Cours transversal
Uni Mail – M2170
Le jeudi … 2026

Penser l'Anthropocène

Le sens d'être humain sur Terre

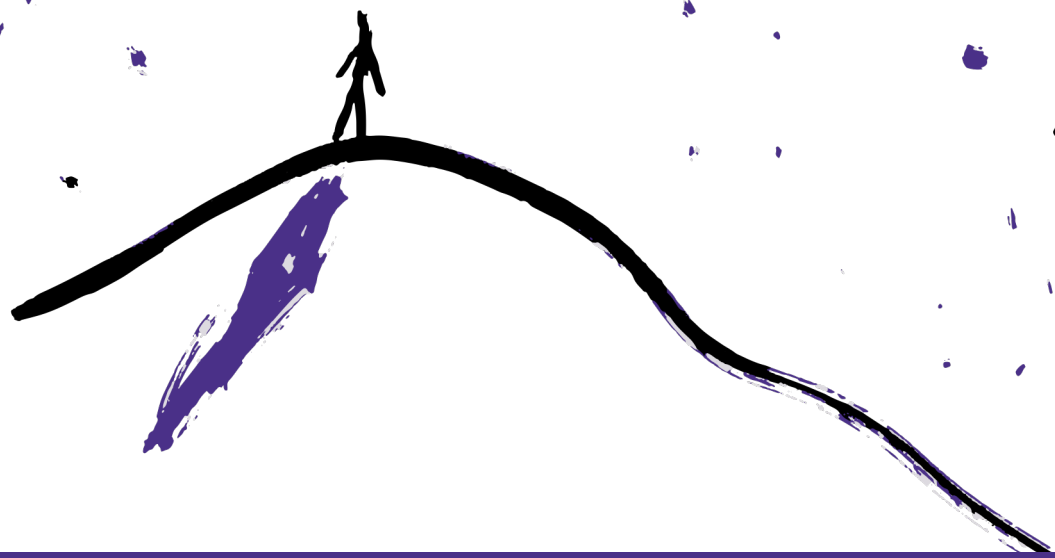
Une brève histoire du climat de l'Holocène à l'Anthropocène

Intervenant :

Dr. Guillet Sébastien

A Ciel Ouvert

Science et Spiritualité

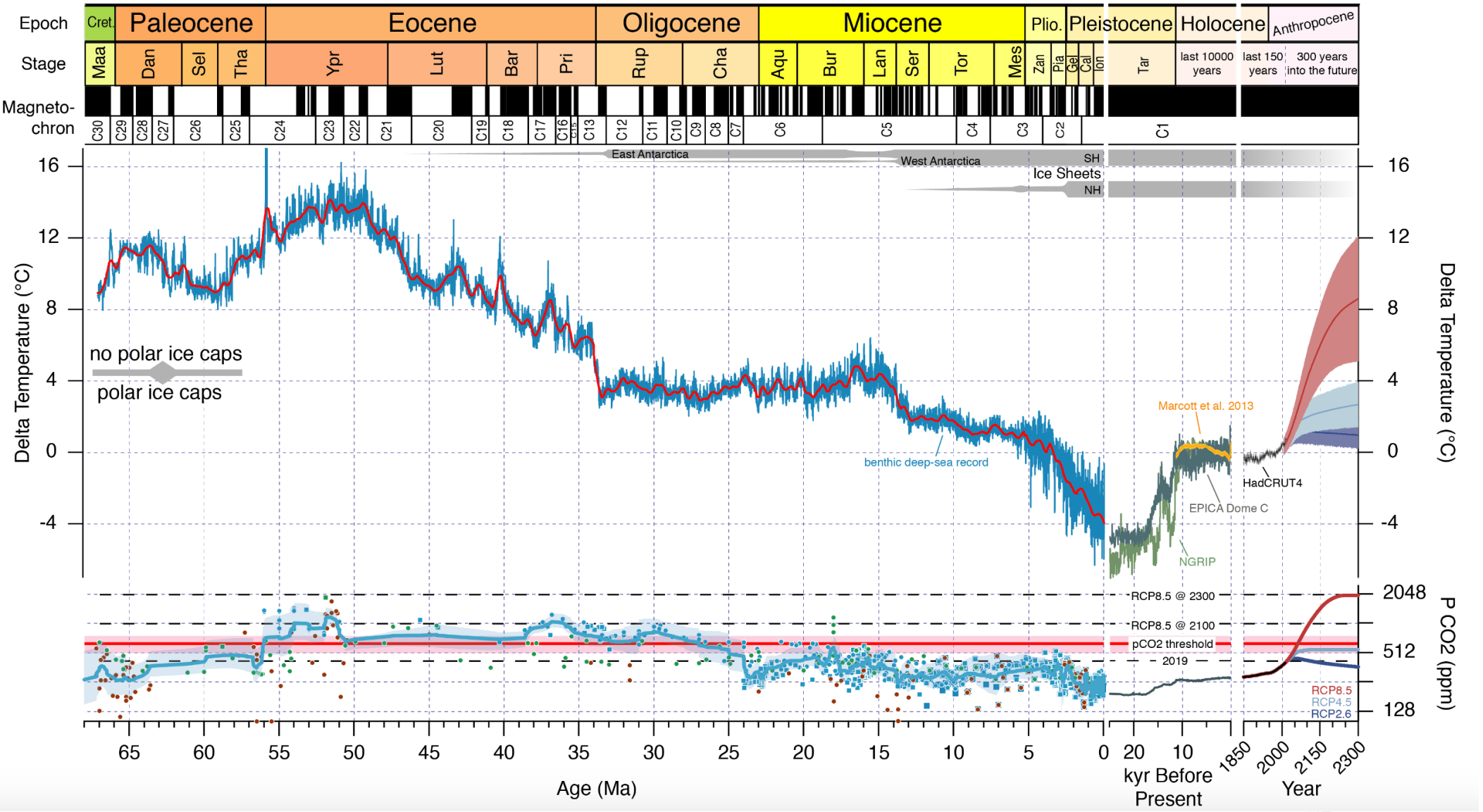


Institut des Sciences de l'Environnement Faculté de théologie

Comment situer l'Anthropocène par rapport aux autres époques géologiques ?

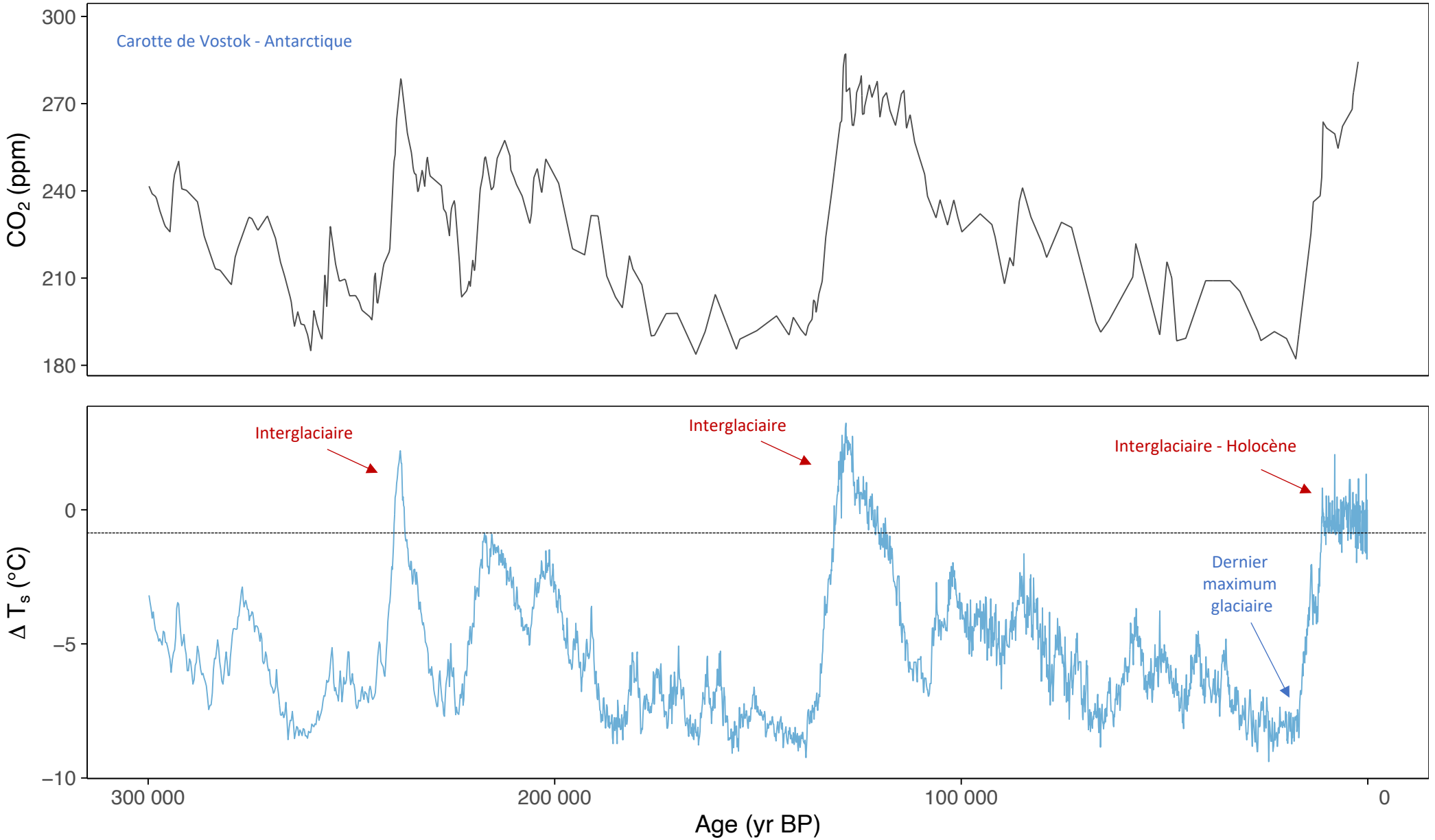
Quand placer le début de l'Anthropocène ?

Nous sommes entrés il y a 2.6 millions d'années dans une ère glaciaire …



Source: Westerhold (2020)

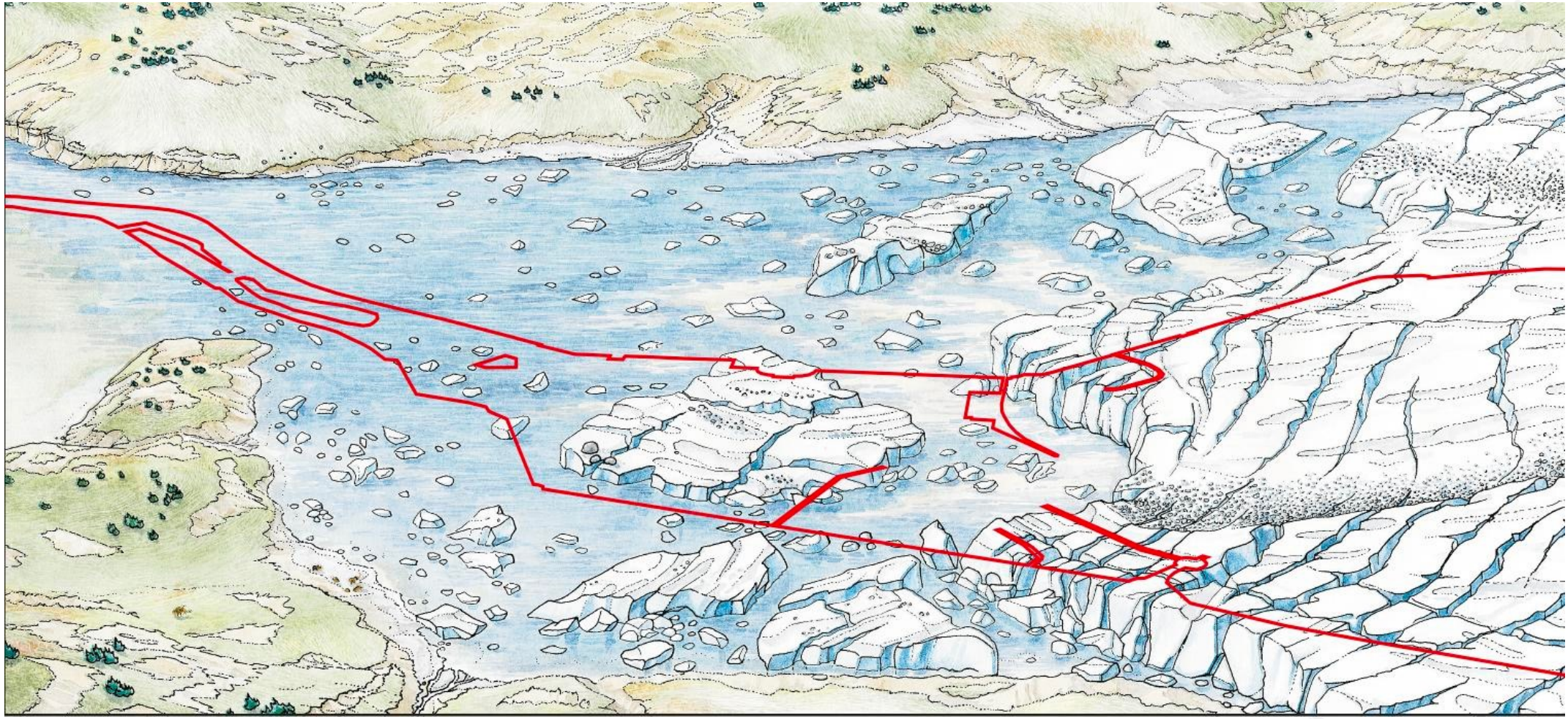
Et depuis, notre planète alterne entre des périodes froides (glaciaires) et des périodes chaudes (interglaciaires)



La Suisse il y a environ 18 000 ans

Seguinot et al. (2018)

Genève, il y a environ 18 000 ans

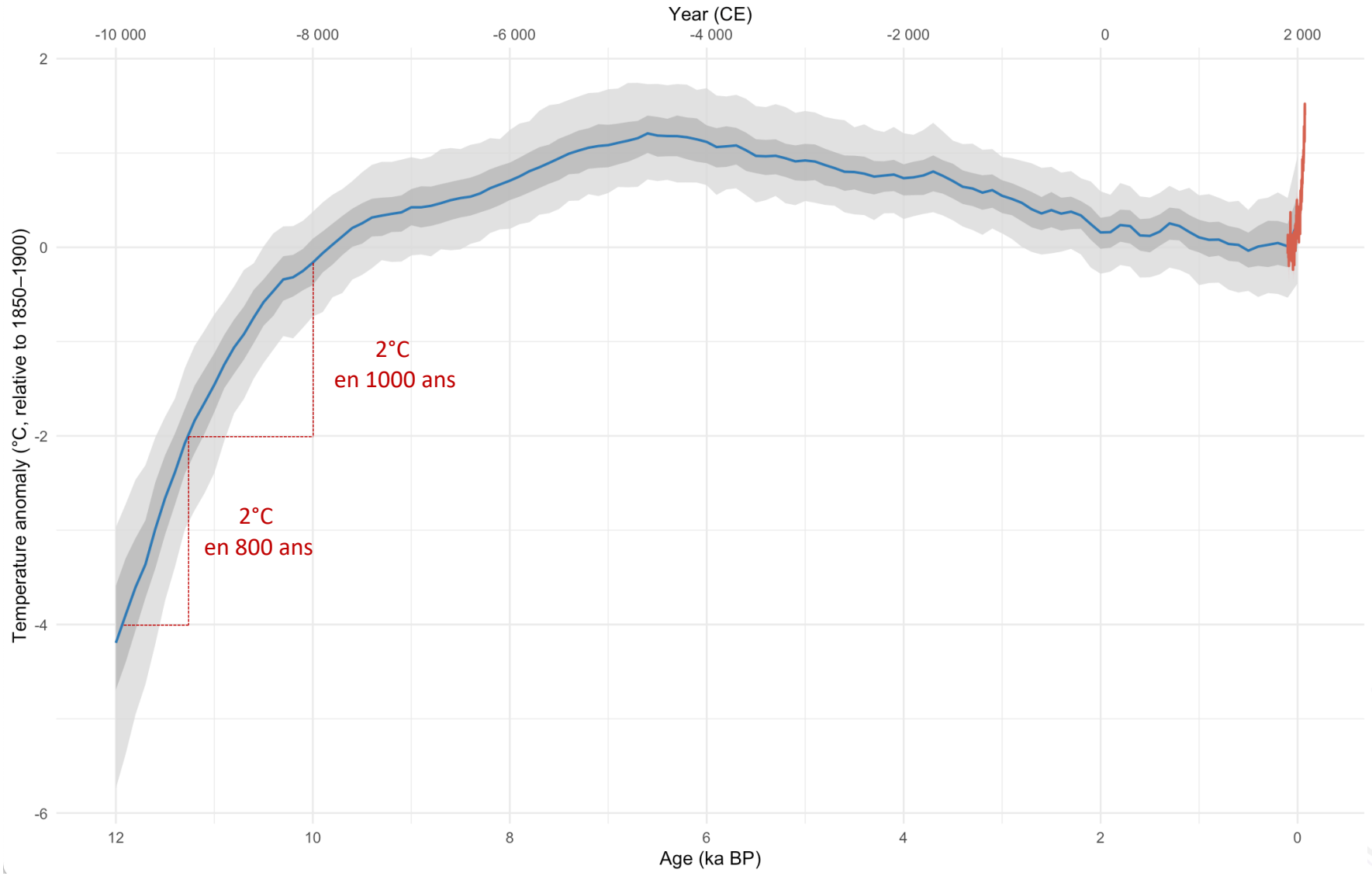


Source: Pierre Corboud, Anne-Marie Rachoud-Schneider, Walter-Wildi and Yves G. Reymond.

L’Europe à l’époque des mégafaunes

Source: Sedwick, Plos Biology, 20

Notre planète est sortie de la dernière période glaciaire il y a 11 700 ans.
Après avoir atteint un maximum il y a 7000 ans, les températures ont diminué.
Cette tendance s'est brutalement inversée vers 1850.



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Nous ne pouvons pas afficher l'image.

Source: Kaufmann et al. (2020); HadCRUv5 (2025)

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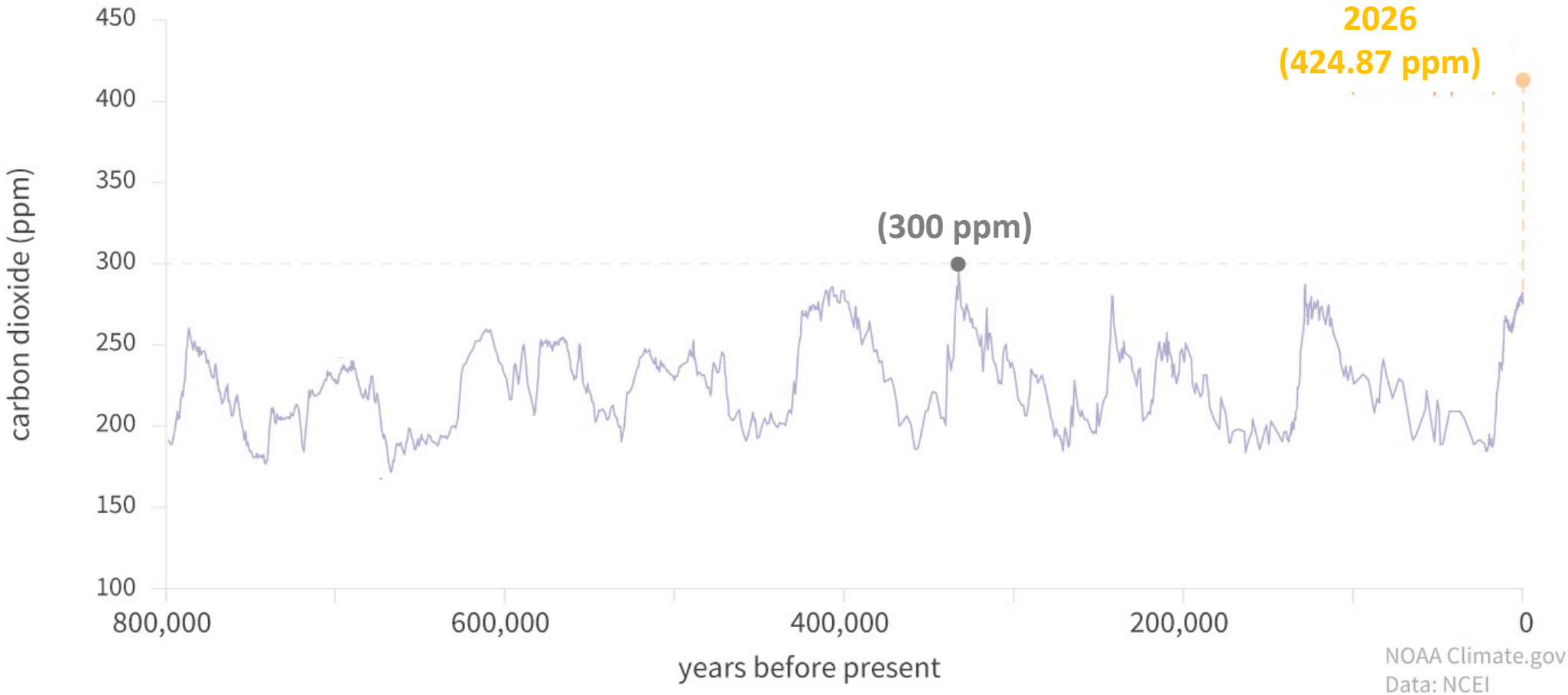
Les gaz à effet de serre émis par les activités anthropiques sont responsables de la hausse des températures observée depuis 1850

Les concentrations de CO_2 dans l'atmosphère n'ont jamais été aussi élevées depuis 800 000 ans



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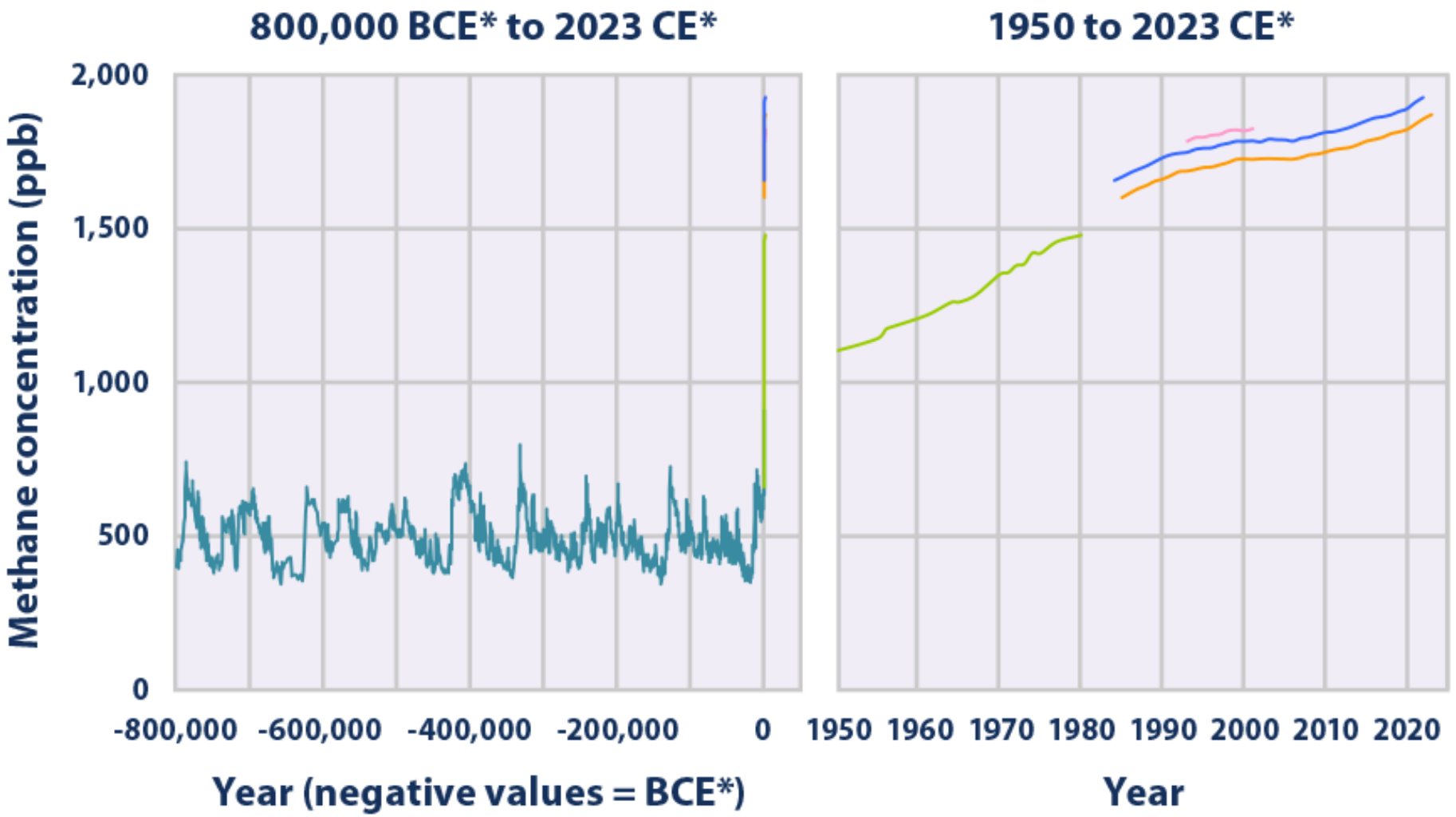
Et il en va de même pour le méthane et le protoxyde d'azote



*BCE=Before Common Era; CE=Common Era

Source: EPA (2024)

Les émissions humaines pourraient retarder la prochaine période glaciaire de 50 000 ans

communications earth & environment

Article

A Nature Portfolio journal

https://doi.org/10.1038/s43247-025-02867-0

Timing of a future glaciation in view of anthropogenic climate change

Check for updates

Christine Kaufhold [1,2] ✉, Matteo Willeit [1], Guy Munhoven [3], Volker Klemann [4] & Andrey Ganopolski [1]

Human activities are expected to delay the next glacial inception because of the long atmospheric lifetime of anthropogenic CO_2. Here we present Earth system model simulations for the next 200,000 years with dynamic ice sheets and interactive atmospheric CO_2, exploring how emissions will impact a future glacial inception. Historical emissions (500 PgC) are unlikely to delay inception, expected to occur under natural conditions around 50,000 years from now, while a doubling of current emissions (1000 PgC) would delay inception for another 50,000 years. Inception is generally expected within the next 200,000 years for emissions up to 5000 PgC. Our model results show that assumptions about the long-term balance of geological carbon sources and sinks has a strong impact on the timing of the next glacial inception, while millennial-scale variability in the Atlantic Meridional Overturning Circulation influences the exact timing. This work highlights the long-term impact of anthropogenic CO_2 on climate.

L'Anthropocène est un moment de rupture ...

« Human activity has been a geologically recent, yet profound, influence on the global environment. The magnitude, variety and longevity of human-induced changes, including land surface transformation and changing the composition of the atmosphere, has led to the suggestion that we should refer to the present, not as within the Holocene Epoch (as it is currently formally referred to), but instead as within the Anthropocene Epoch »

Lewis and Maslin,

Defining the Anthropocene, Nature, 2015

Mais quand faire débuter cette rupture précisément ?

La réponse à cette question est loin d'être aisée...

Définir l'Anthropocène

Pour que la Commission internationale de stratigraphie (ICS) reconnaisse officiellement une nouvelle époque (comme l'Anthropocène), elle a besoin de critères très stricts.

1. Un marqueur stratigraphique principal
2. Un « golden spike » (GSSP)
3. Des marqueurs secondaires corrélables
4. Un signal global et synchrone
5. Une rupture majeure du système Terre
6. Un vote scientifique

Dates proposées pour le début officiel de l'Anthropocène

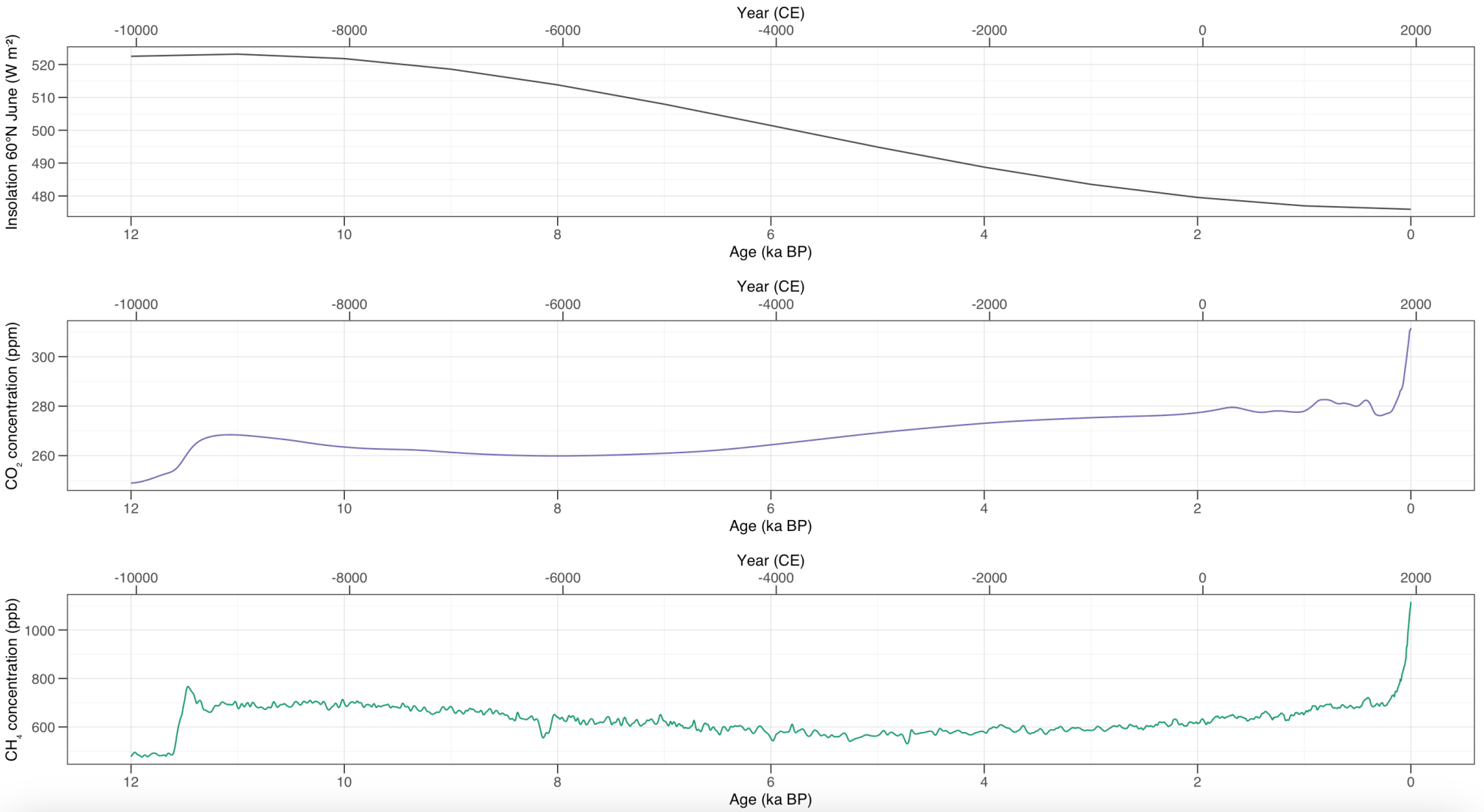
Event	Date	Geographical extent	Primary stratigraphic marker	Potential GSSP date*	Potential auxiliary stratotypes
Megafauna extinction	50,000–10,000 yr BP	Near-global	Fossil megafauna	None, diachronous over ~40,000 yr	Charcoal in lacustrine deposits
Origin of farming	~11,000 yr BP	Southwest Asia, becoming global	Fossil pollen or phytoliths	None, diachronous over ~5,000 yr	Fossil crop pollen, phytoliths, charcoal
Extensive farming	~8,000 yr BP to present	Eurasian event, global impact	CO_2 inflection in glacier ice	None, inflection too diffuse	Fossil crop pollen, phytoliths, charcoal, ceramic minerals
Rice production	6,500 yr BP to present	Southeast Asian event, global impact	CH_4 inflection in glacier ice	5,020 yr BP CH_4 minima	Stone axes, fossil domesticated ruminant remains
Anthropogenic soils	~3,000–500 yr BP	Local event, local impact, but widespread	Dark high organic matter soil	None, diachronous, not well preserved	Fossil crop pollen
New–Old World collision	1492–1800	Eurasian–Americas event, global impact	Low point of CO_2 in glacier ice	1610 CO_2 minima	Fossil pollen, phytoliths, charcoal, CH_4, speleothem $\delta^{18}O$, tephra†
Industrial Revolution	1760 to present	Northwest Europe event, local impact, becoming global	Fly ash from coal burning	~1900 (ref. 94); diachronous over ~200 yr	^{14}N:^{15}N ratio and diatom composition in lake sediments
Nuclear weapon detonation	1945 to present	Local events, global impact	Radionuclides (^{14}C) in tree-rings	1964 ^{14}C peak§	^{240}Pu: ^{239}Pu ratio, compounds from cement, plastic, lead and other metals
Persistent industrial chemicals	~1950 to present	Local events, global impact	For example, SF_6 peak in glacier ice	Peaks often very recent so difficult to accurately date§	Compounds from cement, plastic, lead and other metals

Source: Lewis and Maslin (2015)

« The Early Anthropocene Hypothesis »

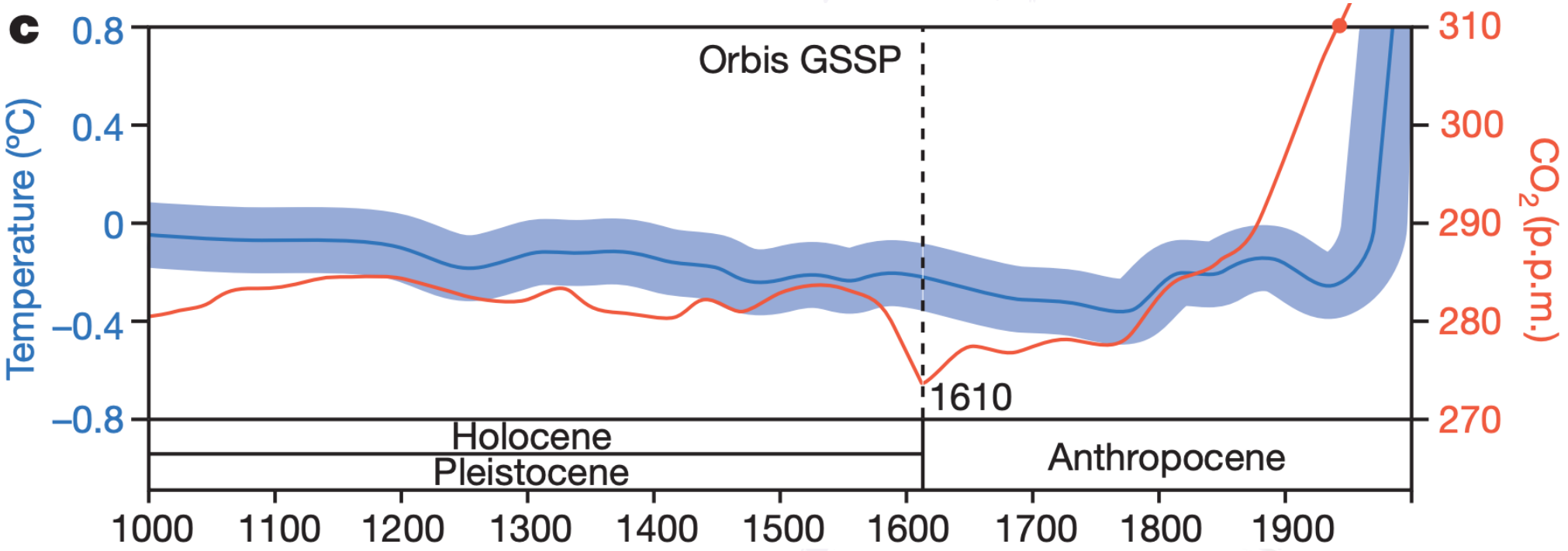
William Ruddiman (2003)

Et si l'Anthropocène commençait avec les débuts de l'agriculture ?



Source: Berger (1992); Köhler et al. (2017)

Colonialisme et Anthropocène : un basculement en 1610 ?

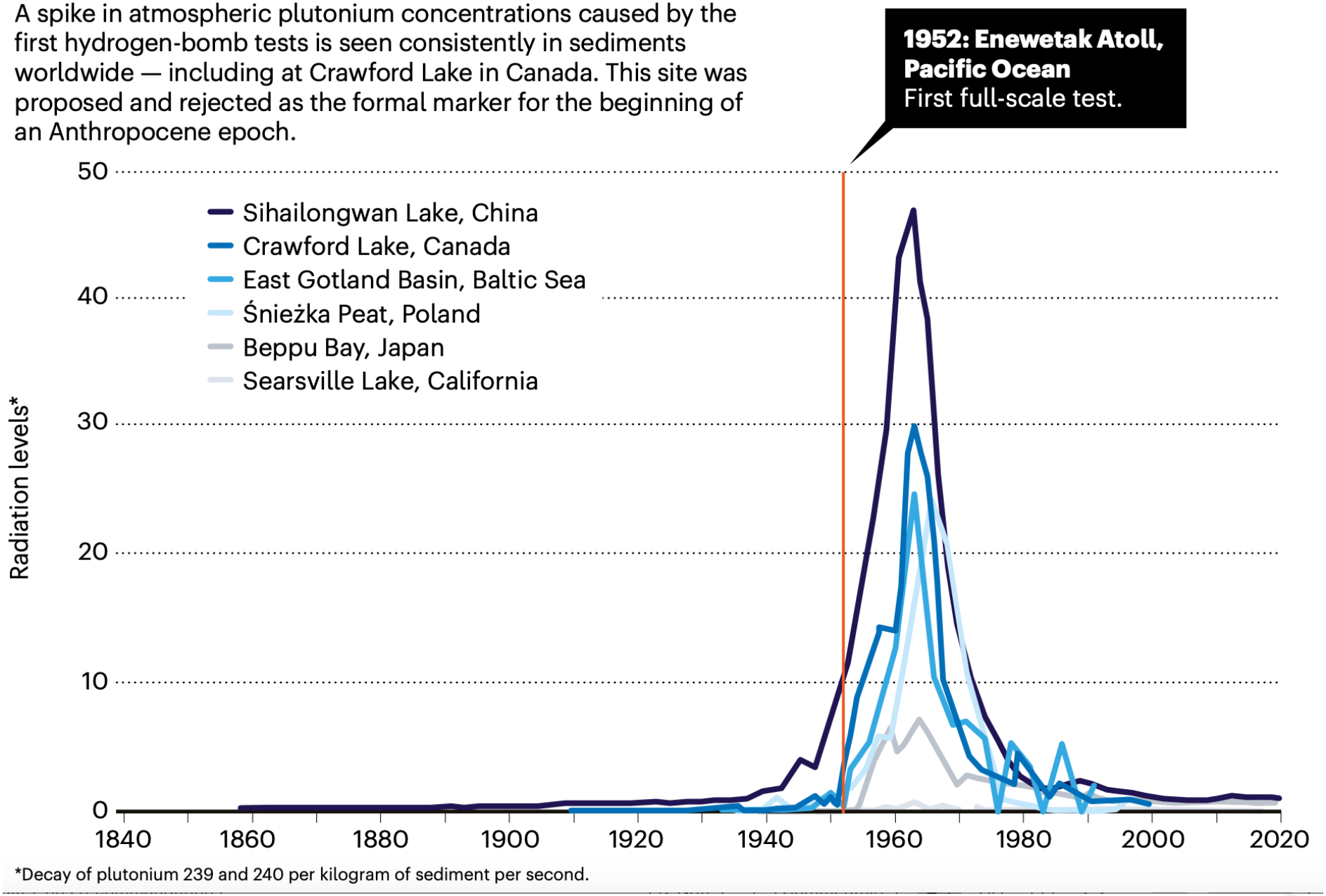


Source: Lewis and Maslin (2015)


La Grande Accélération

CONSISTENT BOUNDARY

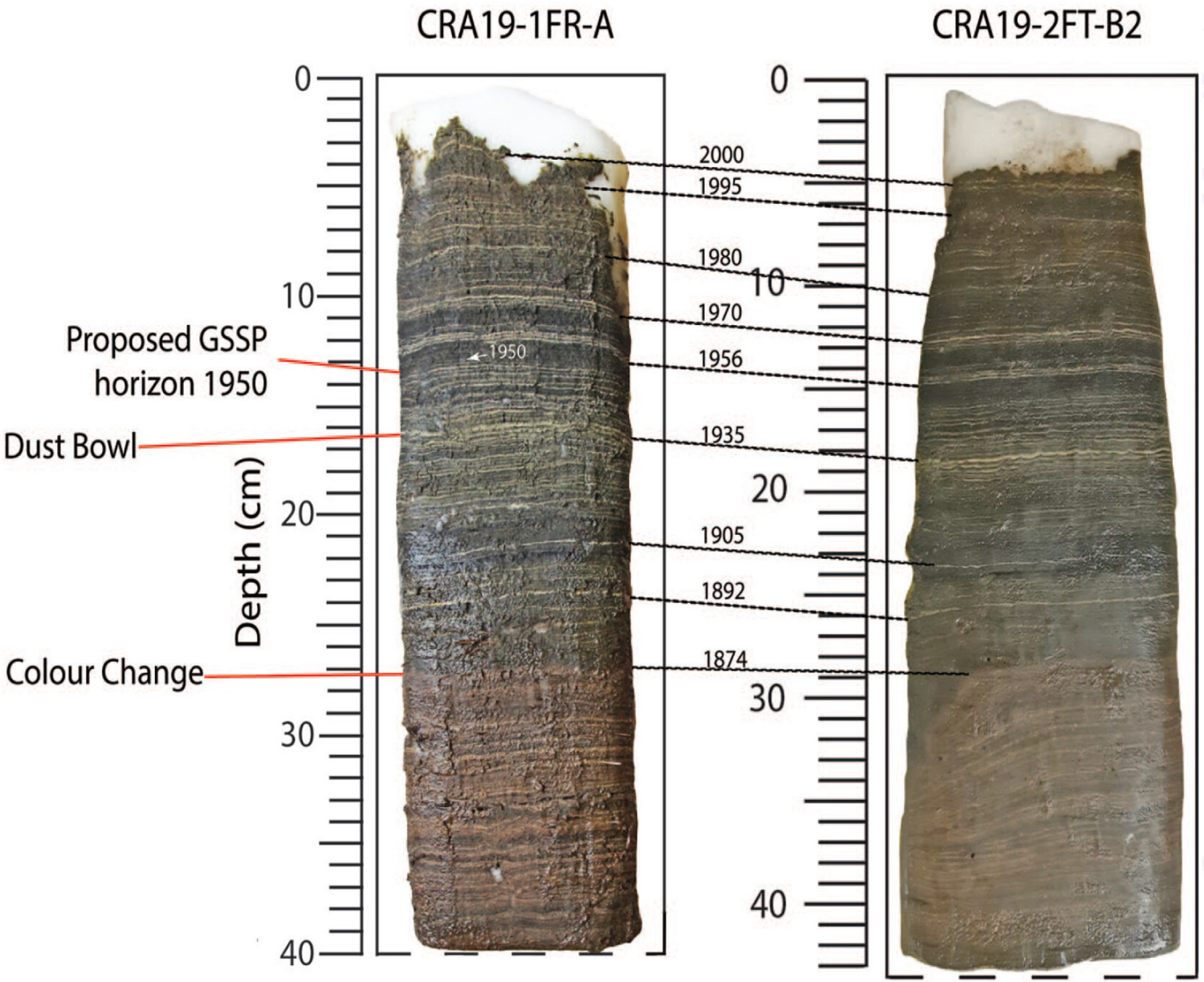
A spike in atmospheric plutonium concentrations caused by the first hydrogen-bomb tests is seen consistently in sediments worldwide — including at Crawford Lake in Canada. This site was proposed and rejected as the formal marker for the beginning of an Anthropocene epoch.



*Decay of plutonium 239 and 240 per kilogram of sediment per second.

Zalasiewicz et al. (2024)

Le lac Crawford, référence de l'Anthropocène?



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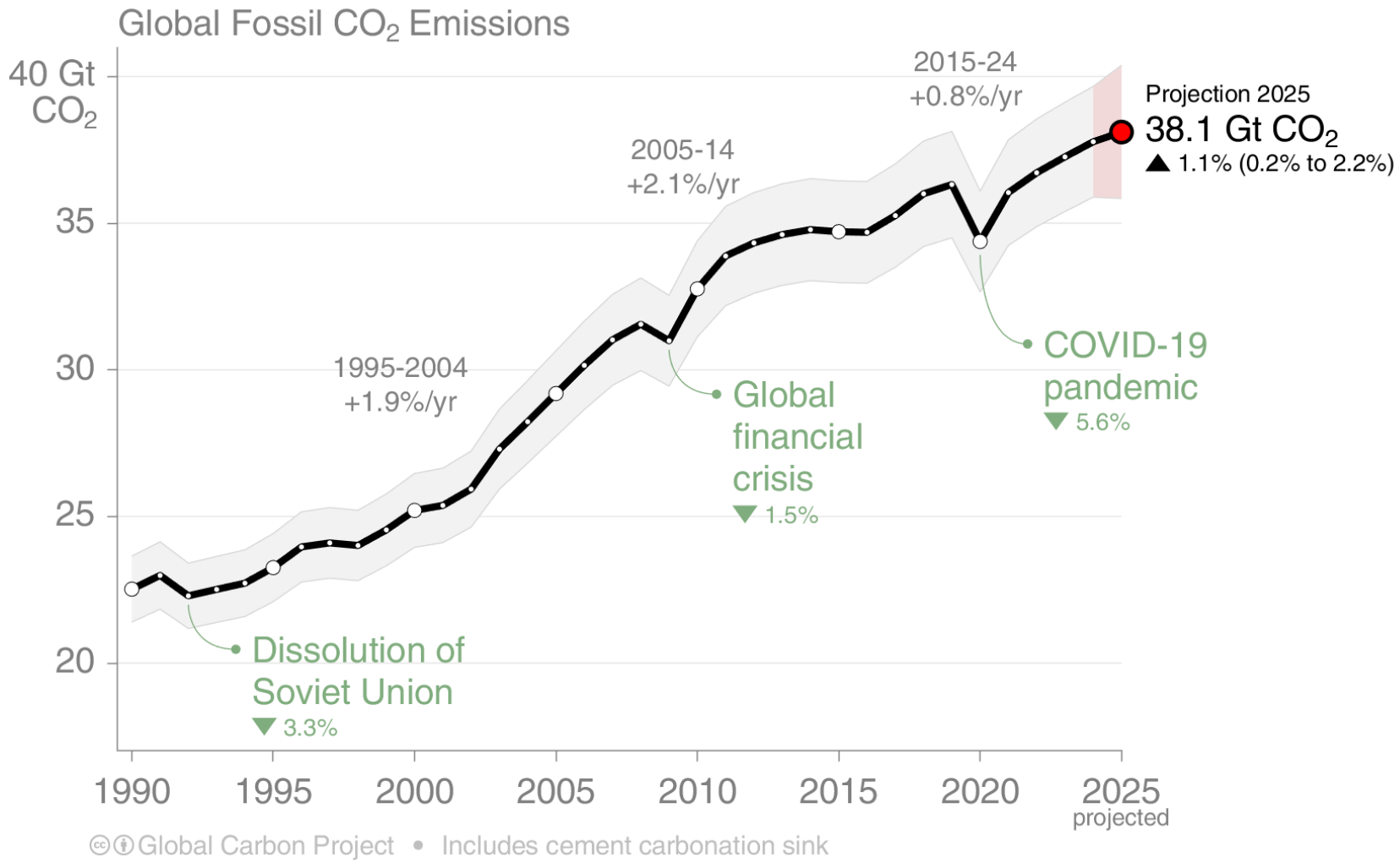
Si vous deviez fixer officiellement
le début de l'Anthropocène,
que choisiriez-vous ?

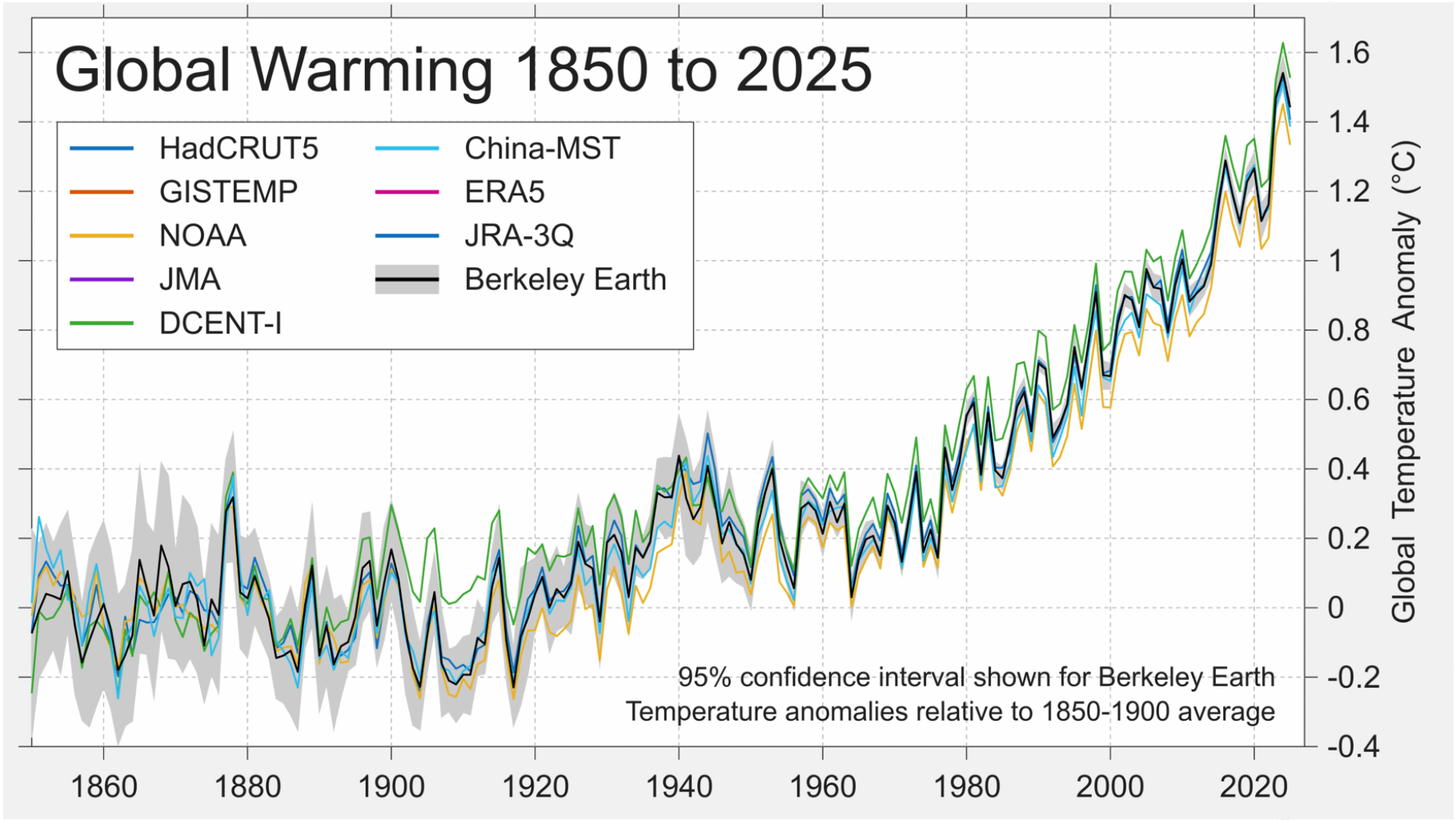
Le débat sur le début de l'Anthropocène ne doit pas masquer l'urgence climatique en cours

Les émissions mondiales de CO2 issues des énergies fossiles continuent d'augmenter



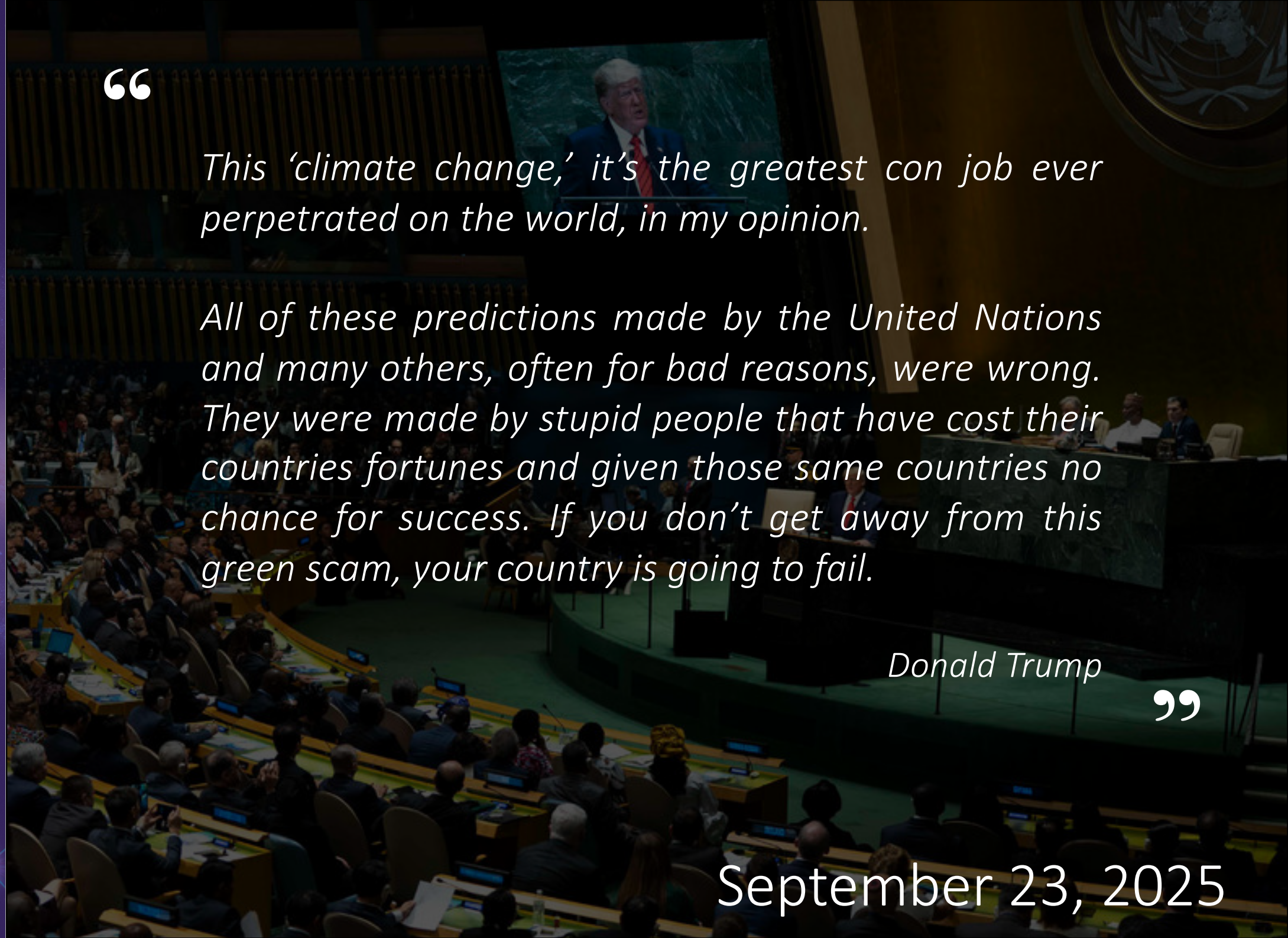
Source: Friedlingstein et al 2025; Global Carbon Project 2025

Nous nous rapprochons progressivement du seuil de 1,5 °C



Source: Berkeley Earth, 2025

L’Anthropocène:
L’ère des fake news et de la désinformation climatique?



“This ‘climate change,’ it’s the greatest con job ever perpetrated on the world, in my opinion.

All of these predictions made by the United Nations and many others, often for bad reasons, were wrong. They were made by stupid people that have cost their countries fortunes and given those same countries no chance for success. If you don’t get away from this green scam, your country is going to fail.”

Donald Trump

September 23, 2025

“For more than 30 years, the science has been crystal clear. How dare you continue to look away and come here saying that you're doing enough, when the politics and solutions needed are still nowhere in sight

Greta Thunberg ”

September 23, 2019

The New York Times

E.P.A. Erases Mention of Humans Causing Climate Change From Some Web Pages

An E.P.A. site listing the causes of climate change no longer includes the main one: human activity.

3 December 2025

Climate Change Science
Basics
Causes
Future of Climate Change
Frequently Asked Questions
Contact Us About Climate Change Science

Causes of Climate Change

Natural processes are always influencing the earth's climate and can explain climate changes prior to the Industrial Revolution in the 1700s. However, recent climate changes cannot be explained by natural causes alone.

Changes in the Earth's Orbit and Rotation

Changes in the earth's orbit and its axis of rotation have had a big impact on climate in the past. For example, the amount of summer sunshine on the Northern Hemisphere, which is affected by changes in the planet's orbit, appears to be the primary cause of past cycles of ice ages, in which the earth has experienced long periods of cold temperatures (ice ages), as well as shorter interglacial periods (periods between ice ages) of relatively warmer temperatures.[1] At the coldest part of the last glacial period (or ice age), the average global temperature was about 11°F colder than it is today. At the peak of the last interglacial period, however, the average global temperature was at most 2°F warmer than it is today.[2]

Variations in Solar Activity

Changes in the sun's energy output can affect the intensity of the sunlight that reaches the earth's surface. While these changes can influence the earth's climate, solar variations have played little role in the climate changes observed in recent decades.[3] Satellites have

17 January 2025

Climate Change Science
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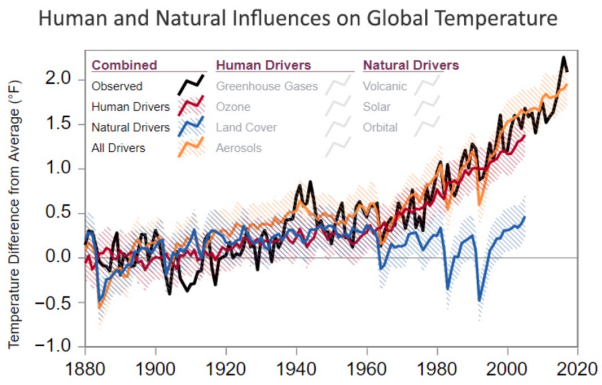
Causes of Climate Change

Since the Industrial Revolution, human activities have released large amounts of carbon dioxide and other greenhouse gases into the atmosphere, which has changed the earth's climate. Natural processes, such as changes in the sun's energy and volcanic eruptions, also affect the earth's climate. However, they do not explain the warming that we have observed over the last century.[1,2]

On this page:

- Human Versus Natural Causes
- Natural Processes



Human and natural factors both influence the earth's climate, but the long-term trend observed over the past century can only be explained by the effect of human activities on

Human Versus Natural

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L’Europe n’est pas non plus épargnée…

L’Europe n’est pas non plus épargnée…

Le 7 novembre 2025, le Conseil d’État a confirmé une sanction prononcée précédemment par le régulateur national des médias (l’ARCOM) et a infligé à CNews une amende de 20 000 € pour ne pas avoir veillé à la diffusion d’une information honnête et scientifiquement rigoureuse

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Conclusions

- Bien qu'il n'existe pas de consensus clair au sein de la communauté scientifique concernant les débuts de l'Anthropocène.
- L'empreinte humaine n'en reste pas moins bien visible dans les archives climatiques et sédimentaires.
- Nos activités modifient aujourd'hui le système Terre à une vitesse exceptionnelle.
- Le futur de l'Anthropocène dépendra en grande partie des trajectoires que nous choisirons