

**THE SKY IS FALLING**  
**OR**  
**ON REVISING THE NINE TIMES RULE**

**PART I OF V**

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When I first heard it, I believed it. It made sense. I could see it easily and clearly. And that was a long, long time ago. It seemed counterintuitive that anyone could or would not believe it. It was that seminal. Homo Sapiens would cause the earth to warm, we now call it the Greenhouse Gas theory, and it is now a law (at least in California).

But it was just a few years ago as the real hype got going that I had my first cause to question the legality of what would soon be a law. And it happened in the oddest of ways. That occasioned a journey that took me from realization to epiphany to more realizations until I finally got it.

I will take you on that journey, if you think you can handle it. But be well advised that due to the Nine Times Rule there is only an 11.1% chance you will be able to follow me. In an advanced course in Psychology taken some 30 years ago I learned that the human being is nine times more susceptible to rumor than it is to fact. That simple rule explains a dramatic amount of human behavior. To prove this rule all one needs to do is accurately answer this simple question: Which religion is the correct one?

That's what I thought.

So if you want to take the journey I did, brace yourself well. My religion is geology, and this journey is the ultimate heresy. If you make it all the way to the end, and understand it all, you will be amongst a very rare breed, those that made the cut on the Nine Times Rule. And you will know how this fundamental rule has been revised, may possibly be revised again downwards, and why. Because this journey I took, and that you may take, started out about climate change and ended up somewhere else entirely. It ended up as part of the theory of everything.

**THE FIRST HERESY**

I had been hearing it for some time without it really registering. The new ruckus about global warming. I was already a believer in this latest of all man's religions. I had the faith. But something started to niggle at the back of my geologic mind. The Intergovernmental Panel on Climate Change (IPCC) was predicting sea levels might rise something like 40-60 centimeters (about 2 feet) by the end of this century. Al Gore upped that by an order of magnitude to 20 feet, not bad for an exaggeration. And that was what started me on this journey. How could both these august sources be so far off? Al is probably off by a factor of 5, and the IPCC by a factor of 50. Because that niggling in the back of my brain was protesting loudly enough to make it to my consciousness.

And this is what it had to say. The earth has been here for four thousand five hundred million years, remember? And remember the Pleistocene? The past 1.6 million years, or 0.03% of all that earth history? Remember how at the end of each of the last 4 ice ages we had a coarse grained layer of sediments deposited across the Los Angeles Basin that today are our fresh-water aquifers? And remember what the “bible” of southern California hydrogeology reported about sea level changes during those 4 ice ages and their associated interglacials (an interglacial is a period of massive global warming)? The very reason we have those aquifers is that when each ice age ended, it did so by swinging from 300 feet below present-day sea level to 100 feet above.

And that is what my left brain reported to my right brain. We sit now 100 feet below where sea level ends up every time we have one of those things anthropologists call an abrupt climate change. We know them in geology as abrupt terminations. And in the Pleistocene alone, we had 8 of them, in the closest thing known in geology to a finely-tuned clock. Nothing else in geology is as punctual, as repetitive or as abrupt as glacial terminations.

So, if you are one of those that do not believe in climate change, you would do well to study some geology and gain some much needed perspective. For starters, focus your attention on the Pleistocene. Because the only thing that has ever been constant about climate is change. And that is what my left brain was trying to communicate to my right. This thing is far, far more complicated, far more fundamental, and far scarier than you can possibly imagine. In the end, this is a test of us as a species, just as it always has been.

Of course, this realization was easy for me, because I have studied this all my life. Unless I provide you some facts, this would have to be a matter of faith for you. So here we will take a side trip, for the first time, through the Pleistocene. We will come back a couple of more times, as we move through this journey in which I connected the dots.

A good friend of mine, who got her PhD at UCLA in some field of air quality, doesn't understand why I am even worrying about those old Ice Ages. She says they are ancient history, so long ago. What she, and almost everyone else, does not understand is that I am not talking about ancient history at all when I speak about the Ice Ages. We live today in the Holocene Epoch, the past 11,500 years since the abrupt termination of, and resulting 300 feet of sea level rise, the Wisconsin Ice Age. Not so long a time as time goes, but all of human civilization has occurred during this little slice of time since the last Ice Age which contains *all* of our recorded history. You might want to write that down.

That bible of southern California hydrogeology I told you about earlier is entitled “*Planned Utilization of the Ground Water basins of the Coastal Plain of Los Angeles County, Bulletin Number 104, Appendix A,*” State of California Department of Water Resources Southern District. It was published in 1961 and here are a few shreds of the data we knew then, and to a large extent, still refer to in professional papers we geologists practicing here write today.

Take some time to look Figure 1 over closely. Note how with each 400 foot rise in sea level after each ice age termination we deposited an aquifer. And understand that this is what we knew about halfway through the last century. We have learned amazing things since that time.

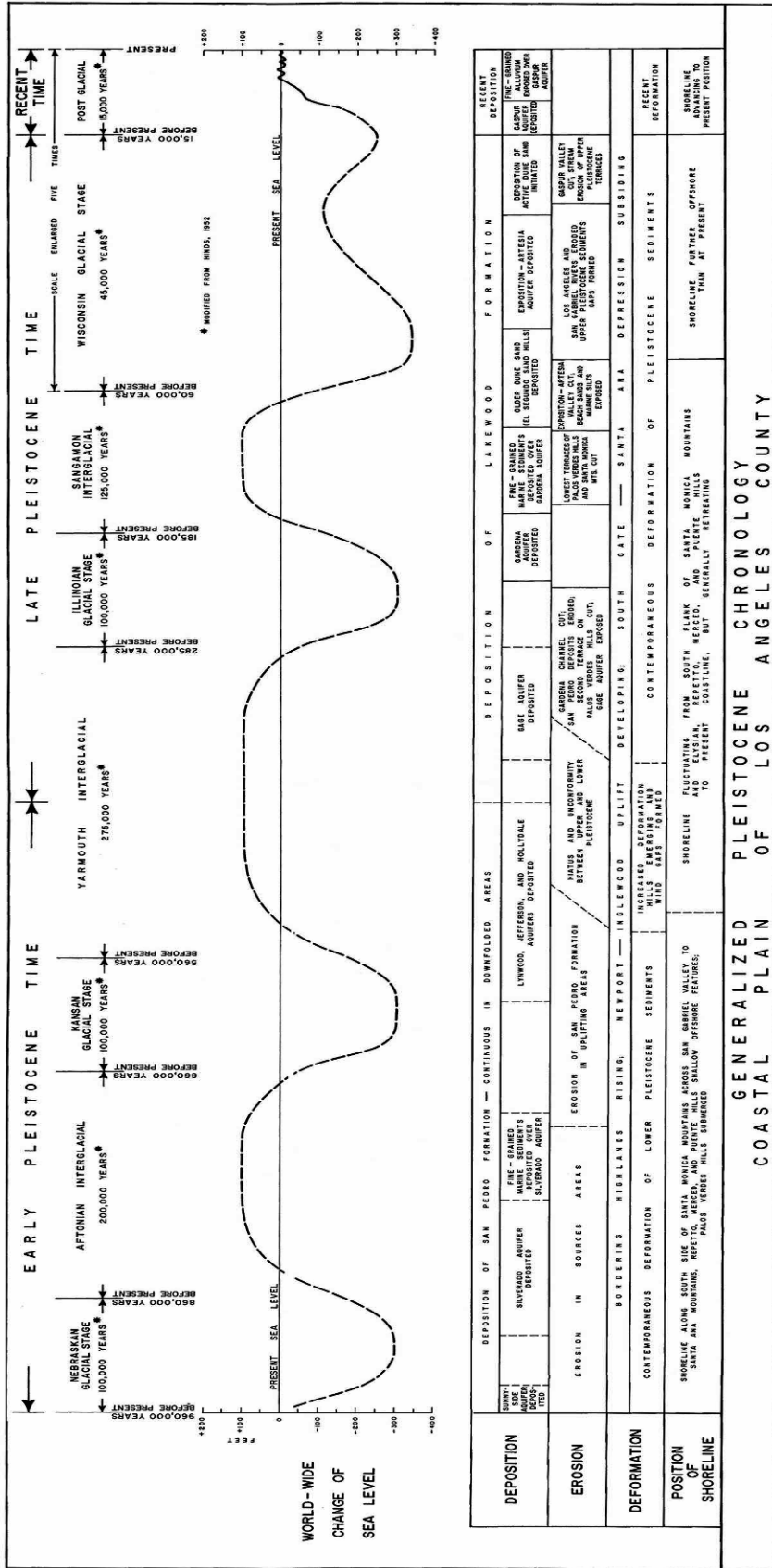


Figure 1. Generalized 1961 version of global sea level changes over the past million years of so, including the stratigraphic position of the deposition of our drinking water aquifers in the LA basin.

But there was more evidence from the middle of the last century my left brain reminded me of, the hard core evidence of those sea level high stands, right here in the LA Basin. Figure 2 provides two images from the literature that document sea level high stands in the Pleistocene, one a picture of the 11 high stands preserved on the Palos Verdes Hills.

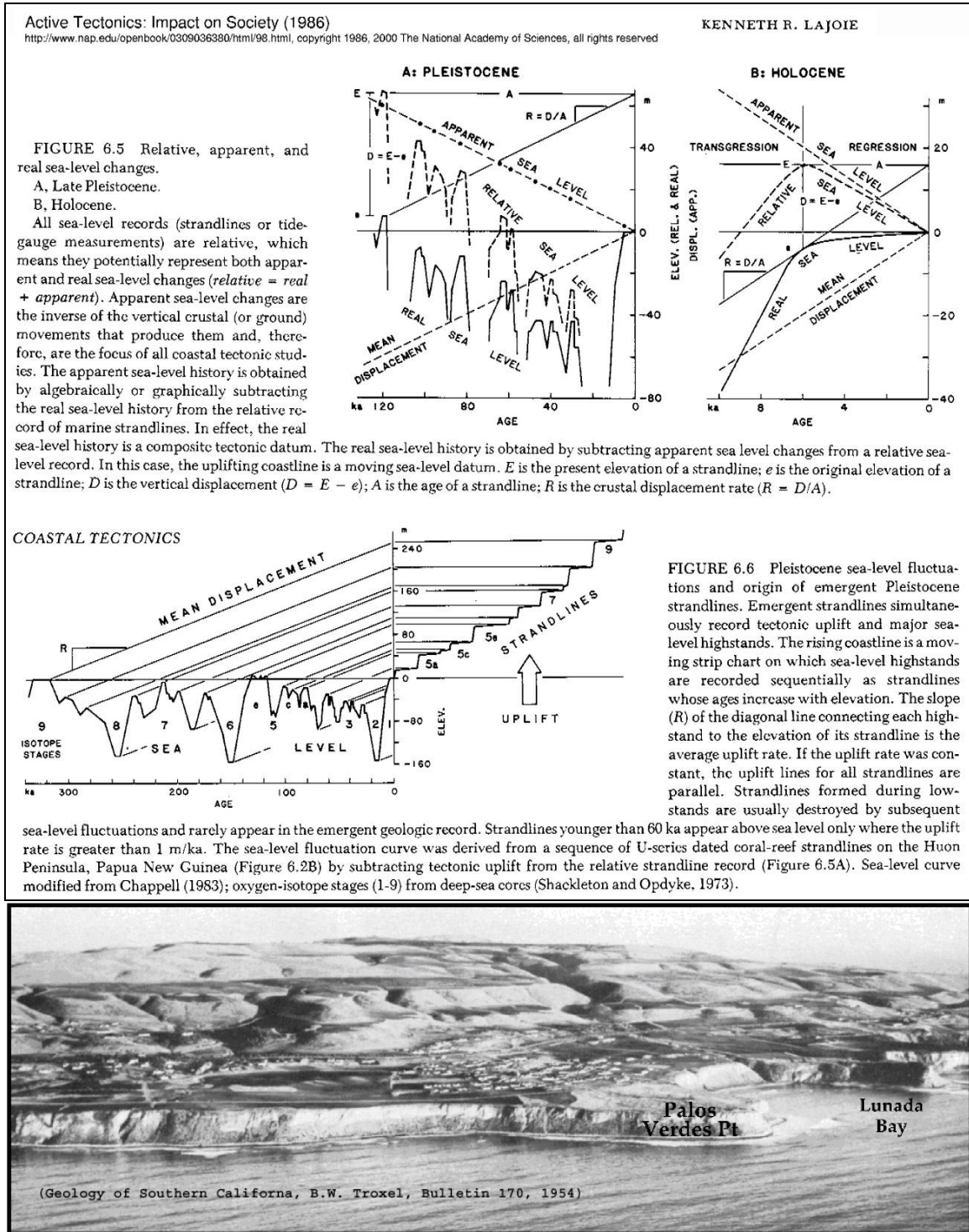


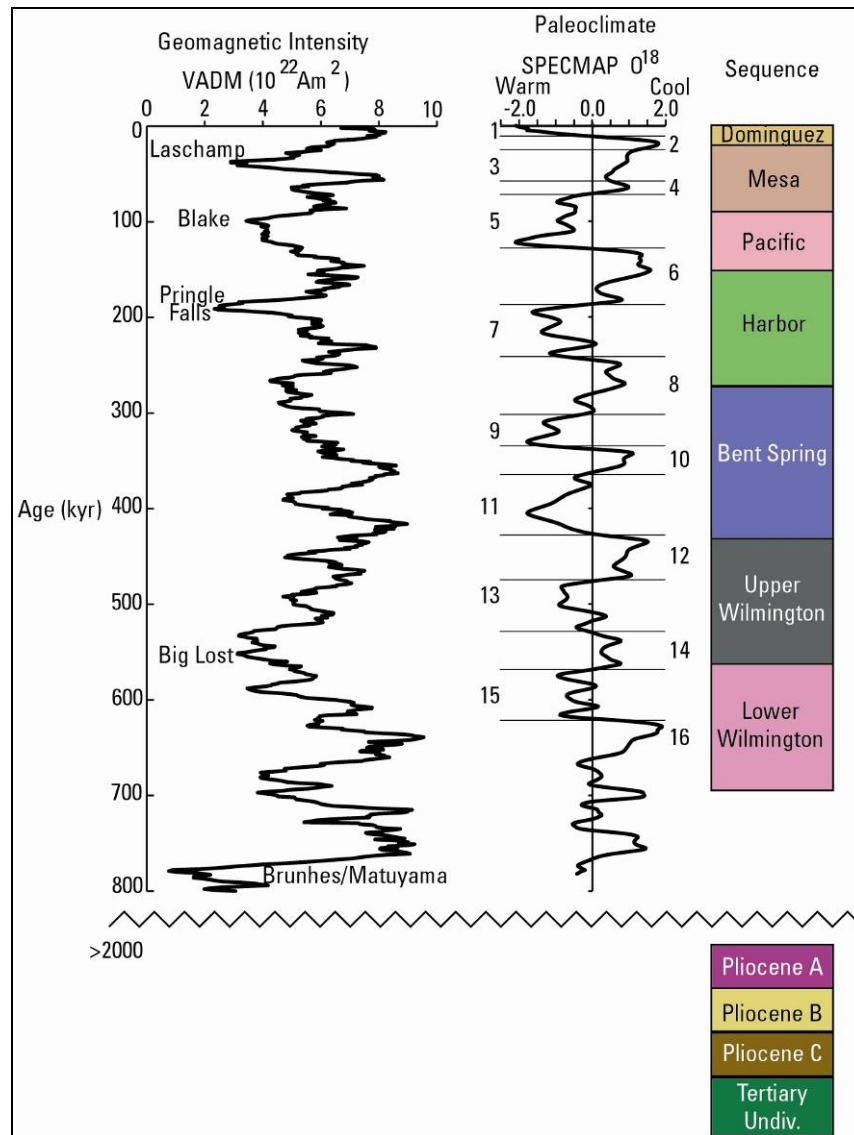
Figure 2. Wave cut benches caused by both tectonic uplift of Palos Verdes and Pleistocene Sea Level Change.

In Figure 3, with different tectonics than Palos Verdes, we see something eerily similar. Still worried about sea level rise? Something non-anthropogenic caused all of these. What do you propose to do about that?



*Figure 3. High Stands (wave cut benches) preserved near San Clemente, CA (Camp Pendleton)*

Since at least the early part of this century Dan Ponti of the United States Geologic Survey has been re-defining the Pleistocene layercake geology of the Los Angeles Basin by coring the Pleistocene sediments in the Wilmington-Long Beach Area (Figure 4). I, and most other practicing geologists here have been watching his progress with a keen eye. In June of this year he gave a talk about his present findings and he has 16 climate change events defined in the late Pleistocene. Sixteen! Each averaging 120 meters in sea level change. Now that isn't 400 feet, its 393.69996 feet. Close enough for government work you say? And just so you get the whole picture, each ice age/interglacial couple lasts about 100,000 years. The interglacials (global warmings) last something like 10-15k years of that 100k. And again, just so the picture gets set firmly in your mind, these dramatic climate shifts are the most punctual things known in the entire geologic record. You could set your geologic clock by them, all sixteen of them.



**Figure 4.** Dan Ponti and team's revision of the LA Basin's Pleistocene stratigraphy (sedimentary layercake) and its paleoclimate.

And that was the first heresy. In case you didn't parse that, this means that if we are remotely on schedule, we are not all that far off from what could be the next ice age. But we are still 100 feet shy of the sea level achieved during the last 8 high stands. Interestingly, the trigger event that is now thought to precipitate the initiation of an ice age is the complete melting away of the Arctic ice cap, an event now predicted to occur around the year 2070, or about just about ~60 years from now.

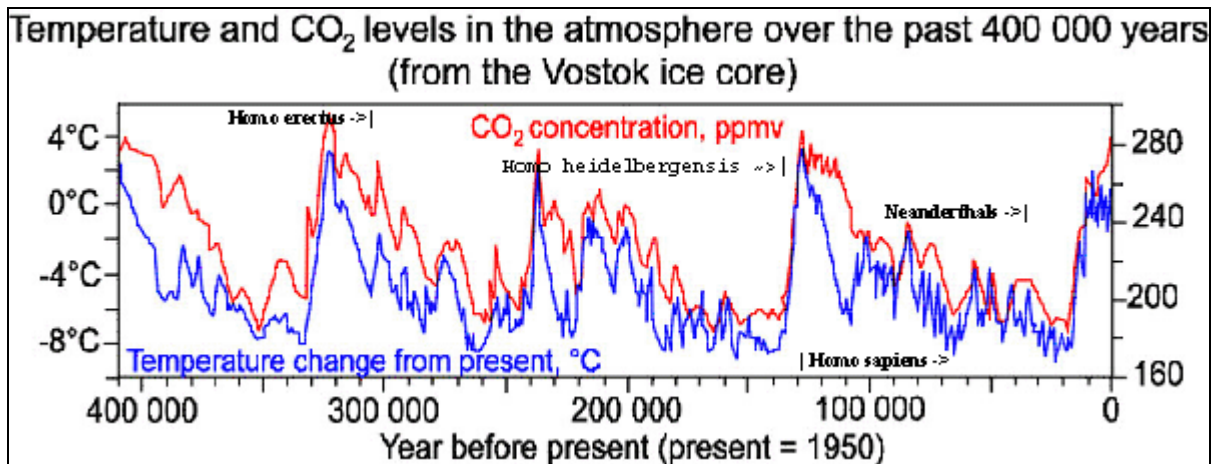
I define my first heresy like this. In the event that you are worried about anthropogenic global warming (let's shorten that to AGW), you may want to start figuring a way to tell the anthropogenic effect, currently predicted to be in the 2-20 foot range, from the 100 feet we are presently shy of where we have been the past 16 such natural climate change events of the Pleistocene Epoch the past 1.6 million years. And that doesn't consider the 33 climate change events if we include the Pliocene Epoch which preceded the Pleistocene. During the Pliocene,

the climate change events were on a 41,000 year clock and were not as intense in terms of cold and warm.

And those of you that want to peg these events on Greenhouse Gases (GHGs), the second heresy is reserved for you. In this first installment, we will consider just the prima facie evidence of your claims to see if they will hold a sea level rise. Oh, and don't go getting me wrong, I most certainly do believe in AGW, probably far more than you, and I have the data to back up my position. And we will get to that in a later chapter. But first there is a rather significant amount of junk science to reason our way through (also called debunking) before we can even try to face the truth. You may think this is all simple, while at the same time acknowledging that obvious complexity which you sometimes glimpse behind it all, but after we unravel all of this complexity, I will show you just how simple this really is, in the final chapter.

## THE SECOND HERESY

It took the development of deep ice coring techniques before we could begin to add some more pixels to this picture and begin to view it in all of its complexity. Deep ice cores have now been collected from several auspicious locations at the poles. The longest contiguous ice cores have been collected at Vostok Station above Vostok Lake in Antarctica. The cores from this location preserve the climate at that locale for the past 420,000 years, or about ¼ of the Pleistocene Epoch.



*Figure 5. Vostok Ice Core, Temperature and CO<sub>2</sub> concentration. (For grins, see if you can discern which occurs first.)*

It is at this juncture that I feel compelled to relate my favorite Ziggy cartoon. Some things are just eerily spot-on, as was this one. You see the backside of Ziggy scratching his head. He is facing three vending machines. The one on the left says “THE TRUTH, 25 cents”, the middle one is labeled “THE WHOLE TRUTH, 50 cents”, and the one on the right advertises “THE TRUTH, THE WHOLE TRUTH AND NOTHING BUT THE TRUTH, a buck”.

Often you will here ice core data referenced in terms of CO<sub>2</sub> concentrations. The TRUTH is that atmospheric CO<sub>2</sub> concentrations and earth temperature ARE tied. And we will get to that by and

by. But first take a long hard look at Figure 5. My trained geologist's eye discerned four things in short order.

1. There are four ice ages recorded in this  $\frac{1}{4}$  of the Pleistocene. Dan Ponti has 16 in the whole Pleistocene so having four in  $\frac{1}{4}$  is spot-on. Nice to get a match.
2. Next, notice how punctual these four events are. Nice 100,000 year long ice ages. Back to back. The closest thing to a finely tuned clock in nature.
3. Notice how each ice age terminates abruptly? Now, if you are a GHG theorist, I will give you a head start. Be thinking of ways that at the end of a 100,000 year long deep freeze, when just about everything is either long dead or close to it, you need a source of GHGs that can not only cause a 2 or 20 foot rise in sea level as predicted from anthropogenic sources today, but a 400 foot rise without any anthropogenic contribution, and in what researchers now think may be just a few short years or decades. Can't wait to see what you come up with, but remember, you will have the Nine Times Rule on your side. People are 88.9% more susceptible to rumor than they are to fact.
4. Last but not least pay close attention to how those 100k year long slow slides into the deep freeze occur. There are quite a few fits and starts (periods of global warming and global cooling) associated with each ice age. Some periods of global warming/cooling individually lasting tens of thousands of years. Just so no one misses the point, I edited the Vostok graph to place as closely as I could the beginning and ends of several hominid species. I have a strong suspicion that none of these events were caused by hominids. We will indeed examine the inverse of that statement in a later chapter, the results of which you may find interesting.

We will adopt, for the purposes of argument, that these climate change events are caused by fluctuating concentrations of GHGs. As I touch on in point 4 above, we can be relatively assured that our ancestors did not cause these GHGs. The reason being that we find so few fossils of them that we currently assume they never numbered more than a few hundreds of thousands, or at best a few millions, at any point in time.

Let's start at the bottom of the core, 420k years ago. As the earth cools from 420k to 335k years ago, a long slow slide into an ice age, what would happen to life on the planet? Would all manner of species find it harder to get along and multiply, perhaps even go extinct as we reach the depths of the ice age? Or would life go on blithely, and right at the depth of the 100k year ice age (actually each such ice age) suddenly explode in profusion, in a bloom of CO<sub>2</sub> we can't even imagine causing each of those 400 foot rise in sea levels? These are actually easy questions to answer. The present is the key to the past. Ever notice how most of the world's life is concentrated in the coldest parts of the planet? No? That doesn't seem reasonable to you?

OK then, you explain it. Either life blooms like we cannot even imagine at the depths of a 100k year deep freeze, near instantaneously producing more GHGs than even an industrial revolution can or else it has to be volcanic eruptions, the only other reasonable source. Of course it could be a CO<sub>2</sub> comet, or bunch of them, all arranged in space at 100k year intervals, but we tend to think that extra-terrestrial impacts cause ice ages, not terminate them.



So there is my second heresy. Without even looking at the real evidence preserved in the ice cores with a fine-toothed comb, the megatrend just doesn't cut it. We have had no 100k year cycle volcanic eruptions that can produce a 400 foot change in sea level, regularly, without leaving so much as a speck of ash in those same ice cores (or anywhere else for that matter).

If you are a GHG theorist, take all the time you need to think about it, gather your evidence and give us a source for GHG emissions that can, regularly, on a 100k year clock (for the past 1.6 million years), and a 41k year clock before that, cause sea level changes that no one, not a single entity or individual, has so far intimated can occur from even the most massive release of GHGs. Then support that from the CO2 concentrations shown in Figure 5. You have your work cut out for you.

Unfortunately, no one seems to have the answer as to where all the CO2 came from to abruptly, at the deepest depth of a 100k year long deep freeze to melt our way out of that ice age with a dramatic, geologically instantaneous 400 foot rise in sea level.

But we do have an inconvenient truth that quite elegantly accounts for that finely tuned geologic clock. In Part I we have looked at some of the geologic data that has been gathered relating to climate change. We have seen how climate change is remarkably regular, remarkably dramatic, and without a miracle, we don't really have a reasonable, regular source of GHGs capable of generating an abrupt ice age termination and the associated 400 foot changes in sea level that we know have taken place. All of this makes the present argument over industrial age GHGs seem just a touch insignificant by comparison.

In Part II we will learn what did cause these events, and what that portends for our future.

### **About the Author:**

Mr. McClenney is a California Licensed Professional Geologist and Registered Environmental Assessor. He was also appointed the first Certified Environmental Auditor in Victoria, Australia in 1991, empowered to sign-off on contaminated site cleanups. He has been investigating and cleaning up hazardous waste sites for 22 years.