

## **DEFINITIONS**

**CLIMATE** – A climate is a geographic area that shares a set of atmospheric conditions for a period of several hundred to several thousand years. Having these atmospheric conditions for this period of time gives rise to a characteristic natural vegetation.

Early global climatic systems used these natural vegetation types to identify the climates of specific areas. The problem with this was that the vegetation type often has sharp boundaries, but atmospheric systems never do. Modern climatic systems use only the characteristic of the atmosphere to define climates. They sometimes use time periods as short as thirty years.

These practices have produced considerable confusion. Humans cannot see atmospheric boundaries; and thirty years is too short a time for atmospheric changes to produce significant changes in either the landscape or the natural vegetation.

**CLIMATE CHANGE** – Climate change is the idea that the Earth's climates undergo significant changes from time to time. The overwhelming weight of scientific evidence supports this hypothesis. If you accept the Ice Ages, you accept the hypothesis of climate change.

**GLOBAL WARMING** – Global warming is the idea that we are currently in a period of significant increases in mean global temperatures. The overwhelming weight of scientific evidence supports this hypothesis. If you accept the idea that the Little Ice Age was real, you must accept the idea that the current global climate is warming. IPCC *Mean Global Near-Surface Land Temperatures* suggest a warming of 1.4°F for the century from 1906 to 2005.

## CLIMATE CHANGE

### Definitions

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**ANTHROPOGENIC GLOBAL WARMING (AGW)** – This is the idea that most or all of current global warming is caused by mankind’s activities. The IPCC *assumes* that all climate change since 1750 is anthropogenic.

**SOLAR FORCING** – This is the idea that changes in solar output give rise to changes in global temperature. Although undeniable in principle (virtually all of the Earth’s energy does come eventually from the Sun), measurements of change in solar output appear to be insufficient to explain all of the recent increase in global temperatures.

**CARBON FORCING** – This is the idea that increased carbon-dioxide emissions are the sole cause of most or all of the recent global warming. The IPCC strongly endorses this hypothesis. Again, measurements of change in carbon-dioxide concentrations appear to be insufficient to explain all of the recent increase in global temperatures. The IPCC position is that carbon-forcing triggers other types of forcing—specifically that by water vapor.

**ORBITAL FORCING** – This is the idea that small variations in the Earth’s orbits trigger the onset and retreat of continental glaciation events. The overwhelming weight of scientific evidence supports this hypothesis.

Most climatologists, the U. S. National Research Council, the U. S. Academy of Sciences, and NASA believe that long-term climate changes are primarily the result of three minor variations in the Earth’s orbit around the Sun (orbital forcing, or the Milankovitch Theory). These cycles produce 50,000 years of very uneven warming followed by 50,000 years of even more uneven cooling. The unevenness is caused by the fact that these three cycles all have different periods.

These cycles cause Ice Ages to occur about every 100,000 years. We are currently some 20,000 years into the 50,000-year warming portion of the latest of these cycles. This current cycle was preceded by approximately 102 earlier cycles, with the same approximate 100,000 year period. It is presumed that the current cycle will be followed by an unknown number of future cycles. The Pleistocene isn’t finished with us. We are simply moving into one of many warm inter-glacial portions of the continuing series of continental glaciation cycles.