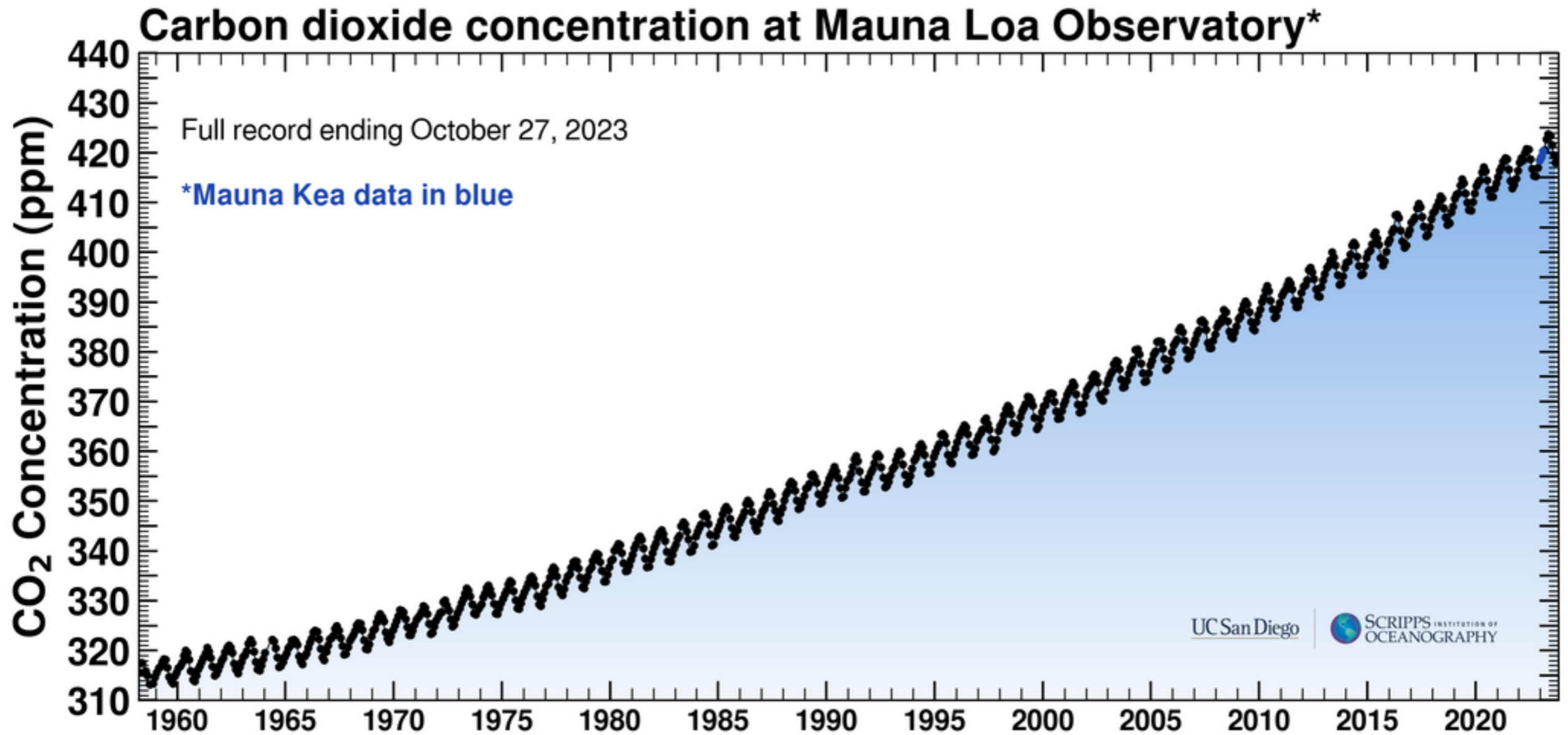


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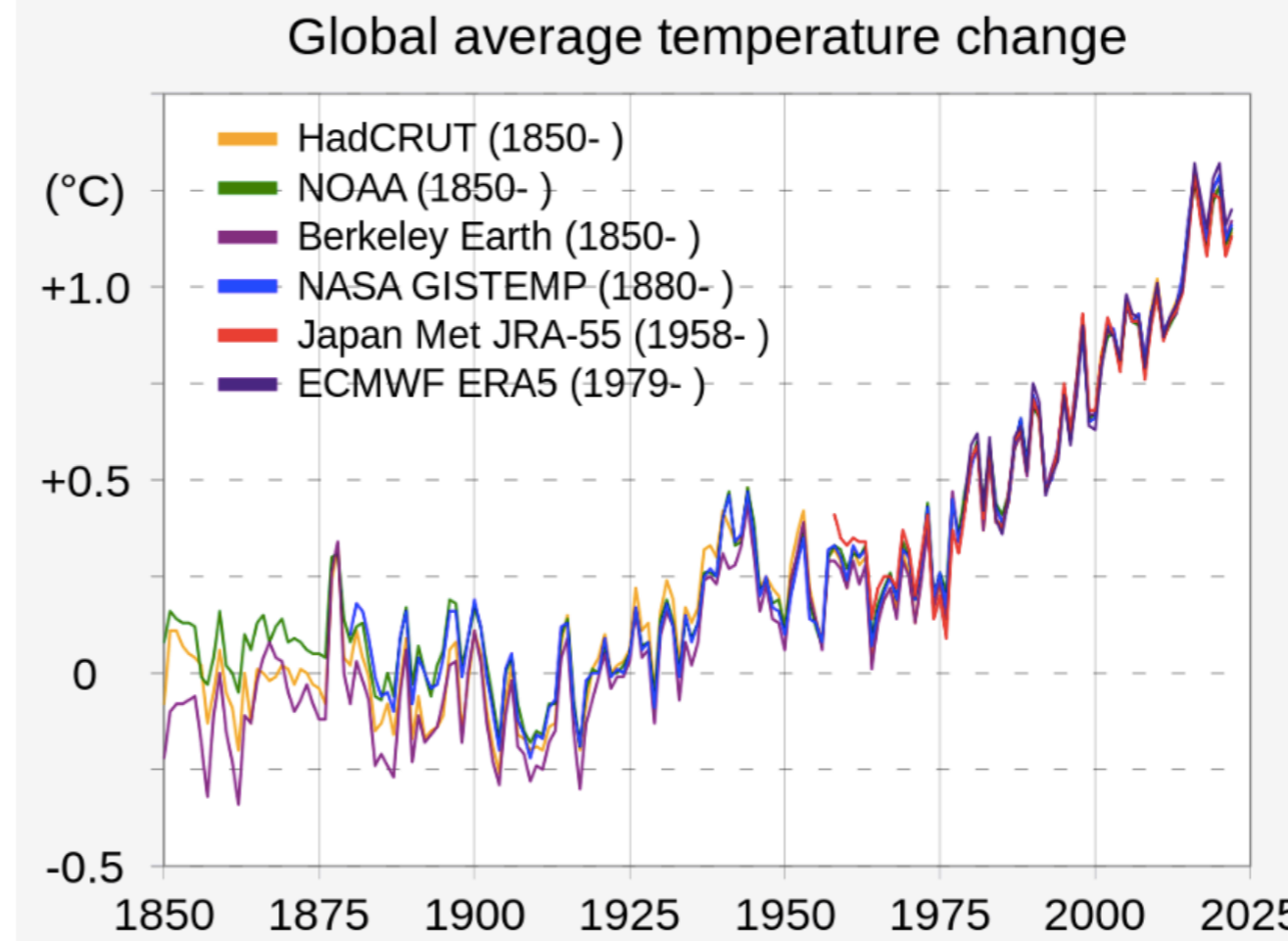
- Is it really **A**nthropic?
- Is it really **G**lobal?
- Is it just *Global Warming*?
- Can we *stop* it?
- Can we *survive* it?
- Can *life on Earth* survive it?

Keeling Curve

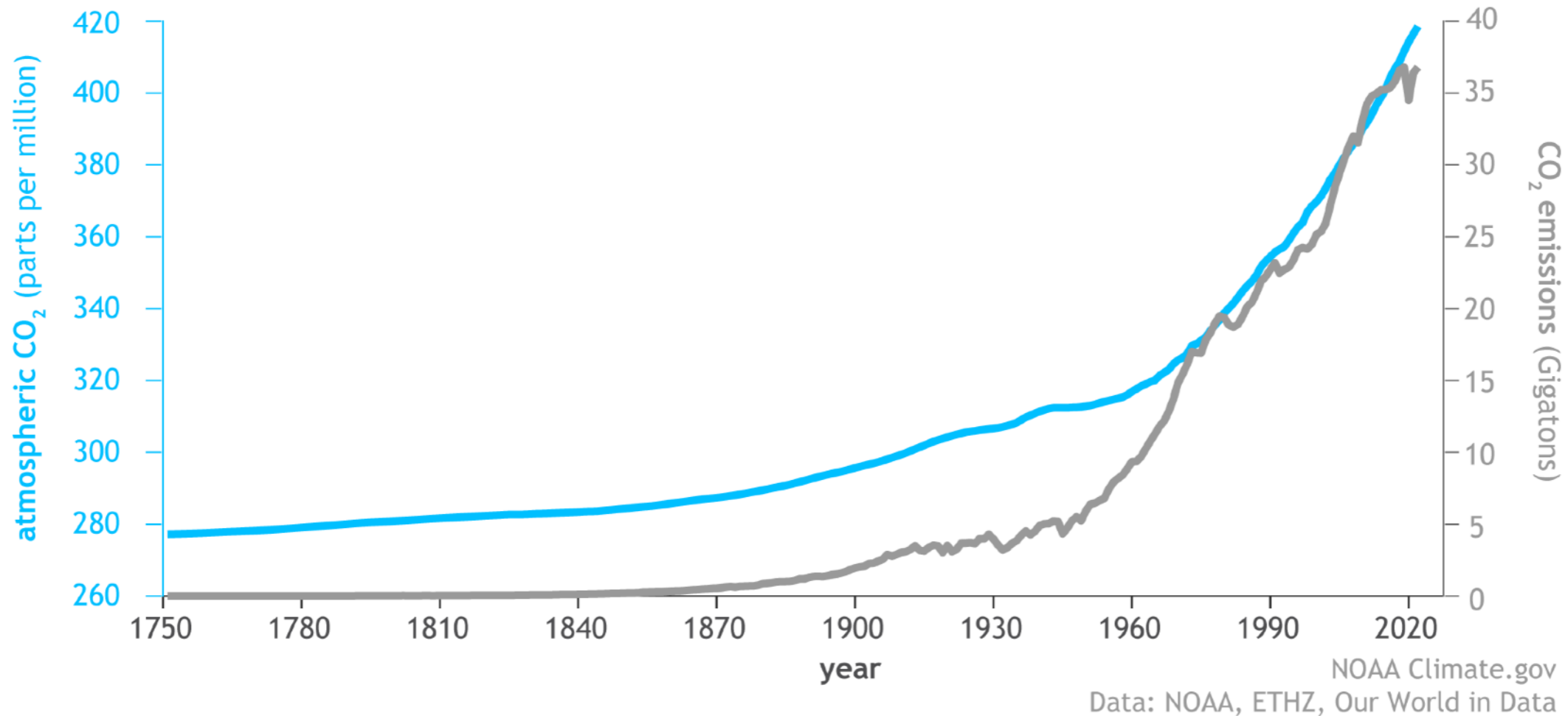


*Is it really
Global?*

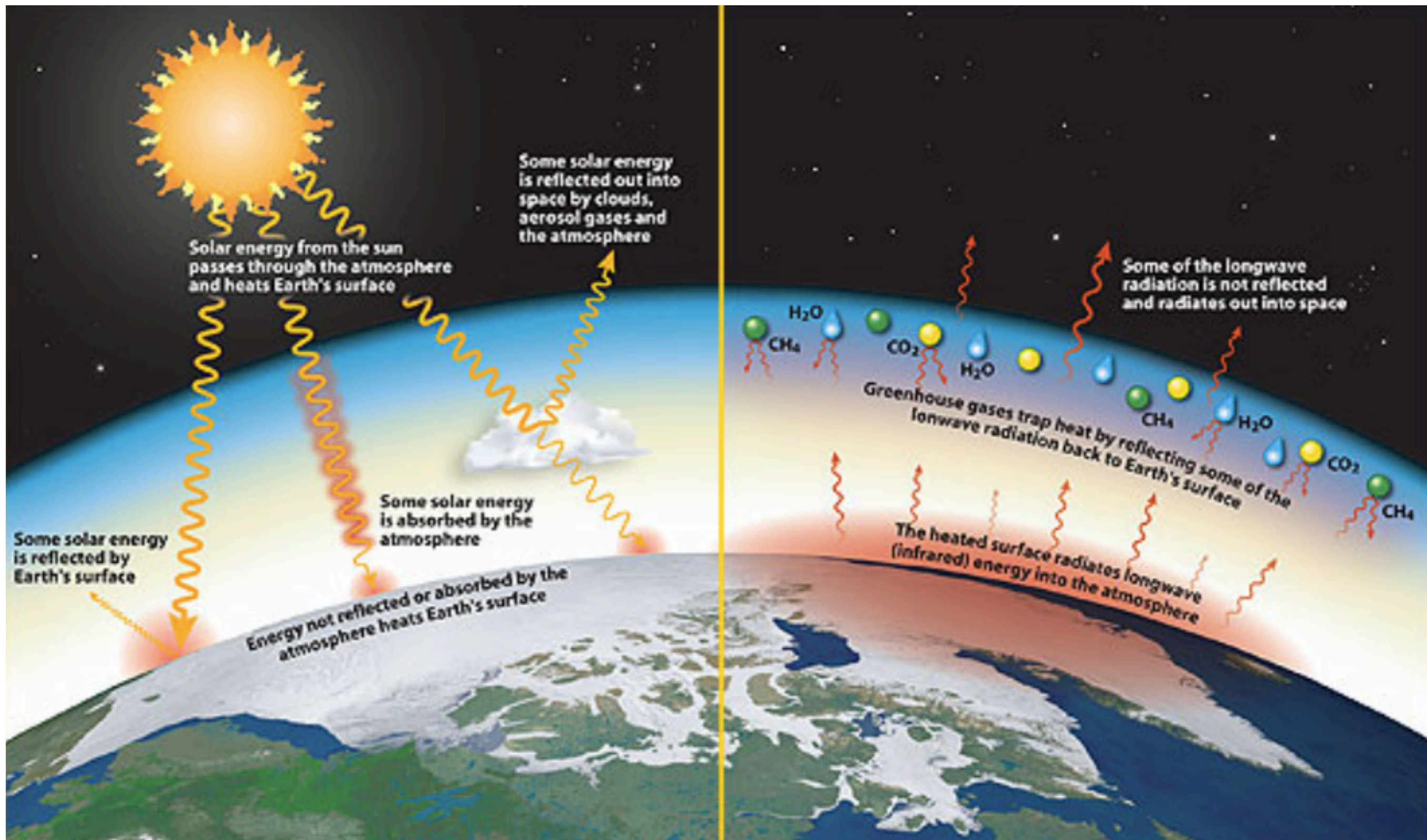
*Is it really
Anthropic?*



Global atmospheric carbon dioxide compared to annual emissions (1751-2022)



The "Greenhouse Effect"



Is it just Global Warming?

“*Just*”? Wikipedia says that people have been known to survive up to 46.5 °C (115.7 °F), but 44 °C (111.2 °F) is almost always fatal. Even 43 °C (109.4 °F) normally leads to death or serious brain damage, with continuous convulsions and shock.

On Tuesday, June 29, 2021, the temperature in *Lytton*, BC set a new Canadian record high of 49.6 °C (121 °F). During that “*heat dome*” event, there were 619 heat-related deaths in BC.

How do people *survive* such temperatures in *dry* places? By *evaporative cooling* (sweating). In *high humidity* this does not work. You just die.

Meanwhile, several **million** people die annually from **breathing air pollution** caused by **burning fossil fuels**. And that's *not counting* climatic disasters.

Can we *stop* it or *survive* it?

- *Opinions differ*, depending on what people *want* to believe.
- Some choose **denial** (“*Don’t Look Up!*”) Easy, for the time being.
- Others urge us to “Think Positively”, Recycle and rely on **Hope**.
- Many indulge in *Schadenfreude*, forgetting that they too are *H. sap.*
- A growing contingent urge return to *Neolithic hunting-gathering*.
(This might work, but only for a few hundred million humans.)
- Those who remember World War II point out that *heroic cooperation* has delivered “the impossible” before, and we need only realize that *this is one of those occasions*.
- *I* fear we will *fail* to cooperate until it is too late to save ourselves, but that some will survive and try to rebuild a lost civilization. I would like to leave them the tools to do so more safely, cleanly and rapidly.

Can *life on Earth* survive it?

- Some paleontologists theorize that the “*zeroth*” *great extinction* (about 600 million years ago) involved an Ice Age so cold that the oceans froze solid, creating a high-albedo “***Snowball Earth***” with no life except extremophile bacteria living in deep ocean geothermal vents. This lasted for about 30 million years, until volcanoes spewed enough greenhouse gases into the atmosphere to melt the ice and spawn superhurricanes that washed minerals off the continents into the ocean, causing the most prolific explosion of new life in the Earth’s history.
- Five subsequent ***great extinction*** events — some involving comet or meteorite collisions, others supervolcanoes and/or heat spikes and/or ice ages — are better documented. Each time the majority of all *species* went *extinct*.
- ***Life on Earth*** is pretty resilient and resourceful. The Earth may shrug humans off like an infestation of fleas, but *Life on Earth* will continue. (For that matter, *humans* are pretty resourceful too!)