A21N-2752

The Geologic Record Documents in Considerable Detail Sudden Fast Global Warming of Air Typically Within One to a Few Years Followed by Slow Incremental Global Cooling of Oceans Over Millennia In Highly Erratic Sequences Averaging Every 1000 Years During the Holocene and Every Few Thousand Years Since the Eemian Climatic Optimum 120,000 BP

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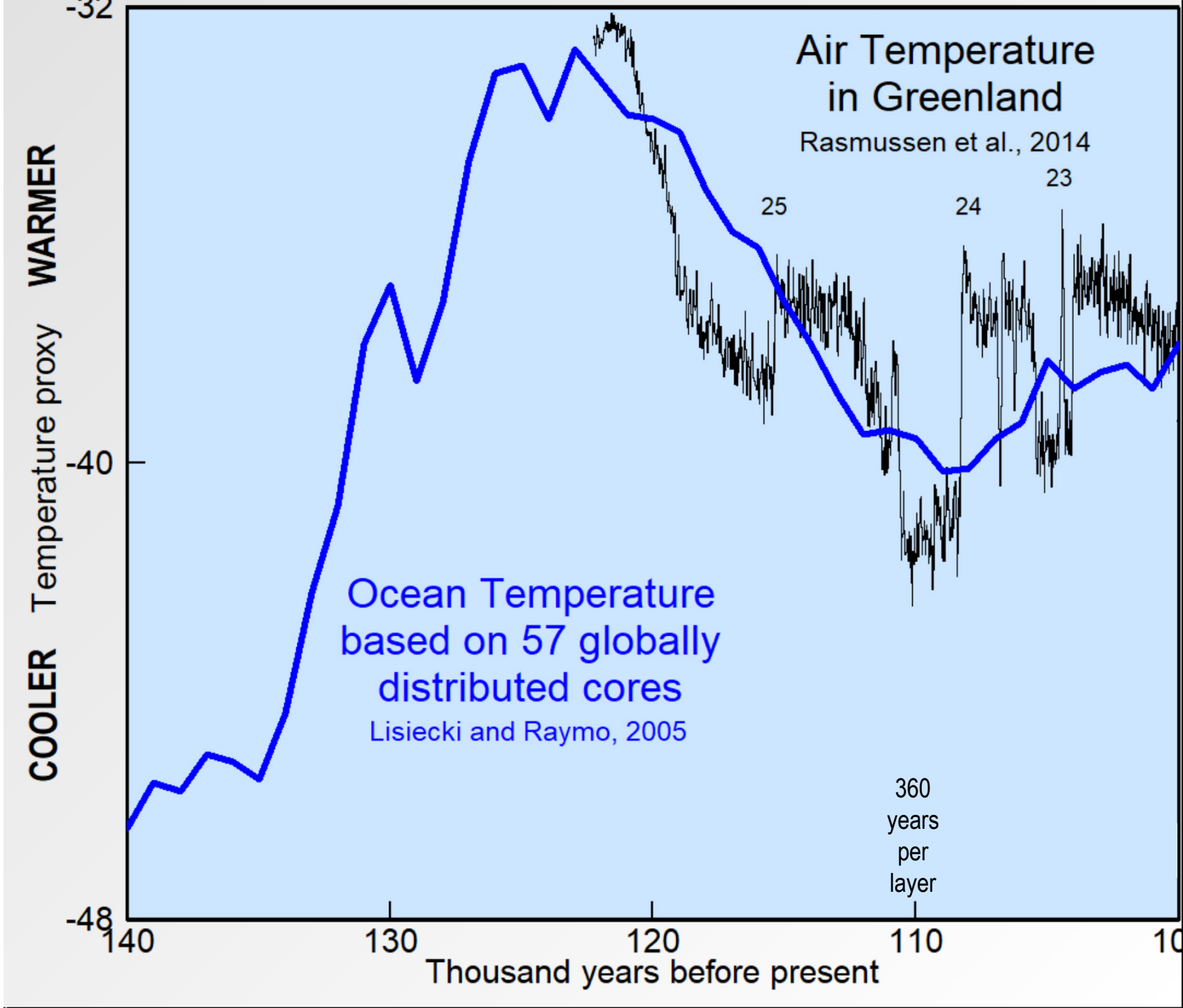
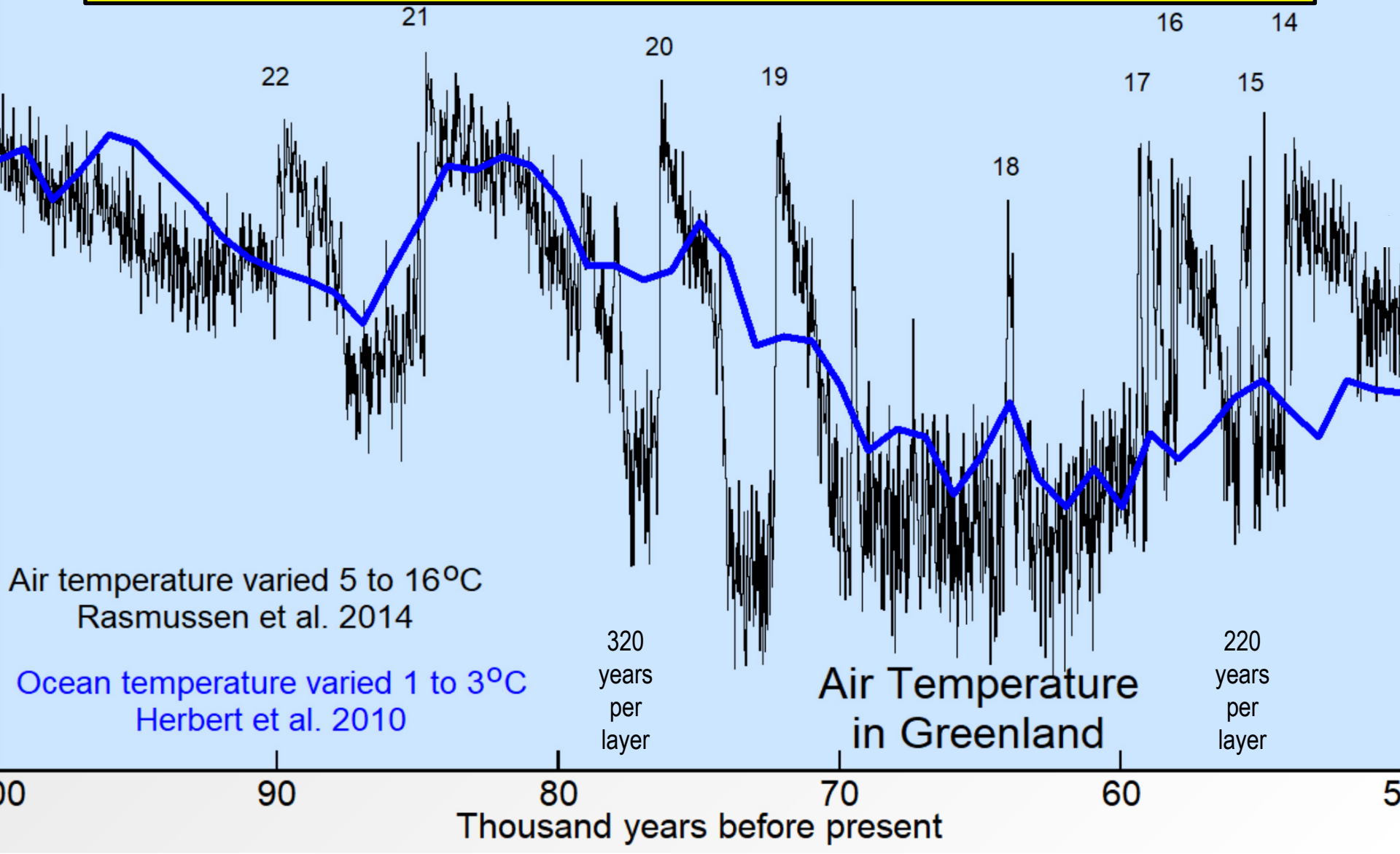
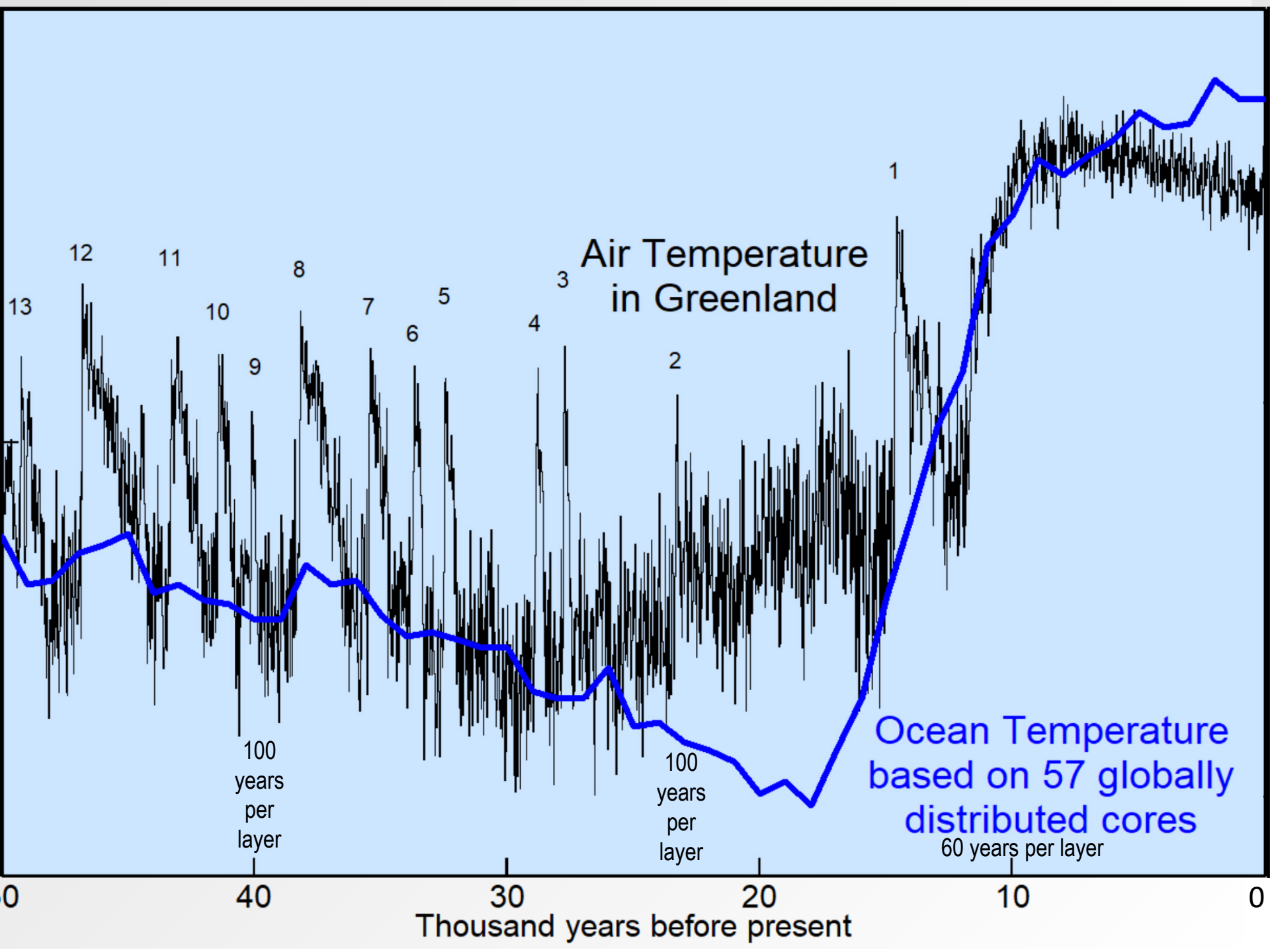
WhyClimateChanges.com

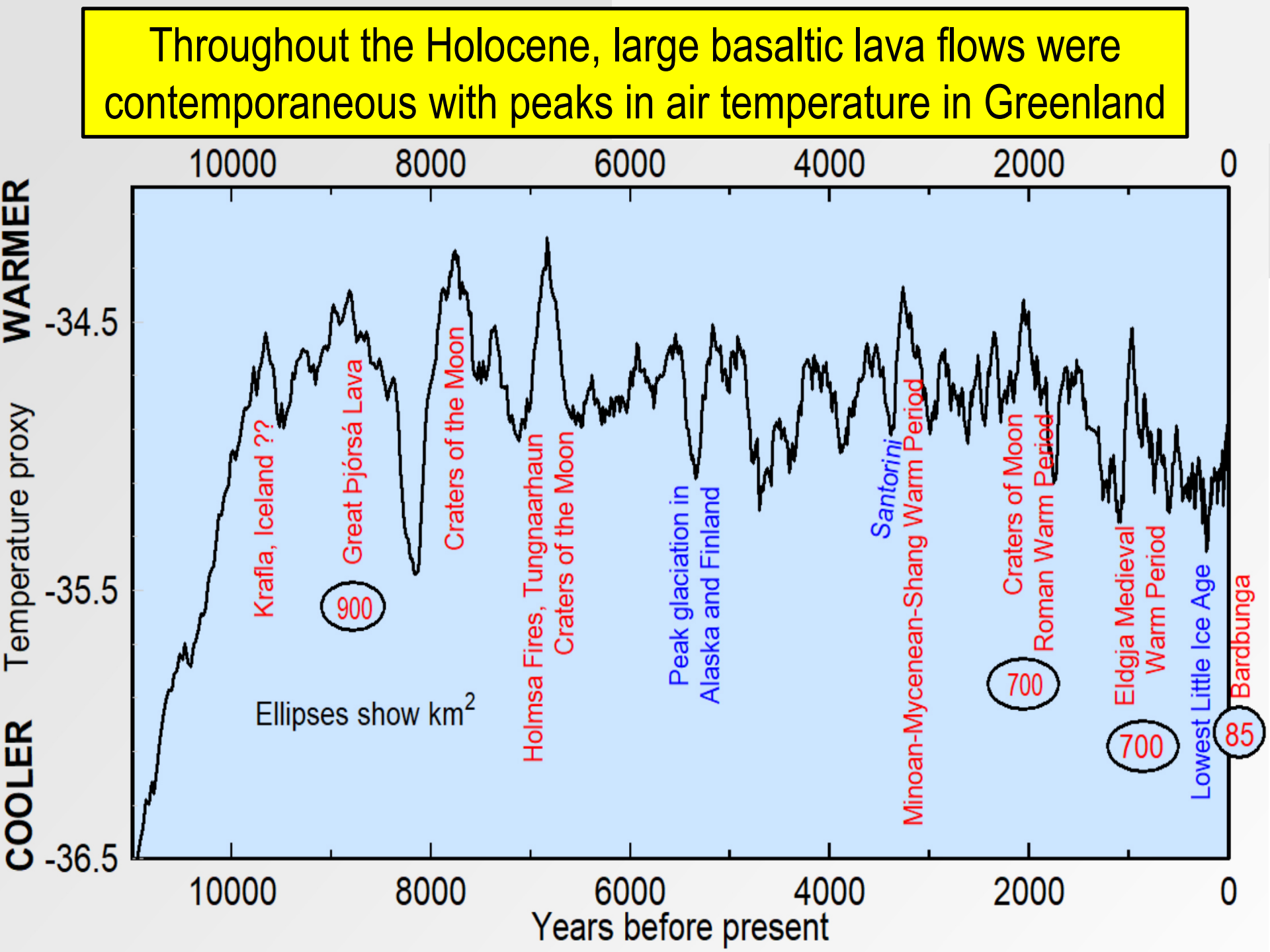

Air Temperature
in Greenland
Rasmussen et al., 2014
25
24
23
Ocean Temperature
based on 57 globally
distributed cores
Lisiecki and Raymo, 2005
360
years
per
layer
COOLER
Temperature proxy
WARMER
-32
-40
-48
140
130
120
110
Thousand years before present

The Footprints of Climate Change in Greenland Air

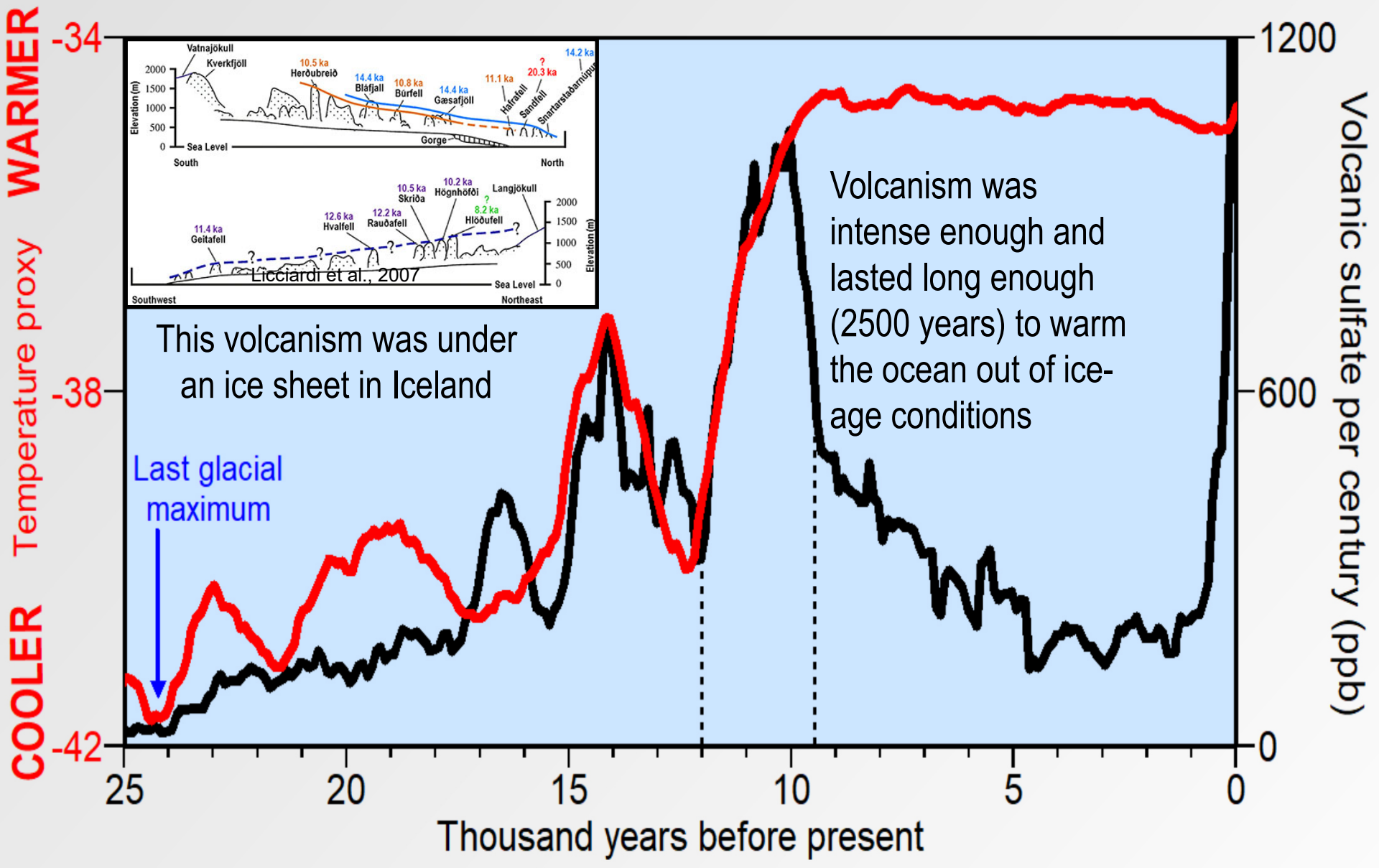
Rapid warming within decades followed by slow cooling over millennia
In highly erratic sequences averaging a few thousand years




Air Temperature
in Greenland
Ocean Temperature
based on 57 globally
distributed cores
60 years per layer
100
years
per
layer
100
years
per
layer
1
2
3
4
5
6
7
8
9
10
11
12
13
40
30
20
10
0
Thousand years before present


Throughout the Holocene, large basaltic lava flows were contemporaneous with peaks in air temperature in Greenland
10000
8000
6000
4000
2000
0
WARMER
COOLER
Temperature proxy
-34.5
-35.5
-36.5
Krafla, Iceland ??
Great Þjórsá Lava
900
Craters of the Moon
Holmsa Fires, Tungnaarhaun
Craters of the Moon
Peak glaciation in
Alaska and Finland
Santorini
Minoan-Mycenean-Shang Warm Period
Craters of Moon
Roman Warm Period
700
Eldgja Medieval
Warm Period
700
Lowest Little Ice Age
Bardbunga
85
Ellipses show km2
Years before present

The greatest volcanism recorded in Greenland ice was precisely when the world warmed out of the last ice age



Major effusive basaltic lava flows are contemporaneous with major warming, the larger the flows the greater the warming

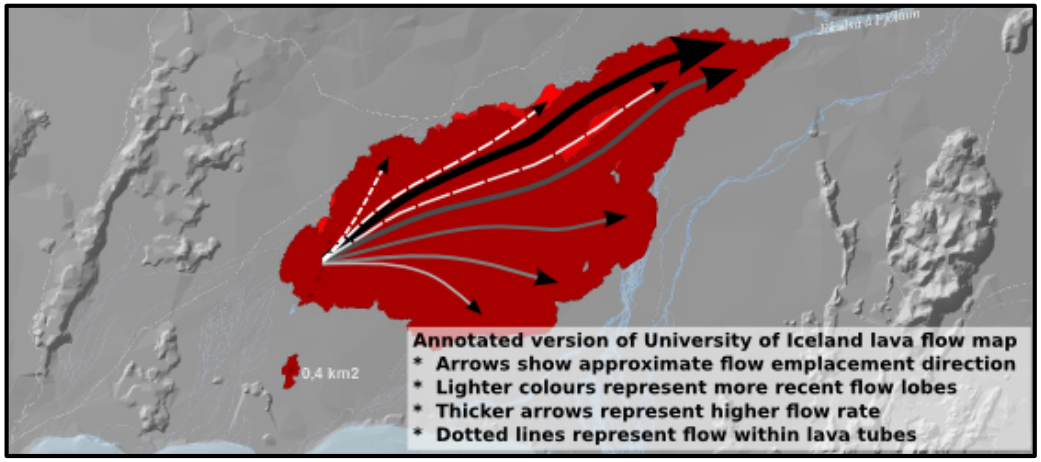
Basalts emit ten times as much Chlorine and Bromine as explosive magmas and are observed to cause ozone depletion that causes rapid warming.

Basaltic lava flows are most common in continental and oceanic rift zones.

Only sub-aerial lava flows have an immediate effect on climate.

The amount of warming is determined by the aerial extent, which depends on the duration of eruption.

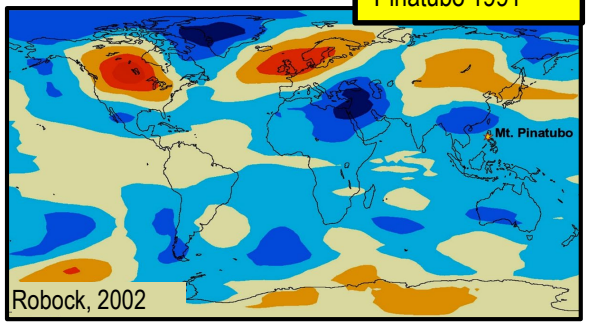
In 2014, Bárðarbunga covered 85 km^2 in 6 months.



In 251 Ma, the Siberian traps covered 7 million km^2 in more than 100,000 years.

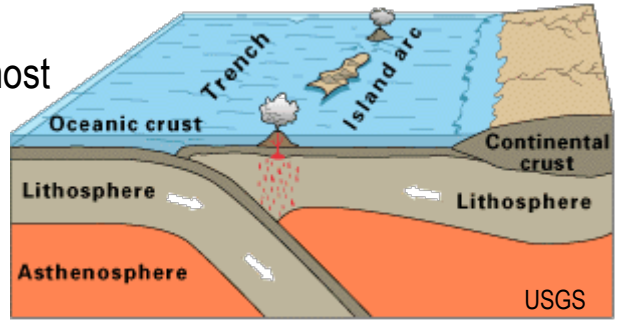
Major explosive volcanic eruptions form aerosols that reflect and scatter sunlight cooling Earth 0.5 °C for 2 to 4 years

Pinatubo 1991



Major explosive volcanic eruptions eject megatons of water and sulfur dioxide into the lower stratosphere where they form aerosols that spread around the world within months, reflecting and scattering sunlight, leading to global cooling of around 0.5 °C for 2 to 4 years depending on the size of the eruption.

Explosive volcanic eruptions are most common above subduction zones.

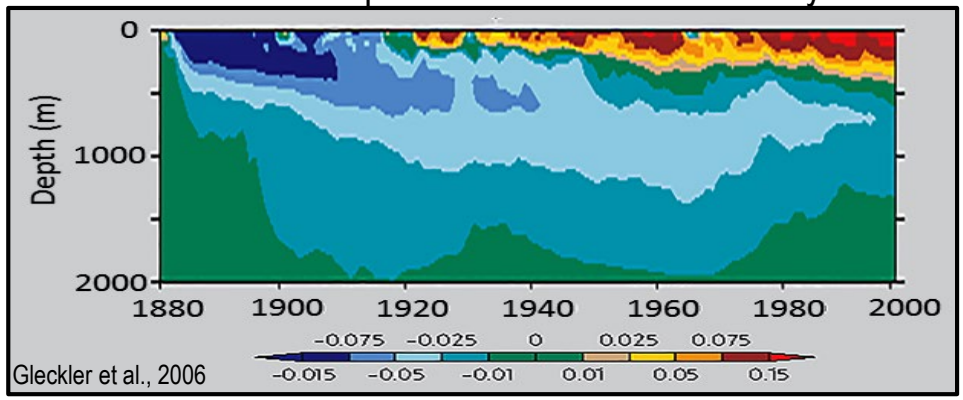


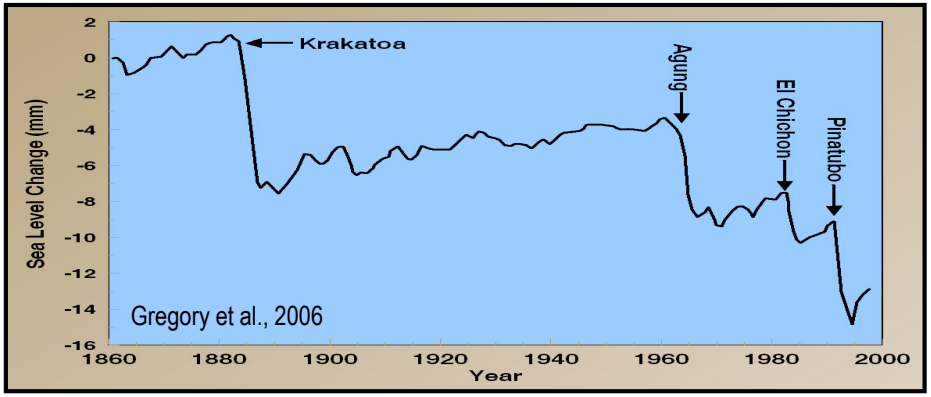
Oceanic-oceanic convergence

Following the June 1991 eruption of Pinatubo, parts of the northern hemisphere warmed as much as 3.5 °C during Dec 1991 to Feb 1992.

Several major explosive eruptions per century, continuing for millennia, cool the oceans incrementally down into ice-age conditions.

Four-year cooling after the 1883 eruption of Krakatau affected ocean temperatures for more than 100 years.

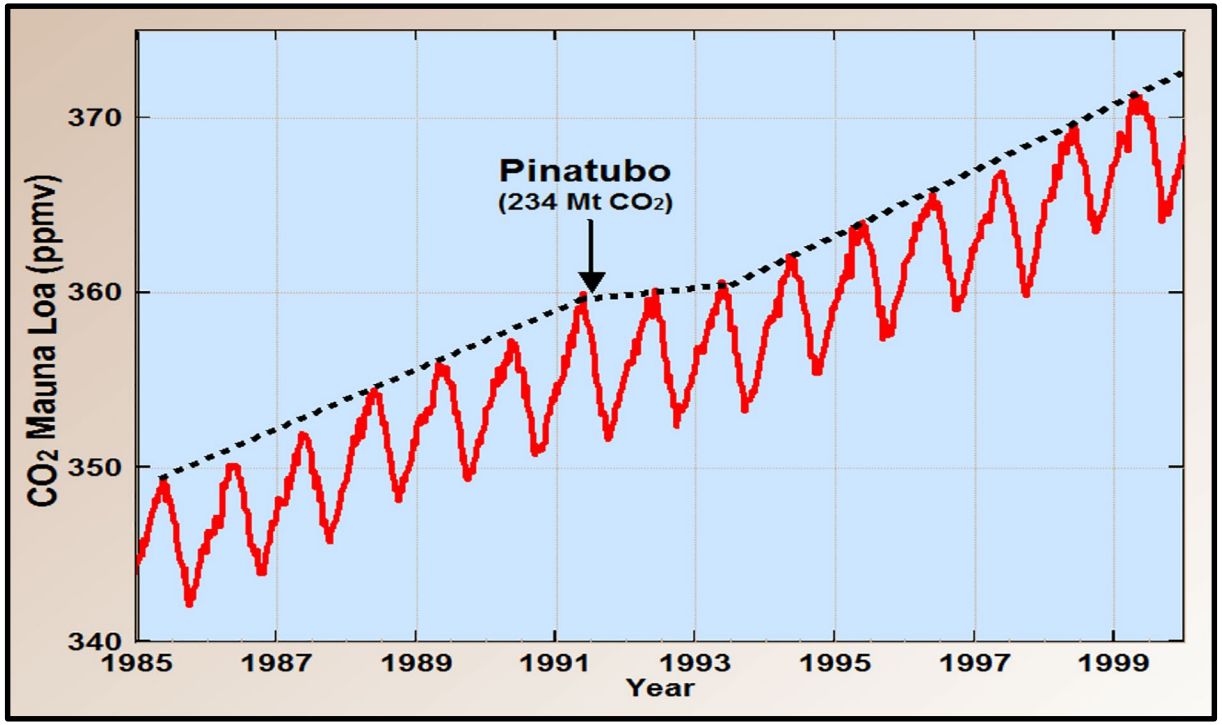




Hard to Imagine How CO_2 Could Cause Such Rapid Warming

What could cause such a rapid increase in CO_2?

Mt. Pinatubo in the Philippines erupted in 1991, the largest explosive volcanic eruption since 1912. It erupted up to 234 Megatons of CO_2 into the atmosphere. But concentrations of CO_2 measured at Mauna Loa (red) stopped increasing for a couple of years apparently because a sulfuric-acid aerosol was formed in the lower stratosphere that cooled the ocean 0.5 ^oC for two years causing increased absorption of CO_2 by a colder ocean.



Conclusions

The footprints of climate change in Greenland air are rapid warming within years to decades followed by slow cooling over millennia in highly erratic sequences averaging every few thousand years.

These erratic sequences cannot be explained by sunspot cycles, Milankovitch cycles, or any other known cyclic changes affecting climate.

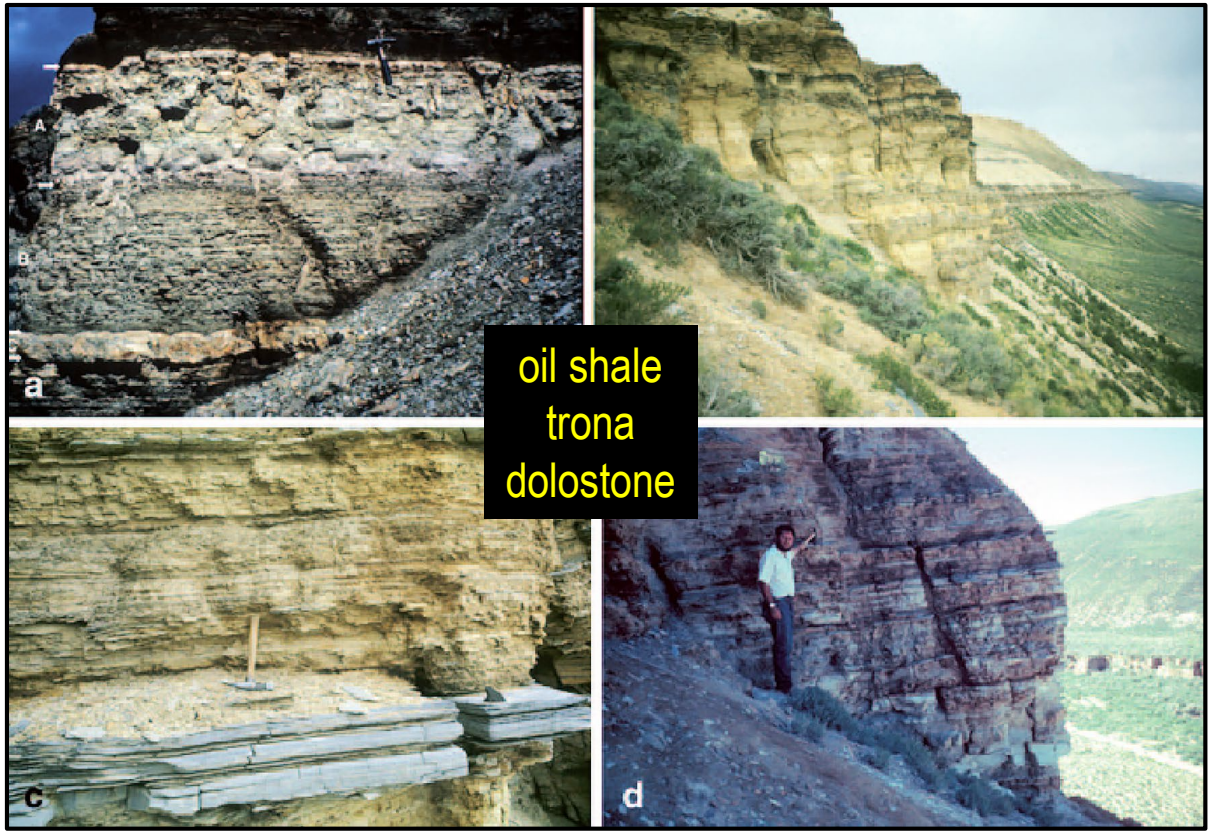
It is hard to imagine what could cause sudden changes in CO_2 concentrations that could explain such major, sudden warmings other than volcanic eruptions that are not correlated.

These highly erratic sudden warmings are explained most clearly throughout the geologic record by contemporaneous large, basaltic lava flows depleting the ozone layer, allowing hotter, ultraviolet-B sunlight to reach Earth. The larger the flows, the greater the warming, the greater associated oceanic acidity and mass extinctions.

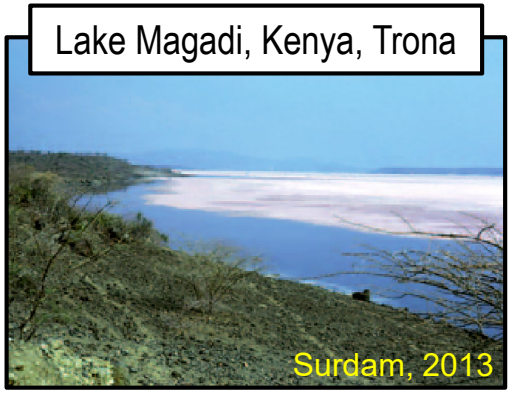
Eocene Green River Formation in Southwestern Wyoming

53 to 48 million years ago

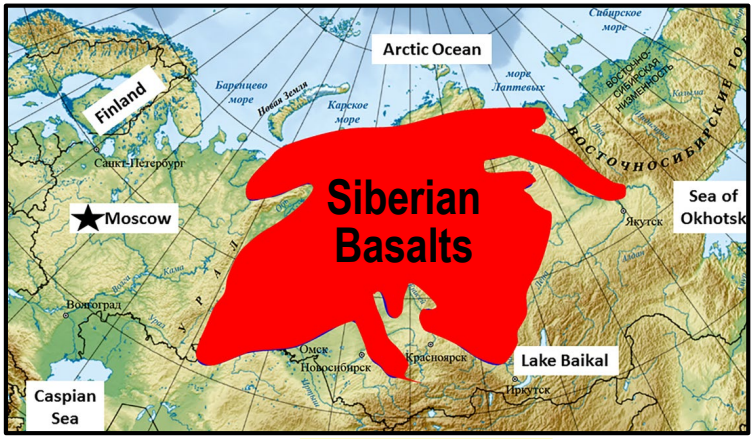
Fine layered oil shale, trona, and dolostone document warming from a moderate environment found today at Mud Lake, Florida, to a very hot environment found today at Lake Magadi, Kenya, where trona is forming. These very erratic sequences averaged every 5000 years.




Mud Lake Florida oil shale

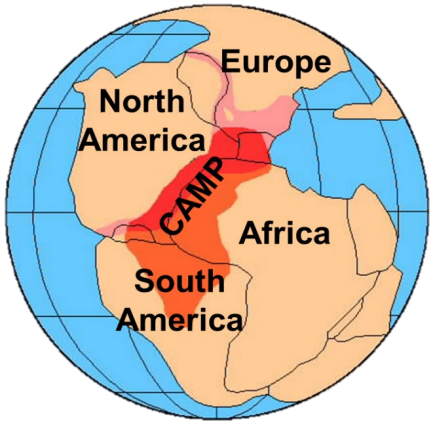


Three of the largest flood basalts were contemporaneous with three of the largest mass extinctions

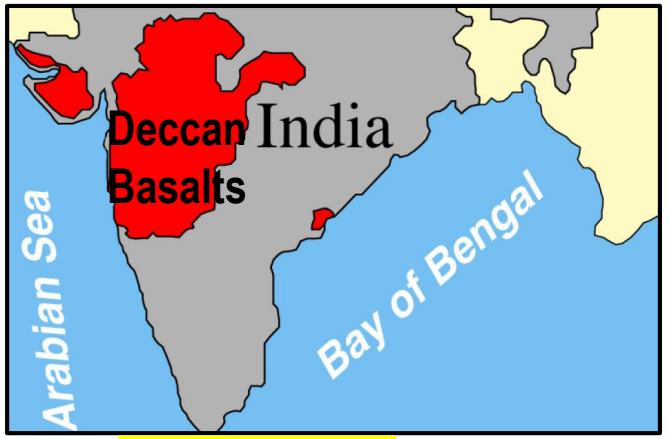


7,000,000 km^2

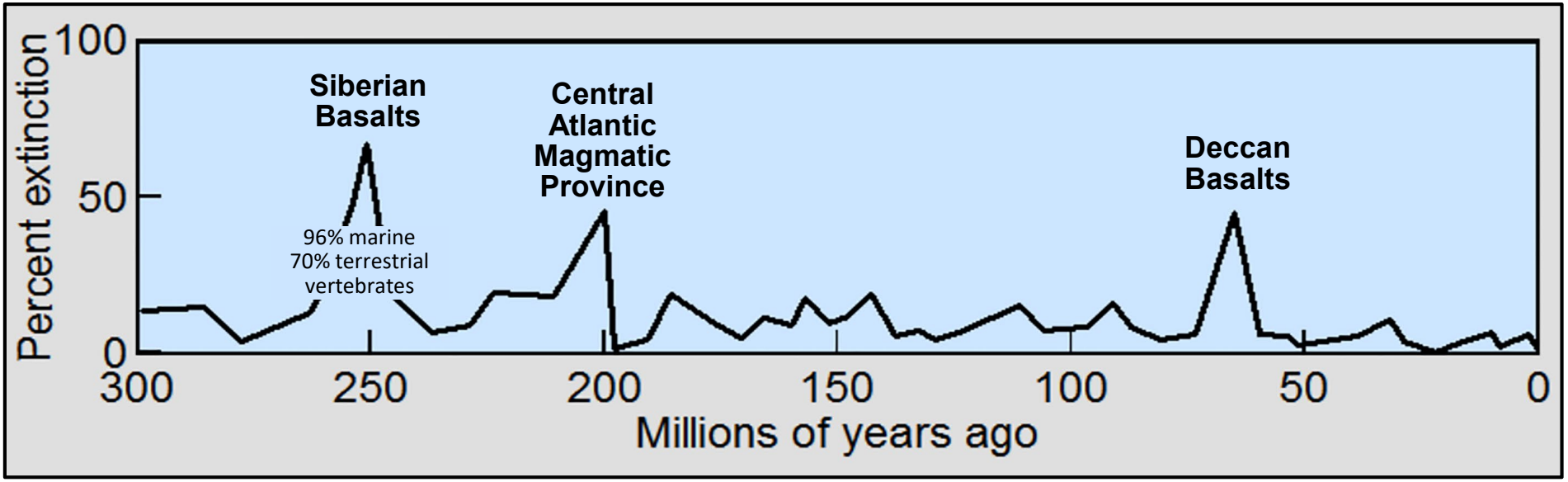
91% of contiguous US



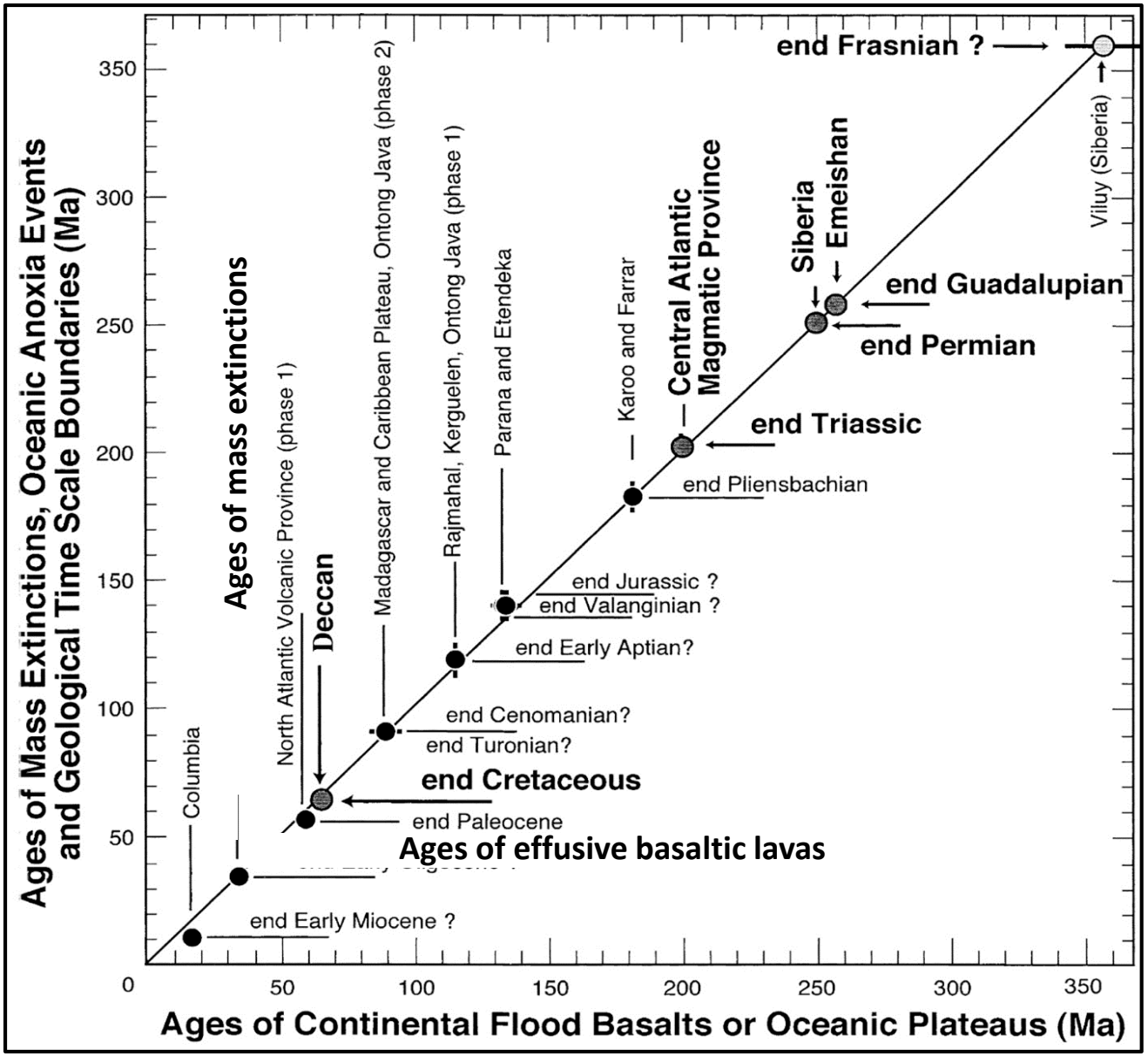
11,000,000 km^2



500,000 km^2



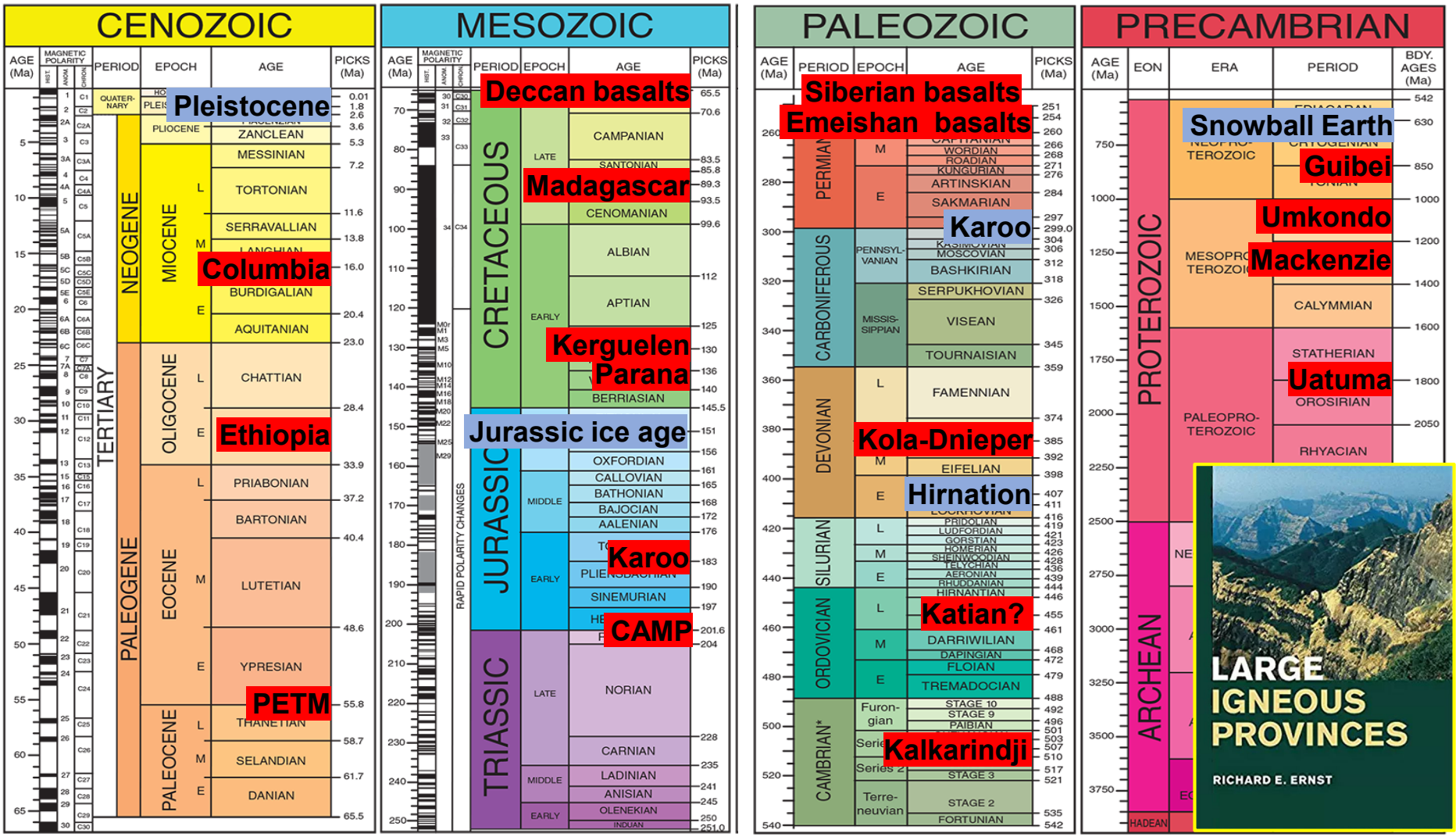
Typically these basaltic lavas occur at the end of geologic time units



Courtillot and Renne 2003

Large Igneous Provinces punctuate the geologic time scale

The balance of effusive and explosive volcanism due to plate tectonics explains climate change in detail



Geological Society of America Time Scale

Ages of LIPs from Ernst 2014

Reasons Why Greenhouse-Warming Theory Appears to be Mistaken

1) Radiant energy is a continuum that cannot be quantified as a single amount in watts per square meter. Each frequency of oscillation has a different energy of oscillation.

2) Temperature, heat, and radiative forcings are not additive. They are averative because heat is observed to flow by resonance.

3) Planck's empirical law shows what frequencies and amplitudes of oscillation must be occurring throughout a body of matter for that body to possess a specific temperature.

4) CO_2 absorbs <16% of the frequencies radiated by Earth. Increases in temperature require increases in amplitude of oscillation at 100% of the frequencies of oscillation throughout the continuum.

5) Greenhouse gases can only reradiate the very limited frequencies that they absorb.

6) Greenhouse gases cannot radiate in all directions as assumed. Radiation only flows from hot to cold, from higher amplitudes to lower amplitudes of oscillation.

7) CO_2 makes up only 0.04% of the atoms and molecules in air. Any warming due to CO_2 must be shared with 2500 other atoms and molecules.

8) CO_2 has never been shown by experiment to actually cause warming.

9) The thermal effects of radiation are not about amount of radiation absorbed, as currently assumed, they are about the temperature of the emitting body and the difference in temperature between the emitting and the absorbing bodies.

Details Explained at Physically-Impossible.com