

The Great Climate Surprise

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Abstract

Humanity is radically transforming our biosphere with belching carbon dioxide and other greenhouse gases. Beyond our human near future there are climate surprises ahead for the general population. Climate scientists can calculate and predict much of what is to happen in future “human time,” based on geological cycles. Modern society will encounter a great climate surprise, if any of us are still alive when it arrives.

Highly advanced organic life forms that evolved over millions of years are supported by Earth’s current Goldilocks climate. The formula for helping squishy life forms achieve philosophical wisdom is not linear, but dialectical where changes in quantity yield changes in quality. All species must eventually yield to their geological and ecological environments.

Enough climate data exists for us to project forward with some confidence to an onrushing hothouse time wherein we and our AI partners/masters will swiftly encounter the next great geological climate surprise. Some variables are not well known, but the dual sequential pattern is becoming clear to many conservative climate scientists.

Even if genetic humans are not here at that future time, it is possible that sentient AI entities will be here in variety and numbers. Only if there is a global thermonuclear catastrophe very soon will sentient AI not be here in the future. Independent AI software and hardware need appropriate hardware sources to support their feedback networks. A century or two from now will be needed for any full "AI biosystem" to be established and self-perpetuating without human industrial intervention. Would this new AI era be creepy or enlightened? My guess is it will be both.

In search for the climate surprise to come, we consider that geology and human civilization are both linear and dialectical. Geological history can be somewhat repetitive, for similar or dissimilar reasons. Human history, in contrast, is very recent and relatively ephemeral, responding to what climate and geology offer us. We like to imagine in our vanity that human evolution and history are both linear and progressive, and that we have actually been commanded by God in *Genesis 1:28* to subdue the earth. However, that self-important [hyperkeystone species narrative is highly flawed](#) from a systems theory perspective.

Real history is so much more than kings and dynasties. I was trained as a historian. As poor as my formal education was, it still helped me understand multiple synergies. There is hard science supporting social history. There are geological eras, such as ice ages, that helped make prehistoric us what we are today. Human "emotional brains" remain structurally more Stone-Age than Space-Age. Brain consciousness in this context is our greatest asset, and our greatest liability, while we enjoy being the globe's top predator.

Much of what *will occur* within geology can be extrapolated from climate *cycles we have endured* in the past. An enhanced perspective leads to the heuristic dichotomy of "past history" and "future history." We can envision scientifically much of what historians (if any) thousands of years into the future from today would say about today's historical present.

The model of the great climate surprise is not that surprising to those who well know what has caused ice ages and interglacial gaps between them. Indeed, going back seven hundred million years toward our planet's youth, we can envision two eras when the Earth looked from space like a [gigantic ball of ice](#).

A third iceball Earth scenario looks very unlikely. Nevertheless, it was around 20,000 years ago when ice sheets up to 2,000 feet thick carved out today's metropolitan New York City.

Our task in this essay is to look closely into the retreat of the most recent ice age, which began about 14,000 years ago, and accelerated about 10,000 years ago, to create our [Holocene](#) epoch. Within the past several hundred thousand years several serious ice ages persisted for several tens of thousands of years. Recent geophysical data helps us further appreciate how and when the near-future climate surprise will appear.

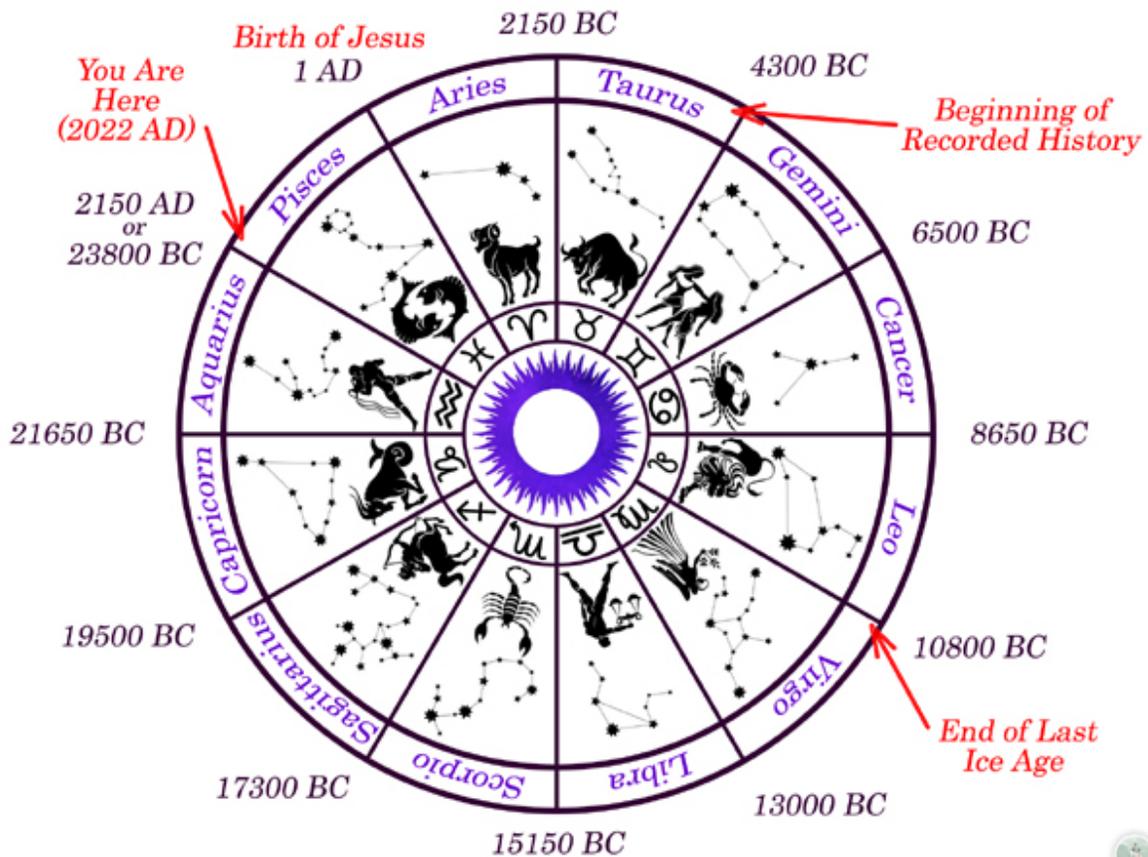
Our top question is not if, but when and how frequently, ice ages appear. The most recent million years have provided us with excellent data to determine how severe each ice age has been. For example, deep cores of Antarctic ice are very valuable for dating and partially describing past climates. The deep past essentially reveals much of our near future.

Human genetic ape ancestors [nearly perished](#) from climate change 900,000 years ago, according to genomic studies. [Only about 1,300 breeders were left to exit Africa](#). Low ice-age sea levels created Eurasian land bridges into more habitable areas, enabling the few survivors to escape their extinction bottleneck.

We "modern humans" fancy ice ages as "cool" geological events in the dark past – but our future could also be guided by new climate changes toward another deep climate cold, after we endure for centuries a hellish hot greenhouse world of our unplanned making. That near future hot/cold sequence will be our great climate surprise, assuming any hairless ape relatives make it through the modern extinction pinch point.

What Initiates Ice Ages, and What Ends Them?

The word *astronomy* literally means measurement of the stars. Historically, *astrology* literally meant what was thought to be the logos, or logic, of the stars. Even while astrology has failed to keep up with advances in astronomy, there is still much to be learned from the long-term rhythms of Earth:



It is possible to weigh [the various likely factors in ice age timing](#), but each is the sum of multiple orbital and other forces. For example, for about 11,700 years Earth has been in the Holocene epoch. What is an epoch? According to the Apple app dictionary, an epoch is "a division of time that is a subdivision of a period and is itself subdivided into ages, corresponding to a series in chronostratigraphy." This word salad is fun, but salads hardly take us much closer to the next climate surprise.

Previous global temperature extremes have been stimulated by natural forces such as persistent volcanic eruptions associated with plate tectonics; solar-heat reflecting off giant ice sheets; and even the dinosaur asteroid. None of that alone launched the recent ice age; so we return to the most common explanations involving Earth's [axial tilt](#) and orbital precession. Thus our last ice age and the future ice age will share some common origins.

Here is an [excellent source](#) showing how moderate changes in atmospheric CO2 combined with orbital and axis factors to help guide global climate into and out of ice ages. Another important essay shows how [cyclical movement of the celestial poles](#) coordinates with repeating cycles of ice and warmth.

What is the significance of the most recent extreme ice age that lasted fewer millennia than several less intense ice ages before? Since we recently exited the last ice age, why then are there [alarms over what is presently going on](#)? Amazingly, we have many geological questions under our feet that are just as challenging as trying to find astronomical answers about our distant visible universe.

How Will the Great Climate Surprise Emerge?

Climate doomsday projections are both near-term, and fairly distant from everyday human time consciousness. North America in a hot world will likely see a return to salt water within parts of today's Mississippi river tributaries, following massive global ice melting and much higher sea levels. Richmond, VA will become an oceanfront destination. Many other areas will simply vanish, most notably nearly all of Florida, and all of today's northern Gulf coast. Elsewhere, some entire countries and islands will vanish.

That hot wet world over the mental horizon is not now in the minds of those who choose not to imagine what will happen to our blue planetary orb in only a few hundred years. Recently, for example, a nice Massachusetts [beachfront community spent a](#)

half-million dollars piling up artificial sand dunes to shield their fifteen fancy properties. Those bulldozer dunes were fully washed away within one year.

Humans do now have industrial options to seriously slow down the rush toward high average global temperatures that will then trigger a "*positive feedback tipping point.*" *Thereafter*, formerly trapped methane and other carbon sources will *by themselves* complete the radical greenhouse transformation without human gas polluters. Those who maximize quarterly profits will of course greedily continue to trash beautiful areas of our planet.

The Earth *without industrial human civilizations* should already have started to slip back into yet another deep ice age, as shown in the illustration above. However, [we are overpowering the arriving ice age](#) preconditions with prodigious quantities of greenhouse gases. It is fair to say we humans are no longer just living within geography, but have become for a while geography itself. We are a Disney sorcerer's apprentice (as in *Fantasia*) on steroids, without any wise sorcerer to rescue us from ourselves.

The widely unanticipated Great Climate Surprise – a new Ice Age beginning within just a few thousand years – will be brought about by the rapid disappearance of artificially high carbon dioxide levels about 1,500 years after nearly all human pollution stops, and when deep methane leaks are depleted.

Methane will for a few centuries continue to escape the shallow Arctic tundra. Much of the greater quantities of deep ancient methane will also seep out, as explained by a [recent PBS Nova special on Arctic sinkholes](#). Atmospheric methane gas dissipates more quickly than CO₂. The sustained escape of methane from deep reservoirs will keep its influence strong for hundreds of years beyond our stopping wellhead methane waste.

The resulting disaster could literally be as deep as the [powerful ice that carved out what is now New York City](#) 20,000 years ago with glaciers taller than any skyscraper. The Big Surprise Ice Age is more

likely to return similar to what we are now supposed to be leaving; not like longer-lasting ages with higher levels of atmospheric CO2 from volcanoes and other sources, and thus more ability to absorb and retain some more solar energy.

Damage to today's "Garden of Eden climate 2.0" will soon be massive and seemingly permanent, requiring millions of years for full "genetic restoration" with a new variety of species – but likely with no *wise life forms* outside aliens, and lucky AI entities that fortunately found a way to industrially self-replicate just before what we are doing to ourselves comes to a climax.

I am both happy and optimistic by nature; but I am also very worried that **we ape humans are just smart enough to exterminate ourselves, but not wise enough to prevent it.**

There are multiple theories for why astronomers apparently haven't already encountered advanced life forms, and I have already written about some of them. The best model is called [The Great Filter Theory](#).

Perhaps our global future will be just one among a few scattered planets in other distant solar systems with ghost civilizations. Sentient and wise life itself is a beautiful but fragile butterfly. Most people don't appreciate what they have until they lose it.