

**The Climate Exhibit at
The Natural, Green, Sustainable,
Recyclable, Ecological
(and very expensive)
California Academy of Sciences
Golden Gate Park San Francisco**



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Norman Rogers**

The California Academy of Sciences occupies a new building located in San Francisco's iconic Golden Gate Park. Perhaps it should not be called a building, but a palace. The cost of the project was \$488 million or about \$1200 per square foot. The money came mainly from the taxpayers. A bizarre aspect of the construction budget was that contractors were *required* to pay the *highest* prevailing wage. The



The 2.5 acre roof is planted with 1.7 million *native* plants

generosity of the taxpayers of San Francisco toward the oppressed construction workers takes your breath away. No money was spared to make sure that the building was not just “green” but super-green. For example, the undulating roof is planted with a garden, making the roof literally green. The building is insulated with politically correct recycled denim.

The powers-that-be at the Academy seem to be convinced that California is doomed as global warming overwhelms the Golden State. Given their gloomy thinking about the future it seems surprising that the Academy's management would spend so much money to construct a building. Perhaps they subscribe to Paul Ehrlich's idea that if you have to take a trip on the Titanic you might as well go first class. They may be thinking that if society is going to collapse no one will have to repay the construction bonds.

The museum's climate exhibit is called “Climate Change in California.” The exhibit's predictions of global warming doom seem a little out of place right now because most of the summer (2010) the state has been unusually cool. In some places in California crops are endangered by the cool weather.¹

The Academy's climate exhibit shows a remarkable lack of restraint, parroting every global warming myth at high volume. One of the video exhibits features Bill

McKibben. Calling McKibben an extremist doesn't do him justice. He's just plain weird. His personal website begins with "Welcome citizens of Eaarth." Eaarth (not Earth) is the title of a book he wrote. He thinks that we are changing the planet so much that we should rename it. McKibben's book is beautifully written. After all he used to be a writer for America's foremost literary magazine, the *New Yorker*. But the book *Eaarth* is well-written junk science - green propaganda. If you read Amazon reader reviews of McKibben's book you can get a good idea of what his followers, who are even more unbalanced than their mentor, see as the proper response to the coming disaster. One follower says the following:



Bill McKibben at Bikes not Bombs rally for 350.org in the Summer of 2008. From California Academy of Sciences video.

...I will be running mycelium, making biochar, permaculturing, keeping chickens, and growing/preserving a lot of our own food.

In case you find the references obscure: "running mycelium" has to do with mushrooms. For a fuller explanation read the book: *Running Mycelium: How Mushrooms Can Save the World*. Biochar is a kind of charcoal that should be buried to sequester carbon. Permaculture is a better kind of agriculture that is sustainable and supposedly copies patterns found in nature. If you would like to start your own permaculture farm, I suggest taking a course at the Permaculture Institute.

In a rant reproduced in the Academy exhibit video McKibben says:

This global warming situation is happening faster and on a larger scale than we thought. Last summer [2007] - a hot summer all around the world - the Arctic melted. The Arctic melted far faster than it ever had before. And that scared scientists, even

scientists who I've known for a quarter-century, who had been concerned and worried and working hard, all of the sudden were on the verge of panic.

The claim that global warming is happening faster and on a larger scale is often repeated, but why it is repeated is rather mysterious. Global warming appears to have stalled starting around 1998. When he talks about the Arctic melting, McKibben is referring to the amount of Arctic Ocean summer sea ice. It did retreat considerably in 2007 but recovered somewhat in the following years. Sea ice has been increasing in the Antarctic. Accurate records of sea ice go back only to about 1972 when the satellite era began. The extent of Arctic sea ice depends on a variety of poorly understood influences, including atmospheric and ocean circulations that carry heat to the Arctic and precipitation that can change salinity and thus the freezing point of the water as well as the absorption of sunlight and transfer of heat on the surface of the ice pack. Claiming that current sea ice variations are a consequence of man-caused global warming is speculation, not science.

McKibben's organization, 350.org, claims that the concentration of carbon dioxide in the atmosphere must be rolled back to below 350 parts per million to avoid global disaster. There is nothing scientifically magical about that number 350.

McKibben is a dreamy romantic who rejects modern civilization and embraces kooky ideas. In McKibben's fantasy world, WalMart will be replaced by salt of the Earth small farmers selling their wares in church parking lots. For McKibben dreams are real. Facts or numbers exist to be manipulated to support the dreams. It is irresponsible for a science museum to give him credibility. McKibben is about dreams. Science is about facts and numbers. McKibben is well connected with some organs of elite opinion, writing not only for the *New Yorker*, but for the *Washington Post* and the *New York Review of Books* - publications that apparently share his dreams.

Computer Climate Models

The following display in the museum summarizes why global warming alarmists are predicting doom.

HOW DO WE KNOW?

Over the years, scientists have sampled the air and water to measure the amount of carbon dioxide they contain. All these data go into computer models of our planet's atmosphere and oceans. Some models show us what might happen as we cut emissions. In the worst-case scenario—if we do nothing—Earth will be facing a climate catastrophe before the end of the 21st century.

The display is correct when it says that we “know” because the computers tell us so. The basis of global warming alarmism is the output from giant computer models. A problem not widely advertised is that different computer models tell us different things. The 20 or so computer models used by the Intergovernmental Panel on Climate Change (IPCC) differ by more than 2-1 on the degree of warming that CO₂ will cause. There is no reason to think that the truth must lie between the warming predicted by the most optimistic and least optimistic computer model. Believing the models at all is an act of faith. Some people may be impressed by billion dollar computer models created by scientists. There are a lot of reasons not to be impressed.

The curators of the climate exhibit have taken care that no visitor will be confused by hearing the other side of the story. Nothing in the climate exhibit suggests that there is any doubt about global warming predictions or the “catastrophe” that it will cause. The computer models of the climate have around a million lines of code. This means that it is far beyond the ability of a human to really understand what is going on inside the models. Such huge models have an existence independent of the generations of scientists and programmers who

have worked on them. The reality is that the computer models can't be trusted to make predictions about the future, a judgement backed up by anonymous polls of climate scientists.² Nor can the models explain the past climate changes or create a modeled climate that resembles the climate of the present day Earth. As the distinguished scientist Kevin Trenberth, head of the climate analysis section at the National Center for Atmospheric Research (NCAR) said:

None of the models used by IPCC are initialized to the observed state and none of the climate states in the models correspond even remotely to the current observed climate. In particular, the state of the oceans, sea ice, and soil moisture has no relationship to the observed state at any recent time in any of the IPCC models.³

The computer models are little more than ornaments used to dress up and provide credibility for the "expert opinion" of scientists who are convinced that global warming will be a big problem.

California Burning?

The proselytizers of global warming are unanimous: global warming will cause more forest fires.⁴ It seems that global warming only causes bad things, never good things. Causation of forest fires is complicated. The display below says that there will be more forest fires because the landscape will dry out. But in California it doesn't rain in the summer so the landscape dries out every year. The fire suppression authorities frequently warn after a wet winter that the fire danger will be very high. Why? Because the wet winter encourages a lot of plant growth that will turn into potential fuel when it dries out. On the other hand, if the winter is dry the plants might dry out sooner and more thoroughly.

The website CO2science.org has a list of scientific papers that discuss this issue.⁵ The short summary is that evidence connecting forest fires with global warming is not impressive.

CALIFORNIA BURNING

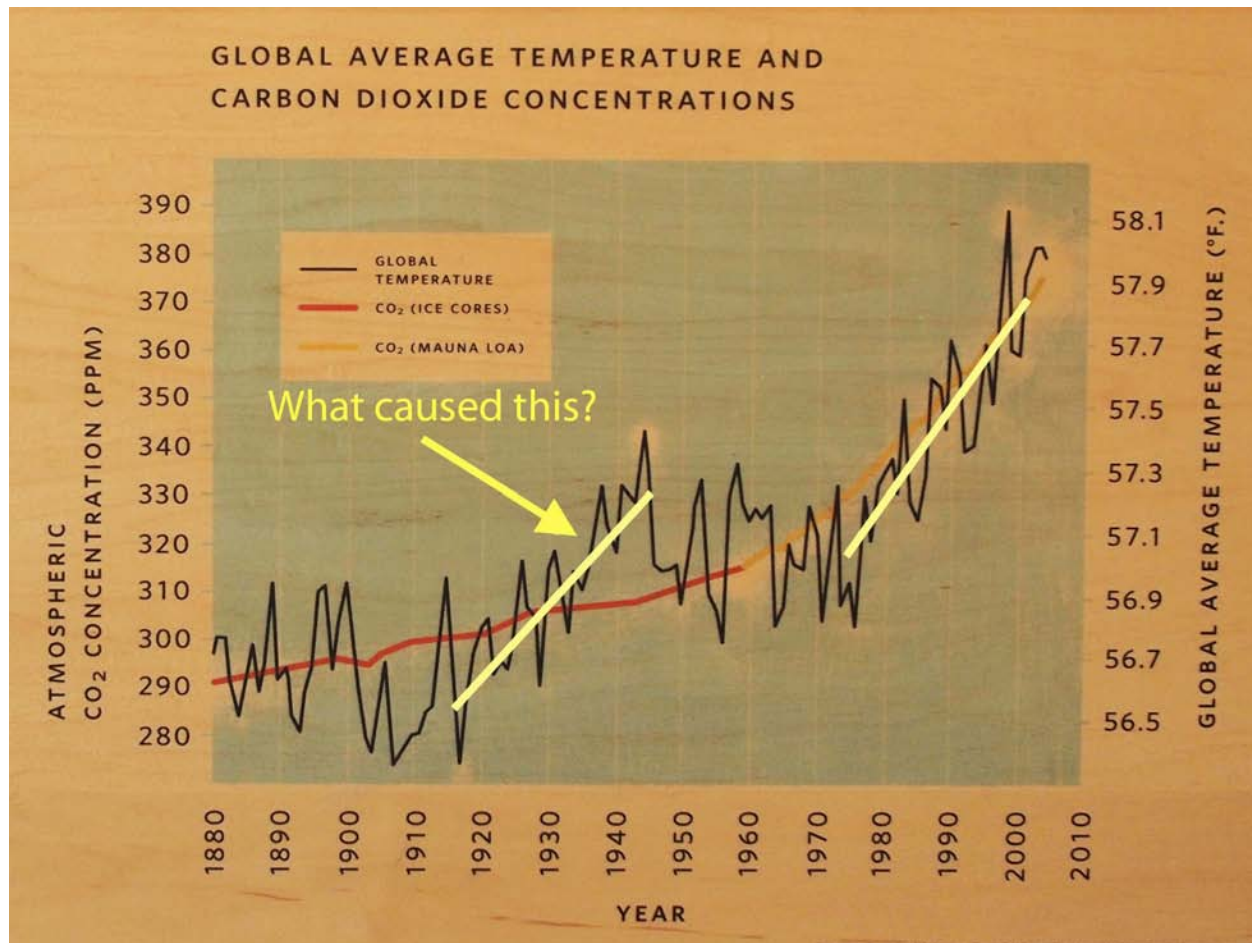
Wildfires rage across California every year. All they need are hot, dry conditions and a single spark to ignite them. These fires consume everything in their paths: forests, grasslands and homes.

As California's climate continues to warm, the landscape is drying out. Larger wildfires will almost certainly ravage more parts of the state. As they do, more wildlife habitats, delicate ecosystems and human homes will be destroyed.

The California Academy of Sciences explains how global warming will cause forest fires to ravage California.

A very big contradiction

The display below illustrates one of the biggest problems with the theory that CO₂ causes warming. I have added the yellow annotations.



The graph purports to show a close relationship between increases in CO₂ and global temperature from 1970 to the present.⁶ However a similar increase in global temperature took place in the early 20th century, from 1910 to 1940, when there was a negligible increase in CO₂. There are various theories as to what caused this early century warming, but no conclusive answer. The contradiction is the following: How do we know that the warming in the late century was not caused by the same unknown force that caused the warming in the early century, *instead of CO₂*? This contradiction is especially important because the claim that the late century warming was caused by CO₂ is what doctors call a *diagnosis of elimination*. The global warming authorities claim that CO₂ [and other greenhouse gases] must be causing the warming because they can't find any other cause for the warming.⁷ Well, they can't find the cause of the early century warming either.⁸ (If you are wondering why you can't see that global warming has stalled in recent years, it is because the graph ends in 2003 even though the exhibit was photographed in 2010.)

Climate is an angry beast?

The display below presents a well-known quote from the pioneering oceanographer / climate scientist Wallace Broecker.



Broecker has a long list of discoveries and awards to his credit. Broecker is worried about the effects of CO₂ on the climate but it is apparent that he is highly skeptical concerning climate models and the state of the so-called settled science. Here are some comments he made to a Canadian network.

Wallace Broecker: Our goal is to understand the Earth system and clearly we are moving forward in this. We are learning a lot all the time. We have a lot of people working on it and a lot of things are being learned. But I think we are also finding that the goal is receding faster than we are moving toward it, because we are realizing that things that we didn't think were

important are important and these things that we didn't think were important are also difficult to get a grip on.

CBCNews.ca: *That's a sobering thought.*

Broecker: Yes. It humbles you to study the Earth system because you realize that nature is really complicated. When we think that we can create a model in a computer that adequately replicates what's going on, we start to see, uh huh, we can't do that. A lot of what has happened in the past involved the ocean and we find more and more that the ocean is the cause for a lot of the confusion

Read more: <http://www.cbc.ca/technology/story/2008/11/18/f-savory-broecker.html#ixzz0xDcwrFBD>

It is clear that Broecker does not think that science understands the Earth's climate and he doesn't think that computer models are much help. If you accept Broecker then you have to accept that the IPCC and the climate scientists that use climate models for their predictions lack credibility. Broecker has an impregnable position due to his many accomplishments and thus can say what he thinks without fear of reprisal, even if he contradicts the IPCC and other important scientists. This is a luxury that most climate scientists don't have.

So, why is Broecker worried about CO₂ accumulation? It seems that he is worried because the study of past climates shows that at times climate makes rapid jumps from one state to another. Apparently he is worried that such a jump could be triggered by increased CO₂ but he does not have a well-founded analytic theory to support his worry. It seems that he is a supporter of the precautionary principle - that action should be taken as a precaution even if we're not sure that there is a problem.

He also has opinions on proposed measures for CO₂ control. He does not believe that restrictions on the use of fossil fuels or carbon sequestration at the point of use are practical or fair to the poor peoples of the world. Instead he favors a geo engineering approach, using devices to capture CO₂ from the atmosphere and sequester it, perhaps in the deep ocean.

The California Academy of Sciences quoted Broecker apparently without understanding his viewpoint. They wanted the catchy quote. The California Academy misses the point that Broecker has a view very different from the view presented in their exhibit. Broecker is skeptical concerning our understanding of climate and he disagrees with the approaches in the exhibit, such as abandoning fossil fuels in favor of alternative energy.

Ocean Warming?

The advocates of global warming have long had the problem that the Earth wasn't warming fast enough to be consistent with their prediction of the effect of CO₂ (and other greenhouse gases) on climate. The explanation has always been that the ocean is acting as drag on climate warming, because due to its massive size, it takes a lot of energy and a long time for it to catch up with the warming of the Earth. While it is catching up a flux of heat flows into the ocean, reducing the effect of global warming.



Measuring the heat stored in the ocean is a critical verification of the predictions of the climate models. Since the 1950's there has been a government supported program to measure the temperature of the

upper part of the ocean. The purpose of the program was actually to support the needs of submarine warfare, but it has also been used by climate science to generate information about ocean heat storage. The measurements are mostly made by dropping torpedo-like devices off of ships, mostly merchant ships. The device, called an expendable bathythermograph or XBT for short, falls through the water at a speed determined by its geometry and weight. It unwinds a wire behind it to transmit temperature information back to the ship. When it reaches the end of the wire, the wire breaks and the device falls to the abyss. The relationship between depth and temperature depends on the device falling at a known speed. Unfortunately the devices were made by different manufacturers and had slight differences that cause the data to be contaminated by the variations. The archived records are incomplete and it is difficult to correct the data. In order to accurately measure the heat content of the ocean and the trend over time it is necessary to average hundreds of thousands of measurements. The temperature of the ocean is highly variable due to seasonal change, north-south temperature gradients, and ocean currents. Because the XBT's were dropped off merchant ships, parts of the oceans, away from the trade routes are poorly covered. The deep ocean beyond 700 meters or so is mostly unreachable by XBT's. In spite of the problems with XBT's scientists were able to compile 50 years of ocean heat content and make a case, not without difficulty, that the ocean heat changes were consistent with the climate models. But by 2003 or 2004 a much better ocean heat content measurement system was deployed, the Argo system. This system employs about 3,000 robotic floats that drift in the oceans. The floats periodically submerge to measure the temperature profile and report the data collected by satellite radio. The much better Argo measurements have shown, so far, that the upper ocean is not warming.⁹ But after 30 or 40 years of global warming the ocean should be lagging well behind the atmosphere and ocean warming should be accelerating.

There are various ways to explain the recent lack of ocean warming. One possibility that is not popular, outside of skeptic circles, is that the climate models are over-estimating the warming that would result from CO₂ increases. Another possibility is that it may be that the time constant or lag that is associated with ocean warming is much shorter than previously supposed. In that case global warming is less because the ocean is no longer masking as much of the underlying global

warming by absorbing heat. Another, more questionable, idea is that perhaps the heat is hiding in the deep ocean. The favored explanation of the advocates of man-caused climate change is that chaotic variations are causing a temporary pause in warming. The longer the pause continues the less plausible this theory becomes. Eventually the long term trends should swamp chaotic variations. It does seem to be a suspicious coincidence that ocean warming just happened to pause at the same time a high quality monitoring system was deployed. Perhaps the ocean warming has been exaggerated in the past by instrumental problems.

The Kyoto Protocol?

The Kyoto treaty was not ratified by the United States for the very good reason that it was unfair to the United States. The U.S. senate expressed its disapproval by a 95-0 vote. The display below gives the California Academy's take on the kyoto treaty.

175 nations joined together to sign the Kyoto Protocol in 1997, pledging to reduce emissions below 1990 levels. Although the US refused to ratify the treaty, it created a framework for slowing growth of greenhouse gas emissions in other countries.

Kyoto also allowed wealthy nations to help finance smarter, low-CO₂ growth in developing nations by purchasing emission reduction credits.

190 nations took the process further with the climate roadmap of the Bali Plan in 2007, calling for 40 percent reductions by 2020.

The final plan, to be completed in December 2009, is expected to include commitments by both rich countries and developing nations, like China and India, to make deep cuts, not just slow the growth of CO₂ output.

It may seem remarkable that 175 nations signed up until you know that only wealthy nations were required to reduce their emissions. For many of the wealthy nations the protocol was effortless because many nations in Europe were

substituting natural gas for coal and natural gas emits less CO₂. Former communist nations were closing inefficient state owned industries and as a side effect reducing CO₂ emissions. The poor nations could expect what amounted to foreign aid from the wealthy nations. One of the few nations that would have actually experienced pain from the Kyoto Protocol was the United States.

The Academy's display above is out of date because the "final plan" to be completed in December 2009 actually collapsed and nothing significant was accomplished.

Professor Gwyn Prins of the London School of Economics in his article, *Time to ditch Kyoto: the sequel*, suggested that support for Kyoto was to some extent based on "deep seated anti Americanism often found in the current European policy elite." Professor Prins also reported that CFC-23, a chlorofluorcarbon greenhouse gas was specially manufactured in China so that it could be destroyed and the resulting carbon credits sold to the Europeans and Japanese. The sale of carbon credits is a scheme whereby if someone, for example, builds a wind farm in China they can get carbon credits for the CO₂ emissions avoided during the lifetime of the wind farm because someplace else less coal is burned to generate electricity. This is a transaction where both buyer and seller have an incentive to cheat. The buyer needs carbon credits - a piece of paper - to offset other emissions. The seller wants to generate the paper at the least actual expense.

Another strange aspect of Kyoto is that no carbon credits are allowed for building a nuclear generating plant. Nuclear plants don't generate CO₂ and displace fossil fuel burning once built. Carbon credits are disallowed for nuclear plants apparently because the environmental lobby doesn't like nuclear plants.

If all this does not make you suspicious of Kyoto, consider that if you work the math according to global warming doctrine, the CO₂ reductions generated by Kyoto are insufficient to have any significant effect on climate. It seems that the entire effort is symbolic or is a way for diplomats to have lots of meetings where noting of significance is accomplished.

California to run out of water?

The claim is often repeated that rising temperatures will create a water supply problem for California because the mountain snowpack will be diminished as more rain rather than snow falls during the winter and the snowpack melts sooner.

THE SIERRAS ARE WARMING

Climate change is warming much of the Sierra Nevada mountain range in California. Scientists predict warmer winters and less snowpack in the high altitudes. In some places, such as Yosemite National Park, the average temperature is already 5 degrees Celsius (9 degrees F.) warmer

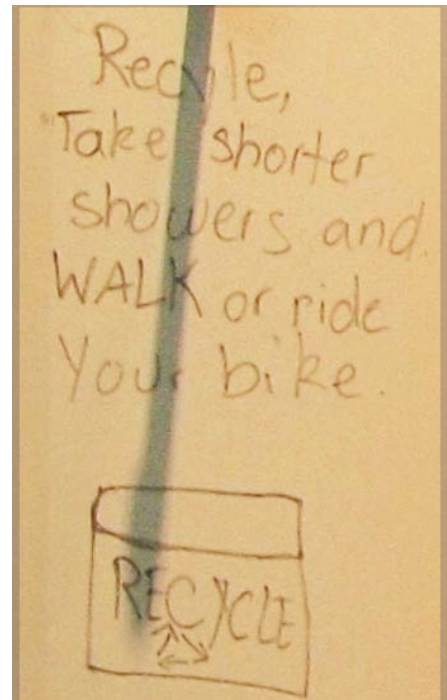
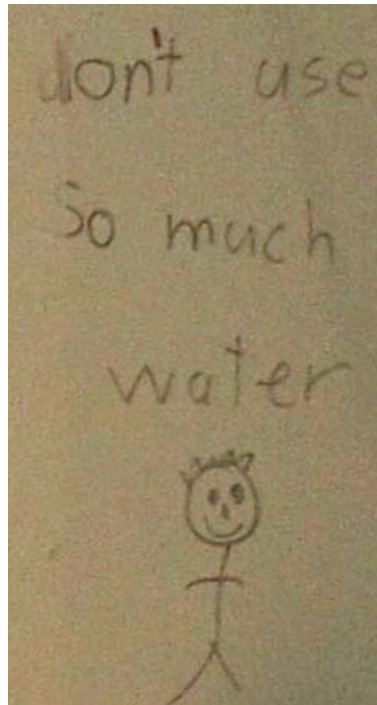
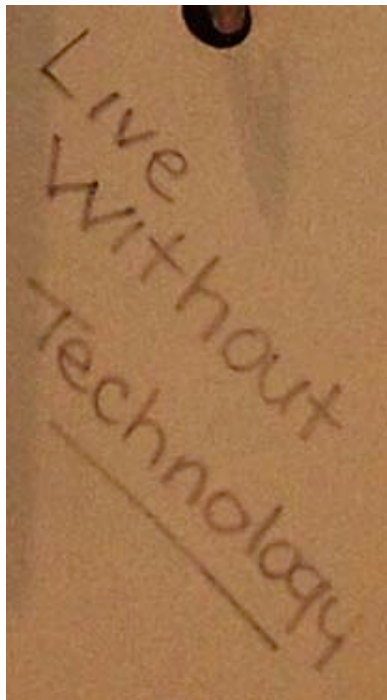
than a century ago. During the same time, temperatures in other high-elevation areas of California have risen 2.8 degrees Celsius (5 degrees F.). The effect on habitats and animals is unpredictable, but they are changing and disappearing before our eyes.

Two California scientists examined the history of the Sierra mountain snowpack given that temperatures had increased substantially during the last century. They discovered, contrary to computer models, that increased melting at lower altitudes was counter balanced by increased snowfall at higher altitudes resulting in little effect on the water supply due to higher temperatures.¹⁰ California climate and precipitation is quite variable and influenced by periodic climate oscillations such as the Pacific Decadal Oscillation and the El Nino Southern Oscillation. Apparently nature is not as delicate as some people think.

The Wailing Wall

Children are encouraged to write down their ideas on note cards and hang them on this wall. Children are credulous. It is easy to stuff their undeveloped minds with the propaganda of the day. There are a few, perhaps older children or adults, who write critical notes. Here are some typical notes:





At the real Wailing Wall (right) the messages are intended for God. In the California Academy of Sciences the messages are apparently only read by the other children.



Conclusion

I've given only a few examples of the distortions present in the California Academy of Sciences climate exhibit. One could easily write an entire book on the topic. The common theme behind the distortions seems to be a belief in an ideology that involves a simpler life style and a return to nature, but supported by our energy-intensive high-tech world. This is illustrated by Guy McPherson, a retired University of Arizona professor who moved to the country and enjoys a lifestyle described in his article *Time To Terminate Western Civilization Before It Terminates Us*:

He now lives in an off-grid, straw-bale house where he puts into practice his lifelong interest in sustainable living via organic gardening, raising small animals for eggs and milk, and working with members of his rural community.¹¹

Of course one presumes that a pension from the university makes his idyllic lifestyle possible and that it pays for his high tech appliances like a car, the Internet, and solar electric power. If he gets sick he probably won't be calling a shaman.

Like Bill McKibben perhaps we should do some renaming and call the California Academy of Sciences the *California Academy of Junk Sciences*. Why has objectivity been thrown aside in favor hysterical, one-sided, doomsday prognostications? Given the Academy's treatment of climate I would certainly not believe anything they say about *anything*, without some independent verification. The Academy insists on giving us lessons in sustainability, alternative energy, recycling and other politically correct green behavior. If you don't want to be a target for this propaganda I suggest skipping the class and saving the \$25 admission fee.

For more information on global warming: <http://www.climateviews.com>

¹ For example Los Angeles International Airport reached only 67 degrees on July 9, 2010 breaking the previous cold record set in 1926. On August 15th KCBS, the San Francisco radio station reported that crops were ten days to two weeks¹ behind schedule due to cool summer weather.

² See: Scientific Consensus on Global Warming Results of an International Survey of Climate Scientists By Joseph Bast and James Taylor. Heartland Institute. 2/3 of climate scientists doubt the ability of computer models to predict future climate. http://www.heartland.org/policybot/results/20861/Scientific_Consensus_on_Global_Warming.html

³ Trenberth's remarks from the Nature blog climate feedback on June 4, 2007. The full remarks are at: http://blogs.nature.com/climatefeedback/2007/06/predictions_of_climate.html. Trenberth is an open minded scientist but an establishment insider rather than a global warming skeptic. For a rare debate on the issue see the discussion between Trenberth and William Gray carried in the Fort Collins, CO Forum and available at: http://www.cgd.ucar.edu/cas/Trenberth/XchangeGray_FtCollinsFeb08.pdf

⁴ See Global Warming: Early Warning Signs a statement by 7 major environmental organizations. <http://www.climatehotmap.org/>

⁵ <http://www.co2science.org/subject/f/firegw.php>

⁶ Technically the graph should relate climate forcing that is proportional to the log of the CO2 concentration to the temperature. However the difference in this case is minor.

⁷ From the IPCC 2007 scientific report, section 9.4.1.2 Simulations of the 20th Century: "The fact that climate models are only able to reproduce observed global mean temperature changes over the 20th century when they include anthropogenic forcings, and that they fail to do so when they exclude anthropogenic forcings, is evidence for the influence of humans on global climate." See also figure 9.5 in the same report for a graphic example.

⁸ Sometimes it is claimed that an increase in solar activity caused the early century warming. This claim is highly speculative.

⁹ Robust Warming of the Global Upper Ocean by John M. Lyman et. al. Nature 20 May 2010. The title is somewhat misleading since the ocean has not warmed at all for 6 years and the prior warming may be the result of measurement bias.

¹⁰ Howat, I. M., and S. Tulaczyk (2005), Climate sensitivity of spring snowpack in the Sierra Nevada, J. Geophys. Res., 110, F04021, doi:10.1029/2005JF000356.

¹¹ <http://www.countercurrents.org/mcpherson180810.htm>