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Environment

Global Warming: The Weather Channel Position Statement

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Introduction

The scientific issue of global warming can be broken down into three main questions: Is global warming a reality? Are human activities causing it? What are the prospects for the future?

Warming: Fact or Fiction?

The climate of the earth is indeed warming, with an increase of approximately 1 - 1 1/2 degrees Fahrenheit in the past century, more than half of that occurring since the 1970s. The warming has taken place as averaged globally and annually; significant regional and seasonal variations exist.

Impacts can already be seen, especially in the Arctic, with melting glaciers, thawing permafrost, and rapid retreat and thinning of sea ice, all of which are affecting human populations as well as animals and vegetation. There and elsewhere, rising sea level is increasing coastal vulnerability.

There is evidence in recent years of a direct linkage between the larger-scale warming and shorter-term phenomena such as heat waves and precipitation extremes. The jury is out on exactly what effects global warming is having or will have upon tropical cyclones or tornadoes.

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Human Influence

To what extent the current warming is due to human activity

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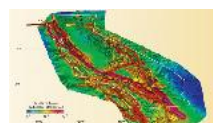
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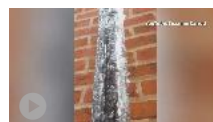
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is complicated because large and sometimes sudden climate changes have occurred throughout our planet's history -- most of them before humans could possibly have been a factor. Furthermore, the sun/atmosphere/land/ocean "climate system" is extraordinarily complex, and natural variability on time scales from seconds to decades and beyond is always occurring.

However, it is known that burning of fossil fuels injects additional carbon dioxide and other so-called greenhouse gases into the atmosphere. This in turn increases the naturally occurring "greenhouse effect," a process in which our atmosphere keeps the earth's surface much warmer than it would otherwise be.

More than a century's worth of detailed climate observations shows a sharp increase in both carbon dioxide and temperature. These observations, together with computer model simulations and historical climate reconstructions from ice cores, ocean sediments and tree rings all provide strong evidence that the majority of the warming over the past century is a result of human activities. This is also the conclusion drawn, nearly unanimously, by climate scientists.

Humans are also changing the climate on a more localized level. The replacement of vegetation by buildings and roads is causing temperature increases through what's known as the urban heat island effect. In addition, land use changes are affecting impacts from weather phenomena. For example, urbanization and deforestation can cause an increased tendency for flash floods and mudslides from heavy rain. Deforestation also produces a climate change "feedback" by depleting a source which absorbs carbon dioxide.

The Future

Potential outcomes range from moderate and manageable to extreme and catastrophic, depending on a number of factors including location and type of effect, and amount of greenhouse gas emissions. Not every location and its inhabitants will be affected equally, but the more the planet warms, the fewer "winners" and the more "losers" there will be as a result of the changes in climate. The potential exists for the climate to reach a "tipping point," if it hasn't already done so, beyond which radical and irreversible changes



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occur.

The bottom line is that with the rate of greenhouse gas emissions increasing, a significant warming trend is expected to also continue. This warming will manifest itself in a variety of ways, and shifts in climate could occur quickly, so while society needs to continue to wrestle with the difficult issues involved with mitigation of the causes of global warming, an increased focus should be placed on resiliency and adaptation to the effects of global warming given the sensitivity of civilizations and ecosystems to rapid climate change.

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