



This is the print version of the [Skeptical Science](#) article '[It warmed before 1940 when CO2 was low](#)', which can be found at <http://sks.to/pre1940>.

What caused early 20th Century warming?

What The Science Says:

Early 20th century warming is due to several causes, including rising CO2.

Climate Myth: It warmed before 1940 when CO2 was low

"Of the rise in temperature during the 20th century, the bulk occurred from 1900 to 1940. It was followed by the aforementioned cooling trend from 1940 to around 1975. Yet the concentration of greenhouse gases was measurably higher in that later period than in the former. That drop in temperature came after what was described in the National Geographic as 'six decades of abnormal warmth'." ([James Schlesinger](#))

The climate at any one time is affected by several factors which can act independently or together. The main factors include solar variability, volcanic activity, atmospheric composition, the amount of sunlight reflected back into space, ocean currents and changes in the Earth's orbit.

Before 1940, the increase in temperature is believed to have been caused mainly by two factors:

1. Increasing solar activity; and
2. Low volcanic activity (as eruptions can have a cooling effect by blocking out the sun).

Other factors, including greenhouse gases, also contributed to the warming and regional factors played a significant role in increasing temperatures in some regions, most notably changes in ocean currents which led to warmer-than-average sea temperatures in the North Atlantic. Does this mean that solar activity is also primarily responsible for late 20th century warming? In short, no. Solar activity since the 1950s has been relatively stable and therefore cannot explain recent trends. Similarly, increased volcanic activity may actually have had a cooling effect in recent decades. On the other hand, greenhouse gas concentrations, which were relatively low pre-1940, have increased considerably and are now dominating the climate system. This highlights the need to look at all factors when determining which factors are likely to be affecting climate at any one time.

In short, there's no reason to assume that because the sun was responsible for early 20th century, it is responsible for all warming. The evidence strongly suggests that current warming is mainly the result of increasing greenhouse gas levels.

Basic rebuttal written by Anne-Marie Blackburn

Update July 2015:

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

[see video at [this link](#).]



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