

Global Warming or The “New Ice Age”? Fear of the “Big Freeze”

Top Scientists, Government Agencies Have – For Over 100 Years – Been Terrified of a New Ice Age...

By [Washington's Blog](#)

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In-depth Report: [Climate Change](#)

There has been an intense debate among leading scientists, government agencies and publications over whether the bigger threat is global warming or a new ice age. As we've previously [noted](#), top researchers have feared an ice age – off and on – for more than 100 years. (This post does not weigh in one way or the other. It merely presents a historical record.)

On February 24, 1895, the New York Times published an [article](#) entitled “PROSPECTS OF ANOTHER GLACIAL PERIOD; Geologists Think the World May Be Frozen Up Again”, which starts with the following paragraph:

The question is again being discussed whether recent and long-continued observations do not point to the advent of a second glacial period, when the countries now basking in the fostering warmth of a tropical sun will ultimately give way to the perennial frost and snow of the polar regions.

In September 1958, Harper's wrote an [article](#) called “The Coming Ice Age”.

On January 11, 1970, the Washington Post wrote an [article](#) entitled “Colder Winters Held Dawn of New Ice Age – Scientists See Ice Age In the Future” which stated:

Get a good grip on your long johns, cold weather haters—the worst may be yet to come. That's the long-long-range weather forecast being given out by “climatologists.” the people who study very long-term world weather trends.

In 1972, two scientists – George J. Kukla (of the Lamont-Doherty Geological Observatory) and R. K. Matthews (Chairman, Dept of Geological Sciences, Brown University) – wrote the following [letter](#) to President Nixon warning of the possibility of a new ice age:

Dear Mr. President:

Aware of your deep concern with the future of the world, we feel obliged to inform you on the results of the scientific conference held here recently. The conference dealt with the past and future changes of climate and was attended by 42 top American and European investigators. We enclose the summary

report published in Science and further publications are forthcoming in Quaternary Research.

The main conclusion of the meeting was that a global deterioration of climate, by order of magnitude larger than any hitherto experience by civilized mankind, is a very real possibility and indeed may be due very soon.

The cooling has natural cause and falls within the rank of processes which produced the last ice age. This is a surprising result based largely on recent studies of deep sea sediments.

Existing data still do not allow forecast of the precise timing of the predicted development, nor the assessment of the man's interference with the natural trends. It could not be excluded however that the cooling now under way in the Northern Hemisphere is the start of the expected shift. The present rate of the cooling seems fast enough to bring glacial temperatures in about a century, if continuing at the present pace.

The practical consequences which might be brought by such developments to existing social institution are among others:

(1) Substantially lowered food production due to the shorter growing seasons and changed rain distribution in the main grain producing belts of the world, with Eastern Europe and Central Asia to be first affected.

(2) Increased frequency and amplitude of extreme weather anomalies such as those bringing floods, snowstorms, killing frosts, etc.

With the efficient help of the world leaders, the research ...

With best regards,

George J. Kukla (Lamont-Doherty Geological Observatory)

R. K. Matthews (Chairman, Dept of Geological Sciences, Brown U)

The White House assigned the task of looking at the claims contained in the letter to its science agencies, especially the National Science Foundation and NOAA, who engaged in a [flurry of activity](#) looking into the threat of an ice age.

On August 1, 1974 the White House wrote a [letter](#) to Secretary of Commerce Frederick Dent stating:

Changes in climate in recent years have resulted in unanticipated impacts on key national programs and policies. Concern has been expressed that recent changes may presage others. In order to assess the problem and to determine what concerted action ought to be undertaken, I have decided to establish a subcommittee on Climate Change.

Out of this concern, the U.S. government started monitoring climate.

As NOAA scientists Robert W. Reeves, Daphne Gemmill, Robert E. Livezey, and James Laver [point out](#):

There were also a number of short-term climate events of national and international consequence in the early 1970s that commanded a certain level of attention in Washington. Many of them were linked to the El Niño of 1972-1973.

A killing winter freeze followed by a severe summer heat wave and drought produced a 12 percent shortfall in Russian grain production in 1972. The Soviet decision to offset the losses by purchase abroad reduced world grain reserves and helped drive up food prices. Collapse of the Peruvian anchovy harvest in late 1972 and early 1973, related to fluctuations in the Pacific ocean currents and atmospheric circulation, impacted world supplies of fertilizer, the soybean market, and prices of all other protein feedstocks.

The anomalously low precipitation in the U.S. Pacific north-west during the winter of 1972-73 depleted reservoir storage by an amount equivalent to more than 7 percent of the electric energy requirements for the region.

On June 24, 1974, Time Magazine wrote an [article](#) entitled “Another Ice Age?” which stated:

As they review the bizarre and unpredictable weather pattern of the past several years, a growing number of scientists are beginning to suspect that many seemingly contradictory meteorological fluctuations are actually part of a global climatic upheaval. However widely the weather varies from place to place and time to time, when meteorologists take an average of temperatures around the globe they find that the atmosphere has been growing gradually cooler for the past three decades. The trend shows no indication of reversing. Climatological Cassandras are becoming increasingly apprehensive, for the weather aberrations they are studying may be the harbinger of another ice age.

Telltale signs are everywhere ...

Whatever the cause of the cooling trend, its effects could be extremely serious, if not catastrophic. Scientists figure that only a 1% decrease in the amount of sunlight hitting the earth's surface could tip the climatic balance, and cool the planet enough to send it sliding down the road to another ice age within only a few hundred years.

(here's the [printer-friendly](#) version).

Science News wrote an [article](#) in 1975 called “Chilling Possibilities” warning of a new ice age.

A January 1975 [article](#) from the New York Times warned:

The most drastic potential change considered in the new report (by the National Academy of Sciences) is an abrupt end to the present interglacial period of relative warmth that has governed the planet's climate for the past 10,000 years.

On April 28, 1975, Newsweek wrote an article stating:

Climatologists are pessimistic that political leaders will take any positive action to compensate for the climatic change, or even to allay its effects. They concede that some of the more spectacular solutions proposed, such as melting the Arctic ice cap by covering it with black soot or diverting arctic rivers, might create problems far greater than those they solve. But the scientists see few signs that government leaders anywhere are even prepared to take the simple measures of stockpiling food or of introducing the variables of climatic uncertainty into economic projections of future food supplies. The longer the planners delay, the more difficult will they find it to cope with climatic change once the results become grim reality.

[Here](#) is a reprint of the article in the Washington Times, and [here](#) is a copy of the 1975 Newsweek article.

Newsweek [discussed](#) its 1975 article in 2006:

In April, 1975 ... NEWSWEEK published a small back-page article about a very different kind of disaster. Citing "ominous signs that the earth's weather patterns have begun to change dramatically," the magazine warned of an impending "drastic decline in food production." Political disruptions stemming from food shortages could affect "just about every nation on earth." Scientists urged governments to consider emergency action to head off the terrible threat of . . . well, if you had been following the climate-change debates at the time, you'd have known that the threat was: global cooling...

Citizens can judge for themselves what constitutes a prudent response-which, indeed, is what occurred 30 years ago. All in all, it's probably just as well that society elected not to follow one of the possible solutions mentioned in the NEWSWEEK article: to pour soot over the Arctic ice cap, to help it melt.

New York Times science columnist John Tierney [noted](#) in 2009:

In 1971, long before Dr. Holdren came President Obama's science adviser, in an essay [titled] "Overpopulation and the Potential for Ecocide," Dr. Holdren and his co-author, the ecologist Paul Ehrlich, [warned of a coming ice age](#).

They certainly weren't the only scientists in the 1970s to warn of a coming ice age, but I can't think of any others who were so creative in their catastrophizing. Although they noted that the greenhouse effect from rising emissions of carbon dioxide emissions could cause future warming of the planet, they concluded from the mid-century cooling trend that the consequences of human activities (like industrial soot, dust from farms, jet exhaust, urbanization and deforestation) were more likely to first cause an ice age. Dr. Holdren and Dr. Ehrlich wrote:

The effects of a new ice age on agriculture and the supportability of large human populations scarcely need elaboration here. Even more dramatic results are possible, however; for instance, a sudden outward slumping in the Antarctic ice cap, induced by added weight, could generate a tidal wave of proportions unprecedented in recorded history.

A May 21, 1975 [article](#) in the New York Times again stated:

Sooner or later a major cooling of the climate is widely considered inevitable.

The American Institute of Physics - the organization mentioned in the Boston Globe article - [notes](#):

For a few years in the early 1970s, new evidence and arguments led many scientists to suspect that the greatest climate risk was not warming, but cooling. A new ice age seemed to be approaching as part of the natural glacial cycle, perhaps hastened by human pollution that blocked sunlight. Technological optimists suggested ways to counter this threat too. We might spread soot from cargo aircraft to darken the Arctic snows, or even shatter the Arctic ice pack with "clean" thermonuclear explosions.

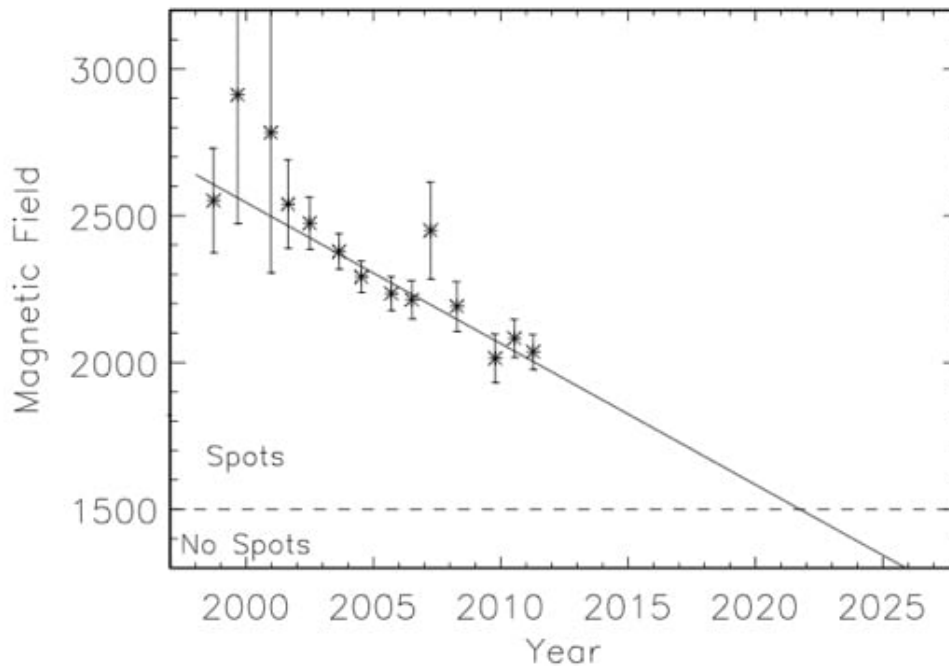
The bitter fighting among communities over cloud-seeding would be as nothing compared with conflicts over attempts to engineer global climate. Moreover, as Budyko and Western scientists alike warned, scientists could not predict the consequences of such engineering efforts. We might forestall global warming only to find we had triggered a new ice age.

A 1994 Time article entitled "The Ice Age Cometh?" [stated](#):

What ever happened to global warming? Scientists have issued apocalyptic warnings for years, claiming that gases from cars, power plants and factories are creating a greenhouse effect that will boost the temperature dangerously over the next 75 years or so. But if last week is any indication of winters to come, it might be more to the point to start worrying about the next Ice Age instead. After all, human-induced warming is still largely theoretical, while ice ages are an established part of the planet's history. The last one ended about 10,000 years ago; the next one — for there will be a next one — could start tens of thousands of years from now. Or tens of years. Or it may have already started.

The Register [reported](#) last year:

What may be the science story of the century is breaking this evening, as heavyweight US solar physicists announce that the Sun appears to be headed into a lengthy spell of low activity, which could mean that the Earth - far from facing a global warming problem - is actually headed into a mini Ice Age.



The announcement made on 14 June (18:00 UK time) comes from scientists at the US National Solar Observatory (NSO) and US Air Force Research Laboratory. Three different analyses of the Sun’s recent behaviour all indicate that a period of unusually low solar activity may be about to begin.

This could have major implications for the Earth’s climate. According to a statement issued by the NSO, announcing the research:

An immediate question is whether this slowdown presages a second Maunder Minimum, a 70-year period with virtually no sunspots [which occurred] during 1645-1715.

As NASA [notes](#):

Early records of sunspots indicate that the Sun went through a period of inactivity in the late 17th century. Very few sunspots were seen on the Sun from about 1645 to 1715. Although the observations were not as extensive as in later years, the Sun was in fact well observed during this time and this lack of sunspots is well documented. This period of solar inactivity also corresponds to a climatic period called the “Little Ice Age” when rivers that are normally ice-free froze and snow fields remained year-round at lower altitudes. There is evidence that the Sun has had similar periods of inactivity in the more distant past.

During the Maunder Minimum and for periods either side of it, many European rivers which are ice-free today – including the Thames – routinely froze over, allowing ice skating and even for armies to march across them in some cases.

“This is highly unusual and unexpected,” says Dr Frank Hill of the NSO. “But

the fact that three completely different views of the Sun point in the same direction is a powerful indicator that the sunspot cycle may be going into hibernation.”

According to the NSO:

Penn and Livingston observed that the average field strength declined about 50 gauss per year during Cycle 23 and now in Cycle 24. They also observed that spot temperatures have risen exactly as expected for such changes in the magnetic field. If the trend continues, the field strength will drop below the 1,500 gauss threshold and spots will largely disappear as the magnetic field is no longer strong enough to overcome convective forces on the solar surface.

In parallel with this comes research from the US Air Force’s studies of the solar corona.

“Cycle 24 started out late and slow and may not be strong enough to create a rush to the poles, indicating we’ll see a very weak solar maximum in 2013, if at all. If the rush to the poles fails to complete, this creates a tremendous dilemma for the theorists ... No one knows what the Sun will do in that case.”

According to the collective wisdom of the NSO, another Maunder Minimum may very well be on the cards.

“If we are right,” summarises Hill, “this could be the last solar maximum we’ll see for a few decades. That would affect everything from space exploration to Earth’s climate.”

The big consequences of a major solar calm spell, however, would be climatic. The next few generations of humanity might not find themselves trying to cope with global warming but rather with a significant cooling. This could overturn decades of received wisdom on such things as CO2 emissions, and lead to radical shifts in government policy worldwide.

And Agence France-Presse [reports](#):

For years, scientists have been predicting the Sun would by around 2012 move into solar maximum, a period of intense flares and sunspot activity, but lately a curious calm has suggested quite the opposite.

According to three studies released in the United States on Tuesday, experts believe the familiar sunspot cycle may be shutting down and heading toward a pattern of inactivity unseen since the 17th century.

The signs include a missing jet stream, fading spots, and slower activity near the poles, said experts from the National Solar Observatory and Air Force Research Laboratory.

“This is highly unusual and unexpected,” said Frank Hill, associate director of

the NSO's Solar Synoptic Network, as the findings of the three studies were presented at the annual meeting of the American Astronomical Society's Solar Physics Division in Las Cruces, New Mexico.

"But the fact that three completely different views of the Sun point in the same direction is a powerful indicator that the sunspot cycle may be going into hibernation."

Solar activity tends to rise and fall every 11 years or so. The solar maximum and solar minimum each mark about half the interval of the magnetic pole reversal on the Sun, which happens every 22 years.

Hill said the current cycle, number 24, "may be the last normal one for some time and the next one, cycle 25, may not happen for some time.

"This is important because the solar cycle causes space weather which affects modern technology and may contribute to climate change," he told reporters.

Experts are now probing whether this period of inactivity could be a second Maunder Minimum, which was a 70-year period when hardly any sunspots were observed between 1645-1715, a period known as the "Little Ice Age."

"If we are right, this could be the last solar maximum we'll see for a few decades. That would affect everything from space exploration to Earth's climate," said Hill.

And the Wall Street Journal [wrote](#) in January:

The entire 10,000-year history of civilization has happened in an unusually warm interlude in the Earth's recent history. Over the past million years, it has been as warm as this or warmer for less than 10% of the time, during 11 brief episodes known as interglacial periods. [In other words, the Earth is in an ice age most of the time, and that the warmer "interglacial" periods are rare.] One theory holds that agriculture and dense settlement were impossible in the volatile, generally dry and carbon-dioxide-starved climates of the ice age, when crop plants would have grown more slowly and unpredictably even in warmer regions.

This warm spell is already 11,600 years old, and it must surely, in the normal course of things, come to an end. In the early 1970s, after two decades of slight cooling, many scientists were convinced that the moment was at hand. They were "increasingly apprehensive, for the weather aberrations they are studying may be the harbinger of another ice age," said Time in 1974. The "almost unanimous" view of meteorologists was that the cooling trend would "reduce agricultural productivity for the rest of the century," and "the resulting famines could be catastrophic," said Newsweek in 1975.

Since then, of course, warmth has returned, probably driven at least partly by man-made carbon-dioxide emissions. A new paper, from universities in Cambridge, London and Florida, drew headlines last week for arguing that these emissions may avert the return of the ice age. Less noticed was the fact that the authors, by analogy with a previous warm spell 780,000 years ago that's a "dead ringer" for our own, expect the next ice age to start "within about 1,500 years." Hardly the day after tomorrow.

Still, it's striking that most interglacials begin with an abrupt warming, peak sharply, then begin a gradual descent into cooler conditions before plunging rather more rapidly toward the freezer. The last interglacial—which occurred 135,000 to 115,000 years ago (named the Eemian period after a Dutch river

near which the fossils of warmth-loving shell creatures of that age were found)—saw temperatures slide erratically downward by about two degrees Celsius between 127,000 and 120,000 years ago, before a sharper fall began.

Cyclical changes in the earth's orbit probably weakened sunlight in the northern hemisphere summer and thus caused this slow cooling. Since the northern hemisphere is mostly land, this change in the sun's strength meant gradually increased snow and ice cover, which in turn reflected light back into space. This would have further cooled the air and, gradually, the ocean too. Carbon-dioxide levels did not begin to fall much until about 112,000 years ago, as the cooling sea absorbed more of the gas.

Our current interglacial shows a similar pattern. Greenland ice cores and other proxy records show that temperatures peaked around 7,000 years ago, when the Arctic Ocean was several degrees warmer than today, trees grew farther north in Siberia and the Sahara was wet enough for hippos (Africa generally gets wetter in warm times). Data from the southern hemisphere reveal that this "Holocene Optimum" was global in extent.

An erratic decline in temperature followed, with Minoan, Roman and Medieval warm periods peaking at successively lower temperatures, culminating in the exceptionally cool centuries of the "Little Ice Age" between 1550 and 1850, when glaciers advanced all over the world. In the Greenland ice cores, these centuries stand out as the longest and most consistent cold spell of the current interglacial.

In other words, our own interglacial period has followed previous ones in having an abrupt beginning and a sharp peak, followed by slow cooling. The question is whether recent warming is a temporary blip before the expected drift into glacial conditions, or whether humankind's impact on the atmosphere has now reversed the cooling trend.

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