



This is the print version of the [Skeptical Science](http://sks.to/iceage) article '[We're heading into an ice age](http://sks.to/iceage)', which can be found at <http://sks.to/iceage>.

Are we heading into a new Ice Age?

What The Science Says:

Worry about global warming impacts in the next 100 years, not an ice age in over 10,000 years.

Climate Myth: We're heading into an ice age

"One day you'll wake up - or you won't wake up, rather - buried beneath nine stories of snow. It's all part of a dependable, predictable cycle, a natural cycle that returns like clockwork every 11,500 years. And since the last ice age ended almost exactly 11,500 years ago..." ([Ice Age Now](#))

According to ice cores from Antarctica, the past 400,000 years have been dominated by glacials, also known as ice ages, that last about 100,000. These glacials have been punctuated by interglacials, short warm periods which typically last 11,500 years. Figure 1 below shows how temperatures in Antarctica changed over this period. Because our current interglacial (the Holocene) has already lasted approximately 12,000 years, it has led some to claim that a new ice age is imminent. Is this a valid claim?

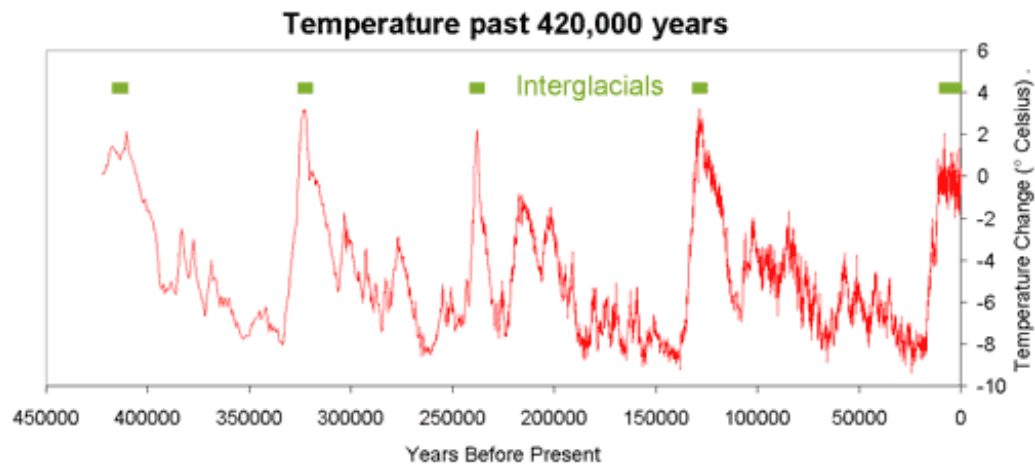


Figure 1: Temperature change at Vostok, Antarctica ([Petit 2000](#)). The timing of warmer interglacials is highlighted in green; our current interglacial, the Holocene, is the one on the far right of the graph.

To answer this question, it is necessary to understand what has caused the shifts between ice ages and interglacials during this period. The cycle appears to be a response to changes in the Earth's orbit and tilt, which affect the amount of summer sunlight reaching the northern hemisphere. When this amount declines, the rate of summer melt declines and the ice sheets begin to grow. In turn, this increases the amount of sunlight reflected back into space, increasing (or amplifying) the cooling trend. Eventually a new ice age emerges and lasts for about 100,000 years.

So what are today's conditions like? Changes in both the orbit and tilt of the Earth do indeed indicate that the Earth should be cooling. However, two reasons explain why an ice age is unlikely:

1. These two factors, orbit and tilt, are weak and are not acting within the same timescale - they are out of phase by about 10,000 years. This means that their combined effect

would probably be too weak to trigger an ice age. You have to go back 430,000 years to find an interglacial with similar conditions, and this interglacial lasted about 30,000 years.

2. The warming effect from CO₂ and other greenhouse gases is greater than the cooling effect expected from natural factors. Without human interference, the Earth's orbit and tilt, a slight decline in solar output since the 1950s and volcanic activity would have led to global cooling. Yet global temperatures are definitely on the rise.

It can therefore be concluded that with CO₂ concentrations set to continue to rise, a return to ice age conditions seems very unlikely. Instead, temperatures are increasing and [this increase may come at a considerable cost with few or no benefits](#).

Basic rebuttal written by Anne-Marie Blackburn

Update August 2015:

Here is a related lecture-video from [Denial101x - Making Sense of Climate Science Denial](#)



Skeptical Science explains the science of global warming and examines climate misinformation through the lens of peer-reviewed research. The website won the Australian Museum 2011 Eureka Prize for the Advancement of Climate Change Knowledge. Members of the Skeptical Science team have authored peer-reviewed papers, a [college textbook on climate change](#) and the book [Climate Change Denial: Heads in the Sand](#). Skeptical Science content has been used in university courses, textbooks, government reports on climate change, television documentaries and numerous books.



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