5.3.2024

The New York Times

Are We in the 'Anthropocene,' the Human Age? Nope, Scientists Say.

A panel of experts voted down a proposal to officially declare the start of a new interval of geologic time, one defined by humanity's changes to the planet.

INTERNATIONAL UNION OF GEOLOGICAL SCIENCES
(IUGS, 1961)

INTERNATIONAL COMMISSION ON STRATIGRAPHY
(ICS, 1974)

SUBCOMMISSION ON QUATERNARY STRATIGRAPHY

ANTHROPOCENE WORKING GROUP
(AWG, 2009)

INTERNATIONAL COMMISSION ON STRATIGRAPHY:

- it precisely defines units of the **International Geologic Time Scale,** thus setting global standards for the fundamental scale for expressing the history of the Earth
- the official *keeper of (geologic) time*

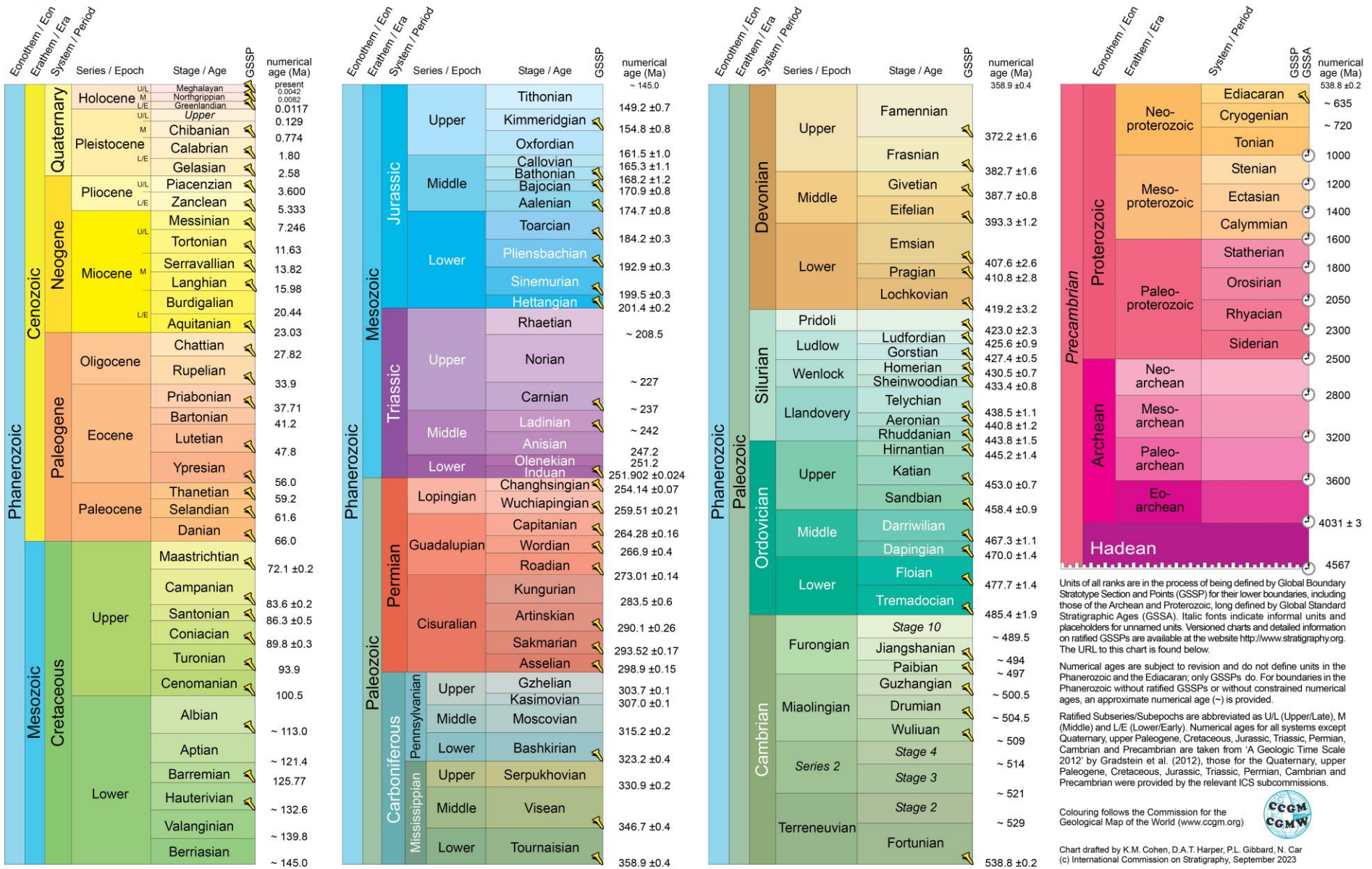
INTERNATIONAL CHRONOSTRATIGRAPHIC CHART

IUGS

www.stratigraphy.org

International Commission on Stratigraphy

v 2023/09



Units of all ranks are in the process of being defined by Global Boundary Stratotype Section and Points (GSSP) for their lower boundaries, including those of the Archean and Proterozoic, long defined by Global Standard Stratigraphic Ages (GSSA). Italic fonts indicate informal units and placeholders for unnamed units. Versioned charts and detailed information on ratified GSSPs are available at the website http://www.stratigraphy.org. The URL to this chart is found below.

Numerical ages are subject to revision and do not define units in the Phanerozoic and the Ediacaran; only GSSPs do. For boundaries in the Phanerozoic without ratified GSSPs or without constrained numerical ages, an approximate numerical age (~) is provided.

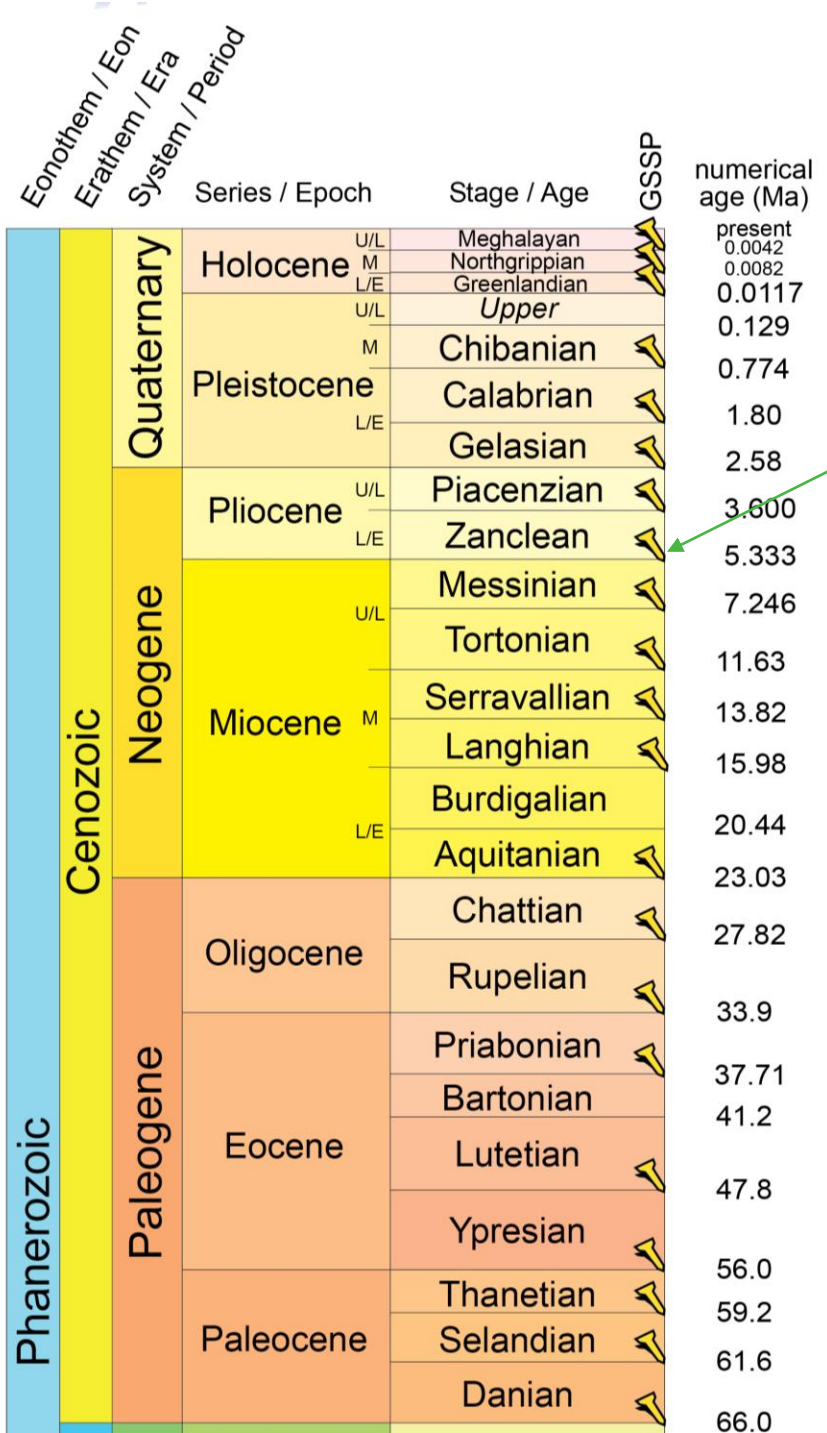
Ratified Subseries/Subepochs are abbreviated as U/L (Upper/Late), M (Middle) and L/E (Lower/Early). Numerical ages for all systems except Quaternary, upper Paleogene, Cretaceous, Jurassic, Triassic, Permian, Cambrian and Precambrian are taken from 'A Geologic Time Scale 2012' by Gradstein et al. (2012), those for the Quaternary, upper Paleogene, Cretaceous, Jurassic, Triassic, Permian, Cambrian and Precambrian were provided by the relevant ICS subcommissions.

Colouring follows the Commission for the Geological Map of the World (www.ccgm.org)

Chart drafted by K.M. Cohen, D.A.T. Harper, P.L. Gibbard, N. Car

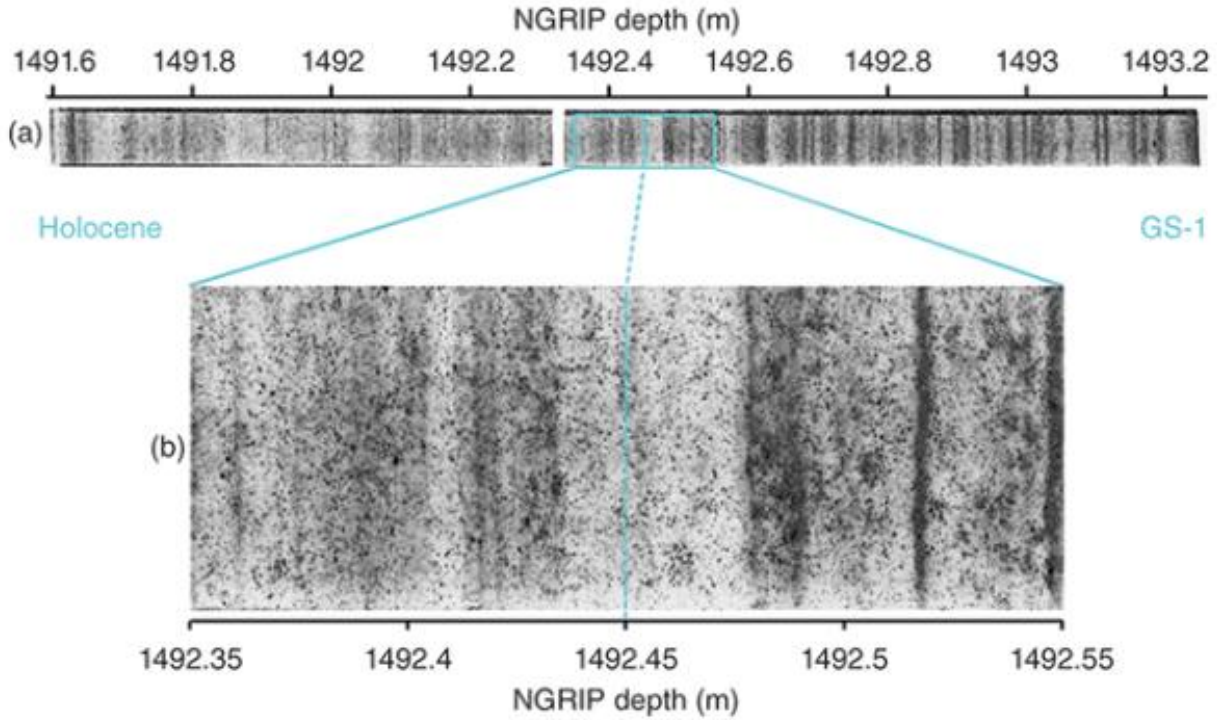
To cite: Cohen, K.M., Finney, S.C., Gibbard, P.L. & Fan, J.-X. (2013; updated) The ICS International Chronostratigraphic Chart. Episodes 36: 199-204.

URL: http://www.stratigraphy.org/ICSchart/ChronostratChart2023-09.pdf



Global Boundary Stratotype Section and Points (GSSPs), "golden spikes"

Ediacara, Austrálie



12. The Holocene GSSP. The lower boundary of the Holocene is marked at a depth of 1492.45 metres in an ice core extracted from the Greenland ice sheet.

(E. C. ELLIS, ANTHROPOCENE: A VERY SHORT INTRODUCTION, OUP 2018)

MOŽNÉ POČÁTKY ANTROPOCÉNU

(návrhy na GSSP tučně)

Event	Dates	Stratigraphic markers
Stone tools	3.2 million to 2.5 million yr BP	Stone artefacts
Control of fire	1.6 million to 200,000 yr BP	Charcoal
Anatomically modern *Homo sapiens*	~300,000 yr BP	Bones
Behaviourally modern *Homo sapiens*	110,000 to 60,000 yr BP	Complex artefact assemblages, symbolic markings, advanced tools, etc.
Megafauna extinction	50,000 to 10,000 yr BP	Bones, human artefacts, charcoal
Ceramics	30,000 to 15,000 yr BP	Ceramic minerals
Origin of farming	~11,000 yr BP	Pollen (domesticates, weeds), phytoliths, animal bones, charcoal
Extensive farming	~11,000 to 6,000 yr BP	**~8,000 yr BP CO_2 minima in glacier ice, pollen (domesticates, weeds), phytoliths, animal bones, charcoal**
Rice production, ruminant methane	~6,000 to 3,000 yr BP	**5,020 yr BP CH_4 minima in glacier ice**, animal bones, paddy soils, pollen, phytoliths
Bronze age	~5000 to 3000 yr BP	Metal artefacts, mining, pollution, legacies of deforestation
Biotic homogenization (Homogocene / Homogenocene)	~5000 to 500 yr BP	Pollen, phytoliths, animal bones
Iron age	~3000 to 1,000 yr BP	Iron artefacts, mining, pollution, legacies of deforestation
Anthropogenic soils	~3,000 to 500 yr BP	Soil organic matter, phosphorus accumulations, isotope ratios, pollen
Capitalism (Capitalocene)	~1450	None proposed
Columbian Exchange (Orbis)	1492 to 1610	**1610 CO_2 minima in glacier ice**, pollen, phytoliths, bones, charcoal
Industrial Revolution (Carbocene)	1760 to 1800	Fly ash from coal burning, carbon and nitrogen isotope ratios, diatom composition in lakes, CO_2 in glacier ice.
The Great Acceleration	1945 to 1964	**Radionuclides (1964 ^{14}C & ^{239}Pu peak)**, black carbon, plastics, pollutants, other isotopes

Based in part on Simon L. Lewis and Mark A. Maslin, 'Defining the Anthropocene', *Nature*, 519/7542 (2015), 171–80

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(návrhy na GSSP tučně)

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Iron age		ng, pollution, le
Anthropogenic soils		phosphorus ac
Capitalism (Capitalocene)	~1450	None proposed
Columbian Exchange (Orbis)	92 to 1610	**1610 CO_2 minima in glacier ice**, pollen, phytoliths, bones, charcoal
Industrial Revolution (Carbocene)	60 to 1800	Fly ash from coal burning, carbon and nitrogen isotope ratios, diatom composition in lakes, CO_2 in glacier ice.
The Great Acceleration	1945 to 1964	**Radionuclides (1964 ^{14}C & ^{239}Pu peak)**, black carbon, plastics, pollutants, other isotopes

Based in part on Simon L. Lewis and Mark A. Maslin, 'Defining the Anthropocene', *Nature*, 519/7542 (2015), 171–80

William Ruddiman, Early Anthropocene Hypothesis

Andreas Malm, Jason Moore; *Plantationocene*, "dlouhé 16. století"

Simon Lewis, Mark Maslin
Orbis Hypothesis

Paul Crutzen

AWG

AKTUÁLNÍ FORMULACE OTÁZKY: **JE ANTROPOCÉN EPOCHA, NEBO UDÁLOST?**

- E. Ellis:

"We need to think about this as a broader process, not as a distinct break in time. … By voting 'no', they [the SQS] actually have made a stronger statement, that it's more useful to consider a broader view — a deeper view of the Anthropocene."

JQS Journal of Quaternary Science

Rapid Communication | Full Access

The Anthropocene as an Event, not an Epoch

Philip Gibbard, Michael Walker, Andrew Bauer, Matthew Edgeworth, Lucy Edwards, Erle Ellis, Stanley Finney, Jacquelyn L. Gill, Mark Maslin, Dorothy Merritts, William Ruddiman

First published: 09 March 2022 | https://doi.org/10.1002/jqs.3416 | Citations: 22

JQS Journal of Quaternary Science

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The proposed Anthropocene Epoch/Series is underpinned by an extensive array of mid-20th century stratigraphic event signals

Martin J. Head, Jan A. Zalasiewicz, Colin N. Waters, Simon D. Turner, Mark Williams, Anthony D. Barnosky, Will Steffen, Michael Wagreich, Peter K. Haff, Jaia Syvitski ... See all authors

First published: 24 August 2022 | https://doi.org/10.1002/jqs.3467 | Citations: 15

BOREAS An international journal of Quaternary research

Rapid Communication | Open Access

The Anthropocene is best understood as an ongoing, intensifying, diachronous event

Michael J. C. Walker, Andrew M. Bauer, Matthew Edgeworth, Erle C. Ellis, Stanley C. Finney, Philip L. Gibbard, Mark Maslin

First published: 08 October 2023 | https://doi.org/10.1111/bor.12636 | Citations: 1

E. ELLIS, WHY I RESIGNED FROM THE ANTHROPOCENE WORKING GROUP (13 JULY 2023)

After 14 years of professional work as a member of the Anthropocene Working Group (AWG), I've now tendered my formal resignation. …

Nevertheless I must resign, for two reasons. The first is that things have changed within the group, as exemplified by the **increasingly corrosive nature of discussions** surrounding two recent resignations. AWG has become **so focused on promoting a single narrow definition of the Anthropocene that there is no longer room for dissent or for a broader perspective within the group**. This narrowing of perspective began to emerge years ago, with the 2016 vote deciding that only evidence supporting a mid-20th century start date would be considered in Anthropocene definition. … But recent efforts to promote the group's final GSSP and site proposal have now established beyond doubt that there is no longer any place for broader perspectives on Anthropocene definition within AWG. The group exists only to promote one single narrow perspective, and **differing views are no longer acceptable**. I clearly no longer have any useful role in the group. …

E. ELLIS, WHY I RESIGNED FROM THE ANTHROPOCENE WORKING GROUP (13 JULY 2023)

Second, it is no longer possible to avoid the reality that narrowly defining the Anthropocene in the way AWG has chosen to do **has become more than a scholarly concern. The AWG's choice to systematically ignore overwhelming evidence of Earth's long-term anthropogenic transformation** is not just bad science, it's **bad for public understanding and action on global change**. This, at a time when broader cooperation to address these grave societal challenges is more critical than ever.

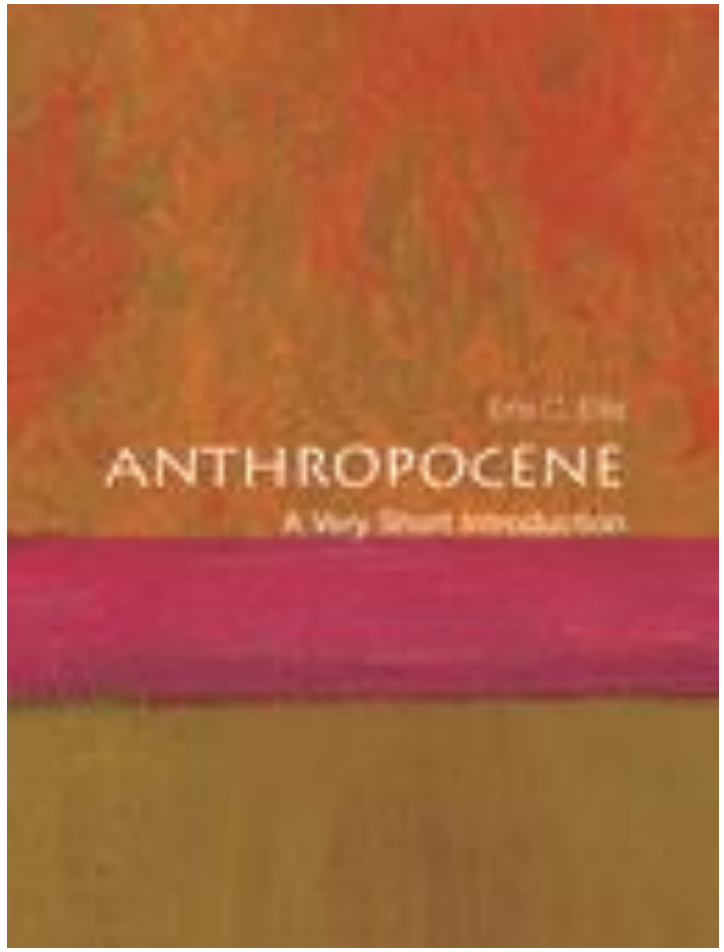
To define the Anthropocene as a shallow band of sediment in a single lake is an esoteric academic matter. But dividing Earth's human transformation into two parts, pre- and post-1950, does **real damage by denying the deeper history and the ultimate causes of Earth's unfolding social-environmental crisis**. Are the planetary changes wrought by industrial and colonial nations before 1950 not significant enough to transform the planet? **The political ramifications** of such a misleading and scientifically inaccurate portrayal are clearly **profound and regressive**. Perhaps AWG's break in Earth history will simply be ignored outside stratigraphy. But this is undoubtedly neither AWG's goal, nor is it the way AWG's narrative is being interpreted across the public media …

E. ELLIS, WHY I RESIGNED FROM THE ANTHROPOCENE WORKING GROUP (13 JULY 2023)

As a scholar who has actively worked within a group now promoting a **misleading and regressive perspective on Earth's transformation by human societies**, I feel obligated to respond. First, by formally ending my association with the group, and in the long term, by **doing my best to counteract the damage created by this misleading perspective** based on the best available science. . . . .

I remain hopeful that the **Anthropocene as a concept will continue to inspire efforts to** understand and **more effectively guide societal interactions** with our only planet. **I no longer believe that the AWG is helping to achieve this and is increasingly actively accomplishing the opposite.**

https://anthroecology.org/why-i-resigned-from-the-anthropocene-working-group/



E. C. ELLIS, ANTHROPOCENE: A VERY SHORT INTRODUCTION:

"Until this time, the **Anthropocene happened while we were busy making other plans**. It remains a work in progress." (2018, p. 130)