

Environmental 'Crisis' Scoreboard

The word "science" comes from the Greek word "gnosis" (γνῶσις, pronounced "NO-sis") which means (factual) knowledge. However, a lot of what passes for 'science' is in fact nothing more than the product of political agendas. The table below lists frequently heard examples of this type of pseudo-science in the area of global warming. I call it my on-going 'eco-ignorance' FAQ. Enjoy.

Statement	Truth	Reference												
<p><u>Polluting Activities</u> "We are increasingly polluting our environment."</p>	<ul style="list-style-type: none"> • Auto emissions continue to drop: ~10% this year. • 94% of the USA is served by water systems that had no reported health violations. • Since 1988, industry has grown by 40%, but toxic releases have dropped by 55%. • The number of air pollution-based unhealthy days has dropped 86%. • Soil erosion is down 31%. • Measured air pollution between 1970 and 2006 was down 54% while at the same time the U.S. gross domestic product increased 203 percent, vehicle miles traveled increased 177 percent, energy consumption increased 49 percent, and U.S. population grew by 46 percent. 	<p>The ninth annual Index of Leading Environmental Indicators, released by the Pacific Research Institute and the American Enterprise Institute http://yosemite.epa.gov/opa/admpress.nsf/d9d1f718ae373653852572a000655936/2eb2a7ea6c72f6ed852572cd005180b7!OpenDocument</p>												
	<p style="text-align: center;">Comparison of Growth Areas and Emissions</p> <table border="1" style="margin-top: 10px;"> <caption>Data from Comparison of Growth Areas and Emissions</caption> <thead> <tr> <th>Category</th> <th>Percentage Change (1970-2004)</th> </tr> </thead> <tbody> <tr> <td>Gross Domestic Product</td> <td>187%</td> </tr> <tr> <td>Vehicle Miles Traveled</td> <td>171%</td> </tr> <tr> <td>Energy Consumption</td> <td>47%</td> </tr> <tr> <td>Population</td> <td>40%</td> </tr> <tr> <td>Aggregate Emissions (Six Principal Pollutants)</td> <td>-54%</td> </tr> </tbody> </table> <p><u>2003 Status Report Shows U.S. Air Cleanest Ever Since 1970</u> (Washington, D.C.-September 22, 2004) Total emissions of the six principal pollutants identified in the Clean Air Act dropped again in 2003, signaling that America's air is the cleanest ever in three decades, the U.S. Environmental Protection Agency (EPA) reported today.</p>	Category	Percentage Change (1970-2004)	Gross Domestic Product	187%	Vehicle Miles Traveled	171%	Energy Consumption	47%	Population	40%	Aggregate Emissions (Six Principal Pollutants)	-54%	<p>http://www.epa.gov/airtrends/econ-emissions.html</p>
Category	Percentage Change (1970-2004)													
Gross Domestic Product	187%													
Vehicle Miles Traveled	171%													
Energy Consumption	47%													
Population	40%													
Aggregate Emissions (Six Principal Pollutants)	-54%													
	<ul style="list-style-type: none"> • In 2004, power plants reduced their annual SO2 emissions by about 34 percent - a decrease of over 5 million tons when compared to 1990 levels. • Compared to 1980 levels, SO2 emissions from power plants have dropped by 7 million tons, or more than 40 percent. • NOx emissions were down by about 3 million tons since 1990 and had decreased to nearly half the level anticipated without the Acid Rain Program. 	<p>News Release: Wednesday, October 26, 2005. U.S. Environmental Protection Agency (EPA). Acid Rain Program Maintains Air Pollution Cuts, EPA Reports. Contact: Eryn Witcher, 202-564-4355/witcher.eryn@epa.gov</p>												
	<p>The largest source of NOx in the troposphere is not fossil-fueled generating stations or vehicles, but LIGHTNING!</p>	<p>Noor Gillani,et.al. 2006. Exploring the Production of NOx by Lightning and Its Impact on Tropospheric Ozone. NASA Marshall Space Flight Center, Doc. ID: 20070002528</p>												

Deforestation
 “The Amazon rain-forest is rapidly disappearing.”

The **rainforest** 'land area' is shrinking slightly due to encroachment by man, but its 'total mass' grew by 40% in the last 20 years. In other words, the rainforest is greener and thicker and provides better habitat than ever before.

Climate-Driven Increases in Global Terrestrial Net Primary Production from 1982 to 1999, Ramakrishna R. Nemani, et al., Science Jun 6 2003: 1560-1563

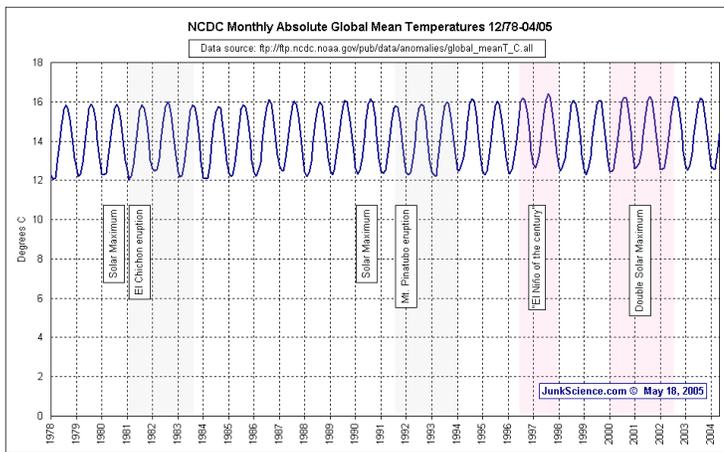
Global Warming
 “Global warming is real — if not a crisis!”

“Because of the large and still uncertain level of natural variability inherent in the climate record and the uncertainties in the time histories of the various forcing agents (and particularly aerosols), a causal linkage between the buildup of greenhouse gases in the atmosphere and the **observed climate changes during the 20th century** cannot be unequivocally established.”

Turekian, V.C., et.al. 2001. Climate Change Science: An Analysis of Some Key Questions. National Academy Press, Washington, DC; 0-309-07574-2. p.17

Just exactly what are we measuring, anyway? Where are the surface temperature numbers coming from? Here are some quotes from NASA's resident global warming advocate James Hansen:
 Q: *What exactly do we mean by SAT [Surface Air Temperature]?*
 A: “I doubt that there is a general agreement how to answer this question... To measure SAT we have to agree on what it is and, as far as I know, no such standard has been suggested or generally adopted.”
 Q: *What SAT do the local media report?*
 A: “The media report the reading of 1 particular thermometer of a nearby weather station. This temperature may be very different from the true SAT even at that location and has certainly nothing to do with the true regional SAT.”
 Q: *If the reported SATs are not the true SATs, why are they still useful?*
 A: “The reported temperature is truly meaningful only to a person who happens to visit the weather station at the precise moment when the reported temperature is measured, in other words, to nobody.”

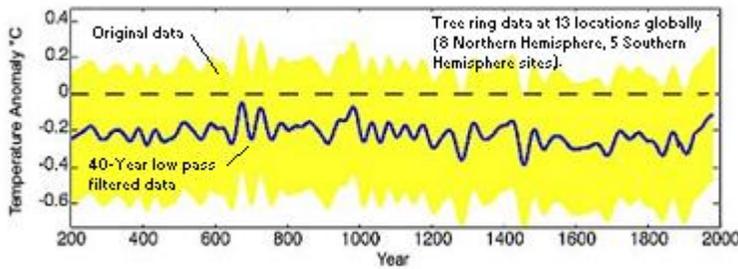
http://data.giss.nasa.gov/gistemp/abs_temp.html



This is the **global mean temperature** as provided by NASA's National Climatic Data Center. If you apply a linear regression to the data you get $y = 0.0014x + 13.93$, or, a beginning temp of 13.93°C in 1978 and growing at a rate of 1°C every 714 years.

NASA / NOAA:
<http://www4.ncdc.noaa.gov/cgi-win/wwcgl.dll?wwAW-MP-F>

<p>Speaking of Michael Mann’s now infamous hockey-stick warming curve, Dr. Hans Von Storch—a noted German climate researcher—said that Mann had underestimated early data fluctuations by over 200% (i.e., today’s temperature increase is not dramatic) and summarized that, “[T]his [Mann’s hockey-stick] graph contains assumptions that are not permissible. Methodologically, it is wrong: Rubbish.”</p> <p>In fact, a portion of the hockey stick data (for the 15th century) was derived from tree ring analysis of a <u>single tree</u>.</p> <p>Chen et al. studied sediments in in the western Yunnan Province of China deposited over the period AD 1340-1990. They discovered a period (1340-1550) of relatively high temperature and low rainfall followed by gradual cooling until 1890. Then, to 1950, another warm, followed by the current cooling trend.</p>	<p>H. von Storch, E. Zorita, J.M. Jones, Y. Dimitriev, F. González-Rouco, and S.F.B. Tett <i>Science</i> 22 October 2004; 306: 679-682 online September 30 http://www.foxnews.com/story/0,2933,163999,00.html</p> <p>Chen, J., Wan, G., Zhang, D.D., Chen, Z., Xu, J., Xiao, T. and Huang, R. 2005. The ‘Little Ice Age’ recorded by sediment chemistry in Lake Erhai, southwest China. <i>The Holocene</i> 15: 925-931.</p>
<p>“The ‘hockey stick’ shaped temperature reconstruction of Mann et al. (1998, 1999) has been widely applied. However it has not been previously noted in print that, prior to their principal components (PCs) analysis on tree ring networks, they carried out an unusual data transformation which strongly affects the resulting PCs. Their method, when tested on persistent red noise, nearly always produces a hockey stick shaped first principal component (PC1) and overstates the first eigenvalue. In the controversial 15th century period, the MBH98 method effectively selects only one species (bristlecone pine) into the critical North American PC1, making it implausible to describe it as the ‘dominant pattern of variance’. Through Monte Carlo analysis, we show that MBH98 benchmarks for significance of the Reduction of Error (RE) statistic are substantially under-stated and, using a range of cross-validation statistics, we show that the MBH98 15th century reconstruction lacks statistical significance.</p>	<p><i>GEOPHYSICAL RESEARCH LETTERS</i>, VOL. 32, L03710, doi:10.1029/2004GL021750, 2005</p>
<p>The Heidelberg Appeal: More than 4,000 signatories, including 72 Nobel Prize winners, from 106 countries have signed this science consensus which opposes:</p> <ul style="list-style-type: none"> • “[T]he emergence of an irrational ideology which is opposed to scientific and industrial progress and impedes economic and social development.” [Human-induced global warming.] • The preconception of a “natural state” which probably never existed. • Warning against policies based on pseudoscience and false or nonrelevant data. • Ignorance is bad; science, technology & industry are good. 	<p>http://www.sepp.org/heidelberg_appeal.html</p>
<p>Global average temperature meter: The link will take you to an ongoing plot of world average temperature.</p>	<p>http://www.junkscience.com/MSU_Temps/MSU1278-0305.gif</p>
<p>“However, most of the observed warming from 1900 to 1949 was likely due to natural climate variation.”</p> <p>Wait, wasn’t this during the peak in the industrial age?</p>	<p>OUR CHANGING PLANET: The U.S. Climate Change Science Program for Fiscal Years 2004 and 2005: A Report by the Climate Change Science Program and the Subcommittee on Global Change Research: (p. 47)</p>



Temperatures derived from **tree ring data** indicate that since the last ice age the earth has been cooling at $-0.2^{\circ}\text{C}/\text{yr}$. And, the current trend is not without historical precedent. North of 20°N latitude, the warmest period of the last 600 years was in the 1930s and early 1940s. Thereafter, the mean temperature dropped. It recovered slightly over the last 20 years; but its final value was still below the mean value of the entire 1400s and portions of the 1500s.

Computer climate models should accurately project future climate, but problems are found in the models that render their output suspect. Chase, et al determine that “at no time, in any model realization, forced or unforced, did any model simulate the presently observed situation of a large and highly significant surface warming accompanied with no warming whatsoever aloft,” which observations are openly acknowledged to represent the real world in both the IPCC (2001) report and the National Academy Report (2000).

Seawater surface temperature data indicate that temperatures in the early to mid-1500s were warmer than they are currently, whereas alarmists claim it is currently warmer than it has been at any time over the past millennium (or two).

Breaker finds that after accounting for local anomalies, the resulting 72-year trend in Monterey Bay sea water surface temperature is a statistically insignificant $+0.00756^{\circ}\text{F}/\text{Yr}$.

Over the two-century period of record, **mean annual air temperature** from Overtornea and Kalix in the Tornedalen area in subarctic Sweden ($\sim 66^{\circ}\text{N}$),” together with similar data from the nearby Haparanda weather station rose by 1.97°C , with the greatest increase occurring in winter (2.83°C) and the smallest increase in summer (0.88°C). This warming, in the words of the authors, “culminated in the 1930s,” so that “the warmest decade was the 1930s.”

For the more recent period from 1977-2002, **Arctic sea ice actually increased** at a mean rate of $0.10 \pm 0.05 \times 10^6 \text{ km}^2$ per decade.

The authors report that “since 1970, the climate in **West Greenland has cooled**, according to oceanographic and biological conditions (Hanna and Cappelen, 2003),” with the result that “Baffin Bay and Davis Strait display strong significant *increasing* [my italics] trends in ice concentrations and extent, as high as 7.5% per decade between 1979 and 1996, with comparable increases detected back to 1953 (Parkinson et al., 1999; Deser et al., 2000; Parkinson, 2000a,b; Parkinson and Cavalieri, 2002; Stern and Heide-Jorgensen, 2003).”

Mann, M.E. and Jones, P.D. 2003. Global surface temperatures over the past two millennia. *Geophysical Research Letters* 30: 10.1029/2003GL017814.

Briffa, K.R., Osborn, T.J. and Schweingruber, F.H. 2004. Large-scale temperature inferences from tree rings: a review. *Global and Planetary Change* 40: 11-26.

Chase, T.N., Pielke Sr., R.A., Herman, B. and Zeng, X. 2004. Likelihood of rapidly increasing surface temperatures unaccompanied by strong warming in the free troposphere. *Climate Research* 25: 185-190.

Silenzi, S., Antonioli, F. and Chemello, R. 2004. A new marker for sea surface temperature trend during the last centuries in temperate areas: Vermetid reef. *Global and Planetary Change* 40: 105-114.

Breaker, L.C. 2005. What's happening in Monterey Bay on seasonal to interdecadal time scales? *Continental Shelf Research* 25: 1159-1193.

Klingbjer, P. and Moberg, A. 2003. A composite monthly temperature record from Tornedalen in Northern Sweden, 1802-2002. *International Journal of Climatology* 23: 1465-1494.

Cavalieri, D.J., Parkinson, C.L. and Vinnikov, K.Y. 2003. 30-Year satellite record reveals contrasting Arctic and Antarctic decadal sea ice variability. *Geophysical Research Letters* 30: 10.1029/2003GL018031

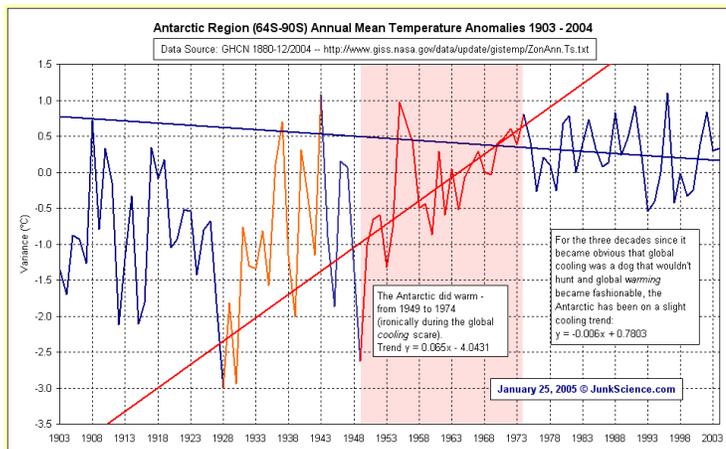
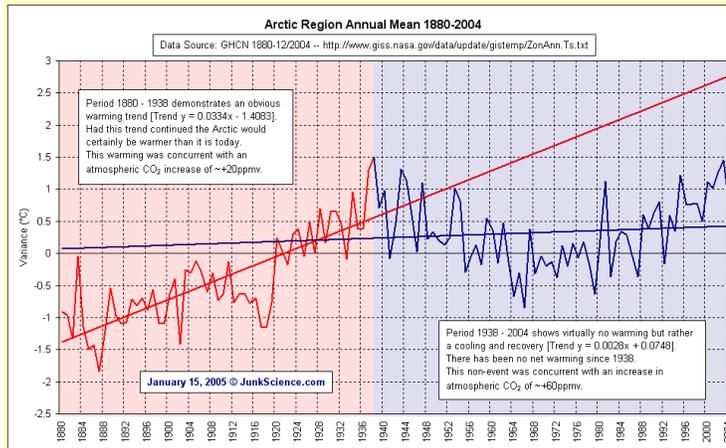
Deser, C., Walsh, J.E. and Timlin, M.S. 2000. Arctic sea ice variability in the context of recent atmospheric circulation trends. *Journal of Climatology* 13: 617-633.

“Since 1940 ... the Greenland coastal stations data have undergone predominantly a cooling trend. At the summit of the **Greenland ice sheet**, the summer average temperature has decreased at the rate of 2.2°C per decade since the beginning of the measurements in 1987. This suggests that the Greenland ice sheet and coastal regions are not following the current global warming trend.”

The following charts are from Steven Milloy reporting for Fox News (see referenced story). Mr. Milloy’s well-researched and considerable materials are available at www.junkscience.com.

Chylek, P., J.E. Box, and G. Lesins, 2004. Global Warming and the Greenland Ice Sheet. Climatic Change, 63, 201–221.

<http://www.foxnews.com/story/0,2933,172188,00.html>



"[T]he current 'best estimate' of the contribution of polar ice wastage to **global sea level** change is a rise of 0.35 millimeters per year, which over a century amounts to only 35 millimeters or a little less than an inch and a half." [Anderson]

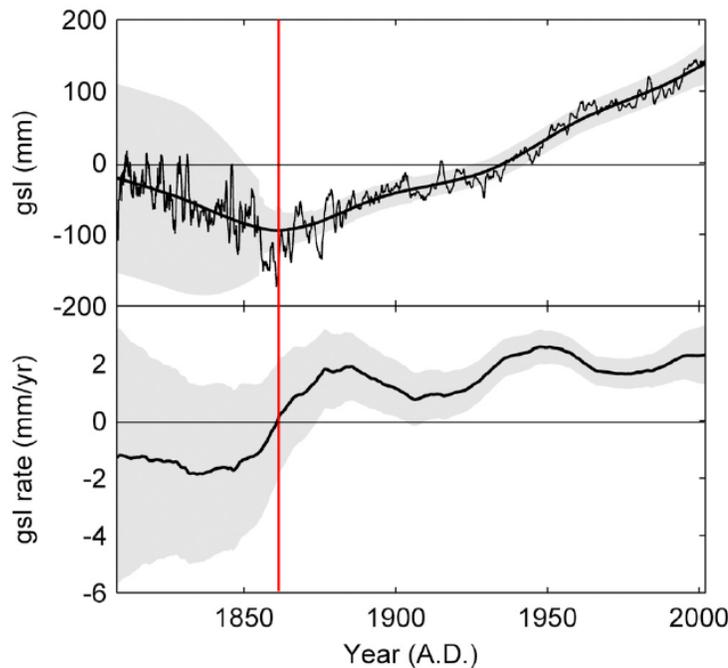
The rate of thermal-induced sea level rise over the past 40 years was about 0.5 mm/year. [Cazenave]

Morner states "there is a total absence of any recent 'acceleration in sea level rise' as often claimed by IPCC and related groups," and, therefore, "there is no fear of any massive future flooding as claimed in most global warming scenarios." [Morner]

According to Lombard, et.al., recent indications of sea level rise are "very likely a non-permanent feature" due to the dominate influence of 20-year cycles like El Nino, etc. [Lombard]

The "best estimate" of the rate of globally-averaged sea level rise over the last half of the 20th century was 1.8 ± 0.3 mm/year.

"[D]ecadal variability in sea level is observed, but to date there is no detectable secular increase in the rate of sea level rise over the period 1950-2000." They report that no increase in the rate of sea level rise has been detected for the entire 20th century, citing the work of Woodworth (1990) and Douglas (1992). [Church]



Glaciers retreat not by global warming, but due to less humidity and cloud cover—at least, on Kilimanjaro. Kaser et. al. show that all relevant "observations and facts" clearly indicate that "climatological processes other than air temperature control the ice recession in a direct manner" on Kilimanjaro, and that "positive air temperatures have not contributed to the recession process on the summit." In setting this record straight, Kaser et al. also contradict the claims of Senators John McCain and Hillary Clinton. And they show the hollowness of the additional claim of Senator McCain that his view of the subject "cannot be refuted by any scientist."

Kononov et al find that glacial retreat in the Urals is similar to that which occurred during the Medieval Warm Period when the CO₂ concentration was far less than today). This means the retreat is neither a crisis nor is it likely to be CO₂-driven.

Anderson, J.B. 2007. Ice sheet stability and sea-level rise. *Science* 315: 1803-1804.

Cazenave, A., Cabanes, C., Dominh, K., Gennero, M.C. and Le Provost, C. 2003. Present-day sea level change: observations and causes. *Space Science Reviews* 108: 131-144.

Morner, N.-A. 1973. Eustatic changes during the last 300 years. *Palaeogeography, Palaeoclimatology, Palaeoecology* 9: 153-181.

Lombard, A., Cazenave, A., Le Traon, P.-Y. and Ishii, M. 2005. Contribution of thermal expansion to present-day sea-level change revisited. *Global and Planetary Change* 47: 1-16.

Church, J.A., White, N.J., Coleman, R., Lambeck, K. and Mitrovica, J.X. 2004. Estimates of the regional distribution of sea level rise over the 1950-2000 period. *Journal of Climate* 17: 2609-2625.

Kaser, G., Hardy, D.R., Molg, T., Bradley, R.S. and Hyera, T.M. 2004. Modern glacier retreat on Kilimanjaro as evidence of climate change: Observations and facts. *International Journal of Climatology* 24: 329-339.

Kononov, Y.M., Ananicheva, M.D. and Willis, I.C. 2005. High-resolution reconstruction of Polar Ural glacier mass balance for the last millennium. *Annals of Glaciology* 42: 163-170.

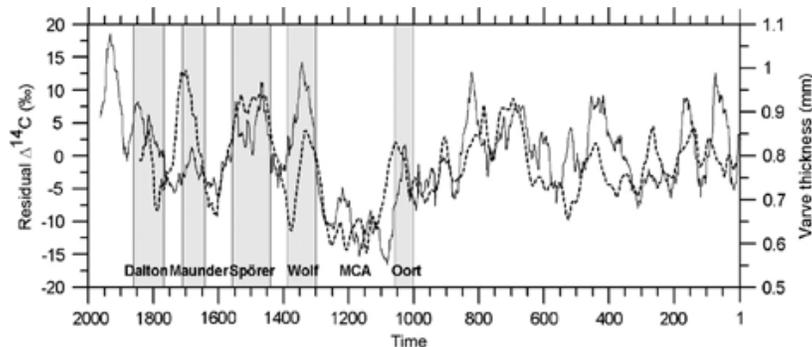
<p>Albeit regional, this study contradicts some alarmist claims by showing temperature extremes over the last 2000 years the northwestern mediterranean have been both higher (up to +0.45°F) and lower (down to -1.8°F) than the peak temperatures of the 1970s - 1980s (in the 1990s temperatures began to drop). That is, recent warming is not unprecedented.</p>	<p>Pla, S. and Catalan, J. 2005. Chrysophyte cysts from lake sediments reveal the submillennial winter/spring climate variability in the northwestern Mediterranean region throughout the Holocene. <i>Climate Dynamics</i> 24: 263-278.</p>
<p>The Science & Environmental Policy Project surveyed the UN's IPCC contributors and researchers and discovered that, rather than "consensus" on the impact of man on global warming, that:</p> <ul style="list-style-type: none"> • 40% of the 2500 contributing members felt that the report conveyed a misleading message to the public that there was certainty about the natural greenhouse effect • Over 50% of respondents thought that computer models had not been adequately validated with observational data, and that attribution of observed warming to an enhanced greenhouse effect had not been shown using only observational data. • Finally, 60% of respondents also thought that the climate models used did not accurately represent the physical atmosphere-ocean system. <p>Yet, the report summary announced 'consensus!' Hmmm.</p>	<p>Singer, S. F. No Scientific Consensus on Greenhouse Warming <i>Wall Street Journal</i>, September 23, 1991. http://www.sepp.org/glwarm/noscicons.html</p>
<p>Canadian lake ice data from 1950-1995 "show slight but not statistically significant evidence of warming temperatures."</p>	<p>Futter, M.N. 2003. Patterns and trends in Southern Ontario lake ice phenology. <i>Environmental Monitoring and Assessment</i> 88: 431-444.</p>

Blame it on man
 "Global warming is really a *man-made* phenomena!"

A close relationship ($r = -0.95$) exists between **sunspot cycles** and the surface air temperature of the Northern Hemisphere from 1861-1989 where the, "warming and cooling corresponded to short (~10 yr) and prolonged (~11.5 yr) solar cycles, respectively significantly undermines any anthropogenic impact on warming."

Solar magnetic activity is cyclic and has peaked (again), which expands the size and influence of the heliosphere, which provides the earth increased low energy cosmic ray shielding. This causes a decrease in ion production in the lower atmosphere, leading to a decrease in the rate of formation of cloud-condensing nuclei, resulting in less cloud cover. Decreased cloud cover leads to warming of the earth's surface. This relationship appears to explain most of the observed global warming.

Dergachev et al. find that "**galactic cosmic ray levels** in earth's atmosphere are inversely related to the strength of the helio- and geomagnetic fields," and conclude that "cosmic ray flux variations are apparently the most effective natural factor of climate changes on a large time scale." They note that "changes in cloud processes under the action of cosmic rays, which are of importance for abundance of condensation nuclei and for ice formation in cyclones, can act as a connecting link between solar variability and changes in weather and climate."



Haltia-Hovi et al. report (see figure above) that their "comparison of varve parameters (varve thickness, mineral and organic matter accumulation) and the activity of the sun, as reflected in residual $\Delta^{14}\text{C}$ [data] appears to coincide remarkably well in Lake Lehmilampi during the last 2000 years, suggesting **solar forcing** of the climate,"

Friis-Christensen, E. and Lassen, K. 1991. Length of the solar cycle: An indicator of solar activity closely associated with climate. *Science* 254: 698-700.

Svensmark, H. and Friis-Christensen, E. 1997. Variation of cosmic ray flux and global cloud coverage - A missing link in solar-climate relationships. *Journal of Atmospheric and Solar-Terrestrial Physics* 59: 1225-1232.

Zherebtsov, G.A. and Kovalenko, V.A. 2000. Effect of solar activity on hydrometeorological characteristics in the Baikal region. Proceedings of the International Conference "Solar Activity and Its Terrestrial Manifestations," Irkutsk, Russia, p. 54.

Marsh, N.D. and Svensmark, H. 2000. Low cloud properties influenced by cosmic rays. *Physical Review Letters* 85: 5004-5007.

Marsden, D. and Lingenfelter, R.E. 2003. Solar activity and cloud opacity variations: A modulated cosmic ray ionization model. *Journal of the Atmospheric Sciences* 60: 626-636.

Dergachev, V.A., Dmitriev, P.B., Raspopov, O.M. and Jungner, H. 2006. Cosmic ray flux variations, modulated by the solar and earth's magnetic fields, and climate changes. 1. Time interval from the present to 10-12 ka ago (the Holocene Epoch). *Geomagnetizm i Aeronomiya* 46: 123-134.

Haltia-Hovi, E., Saarinen, T. and Kukkonen, M. 2007. A 2000-year record of solar forcing on varved lake sediment in eastern Finland. *Quaternary Science Reviews* 26: 678-689.

Concerning the possibility that global warming is causing an increase in mean **sea level**: "the rapid rise [in mean sea level] has been ongoing since before industrial times and must therefore contain a natural component."

Gehrels, W.R. 1999. Middle and late Holocene sea-level changes in eastern Maine reconstructed from foraminiferal saltmarsh stratigraphy and AMS ^{14}C dates on basal peat. *Quaternary Research* 52: 350-359.

Researchers "view the historic record as a continuation of the past rather than as a perturbation" and demonstrate a strong linearity in the historic rate of **sea-level** rise over the past 150 years that they describe as, "shows no indication of the pronounced mid-20th-century increase in temperature indicated by Mann et al. (1999)," noting further that "neither is there a relationship to the atmospheric CO_2 record."

Mann, M.E., Bradley, R.S. and Hughes, M.K. 1999. Northern Hemisphere temperatures during the past millennium: Inferences, uncertainties, and limitations. *Geophysical Research Letters* 26: 759-762.

The researchers from the Department of Civil and Environmental Engineering at the University of Southern California in Los Angeles conclude that "the theory of currently observed global atmospheric warming as a result of increasing **anthropogenic carbon dioxide** emission is a myth," and that it has "proved to be an enduring one."

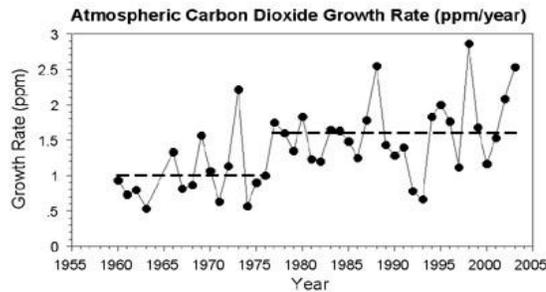
Khilyuk, L.F. and Chilingar, G.V. 2006. On global forces of nature driving the Earth's climate. Are humans involved? *Environmental Geology* 50: 899-910.

<p>The major influences on the earth's climate come from two sources: (1) the earth's orbital path related to the sun, and (2) changes in the sun's energy output.</p> <p>The first is "due to changes in the orbital parameters of the earth's position relative to the sun induced by the other planets," which arises from gravitational perturbations that "induce changes with characteristic time scales in the eccentricity (~100,000 years), the obliquity (angle between the equator and the orbital plane, ~40,000 years) and the precession of the earth's axis (~20,000 years)."</p> <p>Regarding the second, Be¹⁰ and other cosmogenic radionuclides (such as C¹⁴) stored in ice and sediment cores and tree rings currently provide our only means of inferring solar irradiance variability on a millennial time scale; and "clearly reveal that the sun varies significantly on millennial time scales and most likely plays an important role in climate change," especially within this particular time domain.</p>	<p>Beer, J., Vonmoos, M. and Muscheler, R. 2006. Solar variability over the past several millennia. <i>Space Science Reviews</i> 125: 67-79.</p>
<p>Solar variations naturally explain global cooling observed in 1950-1970, which can't be understood from the standpoint of the greenhouse effect, since CO₂ was intensely released into the atmosphere in this period.</p>	<p>Dergachev, V.A. and Raspopov, O.M. 2000. Long-term processes on the sun controlling trends in the solar irradiance and the earth's surface temperature. <i>Geomagnetism and Aeronomy</i> 40: 9-14.</p>
<p>The authors report they detected "century-scale variability throughout most of the Holocene," noting that "the [data] record is consistent with records from other areas," including the Cariaco Basin, the Yucatan Peninsula and the subpolar North Atlantic Ocean. In addition, they say "the similarity in cycles found in many proxy climate records and proxy records for solar variability indicates that some of the high-frequency (century-scale) climate variability of the current interglacial is due to external (solar) forcing."</p> <p>Similar conclusions were drawn by researchers examining sediment cores from a tundra lake in Alaska.</p>	<p>Poore, R.Z., Dowsett, H.J., Verardo, S. and Quinn, T.M. 2003. Millennial- to century-scale variability in Gulf of Mexico Holocene climate records. <i>Paleoceanography</i> 18: 10.1029/2002PA000868.</p> <p>Hu, F.S., Kaufman, D., Yoneji, S., Nelson, D., Shemesh, A., Huang, Y., Tian, J., Bond, G., Clegg, B. and Brown, T. 2003. Cyclic variation and solar forcing of Holocene climate in the Alaskan subarctic. <i>Science</i> 301: 1890-1893.</p>
<p>"[T]he lowest temperatures in the early 1900s correspond to the lowest solar activity (weak cycle 14), the further temperature rise follows the increase in solar activity; the decrease in solar activity in cycle 20 is accompanied by the temperature fall [from 1950-1970], and the subsequent growth of solar activity in cycles 21 and 22 entails the temperature rise [of the last quarter century]."</p> <p>"[T]he available data of observations support our inference about the cooling that has already started....the average annual air temperature in Irkutsk, which correlates well with the average annual global temperature of the surface air, attained in 1997 its maximum equal to +2.3°C" and then "began to diminish to +1.2°C in 1998, +0.7°C in 1999, and +0.4°C in 2000."</p>	<p>Bashkirtsev, V.S. and Mashnich, G.P. 2003. Will we face global warming in the nearest future? <i>Geomagnetism and Aeronomy</i> 43: 124-127.</p>
<p>Scafetta and West found that variability in the output of the sun appears to have contributed roughly half of the 1900-2000 global warming of the earth.</p>	<p>Scafetta, N. and West, B.J. 2006. Phenomenological solar contribution to the 1900-2000 global surface warming. <i>Geophysical Research Letters</i> 33: 10.1029/2005GL025539.</p>

	<p>Willard et al. utilized pollen assemblages from four sediment cores extracted from Chesapeake Bay as a proxy for the winter temperature of this region over the past 10,000 years. Data revealed oscillations with periods of 148, 177, 282, 521 and 1429 years. With respect to the 1429-year oscillation, Willard et al. note that the climate cycle correlates well with a similar-scale cycle of solar activity evident in cosmogenic isotope records. In addition, they say it is well correlated with proxy climate cycles found in records from Greenland, the North Atlantic and Alaska, which have <i>also</i> been shown to be correlated with cyclical changes in solar activity. In other words, global warming is a solar phenomena and not significantly impacted by mankind.</p>	<p>Willard, D.A., Bernhardt, C.E., Korejwo, D.A. and Meyers, S.R. 2005. Impact of millennial-scale Holocene climate variability on eastern North American terrestrial ecosystems: pollen-based climatic reconstruction. <i>Global and Planetary Change</i> 47: 17-35.</p>
	<p>Usoskin et al. report that "the positive correlation between the geomagnetic dipole moment and the temperature reconstructions provides further evidence favoring the cosmic ray influence on the terrestrial climate," because "the cosmic ray flux entering Earth's atmosphere is due to a combination of solar modulation and geomagnetic shielding, the latter adding a long-term trend to the varying solar signal."</p>	<p>Usoskin, I.G., Schussler, M., Solanki, S.K. and Mursula, K. 2005. Solar activity, cosmic rays, and Earth's temperature: A millennium-scale comparison. <i>Journal of Geophysical Research</i> 110: 10.1029/2004JA010946.</p>
	<p>Lamy, et al. found that "pronounced and coherent" multi-centennial variations in coral bleaching and sea surface temperatures "strongly resemble modern temperature and rainfall anomalies related to the Arctic Oscillation/North Atlantic Oscillation (AO/NAO) and that "the multicentennial variability appears to be similar to changes observed in proxy records for solar output changes." That is, the changes appear natural and not manmade.</p>	<p>Lamy, F., Arz, H.W., Bond, G.C., Bahr, A. and Patzold, J. 2006. Multicentennial-scale hydrological changes in the Black Sea and northern Red Sea during the Holocene and the Arctic/North Atlantic Oscillation. <i>Paleoceanography</i> 21: 10.1029/2005PA001184.</p>
<p><u>CO2 emissions</u> Immediate steps are needed to stem the threat of CO2 – induced global warming</p>	<p>With respect to urban areas, ~90% of all outdoor ambient CO2 is derived from vehicles using unleaded gasoline—not from industry. [Ahhh, but each of those drivers votes! Whereas, if one saddles industry with the cleanup responsibility and that industry naturally passes the cost to the consumer, it's not likely that consumers will see it as a pass-through tax, but as more big, mean industry tactics. Politicians then appear blameless, or worse yet, as the necessary saviours of the little man (via more industry-aimed legislation).]</p>	<p>Widory, D. and Javoy, M. 2003. The carbon isotope composition of atmospheric CO2 in Paris. <i>Earth and Planetary Science Letters</i> 215: 289-298.</p> <p>Idso, S.B., Idso, C.D. and Balling Jr., R.C. 2002. Seasonal and diurnal variations of near-surface atmospheric CO2 concentrations within a residential sector of the urban CO2 dome of Phoenix, AZ, USA. <i>Atmospheric Environment</i> 36: 1655-1660.</p> <p>Koerner, B. and Klopatek, J. 2002. Anthropogenic and natural CO2 emission sources in an arid urban environment. <i>Environmental Pollution</i> 116, Supplement 1: S45-S51.</p>

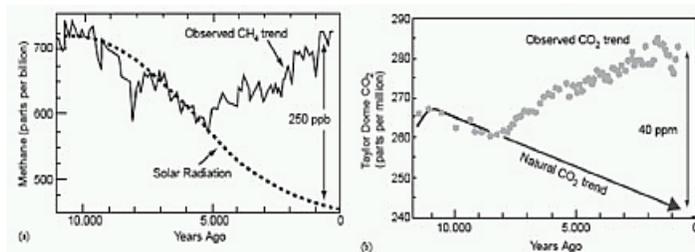
It's not yet been shown that CO₂ is actually responsible for the small amount of warming that has actually taken place. In fact, Minnis et al. calculate the net temperature change associated with an increase in **contrail-induced cirrus cloud cover** over the United States amounts to a warming of 0.2° to 0.3°C per decade, or, nearly all of the surface and tropospheric warming observed in and over the U.S. during the last twenty-five years.

The chart below shows that other than ~1977 (due to the Pacific Decadal Oscillation) there has been no statistically significant change in the production rate of CO₂.



Minnis, P., J. K. Ayers, R. Palikonda, and D. Phan, 2004: Contrails, Cirrus Trends, and Climate. *Journal of Climate*, 17, 1671–1685.

Minnis, P., L. Nguyen, D. P. Duda, and R. Palikonda, 2002. Spreading of isolated contrails during the 2001 air traffic shutdown. *Proceedings of the American Meteorological Society 10th Conference on Aviation, Range, and Aerospace Meteorology*. Portland, Oregon, 33–36.

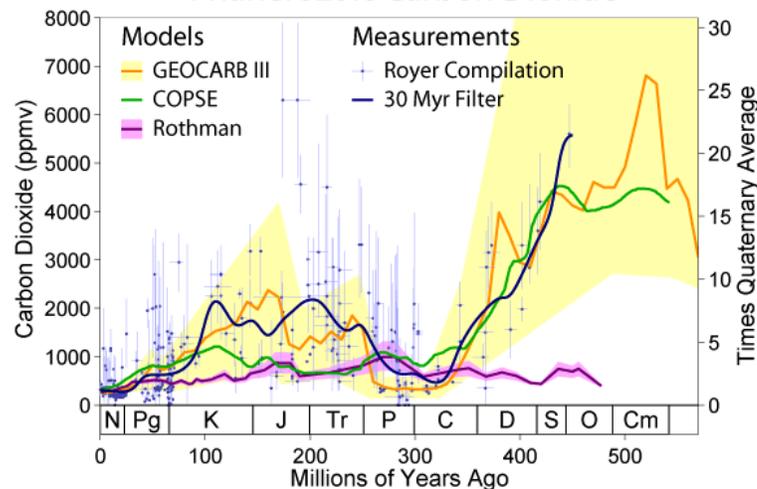


W. F. Ruddiman, et. al, 2003. *Climate Change* 2003, 61, 261; *Nature* 2004, 427, 582

The last figure was prepared by Robert A. Rohde from published data.: http://www.globalwarmingart.com/wiki/Image:Phanerozoic_Carbon_Dioxide.png

This study by Ruddiman at the Univ. of Virginia indicates that it is possible that human activities over the last 8,000 years of mankind's history may have **saved mankind from another cyclic and catastrophic ice age**—or at least deferred its onset. According to these folks, had it not been for fossil fuels, we might have a thick sheet of ice covering Canada and the northern most third of the U.S.

Phanerozoic Carbon Dioxide



The findings of Jomelli and Pech, plus those they cite, suggest the "beginning of the end" of the Little Ice Age (LIA) started in the early to mid-1800s.

Interestingly, Moore et al. (2002) find a similar start-time for the demise of the LIA from temperature data gathered on Canada's Mount Logan.

Further support comes from studies of still other parameters, including deep soil temperatures (Gonzalez-Rouco et al., 2003), deep ocean temperatures (Lindzen, 2002), and dates of ice break-up of lakes and rivers (Yoo and D'Odorico, 2002).

This is also the period of time during which the temperature record of Esper et al. (2002) indicates that the entire Northern Hemisphere began its nearly-linear-with-time recovery from the depths of the LIA. As Briffa and Osborn (2002) describe it, Esper et al.'s record clearly shows that the **warming of the 20th century is actually "a continuation of a trend that began at the start of the 19th century."**

Jomelli, V. and Pech, P. 2004. Effects of the Little Ice Age on avalanche boulder tongues in the French Alps (Massif des Ecrins). Earth Surface Processes and Landforms 29: 553-564.

New research by an international team of 49 scientists based on a **new ice core obtained from the North Greenland** Ice Core Project (NGRIP) site at 75.10°N and 42.32°W derived an undisturbed proxy climate record that extends all the way back to 123,000 years BP (105,000 years ago). What was found? This interglacial period is ~9°F cooler than the historical norm.

Currey K.M. 2004. Into an ice age. Nature 431: 133-134.

IAW Wigley's calculations, if every nation met its **Kyoto commitments**, the earth would cool by an undetectable 0.126°F. However, for this small decrease, it would cost the U.S. economy (GDP) about \$3,000,000,000 / yr. Is it worth it?

Wigley, T. 1998, "The Kyoto Protocol, CO₂, CH₄, and climate implications", Geophysical Research Letters, v 25 pp 2285-8. <http://www.firstgov.gov/fgsearch/index.jsp?nr=10&mt0=all&ms0=should&mw0=kyoto+GDP+2010&in0=domain&dom0=www.eia.doe.gov+tonto.eia.doe.gov&rs=1&db=www-fed-all&st=AS&rn=1&parsed=true>

Ishimatsu et al. determined "the expected peak [**CO₂ concentration**] value is about 1.4 torr around the year 2300 according to Caldeira and Wickett (2003)" and that this level is approximately a 2.5% of the level needed for potential harm—even at its peak.

Ishimatsu, A., Hayashi, M., Lee, K.-S., Kikkawa, T. and Kita, J. 2005. Physiological effects of fishes in a high-CO₂ world. Journal of Geophysical Research 110: 10.1029/2004JC002564.

Green power
To stem the rise in global temperatures we should be producing power through renewable sources.

All power sources are renewable—albeit some on a longer time scale. Here is the breakdown in **construction and operating costs**. Judge for yourself what would happen to our economy if we went 'total green.' [Costs normalized to \$/kW.]

Fuel Type	Capital	O&M
Photovoltaic	\$4,401	\$10
Solar thermal ^a	\$2,916	\$49
Geothermal ^a	\$2,203	\$79
Biomass	\$1,731	\$46
Advanced nuclear	\$1,611	\$59
Browns Ferry recommissioning	\$1,500	---
Landfill gas ^a	\$1,477	\$100
Scrubbed Coal	\$1,168	\$25
Tidal turbine ^a	\$1,106	\$100
Wind ^a	\$1,015	\$26
Combined cycle CT	\$542	\$12 ^b
Conventional CT	\$413	\$10 ^b

^a Limited locations ^b Doesn't include high natural gas prices

Energy Information Agency, et. al. [http://www.eia.doe.gov/oiaf/aeo/assumption.../pdf/0554\(2004\).pdf.eia.doe.gov](http://www.eia.doe.gov/oiaf/aeo/assumption.../pdf/0554(2004).pdf.eia.doe.gov)

Dr. Robert Peltier, P.E., Platts Power Magazine, Nov-Dec '05, p.43

Automation by the numbers, Intech, July, 2007, p.14.

Desertification
We're headed for a

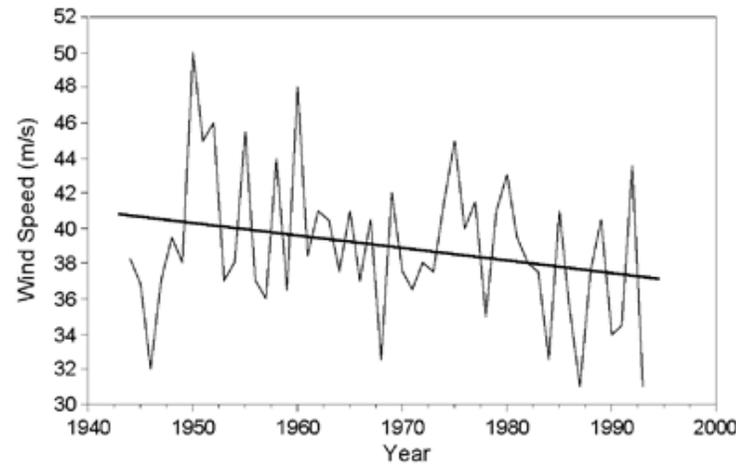
With two exceptions (Siberia, Mexico), increasing CO₂ levels have caused a **worldwide greening and lengthening of the growing season**.

Climate-Driven Increases in Global Terrestrial Net Primary Production from 1982 to 1999, Ramakrishna R. Nemani, et al., Science Jun 6 2003: 1560-1563

dustbowl	For the period 1982-2003, Herrmann, et al, found that "the overall trend in monthly maximum [Normalized Difference Vegetation Index was] positive over a large portion of the Sahel region, reaching up to 50% increase in the average NDVI in parts of Mali, Mauritania and Chad."	Herrmann, S.M., Anyamba, A. and Tucker, C.J. 2005. Recent trends in vegetation dynamics in the African Sahel and their relationship to climate. Global Environmental Change 15: 394-404.
	Rather than finding that elevated CO2 leading to global warming and dustbowls, the study determined that "elevated CO2 significantly changed community composition towards the previously more poorly performing species." That is, increasing CO2 leads to a more diverse fauna.	Ramseier, D., Connolly, J. and Bazzaz, F.A. 2005. Carbon dioxide regime, species identity and influence of species initial abundance as determinants of change in stand biomass composition in five-species communities: an investigation using a simplex design and RGRD analysis. Journal of Ecology 93: 502-511.
	The author's experiments showed higher CO2 concentrations led to significantly greater rates of germination, faster germination, increased growth, and higher fruit yield.	Wang, X. 2005. Reproduction and progeny of <i>Silene latifolia</i> (Caryophyllaceae) as affected by atmospheric CO2 concentration. American Journal of Botany 92: 826-832.
	"[H]igher temperature positively affects photosynthetic processes. "	Marasovic, I., Nincevic, Z., Kuspilic, G., Marinovic, S. and Marinov, S. 2005. Long-term changes of basic biological and chemical parameters at two stations in the middle Adriatic. Journal of Sea Research 54: 3-14.
	Severe drought in the central and southern Rocky Mountains of North America are examples of <i>naturally recurring</i> products of various climate "regime shifts" in the Pacific and Atlantic Oceans. There is no compelling reason to associate any such drought of the past, present or future with global warming.	<> Gray, S.T., Betancourt, J.L., Fastie, C.L. and Jackson, S.T. 2003. Patterns and sources of multidecadal oscillations in drought-sensitive tree-ring records from the central and southern Rocky Mountains. Geophysical Research Letters 30: 10.1029/2002GL016154 <> Barlow, M., Nigam, S. and Berberry, E.H. 2001. ENSO, Pacific decadal variability, and U.S. summertime precipitation, drought and streamflow. Journal of Climate 14: 2105-2128.
	Shen et al. observe that <> "the changes of the agroclimatic parameters imply that Alberta agriculture has benefited from the last century's climate change," <> "the potential exists to grow crops and raise livestock in more regions of Alberta than was possible in the past." <> the weather "can greatly reduce the frost risks to crops and bring economic benefits to Alberta agricultural producers" <> the weather "implies that Alberta farmers now have a larger variety of crops to choose from than were available previously" <> "there is no hesitation for us to conclude that the warming climate and increased precipitation benefit agriculture in Alberta."	Shen, S.S.P., Yin, H., Cannon, K., Howard, A., Chetner, S. and Karl, T.R. 2005. Temporal and spatial changes of the agroclimate in Alberta, Canada, from 1901 to 2002. Journal of Applied Meteorology 44: 1090-1105.
	In a study of tropical forests , the authors found earth's tropical forests appear to have fared remarkably well, growing ever more robustly and removing even more carbon from the atmosphere in some of the hottest places on the planet.	Ichii, K., Hashimoto, H., Nemani, R. and White, M. 2005. Modeling the interannual variability and trends in gross and net primary productivity of tropical forests from 1982 to 1999. Global and Planetary Change 48: 274-286.
<u>Severe weather</u> Global warming => ocean circulation changes	This study adds to the wealth of real-world data that indicates that increasing warmth leads to increasing climate stability —just the opposite of what many models predict to occur in response to further global warming. When it comes to choosing between contradictory model predictions and real-world observations, therefore, one should favor the world of reality.	Draut, A.E., Raymo, M.E., McManus, J.F. and Oppo, D.W. 2003. Climate stability during the Pliocene warm period. Paleoceanography 18: 10.1029/2003PA000889.

Enviro-activists suspect global warming will cause enhanced precipitation in high northern latitudes, increased freshwater runoff to the North Atlantic Ocean, a rapid decline in North Atlantic Deep Water formation, producing a swift reduction in the global ocean's thermohaline circulation, shutting down the Gulf Stream, and bringing cold times to Europe. Study results, however, “suggest that the **intensified hydrological cycle could also tend to stabilize the MOC** by transporting more moisture southward.”

Saenko, O.A., Weaver, A.J. and Schmittner, A. 2003. Atlantic deep circulation controlled by freshening in the Southern Ocean. *Geophysical Research Letters* 30: 10.1029/2003GL017681.



Annual average maximum wind speeds recorded in Atlantic basin tropical cyclones (Landsea et al., 1996).

Contrary to the claims of climate alarmists, the **severity of storms** has NOT been getting worse, but has been declining.

Vecchi, et al state that their models predict that global warming “would not [our emphasis] suggest a strong anthropogenic increase in tropical Atlantic or Pacific hurricane activity during the 21st Century.”

Landsea, C.W., et al., 1996. Downward trends in the frequency of intense Atlantic hurricanes during the past five decades. *Geophysical Research Letters*, 23, 1697-1700.
Vecchi, G.A. and Soden, B.J. 2007. Increased tropical Atlantic wind shear in model projections of global warming. *Geophysical Research Letters* 34: 10.1029/2006GL028905.

Not only are the severity of the storms world-wide not getting worse, there doesn't appear to be any evidence that there is a **historical trend that world-wide weather is getting worse**.

However, severity of Atlantic hurricanes has increased very slightly while Pacific hurricane intensity has decreased.

Rather, higher sea surface temperatures in the Atlantic appear to be caused by a reduction in trade winds. Trade winds normally act to reduce sea surface temperature through removing latent heat.

Mendelsohn, R., Bograd, S.J., Schwing, F.B. and Palacios, D.M. 2005. Teaching old indices new tricks: A state-space analysis of El Niño related climate indices. *Geophysical Research Letters* 32: L07709, doi:10.1029/2005GL022350.

Klotzbach, P.J. 2006. Trends in global tropical cyclone activity over the past twenty years (1986-2005). *Geophysical Research Letters* 33: 10.1029/2006GL025881.

Virmani, J.I. and Weisberg, R.H. 2006. The 2005 hurricane season: An echo of the past or a harbinger of the future? *Geophysical Research Letters* 33: 10.1029/2005GL025517.

Activists assert that a warmer world with higher sea surface temperatures and elevated atmospheric moisture levels could increase the frequency, intensity, or duration of **tropical storms**, but empirical studies have failed to reveal *any* relationships.

Balling Jr., R.C. and Cerveny, R.S. 2003. Analysis of the duration, seasonal timing, and location of North Atlantic tropical cyclones: 1950-2002. *Geophysical Research Letters* 30: 10.1029/2003GL018404.