Scare Mongering as Journalism:
A Commentary on *Time*'s "Special Report" on Global Warming
(Revised April 28, 2006[*])

By Marlo Lewis

I. Introduction

The cover of *Time* magazine's April 3, 2006 issue tells readers to "be *very* worried" about climate change. The issue features a "special report" on global warming. The cover shows a polar bear on a patch of ice amidst much water and many smaller patches, conveying the impression that the bear's habitat is literally melting away.

True to its sensationalistic cover, *Time*'s special report is not a "report" but a diatribe—one-sided advocacy from start to finish. Scientists who take a non-alarmist view of global warming do not get a word in edgewise. Neither do economists who view the costs of regulatory climate policies as out of all proportion to their benefits, if any. *Time*, one of the world's most respected news magazines, is now pushing activism in the guise of news.

This paper presents a running commentary on *Time*'s special "report." It reproduces *Time*'s entire article in a series of indented segments, and comments on each segment in turn. Many of the comments feature links to supporting literature.

II. Commentary

> ***Time*:** No one can say exactly what it looks like when a planet takes ill, but it probably looks a lot like Earth. Never mind what you've heard about global warming as a slow-motion emergency that would take decades to play out. Suddenly and unexpectedly, the crisis is upon us.

Comment: A sick *planet*? Such anthropomorphism is the stuff of political rhetoric, not science. But even as a metaphor, it doesn't work, because too many key economic, health, and environmental indicators show dramatic improvement. World GDP has more

[*] Comments on species and loss and hurricanes have been revised for accuracy.

than doubled since 1970. World population has more than doubled since 1950. Human life expectancy has increased by 41 percent globally since 1950/55, and by almost 45 percent in developing countries. In 2000, global per capita food production was 23 percent higher than in 1961, and food cost only about one-third as much. In the United States, emissions of the six principal air pollutants fell dramatically during three-plus decades of rapid growth in GDP, vehicle miles traveled, energy consumption, and population—and the continuing air quality improvement is virtually unstoppable. *Time* seems to have developed a case of eco-hypochondria.

> ***Time*:** It certainly looked that way last week as the atmospheric bomb that was Cyclone Larry—a Category 5 storm with wind bursts that reached 180 m.p.h.—exploded through northeastern Australia. It certainly looked that way last year as curtains of fire and dust turned the skies of Indonesia orange, thanks to drought-fueled blazes sweeping the island nation. It certainly looks that way as sections of ice the size of small states calve from the disintegrating Arctic and Antarctic. And it certainly looks that way as the sodden wreckage of New Orleans continues to molder, while the waters of the Atlantic gather themselves for a new hurricane season just two months away. Disasters have always been with us and surely always will be. But when they hit this hard and come this fast—when the emergency becomes commonplace—something has gone grievously wrong. That something is global warming.

Comment: Disasters have always hit hard and frequently. The difference is not in the state of the climate but in our perceptions, which are shaped by the media's non-stop coverage of natural disasters all over the world. Hurricanes and drought have been around for millennia, but there was a time when most Americans would never see an image of hurricane devastation in Australia or hear reports of fires in Indonesia. *Time* implies that the destruction wrought by Katrina was somehow due to global warming. The National Oceanic and Atmospheric Administration (NOAA), on the other hand, attributes the recent upsurge in Atlantic basin hurricane activity to a natural multi-decadal cycle. As for the calving of icebergs, that process too was commonplace before television brought it into our living rooms, but there was less hype. An iceberg the size of a "small state" sounds much scarier than an iceberg one eighty-ninth the size of Texas—an equally accurate description.

> ***Time*:** The image of Earth as organism—famously dubbed Gaia by environmentalist James Lovelock—has probably been overworked, but that's not to say the planet can't behave like a living thing, and these days, it's a living thing fighting a fever.

Comment: Animism—like anthropomorphism—has no place in science. Ironically, though, the Gaia conceit cuts both ways. If the Earth were a living organism, then it would have internal mechanisms to keep it in balance when perturbed by external forces. MIT physicist Richard Lindzen and his colleagues may have discovered such a mechanism, a negative cloud feedback effect they call an "adaptive infrared iris." In a nutshell, as the ocean surface warms in the tropics, heat-trapping cirrus cloud cover

shrinks relative to sunlight-reflecting cumulus cloud cover, allowing more heat to escape into space. Paradoxically, as Lindzen hints elsewhere, it is climate alarmists who reject the Gaia concept, because they "assume a poorly designed Earth which responds to perturbations by making them worse."

> ***Time*:** From heat waves to storms to floods to fires to massive glacial melts, the global climate seems to be crashing around us. Scientists have been calling this shot for decades. This is precisely what they have been warning would happen if we continued pumping greenhouse gases into the atmosphere, trapping the heat that flows in from the sun and raising global temperatures.

Comment: Journalistic standards are "crashing around us" when *Time* can "report" on climate in such apocalyptic terms. Since 1976, the world has warmed at a remarkably constant—and non-alarming—rate of 0.17ºC per decade. *Time* does not explain—because no one can—how so modest a warming could produce catastrophic impacts in 50 to 100 years, much less today. The proposition that all global warming is due to greenhouse gas emissions is highly dubious. Researchers at Duke University estimate that "the sun contributed 45-50 percent of the 1900-2000 global warming and 25-35 percent of the 1980-2000 global warming."

> ***Time*:** Environmentalists and lawmakers spent years shouting at one another about whether the grim forecasts were true, but in the past five years or so, the serious debate has quietly ended.

Comment: Grim forecasts are based on numerous assumptions—about the climate's "sensitivity" to "forcing" (perturbation) by greenhouse gas emissions, about the extent of natural climate variability, about the sign (positive or negative) and strength of climate feedback mechanisms, about the role of other "radiative" gases (such as aerosols), and—the biggest inkblot of all—about how economies and energy technologies will develop during the latter half of the 21st century. The debate about these topics rages on.

> ***Time*:** Global warming, even most skeptics have concluded, is the real deal, and human activity has been causing it.

Comment: That greenhouse gas emissions add heat energy to the climate system and are bound to warm the planet to some extent has never been in doubt. The real question is how much the climate will warm, how fast, and with what effects. That remains the subject of intense inquiry and debate. Temperature data show that most of the warming is concentrated in Siberia and Northwest North America during the winter months. The main incontrovertible effect of global warming to date is that it has made those severely cold regions slightly less lethal to people and other living things.

> ***Time*:** If there was any consolation, it was that the glacial pace of nature would give us decades or even centuries to sort out the problem. But glaciers, it turns out, can move with surprising speed, and so can nature. What few people reckoned on was that global climate systems are booby-trapped with tipping

> points and feedback loops, thresholds past which the slow creep of environmental decay gives way to sudden and self-perpetuating collapse. Pump enough CO2 into the sky, and that last part per million of greenhouse gas behaves like the 212th degree Fahrenheit that turns a pot of hot water into a plume of billowing steam.

Comment: Stress any system too much, and it will collapse. That too has never been in doubt. *Time*, however, claims we have already placed the last straw on the camel's back—or reached the boiling point—or are on the verge of doing so. That is baseless conjecture, not science.

> ***Time*:** Melt enough Greenland ice, and you reach the point at which you're not simply dripping meltwater into the sea but dumping whole glaciers. By one recent measure, several Greenland ice sheets have doubled their rate of slide, and just last week the journal *Science* published a study suggesting that by the end of the century, the world could be locked in to an eventual rise in sea levels of as much as 20 ft. Nature, it seems, has finally got a bellyful of us.

Comment: *Time* engages in cherry picking. It refers to a paper in *Science* by Eric Rignot of NASA and Pannir Kanagaratnam of the University of Kansas, who found that Greenland's coastal glaciers are melting at a rapidly increasing rate. However, *Time* ignores another paper in *Science* by Ola Johannessen of the Nansen Environmental and Remote Sensing Center in Bergen, Norway, who found that ice is accumulating on Greenland's interior glaciers. The two studies combined argue against alarm. As University of Virginia climatologist Patrick Michaels explains, if Rignot and Kanargatnam had subtracted Johannessen's reported gains from their reported losses, "the total volume of ice loss from Greenland would only have become positive during the last 5 years, totaling 17km3 in 2000 and 92km3 in 2005. This translates to a sea level rise contribution of 0.04mm in 2000 and 0.23mm in 2005—values much less dramatic than those they published." Indeed, at the 2005 rate, Greenland ice melt will contribute less than *one inch* to sea level rise during the 21st century.

Also, it is far from clear that all or most of Greenland's coastal ice melt is due to global warming. As Michaels points out, around 1995, the Atlantic Multi-decadal Oscillation (AMO) shifted into its positive (warming) phase. The AMO has alternately warmed and cooled sea surface temperatures for centuries. Both the AMO and the temperature in southern Greenland were higher in the 1930s and 1940s, before the major buildup in atmospheric greenhouse gases, than they are today, as figures below show:

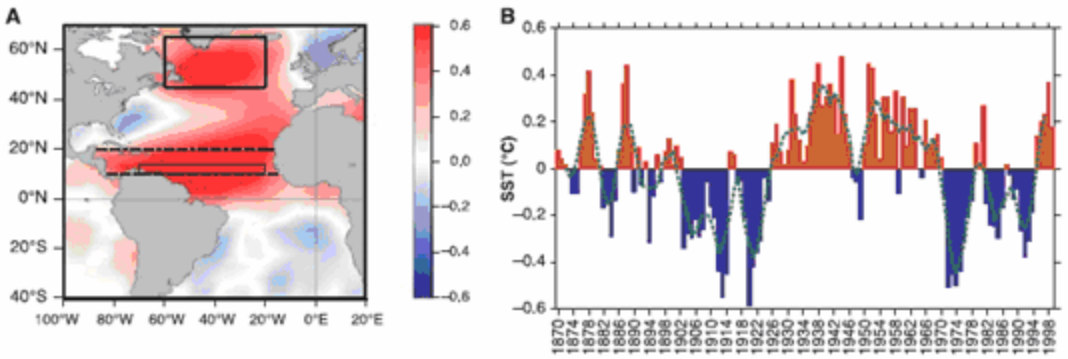


Figure 1a. The relationship (correlation) between Atlantic sea surface temperatures and the AMO index; Figure 1b. The history of the AMO index since 1870 (source: Goldenberg, et al., 2001).

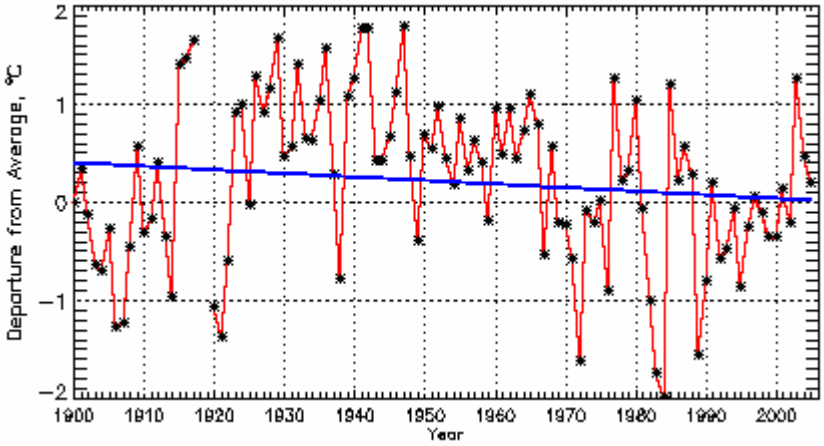


Figure 2. Temperature history from the southern portion of Greenland (source: http://www.ncdc.noaa.gov/gcag/gcag.html#HERE)

> ***Time*:** "Things are happening a lot faster than anyone predicted," says Bill Chameides, chief scientist for the advocacy group Environmental Defense and a former professor of atmospheric chemistry." The last 12 months have been alarming." Adds Ruth Curry of the Woods Hole Oceanographic Institution in Massachusetts: "The ripple through the scientific community is palpable."

Comment: Hold the presses: Environmental Defense is *very* worried about global warming!

> ***Time*:** And it's not just scientists who are taking notice. Even as nature crosses its tipping points, the public seems to have reached its own.

Comment: There is still no broad-based support in the United States for regulatory controls on fossil energy. That is why the Senate rejected the Kyoto Protocol-inspired McCain-Lieberman Climate Stewardship Act by 60-38 in June 2005. The absence of a

political "tipping point" also explains why Senate Energy Committee Chairman Pete Domenici (R-N.M.) has decided not to introduce greenhouse gas control legislation in 2006.

> ***Time*:** For years, popular skepticism about climatological science stood in the way of addressing the problem, but the naysayers—many of whom were on the payroll of energy companies—have become an increasingly marginalized breed.

Comment: The so-called naysayers—more accurately, non-alarmists—are a hardy breed, and their ranks include many respected scientists, several dozen of which recently argued in a letter to Canadian Prime Minister Stephen Harper that, "If, back in the mid-1990s, we knew what we know today about climate, Kyoto would almost certainly not exist, because we would have concluded it was not necessary."

More importantly, if *Time* is going to discuss economic motives, then it should do so across the board, not selectively to discredit one side. Global warming alarmism is the bread and butter of a host of special interests. The perception that global warming is something to be "very worried" about is the *sine qua non* of billions of dollars in annual government contracts to researchers and universities, and millions of dollars in annual direct mail contributions to eco-activist groups. Insurance companies like Swiss Re profit from spreading alarm, because it gives them a convenient pretext to raise the premiums they charge to cover weather-related damages. "News" magazines like *Time* profit from spreading alarm, because scary stories and scarier covers sell copy.

In addition, many companies hope to profit from the regulatory constraints of a carbon-rationed economy. Carbon controls boost the market shares of companies that produce "alternative fuels," generate electricity from low- and non-carbon fuels, or manufacture high-end (ultra-energy efficient) appliances. Moreover, a cap-and-trade system is essentially a carbon cartel. It sets OPEC-like production quotas—in the form of emission allowances or credits—for all fossil fuels rather than just oil. By restricting the supply and raising the price of fossil energy, cap-and-trade creates windfalls for the lucky holders of carbon emission credits. That is why companies with a flair for illegal market manipulation—for example, Enron, American Electric Power, Cinergy, Entergy, and Calpine—have been among the most aggressive lobbyists for the Kyoto Protocol or kindred emission trading schemes. Last but not least, cap-and-trade vastly expands government control over the economy, fueling regulatory agencies' budget and staff growth.

In short, there are special interests on both sides of the climate policy debate, even as there are scientists and idealists on both sides. *Time* presents a childish caricature rather than balanced news for adults.

> ***Time*:** In a new *Time*/ ABC News/ Stanford University poll, 85% of respondents agree that global warming probably is happening. Moreover, most respondents say they want some action taken. Of those polled, 87% believe the government

should either encourage or require lowering of power-plant emissions, and 85% think something should be done to get cars to use less gasoline.

Comment: Most people don't study climate science but they've heard repeatedly that global warming is bad. Understandably, they want Congress to "do something." But most also want Congress to do something about the high cost of gasoline, heating oil, and natural gas. Kyoto-style energy rationing would make those fuels scarcer and more expensive. A Congress that imposed a carbon retail sales tax on top of current federal and state gasoline taxes would make a lot of constituents angry; ditto a Congress that taxed the carbon content of heating oil and natural gas. Public opinion on these matters is still inchoate and confused. No political "tipping point" has been crossed.

> ***Time*:** Even Evangelical Christians, once one of the most reliable columns in the conservative base, are demanding action, most notably in February, when 86 Christian leaders formed the Evangelical Climate Initiative, demanding that Congress regulate greenhouse gases.

Comment: Is *Time* simply incapable of presenting both sides of a story? Another group of 22 Evangelical leaders sent a letter urging the National Association of Evangelicals not to adopt "any official position" on global climate change because "Bible-believing evangelicals...disagree about the cause, severity and solutions to the global warming issue." Heeding this letter, NAE declined to take an official position.

> ***Time*:** A collection of new global-warming books is hitting the shelves in response to that awakening interest, followed closely by TV and theatrical documentaries. The most notable of them is *An Inconvenient Truth*, due out in May, a profile of former Vice President Al Gore and his climate-change work, which is generating a lot of prerelease buzz over an unlikely topic and an equally unlikely star. For all its lack of Hollywood flash, the film compensates by conveying both the hard science of global warming and Gore's particular passion.

Comment: The books and documentaries are the work of activists who, as such, attempt to create public opinion, not merely respond to it. Recall that Gore published *Earth in the Balance* in 1992—long before the alleged "awakening interest" to which *Time* links his current venture.

> ***Time*:** Such public stirrings are at last getting the attention of politicians and business leaders, who may not always respond to science but have a keen nose for where votes and profits lie. State and local lawmakers have started taking action to curb emissions, and major corporations are doing the same. Wal-Mart has begun installing wind turbines on its stores to generate electricity and is talking about putting solar reflectors over its parking lots. HSBC, the world's second largest bank, has pledged to neutralize its carbon output by investing in wind farms and other green projects. Even President Bush, hardly a favorite of greens, now acknowledges climate change and boasts of the steps he is taking to fight it.

> Most of those steps, however, involve research and voluntary emissions controls, not exactly the laws with teeth scientists are calling for.

Comment: Yes, most of those steps involve research and voluntary measures. California and the Northeast states are implementing regulatory approaches, but those states are home to some of the nation's most "progressive" politicians, so no surprise there. The really big story, to which *Time* does not even allude, is that the Kyoto Protocol is imploding. Most European Union (EU) countries are not on track to meet their Kyoto targets even though, compared to the United States, the EU has the dubious advantage of low birth rates, stagnant economies, and punitive gasoline taxes. Even Britain emits more CO2 today than it did in 1990, the Kyoto baseline year, notwithstanding the UK electric sector's switch from coal to natural gas under Margaret Thatcher. The Canadian government's commitment to implement Kyoto is in doubt. The Montreal Kyoto conference in December 2005 effectively gutted the penalties for non-compliance that conferees adopted at Marrakech in 2001.

> ***Time*:** Is it too late to reverse the changes global warming has wrought? That's still not clear. Reducing our emissions output year to year is hard enough. Getting it low enough so that the atmosphere can heal is a multigenerational commitment. "Ecosystems are usually able to maintain themselves," says Terry Chapin, a biologist and professor of ecology at the University of Alaska, Fairbanks. "But eventually they get pushed to the limit of tolerance."

Comment: "Healing"? *Time* again animates the inanimate in a column ostensibly about science. Getting emissions low enough so that natural "sinks" such as forests and oceans continually remove more CO2 from the atmosphere than mankind emits will depend far less on political "commitments" than on unforeseen technological breakthroughs and market dynamics. The fatal flaw in Kyoto-style approaches, even assuming global warming is a serious problem, is that we do not know how to meet global energy needs *and* reduce aggregate emissions. Global energy demand could triple by 2050. Yet, as one group of experts put it, "Energy sources that can produce 100 to 300% of present world power consumption without greenhouse gas emissions do not exist operationally or as pilot plants." *Time* might have mentioned that the former Soviet Union and Eastern Europe are the only regions to achieve significant greenhouse gas emission reductions since 1990. Their secret: economic collapse.

CO2 AND THE POLES

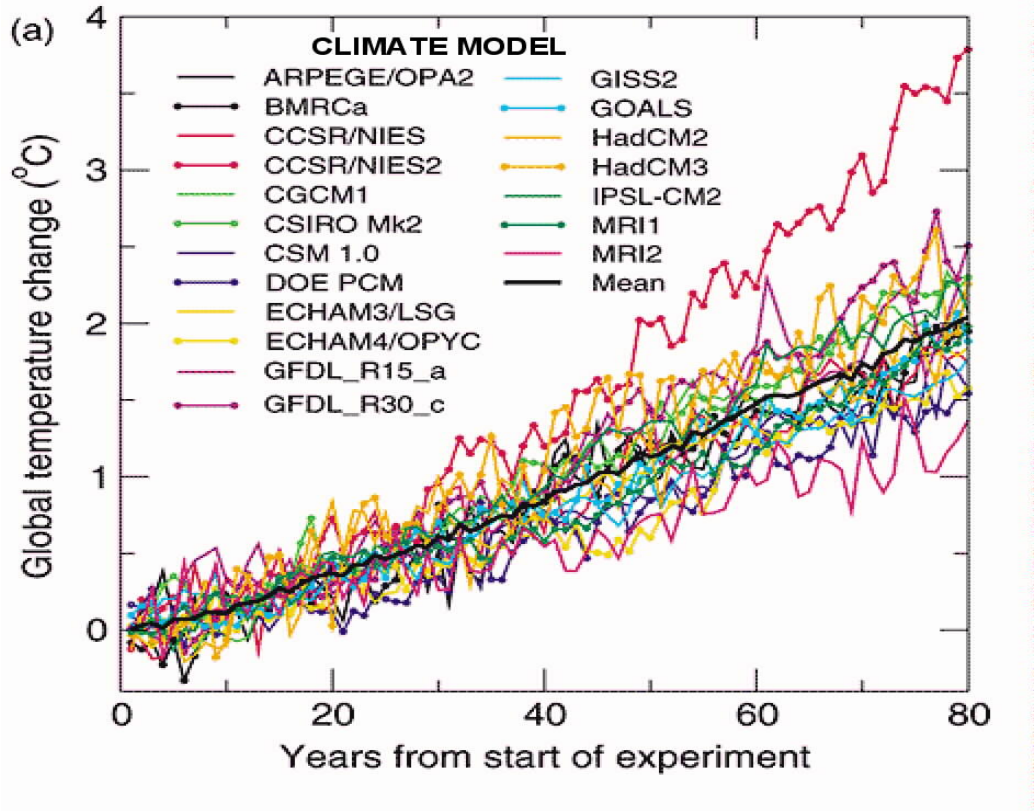
> ***Time*:** As a tiny component of our atmosphere, carbon dioxide helped warm Earth to comfort levels we are all used to. But too much of it does an awful lot of damage. The gas represents just a few hundred parts per million (p.p.m.) in the overall air blanket, but they're powerful parts because they allow sunlight to stream in but prevent much of the heat from radiating back out. During the last ice age, the atmosphere's CO2 concentration was just 180 p.p.m., putting Earth into a deep freeze. After the glaciers retreated but before the dawn of the modern era, the total had risen to a comfortable 280 p.p.m.

Comment: *Time* claims that falling CO2 levels initiated the last glaciation, and implies that rising CO2 levels ended it. On the contrary, changes in global temperature preceded changes in the air's CO2 content. *Time* has the causality backwards. When ocean temperatures fall, sea-water retains more dissolved CO2, and the expansion of polar sea ice further limits sea-to-air CO2 flux. The reverse happens when the oceans warm. At most, changes in the air's CO2 content had an amplificatory effect on climate changes already under way.

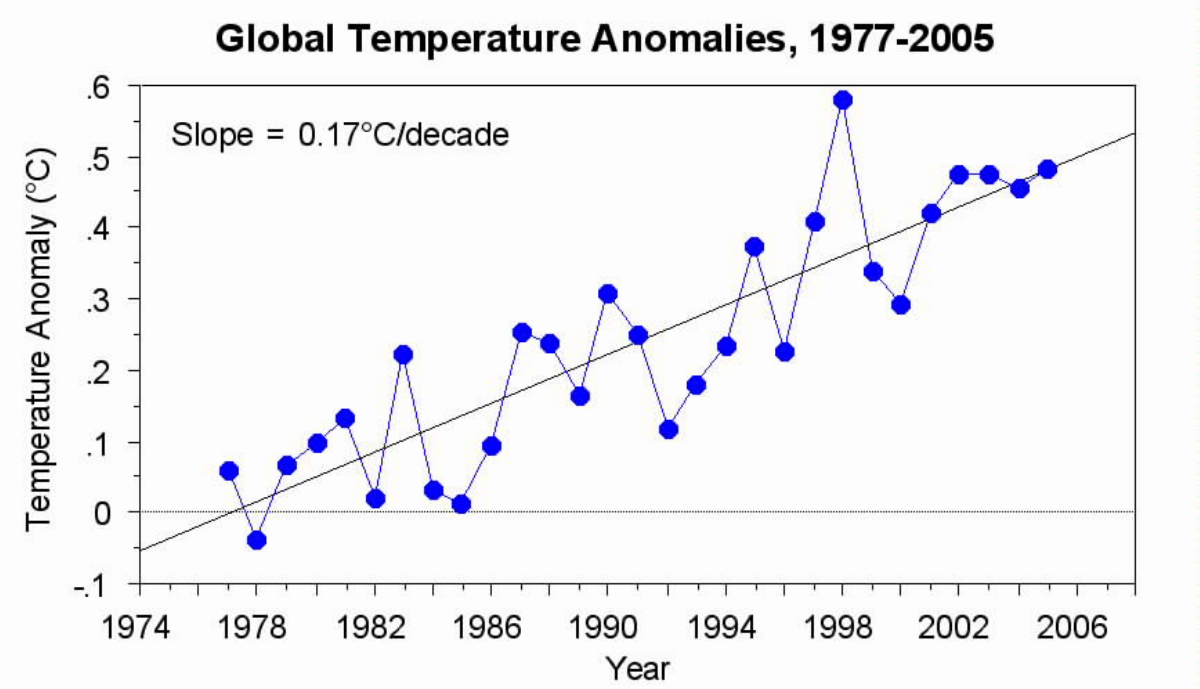
> ***Time*:** In just the past century and a half, we have pushed the level to 381 p.p.m., and we're feeling the effects. Of the 20 hottest years on record, 19 occurred in the 1980s or later. According to NASA scientists, 2005 was one of the hottest years in more than a century.

Comment: These statements are correct but *Time*'s interpretation of them is spin. The "record" to which *Time* refers is the instrumental record, which only goes back, in the United States, to about 1880. In the late 19th century, the world began to emerge from a relatively cold period known as the Little Ice Age. As mentioned earlier, as much as 50 percent of the warming since then may be due to solar variability. Preceding the Little Ice Age was a period known as the Medieval Warm Period. The most thorough survey of the literature found that, during the Medieval Warm Period, "it was possible to identify a 50-year period in which temperatures were warmer than any 50-period in the 20th century in most of the locations of climate proxies." Data from ice cores also indicate that the preceding four inter-glacial periods (the periods between glaciations) were warmer than the one in which we are now living. For example, Francis et al. (2006) found that summertime temperatures in the Canadian Arctic were 5-10ºC higher during the previous interglacial than they are today. How on earth did the planet survive those traumas?

Consider also that even though 2005 was the hottest year in the instrumental record, it falls exactly on the non-alarming 0.17ºC per decade trend-line of the past 30 years. This constant—as opposed to accelerating—rate of warming, observes Michaels, "is by and large the same behavior that the vast majority of climate models predict the Earth's temperature will display when forced with ever increasing amounts of carbon dioxide." The figure below, taken from p. 537 of the United Nationls Intergovernmental Panel on Climate Change Third Assessment Report, shows the trend lines—all but one non-accelerating—of 19 leading climate models.



If the "consensus" among climate models in favor of linear (non-accelerating) warming is correct (and if it isn't, climate models are not reliable enough to guide policymakers anyway), then we are probably in store for about 1.7ºC of warming in the 21st century. Those models in general do project more than 1.7ºC of warming. But as Michaels points out, the models assume that CO2 levels will increase by 1 percent annually, whereas the observed growth rate since 1975 is less than half that value, about 0.45 percent per year. Therefore, we should expect a warming rate that is not only non-accelerating but also lower than most models project. As it turns out, a moderate, constant rate of warming is exactly what we find in the instrumental record (see figure below).



Should we be "very worried" about a 21st century warming of 1.7ºC warming? No. Economic research indicates that a warming of that magnitude would likely have small net benefits for an advanced industrial economy like that of the United States. Developing countries are not expected to fare as well—but that is an additional reason why economic growth should be their top priority and why they cannot afford to adopt Kyoto-like controls on energy use.

> ***Time*:** It's at the North and South poles that those steam bath conditions are felt particularly acutely, with glaciers and ice caps crumbling to slush.

Comment: The poles should not be lumped together. Large areas of Antarctica cooled during the late 20th century. Also, some portion of Arctic ice thinning since the late 1980s is due to changes in wind patterns and air pollution (black carbon or soot, about which, more below). Various temperature records indicate that in the 1930s and 1940s, prior to the major buildup of greenhouse gases, Arctic temperatures equaled or exceeded those of the late 20th century. There is also evidence that about 5,000 years ago, western Arctic sea surface temperature in August was 3-7ºC warmer than it is today. If Arctic temperatures vary by so much naturally, how can *Time* be sure that all or most of today's Arctic warming is due to CO2 emissions?

> ***Time*:** Once the thaw begins, a number of mechanisms kick in to keep it going. Greenland is a vivid example. Late last year, glaciologist Eric Rignot of the Jet Propulsion Laboratory in Pasadena, Calif., and Pannir Kanagaratnam, a research assistant professor at the University of Kansas, analyzed data from Canadian and European satellites and found that Greenland ice is not just melting but doing so more than twice as fast, with 53 cu. mi. draining away into the sea last year alone,

compared with 22 cu. mi. in 1996. A cubic mile of water is about five times the amount Los Angeles uses in a year.

Comment: As mentioned above, the mid-1990s shift in the AMO from negative to positive explains much if not all of Greenland's coastal ice melt, and because the country's interior glaciers are gaining mass, the net impact on sea level rise is negligible—less than one inch per century at the current rate.

> ***Time*:** Dumping that much water into the ocean is a very dangerous thing. Icebergs don't raise sea levels when they melt because they're floating, which means they have displaced all the water they're ever going to. But ice on land, like Greenland's, is a different matter. Pour that into oceans that are already rising (because warm water expands), and you deluge shorelines. By some estimates, the entire Greenland ice sheet would be enough to raise global sea levels 23 ft., swallowing up large parts of coastal Florida and most of Bangladesh. The Antarctic holds enough ice to raise sea levels more than 215 ft.

Comment: While Antarctica may hold the equivalent of 215 ft. of sea water, the pertinent question is how much sea level rise is likely to occur in the policy-relevant future. Zwally et al. (2005) used satellite altimetry data to examine ice mass changes in Greenland, East Antarctica, and West Antarctica during 1992-2002. They found a combined sea-level-equivalent ice-loss rate of 0.05 millimeters per year. At that rate, observes CO2Science.org, "it would take a full millennium to raise global sea level by just 5 cm, and it would take fully 20,000 years to raise it a single meter."

FEEDBACK LOOPS

> ***Time*:** One of the reasons the loss of the planet's ice cover is accelerating is that as the poles' bright white surface shrinks, it changes the relationship of Earth and the sun. Polar ice is so reflective that 90% of the sunlight that strikes it simply bounces back into space, taking much of its energy with it. Ocean water does just the opposite, absorbing 90% of the energy it receives. The more energy it retains, the warmer it gets, with the result that each mile of ice that melts vanishes faster than the mile that preceded it.
>
> That is what scientists call a feedback loop, and it's a nasty one, since once you uncap the Arctic Ocean, you unleash another beast: the comparatively warm layer of water about 600 ft. deep that circulates in and out of the Atlantic. "Remove the ice," says Woods Hole's Curry, "and the water starts talking to the atmosphere, releasing its heat. This is not a good thing."

Comment: *Time* implies that any change in Arctic ice cover and the region's albedo (reflectivity) can only lead to further changes of the same kind. Climate history suggests otherwise. For centuries, Arctic ice cover has alternately expanded and contracted along with shifts in the AMO, and the amplificatory effects have not disrupted or suspended the underlying cycle. Francis et al. (2006) found that peak temperatures in the Canadian

Arctic were higher during the first half of the Holocene (the present climate era) than they are today. Yet despite the changes in albedo that must have occurred, temperatures declined since the mid-Holocene.

Recent research by NASA's Dorothy Koch and James Hansen, the scientist whose 1988 congressional testimony launched the global warming scare, indicates that the chief threat to Arctic ice is not greenhouse gas emissions but black carbon (BC), the soot formed by incomplete fossil fuel combustion and biomass burning. By darkening the ice, BC directly changes its albedo, making the snow less reflective so that it absorbs more warming radiation from the sun. Koch and Hansen find that, during the past three decades, BC deposition in the Arctic better explains the spatial and temporal patterns of Arctic ice loss than do computer model projections of CO2 impacts:

> This recent decrease [in sea ice thickness and extent] is greatest in spring and fall and occurs in the western Arctic (western North America and Siberia). These observations defy recent modeling efforts, which show the largest impact of increased CO2 on the Arctic winter rather than summer (MacDonald et al., 2003). The pattern of sea ice loss is believed to be linked to the phase of the AO [Arctic Oscillation] (MacDonald et al., 2003). However it is interesting that these decades correspond to the increases in BC from south Asia, and that this BC is transported over the Pacific and into the western Arctic, during summer as well as spring. Prior to this, sea ice also decreased during the 1930s–1940s. However this occurred during winter in the eastern part of the Arctic. Again it is interesting to note that during this earlier period, pollution from coal burning in the United States, Europe and Russia (Novakov et al., 2003) would have been transported to the Arctic during winter-spring, and the Eurasian sources would deposit heavily in the eastern Arctic.

If black carbon is the chief anthropogenic threat to Arctic ice, then alarm about global warming distracts the public from a more pressing—but also more manageable—problem. As Patrick Michaels explains, "That soot emissions are much more readily controlled than carbon dioxide emissions argues that the most effective strategies in slowing Arctic climate change is through control of black carbon. In the U.S. and in many other technologically advanced countries, air pollution measures targeting soot are already in place, and more are being proposed. According to Koch and Hansen, the culprits lie in the less technologically-developed countries."

> ***Time*:** A similar feedback loop is melting permafrost, usually defined as land that has been continuously frozen for two years or more. There's a lot of earthly real estate that qualifies, and much of it has been frozen much longer than two years—since the end of the last ice age, or at least 8,000 years ago. Sealed inside that cryonic time capsule are layers of partially decayed organic matter, rich in carbon. In high-altitude regions of Alaska, Canada and Siberia, the soil is warming and decomposing, releasing gases that will turn into methane and CO2. That, in turn, could lead to more warming and permafrost thaw, says research scientist David Lawrence of the National Center for Atmospheric Research (NCAR) in Boulder,

> Colo. And how much carbon is socked away in Arctic soils? Lawrence puts the figure at 200 gigatons to 800 gigatons. The total human carbon output is only 7 gigatons a year.

Comment: This scary scenario sounds plausible but recent research indicates that warming may *increase* CO2 sequestration in Arctic soils. CO2Science.org, in a review of four empirical studies, summarizes as follows: "In conclusion, it would appear that all of these many observations suggest that Arctic tundra ecosystems tend to sequester much more carbon in warm times than in cold times, and that old fears of runaway global warming fueled by warming-induced increases in CO2 emissions from Arctic tundra ecosystems are nothing more than that, i.e., *old fears* that have no basis in fact."

> ***Time*:** One result of all that is warmer oceans, and a result of warmer oceans can be, paradoxically, colder continents within a hotter globe. Ocean currents running between warm and cold regions serve as natural thermo-regulators, distributing heat from the equator toward the poles. The Gulf Stream, carrying warmth up from the tropics, is what keeps Europe's climate relatively mild. Whenever Europe is cut off from the Gulf Stream, temperatures plummet. At the end of the last ice age, the warm current was temporarily blocked, and temperatures in Europe fell as much as 10°F, locking the continent in glaciers.

Comment: The convective system that pulls warm water from the tropics to the higher Northern latitudes is the Atlantic thermohaline circulation (THC), popularly known as the "conveyor belt." A massive infusion of fresh water *may* have disrupted the THC and caused a regional cooling 8,200 years ago when a huge ice dam burst, allowing lakes Agassiz and Ojibway to drain swiftly through the Hudson Strait to the Labrador Sea. However, there are no comparable fresh water bodies that could pour into the ocean at a similar rate today.

> ***Time*:** What usually keeps the Gulf Stream running is that warm water is lighter than cold water, so it floats on the surface. As it reaches Europe and releases its heat, the current grows denser and sinks, flowing back to the south and crossing under the northbound Gulf Stream until it reaches the tropics and starts to warm again. The cycle works splendidly, provided the water remains salty enough. But if it becomes diluted by freshwater, the salt concentration drops, and the water gets lighter, idling on top and stalling the current.

Comment: Speculation that global warming could shut down the Gulf Stream, a wind driven system that transports equatorial warmth to Northern Europe, has no scientific merit. The Gulf Stream is energized primarily by the Earth's spin and secondarily by the lunar tides, not salinity levels in the oceans. This means, as MIT atmospheric physicist Karl Wunsch put it, that the Gulf Stream is safe as long as the Earth turns and the wind blows.

> ***Time*:** Last December, researchers associated with Britain's National Oceanography Center reported that one component of the system that drives the

> Gulf Stream has slowed about 30% since 1957. It's the increased release of Arctic and Greenland meltwater that appears to be causing the problem, introducing a gush of freshwater that's overwhelming the natural cycle. In a global-warming world, it's unlikely that any amount of cooling that resulted from this would be sufficient to support glaciers, but it could make things awfully uncomfortable.

Comment: *Time* again spins alarm out of non-alarming science. Harry Bryden of the UK's National Oceanography Center, the lead author of the research *Time* cites, told *Science* magazine, "we don't know enough about the ocean to know whether [our result] represents a trend" rather than an oscillation. Examining Bryden's data, Patrick Michaels argues that THC slowdown really only takes place some time after 1992, not 1957. Michaels also cites Karcher et al. (2005), who report a large freshwater release from the Arctic Ocean to the North Atlantic during the 1990s due to changing wind patterns. Similarly, Simstich et al. (2005) report that salinity in the Kara Sea (off northeastern Siberia) declined during the 1990s due to wind pattern changes, which "diminished the inflow of saline Atlantic-derived water from the Barents Sea through the Kara Strait in the southwest, and, additionally, reduced the export of river water toward the north and northeast into the Arctic basin." In their view, the decrease in salinity "seems to be less the result of changes in the hydrologic cycle owing to greenhouse forcing than the result of natural variations in atmospheric pressure fields." Further complicating the picture, Knight et al. (2005) report that the THC was *stronger* in recent years than it was in the 1970s.

> ***Time*:** "The big worry is that the whole climate of Europe will change," says Adrian Luckman, senior lecturer in geography at the University of Wales, Swansea. "We in the U.K. are on the same latitude as Alaska. The reason we can live here is the Gulf Stream."

Comment: As Michaels points out, if the THC has really lost 30 percent of its power, and if it is the key European thermo-regulator, then a European cooling trend should already be evident. Instead, Europe has been in a warming trend since 1979 and 2004 was the warmest year in Europe in the instrumental record. The Pew Center on Global Climate Change, a group firmly in the alarmist camp, aptly summarized mainstream scientific opinion thusly: "Without the thermohaline circulation, not as much heat would be transported from the tropics to the North Atlantic region. We don't know how much of this cooling would be balanced by the simultaneous warming in the atmosphere. While it is possible there would be cooling in the North Atlantic region, it is considered more likely that it would continue to warm, but more slowly than the rest of the world."

DROUGHT

> ***Time*:** As fast as global warming is transforming the oceans and the ice caps, it's having an even more immediate effect on land. People, animals and plants living in dry, mountainous regions like the western U.S. make it through summer thanks to snowpack that collects on peaks all winter and slowly melts off in warm months. Lately the early arrival of spring and the unusually blistering summers

> have caused the snowpack to melt too early, so that by the time it's needed, it's largely gone. Climatologist Philip Mote of the University of Washington has compared decades of snowpack levels in Washington, Oregon and California and found that they are a fraction of what they were in the 1940s, and some snowpacks have vanished entirely.

Comment: Hydrology varies more than temperature does from decade to decade, so it is difficult to attribute changes in precipitation to changes in global temperature. Interestingly, as Alabama State Climatologist John Christy points out (private communication, April 19, 2006), during the past 111 years (1896-2006), precipitation in the State of Washington has increased by 3.2 inches or by 9 percent per century; similarly, precipitation in Oregon has increased by 1.3 inches or by 5 percent per century. Whatever else global warming may be doing, it's not stopping the rain and snow from falling.

Indeed, Mammoth Mountain in California had 642 inches of snowfall during the 2005-06 ski season, the most ever in a single ski season since 1968-69, and 607 inches in 2004-05, the third heaviest snowfall in over a quarter century. Due to this year's heavy snowfall in April, Mammoth is extending ski season until July 4. How is this possible if global warming is melting the snow earlier and earlier? Most other ski resorts in California, the Pacific Northwest, Canadian Rockies and British Columbia, U.S. Northern Rockies, Utah, and Colorado posted above-average snowfalls in 2005/06, and many had "high" snowfalls in 2004-05, including three "record high" snowfalls.

Linking snowpack decline to global warming is a lot harder than *Time* imagines. Christy et al (2006) compared daily maximum and minimum temperatures at weather stations in California's San Joaquin Valley and the nearby Sierra Nevada mountains during 1910-2003. They found a slight *cooling* trend in the Sierras by roughly 0.02ºC per decade. So if the Sierras are cooling, how can snowpack decline there be due to global warming? The researchers did find a significant warming trend of roughly 0.07°C per decade in the San Joaquin Valley. However, since the Sierras are not warming, the Valley must be warming due to *local* rather than *global* climate change. Christy et al. hypothesize that the Valley is warming because, unlike the Sierras, it is highly irrigated. Agriculture has changed what was once "a high-albedo desert into a darker, moister, vegetated plain."

> ***Time*:** Global warming is tipping other regions of the world into drought in different ways. Higher temperatures bake moisture out of soil faster, causing dry regions that live at the margins to cross the line into full-blown crisis. Meanwhile, El Niño events—the warm pooling of Pacific waters that periodically drives worldwide climate patterns and has been occurring more frequently in global-warming years—further inhibit precipitation in dry areas of Africa and East Asia. According to a recent study by NCAR, the percentage of Earth's surface suffering drought has more than doubled since the 1970s.

Comment: Climate alarmists claim that global warming makes droughts more frequent and severe, but analyses of climate data from Africa, Asia, and Europe fail to confirm a

link between warming and drought. For centuries, dry and wet periods have alternated during periods of both warming and cooling. Similarly, there is no apparent relationship between temperature and dryness (or wetness) in Northern Hemisphere data. Consider the table below, published in Moberg et al. (2005):

Period (AD)	NH Temperature	Western Moisture
800-1000	cool	dry
1000-1100	warm	dry
1200-1400	cool	moderately dry
1400-1900	coolest	wet
1900-2000	warm	wet

Long-term tree-ring records also indicate that the frequency and severity of 20th century droughts in North America were well within the bounds of natural variability. Consider these excerpts from *North American Drought: A Paleo Perspective*, by the staff of the NOAA Paleoclimatology Program, dated 12 November 2003:

- "An inspection of the maps shows that droughts similar to the 1950s, in terms of duration and spatial extent, occurred once or twice a century for the past three centuries (for example, during the 1860s, 1820s, 1730s)."
- "Longer records show strong evidence for a drought [during the last half of the 16th century] that appears to have been more severe in some areas of central North America than anything we have experienced in the 20th century, including the 1930s drought…These droughts were extremely severe and lasted for three to six years, a long time for such severe drought conditions to persist in this region of North America."
- "Coincident droughts, or the same droughts, are apparent in tree-ring records from Mexico to British Columbia, and from California to the East Coast."

FLORA AND FAUNA

> ***Time*:** Hot, dry land can be murder on flora and fauna, and both are taking a bad hit. Wildfires in such regions as Indonesia, the western U.S. and even inland Alaska have been increasing as timberlands and forest floors grow more parched. The blazes create a feedback loop of their own, pouring more carbon into the atmosphere and reducing the number of trees, which inhale CO2 and release oxygen.

Comment: The claim that warming leads to more forest fires is another one of those intuitive notions that *Time* should check against real world data before "reporting" it as fact. Carcallet et al. (2001) examined the change in fire frequency in eastern Canadian boreal forests during the Holocene. They found that throughout the Climate Optimum, roughly 7,000 to 3,000 years ago, when average temperatures were higher than today, "fire intervals were double those in the last 2000 years"—in other words, fires occurred half as frequently. The researchers also report that, "dendroecological studies show that both frequency and size of fire decreased during the 20th century in both west (e.g. Van

Wagner, 1978; Johnson *et al*., 1990; Larsen, 1997; Weir *et al*., 2000) and east Canadian coniferous forests (e.g. Cwynar, 1997; Foster, 1983; Bergeron, 1991; Bergeron *et al*., 2001), possibly due to a drop in drought frequency and an increase in long-term annual precipitation (Bergeron and Archambault, 1993)."

Time should also try to keep things in perspective. Whatever contribution global warming may make to wildfires, it pales in comparison to plain old-fashioned mismanagement. The chief cause of Indonesia's forest fires is illegal burning by farmers and plantation owners who start fires to clear out land. According to Kloor 2000, pine forests in the Western United States had an average of 57 trees per hectare in 1876, but now contain as many as 2,100 trees per hectare. Productive forests are a good thing. However, as CO2science.org points out, densely packed stands must be intelligently managed or they become highly vulnerable to pests, disease, and catastrophic fires. Regrettably, instead of using prescribed burns and selective logging to reduce fuel load buildup, in the United States, federal managers first attempted to prevent all forest fires, and then adopted a hands-off, let-nature-take-its-course approach. The catastrophic fires that swept through the Western United States in the summer of 2002 were a predictable result of such policies.

> ***Time*:** Those forests that don't succumb to fire die in other, slower ways. Connie Millar, a paleoecologist for the U.S. Forest Service, studies the history of vegetation in the Sierra Nevada. Over the past 100 years, she has found, the forests have shifted their tree lines as much as 100 ft. upslope, trying to escape the heat and drought of the lowlands. Such slow-motion evacuation may seem like a sensible strategy, but when you're on a mountain, you can go only so far before you run out of room. "Sometimes we say the trees are going to heaven because they're walking off the mountaintops," Millar says.

Comment: This is questionable in light of Christy et al., discussed above. The California Sierras were in a slight cooling trend during 1910-2003, and the nearby lowland warming appears to be due to the local climatic effects of irrigation.

> ***Time*:** Across North America, warming-related changes are mowing down other flora too. Manzanita bushes in the West are dying back; some prickly pear cacti have lost their signature green and are instead a sickly pink; pine beetles in western Canada and the U.S. are chewing their way through tens of millions of acres of forest, thanks to warmer winters. The beetles may even breach the once insurmountable Rocky Mountain divide, opening up a path into the rich timbering lands of the American Southeast.

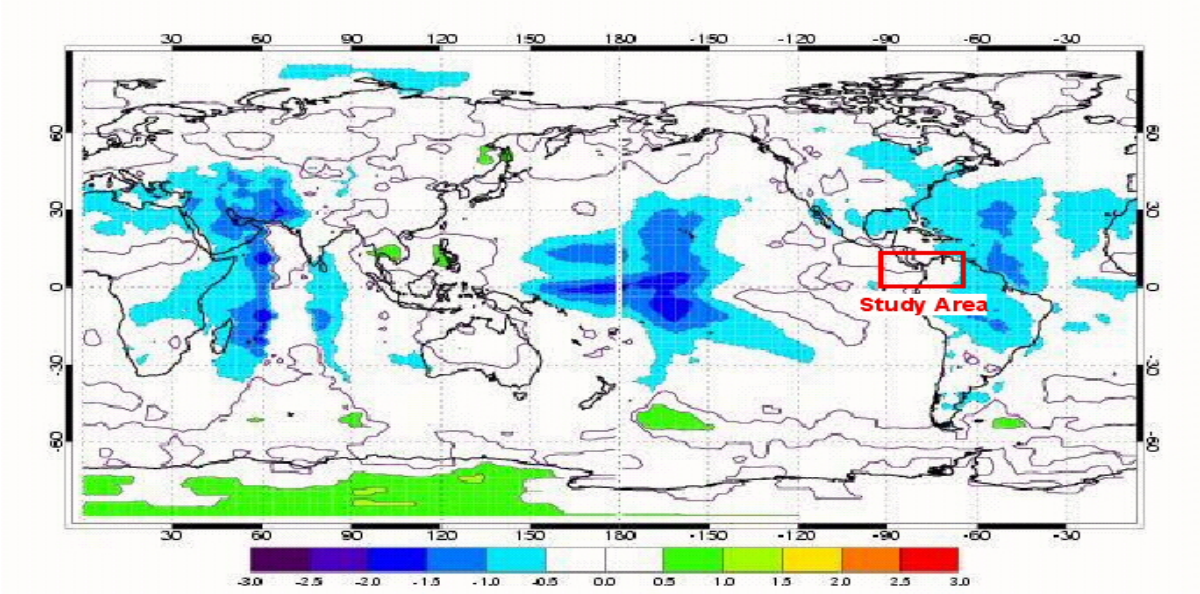
Comment: Again, *Time* does not even consider mismanagement (or lack of management) as a possible cause of the pine beetle infestation. Colorado State University's Cooperative Extension program offers this interesting nugget: "In general, the MPB [Mountain Pine Beetle] likes forests that are old and dense. Thinning out excess trees reduces forest density, lessens fire hazard and improves individual tree vigor. Most mature Colorado forests have about twice as many trees as forests more resistant to MPB.

Get help from a forester with this option." Now, let's see, which pressure groups have made it almost impossible to thin (i.e., log) old growth forests?

> ***Time*:** With habitats crashing, animals that live there are succumbing too. Environmental groups can tick off scores of species that have been determined to be at risk as a result of global warming. Last year, researchers in Costa Rica announced that two-thirds of 110 species of colorful harlequin frogs have vanished in the past 30 years, with the severity of each season's die-off following in lockstep with the severity of that year's warming.

Comment: *Time* refers to a study in *Nature* by J. Alan Pounds and Robert Puschendorf. According to Patrick Michaels, the study is so full of "analytical problems, scientific overreaching, and clear political bias" that it should not have been accepted for publication. Contrary to the impression *Time* conveys, the frogs are not perishing from heat. Annual Costa Rican temperatures have remained remarkably flat during 1979 to 2005 (go to CO2Science.org; click World Temperatures Data Repository; click MSU Satellite; enter the numbers most closely matching Costa Rica's latitudes and longitudes; then hit Calculate). Rather, the frogs are dying from a fungal infection carried by a class of organisms known as chytrids. Pounds and Puschendorf argue that global warming is increasing cloud cover, which limits the frogs' exposure to sunlight—a natural disinfectant that "can rid the frogs of this fungus."

Michaels finds two huge problems with this supposed chain of causality. First, there is no known correlation between cloud cover and global warming. Second, there is no observed change in Central American cloud cover during 1984 to 2004 (see figure below).



Annual cloud cover trends (from ISCCP data), 1987-2001 (source: Ellis et al., 2004). The red box indicates the general region of the Pounds et al. (2006) study.

So what is causing frogs to perish in Costa Rica, if global warming is not the culprit? "According to Daszak et al. (2003) in the journal *Diversity and Distribution*," notes Michaels, "*the chytrid fungus was most likely introduced by humans*, possibly by ecotourists and/or field researchers (Daszak et al., 1999)." Michaels continues: "It has been known nearly a half-century (see Charles Elton's 1958 book, *The Ecology of Invasion by Animals and Plants*) that the introduction of exotic species produces genetic pandemics over a broad range of climates. The concurrence of human introduction of the chytrid fungus and amphibian extinctions cannot be ignored." *Time*, however, relying on Pounds et al. (or the *Washington Post's* uncritical write-up of that study), does ignore it.

> ***Time*:** In Alaska, salmon populations are at risk as melting permafrost pours mud into rivers, burying the gravel the fish need for spawning. Small animals such as bushy-tailed wood rats, alpine chipmunks and piñon mice are being chased upslope by rising temperatures, following the path of the fleeing trees.

Comment: Several scientific papers have reported the presence of species at higher elevations or latitudes than their historic ranges. The papers do not show—although they often assert—that global warming has driven the species in question out of the lower or southern (heat-limited) boundary of its range. Rather, the research shows that the species can now live in areas that were once too cold. A well-publicized example is the migration of robins to Alaska. During Sen. John McCain's (R-Ariz.) last hearing as Chairman of the Commerce, Science, and Technology Committee, Susan Hassol, an author of the Arctic Climate Impact Assessment report, lamented that the Inuit language has no word for robin, yet the bird is now thriving in Arctic climates. Does this mean global warming has turned the robin into an environmental refugee? No. The bird continues to thrive in the lower 48 and even in Mexico. In general, global warming has *expanded* species' habitat ranges, enhancing biodiversity and reducing the risks of extinction.

> ***Time*:** And with sea ice vanishing, polar bears—prodigious swimmers but not inexhaustible ones—are starting to turn up drowned. "There will be no polar ice by 2060," says Larry Schweiger, president of the National Wildlife Federation. "Somewhere along that path, the polar bear drops out."

Comment: This frightful tale of extinction by drowning assumes far greater climate sensitivity to greenhouse gas emissions than has been observed. There is no evidence to date that polar bears are being harmed by global warming. As Michaels notes in his book Meltdown (pp. 95-96), polar bear populations are increasing in Arctic areas where it is warming, and declining in areas where it is cooling.

WHAT ABOUT US?

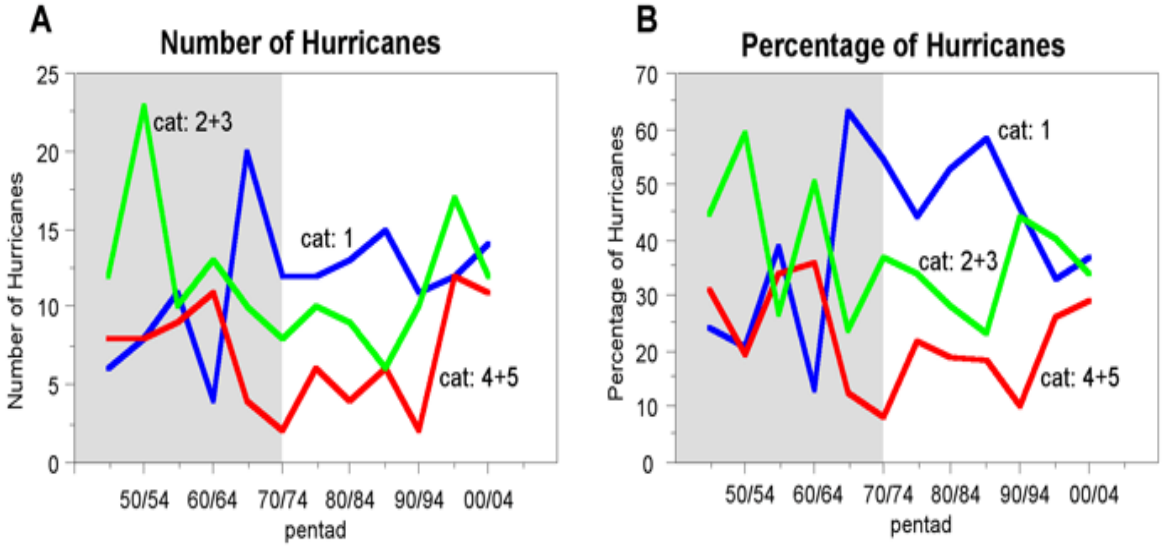
> ***Time*:** It is fitting, perhaps, that as the species causing all the problems, we're suffering the destruction of our habitat too, and we have experienced that loss in terrible ways. Ocean waters have warmed by a full degree Fahrenheit since 1970, and warmer water is like rocket fuel for typhoons and hurricanes. Two studies last year [Webster et al. (2005) and Emanuel (2005)] found that in the past 35 years

> the number of Category 4 and 5 hurricanes worldwide has doubled while the wind speed and duration of all hurricanes has jumped 50%.

Comment: *Time* neglects to mention that the study it cites, Webster et al. (2005) found no change globally in the frequency of *all* tropical storms and hurricanes over the past 35 years. The researchers did find an increase in the frequency of Category 4 and 5 hurricanes. However, unlike *Time*, Webster et al. do not claim to have proven a link between global warming and hurricanes. They are cautious and tentative about what their research means:

> We conclude that global data indicate a 30-year trend toward more frequent intense tropical cyclones. This trend is not inconsistent with recent climate model simulations that a doubling of CO2 may increase the frequency of the most intense cyclones, although attribution of the 30-year trends to global warming would require a longer global data record and, especially a deeper understanding of the role of hurricanes in the general circulation of the atmosphere and ocean, even in the present climate state.

The North Atlantic basin is the best monitored hurricane formation zone with the longest data record. Patrick Michaels, using data from the National Hurricane Center, extends Webster's data for North Atlantic basin tropical storms back to 1940. He finds that the number and percentage of intense storms during 1940 to 1970 were about equal to the number and percentage of intense storms during 1970 to 2004. See the figure below. The grey shaded area illustrates the data in the 30-year period prior to the period analyzed by Webster et al.:

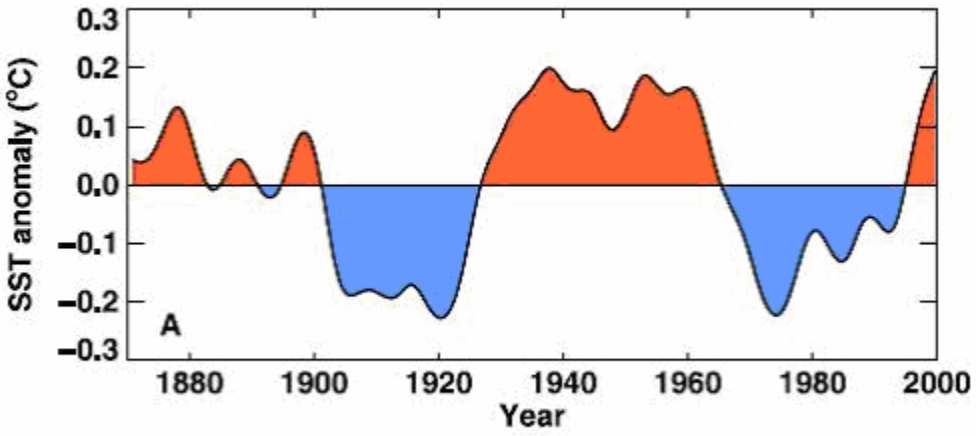


Michaels comments: "When taken as a whole, the pattern appears to be better characterized as being dominated by active and inactive periods that oscillate through time, rather than being one that indicates a temporal trend. This characterization is one

that does not fit so well with the concept that hurricanes are becoming more intense because of increases in atmospheric CO2."

Kerry Emanuel (2005) of MIT reported that hurricane wind speeds and duration increased by 50 percent worldwide since the mid-1970s. Emanuel's finding is controversial, not settled science, as *Time* suggests. For one thing, economic data on hurricane-related damages do not reflect an increase in hurricane destructiveness. Roger Pielke, Jr., an expert on natural disaster preparedness at the University of Colorado, analyzed long-term data on hurricane losses in the United States, and found no trend once he adjusted the data to account for inflation and changes in wealth and population. NOAA's Christopher Landsea questions Emanuel's methodology and finds no significant increase in the power of U.S. tropical cyclones in the most recent decade. *Time* does not even hint at the controversy surrounding the alleged warming-hurricane link.

Emanuel acknowledges that some portion of the 0.5ºC warming of sea surface temperatures (SSTs) since the 1970s is due to "multi-decadal oscillations in North Atlantic and North Pacific." In the North Atlantic, the world's best monitored hurricane basin, most of the rise in SSTs is clearly due to the AMO, as can be seen in the figure below, supplied by Patrick Michaels:



Time series of the Atlantic Multi-decadal Oscillation (AMO). Again, notice a big trend since 1970, but nothing unusual in the long term (source: Knight et al., 2005).

The key question, then, is how much of the increase in SSTs is caused by global warming, and what difference does that increment mean for hurricane activity? Michaels comments:

> Between the early 1970s, when the AMO was most unfavorable for hurricanes, and now, when they are spinning up with reckless abandon, AMO-related temperatures in the Atlantic increased about 0.4°C. The total temperature rise in the Atlantic since the early 1970s is about 0.6°C, meaning that only a tiny 0.2°C may be because of global warming, instead of the AMO.

> Let's put that in perspective. Last year, Thomas Knutson of NOAA and Robert Tuleya of Old Dominion University published a modeling study showing that a 2.0ºC increase in SST maximum [produces an increase in] hurricane wind speed of about 6 percent over eighty years. That's ten times the non-AMO warming. That means global warming is likely to be responsible, right now, for, at best, an increase of about 0.6% in hurricane wind speeds—raising a decent hurricane of 120mph to 120.7mph, a change too small to measure.

In addition, as Michaels notes elsewhere, once sea surface temperatures reach about 82°F, they have the potential to generate a category 4 or 5 storm, if several other conditions favorable to hurricane formation are present. The Gulf of Mexico reaches that temperature every summer, with or without help from global warming, so it makes no sense to blame greenhouse gas emissions for the devastation wrought by hurricane Katrina (which, incidentally, had been downgraded from a category 5 to a category 3 storm by the time it made landfall).

So there you have it. In the Atlantic hurricane basin, global warming is causing at most an immeasurably small increase in hurricane intensity. Since the Kyoto Protocol would avert only an immeasurably small amount of global warming (see below), Kyoto would provide *no protection* from hurricanes. Therefore, it is disingenuous for activists to claim that a warming-hurricane link justifies changes in U.S. energy policy. As Roger Pielke, Jr. put it recently, "we shouldn't make the mistake of confusing a global warming policy with disaster reduction policies…we should separate those things out. If we want to better prepare for future Katrina's the solution is not going to be found in preparing for global warming."

> ***Time*:** Since atmospheric heat is not choosy about the water it warms, tropical storms could start turning up in some decidedly nontropical places. "There's a school of thought that sea surface temperatures are warming up toward Canada," says Greg Holland, senior scientist for NCAR in Boulder. "If so, you're likely to get tropical cyclones there, but we honestly don't know."

Comment: *Time* apparently didn't bother to Google "Canada" and "hurricanes." The first click of the mouse takes us to Environment Canada's Canadian Hurricane Centre. The next click takes us to a description of hurricanes and tropical storms that have hit Canada or Canadian Atlantic waters since 1954. During the period 1954 to 1959 alone, 26 tropical storms and hurricanes swept into Canada or the nearby Atlantic. Of course, if readers misled by *Time* imagine that Canada never gets hurricanes, they will be more apt to blame Canada's next hurricane on global warming.

WHAT WE CAN DO

> ***Time*:** So much environmental collapse happening in so many places at once has at last awakened much of the world, particularly the 141 nations that have ratified the Kyoto treaty to reduce emissions—an imperfect accord, to be sure, but an

> accord all the same. The U.S., however, which is home to less than 5% of Earth's population but produces 25% of CO2 emissions, remains intransigent.

Comment: This statement contains a factual error, a mischaracterization, and moralizing innuendo. The Kyoto Protocol has been ratified by 162 countries, not 141—but of those 162 countries, 126 did *not* agree to "reduce emissions." In other words, most of the world's nations, including India and China, the two most populous countries—and two of the world's currently fastest growing economies—have rejected Kyoto's restrictions on energy use. Yes, the United States with less than 5 percent of the world's population produces 25 percent of world CO2 emissions, but it also produces more than 25 percent of the world's wealth. Among other things, this means that the United States is the single largest market for developing country exports. The world would be much poorer if America were not so productive. America would be far less productive if most of our energy had to come from wind turbines, solar panels, and other non-fossil fuels.

> ***Time*:** Many environmentalists declared the Bush Administration hopeless from the start, and while that may have been premature, it's undeniable that the White House's environmental record—from the abandonment of Kyoto to the President's broken campaign pledge to control carbon output to the relaxation of emission standards—has been dismal.

Comment: Calling Bush's environmental record "dismal" is blatant editorializing in what is ostensibly a news "report." There has been no "relaxation of emission standards" under Bush. On the contrary, Bush's Environmental Protection Agency is tightening emission standards for "fine" particulate matter (PM2.5), and air quality keeps improving. As for Kyoto, although President Bush's rhetoric differs from President Clinton's, their actions are quite similar. Bush did not submit Kyoto to the Senate for a debate and vote on ratification—and neither did Clinton. Clinton signed the Kyoto Protocol—and Bush declined to renounce his predecessor's signature. As for Bush's campaign "pledge"—actually, a position paper—to control carbon emissions from power plants, Bush could not advocate CO2 controls on power plants without effectively repudiating his more basic pledge to keep America out of Kyoto.

> ***Time*:** George W. Bush's recent rhetorical nods to America's oil addiction and his praise of such alternative fuel sources as switchgrass have yet to be followed by real initiatives.

Comment: There is no "oil addiction," because gasoline consumption is not an appetite that grows with feeding. It is not the oil or gasoline that we desire but the mobility it provides. Bush's "oil addiction" rhetoric ceded the moral high ground to his most vicious critics, making it harder for pro-market forces to remove political barriers to oil and gas production. As for "switchgrass"—when and if it becomes cheaper to make motor fuel from biomass than from oil, consumers will demand it and profit-seeking firms will supply it, without any help from federal "initiatives." Despite rising gasoline prices and a host of tax breaks and subsidies for biofuels, regular gasoline remains cheaper than

ethanol even in corn-rich Nebraska. Indeed, throughout the corn-belt, ethanol costs almost as much wholesale (at the "rack") as regular gasoline costs retail.

> ***Time*:** The anger surrounding all that exploded recently when NASA researcher Jim Hansen, director of the Goddard Institute for Space Studies and a longtime leader in climate-change research, complained that he had been harassed by White House appointees as he tried to sound the global-warming alarm. "The way democracy is supposed to work, the presumption is that the public is well informed," he told *Time*. "They're trying to deny the science." Up against such resistance, many environmental groups have resolved simply to wait out this Administration and hope for something better in 2009.

Comment: By accusing the Administration of attempting to muzzle him, Hansen has garnered more publicity for his views than a million-dollar ad campaign could buy. Shouldn't *Time*'s "investigative" journalists at least wonder if there might be more to this story than meets the eye? Also, if *Time* is so upset by political meddling in climate science, why didn't it complain when the Clinton Administration heavily based its National Assessment of U.S. climate change on a climate model that over-estimated past U.S. warming by 300 percent?

> ***Time*:** The Republican-dominated Congress has not been much more encouraging. Senators John McCain and Joe Lieberman have twice been unable to get through the Senate even mild measures to limit carbon.

Comment: Since the harsher Kyoto Protocol would only avert a hypothetical and unverifiable 0.07°C of global warming by 2050, there is no sense in taking a "first step" towards carbon stabilization unless you are prepared to take all the subsequent steps. Jerry Mahlman of the National Center for Atmospheric Research estimates it would take "thirty Kyotos" to do the job. Since even one Kyoto would cost the U.S. economy between $100 billion and $400 billion a year, responsible policy makers recognize that the Kyoto approach is a dead end—economically infeasible and, therefore, politically unsustainable.

> ***Time*:** Senators Pete Domenici and Jeff Bingaman, both of New Mexico and both ranking members of the chamber's Energy Committee, have made global warming a high-profile matter. A white paper issued in February will be the subject of an investigatory Senate conference next week.

Comment: The real news is that Sens. Domenici and Bingaman begged the key questions and stacked the witness lists to achieve a predetermined result, as explained in this coalition letter.

> ***Time*:** A House delegation recently traveled to Antarctica, Australia and New Zealand to visit researchers studying climate change. "Of the 10 of us, only three were believers," says Representative Sherwood Boehlert of New York. "Every one of the others said this opened their eyes."

Comment: This is hearsay testimony. Without additional information—who the seven "non-believers" were, what they observed, what conclusions they drew, and what facts or arguments changed their minds—their alleged conversion experiences have no evidentiary value.

> ***Time*:** Boehlert himself has long fought the environmental fight, but if the best that can be said for most lawmakers is that they are finally recognizing the global-warming problem, there's reason to wonder whether they will have the courage to reverse it. Increasingly, state and local governments are filling the void. The mayors of more than 200 cities have signed the U.S. Mayors Climate Protection Agreement, pledging, among other things, that they will meet the Kyoto goal of reducing greenhouse-gas emissions in their cities to 1990 levels by 2012. Nine eastern states have established the Regional Greenhouse Gas Initiative for the purpose of developing a cap-and-trade program that would set ceilings on industrial emissions and allow companies that overperform to sell pollution credits to those that underperform—the same smart, incentive-based strategy that got sulfur dioxide under control and reduced acid rain. And California passed the nation's toughest automobile-emissions law last summer.

Comment: There is no policy "void" to be filled. In politics, you win some, you lose some. Alarmists have repeatedly lost the fight at the federal level, so they are attempting to install Kyoto piecemeal through a patchwork quilt of state and local regulation. Their goal is to balkanize U.S. energy markets so that businesses clamor for the "regulatory certainty" of a uniform national cap-and-trade program. Alas, the only thing certain about a national program is that its regulatory stringency would increase *unpredictably* over time. Contrary to *Time*, the sulfur dioxide trading program offers little insight into the costs of a carbon trading scheme. Unlike sulfur, the carbon in fossil fuels is not an impurity that can be scrubbed out; rather, it is an essential component of their chemistry as fuels. Also, unlike sulfur dioxide, CO2 does not dirty the air or impair respiratory function, so science cannot tell us how much CO2 regulation is enough, leaving politicians and bureaucrats free to set CO2 reduction targets based on speculative worst-case scenarios. Thus, once the government starts regulating the carbon content of fuels or emissions, there is no logical stopping point short of total suppression. To repeat, alarmists claim it will take "thirty Kyotos" to save the planet.

> ***Time*:** "There are a whole series of things that demonstrate that people want to act and want their government to act," says Fred Krupp, president of Environmental Defense. Krupp and others believe that we should probably accept that it's too late to prevent CO2 concentrations from climbing to 450 p.p.m. (or 70 p.p.m. higher than where they are now). From there, however, we should be able to stabilize them and start to dial them back down.

Comment: People may want the government to do something about global warming, but they also want a growing economy and falling energy prices. In 1998, the U.S. Energy Information Administration estimated that implementing Kyoto in the most expensive possible way—without international emissions trading—would increase gasoline prices

to almost $2.00 a gallon. Gasoline costs substantially more than that now yet demand for gasoline—and the resulting emissions—keep going up. Gasoline costs about $6.50 a gallon in the Netherlands, yet the Netherland is not on track to meet its Kyoto target. Does *Time* believe that most Americans want their government to force them to pay higher-than-European prices for gasoline?

> ***Time*:** That goal should be attainable. Curbing global warming may be an order of magnitude harder than, say, eradicating smallpox or putting a man on the moon. But is it moral not to try?

Comment: A policy is not moral if it is all cost for no benefit. As noted earlier, Kyoto would cost the United States at least $100 billion annually yet reduce global warming by an undetectable amount. Neither is a policy moral if it is a "cure" worse than the alleged disease. To repeat, the only known way to significantly reduce emissions is the "method" of the former Soviet bloc states: economic collapse.

Further, a policy is not moral if it diverts scarce resources from other efforts that could save far more lives at a much lower cost. As U.S. Interior Department scientist Indur Goklany has explained in numerous publications, global warming is a serious problem only insofar as it intensifies other preexisting threats such as hunger, malaria, water shortages, and flooding. Many more lives could be saved by attacking those problems directly than by attempting to mitigate them indirectly via economy-chilling regulations that may or may not have measurable impacts on global temperatures.

> ***Time*:** We did not so much march toward the environmental precipice as drunkenly reel there, snapping at the scientific scolds who told us we had a problem.

Comment: The global economy evolved as it has, with heavy reliance on fossil fuels to lift humanity out of the squalor, misery, and backbreaking drudgery of pre-industrial ages, because over many generations millions upon millions of people valued fossil fuels more highly than the competing alternatives. For *Time* to describe this epic story of human progress as a "drunken reel" is breathtaking in its arrogance and ingratitude.

> ***Time*:** The scolds, however, knew what they were talking about. In a solar system crowded with sister worlds that either emerged stillborn like Mercury and Venus or died in infancy like Mars, we're finally coming to appreciate the knife-blade margins within which life can thrive. For more than a century we've been monkeying with those margins. It's long past time we set them right.

Comment: Trusting in "scolds" who have been wrong before, *Time* suggests that increasing the air's CO2 content by parts per million is as potentially catastrophic as moving the Earth millions of miles closer to, or farther from, the sun. Similarly, Environmental Defense, one of *Time*'s authorities, has an ad implying that global warming is as clearly and imminently lethal as runaway train speeding towards a child on the railroad tracks. These conceits of political advocacy flout both common sense and

climate science. Citizens seeking a balanced overview of climate science and global warming policy must look elsewhere than *Time*.

III. Conclusion

Time's "special report" on global warming flouts elementary cannons of journalistic ethics. It cites only experts whose opinions agree with its predetermined conclusions, support its political agenda, or both. Whether the subject is hurricanes, sea level rise, drought, species loss, feedback mechanisms, or "tipping points," *Time* presents controversial hypotheses, debatable interpretations of data, and erroneous assertions as fact or settled science. *Time* never considers a single objection to any of its opinions or conclusions. *Time* imputes base economic motives to scientists who are not "very worried" about global warming while taking at face value the self-advertised bona fides of those whose research grants, direct mail contributions, or hoped-for regulatory rents depend entirely on their success in scaring people green.

Time has never given a moment's thought to what the past 30 years' warming rate—0.17 degrees Celsius per decade—implies about climate sensitivity and the likelihood of the disaster scenarios that figure so prominently in *Time*'s "special report." It also never questions whether its preferred "solutions" to the alleged problem of global warming could pass any kind of cost-benefit test.

Whatever science may discover about climate change in the future, this much is clear: Global warming politics have produced a meltdown of journalistic standards at *Time* magazine.