

Paleoclimatology

By Lennart Kiil



Growth rings in an old tree trunk at Aztec Ruins, New Mexico. The width of the rings shows what the weather was like in the years the tree grew. The method is called dendrochronology.

Michael Gäbler. [CC BY 3.0. Wikimedia Commons](#).

The study of past climate conditions on Earth.

Knowing about past [climate changes](#) and what factors caused them, help scientists understand today's climate changes.

Scientists have a range of sophisticated instruments and satellites for studying the present climate conditions. These are of no use for paleoclimatologists. For studying [climate changes](#), throughout the entire history of Earth, different methods are needed.

Since reliable temperature readings only go a few hundred years back, a fraction of the history of Earth, paleoclimatologists use indicators, proxies, to construct a [temperature record](#). This includes analyzing [ice cores](#), [pollen from plants](#), tree rings, fossils, and

corals.

Paleoclimatologists are not only interested in constructing a record of past temperatures. They also research other climate dependent factors such as precipitation (rain, snow etc.) and vegetation.

Through paleoclimatology we know that the climate on Earth has at times been both warmer and colder than today. Nevertheless, the Earth has probably been warmer than it is now for most of its lifetime, with little or no polar ice caps. Probable causes of the long term variations (millions of years) in the Earth's climate include movement of continental plates, and [solar variation](#).

As more research is done, and temperature records become more accurate, scientists will be able to make more reliable predictions about the future climate on Earth.

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