

Global Warming Index

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Warming → Extinction

Warming causes extinction.

Henderson '06

[Bill, Environmental Scientist, Aug 19, "Runaway Global Warming – Denial,"
<http://www.countercurrents.org/cc-henderson190806.htm>]

The scientific debate about human induced global warming is over but policy makers - let alone the happily shopping general public - still seem to not understand the scope of the impending tragedy. Global warming isn't just warmer temperatures, heat waves, melting ice and threatened polar bears. Scientific understanding increasingly points to runaway global warming leading to human extinction. If impossibly Draconian security measures are not immediately put in place to keep further emissions of greenhouse gases out of the atmosphere we are looking at the death of billions, the end of civilization as we know it and in all probability the end of man's several million year old existence. along with the extinction of most flora and fauna beloved to man in the world we share.

Global warming will cause irreversible extinction.

Sydney Morning Herald '03 [Jun 20, "Global Warming threatens Earth with mass extinction," Lexis]

Global warming over the next century could trigger a catastrophe to rival the worst mass extinction in the history of the planet. scientists have warned. Researchers at Bristol University have discovered that a mere 6 degrees of global warming was enough to wipe out up to 95 per cent of the species which were alive on earth at the end of the Permian period, 250 million years ago. United Nations scientists from the Intergovernmental Panel on Climate Change predict up to 6 degrees of warming for the next 100 years if nothing is done about emissions of greenhouse gases, principally carbon dioxide, the chief cause of global warming. The Permian mass extinction is now thought to have been caused by gigantic volcanic eruptions that triggered a runaway greenhouse effect and nearly put an end to life on Earth. Conditions in what geologists have termed this "post apocalyptic greenhouse" were so severe that only one large land animal was left alive and it took 100 million years for species diversity to return to former levels. This dramatic new finding is revealed in a book by Bristol University's head of earth sciences, Michael Benton, which chronicles the geological efforts leading up to the discovery and its potential implications. Professor Benton said: "The Permian crisis nearly marked the end of life. It's estimated that fewer than one in 10 species survived. Geologists are only now coming to appreciate the severity of this global catastrophe and to understand how and why so many species died out so quickly." Other climate experts say they are appalled that a disaster of such magnitude could be repeated within this century because of human activities.

Warming → Nuclear War

Warming will cause escalatory nuclear wars.

Harris '04 [Paul, The Observer, Feb 22, <http://www.guardian.co.uk/environment/2004/feb/22/usnews.theobserver>]

Climate change over the next 20 years could result in a global catastrophe costing millions of lives in wars and natural disasters. A secret report, suppressed by US defence chiefs and obtained by The Observer, warns that major European cities will be sunk beneath rising seas as Britain is plunged into a 'Siberian' climate by 2020. Nuclear conflict, mega-droughts, famine and widespread rioting will erupt across the world. The document predicts that abrupt climate change could bring the planet to the edge of anarchy as countries develop a nuclear threat to defend and secure dwindling food, water and energy supplies. The threat to global stability vastly eclipses that of terrorism, say the few experts privy to its contents. 'Disruption and conflict will be endemic features of life,' concludes the Pentagon analysis. 'Once again, warfare would define human life.'

Global warming will cause nuclear war with China, India, and the US that draws in Russia.

Kiwanuka '07 [Ba, Energy Efficient Home Staff Writer, "Global Warming - How it could spark World War III," <http://www.energyefficienthomearticles.com/Article/global-warming---Global-Warming-How-It-Could-Spark-World-War-III-/5757>]

The following figures illustrate the CO2 emissions from the various regions around the globe: USA: 30.3% Europe: 27.7% Russia: 13.7% South East Asia: 12.2% Japan: 3.7% South America/Central America: 3.8% Middle East: 2.6% Africa: 2.5% Australia: 1.1% These figures amply illustrate how Western Europe and the United States are by far largely responsible for the effects of global warming we are seeing today. Contrastingly the regions least responsible are the ones that will bear the brunt of those effects (initially at any rate, until such time that the process progresses to an ice age then the situation will reverse). However, with the two mega economies of China and India expanding rapidly (each boasting a population in excess of 1 billion) soon their greenhouse gas emissions may surpass those of the U.S. A series of meetings held in Washington in early 2007 had American legislators demanding that developing nations be held to the same greenhouse-gas-emission accountability as the developed nations! Not unexpectedly there were worldwide outcries and accusations of shameless hypocrisy leveled at the United States. With the not unreasonable contention that they have the right to develop and advance in the same manner that both Europe and America have enjoyed over the past forty years these two looming economical giants are not about to be cowed by Washington. Furthermore considering the suspicious manner with which the U.S. justified its invasion of Iraq, few these days are inclined to believe a word that Washington says. Compounding this climate of distrust and suspicion are the many questionable prerogatives the U.S. claims. These include: 1. Not subscribing to the Kyoto Protocol (Treaty on Global Warming) 2. Seeking the right to pre-emptive strikes (Bush II) 3. Demanding to be exempted from The Geneva Convention (Bush II) 4. Not a participant of the World Court 5. Biggest contributor to global warming but doing the least to rectify the situation. In a world where America demands exclusive rights to pre-emptive strikes, perhaps then it is not too far fetched to understand if India and China harbor a degree of paranoia that the U.S. may one day set its targets on them. After all for a country that so conveniently and magically connected two totally unrelated events to one another as an excuse to pursue its ultimate goal (U.S. invasion of Iraq after 911), it is not unconceivable that the U.S. could one day claim that the greenhouse gas emissions from the Asian giants are threatening the very existence of its coastal cities and hence amount to an act of war! For their part the Asian giants already suspiciously view Washington's demands concerning greenhouse gases as a thinly veiled attempt to restrict their economical development. That said, China and India are hardly Iraq! These are two countries which both boast formidable nuclear arsenals that are quite capable of reaching the U.S. Besides if the U.S. were to take any drastic action it is unlikely that the slumbering Russian bear would continue dozing for much longer. World wars have erupted over much less and in the heated climate of today it only takes one more little spark to set everything off!

Warming Outweighs Nuclear War

Warming is more probable and a greater risk than nuclear war.

Hanson et al '07 [J (Goddard Institute for Space Studies), "Dangerous human-made interference with climate," <http://www.atmos-chem-phys.net/7/2287/2007/acp-7-2287-2007.pdf>]

These stark conclusions about the threat posed by global climate change and implications for fossil fuel use are not yet appreciated by essential governing bodies, as evidenced by ongoing plans to build coal-fired power plants without CO2 capture and sequestration. In our view, there is an acute need for science to inform society about the costs of failure to address global warming, because of a fundamental difference between the threat posed by climate change and most prior global threats. In the nuclear standoff between the Soviet Union and United States, a crisis could be precipitated only by action of one of the parties. In contrast, the present threat to the planet and civilization, with the United States and China now the principal players (though, as Fig. 10 shows, Europe also has a large responsibility), requires only inaction in the face of clear scientific evidence of the danger.

Warming Outweighs Terrorism

Global warming is a greater threat than terrorism.

Reuters '04 [Feb 6, "Global warming bigger threat than terrorism,"

<http://www.cnn.com/2004/WORLD/americas/02/05/canada.environment.reut/index.html>]

Global warming poses a greater long-term threat to humanity than terrorism because it could force hundreds of millions from their homes and trigger an economic catastrophe. Canadian Environment Minister David Anderson said. "Current preoccupation is with terrorism, but in the long term climate change will outweigh terrorism as an issue for the international community," he said. "Terrorism will come and go, it has in the past...and it's very important. But climate change is going to make some very fundamental changes to human existence on the planet."

Warming → Economic Collapse

a. Warming will collapse the global economy.

Eilperin '06 [Juliet, Washington Post Staff Writer, Oct 31, "Warming Called Threat To Global Economy," <http://www.washingtonpost.com/wp-dyn/content/article/2006/10/30/AR2006103000269.html>]

Failing to curb the impact of climate change could damage the global economy on the scale of the Great Depression or the world wars by spawning environmental devastation that could cost 5 to 20 percent of the world's annual gross domestic product, according to a report issued yesterday by the British government. The report by Nicholas Stern, who heads Britain's Government Economic Service and formerly served as the World Bank's chief economist, calls for a new round of international collaboration to cut greenhouse gas emissions linked to global warming. "There's still time to avoid the worst impacts of climate change, if we act now and act internationally," Stern said in a statement. "But the task is urgent. Delaying action, even by a decade or two, will take us into dangerous territory. We must not let this window of opportunity close."

b. Economic collapse causes nuclear war.

Mead '92 [Walter Russell, Economist, "Depending on the Kindness of Strangers," *New Perspectives Quarterly*]

If so, this new failure—the failure to develop an international system to hedge against the possibility of worldwide depression—will open their eyes to their folly. Hundreds of millions—billions—of people around the world have pinned their hopes on the international market economy. They and their leaders have embraced market principles—and drawn closer to the West—because they believe that our system can work for them. But what if it can't? What if the global economy stagnates—or even shrinks? In that case, we will face a new period of international conflict: South against North, rich against poor. Russia, China, India—these countries with their billions of people and their nuclear weapons will pose a much greater danger to world order than Germany and Japan did in the '30s.

Warming → Ocean Collapse

a. Global warming will rapidly collapse the oceans.

Sydney Morning Herald '08 [Jun 7, "Putting sea life to the acid test," <http://www.smh.com.au/news/environment/putting-sea-life-to-the-acid-test/2008/06/06/1212259115421.html?page=fullpage#contentSwap2>]

Global warming and chemical change are creating a deadly double threat to our oceans, writes Marian Wilkinson. In a Hobart laboratory a few weeks ago, a young marine biologist placed the shell of a tiny sea snail on a weighing scale and held her breath. Donna Roberts's critical experiment rested on getting the exact weight of this fragile specimen; any movement in the room could instantly throw off the delicate scale, so sensitive it is called a microbalance. Roberts had been weighing 100 of these shells, stripped from snails that had been collected from the depths of the great Southern Ocean half way between Tasmania and Antarctica. The snails, known to biologists as pteropods, swim through the sea like butterflies. They are as abundant as krill and help feed the ocean's huge schools of fish. The shell specimens dated back to 1996 and the earlier ones had weighed in at 20 micrograms. But Roberts observed that as the specimens became more recent, the weight of the shells had fallen. When her last specimen, from 2005, weighed in at just 10 micrograms, Roberts barely dared to breathe. "Wow, what is going on?" she asked herself. A halving of shell weight in just one decade was a real worry. Roberts's still unpublished research is just one reason why her collaborator, Dr Will Howard, from the Antarctic Climate and Ecosystems Cooperative Research Centre, this week convened an extraordinary meeting of Australia's leading marine scientists in Hobart. For three days, the 50 scientists, along with colleagues from America and New Zealand, focused their collective minds on a threat that has emerged, it seems, from out of the blue: the growing acidification of our oceans. These scientists now know that burning fossil fuels and massive land clearing are not just warming the planet and raising sea temperatures, they are also changing the chemical make up of the oceans. A vast amount of the carbon dioxide humans have pumped into the atmosphere since the industrial revolution has been absorbed by oceans. A new report by the Antarctic research centre, released at the Hobart meeting, says that about half the fossil fuel carbon dioxide released into the atmosphere by humans has now dissolved into the oceans. If we keep pumping carbon dioxide into the atmosphere at the current projections, by 2100 the ocean acidification will be three times that experienced at the end of the glacial period, 15,000 years ago. The chemistry is basic. The ocean is a weakly alkaline solution. When carbon dioxide sucked in from the atmosphere dissolves in sea water, it forms a weak acid, making the ocean more acidic. For sea life with fragile shells, corals and countless other sea creatures, a more acidic ocean could be disastrous and have unknown impacts right up the marine food chain.

b. Ocean collapse causes extinction.

Craig '03 [Robin Kundis, Associate Profess of Law at Indiana, Winter, "Taking Steps Toward Marine Wilderness Protection? Fishing and Coral Reef Marine Reserves in Florida and Hawaii," 34 McGeorge L. Rev. 155, Lexis]

The world's oceans contain many resources and provide many services that humans consider valuable. "Occupying more than seventy percent of the Earth's surface and ninety-five percent of the biosphere," oceans provide food; marketable goods such as shells, aquarium fish, and pharmaceuticals; life support processes including carbon sequestration, nutrient cycling, and weather mechanics; and quality of life, both aesthetic and economic, for millions of people worldwide. Indeed, it is difficult to overstate the importance of the ocean to humanity's well-being: "The ocean is the cradle of life on our planet, and it remains the axis of existence, the locus of planetary biodiversity, and the engine of the chemical and hydrological cycles that create and maintain our atmosphere and climate." Ocean and coastal ecosystem services have been calculated to be worth over twenty billion dollars per year, worldwide. In addition, many people assign heritage and existence value to the ocean and its creatures, viewing the world's seas as a common legacy to be passed on relatively intact to future generations. (It continues...) More generally, "ocean ecosystems play a major role in the global geochemical cycling of all the elements that represent the basic building blocks of living organisms, carbon, nitrogen, oxygen, phosphorous, and sulfur, as well as other less abundant but necessary elements". In a very real and direct sense, therefore, human degradation of marine ecosystems impairs the planet's ability to support life. Maintaining biodiversity is often critical to maintaining the functions of marine ecosystems. Current evidence shows that, in general, an ecosystem's ability to keep functioning in the face of disturbance is strongly dependent on its biodiversity, "indicating that more diverse ecosystems are more stable. (It continues...) We may not know much about the sea, but we do know this much: If we kill the ocean we kill ourselves, and we will take most of the biosphere with us. The Black Sea is almost dead, 863 its once-complex and productive ecosystem almost entirely replaced by a monoculture of comb jellies, "starving out fish and dolphins, emptying fishermen's nets, and converting the web of life into brainless, wraith-like blobs of jelly." 864 More importantly, the Black Sea is not necessarily unique.

Warming → Disease Spread

a. Warming will cause disease spread.

Steffen '04 [Will, Apr 1, "Abrupt Changes: The Achilles' Heels of the Earth System," Accessed via Ebscohost (Environment vol. 46 #3)]

Warmer and wetter conditions as a result of climate change may also facilitate the spread of diseases. Malnutrition, poverty, and inadequate public health systems in many developing countries provide large populations that are immune compromised with few immunological and institutional defenses against the spread of an aggressive infectious disease. An event similar to the 1918 Spanish Flu pandemic, which is thought to have killed 20-40 million people worldwide, could now result in more than 100 million deaths within a single year. (34) Such a catastrophic event, the possibility of which is being seriously considered by the epidemiological community, would probably lead to severe economic disruption and possibly even rapid collapse in a world economy dependent on fast global exchange of goods and services.

b. Disease spread causes extinction.

Steinbrunner '97 [John, Senior Fellow at Brookings, Foreign Policy, "Biological Weapons: A Plague Upon all Houses"]

Although human pathogens are often lumped with nuclear explosives and lethal chemicals as potential weapons of mass destruction, there is an obvious, fundamentally important difference: Pathogens are alive, weapons are not. Nuclear and chemical weapons do not reproduce themselves and do not independently engage in adaptive behavior; pathogens do both of these things. That deceptively simple observation has immense implications. The use of a manufactured weapon is a singular event. Most of the damage occurs immediately. The aftereffects, whatever they may be, decay rapidly over time and distance in a reasonably predictable manner. Even before a nuclear warhead is detonated, for instance, it is possible to estimate the extent of the subsequent damage and the likely level of radioactive fallout. Such predictability is an essential component for tactical military planning. The use of a pathogen, by contrast, is an extended process whose scope and timing cannot be precisely controlled. For most potential biological agents, the predominant drawback is that they would not act swiftly or decisively enough to be an effective weapon. But for a few pathogens - ones most likely to have a decisive effect and therefore the ones most likely to be contemplated for deliberately hostile use - the risk runs in the other direction. A lethal pathogen that could efficiently spread from one victim to another would be capable of initiating an intensifying cascade of disease that might ultimately threaten the entire world population. The 1918 influenza epidemic demonstrated the potential for a global contagion of this sort but not necessarily its outer limit. Nobody really knows how serious a possibility this might be, since there is no way to measure it reliably. Before the first atomic device was tested, there was genuine concern that such an explosion could ignite the Earth's atmosphere. American physicists were able to provide a credible calculation that proved the contrary. It would be comparably important to establish that no conceivable pathogen could kill a substantial portion of the entire human population, but current scientific knowledge simply cannot support such a determination. If anything, the balance of uncertain judgment would probably have to lean the other way.

Warming → Species Collapse

a. Global warming will cause global biodiversity collapse.

Sample '08 [Ian, Science Correspondent for the Guardian, May 15, "World's wildlife and environment already hit by climate change, major study shows," <http://www.guardian.co.uk/environment/2008/may/15/climatechange.scienceofclimatechange>]

Global warming is disrupting wildlife and the environment on every continent, according to an unprecedented study that reveals the extent to which climate change is already affecting the world's ecosystems. Scientists examined published reports dating back to 1970 and found that **at least 90% of environmental damage and disruption around the world could be explained by rising temperatures driven by human activity. Big falls in Antarctic penguin populations, fewer fish in African lakes, shifts in American river flows and earlier flowering and bird migrations in Europe are all likely to be driven by global warming,** the study found. The team of experts, including members of the UN's intergovernmental panel on climate change (IPCC) from America, Europe, Australia and China, is the first to formally link some of the most dramatic changes to the world's wildlife and habitats with human-induced climate change. In the study, which appears in the journal Nature, researchers analysed reports highlighting changes in populations or behaviour of 28,800 animal and plant species. They examined a further 829 reports that focused on different environmental effects, including surging rivers, retreating glaciers and shifting forests, across the seven continents. To work out how much - or if at all - global warming played a role, the scientists next checked historical records to see what impact natural variations in local climate, deforestation and changes in land use might have on the ecosystems and species that live there. **In 90% of cases the shifts in wildlife behaviour and populations could only be explained by global warming, while 95% of environmental changes, such as melting permafrost, retreating glaciers and changes in river flows were consistent with rising temperatures. "When we look at all these impacts together, it is clear they are across continents and endemic. We're getting a sense that climate change is already changing the way the world works,"** said lead author Cynthia Rosenzweig, head of the climate impacts group at Nasa's Goddard Institute for Space Studies in New York. Most of the reports examined by the team were published between 1970 and 2004, during which time global average temperatures rose by around 0.6C. The latest report from the IPCC suggests the world is likely to warm between 2C and 6C by the end of the century. "When you look at a map of the world and see where these changes are already happening, and how many species and systems are already responding to climate change after only a 0.6C rise, it just heightens our concerns for the future," Rosenzweig said. "It's clear we have to adapt to climate change as well as try to mitigate it. **It's real and it's happening now.**" A large number of the studies included in the team's analysis reveal stark changes in water availability as the world gets warmer. In many regions snow and ice melts earlier in the year, driving up spring water levels in rivers and lakes, with droughts following in the summer. Understanding shifts in water availability will have a big impact on water management and be critical to securing supplies, the scientists say. By collecting disparate reports on wildlife and ecosystems, it is possible to see how disruption to one part of the environment has knock-on effects elsewhere. In one study rising temperatures caused sea ice in Antarctica to vanish, prompting an 85% fall in the krill population. A separate study found that the population of Emperor penguins, which feed on krill in the same region, had also fallen by 50% during one warm winter. A loss of krill, also a dietary staple for whales and seals, was cited as a factor in recent accounts of cannibalism among polar bears in the Arctic. In 2006 Steven Amstrup, a world expert in polar bears at the US Geological Society, investigated three cases of the animals preying on one another in the southern Beaufort sea. A lack of their usual prey may have prompted the bears to turn on each other. Other reports show how the early arrival of spring in Europe has far-reaching effects down the food chain. **The warmer weather causes trees to unfurl their leaves earlier, which causes a rise in leaf-eating grub numbers sooner in the year.** Blue tits that feed on the grubs have largely adapted to the shift, by giving birth to their young two weeks earlier. "It was a real challenge to separate the influence of human-caused temperature increases from natural climate variations or other confounding factors, such as land-use changes or pollution," said David Karoly, a co-author based at Melbourne University in Australia.

b. Species collapse risks extinction.

Diner '94 [David, Major in US Army, Winter, "THE ARMY AND THE ENDANGERED SPECIES ACT: WHO'S ENDANGERING WHOM?" Lexis]

Biologically diverse ecosystems are characterized by a large number of specialist species, filling narrow ecological niches. These ecosystems inherently are more stable than less diverse systems. "The more complex the ecosystem, the more successfully it can resist a stress. . . . [l]ike a net, in which each knot is connected to others by several strands, such a fabric can resist collapse better than a simple, unbranched circle of threads -- which if cut anywhere breaks down as a whole." ²⁹ By causing widespread extinctions, humans have **artificially simplified many ecosystems.** As biologic simplicity increases, so does the risk of ecosystem failure. The spreading Sahara Desert in Africa, and the dustbowl conditions of the 1930s in the United States are relatively mild examples of what might be expected if this trend continues. **Theoretically, each new animal or plant extinction, with all its dimly perceived and intertwined affects, could cause total ecosystem collapse and human extinction. Each new extinction increases the risk of disaster.** Like a mechanic removing, one by one, the rivets from an aircraft's wings, ³⁰ mankind may be edging closer to the abyss.

Warming → Water Wars

a. Global warming will trigger global water wars.

Borenstein '07 [Seth, Associated Press Staff Writer, Apr 17, "U.S. and Global Water Wars Loom," http://www.livescience.com/environment/070417_ap_gw_water.html]

As the world warms, water -- either too little or too much of it -- is going to be the major problem for the United States, scientists and military experts said Monday. It will be a domestic problem, with states clashing over controls of rivers, and a national security problem as water shortages and floods worsen conflicts and terrorism elsewhere in the world, they said. At home, especially in the Southwest, regions will need to find new sources of drinking water, the Great Lakes will shrink, fish and other species will be left high and dry, and coastal areas will on occasion be inundated because of sea-level rises and souped-up storms, U.S. scientists said. The scientists released a 67-page chapter on North American climate effects, which is part of an international report on climate change impact. Meanwhile, global-warming water problems will make poor, unstable parts of the world -- the Middle East, Africa and South Asia -- even more prone to wars, terrorism and the need for international intervention, a panel of retired military leaders said in a separate report. "Water at large is the central (global warming) problem for the U.S.," Princeton University geosciences professor Michael Oppenheimer said after a press conference featuring eight American scientists who were lead authors of the Intergovernmental Panel on Climate Change's climate-effects report. Roger Pulwarty, one of the federal government's top drought scientists, said states such as Arizona and Colorado, which already fight over the Colorado River basin water, will step up legal skirmishes. They may look to the Great Lakes, but water availability there will shrink, he said. Reduced snow melt supplying water for the Sacramento Valley in California means that by 2020 there won't be enough water "to meet the needs of the community," Pulwarty said. That will step-up the competition for water, he said. On the East Coast, rising sea levels will make storm surge "the No. 1 vulnerability for the metropolitan East Coast," said study lead author Cynthia Rosenzweig of NASA. "It's a very real threat and needs to be considered for all coastal development." Rising sea level can harm Florida's biodiversity and be dangerous during hurricanes, the scientists added. A few hours later, retired Gen. Charles F. "Chuck" Wald focused on the same global warming problem. "One of the biggest likely areas of conflict is going to be over water," said Wald, former deputy commander of U.S. European Command. He pointed to the Middle East and Africa. The military report's co-author, former Army Chief of Staff Gen. Gordon R. Sullivan, also pointed to sea-level rise floods as potentially destabilizing South Asia countries of Pakistan, India, Bangladesh, Indonesia and Vietnam. Lack of water and food in places already the most volatile will make those regions even more unstable with global warming and "foster the conditions for internal conflicts, extremism and movement toward increased authoritarianism and radical ideologies," states the 63-page military report, issued by the CNA Corp., an Alexandria, Va.-based national security think tank. Kristi Ebi, a Virginia epidemiologist on the scientific panel, said reduced water supplies globally will hinder human health. "We're seeing mass migration of people because of things like water resource constraint, and that's certainly a factor in conflict," she added. Peter Gleick, president of the Pacific Institute, an Oakland, Calif., think tank, said the national security and domestic infighting over water comes as little surprise. "Water is connected to everything we care about -- energy, human health, food production and politics," said Gleick, who was not part of either panel. "And that fact alone means we better pay more attention to the security connections. Climate will effect all of those things. Water resources are especially vulnerable to climate change." As water fights erupt between nations and regions and especially between cities and agricultural areas, Stanford scientist Terry Root said there will be one sure loser low on the priority list for water: other species. "The fish will lose out and the birds and everything," she said. Pollution will also worsen with global warming, the scientists said. As places like the Great Lakes draw down on water, the pollution inside will get more concentrated and trapped toxins will come more to the surface, said Stanford scientist Stephen Schneider. And even the air, especially in the Northeast, will become more deadly. More heat means more smog cooked and about a 4 to 5 percent increase in smog-related deaths, Ebi said. That's thousands of people, she said. The scientists and military leaders held out hope that dramatic cuts in fossil fuel emissions could prevent much of the harm they are predicting. But they said the U.S. government -- and the rest of the world -- has to act now.

b. Water wars cause global nuclear war.

Weiner '90 [Jonathan, Visiting Professor at Princeton, *The next 100 years*, p. 270]

If we do not destroy ourselves with the A-bomb and the H-bomb, then we may destroy ourselves with the C-bomb, the Change Bomb. And in a world as interlinked as ours, one explosion may lead to the other. Already in the Middle East, from North Africa to the Persian Gulf and from the Nile to the Euphrates, tensions over dwindling water supplies and rising populations are reaching what many experts describe as a flashpoint. A climate shift in that single battle-scarred nexus might trigger international tensions that will unleash some of the 60,000 nuclear warheads the world has stockpiled since Trinity.

Warming Kills Coral Reefs

a. Warming destroys coral reefs.

Herbert '02 [Bob, New York Times Staff Writer, Jun 20, "No margin for error," Lexis]

Global warming is already attacking the world's coral reefs and, if nothing is done soon, could begin a long-term assault on the vast West Antarctic Ice Sheet. If the ice sheet begins to disintegrate, the worldwide consequences over the next several centuries could well be disastrous. Coral reefs are sometimes called the rain forests of the oceans because of the tremendous variety of animal and plant life that they support. "They're the richest ocean ecosystem, and if they are destroyed or severely damaged, a lot of the biological diversity simply goes away," said Dr. Michael Oppenheimer, a professor of geosciences and international affairs at Princeton who is an expert on climate change. Dr. Oppenheimer and Brian C. O'Neill, a professor at Brown, have an article in the current issue of Science magazine that addresses some of the long-term dangers that could result if nothing is done about global warming. One of the things that is not widely understood about the greenhouse gases that are contributing to the warming of the planet is that once they are spewed into the atmosphere, they stay there for centuries, and in some cases, millenniums. So a delay of even a decade or so in reducing those emissions can make it much more difficult -- and costly -- to slow the momentum of the warming and avert the more extreme consequences. In their article, Dr. Oppenheimer and Dr. O'Neill suggest that public officials and others trying to determine what levels of global warming would actually be dangerous could use the destruction of the world's coral reefs as one of their guides. Coral reefs, which are breathtakingly beautiful natural phenomena, tend to thrive in water temperatures that are only slightly below the maximum temperature at which they can survive. There is not much margin for error. Even allowing for some genetic adaptation, a sustained increase in water temperatures of as little as a couple of degrees Fahrenheit can result in widespread coral reef destruction in just a few years. A number of factors are already contributing to the destruction of coral reefs, and global warming is one of them. As the earth's temperature continues to rise, global warming will most likely become the chief enemy of what Dr. Oppenheimer calls "these wonderful sources of biological diversity."

b. Reef collapse ensures extinction.

Global news Wire '02 [Dec 10, "Reefs Under Stress," Lexis]

Coral reefs are the marine equivalent of rainforests that are also being destroyed at an alarming rate not only in the Philippines but all over the world. The World Conservation Union says reefs are one of the "essential life support systems" necessary for human survival, homes to huge numbers of animals and plants. Dr. Helen T. Yap of the Marine Science Institute of the University of the Philippines said that the country's coral reefs, together with those of Indonesia and Papua New Guinea, contain the biggest number of species of plants and animals. "They lie at the center of biodiversity in our planet," she said.

Warming → Famine

a. Global warming will cause a massive increase in famine.

Reuters '05 [May 27, "Climate change likely to increase famine: FAO,"
<http://www.abc.net.au/news/newsitems/200505/s1378213.htm>]

Global warming is likely to significantly diminish food production in many countries and greatly increase the number of hungry people, the UN Food and Agriculture Organisation (FAO) says. The FAO says in a report that food distribution systems and their infrastructure would be disrupted and that the severest impact would likely be in sub-Saharan African countries. "There is strong evidence that global climate is changing and that the social and economic costs of slowing down global warming and of responding to its impacts will be considerable," the report said. Many scientists fear rising temperatures, blamed mainly on heat-trapping gases from burning fossil fuels, will melt ice caps, raise sea levels by almost a metre by the end of this century and bring more floods, droughts and storms. Global warming would increase the amount of land classified as being either arid or insufficiently moist in the developing world. In Africa the amount of this type of harsh land could increase by as much as 90 million hectares by 2008, an area nearly four times the size of Britain. Changes in temperature and rainfall as well as an increase in the number of so-called "extreme weather events" such as floods will bring with them potentially devastating effects. The world suffered 600 floods in the past two-and-a-half years, which claimed the lives of about 19,000 people and caused \$US25 billion in damages. That excludes December's devastating tsunami in south-east Asia that killed more than 180,000. FAO says scientific studies show that global warming would lead to an 11 per cent decrease in rain-fed land in developing countries and in turn a serious decline in cereal production. "Sixty-five developing countries, representing more than half of the developing world's total population in 1995, will lose about 280 million tons of potential cereal production as a result of climate change," FAO said. The effect of climate change on agriculture could increase the number of people at risk of hunger, particularly in countries already saddled with low economic growth and high malnourishment levels. "In some 40 poor, developing countries, with a combined population of 2 billion... production losses due to climate change may drastically increase the number of undernourished people, severely hindering progress in combating poverty and food insecurity," the report said.

b. Famine must be rejected and outweighs extinction.

Watson '77 [Richard, Professor of Philosophy at Washington University, *World Hunger and Moral Obligation*, p. 118-9]

One may even have to sacrifice one's life or one's nation to be moral in situations where practical behavior would preserve it. For example, if a prisoner of war undergoing torture is to be a (perhaps dead) patriot even when reason tells him that collaboration will hurt no one, he remains silent. Similarly, if one is to be moral, one distributes available food in equal shares even if everyone dies. That an action is necessary to save one's life is no excuse for behaving unpatriotically or immorally if one wishes to be a patriot or moral. No principle of morality absolves one of behaving immorally simply to save one's life or nation. There is a strict analogy here between adhering to moral principles for the sake of being moral, and adhering to Christian principles for the sake of being Christian. The moral world contains pits and lions, but one looks always to the highest light. The ultimate test always harks back to the highest principle – recant or die. The ultimate test always harks back to the highest principle – recant or die – and it is pathetic to profess morality if one quits when the going gets rough.

Warming → Terrorism

a. Warming will cause terrorism.

Lopez '07 [T. Joseph, Retired Admiral of US Navy, "National Security and the Threat of Climate Change," <http://securityandclimate.cna.org/report/National%20Security%20and%20the%20Threat%20of%20Climate%20Change.pdf>]

"Climate change will provide the conditions that will extend the war on terror," Adm. Lopez said. "You have very real changes in natural systems that are most likely to happen in regions of the world that are already fertile ground for extremism," Adm. Lopez said. "Droughts, violent weather, ruined agricultural lands—those are the kinds of stresses we'll see more of under climate change." Those changes in nature will lead to changes in society. "More poverty, more forced migrations, higher unemployment. Those conditions are ripe for extremists and terrorists." In the controversial war on terrorism, Adm. Lopez noted, there is general agreement on at least one thing: It's best to stop terrorism before it develops. "In the long term, we want to address the underlying conditions that terrorists seek to exploit. That's what we'd like to do, and it's a consensus issue—we all want to do that. But climate change prolongs those conditions. It makes them worse." "Dealing with instability and how you mitigate that leads to questions about the role U.S. security forces can play," Adm. Lopez added. "What can we do to alleviate the problems of instability in advance? And keep in mind this will all be under a challenged resource situation. This is very complicated. Of course, the military can be a catalyst for making this happen, but it can't do it all. This is also about economics, politics, and diplomacy.

b. Terrorism causes extinction.

Sid-Ahmed '04 [Mohamed, Political Analyst for Al-Ahram Weekly, Aug 26, "Extinction!," <http://weekly.ahram.org.eg/2004/705/op5.htm>]

What would be the consequences of a nuclear attack by terrorists? Even if it fails, it would further exacerbate the negative features of the new and frightening world in which we are now living. Societies would close in on themselves, police measures would be stepped up at the expense of human rights, tensions between civilisations and religions would rise and ethnic conflicts would proliferate. It would also speed up the arms race and develop the awareness that a different type of world order is imperative if humankind is to survive. But the still more critical scenario is if the attack succeeds. This could lead to a third world war, from which no one will emerge victorious. Unlike a conventional war which ends when one side triumphs over another, this war will be without winners and losers. When nuclear pollution infects the whole planet, we will all be losers.

Warming → African Instability

a. Warming will cause massive African instability.

Wald '07 [Chuck, Retired General of the Air Force, "National Security and the Threat of Climate Change," <http://securityandclimate.cna.org/report/National%20Security%20and%20the%20Threat%20of%20Climate%20Change.pdf>]

Africa's importance to U.S. national security can no longer be ignored. Indeed, with the recent establishment of a U.S. African Command, the U.S. has underscored Africa's strategic importance. Its weak governments and the rising presence of terrorist groups make Africa important to the fight against terrorism. Moreover, Africa is also of strategic value to the U.S. as a supplier of energy; by 2015, it will supply 25 to 40 percent of our oil, and it will also be a supplier of strategic minerals such as chrome, platinum, and manganese. Reductions in soil moisture and further loss of arable land may be the most significant of the projected impacts of climate change in Africa. At the same time, extreme weather events are likely to increase. These expected changes portend reduced supplies of potable water and food production in key areas. Such changes will add significantly to existing tensions and can facilitate weakened governance, economic collapses, massive human migrations, and potential conflicts. In Somalia, for example, alternating droughts and floods led to migrations of varying size and speed and prolonged the instability on which warlords capitalized. Increased political instability in Africa potentially adds additional security requirements for the U.S. in a number of ways. Stability operations, ranging from humanitarian direct delivery of goods and the protection of relief workers, to the establishment of a stable and reconstructed state, can place heavy demands on the U.S. military. While the nature of future stability operations is a matter of speculation, historically some stability operations have involved significant military operations and casualties. Political instability also makes access to African trade and resources, on which the U.S. is reliant for both military and civilian uses, a riskier proposition.

UNSTABLE GOVERNMENTS AND TERRORIST HAVENS

Africa is increasingly crucial in the ongoing battle against civil strife, genocide, and terrorism. Numerous African countries and regions already suffer from varying degrees of famine and civil strife. Darfur, Ethiopia, Eritrea, Somalia, Angola, Nigeria, Cameroon, Western Sahara—all have been hit hard by tensions that can be traced in part to environmental causes. Struggles that appear to be tribal, sectarian, or nationalist in nature are often triggered by reduced water supplies or reductions in agricultural productivity. The challenges Africa will face as a result of climate change may be massive, and could present serious threats to even the most stable of governments. Many African nations can best be described as failed states, and many African regions are largely ungoverned by civil institutions. When the conditions for failed states increase—as they most likely will over the coming decades—the chaos that results can be an incubator of civil strife, genocide, and the growth of terrorism.

b. African instability means global nuclear war.

Duetsch '02 [Dr. Jeffrey, BA Government from Cornell, MA & PhD Economics from George Mason, Nov 18, <http://www.rabidigers.com/rtn/newsletterv2n9.html>]

The Rabid Tiger Project believes that a nuclear war is most likely to start in Africa. Civil wars in the Congo (the country formerly known as Zaire), Rwanda, Somalia and Sierra Leone, and domestic instability in Zimbabwe, Sudan and other countries, as well as occasional brushfire and other wars (thanks in part to "national" borders that cut across tribal ones) turn into a really nasty stew. We've got all too many rabid tigers and potential rabid tigers, who are willing to push the button rather than risk being seen as wishy-washy in the face of a mortal threat and overthrown. Geopolitically speaking, Africa is open range. Very few countries in Africa are beholden to any particular power. South Africa is a major exception in this respect - not to mention in that she also probably already has the Bomb. Thus, outside powers can more easily find client states there than, say, in Europe where the political lines have long since been drawn, or Asia where many of the countries (China, India, Japan) are powers unto themselves and don't need any "help," thank you. Thus, an African war can attract outside involvement very quickly. Of course, a proxy war alone may not induce the Great Powers to fight each other. But an African nuclear strike can ignite a much broader conflagration, if the other powers are interested in a fight. Certainly, such a strike would in the first place have been facilitated by outside help - financial, scientific, engineering, etc. Africa is an ocean of troubled waters, and some people love to go fishing.

Warming → Middle Eastern Instability

a. Global warming will exacerbate Middle Eastern instability.

Zinni '07 [Tony, Retired Marine Corps General, "National Security and the Threat of Climate Change," <http://securityandclimate.cna.org/report/National%20Security%20and%20the%20Threat%20of%20Climate%20Change.pdf>]

Climate change acts as a threat multiplier for instability in some of the most volatile regions of the world. Many governments in Asia, Africa, and the Middle East are already on edge in terms of their ability to provide basic needs: food, water, shelter and stability. Projected climate change will exacerbate the problems in these regions and add to the problems of effective governance. Unlike most conventional security threats that involve a single entity acting in specific ways at different points in time, climate change has the potential to result in multiple chronic conditions, occurring globally within the same time frame. Economic and environmental conditions in these already fragile areas will further erode as food production declines, diseases increase, clean water becomes increasingly scarce, and populations migrate in search of resources. Weakened and failing governments, with an already thin margin for survival, foster the conditions for internal conflict, extremism, and movement toward increased authoritarianism and radical ideologies. The U.S. may be drawn more frequently into these situations to help to provide relief, rescue, and logistics, or to stabilize conditions before conflicts arise. Because climate change also has the potential to create natural and humanitarian disasters on a scale far beyond those we see today, its consequences will likely foster political instability where societal demands exceed the capacity of governments to cope. As a result, the U.S. may also be called upon to undertake stability and reconstruction efforts once a conflict has begun.

b. Middle Eastern instability causes global nuclear war.

Steinbach '02 [John, Centre for Research on Globalisation, <http://www.globalresearch.ca/articles/STE203A.html>]

Meanwhile, the existence of an arsenal of mass destruction in such an unstable region in turn has serious implications for future arms control and disarmament negotiations, and even the threat of nuclear war. Seymour Hersh warns, "Should war break out in the Middle East again... or should any Arab nation fire missiles against Israel, as the Iraqis did, a nuclear escalation, once unthinkable except as a last resort, would now be a strong probability." (41) and Ezar Weissman, Israel's current President said "The nuclear issue is gaining momentum (and the) next war will not be conventional." (42) Russia and before it the Soviet Union has long been a major (if not the major) target of Israeli nukes. It is widely reported that the principal purpose of Jonathan Pollard's spying for Israel was to furnish satellite images of Soviet targets and other super sensitive data relating to U.S. nuclear targeting strategy. (43) (Since launching its own satellite in 1988, Israel no longer needs U.S. spy secrets.) Israeli nukes aimed at the Russian heartland seriously complicate disarmament and arms control negotiations and, at the very least, the unilateral possession of nuclear weapons by Israel is enormously destabilizing, and dramatically lowers the threshold for their actual use, if not for all out nuclear war. In the words of Mark Gaffney, "... if the familiar pattern (Israel refining its weapons of mass destruction with U.S. complicity) is not reversed soon- for whatever reason- the deepening Middle East conflict could trigger a world conflagration."

Warming is Real

Warming is real – their evidence is bought, risking inaction and extinction.

Sweere '08 [Bob, News Ledger Staff Writer, Jun 16, "Global warming? Yes," <http://www.news-leader.com/apps/pbcs.dll/article?AID=/20080616/OPINIONS02/806160325/1006/OPINIONS>]

Global warming is settled, unless you are a flat earther or an energy company apologist. The Intergovernmental Panel on Climate Change (IPCC) was established in 1988. It issued its fourth report last year. Its key findings include:

- **Warming of the climate system is unequivocal.**

- **Most of the observed increase in globally averaged temperatures since the mid-20th century is very likely due to the observed increase in human-caused greenhouse gas concentrations.**

- The probability that this is caused by natural climatic processes alone is less than 5 percent.

- World temperatures could rise by between 2.0 and 11.5 degrees during the 21st century and that sea levels will probably rise by 7.08 to 23.22 inches.

- There is a confidence level greater than 90 percent that there will be more frequent warm spells, heat waves and heavy rainfall.

- There is a confidence level greater than 66 percent that there will be an increase in droughts, tropical cyclones and extreme high tides.

At the same time the IPCC published this report, the American Enterprise Institute (AEI) was offering scientists \$10,000 plus expenses to undermine the report.

As of early 2007 the AEI had received more than \$1.6 million from ExxonMobil. More than 20 AEI staffers worked as consultants to the Bush administration. Lee Raymond, a former head of ExxonMobil, was vice chairman of AEI's board of trustees. The AEI's offer attacked the IPCC report as "resistant to reasonable criticism and dissent and prone to summary conclusions that are poorly supported by the analytical work" and asked for essays that "thoughtfully explore the limitations of climate model outputs."

Climate scientists described the AEI offer as an attempt to cast doubt over the "overwhelming scientific evidence" on global warming by an organization who wanted to distort science for its own political aims.

One activist was quoted as saying: "The AEI is more than just a thinktank, it functions as the Bush administration's intellectual Cosa Nostra. They are White House surrogates in the last throes of their campaign of climate change denial. They lost on the science; they lost on the moral case for action. All they've got left is a suitcase full of cash." Since 2004 a string of government scientists have charged the Bush administration with attempting to suppress scientific data concerning climate change. White House officials have tried to tone down the connection between climate change and human activity, such as burning fossil fuels. According to government scientists, Bush administration officials worked to bury a major report on the possible consequences of rising temperatures; improperly edited major reports to downplay the role of human activity in rising temperatures; and tried to keep scientists working on hard-hitting climate research from speaking to the media.

A 2007 probe by the Union of Concerned Scientist (UCS) and the Government Accountability Project (GAP) surveyed nearly 300 federal scientists and found that nearly half experienced pressure to purge references to global warming and climate change from reports and other documents. The report, which included dozens of in-depth interviews, documents a high regard for climate change research but broad interference in communicating scientific results.

"The new evidence shows that political interference in climate science is no longer a series of isolated incidents but a system-wide epidemic," said Dr. Francesca Grifo, Director of the UCS Scientific Integrity Program. "Tailoring scientific fact for political purposes has become a problem across many federal science agencies."

Responding climate scientists reported experiencing at least 435 occurrences of political interference in their work over the previous five years. **Nearly half of all respondents perceived or personally experience pressure to eliminate the words "climate change" "global warming," or other similar terms from a variety of communications.**

Forty-three percent of respondents reported they had perceived or personally experienced changes or edits during review of their work that changed the meaning of their scientific findings. Forty-six percent perceived or personally experienced new or unusual administrative requirements that impair climate-related work.

The GAP investigation, consisting of 40 in-depth interviews with climate scientists and a review of 2,000 agency documents, revealed that agency media policies often unnecessarily hinder scientists' interaction with the media rather than facilitate public dissemination of their research. For instance, Dr. Drew Shindell, an ozone specialist and NASA climatologist, submitted a press release to announce the publication of a paper on climate change. Press officers significantly watered down language that described his findings, and the new research received little notice by the media.

"Increasingly, scientists and support staff at federal research facilities have been getting signals that climate science is a 'sensitive' topic," said GAP Staff Attorney Tarek Maassarani. "With an issue of this significance, we should be encouraging scientists to tell what they know about it, and we should listen." While 88 percent of respondents agreed that federal climate research is of generally excellent quality, respondents reported a worsening environment for climate science in federal agencies.

"Every day that the government stifles climate science is a day we fail to protect future generations and our planet from the consequences of global warming," said one scientist. "We need reforms that affirm the right of scientists to fully communicate their research and to blow the whistle when important science is suppressed."

In sum, if you believe global warming doesn't exist; you've bought the "big lie." How about a cigarette? it's good for your health.

Warming is Real

Scientific consensus is the warming is real.

Oreskes '04 [Naomi, author is in the Department of History and Science Studies Program at UCSD, Dec, "The Scientific Consensus on Climate Change," <http://www.sciencemag.org/cgi/content/full/306/5702/1686#affiliation>]

The scientific consensus is clearly expressed in the reports of the Intergovernmental Panel on Climate Change (IPCC). Created in 1988 by the World Meteorological Organization and the United Nations Environmental Programme, IPCC's purpose is to evaluate the state of climate science as a basis for informed policy action, primarily on the basis of peer-reviewed and published scientific literature (3). In its most recent assessment, IPCC states unequivocally that the consensus of scientific opinion is that Earth's climate is being affected by human activities: "Human activities ... are modifying the concentration of atmospheric constituents ... that absorb or scatter radiant energy. ... [M]ost of the observed warming over the last 50 years is likely to have been due to the increase in greenhouse gas concentrations" [p. 21 in (4)]. IPCC is not alone in its conclusions. In recent years, all major scientific bodies in the United States whose members' expertise bears directly on the matter have issued similar statements. For example, the National Academy of Sciences report, *Climate Change Science: An Analysis of Some Key Questions*, begins: "Greenhouse gases are accumulating in Earth's atmosphere as a result of human activities, causing surface air temperatures and subsurface ocean temperatures to rise" [p. 1 in (5)]. The report explicitly asks whether the IPCC assessment is a fair summary of professional scientific thinking, and answers yes: "The IPCC's conclusion that most of the observed warming of the last 50 years is likely to have been due to the increase in greenhouse gas concentrations accurately reflects the current thinking of the scientific community on this issue" [p. 3 in (5)]. Others agree. The American Meteorological Society, the American Geophysical Union, and the American Association for the Advancement of Science (AAAS) all have issued statements in recent years concluding that the evidence for human modification of climate is compelling.

40 years of studies prove the warming is real.

Munro '08 [Margaret, Canwest News Service, May 14, "Study reveals growing evidence of global warming," <http://www.canada.com/topics/news/story.html?id=326fe156-c93e-4623-a268-e2d71dcfe7c9>]

A vast array of physical and biological systems - from polar bears in the Arctic to tiny krill in the Southern Ocean - are showing the effect of the world's rising temperature, say scientists who analyzed more than 30,000 sets of data stretching back to 1970. Shrinking glaciers, melting permafrost, earlier spring river runoff, and warmer water bodies point to pervasive physical changes, they say. And earlier spring blossoms, bird migrations and altered distribution - salmon showing up in the Arctic, the mountain pine beetle expanding into vast tracks of Western Canada's forests - point to the many biological impacts. "Significant changes in physical and biological systems are occurring on all continents and in most oceans," the international team reported Wednesday in the journal *Nature*. The study builds on the work of the United Nations' Intergovernmental Panel on Climate Change, which last year concluded that human-induced climate warming is "likely" - within 66 to 90 per cent probability - having a "discernible" effect on physical and biological systems. The new study mined even more data and concludes human-influenced climate change is the main driver of the changes being observed, outstripping the more modest effects of deforestation and other land-use changes. "Anthropogenic climate change is having a significant impact on physical and biological systems globally," says the team, led by Cynthia Rosenzweig of The Earth Institute at Columbia University in New York.

Warming is Real

Warming is real – latest data and most-thorough studies proves.

MSNBC '07 [Apr 6, "Experts Issue new climate warning,"

<http://www.heatisonline.org/contentserver/objecthandlers/index.cfm?id=6342&method=full>]

An international global warming conference approved a report Friday warning of dire threats to the Earth and to mankind from increased hunger in Africa and Asia to the extinction of species unless the world adapts to climate change and halts its progress. Africa will be hardest hit, the report concluded. By 2020, up to 250 million people are likely to be exposed to water shortages. In some countries, food production could fall by half, it said. Agreement came after an all-night session during which key sections were deleted from the draft and scientists angrily confronted government negotiators who they feared were watering down their findings. It has been a complex exercise, said Rajendra Pachauri, chairman of the Intergovernmental Panel on Climate Change. Several scientists objected to the editing of the final draft by government negotiators but in the end agreed to compromises. However, some scientists vowed never to take part in the process again. **The climax of five days of negotiations was reached when the delegates removed parts of a key chart highlighting devastating effects of climate change that kick in with every rise of 1.8 degrees Fahrenheit, and in a tussle over the level of scientific reliability attached to key statements. There was little doubt about the science, which was based on 29,000 sets of data, much of it collected in the last five years.** For the first time we are not just arm-waving with models, Martin Perry, who conducted the grueling negotiations, told reporters.

Seven indicators prove warming is real.

NAS '01 [National Academy of Sciences (society of the most distinguished scientists in the country), "Climate Change Science: An Analysis of Some Key Questions," Chapter 5 of <http://books.nap.edu/html/climatechange/5.html>]

A diverse array of evidence points to a warming of global surface air temperatures. Instrumental records from **land stations and ships** indicate that global mean surface air temperature warmed by **about 0.4-0.8°C (0.7-1.5°F)** during the 20th century. The warming trend is spatially widespread and is consistent with the **global retreat of mountain glaciers**, reduction in snow-cover extent, the earlier spring melting of ice on rivers and lakes, the accelerated rate of rise of sea level during the 20th century relative to the past few thousand years, **and the increase in upper-air water vapor and rainfall rates** over most regions. A lengthening of the growing season also has been documented in many areas, along with an earlier plant flowering season and earlier arrival and breeding of migratory birds. Some **species of plants, insects, birds, and fish have shifted towards higher latitudes and higher elevations.** **The ocean**, which represents the largest reservoir of heat in the climate system, **has warmed** by about 0.05°C (0.09°F) averaged **over the layer extending from the surface down to 10,000 feet, since the 1950s.** Pronounced changes have occurred over high latitudes of the Northern Hemisphere. Analysis of recently declassified data from U.S. and Russian submarines indicates that **sea ice in the central Arctic has thinned** since the 1970s. **Satellite data** also indicate a 10-15% decrease in summer sea ice concentration over the Arctic as a whole, which is primarily due to the retreat of the ice over the Siberian sector. **A decline of about 10% in spring and summer continental snow cover extent over the past few decades also has been observed.** Some of these high latitude changes are believed to be as much or more a reflection of changes in wintertime wind patterns as a direct consequence of global warming per se. The rate of warming has not been uniform over the 20th century. Most of it occurred prior to 1940 and during the past few decades. The Northern Hemisphere as a whole experienced a slight cooling from 1946-75, and the cooling during that period was quite marked over the eastern United States. The cause of this hiatus in the warming is still under debate. The hiatus is evident in averages over both Northern and Southern Hemispheres, but it is more pronounced in the Northern Hemisphere. One possible cause of this feature is the buildup of sulfate aerosols due to the widespread burning of high sulfur coal during the middle of the century, followed by a decline indicated by surface sulfate deposition measurements. It is also possible that at least part of the rapid warming of the Northern Hemisphere during the first part of the 20th century and the subsequent cooling were of natural origin--a remote response to changes in the oceanic circulation at subarctic latitudes in the Atlantic sector, as evidenced by the large local temperature trends over this region. Suggestions that either variations in solar luminosity or the frequency of major volcanic emissions could have contributed to the irregular rate of warming during the 20th century cannot be excluded.

AT: IPCC Indicts

IPCC is not alarmist propaganda – it's peer reviewed and uses the scientific method.

Strong '08 [Geoff, The Hill Times, Jun 16, "Just who is gullible, naïve on climate warming?"]

http://www.thehilltimes.ca/html/cover_index.php?display=story&full_path=/2008/june/16/letter4/&c=1

Complex numerical climate models today correctly simulate the effect using basic physics, while our climate data speak volumes for the relation. It is therefore no longer just theory, but scientific fact, so where did Mr. Carroll go wrong in his meteorologist training? He then goes on to brand the IPCC as alarmist propagandists, as if there was some mysterious conspiracy there. The IPCC does not carry out climate research nor derive its own theories, nor does it spread alarmist propaganda as Carroll claims. IPCC is sponsored by the WMO of the United Nations, and its reports are generated by respected climate experts from many disciplines all over the world, including a number of Canada's leading scientists in this field. They use published material mainly from scientific journal articles, all of which have previously been thoroughly refereed by their scientific peers throughout the world. This process is part of the 'scientific method' used by all sciences for many centuries. Most of the so-called 'climate change deniers', on the other hand, do not publish their opinions or research in refereed scientific journals, but choose instead to go directly to media reports. Heaven forbid that anyone speculate that some of those people receive funding from the petroleum industry.

The IPCC is the best source for climate change.

MOE '08 [New Zealand Ministry for the Environment, "Key facts about climate change,"

<http://www.mfe.govt.nz/issues/climate/about/key-facts.html>]

The Intergovernmental Panel on Climate Change (IPCC) is the best source of information on global climate change. Its reports undergo a painstaking multiple review process and cover all relevant viewpoints. Because of the complex and interdisciplinary nature of climate science, it is relatively easy for individual scientists and even individual organisations to have an unbalanced assessment of the risks of climate change. The IPCC brings leading experts in the various fields together, including those with unorthodox or sceptical views, to assess the current state of knowledge across international scientific literature. Their reports are peer-reviewed in an open and international process. This ensures that a range of possible futures is captured, but no "special interest" skews the balance of the reports. This inclusive review process sets the IPCC apart from most other organisations and individual opinion pieces. This is the most reliable way of achieving a balanced assessment of the scientific knowledge in such a complex subject area.

AT: Absolute Proof

Absolute proof is a poor standard – knowledge is good enough to warrant action.

Thompson '07 [Andrea, Fox news, Jul 18, "Global Warming: How Do Scientists Know They're Not Wrong?"
<http://www.foxnews.com/story/0,2933,289647,00.html>]

Contrary to popular parlance, science can never truly "prove" a theory. Science simply arrives at the best explanation of how the world works. Global warming can no more be "proven" than the theory of continental drift, the theory of evolution or the concept that germs carry diseases. "All science is fallible," Oreskes told LiveScience. "Climate science shouldn't be expected to stand up to some fantasy standard that no science can live up to." Instead, a variety of methods and standards are used to evaluate the viability of different scientific explanations and theories. One such standard is how well a theory predicts the outcome of an event, and climate change theory has proven to be a strong predictor. The effects of putting massive amounts of carbon dioxide in the air were first predicted in 1896 by Swedish chemist Svante Arrhenius. Noted oceanographer Roger Revelle's 1957 predictions that carbon dioxide would build up in the atmosphere and cause noticeable changes by the year 2000 have been borne out by numerous studies, as has Princeton climatologist Suki Manabe's 1980 prediction that the Earth's poles would be first to see the effects of global warming. In 1988, NASA climatologist James Hansen outlined three scenarios of how the global average temperature might rise over the next 30 years. Nearly 20 years later, the observed rise has followed his medium-range scenario with high accuracy. Hansen's model predictions are "a shining example of a successful prediction in climate science," said climatologist Michael Mann of Pennsylvania State University. • Click here to see a long scientific analysis of Hansen's predictions. The relevant graphs are at the end of the analysis (pdf format). Schmidt says that predictions by those who doubted global warming have failed to come true. "Why don't you trust a psychic? Because their predictions are wrong," he told LiveScience. "The credibility goes to the side that gets these predictions right." **Mounting evidence** Besides their successful predictions, climate scientists have been assembling a "body of evidence that has been growing significantly with each year," Mann said. Data from tree rings, ice cores and coral reefs taken with instrumental observations of air and ocean temperatures, sea ice melt and greenhouse gas concentrations have all emerged in support of climate change theory. "There are 20 different lines of evidence that the planet is warming," and the same goes for evidence that greenhouse gases are increasing in the atmosphere, Schmidt said. "All of these things are very incontrovertible."

AT: Warming Good – Agriculture

Any positive CO₂ effect is outweighed by the effect of adaptation, bugs, and weather conditions.

NAS '01 [National Academy of Sciences (society of the most distinguished scientists in the country), “Climate change science: an analysis of some key questions,” chapter 6 of <http://books.nap.edu/html/climatechange/5.html>]

In the near term, agriculture and forestry are likely to benefit from CO₂ fertilization effects and the increased water efficiency of many plants at higher atmospheric CO₂ concentrations. Many crop distributions will change, thus requiring significant regional adaptations. Given their resource base, the Assessment concludes that such changes will be costlier for small farmers than for large corporate farms. However, the combination of the geographic and climatic breadth of the United States, possibly augmented by advances in genetics, increases the nation's robustness to climate change. These conclusions depend on the climate scenario, with hotter and drier conditions increasing the potential for declines in both agriculture and forestry. In addition, the response of insects and plant diseases to warming is poorly understood. On the regional scale and in the longer term, there is much more uncertainty.

Any gain is minimal – the effect is net negative for agriculture.

Rosenzweig '95 [Cynthia, Research Agronomist at NASA, Summer, “Potential Impacts of Climate Change on Agriculture and Food Supply,” Vol 1. No. 2, <http://www.gcric.org/CONSEQUENCES/summer95/agriculture.html>]

Modeled studies of the sensitivity of world agriculture to potential climate change have suggested that the overall effect of moderate climate change on world food production may be small, as reduced production in some areas is balanced by gains in others. The same studies find, however, that vulnerability to climate change is systematically greater in developing countries--which in most cases are located in lower, warmer latitudes. In those regions, cereal grain yields are projected to decline under climate change scenarios, across the full range of expected warming. Agricultural exporters in middle and high latitudes (such as the U.S., Canada, and Australia) stand to gain, as their national production is predicted to expand, and particularly if grain supplies are restricted and prices rise. Thus, countries with the lowest income may be the hardest hit.

Even if agriculture can adapt, it will be offset by the farmers' policies.

Strange '07 [Marty, Co-chair of Center for Rural Affairs Task Force Report, Mar 26, “Climate Change and Agriculture,” http://www.cfra.org/files/Climate_Change_and_Agriculture_Report.pdf]

They will change what they produce, how they farm, and perhaps how they manage risk. Some may change the extent to which they depend on farming for their sole source of income. Some, of course, will be unable to change enough to remain profitable. While agriculture is adaptable in the aggregate, individual farmers are very much vulnerable to climate change. Even where change is feasible, there will be barriers to overcome. Farms are more heavily invested in fixed costs, especially technology and land, and the level of crop specialization mandated by many technologies is high. Also, market structures are, in some cases, integrated and rigid, with marketing patterns linked to production systems and investments in specified technology. The investment in some of the marketing infrastructure itself might be a barrier to adaptation. The cost of private crop insurance will likely have to change as well to reflect greater weather variability. Some of these changes may be retarded by public policies that **discourage diversification**, seek to prop up certain crops in certain places based on historic production patterns, or base rewards on output rather than on best practices.

AT: Warming Good – Agriculture

Warming will screw up weather patterns which are worse for agriculture.

Watson '99 [Karen, "Agriculture," <http://library.thinkquest.org/J003411/ag.htm>]

Some scientists don't think it will help plants. If the temperature increases, and the precipitation increases then the rain will evaporate faster because of the heat. We would need an increase of more than 7% just to have the same amount of water available for use as we do today. There will also be a dramatic change in weather compared to the weather of today. There will be periods of drought followed by periods of dramatic storms. A drought might occur when the plants have just sprouted up from the ground. They won't be able to survive the drought. The same thing will happen with storms. What if some wheat just got some nice full heads and a storm occurs? The storm will break the heads off and ruin the wheat. Another problem with drought and storms is that right after a drought the plants would be very weak. So when the storms come they will wash the plants away. Along with the storms there will be floods. The floods will wash the topsoil off of the fields into nearby creeks and rivers. The farmers won't have any topsoil to grow their plants on and the state will have to spend a lot of money to dredge the topsoil from the creeks and rivers.

Warming will harm agriculture.

Keeney '07 [Dr. Dennis, senior fellow at the Institute for Agriculture and Trade Policy, Feb 10, "Global warming threatens agriculture," http://www.cjonline.com/stories/021007/opi_146648641.shtml]

No industry sector will be affected more by climate change than farming. Many farm habitats depend on temperature and rainfall. If warming continues our farmland will certainly have a different landscape. We could have a drier and hotter climate that would make many Midwestern states look more like the western plains. With drier weather, the verdant corn and soybeans in many parts of the country could disappear, except where there is irrigation. Dry land crops such as wheat and grain sorghum might become more common. The dairies and hog lots that rely on corn and soybeans for feed will be less viable, as will the ethanol plants and other huge investments made to take advantage of our current climate advantages. As the climate changes, agriculture will have to adapt to new weeds, bugs and plant diseases. While overall it may become drier, huge storms will challenge farmers to keep erosion in check and pollutants out of streams and lakes. It will take time to adapt. Science can develop new crops, and find ways to farm more efficiently. But there are indications that climate change is accelerating faster than our industries can change.

AT: Warming Good – SO₂ Screw

The effect from CO₂ warming outweighs.

IPCC '01 [Intergovernmental Panel on Climate Change, "The Scientific Basis," http://www.grida.no/climate/ipcc_tar/wg1/209.htm]

Concerns about aerosols derive from a number of other considerations. These include visibility, toxic effects and human health, interactions of aerosols with chemical processes in the troposphere and stratosphere, acid deposition, and air pollution. Of these concerns, those associated with toxic effects and visibility have led the industrialised countries to promulgate standards to reduce the concentrations of aerosols in urban and also more pristine locations. Also, concerns about the effects of acid rain have led to increased controls over the emissions of SO₂. As shown above, the SRES scenarios for the future (Nakic'enovic' et al., 2000) have all assumed that emissions of SO₂ will eventually decrease, and the A1T and B2 scenarios predict that sulphur emissions start to decrease on a global average basis almost immediately.

SO₂ doesn't cause significant cooling.

New Scientist '04 ["Climate Change," <http://lasp.colorado.edu/~rusch/HMGH.html>]

Right again. One of the nice ironies of this story is that sulfate particles (acid rain) from burning coal and oil help to shield the more industrialized countries from the full impact of global warming. In some places, such as central Europe and parts of China, they may have overwhelmed the warming, producing a net cooling. Other aerosols, such as dust from soil erosion and "desertification" can also moderate warming. But even if you find the idea of using one form of pollution to protect us from another, there is a problem. Whereas the average CO₂ molecule in the atmosphere lasts for about a century, sulfates and other aerosol molecules persist for only a few days. This means two things. First, if you turned down the power stations, the world would get much hotter within a few days. Second, aerosols do not accumulate in the atmosphere in the way that CO₂ does. If you carry on burning a given amount of fossil fuel, the cooling effect of the sulfates will remain constant, while the warming effect of CO₂ will keep on increasing. So sulfates are not a solution.

AT: Warming Good – SO2 Screw

SO2 is short-lived and can't offset the effects of warming.

IPCC '01 [Intergovernmental Panel on Climate Change, "The Scientific Basis," http://www.grida.no/climate/IPCC_tar/wg1/161.htm]

Aerosols are liquid or solid particles suspended in the air. They have a direct radiative forcing because they scatter and absorb solar and infrared radiation in the atmosphere. Aerosols also alter warm, ice and mixed-phase cloud formation processes by increasing droplet number concentrations and ice particle concentrations. They decrease the precipitation efficiency of warm clouds and thereby cause an indirect radiative forcing associated with these changes in cloud properties. **Aerosols have most likely made a significant negative contribution to the overall radiative forcing. An important characteristic of aerosols is that they have short atmospheric lifetimes and therefore cannot be considered simply as a long-term offset to the warming influence of greenhouse gases.**

Your evidence is lies – it actually causes heating.

Carnicom '04 [Clifford, researcher & scientist, Jan 23, "Global Warming and Aerosols," <http://www.carnicom.com/sh1.htm>]

It can be demonstrated that the introduction of essentially any metallic or metallic salt aerosol into the lower atmosphere will have the effect of heating up that lower atmosphere. The impact is both significant and measurable. Those that seek and express concern on the so called global warming problem might wish to begin their search with an inquiry into the thermodynamics of artificially introduced metallic aerosols into the lower atmosphere. The direct injection of massive amounts of particulate matter by aircraft into the atmosphere for more than five years establishes the foundation for this inquiry. An examination of the specific heat characteristics of an altered atmosphere will provide the path for the realistic conclusions that can be made. **Any claim that the aerosol operations represent a mitigating influence on the global warming problem appears to be a complete facade that is in direct contradiction to the fundamental principles of physics and thermodynamics.** The lack of candor and honesty by government, media and environmental protection agencies in response to public inquiry is further evidence of the fictitious fronts that have been proposed. It is past time to recognize **that one of the primary effects of the dense aerosols that now permanently mar the lifeblood of this planet is the heating up of the very atmosphere that we breathe.**

SO2 can't stop warming – your studies are over-exaggerated.

Pinholster '04 [Ginger, writer for AAAS- The World's Largest General Scientific Society, Jun 16, "Climate experts urge immediate action to offset impact of global warming," <http://www.aaas.org/news/releases/2004/0616climate.shtml>]

Greenhouse gases are warming the Earth faster than aerosols like dust can mask them, said Penner, professor of atmospheric, oceanic and space sciences at the University of Michigan. **Various types of aerosols--from soot and dust to sulfur--can either cool or warm the climate,** she explained. **Warming is associated with absorbing black carbon emissions such as soot, while non-absorbing aerosols are tied to cooling, which scientists call "negative forcing."** **"Greenhouse gas effects are not going to be masked by aerosols,"** Penner said in an interview, debunking a popular myth related to climate change. **"Even the best current aerosol models overestimate the cooling force of aerosols. Warming caused by greenhouse gases will overwhelm any aerosol-related cooling."**

AT: Warming Good – Ice Age

Turn – warming will cause an ice age.

Hartmann '04 [Thom, Political Analyst, Jan 20, "How Global Warming May cause the Next Ice Age," <http://www.commondreams.org/views04/0130-11.htm>]

While global warming is being officially ignored by the political arm of the Bush administration, and Al Gore's recent conference on the topic during one of the coldest days of recent years provided joke fodder for conservative talk show hosts, the citizens of Europe and the Pentagon are taking a new look at the greatest danger such climate change could produce for the northern hemisphere - a sudden shift into a new ice age. What they're finding is not at all comforting. In quick summary, if enough cold, fresh water coming from the melting polar ice caps and the melting glaciers of Greenland flows into the northern Atlantic, it will shut down the Gulf Stream, which keeps Europe and northeastern North America warm. The worst-case scenario would be a full-blown return of the last ice age - in a period as short as 2 to 3 years from its onset - and the mid-case scenario would be a period like the "little ice age" of a few centuries ago that disrupted worldwide weather patterns leading to extremely harsh winters, droughts, worldwide desertification, crop failures, and wars around the world.

No uniqueness – no impending ice age now.

Thompson '08 [Andrea, Live Science, Jun 12, "Could Waning Sunspots Bring On New Ice Age?" <http://www.foxnews.com/story/0,2933,366061,00.html>]

No impending ice age

Though there is debate about how and whether the Maunder minimum actually caused the Little Ice Age, scientists have proposed a few hypotheses as to how it could have done so. One idea springs from the fact that the sun emits much more ultraviolet radiation when it is covered in sunspots, which can affect the chemistry of Earth's atmosphere. The other is that when the sun is active, it produces tangled magnetic fields that keep out galactic cosmic rays. Some scientists have proposed that a lack of sunspots means these cosmic rays are bombarding Earth and creating clouds, which can help cool the planet's surface. But these ideas aren't yet proven, and anyway, the sun's contribution is small compared to volcanoes, El Niño and greenhouse gases, Hathaway notes. Even if there were another Maunder minimum, he says, we would still suffer the effects of greenhouse gases and the Earth's climate would remain warm. "It doesn't overpower them at all," Hathaway said.

AT: Warming Good – Ice Age

Warming will cause an ice age.

McGuire '03 [Bill, director of the Benfield Hazard Research Centre at University College London, Nov 13, "Will global warming trigger a new ice age?" <http://www.guardian.co.uk/environment/2003/nov/13/comment.research>]

If you can remember back to the bitter winters of the late 1970s and early 80s you might also recall that there was much discussion in scientific circles at the time about whether or not the freezing winter conditions were a portent of a new ice age. Over the past couple of decades such warnings have been drowned out by the great global warming debate and by consideration of how society might cope in future with a sweltering planet rather than an icebound one. Seemingly, the fact that we are still within an interglacial period, during which the ice has largely retreated to its polar fastnesses, has been forgotten - and replaced with the commonly-held view that one good thing you can say about global warming is that it will at least stave off the return of the glaciers. Is this really true, or could the rapidly accelerating warming that we are experiencing actually hasten the onset of a new ice age? A growing body of evidence suggests that, at least for the UK and western Europe, there is a serious risk of this happening - and soon. The problem lies with the ocean current known as the Gulf Stream, which bathes the UK and north-west Europe in warm water carried northwards from the Caribbean. It is the Gulf Stream, and associated currents, that allow strawberries to thrive along the Norwegian coast, while at comparable latitudes in Greenland glaciers wind their way right down to sea level. The same currents permit palms to flourish in Cornwall and the Hebrides, whereas across the ocean in Labrador, even temperate vegetation struggles to survive. Without the Gulf Stream, temperatures in the UK and north-west Europe would be five degrees centigrade or so cooler, with bitter winters at least as fierce as those of the so-called Little Ice Age in the 17th to 19th centuries. The Gulf Stream is part of a more complex system of currents known by a number of different names, of which the rather cumbersome North Atlantic Meridional Overturning Circulation (Namac) is probably the most apt. This incorporates not only the Gulf Stream but also the cold return currents that convey water southwards again. As it approaches the Arctic, the Gulf Stream loses heat and part of it heads back to warmer climes along the coast of Greenland and eastern Canada in the form of the cold, iceberg-laden current responsible for the loss of the Titanic. Much, however, overturns - cooling and sinking beneath the Nordic seas between Norway and Greenland, before heading south again deep below the surface. In the past, the slowing of the Gulf Stream has been intimately linked with dramatic regional cooling. Just 10,000 years ago, during a climatic cold snap known as the Younger Dryas, the current was severely weakened, causing northern European temperatures to fall by as much as 10 degrees. Ten thousand years before that, at the height of the last ice age, when most of the UK was reduced to a frozen wasteland, the Gulf Stream had just two-thirds of the strength it has now. What's worrying is that for some years now, global climate models have been predicting a future weakening of the Gulf Stream as a consequence of global warming. Such models visualise the disruption of the Namac, including the Gulf Stream, as a result of large-scale melting of Arctic ice and the consequent pouring of huge volumes of fresh water into the North Atlantic, in a century or two. New data suggest, however, that we may not have to wait centuries, and in fact the whole process may be happening already. So that the warm, saline surface waters of the Gulf Stream can continue to push northwards, there must be a comparable, deep return current of cold, dense water from the Nordic seas. Disturbingly, this return current seems to have been slowing since the middle of the last century. Bogi Hansen at the Faroese fisheries laboratory, and colleagues in Scotland and Norway, have been monitoring the deep outflow of cold water from the Nordic seas as it passes over the submarine Greenland-Scotland ridge that straddles the North Atlantic at this point. Their results show that the outflow has fallen by 20% since 1950, which suggests a comparable reduced inflow from the Gulf Stream. Although there is as yet no direct substantiation of this, and his colleagues point to reports of the cooling and freshening of the Norwegian Sea and to temperatures that are already falling in parts of the region as possible evidence of contemporary Gulf Stream weakening. It also seems that it is not only the intensity of the outflow of cold water that is changing. Bob Dickson of the Centre for Environment, Fisheries, and Aquaculture Science at Lowestoft, and colleagues, have reported a sustained and widespread freshening of returning deep waters south of the Greenland-Scotland ridge, which appears to have been going on for the past three or four decades. Already the freshening is extending along the North American eastern seaboard towards the equator, in the so-called Deep Western Boundary current. One of the scariest aspects of the current dramatic changes occurring in the system of North Atlantic currents is that the deep, southward-flowing limb of the Namac can be thought of as representing the headwaters of the worldwide system of ocean currents known as the Global Thermohaline Circulation. The possibility exists, therefore, that a disruption of the Atlantic currents might have implications far beyond a colder UK and north-west Europe, perhaps bringing dramatic climatic changes to the entire planet.

Warming Good – Ice Age

a. Ice age is coming now - extinction by 2027.

Chapman '08 [Phil, geophysicist and astronautical engineer, Apr 23, "Sorry to ruin the fun, but an ice age cometh," <http://www.theaustralian.news.com.au/story/0,25197,23583376-5013480,00.html>]

Disconcerting as it may be to true believers in global warming, **the average temperature on Earth has remained steady or slowly declined during the past decade, despite the continued increase in the atmospheric concentration of carbon dioxide, and now the global temperature is falling precipitously.** All four agencies that track Earth's temperature (the Hadley Climate Research Unit in Britain, the NASA Goddard Institute for Space Studies in New York, the Christy group at the University of Alabama, and Remote Sensing Systems Inc in California) **report that it cooled by about 0.7C** in 2007. **This is the fastest temperature change in the instrumental record** and it puts us back where we were in 1930. If the temperature does not soon recover, we will have to conclude that **global warming is over.** There is also plenty of anecdotal evidence that **2007 was exceptionally cold. It snowed in Baghdad for the first time in centuries, the winter in China was simply terrible and the extent of Antarctic sea ice in the austral winter was the greatest on record** since James Cook discovered the place in 1770. It is generally not possible to draw conclusions about climatic trends from events in a single year, so I would normally dismiss this cold snap as transient, pending what happens in the next few years. This is where SOHO comes in. The sunspot number follows a cycle of somewhat variable length, averaging 11 years. The most recent minimum was in March last year. The new cycle, No.24, was supposed to start soon after that, with a gradual build-up in sunspot numbers. It didn't happen. The first sunspot appeared in January this year and lasted only two days. A tiny spot appeared last Monday but vanished within 24 hours. Another little spot appeared this Monday. Pray that there will be many more, and soon. The reason this matters is that **there is a close correlation between variations in the sunspot cycle and Earth's climate.** The previous time a cycle was delayed like this was in the Dalton Minimum, an especially cold period that lasted several decades from 1790. Northern winters became ferocious: in particular, the rout of Napoleon's Grand Army during the retreat from Moscow in 1812 was at least partly due to the lack of sunspots. That the rapid temperature decline in 2007 coincided with the failure of cycle No.24 to begin on schedule is not proof of a causal connection but it is cause for concern. It is time to put aside the global warming dogma, at least to begin contingency planning about what to do if we are moving into another little ice age, similar to the one that lasted from 1100 to 1850. **There is no doubt that the next little ice age would be much worse than the previous one and much more harmful than anything warming may do.** There are many more people now and we have become dependent on a few temperate agricultural areas, especially in the US and Canada. **Global warming would increase agricultural output, but global cooling will decrease it. Millions will starve if we do nothing to prepare for it** (such as planning changes in agriculture to compensate), **and millions more will die from cold-related diseases.** There is also another possibility, remote but much more serious. The Greenland and Antarctic ice cores and other evidence show that for the past several million years, severe glaciation has almost always afflicted our planet. The bleak truth is that, under normal conditions, most of North America and Europe are buried under about 1.5km of ice. This bitterly frigid climate is interrupted occasionally by brief warm interglacials, typically lasting less than 10,000 years. The interglacial we have enjoyed throughout recorded human history, called the Holocene, began 11,000 years ago, so the ice is overdue. We also know that glaciation can occur quickly: the required decline in global temperature is about 12C and it can happen in 20 years. **The next descent into an ice age is inevitable but may not happen for another 1000 years.** On the other hand, **it must be noted that the cooling in 2007 was even faster than in typical glacial transitions. If it continued for 20 years, the temperature would be 14C cooler in 2027. By then, most of the advanced nations would have ceased to exist, vanishing under the ice, and the rest of the world would be faced with a catastrophe beyond imagining.**

b. Warming prevents the ice age.

Business Wire '91 [Feb 14, "Study: global warming may be beneficial," Lexis]

Global warming may be needed in order to prevent the next ice age, which is long overdue on nature's timetable, according to a study produced by the National Center for Policy Analysis. **"The costs of global warming are being exaggerated and the benefits are being ignored,"** said the study's author, Kent Jeffreys, who is director of environmental studies at the Competitive Enterprise Institute in Washington. Drawing on scientific evidence which Jeffreys says has been overlooked in the global warming policy debate, the study says that: -- **In the past two to three million years, the earth's temperature has gone through at least 17 climate cycles, with ice ages lasting about 100,000 years interrupted by warm periods lasting about 10,000 years.** -- **Since the current warm period is about 13,000 years old, the next ice age is long overdue.** -- **During the coldest period of the last ice age, about 25,000 years ago, most of North America was completely covered by ice. "The natural temperature of the earth is cold, not warm,"** said Jeffreys. "The warm temperature we now enjoy has existed only 10 percent of the time over the last three million years and only 2 percent of the time over the last 15 million years." Jeffreys said there is no hard evidence that we are experiencing a **global warming. But it may be just what is needed.** **"Enhancing the greenhouse effect may be necessary for our survival,"** he said. The study said that human emissions of carbon dioxide (CO₂) from the use of carbon-based fuels may have other benefits for the planet. According to Jeffreys: -- Humans contribute only 5 percent of the CO₂ in the atmosphere, while nature contributes 95 percent. -- Throughout the earth's 4.5 billion year history there have been wide swings in the amount of CO₂ in the atmosphere, but the long-term trend is toward less CO₂. -- If the long-term trend continues, and there is no scientific reason why it should not, the earth will eventually become a *lifeless planet.*

x Ice Age Coming

Lack of sunspots proves ice age is coming.

Chagnon '08 [Peter, One News Now, Jun 14, "What's next -- an ice age?"
<http://www.onenewsnow.com/Culture/Default.aspx?id=137054>]

The absence of sunspots has left some scientists scratching their heads about what could be next. Extremely low sunspot activity and extended periods of no sunspot activity have some scientists wondering how this could affect the weather on Earth. Noted environmentalist and author Lawrence Solomon says there is a vast historical record dating back hundreds of years that could provide some insight to this phenomenon. "There has been a coincidence over the centuries of an absence of sunspots correlating with very cold temperatures, and a presence of sunspots corresponding to warm periods," he explains. Solomon notes that over 1,000 years ago during the medieval warm period there was increased sunspot activity, and then that activity slowed down as Earth entered the Little Ice Age of the late 1700s to mid-1800s. He also says that, during the last century, the sun had increased sunspot activity, which correlated with a period of warming. "After the current warming that we had in the 1900s, the sunspots have diminished. And that's one reason that scientists think that we may be entering a little ice age. There are other reasons as well," Solomon contends. Those other reasons are that in the last decade temperatures have leveled off, and Solomon says in the last year they dropped. He says temperatures have dropped by more than a half a degree centigrade, which is equivalent to more than a century's worth of warming.

x Warming Solves Ice Age

We're due for an ice age now – warming will delay the freeze for many years.

Flam '02 [Faye, Philadelphia Inquirer, Aug 23, "Global warming might stall the next ice age, scientists say," Lexis]

Based on the Earth's historical cycle of warm and cold periods, we're due for a big freeze any millennium now. If the next cold spell is like the last one, which ended 10,000 years ago, glaciers would cover much of North America, creeping as far south as New York City. Ice ages and warmer "interglacials" alternate in cycles. In the last few cycles, the relatively warm "interglacials" lasted about 10,000 years. Since our current interglacial started about 10,000 years ago, it's due to end any time now. The cold periods last much longer than the warm ones - 80,000 to 100,000 years. Over the whole planet, ice ages reduce temperatures by only about 10 degrees, but the chill is more pronounced in temperate zones - such as most of the United States. "If you were living in Philadelphia, you could have taken a day trip to see the ice sheet," said Duke University climatologist Tom Crowley. A 50-foot-thick glacier covered Long Island back then, he said. But there's the possibility that ongoing global warming could delay the onset of the next big freeze by thousands of years, according to Belgian researchers, writing in today's issue of the journal Science. "We've shown that the input of greenhouse gas could have an impact on the climate 50,000 years in the future," said Marie-France Loutre of the Universite Catholique de Louvain in Belgium. Factoring in the higher concentration of carbon dioxide in the atmosphere, Loutre and colleague Andre Berger found that the next ice age may not come for a few more tens of thousands of years. The increase in carbon dioxide, many scientists believe, has come primarily from the increased burning of fossil fuels, such as coal, oil and gas.

Ice age is inevitable – there's only a risk that warming prevents it.

Flam '02 [Faye, Philadelphia Inquirer, Aug 23, "It's hot now, but scientists predict there's an ice age coming," Lexis]

The Earth's orbit actually gets more elliptical, making the seasonal variations more extreme. Right now the orbit is relatively round. Currently, the earth is closest to the sun in the northern hemisphere's winter, making the winters milder and summers cooler. Most of the Earth's land is now in the northern hemisphere, so this situation means more snow can stay on the ground all summer, reflecting more sunlight away and thereby pulling the temperature further down, which encourages still more snow and more cooling. That could start to pull us back into the next ice age. Without human influence, the cycle is likely to repeat. But now the total concentration of carbon dioxide in the atmosphere is more than 30 percent higher than it was at the beginning of the century, and temperatures are rising. "The warming will certainly launch us into a new interval in terms of climate, far outside what we've seen before," said Crowley. He said it's a big enough influence to cause the cycle of ice ages to "skip a beat."

x Ice Age → Extinction

Ice age triggers extinction.

Calvin '98 [William, Neurophysiologist, Jan, "The great climate flip-flop," <http://williamcalvin.com/1990s/1998AtlanticClimate.htm>]

ONE of the most shocking scientific realizations of all time has slowly been dawning on us: the earth's climate does great flip-flops every few thousand years, and with breathtaking speed. We could go back to ice-age temperatures within a decade — and judging from recent discoveries, an abrupt cooling could be triggered by our current global-warming trend. Europe's climate could become more like Siberia's. Because such a cooling would occur too quickly for us to make readjustments in agricultural productivity and associated supply lines, it would be a potentially civilization-shattering affair, likely to cause a population crash far worse than those seen in the wars and plagues of history. What paleoclimate and oceanography researchers know of the mechanisms underlying such a climate "flip" suggests that global warming could start one in several different ways.

Cooling Better than Warming

Cooling is worse than warming.

D'Aleo '07 [Joseph, Meteorologist as Weather Services International Corporation, Jul 9, "Global Warming – Is Carbon Dioxide Getting a Bad Rap?" <http://www.energytribune.com/articles.cfm?aid=544#>]

Lost in all of this is the fact that we have had an optimum climate the last 30 years – with warmer temperatures, more rainfall, and increased CO2 – that has enabled us to grow more food in more places, and consume less energy than had the cold weather of the 60s and 70s persisted. **Descending back into a little Ice Age has far greater negative consequences than a slow and relative minor warming. Crop failures and famines are more common due to dryness and cold, and the world would consume more energy for heating.** We may look back at the late 20th and early 21st centuries as the golden years. Future generations will shake their heads over how we failed to recognize a good thing when we had it and how science was hijacked by politics, environmentalism, and greed. We would be better off spending all our dollars and efforts on maximizing energy sources, new and old, than trying to eliminate a gas that does far more good than harm.

AT: Warming → Ice Age via Gulf Stream

Models are flawed – no risk of Gulf Stream shutting down.

Baliunas '04 [Sallie, Senior Scientist at Marshall Institute, Aug 1, <http://www.globalwarmingheartland.org/Article.cfm?artId=15444>]

Good science commentary also would explain what is known or unknown about Atlantic currents, especially as a result of increased CO2 concentration in the air. The Third Assessment Report (2001) released by the United Nations' Intergovernmental Panel on Climate Change speculated that the Gulf Stream's flow of warm water to high northern latitudes would weaken or cease. But even as the U.N. report neared completion, the physics and computational aspects of ocean models had improved enough to rule out the shutdown of the Gulf Stream--the anchoring "science" of the move--even with a doubling of atmospheric CO2. The Gulf Stream has such stability because the primary sources of energy driving it come from surface winds, the Earth's spin, and the gravitational pull of an alien body, the moon. As MIT ocean physicist Carl Wunsch stated in the April 8 issue of *Nature*, "European readers should be reassured that the Gulf Stream's existence is a consequence of the large-scale wind system over the North Atlantic Ocean, and of the nature of fluid motions on a rotating planet. The only way to produce an ocean circulation without a Gulf Stream is either to turn off the wind system, or to stop the Earth's rotation, or both."

Warming Good – Agriculture

a. Food shortages coming now.

Sydney Morning Herald '08 [Jun 20, "Food shortages curb global appetite for free trade," <http://business.smh.com.au/food-shortages-curb-global-appetite-for-free-trade-20080620-2trb.html>]

Global food prices have spiked 60% since the beginning of 2007, sparking riots in more than 30 countries that depend on imported food, including Cameroon and Egypt. The surge in prices threatens to push the number of malnourished people in the world from 860 million to almost 1 billion, according to the World Food Programme in Rome. Leaders of developing nations including the Philippines, Gambia and El Salvador now say the only way to nourish their people is to grow more food themselves rather than rely on cheap imports. The backlash may sink global trade talks, reduce the almost \$US1 trillion (\$A1 trillion) in annual food trade and lead to the return of high agricultural tariffs and subsidies around the world.

b. Carbon dioxide increases crop yields enough to solve the food shortage.

Budyko '96 [Mikhail, founder of physical climatology, *Adapting to Climate Change*, p. 24]

The current CO₂ concentration increase of 25% of its preindustrial value has already resulted in a noticeable increase in total bioproductivity, particularly of crops. Data show that productivity may increase by as much as 5% solely because of the effect of increases CO₂. Thus, an increase in CO₂ concentration can provide food for about 250 million people. If the CO₂ concentration doubles compared with the preindustrial epoch and carbon fuel consumption is no restricted, crop productivity may increase sufficiently to provide food for an additional 1 billion people. Quantitatively assessing the effect of climate change is more difficult. An additional global increase in crop yield due to increased precipitation and temperature may be comparable with a crop yield increase due to the direct effect of increased CO₂ concentration. If progress in agrotechnology leads to a total crop yield increase of 60% over the next 50 years, an increased CO₂ concentration would help to provide approximately 2 billion people with food in 2025-2050.

c. Food shortages cause extinction.

Plumb '08 [George, Environmental Activist, may 18, "Was Malthus just off a few decades?" <http://www.timesargus.com/apps/pbcs.dll/article?AID=/20080518/FEATURES05/805180310/1014/FEATURES05>]

Once again the world's food situation is bleak. According to the Food and Agriculture Organization of the United Nations, the price of wheat is more than 80 percent higher than a year ago, and corn prices are up by 25 percent. Global cereal stocks have fallen to their lowest level since 1982. Prices have gone so high that the United Nations World Food Program, which aims to feed 73 million people this year, reported it might have to reduce rations or the number of people it will help. Food riots are happening in many countries and threaten to bring down some countries as starving people demand better from their government. However, this time the problem will not be so easy to solve. There are some 75 million more people to feed each year! Consumption of meat and other high-quality foods — mainly in China and India — has boosted demand for grain for animal feed. Poor harvests due to bad weather in this country and elsewhere have contributed. High energy prices are adding to the pressures as some arable land is converted from growing food crops to biofuel crops and making it more expensive to ship the food that is produced. According to Lester Brown, president of the World Policy Institute, "This troubling situation is unlike any the world has faced before. The challenge is not simply to deal with a temporary rise in grain prices, as in the past, but rather to quickly alter those trends whose cumulative effects collectively threaten the food security that is a hallmark of civilization. If food security cannot be restored quickly, social unrest and political instability will spread and the number of failing states will likely increase dramatically, threatening the very stability of civilization itself."

x Food Shortage Now

800 million people will lack food.

Chang '08 [Jack, McClatchy News Service, Jun 19, "Global quandary: How to feed a growing planet," <http://www.mcclatchydc.com/economics/story/41640.html>]

These three episodes, all on Thursday, are interconnecting pieces of what's emerged as one of the biggest challenges facing the planet: how to feed humanity in this age of skyrocketing food and energy prices. The problem is a global one, in which a breakdown anywhere in the food chain sets dire consequences in motion and in which the root causes range from rising consumption in Asia to growing biofuel production in the United States and Europe to dwindling supplies of water in the Middle East. "The world is running now to keep up with demand," said Abdolreza Abbassian, a grain analyst with the U.N. Food and Agriculture Organization. "Any interruption in the global picture affects supplies." Already, some 800 million people around the world suffer from chronic food shortages, and millions more could go hungry because of the widening food crisis.

x Warming Solves Agriculture

CO2 boost crop yields – the CO2 effect outstrips the warming effect.

Idso, Idso, & Idso '03 [Sherwood, Craig, and Keith, President, Chairman, and Vice president of the Center for the Study of Carbon Dioxide and Global Change and climatologists, “The Specter of Species Extinction: Will Global Warming Decimate the Earth’s Biosphere?” <http://www.marshall.org/pdf/materials/150.pdf>]

Proponents of what we shall call the CO2-induced global warming extinction Hypothesis seem to be totally unaware of the fact that atmospheric CO2 enrichment tends to ameliorate the deleterious effects of rising temperatures on earth’s vegetation. They appear not to know that more CO2 in the air enables plants to grow better at nearly all temperatures, but especially at higher temperatures. They feign ignorance of the knowledge (or truly do not know) that elevated CO2 boosts the optimum temperature at which plants grow best, and that it raises the upper-limiting temperature above which they experience death, making them much more resistant to heat stress. The end result of these facts is that if the atmosphere’s temperature and CO2 concentration rise together, plants are able to successfully adapt to the rising temperature, and they experience no ill effects of the warming. Under such conditions, plants living near the heat-limited boundaries of their ranges do not experience an impetus to migrate poleward or upward towards cooler regions of the globe. At the other end of the temperature spectrum, however, plants living near the cold-limited boundaries of their ranges are empowered to extend their ranges into areas where the temperature was previously too low for them to survive. And as they move into those once-forbidden areas, they actually expand their ranges, overlapping the similarly expanding ranges of other plants and thereby increasing local plant biodiversity.

Even rapid warming doesn’t outweigh the CO2 fertilization effect.

Idso, Idso, & Idso '03 [Sherwood, Craig, and Keith, President, Chairman, and Vice president of the Center for the Study of Carbon Dioxide and Global Change and climatologists, “The Specter of Species Extinction: Will Global Warming Decimate the Earth’s Biosphere?” <http://www.marshall.org/pdf/materials/150.pdf>]

So what could we logically expect to happen to the biosphere in a world of both rising air temperature and atmospheric CO2 concentration? We could expect that earth’s plants would extend the current cold-limited boundaries of their ranges both poleward in latitude and upward in elevation, but that the heat-limited boundaries of the vast majority of them would remain pretty much as they are now, i.e., unchanged. Hence, the sizes of the ranges occupied by most of earth’s plants would increase. We additionally hypothesize that many of the animals that depend upon those plants for food and shelter would exhibit analogous behavior. Hence, with respect to both plants and animals, we would anticipate that nearly everywhere on earth, local biodiversity or species richness would increase in a world of rising air temperature and atmospheric CO2 concentration, as the expanding ranges of the planet’s plants and animals overlapped those of their neighbors to an ever-increasing degree. The implications of these observations are clear: if the planet continues to warm, even at what climate alarmists call “unprecedented rates,” we need not worry about earth’s plants and animals being unable to migrate to cooler regions of the globe fast enough to avoid extinction, as long as the air’s CO2 content continues to rise at its current rate. So obvious is this conclusion, in fact, that Cowling (1999) has bluntly stated that “maybe we should be less concerned about rising CO2 and rising temperatures and more worried about the possibility that future atmospheric CO2 will suddenly stop increasing, while global temperatures continue rising.”

Warming Good – The Screw

a. Emissions cuts cause massive fast warming spikes and makes warming worse in the long run – SO2 creates a cooling effect that cancels out warming.

Pearce '04 [Fred, New Scientist, Jul 24, "Harbinger of Doom?" Lexis]

As well as pumping gases into the atmosphere, we are also filling it with huge volumes of microscopic particles, mostly from burning forests, crop waste and fossil fuels. Depending on their characteristics, these aerosols can scatter or absorb solar radiation and may influence the formation, colour and reflectivity of clouds. The precise nature of their involvement in global temperature has been hotly disputed for a decade. But most researchers now believe that the dominant effect of these aerosols is to suppress warming by shading the planet. "We are dealing with a coiled spring, with temperatures being held back by aerosols," says Solomon. "If you shut off aerosols, temperatures would increase rapidly, but we don't yet know exactly how coiled the spring is." The best guess until recently was that this "parasol effect" was holding back a quarter of the warming so far, or about 0.2 degreesC. But critics say this calculation is little more than a guess. The first efforts at directly measuring the parasol effect suggest the spring may be much more tightly coiled. In an assessment last year, Nobel prize-winning atmospheric chemist Paul Crutzen argued that aerosols could be disguising between half and three-quarters of present warming. That suggests the coiled spring is already holding back warming of anything up to 2 degreesC. "The two major pollutants have been almost cancelling each other out," says Cox. This is doubly bad news. First because it shows that cleaning up aerosols would release a burst of warming. But secondly, it suggests that the climate system is much more sensitive to greenhouse gases than we thought. Crutzen's estimate would put the true warming effect of doubling CO2 at between 7 and 10 degreesC, which Murphy's graph predicts, albeit at a low probability.

b. CO2 reduction always cause SO2 reduction – the effect is a short-term warming spike.

Cowen '94 [Robert, CSM Staff Writer, Sep 14, "Scientists question global warming theory," Lexis]

These aerosol particles scatter incoming sunshine, sending some of it right back into space. That's a direct cooling effect. The particles also have an indirect influence through their effect on clouds. Cloud drops form on them. This tends to produce clouds with many more small droplets than they would have naturally. This adds to the clouds' reflectivity, again sending sunshine back into space. Also, it tends to suppress drizzle so the clouds persist. There's more to the effect on clouds than this. Scientists don't fully understand it. Charlson calls it "a devilish kind of problem" because it is so complicated and subtle. He notes, for example, that suppressing precipitation could change the atmosphere's water-vapor balance with unknown climatic consequences. All of this adds up to what Charlson calls "a more sober" view of what is involved in climate change. It also leaves policymakers with new uncertainties. Measures to curb CO2 pollution may still be justified in terms of energy conservation. But there is little scientific basis for believing that they will prevent undesirable climate change even if they do restrict future greenhouse warming. For example, cutting back on power-plant emissions to control acid rain and CO2 pollution may have an unintended counter-productive effect. Sulfate aerosols don't last long in the atmosphere. Cut back their production and their cooling influence would quickly diminish. If they have been masking greenhouse warming in some areas, "there's a possibility of getting a warming spurt," Dr. Kiehl says.

x SO2 emissions up now

SO2 emissions are up now – recent EPA decision proves.

FER '04 [Foster Electronic Report, Jun 9, "EPA'S DECISION ON COAL PLANTS DRAWS UNUSUAL CRITICISM FROM AGENCY SCIENTISTS," Lexis]

A recent decision by Environmental Protection Agency (EPA) administrators to allow North Dakota to build coal-fired power plants, despite restrictions imposed by the Clean Air Act, has prompted widespread concern among EPA scientists, many of whom allege that the decision was based on politics rather than science. The decision appears to already be setting a precedent for other states, including Utah. In an unusual move, air quality modelers from nine of EPA's ten regional offices recently criticized the agency's higher-ups in an April 21 internal memo that enumerated six specific areas of concern. The memo has since been publicized. Declaring that the North Dakota decision was based on "substantial changes from past air quality modeling guidance and accepted methods," the scientists also warned that the policy change "could set a precedent" for other regions. According to press reports, the memo was particularly critical of the new policy because it permits North Dakota's state air quality modelers to use average emissions over the whole year, rather than periods of peak emissions, to determine whether a violation had occurred. The EPA scientists also specifically criticized the new policy for allowing the state to choose the baseline year for emission levels, which shows whether pollution has increased more than the minimal amount allowed. With this policy, the higher the pollution in the baseline year, the more pollution that will be allowed in the future. A 2002 analysis of the EPA's Region 8 -- which contains both North Dakota and Utah -- suggested that allowing facilities to pick their baseline years could more than double future pollution levels. The EPA modelers also expressed deep concern that the policy seems intended to allow higher levels of pollution, thus creating opportunities for states to fund new power plants without worrying about costly pollution controls.

SO₂ cooling outweighs SO₂ warming

SO₂ reductions would cause enough warming to offset cooling from CO₂ reductions.

Reilly '03 [John, Senior Lecturer at MIT, Feb, "Multi-gas contributors to global climate change,"
<http://www.pewclimate.org/docUploads/Multi-Gas.pdf>]

Control of SOX emissions, to limit direct health and ecosystem effects unrelated to climate, also has a strong effect, though in the opposite direction. If SOX emissions were reduced along the assumed control path, while the other non-CO₂ gases remained at reference levels, the loss of the cooling aerosols to which they contribute is enough to counteract the equivalent CO₂ reduction, at least out to 2050 (see the fourth bar in Figure 3). On the longer time scale to 2100, the effect relative to CO₂ reduction is smaller, again because the effects of CO₂ reduction last many decades into the future, while the aerosols, and hence their climate effects, remain in the atmosphere only about a week or so.

Warming Good – Forests

a. CO2 fertilization increases overall plant productivity by 30 percent – solves deforestation.

Annett '98 [Alexander, Research assistant in domestic policy studies at Heritage, Oct 23, "The Department of Energy's Report on the Impact of Kyoto: More Bad News for Americans,"

There is no evidence that the potential negative effects of global warming outweigh its benefits. Proponents of the global warming theory argue that the increase of greenhouse gases like carbon dioxide will result in devastating floods and global famine. However, carbon dioxide is an essential component of life. Plants absorb it; and as they grow and reproduce, they give off oxygen, which is essential for human existence. Nearly 800 scientific studies conducted worldwide suggest that plant productivity in a carbon dioxide-enhanced world would improve, on average, 32 percent for cereal grains, corn, potatoes, lettuce, and many other crops. 20 Forests would benefit as well from a carbon dioxide-rich environment: Trees would put on more mass, so fewer would have to be cut to meet the demand for lumber. And as plants increased in size and number, so would animals: Increased vegetation would improve the numbers of herbivores and the numbers of carnivores which feed on them, which means more food for human consumption.

b. Forests collapse cause extinction.

Chiang '04 [Mona, Science World Staff Writer, Apr 24, vol. 60 #13]

What if humans destroy all the world's rain forests? We're not sure what would happen. Rain forests are like giant lungs: The trees absorb large amounts of carbon dioxide [heat-trapping gas that contributes to global warming] from the air and "exhale" a huge quantity of oxygen. Rain forests are also important water recyclers: They soak up moisture and send water vapor back into the atmosphere. Without rain forests, Earth's heat and water cycle would be damaged, affecting global climate. Humans may not be able to cope with the change.

Warming Isn't Real

Warming doesn't exist – temperature measurements show cooling.

Robinson '98 [Arthur, Oregon Institute of Science and medicine, "Environmental effects of increased carbon dioxide," <http://www.oism.org/pproject/s33p36.htm>]

World leaders gathered in Kyoto, Japan, in December 1997 to consider a world treaty restricting emissions of "greenhouse gases," chiefly carbon dioxide (CO₂), that are thought to cause "global warming" severe increases in Earth's atmospheric and surface temperatures, with disastrous environmental consequences. Predictions of global warming are based on computer climate modeling, a branch of science still in its infancy. The empirical evidence actual measurements of Earth's temperature shows no man-made warming trend. Indeed, over the past two decades, when CO₂ levels have been at their highest, global average temperatures have actually cooled slightly. To be sure, CO₂ levels have increased substantially since the Industrial Revolution, and are expected to continue doing so. It is reasonable to believe that humans have been responsible for much of this increase. But the effect on the environment is likely to be benign. Greenhouse gases cause plant life, and the animal life that depends upon it, to thrive. What mankind is doing is liberating carbon from beneath the Earth's surface and putting it into the atmosphere, where it is available for conversion into living organisms.

Global climate models are ineffective.

Taylor '04 [James, Award winning researcher and editor for Environment & Climate News, May, "Global Warming Fears Melting"]

According to the new NASA data, water evaporation has not increased nearly as much as alarmists have predicted and have factored into their computer models. As a result, according to the March 18 *New York Times*, "Dr. Minschwaner said the new research raised questions about the high end" of temperature predictions from the Intergovernmental Panel on Climate Change, which estimates the Earth's climate could warm 2.5 to 10° Fahrenheit in the next century. According to *Environment & Energy Daily*, the new data show "predictions about global warming have exaggerated its potential effects." "Since water vapor is the most important heattrapping greenhouse gas in our atmosphere," stated a related March 15 NASA press release, "some climate forecasts may be overestimating future temperature increases." Stated NASA, "In most computer models relative humidity tends to remain fixed at current levels. Models that include water vapor feedback with constant relative humidity predict the Earth's surface will warm nearly twice as much over the next 100 years as models that contain no water vapor feedback." However, "The increases in water vapor with warmer temperatures are not large enough to maintain a constant relative humidity." NASA quoted Minschwaner as saying. "These new findings will be useful for testing and improving global climate models," said NASA.

Alarmist predictions are wrong – data doesn't support.

Taylor '07 [James, Award winning researcher and editor for Environment & Climate News, Apr 16, *Environment Issue Suite*]

Global warming is a prime example of the alarmism that characterizes much of the environmental movement. Media coverage of the topic is heavily slanted toward alarmism because "bad news sells," making it difficult for climate realists to get a fair hearing. Al Gore's recent movie, "An Inconvenient Truth," has been severely critiqued by many experts, yet it is being shown in high schools across the country as an educational documentary. Climate science reveals that the world has warmed about 1 degree C during the past century, with half of that warming occurring before human emissions could have been responsible. Even if human activity is responsible for 100 percent of the warming since 1940, it is only about 0.5 degrees C, an amount so small it is within the error range of the instruments used to measure global temperatures. There is no consensus about the causes, effects, or future rate of global warming. Most climate scientists doubt the reliability of computer models and the accuracy of land-based temperature records Reports by the IPCC are unreliable due to political editing and rewriting of the reports' conclusions. Some of the key evidence cited in past IPCC reports has been shown to be fraudulent.

Warming Isn't Real

Human readings are ineffective – satellites prove there's no global warming.

Taylor '01 [James, Award winning researcher and editor for Environment & Climate News, Dec 16, "Polar Ice Cap Studies Refute Catastrophic Warming Theories"]

Surface temperature readings taken by humans indicate the Earth has warmed by approximately 1 degree Fahrenheit over the past 100 years. This warming is certainly not much, but it is often cited as evidence that global warming is occurring, even if it is merely in its initial stages. **However, precise satellite readings of the lower atmosphere (a region that is supposed to immediately reflect any global warming) have shown no warming since readings were begun more than 20 years ago. "We have seen no sign of man-induced global warming at all. The computer models used in U.N. studies say the first area to heat under the 'greenhouse gas effect' should be the lower atmosphere, known as the troposphere. Highly accurate, carefully checked satellite data have shown absolutely no warming,"** explained Tom Randall of the National Center for Public Policy Research. Global warming skeptics have pointed out that most of the **surface temperature readings indicating a warming have been taken in underdeveloped nations, where reliability and quality-control are questionable. In developed nations such as the United States, by contrast, the readings tend to show no warming. Moreover, skeptics note, surface temperature readings are influenced by artificial warming associated with growing urbanization, which creates artificial heat islands around temperature reading stations.** "While the greenhouse gases, especially CO₂, have grown in the last 50 years, the correlation with a warming of the world's climate is weak and far from being generally accepted by the scientific community," James L. Johnston, a member of The Heartland Institute's Board of Directors, observed in the August 4 Chicago Tribune. Global warming proponents, on the other hand, now counter that warming, despite prior consensus to the contrary, might occur in the lower atmosphere only after a general warming of the Earth's surface.

AT: Warming Real – Consensus

Consensus is a poor warrant – fringe opinions should not be deemed secondary just because they're unpopular.

Corcoran '06 [Terence, Business Editor for the Toronto National Post, Jun 16, "Climate Consensus and the End of Science," Lexis]

Back when modern science was born, the battle between consensus and new science worked the other way around. More often than not, the consensus of the time -- dictated by religion, prejudice, mysticism and wild speculation, false premises -- was wrong. The role of science, from Galileo to Newton and through the centuries, has been to debunk the consensus and move us forward. But now science has been stripped of its basis in experiment, knowledge, reason and the scientific method and made subject to the consensus created by politics and bureaucrats. As a mass phenomenon, repeated appeals to consensus to support a scientific claim are relatively new. But it is not new to science. For more than a century, various philosophical troublemakers have been trying to undermine science and the scientific method. These range from Marxists who saw science as a product of class warfare and historical materialism -- Newton was a lackey of the ruling classes and pawn of history -- to scores of sociological theorists and philosophers who spent much of the 20th century attempting to subvert the first principles of modern, Enlightenment science. If science were to become a belief system, then the belief with the greatest number of followers would become established fact and received knowledge. Knowledge based on observation and rational inference would play second fiddle to what Barnes calls "customarily accepted belief." This belief is "sustained by consensus and authority." This is not just one science writer proposing a theory. Barnes is reporting on the mainstream elements of new-science thought over more than a century. Ideas come from such well-known brand names such as Marx and Kant, but mostly from a procession of philosophers even most scientists have never heard of. It's a jungle, to be sure, filled with impenetrable language and philosophical jargon. But the trend is clear. Global warming science by consensus, with appeals to United Nations panels and other agencies as authorities, is the apotheosis of the century-long crusade to overthrow the foundations of modern science and replace them with collectivist social theories of science. "Where a specific body of knowledge is recognized and accepted by a body of scientists, there would seem to be a need to regard that acceptance as a matter of contingent fact," writes Barnes. This means that knowledge is "undetermined by experience." It takes us "away from an individualistic rationalist account of evaluation towards a collectivist conventionalist account." In short, under the new authoritarian science based on consensus, science doesn't matter much any more.

There's no consensus on warming.

Zosh '08 [Melinda, May 23, "Global Warming Item," <http://newsbyus.com/index.php/article/581>]

Presidential candidate Barack Obama said on Monday that "we have to get used to the idea that we can't keep our houses at 72, drive our SUVs and eat all we want." Arthur B. Robinson, president and professor of chemistry at the Oregon Institute of Science and Medicine, has a different response. "I don't want to give up eating all I want because of a failed hypothesis," said Robinson at the National Press Club here on May 19. Robinson said global warming is not a threat to America. He said that the global temperature increased by just .5 degrees in the last century. Robinson spoke about his petition signed by 31,000 U.S. scientists who reject the claims that "human release of greenhouse gases is damaging our climate" "World temperatures fluctuate all the time," said Robinson. "The temperature of the Earth has risen many times, far more times than carbon dioxide could drive it. There is no experimental evidence that humans are changing the environment..." Robinson said that in recent years the U.N. and a group of 600 scientists, representing less than one percent of the scientific population, reached a "consensus" that global warming is happening. This has never been done before, Robinson insists. Dennis Avery, Director for the Center of Global Food Issues at the Hudson Institute, agrees with Robinson. "Nobody can do science by a committee. You do science by testing," said Avery. "To me it is appalling that an international organization of the stature of the U.N. would ignore the evidence of past climate changing."

AT: Warming Real – IPCC

The IPCC is controlled by political hacks who reshape science to fit their political agenda. It's not credible science.

Novak 2k [Gary, Microbiologist, "Call it propaganda, not science," <http://nov55.com/ipcc.html>]

The Intergovernmental Panel on Climate Change (IPCC) is supposedly the last word on global warming. Those who promote global warming hype declare IPCC reports to be peer reviewed science, and peer reviewed science to be infallible. On that basis, critics are attacked for putting themselves above the unquestionable word of science. But the IPCC is controlled by political hacks who reshape the science for their agenda. There is no place in science for arbitrary authority—least of all a subject as complex as climate change. I'm an independent scientist, not a journalist. Alexander Cockburn is a journalist who describes the position of the critics fairly well. So I'll let him do the journalism, while I do the science. He says, "To identify either the government-funded climate modelers or their political shock troops, the IPCC's panelists, with scientific rigor and objectivity is as unrealistic as detecting the same attributes in a craniologist financed by Lombroso studying a murderer's head in a nineteenth-century prison for the criminally insane."

IPCC report has scientific failings.

D'Aleo '07 [Joseph, Meteorologist at Weather Services International Corporation, Jul 9, "Global Warming – Is Carbon Dioxide Getting a Bad Rap?" <http://www.energytribune.com/articles.cfm?aid=544#>]

Despite the 90 percent certainty that man is behind recent global warming trends, the word "uncertainty" appears 494 times in the recent "Summary for Policymakers," produced by the UN's Intergovernmental Panel on Climate Change. Though the actual research scientists generally did a commendable job, the more alarmist interpretation was provided by a smaller cadre of agenda-driven scientists and statesmen. Then the media took the most extreme of the messages to hype them further. So what is the real story? The report's final summaries had several failings. First, it blindly accepts a 20th-century carbon dioxide rise of 36 percent, when direct measurements(1) suggest the change is closer to 15 percent. Their models assume an annual increase of 1 percent, although over the last 50 years the long-term annual average consistently has been less than half that, 0.43 percent. Their models treat the oceans as distilled water when in reality they are an infinite buffer for atmospheric CO2. Burning all the earth's fossil fuels would amount to no more than a 20 percent increase. It could never double(2). In any event, ice cores tell us carbon dioxide lags, not leads, the temperatures by as much as 800 years.

Nuclear War Outweighs Warming

Nuclear war outweighs global warming.

Hoffman '06 [Ian, Staff Writer for Oakland Tribune, Dec 12, "Nuclear winter looms, experts say," http://findarticles.com/p/articles/mi_qn4176/is_20061212/ai_n16906378]

Researchers at the American Geophysical Union's annual meeting warned Monday that even a small regional nuclear war could burn enough cities to shroud the globe in a black smoky shadow and usher in the manmade equivalent of the Little Ice Age. "Nuclear weapons represent the greatest single human threat to the planet, much more so than global warming." said Rutgers University atmospheric scientist Alan Robock. By dropping imaginary Hiroshima-sized bombs into some of the world's biggest cities, now swelled to tens of millions in population, University of Colorado researcher O. Brian Toon and colleagues found they could generate 100 times the fatalities and 100 times the climate-chilling smoke per kiloton of explosive power as all-out nuclear war between the United States and former Soviet Union. For most modern nuclear-war scenarios, the global impact isn't nuclear winter, the notion of smoke from incinerated cities blotting out the sun for years and starving most of the Earth's people. It's not even nuclear autumn, but rather an instant nuclear chill over most of the planet, accompanied by massive ozone loss and warming at the poles. That's what scientists' computer simulations suggest would happen if nuclear war broke out in a hot spot such as the Middle East, the North Korean peninsula or, the most modeled case, in Southeast Asia. Unlike in the Cold War, when the United States and Russia mostly targeted each other's nuclear, military and strategic industrial sites, young nuclear-armed nations have fewer weapons and might go for maximum effect by using them on cities, as the United States did in 1945. "We're at a perilous crossroads," Toon said. The spread of nuclear weapons worldwide combined with global migration into dense megacities form what he called "perhaps the greatest danger to the stability of society since the dawn of humanity." More than 20 years ago, researchers imagined that a U.S.-Soviet nuclear holocaust would wreak havoc on the planet's climate. Their calculations showed the problem was potentially worse than they feared; Massive urban fires would flush hundreds of millions of tons of black soot skyward, where -- heated by sunlight -- it would soar higher into the stratosphere and begin cooking off the protective ozone layer around the Earth. Huge losses of ozone would open the planet and its inhabitants to damaging radiation, while the warm soot would spread a pall sufficient to plunge the Earth into freezing year-round. The hundreds of millions who would starve vastly exceeded those who would die in the initial blasts and radiation.

AT: Warming → Economic Collapse

Best studies conclude warming will help the economy.

Tabarrok '05 [Alex, Phd & Economist, Jul 12, "Global Warming and the US Economy,"
http://www.marginalrevolution.com/marginalrevolution/2005/07/global_warming_.html]

Actually Laurie, and PGL of Angry Bear who links to David, the best study of the issue indicates that global warming is most likely a net benefit to the US economy. Carbon dioxide and greater temperature makes plants grow faster. The author, Yale economist Robert Mendelsohn writes: Climate change is likely to result in small net benefits for the United States over the next century. The primary sector that will benefit is agriculture. The large gains in this sector will more than compensate for damages expected in the coastal, energy, and water sectors, unless warming is unexpectedly severe. Forestry is also expected to enjoy small gains. Added together, the United States will likely enjoy small benefits of between \$14 and \$23 billion a year and will only suffer damages in the neighborhood of \$13 billion if warming reaches 5C over the next century. Recent predictions of warming by 2100 suggest temperature increases of between 1.5 and 4C, suggesting that impacts are likely to be beneficial in the US.

Warming benefits the economy.

Moore '98 [Thomas Gale, Senior fellow at Hoover, *Climate of Fear*, p 126-7]

Even though many potential advantages have not been included, Table 5-3 shows that Americans would benefit from warming by over \$100 billion per year. It seems almost indisputable that Americans would be better off at the end of the next century if temperatures were 4.5°F hotter than today. For the United States, Europe, Japan, and other advanced countries, it is implausible to assume that climate change would have overall significant negative effects. Thomas Schelling, in his 1991 presidential address to the American Economic Association, reported that for "developed countries, the impact on economic output will be negligible and unlikely to be noticed" (Schelling 1992, 6). Most likely, people would be oblivious to any change; they would simply enjoy the reduction in ice, snow, and cold.

AT: Warming → Species Collapse

Warming increases species diversity.

Avery '03 [Dennis, director of the Hudson Institute Center for Global Food Issues, Nov 4, "Global warming and the Fortune of Species," American Outlook Today]

The environmental movement is telling us that global warming might cause a mass extinction of wild species. This is a serious concern, since the Earth has clearly been warming for 150 years, either due to human activities or a natural cycle. George Woodwell, a co-founder of the Environmental Defense Fund, said of global warming in 1989, "The changes expected are rapid enough to exceed the capacity of forests to migrate or otherwise adapt." More recently, biologist Camille Root of Stanford University warned, "In my opinion, we're sitting at the edge of a mass extinction." "The Specter of Species Extinction," a new study published in September by the science-oriented Marshall Institute, concludes the opposite of Dr. Root—that global warming will bring more species diversity, not less, to most parts of globe. Rather than wiping out species, moderately warmer global temperatures will extend the ranges of thousands of plants and animals, enriching the diversity of most forests, mountains, and marine environments. The Marshall report stresses that warmer temperatures give most trees, plants, animals, and fish the opportunity to extend their ranges toward the poles—without imposing any "heat limits" that would force them to give up the ranges they currently occupy. "The southern boundary of a tree's natural range is not determined by temperature, but by competition between the northern species and more southerly-adapted species that have inherently greater growth rates." The Marshall researchers conclude that only over hundreds of years would the faster growing trees from the south be able to out-compete the already mature trees of the northern species. Forests and plants would only be able to shift their ranges northward and southward very slowly, giving the mammals, birds, fish, lichens, mushrooms, and other species that depend on the plant life ample time to shift with them. Critical to the Marshall analysis is the reality that higher CO2 levels act as fertilizer for trees and plants, and that higher CO2 levels also reduce the amount of energy "wasted" by virtually all plant species on a process called photorespiration. As long as temperatures and CO2 are both rising, trees and plants will be vigorous enough to exploit warming's opportunities to expand their range, rather than getting death notices from Greenpeace.

AT: Warming → Disease

Energy production in other countries is necessary to solve disease – cuts on energy to attempt to solve warming are counterproductive.

Bate '04 [Roger, Fellow at AEI, Mar, “Climate Change and Mosquito-Borne Disease: Causal Link or Green Alarmism,” http://www.aei.org/publications/pubID.19950/pub_detail.asp]

The World Health Organization (WHO) claims that climate change caused 150,000 deaths in 2003. Most of these deaths are presumed to have resulted from mosquito-borne disease in poor countries. However, this figure relies on comparative models that fail to account for the major causal factors in changes to disease frequency and severity. Temperature is a causal factor in disease, but small temperature changes are unlikely to have a significant impact on the spread of disease. Malaria, for instance, was endemic in temperate regions (such as Europe and the United States) and epidemic in at least one part of the Arctic Circle in the early twentieth century. The reasons for its eradication are technical and developmental. The recent increase in mosquito-borne disease is likely due to failed national health policies in tropical countries, as well as poor advice from the WHO. The cause of this failure is undue deference paid to environmental fears and their supposed remedies. Trying to prevent the spread of disease by combating energy use, as advocated by the WHO, is an extremely uncertain and possibly counterproductive policy. Energy is essential to wealth generation, and health is strongly correlated with wealth. Given the uncertainties of the existence of human-induced climate change, its long run effects on disease, any health policy decision based around energy restriction is unwarranted.

Warming decreases disease related deaths.

Moore '97 [Thomas gales, Senior Fellow at Hoover Institute, Oct 7, “Happiness Is A Warm Planet,” <http://www.junkscience.com/news/goodwarm.html>]

A crucial point gets lost in the debate: Global warming, if it were to occur, would probably benefit most Americans. If mankind had to choose between a warmer or a cooler climate, we would certainly choose the former: Humans, nearly all other animals and most plants would be better off with higher temperatures. The climate models suggest, and so far the record confirms, that under global warming nighttime winter temperatures would rise the most, and daytime summer temperatures the least. Most Americans prefer a warmer climate to a colder one--and that preference is justified. More people die of the cold than of the heat; more die in the winter than the summer. Statistical evidence suggests that the climate predicted for the end of the next century might reduce U.S. deaths by about 40,000 annually. In addition, less snow and ice would reduce transportation delays and accidents. A warmer winter would cut heating costs, more than offsetting any increase in air conditioning expenses in the summer. Manufacturing, mining and most services would be unaffected. Longer growing seasons, more rainfall and higher concentrations of carbon dioxide would benefit plant growth. Already there is evidence that trees and other plants are growing more vigorously. Although some locales may become too dry, too wet or too warm, on the whole mankind should benefit from an upward tick in the thermometer.

AT: Warming → Coral Reefs Collapse

Empirically denied – reefs have survived warmer temperatures.

Idso & Idso '99 [Craig & Keith, President and Vice President of center for the study of Carbon Dioxide and Global Change, Jan, "Coral Reefs: Doomed by Carbon Dioxide?" <http://www.co2science.org/articles/V2/N1/EDIT.php>]

Citing the oft-repeated claim of Goreau that "if it keeps getting hotter due to human-induced global warming, ? then reefs are doomed," Hogarth joins him in equating the death of reefs with human enterprises that release CO₂ to the atmosphere and presumably lead to escalating temperatures. There are, however, a number of problems with this line of reasoning.

First, it has yet to be proven that the rise in the atmosphere's CO₂ concentration that began with the Industrial Revolution has anything to do with the concomitant warming of the globe. It is a well known fact, for example, that earth's near-surface air temperature oscillates on millennial time scales throughout glacial and interglacial periods alike, independent of any forcing from carbon dioxide. Furthermore, for significant periods of time during the present interglacial, when there was much less CO₂ in the air than there is currently, it was actually warmer than it is now; and earth's reefs did not succumb to the dreaded bleaching that Goreau and Hogarth attribute to global warming.

A good case in point is illustrated by the recent work of a large research team composed of M.K. Gagan, L.K. Ayliffe, J.A. Cali, G.E. Mortimer and M.T. McCulloch of the Australian National University's Research School of Earth Sciences, as well as J. Chappell and M.J. Head of ANU's Research School of Pacific and Asian Studies and D. Hopley of James Cook University's Sir George Fisher Center. Together, these scientists studied corals from the Great Barrier Reef and determined that some 5,350 years ago the tropical ocean surface was 1.2°C warmer than it is presently. Moreover, as they noted in the report of their research published in the 13 February 1998 issue of *Science*, "terrestrial pollen and tree-line elevation records elsewhere in the tropical southwest Pacific indicate that the climate was generally warmer from 7,000 to 4,000 [years before present]." As for CO₂, our Fact Sheet referenced above indicates that this was a period of time when the air's CO₂ content was fully 100 ppm less than it is today! And, of course, the corals survived.

AT: Warming → Famine

Warming helps solve famine.

Avery '05 [Dennis, Director of global food issues at Judson Institute, May 19, "Global Warming: Famine — or Feast?"
<http://www.ncpa.org/pub/ba/ba517/>]

For over 30 years, Lester **Brown**, a MacArthur Foundation "genius award" winner and president of the Earth Policy Institute, has warned that human activities threaten agricultural productivity and human well-being. Brown and other environmental lobbyists **argue that continuing human-caused global warming poses a significant threat of world famine**. They say hotter temperatures will cause crops to wither on the vine and increase the evaporation rate of moisture from the soil. **The available evidence undermines Brown's claims**. Indeed, **a warmer planet has beneficial effects on food production. It results in longer growing seasons — more sunshine and rainfall — while summertime high temperatures change little. And a warmer planet means milder winters and fewer crop-killing frosts. Global warming also increases carbon dioxide (CO₂), which acts like fertilizer for plants. As the planet warms, oceans naturally release huge tonnages of additional CO₂. (Cold water can hold much more of a gas than warmer water.) Since 1950, in a period of global warming, these factors have helped the world's grain production soar from 700 million to more than 2 billion tons last year.**

AT: Warming → Ocean Collapse

Warming doesn't harm ocean life.

Lovell '02 [Jeremy, Reuters, Sep 9, "Exotic Antarctic Species Face Climate Wipeout," Lexis]

Scientist Andrew Brierley, of the University of St. Andrews in Scotland, said his studies showed that on the plus side of climate change, krill -- a basic foodstuff of whales and penguins -- might not be as much at risk as previously thought. He told the same news conference that krill -- minute shrimp-like creatures -- had been found to be concentrated at the edge of the Antarctic sea ice and therefore lost relatively little of their habitat as the ice receded with global warming. "The edge of the sea ice is relatively small compared to the total area of the ice shelf, and that is critical," he said. "A smaller proportion of the krill's habitat is lost than the total."

AT: US Key To Solve Warming

The US isn't key – nobody else cares what we do.

Murray '07 [Iain, Senior Fellow in Energy, Science and Technology at Competitive Enterprise institute, Mar 27, "Five Biggest Myths about Global Warming," <http://cei.org/gencon/019,05845.cfm>]

Finally, the rest of the world is not waiting for America's lead on climate change. Europe has attempted to put a price on carbon and has failed to reduce emissions because of its internal tensions. Measures attempted in Canada, Japan and New Zealand have also failed. China, India, and the G-77 group of developing nations have outright refused to accept any restriction on their emissions (China could overtake the U.S. as the world's leading greenhouse gas emitter later this year). The rest of the world has two reasons for demanding American action: First, blaming America absolves them of responsibility and, second, emissions restrictions will hobble America's economy, allowing the rest of the world to play catch-up. For climate alarmists, these are harsh realities, inconvenient truths if you will. The global warming debate is rife with confusion and misunderstanding. As a thorough review of the implications of the science, economics and geopolitics of the debate shows, the supposed cure is worse than the disease.