



“That’s the Truth” Episode #8 Backgrounder (Climate Call in Show: Part A)

TOPIC: Climate Change vs. Global Warming Terminology

CURRICULUM CONNECTIONS

Kindergarten: Environment and Community Awareness

Grade 1-6 Science “Attitudes” -

Gr 1-2: Students will show growth in acquiring a sense of responsibility for actions taken

Gr 3-4: Personal and group actions, Gr 5-6: Personal and shared responsibility for actions taken

Grade 2 Science Topic D: Hot and Cold Temperatures

Grade 4 Science Topic A: Waste and Our World

Grade 5 Science Topic D: Weather Watch

Grade 6 Science Topic E: Trees and Forests

Quick Facts

- “Global warming” refers to the long-term warming of the planet
- “Climate change” encompasses global warming, but refers to the broader range of changes that are happening to our planet. These include rising sea levels; shrinking mountain glaciers; accelerating ice melt in Greenland, Antarctica and the Arctic; and shifts in flower/plant blooming times. These are all consequences of the warming, which

is caused mainly by people burning fossil fuels and putting out heat-trapping gases into the air.

- The terms “global warming” and “climate change” are closely related and sometimes used interchangeably, but strictly they refer to slightly different things.
- “Global warming” describes an increase in the earth’s average temperature, “climate change” describes all changes to climate, including global warming. Climate change is the big picture, global warming is part of climate change and the main contributor to climate change.
- **For example:** When greenhouse gasses warm the atmosphere, and that melts ice caps, the warming is global warming and the ice cap melting is climate change (an effect of global warming). We can say global warming and imply climate change effects, or we can say climate change and imply global warming.

Discussion Questions

- What is global warming?
- How are the terms “global warming” and “climate change” related?
- Why is the earth’s temperature rising? Why does it matter?
- What can we do to address global warming and climate change?

(Stay tuned for Episode 9: “What Can We Do?”)

Activities

- Check out this article from *NPR* on “8 Ways to Teach Climate Change in Almost Every Classroom”

<https://www.npr.org/2019/04/25/716359470/eight-ways-to-teach-climate-change-in-almost-any-classroom>

- Climate Change Remote Activity Guide & Art Activity from *Green Calgary*:
<https://www.greencalgary.org/green-kids/online-activities#cleangreen>
- *Inside Education* Poster Kit & Activities:
<https://www.insideeducation.ca/learning-resources/classroom-learning-resources/elementary-school/#stewardship-energy-climate-you>
- For an extensive list of climate education resources and activities, check out ACEE's weblink here:
<https://www.abcee.org/climate-education>

Source Articles & Links

What's the Difference Between Climate Change and Global Warming?

“Global warming” refers to the long-term warming of the planet. Global temperature shows a well-documented rise since the early 20th century and most notably since the late 1970s. Worldwide, since 1880 the average surface temperature has risen about 1 °C (about 2 °F), relative to the mid-20th-century baseline (of 1951-1980). This is on top of about an additional 0.15 °C of warming from between 1750 and 1880.

“Climate change” encompasses global warming, but refers to the broader range of changes that are happening to our planet. These include rising sea levels; shrinking mountain glaciers; accelerating ice melt in Greenland, Antarctica and the Arctic; and shifts in flower/plant blooming times. These are all consequences of the warming, which is caused mainly by people burning fossil fuels and putting out heat-trapping gases into the air. The terms “global warming” and “climate change” are sometimes used interchangeably, but strictly they refer to slightly different things.

<https://www.youtube.com/watch?v=3sqdyEpkIFU&feature=youtu.be>

Global temperature rise from 1880 to 2019. Higher-than-normal temperatures are shown in red and lower-than-normal temperatures are shown in blue. Each frame represents global temperature anomalies (changes) averaged over the five years previous to that particular year.

Credit: NASA Goddard Space Flight Center/NASA Scientific Visualization Studio/NASA Goddard Institute for Space Studies.

READ MORE

- [Overview: Weather, Global Warming and Climate Change](#)
- [NASA's Goddard Institute for Space Studies](#)

<https://climate.nasa.gov/faq/12/whats-the-difference-between-climate-change-and-global-warming/>

Are Climate Change and Global Warming the Same Thing?

“Global warming” describes an increase in the earth’s average temperature, “[climate change](#)” describes all changes to climate, including global warming. Climate change is the big picture, global warming is part of climate change and the main contributor to climate change. Since global warming is the primary factor in climate change, the words can sort of be used interchangeably in common [language](#) (much to the confusion of the listener).

For example: When greenhouse gasses warm the atmosphere, and that melts ice caps, the warming is global warming and the ice cap melting is climate change (an effect of global warming). We can say global warming and imply climate change effects, or we can say climate change and imply global warming.

FACT: Typically, the terms global warming and climate change imply [human-caused climate change](#), but they can refer to natural climate change as well.

FACT: Global warming may only be a type of climate change, but evidence shows that it’s the main obstacle in regards to negative human-caused climate change.

Are Global Warming and Climate Change Caused By Humans or Natural?

Climate change and global warming both occur naturally. For example, the greenhouse effect describes a natural process of the atmosphere trapping heat like a greenhouse would. That said, evidence suggests that both humans and nature are impacting global warming and climate change negatively by:

- The burning of coal, oil, and gas – Human-caused
- Deforestation and [land](#) use changes, from things like mining and soil cultivation – Human-caused
- Agriculture of [plants](#) and [animals](#) – Human-caused
- Natural occurrences like volcanoes. – Natural

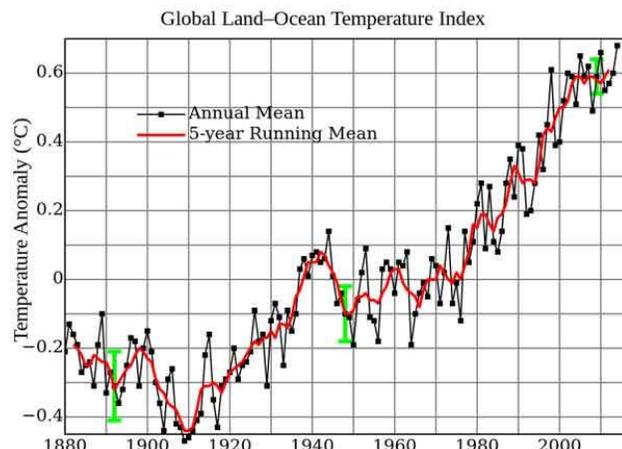
For better or worse, when humans impact the climate, they create human-caused climate change. When the effects of human-caused climate change result in disasters like a record number of wildfires for 2015^[5], or [the melting of the polar ice caps](#)^{[6][7]}, it's negative human-caused climate change. That said climate change and warming aren't always "bad".

Are Global Warming and Climate Change Bad?

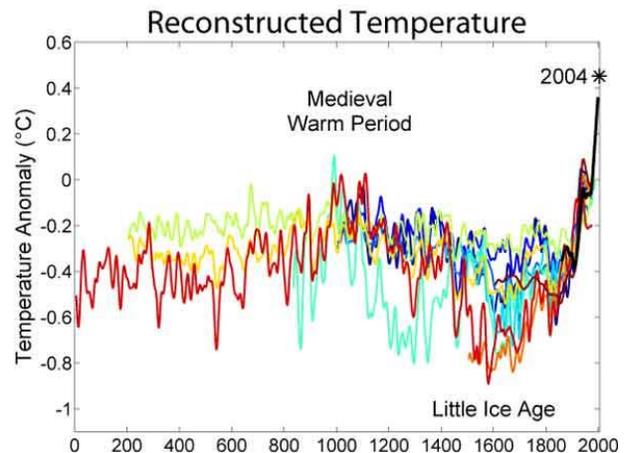
If I turn the AC up in my house I am changing the climate. If we were in an ice age warming up the earth a few degrees would be nice. If we are in a hot period, dropping the temperature a few degrees globally could actually be a good thing.

Any time we alter our climate, it's climate change, any time we use greenhouse gasses to trap heat we change the climate. Climate change and global warming are good in some circumstances but bad in others.

The above said when we say "climate change" in a national or international discussion we are talking about negative human-caused climate change, and specifically global warming.



Global mean land-ocean temperature change since 1880, relative to the 1951–1980 mean. The black line is the annual mean and the red line is the 5-year running mean. The green bars show uncertainty estimates. Source: NASA GISS



The temperature record of the past 2000 years from several different proxy methods.

https://en.wikipedia.org/wiki/Scientific_opinion_on_climate_change
FactMyth.com

There are two schools of thought. One school believes that the data above points to global warming and climate change.^{[1][2][3]} The other calls into doubt the accuracy of the data and says that weather patterns are non-deterministic and to whatever extent data is showing a changing climate it's natural.^[4] Skeptics say that humans can't impact climate in a meaningful way and

that scientists are conspiratorial; the other side says the data is clear and climate change is real. [Learn more here.](#)

Conclusion

Climate change and global warming are two different things, but they are very closely related. Global warming is the average warming of the earth, climate change is global warming, it's effects, and all other climate changes. The words climate change and global warming often imply the ill effects associated with them, but they are technically natural words simply describing a phenomena natural or human caused.

<http://factmyth.com/factoids/climate-change-is-different-than-global-warming/>