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Professor researches global warming trends in Antarctica

Brook's ice core research concludes that climate change is linked to human activity

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Geosciences professor Ed Brook, along with a team of scientists at OSU, has been researching the correlation between greenhouse gases and climate change over geological time scales.

By drilling deep ice cores in Antarctica and Greenland and analyzing the gases in ancient air trapped in polar ice, Brook was able to conclude that climate change is directly linked to human activity.

"Since about 1750 AD levels of greenhouse gases have risen well above any values we have seen in the past 800,000 years," Brook said.

This sudden increase of greenhouse gases in the atmosphere, occurring at the beginning of the industrial revolution, suggests that global warming is primarily caused by human society.

"In the geologic record," Brook explains, "levels of greenhouse gases like carbon dioxide and methane track closely with climate change."

When the temperature is warm, greenhouse gas levels are higher than when the temperature is cold. Through his research, Brook found that the long-term cycles of warming and cooling are directly impacted by greenhouse gases.

Researchers at Pennsylvania State University recently reported that surface temperatures in the northern hemisphere have been warmer over the past ten years than at any other time since 700 A.D.

According to the Intergovernmental Panel on Climate Change, global temperatures have risen approximately 1.3 degrees Fahrenheit since 1906. Although this change may appear modest, it has serious implications for the future. The conclusions drawn by Brook's research contribute valuable insight into predicting and modeling future climate change.

For Brook, researching climate change has been a lifelong endeavor. In graduate school, Brook

traveled to Antarctica to work on a new technique for determining the age of deposits left behind by glaciers. This opportunity inspired Brook to continue his research in polar regions.

Four years ago, Brook began teaching and researching at OSU. Although his emphasis is currently on research, Brook enjoys teaching as well.

"One of the things I really like is teaching undergraduates and graduate students how to do research, in the classroom, in my lab and in the field," Brook said.

Brook hopes that the conclusions drawn by his research will resonate with the general public and portray the urgency of finding a solution to global warming.

"We have pushed the atmosphere well beyond where it would be naturally," Brook explains, "and we have every expectation that this will cause warming."

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