

Why 536 AD was the Worst Year to be alive in the Northern Hemisphere



Bob Endlich

bendlich@msn.com

29 Sep 2019

Weather, Climate, and Climate Change--What the Data Tell Us

<https://www.dailymail.co.uk/sciencetech/article-6397621/Why-536-AD-worst-year-alive.html>

Why 536 AD was the worst year to be alive:

Scientists say a mysterious fog that blocked out the sun causing crop failures and widespread famine was the worst global disaster in history

According to research from a Harvard professor, the year 536AD is a prime candidate for the unfortunate accolade as the worst year in the entirety of human history.

The bleak year kick-started the coldest decade for more than two millennia



WAS THE YEAR 536AD THE BEGINNING OF THE WORST DECADE IN HISTORY?



536AD
 Icelandic volcano erupts, dimming the sun for 18 months. Summer temperatures drop by 1.5°C-2.7°C in Europe

536AD-545AD
 Coldest decade on record in 2000 years. Crops fail in many places

540AD
 Further volcanic eruptions send temperatures plunging again

541AD-543AD
 'Justinian' beubonic plague kills 35%-50% of the population of the Eastern Roman Empire

6th century Europe



Incessant volcanic activity is believed to have produced millions of tons of ash which spread over vast swaths of the world. It caused snowfall in China, continental-scale crop failure and extreme drought and famine throughout most of the northern hemisphere



Bob comment

Depth of the post-

Roman Warm Period

the “Dark Ages”

WHAT HAPPENED IN THE YEAR 536AD?

A cataclysmic volcanic eruption in Iceland created a huge cloud that resided over most of the northern hemisphere for 18 months.

The eerie fog caused an unrelenting dusk persevering throughout day and night.

Effects on the climate were so severe that the Irish chronicles tell of 'a failure of bread from the years 536–539'.

Temperatures in the summer of 536 fell 1.5°C to 2.5°C, initiating the coldest decade in the past 2,300 years.

This introduced a period of economic ruin which would steadfastly remain in place until a century later.



The placid Lake Ilopango is the caldera of the Ilopango volcanic complex, which in 539 or 540 A.D. produced one of the largest volcanic eruptions in the last 7,000 years. The lake was also present then; as lava boiled the water into steam, the eruption became even more explosive.

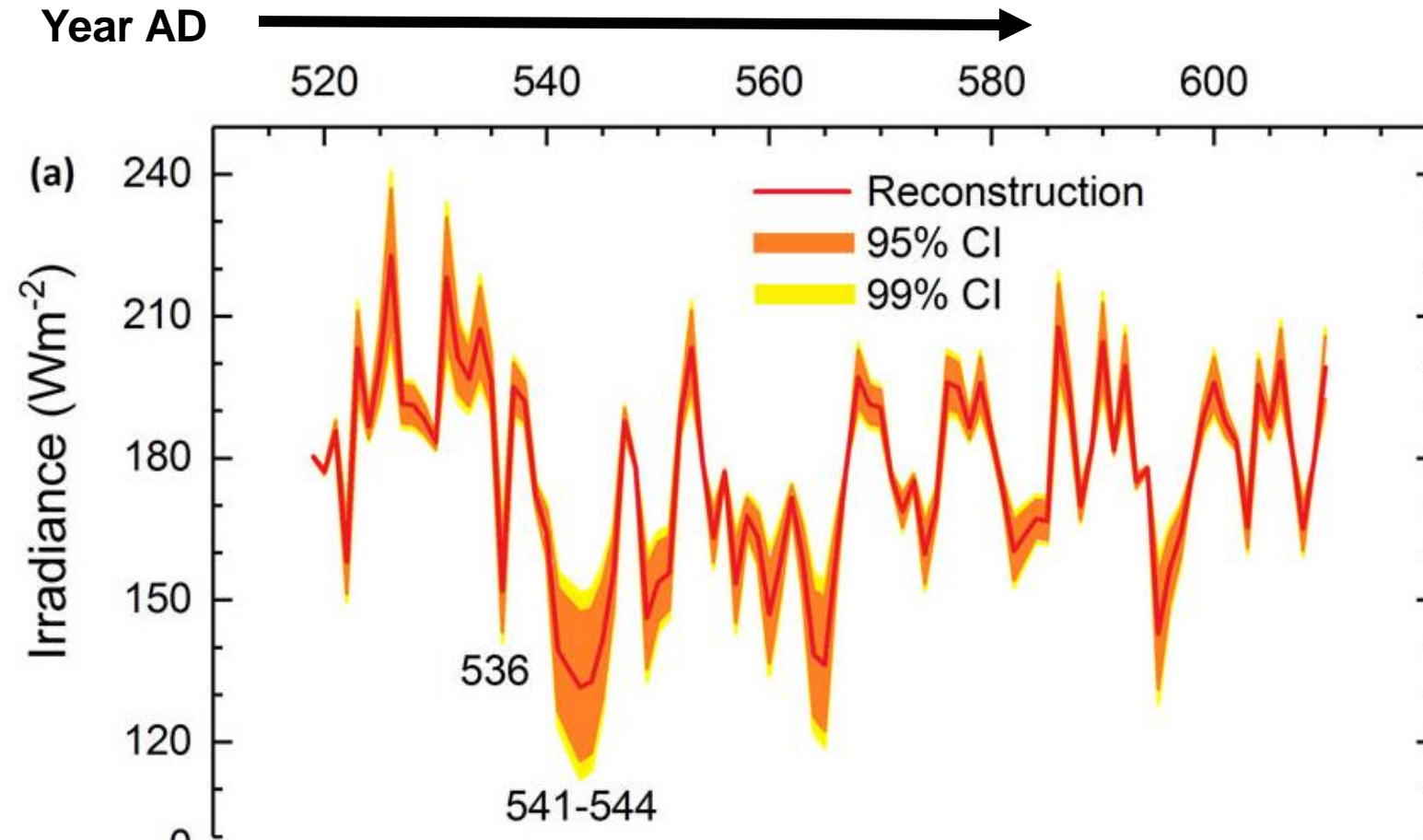
The ices of Greenland and Antarctica bear the fingerprints of a monster: a gigantic volcanic eruption in 539 or 540 A.D. that killed tens of thousands and helped trigger one of the worst periods of global cooling in the last 2,000 years. Now, after years of searching, a team of scientists has finally tracked down the source of the eruption.

Historical accounts that date to 536 describe a dark fog that dimmed the sun and ushered in a wave of crop deaths. Until recently, scholars were open to the idea that these clouds were the remains of an asteroid or comet. But modern data confirms that the event was volcanic—and that it was two volcanoes up to four years apart, not just one.



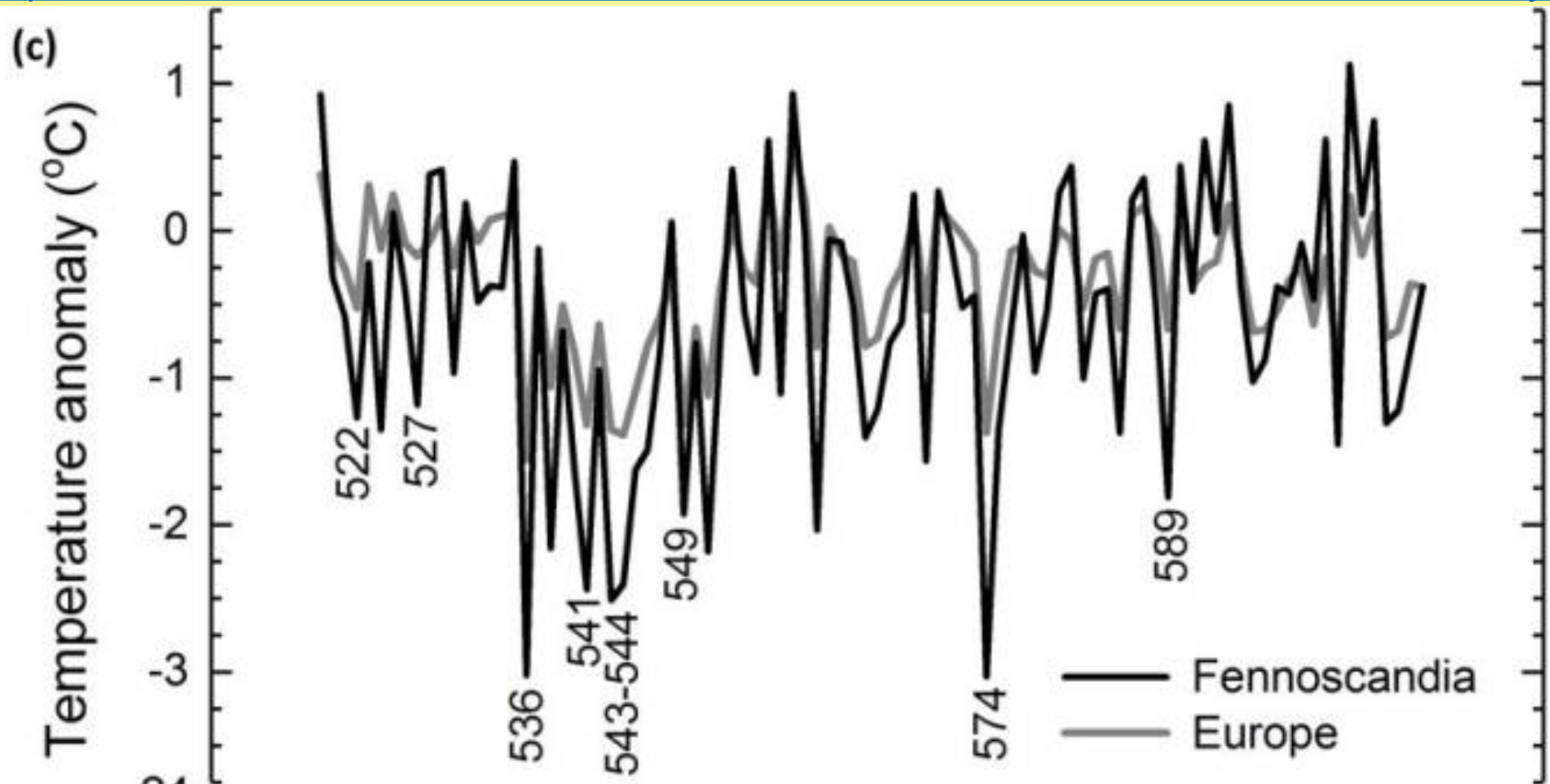
To pinpoint the eruption, researchers relied on radiocarbon dating, which takes advantage of the fact that living plants (and whatever eats them) absorb traces of radioactive carbon-14. Dead plants and animals no longer absorb carbon-14, and the trapped carbon starts to decay like clockwork. By counting up the products of this decay, scientists can see when the plant or animal died, a proxy for the age of objects found nearby.

Solar Irradiance



Palaeoclimate reconstructions. Tree-ring $\delta^{13}\text{C}$ based reconstruction of irradiance (global radiation) (red line) with Monte Carlo68 based estimates of 95% (orange area) and 99% confidence (yellow area) intervals showing the reduction in irradiance in AD 536 and 541–546

Negative first difference of the reconstructed irradiance recording change in irradiance from previous to concurrent yr. European & northern Fennoscandian summer (June–August) temperature reconstructions relative to the AD 1961–1990 baseline



Palaeoclimate reconstructions. Tree-ring $\delta^{13}\text{C}$ based reconstruction of irradiance (global radiation) (red line) with Monte Carlo68 based estimates of 95% (orange area) and 99% confidence (yellow area) intervals showing the reduction in irradiance in AD 536 and 541–546

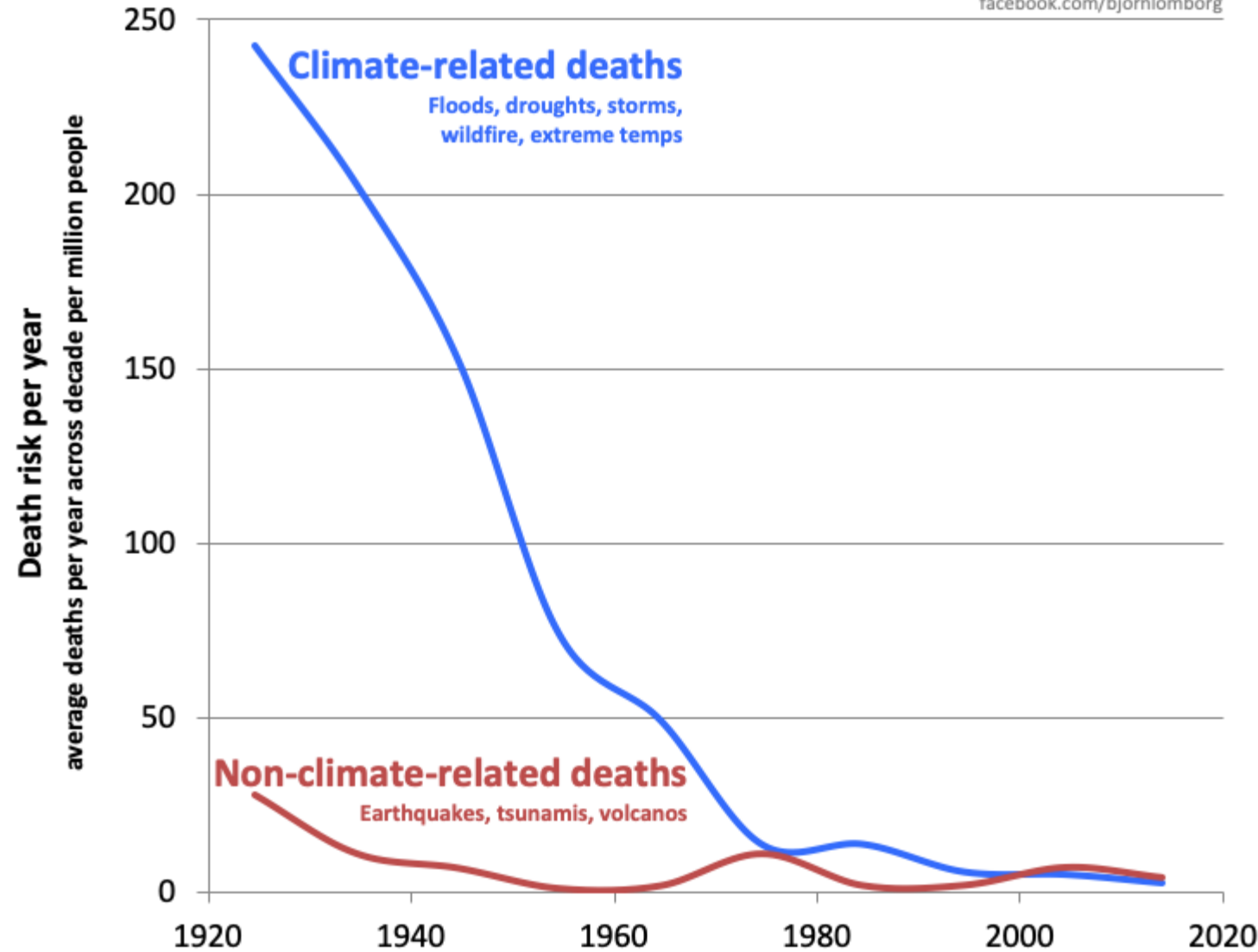
Negative first difference of the reconstructed irradiance recording change in irradiance from previous to concurrent yr. European & northern Fennoscandian summer (June–August) temperature reconstructions relative to the AD 1961–1990 baseline

<https://wattsupwiththat.com/2019/01/27/inverse-hockey-stick-climate-related-death-risk-for-an-individuals-down-99-since-1920/>

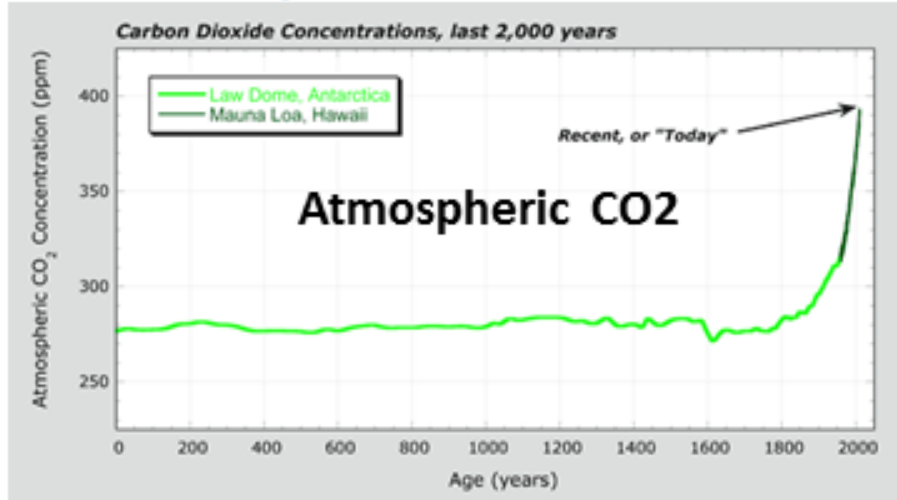
“There is some uncertainty about complete reporting from early decades, which is why this graph starts in 1920, and if anything this uncertainty means the graph *underestimates* the reduction in deaths.”

Global Death Risk from Climate and non-Climate Catastrophes, 1920-2018

facebook.com/bjornlomborg



Affordable Energy vs. Prosperity: Does anyone notice a connection?



CNN DEMOCRATIC PRESIDENTIAL TOWN HALL
THE **CLIMATE CRISIS**



<https://wattsupwiththat.com/2019/01/27/inverse-hockey-stick-climate-related-death-risk-for-an-individuals-down-99-since-1920/>

“...it shows that our increased wealth and adaptive capacity has vastly outdone any negative impact from climate when it comes to human climate vulnerability.

Notice that the reduction in absolute deaths has happened while the global population has increased four-fold. The individual risk of dying from climate-related disasters has declined by 98.9%. Last year, fewer people died in climate disasters than at any point in the last three decades (1986 was a similarly fortunate year). Somewhat surprisingly, while climate-related deaths have been declining strongly for 70 years, non-climate deaths have not seen a similar decline, and should probably get more of our attention.”

Global Death Risk from Climate and non-Climate Catastrophes, 1920-2018

