

Temperature vs Carbon Dioxide

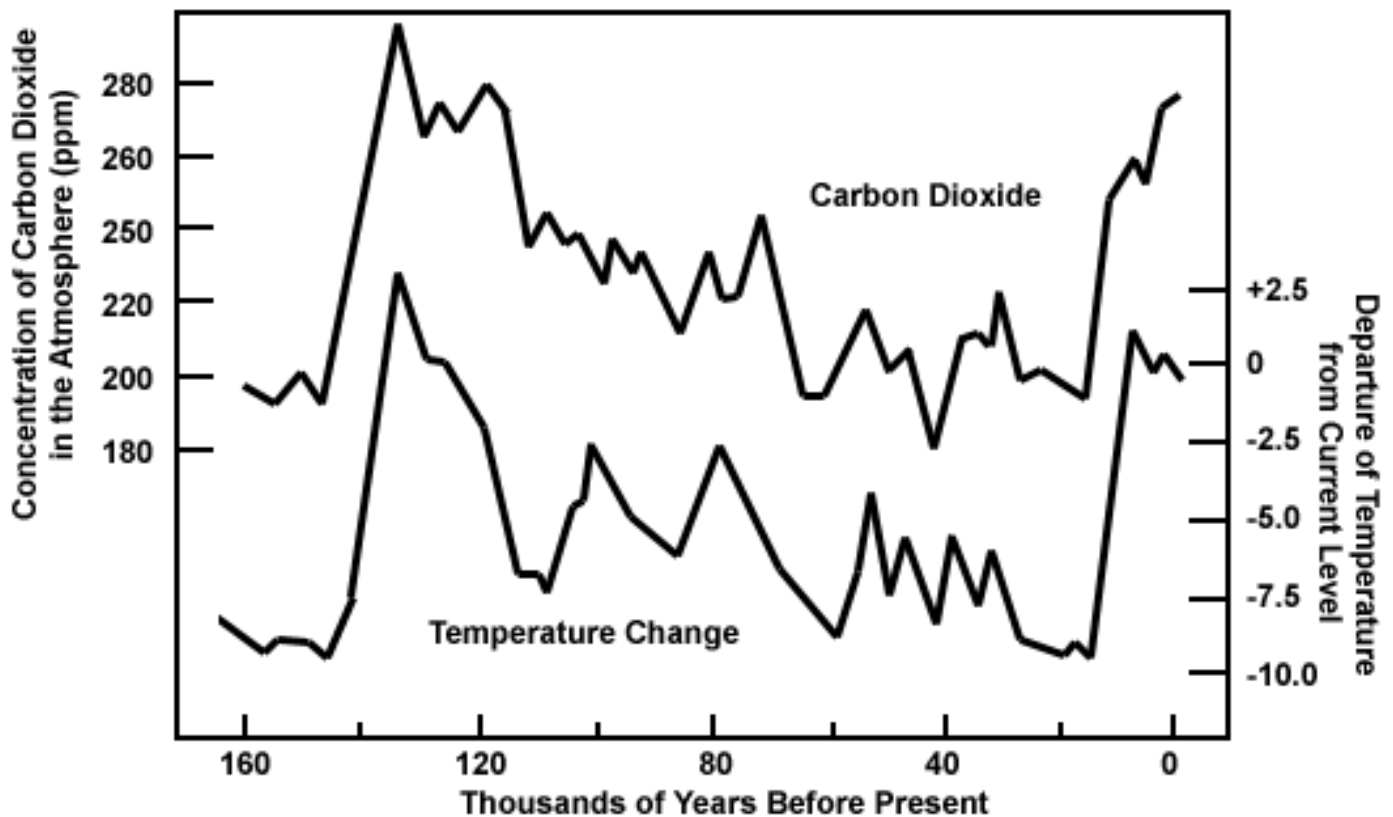


Introduction

Using ice cores, we can measure the Earth's temperature and the levels of carbon dioxide in the air over a hundred thousand years. To see the relationship between carbon dioxide levels and global temperature change, you must make a graph of these two variables against each other.



Did the temperature change cause an increase in carbon dioxide or did rising levels of carbon dioxide cause the temperature to change? But which is the independent variable?



Displaying Data

Either of these relationships could be correct. Choose one of the scenarios described below.

Perhaps....when volcanoes erupt, they release carbon dioxide into the air. Carbon dioxide traps heat in the atmosphere. So perhaps the change in carbon dioxide levels causes the temperature to change.

Perhapssometimes the Sun gets brighter. When this happens, the temperature on Earth rises. When the temperature rises, more of the land can support life. Animal life produces carbon dioxide. So perhaps the temperature change causes the carbon dioxide level to change.

Make a graph of temperature change and carbon dioxide levels. Remember to put the independent variable that you think caused the other to change on the x-axis. The dependent variable goes on the y-axis. The more points you plot, the better your graph will be. (Lay a ruler vertically on the plot, and pick off a temperature value and a CO₂ value for each point in time. Use at least 5 points, preferably 10 or 20).



Analyzing Data

After making your graph, describe the relationship between temperature and carbon dioxide levels in the atmosphere. Is there anything in the data to support your choice of the independent variable?

From your graph, do you think there are other factors causing the carbon dioxide levels and temperature to change over time?