

# **Changing Weather?**

## **Facts and Fallacies About Climate Change**

**A Report Prepared by Accu-Weather, Inc.**

### **Summary Fact Sheet**

**Does climate change naturally?      Yes.**

- Significant long-term changes in the Earth's climate have occurred in the past and, no doubt, will occur again.
- The authors have found that scientific evidence disputes the hypothesis that extreme weather events, allegedly associated with global warming, are already present. The authors are not alone in this opinion.
- Historical and observational data and an understanding of the theoretical issues of climate suggest that man's activities do not appear to be a significant agent of climate change.

**Is the slight increase in temperature over the past century significant?      No.**

- Global air temperatures, as measured by satellites and land-based weather stations, show an increase of only some 0.45 degrees Celsius over the past century, well within limits of natural variation. However, biases such as urban heat islands may skew the data to indicate more warming than actually occurred. Moreover, much of the observed temperature increase during the past century occurred before the increase in greenhouse gas emissions.

**Is the weather more variable today than it was 50 to 100 years ago?      No.**

- The authors conclude that the development and intensity of tropical storms is not directly related to sea surface temperatures. In fact, they found no correlation between the intensification (or maximum intensity) of tropical storms and sea surface temperature.
- That many people today think the weather is more extreme than it used to be is at least partially the result of the media's ability to report worldwide events virtually instantaneously, including the weather. In the past, few people in the United States were aware of these events.
- Similarly, the perceived increase in catastrophic weather is in part the result of the fact that more people live in coastal areas today, raising the likelihood that when a storm or flood strikes, property damage will be great.
- The number of U.S. deaths caused by natural weather disasters has declined during the latter part of this century, while the dollar value of property damage has increased dramatically. The reason is that people have continued to settle or vacation in coastal areas prone to flooding and hurricanes, increasing property values. At the same time, however, weather forecasters have improved their ability to track storms and alert people to potential danger, allowing them time to evacuate or take safety precautions.

**Greenhouse gases have increased. Has global warming begun? No.**

- There is no consistent, obvious signal announcing the presence of catastrophic global warming in any of the data the authors examined.
- There is a general consensus in the scientific community that there has been a gradual increase of about 0.45 degrees Celsius in the average global temperature since the late 1800s. However, that increase is certainly within the limits of natural variability.
- Most important, a significant fraction of the air temperature increase occurred between 1916 and the mid-1940s -- before the rapid increase in carbon dioxide emissions. Indeed, there is very little evidence of any warming in the global air temperature during the past one to two decades.
- Analysis of current temperature data in the Southern and Northern Hemispheres indicates that sources such as aerosols are not masking a substantial global temperature increase.

**Do climate models accurately predict the Earth's future climate? No.**

- The climate system is so complex that a model incorporating all the possible variables for all parts of the globe could not be run on even today's fastest, most advanced super-computers.
- Currently, no one understands all the myriad physical processes at work in the atmosphere, so no general circulation model has been able to fully incorporate these processes in its calculations. Models are, therefore, incomplete.
- Scientists do not fully understand the physics of the climate system and today's general circulation models have very low levels of resolution. This limitation severely restricts the modeler's ability to predict regional climate.
- Newer, more complex computer models indicate that increases in atmospheric carbon dioxide may result in significantly smaller temperature increases than first thought.

**Will the climate continue to change? Yes.**

- Hurricanes, tornadoes, floods and droughts with a similar intensity and frequency to those that have occurred in the past can be expected to occur in the future.
- With world population growing and people continuing to build in previously uninhabited areas, world governments, the insurance industry and others need to prepare to handle extreme weather events.
- Research is needed to improve climate models, as well as our understanding of the factors that influence climate. Observational studies also are needed in order to better document the Earth's variable climate.

*A complete copy of the Accu-Weather report is available from the Global Climate Coalition, 1331 Pennsylvania Avenue, NW, Suite 1500 - North Tower, Washington, D.C. 20004-1703, (202) 367-3158.*