an event, in your view, and how that’s different from an epoch?

**Erle Ellis:** So, an epoch in the geologic time scale is defined by a clean break, a clean planetary break in time. Okay, so that means there’s a before and an after. But events don’t assume that the entire planet changes all at once. Events can roll out at many different scales, at many different times, in many different parts of the planet, and kind of build up into things like a planetary change. And the classic example of a geological event is The Great Oxidation Event, which is this long-term process by which photosynthesis originated and began oxygenating the atmosphere. It took hundreds of millions of years, even billions of years, to oxygenate the atmosphere. That entire process is known as the Great Oxidation Event. Nobody tries to pin it down to what year it began. It’s not really what’s important about understanding events. What’s important is to understand the processes of change. And it’s applicable here to the Anthropocene as well. We need to understand this complex, long-term, differentiated unfolding of planetary transformation by human societies.

**Gemma Ware:** So, recently there was a decision not to declare the Anthropocene an epoch. Has anything changed for you since that decision came up?

**Erle Ellis:** Good question, and I think that’s what’s happening right now, is people are adjusting to a new reality. I know a lot of people were waiting to hear what the outcome of this geological group was going to be, and I think there were a lot of assumptions, and I actually thought it was very likely, that the Anthropocene would become this official epoch. And so, at this point, we’re thinking, “Okay, how do we
help people understand anthropogenic global change in a way that doesn’t divide history up into pre- and after 1952?” And the event has been this kind of solution. It provides this very broad canvas that does not restrict people. Geologists can use this framework, but archaeologists can use it just as well. So can the humanities. It’s a very broad concept. You don’t have to pin it down to a certain time. It doesn’t have to happen in a certain place. It’s all these things coming together that define the Anthropocene event.

**Gemma Ware:** If that’s the case, if we should be discussing this and thinking about our place in this world and this event, how should we be interacting with the world at this moment?

**Erle Ellis:** Well, and I’ve been public about this, I think one of the things that’s often missing from Anthropocene discussions. In fact, it’s probably a kind of work that the word Anthropocene is doing that is not what I think the sciences should be promoting, is this idea that the Anthropocene is doing something, the Anthropocene is causing something. The Anthropocene is just a way of describing a syndrome of things that are changing. And the real questions that matter right now, who’s responsible for the problems that are being caused? This lack of responsibility, the idea of saying, “Oh, the planet is a problem. We have a 1.5 degree problem.” That’s actually not the problem. The problem is that the wealthiest, most powerful, most capable societies in the world are failing to address the pollution that they are putting into the atmosphere, and they’re causing problems for everyone. And if the focus can turn around from talking about the planet to talking about the people responsible for emissions, and that includes industries, it includes governments, it includes everyone involved to some degree, to come together to solve the problem of emissions, rather than talking about the problem of 1.5 degrees or some kind of planetary problem. And the Anthropocene sometimes portrays things that way, like humanity has a problem on this planet. Well, all of humanity isn’t causing global climate change.

**Gemma Ware:** Hmm. So, as you know, I think we’re speaking with Jan Zalasiewicz, and one of his worries is that by this decision not to declare the Anthropocene an epoch, there might be a case that will kind of obscure the reality of what’s going on of these changes, and that people won’t realize the magnitude of
the human impact and the rapidity of the changes that are happening. Do you share any of that concern?

**Erle Ellis:** I can see how the media can use a message from the scientists to make it sound like scientists have somehow repudiated the evidence of global change. But for anybody who’s serious about the sciences, the Anthropocene adds nothing to this. It oversimplifies the trajectory of climate change, biodiversity loss, all the things that really matter into this simple binary of, you know, after 1952 we have a problem, before the time it’s everything’s natural and no problem. That’s not going to help. To really be serious about addressing this runaway type of planetary transformation, we need to focus on different things than dividing time into two segments. The evidence of planetary change speaks for itself.

**Gemma Ware:** Hmm. And just a final question. You and Jan, you disagree on a lot of things and, you know, there’s a lot of feeling in this debate amongst the scientists as well. But what do you think you both agree on around this question?

**Erle Ellis:** Well, I think we both agree that the Anthropocene remains an important way of thinking about planetary change. We can put it all together into this broader package, but it doesn’t mean that it simplifies everything, right? Transformative planetary change caused by people is complex. It is not one thing or another. And I think we all agree that it’s much more than climate change, for example. So having a forum, this kind of Anthropocene forum, to talk and understand and research the kinds of solutions we might have to planetary changes that we don’t want, like climate change, is still important. And the Anthropocene should still be able to help us come together around these things. And it has already inspired so much discussion. And I think it’s going to remain much more useful, and I think this is where we differ: I think the Anthropocene is much more useful as this broader concept rather than this very narrow 1952 band of lake sediment in Crawford Lake.

**GemmaWare:** Thank you so much Erle for your thoughts today. It’s been great speaking with you.

**Erle Ellis:** My pleasure, Thank you for giving me the chance to talk about the Anthropocene.
Gemma Ware: That’s it for the episode of The Conversation Weekly. Thank you very much to Will de Freitas, who we heard at the top of this episode. You can read further coverage of the Anthropocene epoch debate on The Conversation, including articles by Erle Ellis and Jan Zalasiewicz. We’ll put some links to those in our show notes.

This episode of The Conversation Weekly was produced by Tiffany Cassidy, sound design was by Eloise Stevens, and our theme music is by Neeta Sarl. Stephen Khan is our global executive editor, Alice Mason runs our social media, and Soraya Nandy does our transcripts.

You can connect with us on Instagram @theconversationdotcom, or email us directly at podcast@theconversation.com. If you like what we do, please support our podcast and The Conversation more broadly by going to donate.theconversation.com. That’s donate.theconversation.com. And please do also give us a rating or review wherever you listen to your podcast, it really does help. If you’re listening on Spotify, you can answer a question that pops up, ‘What do you think about this episode?’ Do fill it in, we’d love to get your feedback. Thanks so much for listening.