

How Predictable is Climate?

Number 8/6

Fact Sheet

Climate is average weather conditions.

Climate Change

What is climate?

Climate is average weather conditions. There are problems in predicting climate, due to the chaotic large-scale movement of constituents in the atmosphere. So if the predictions of daily weather conditions are not correct, how can one claim to predict climate conditions?

Monthly weather forecasts are based on the yearly seasonal cycle, which is highly predictable. This is the most important factor affecting average weather. For a time scale of longer than one year, the oceans have a more important effect on weather conditions.

Some slow climate changes we now see are due to human activity. Others are natural. All climate models suggest that world's average surface temperature has risen between 0.4°C and 1°C since pre-industrial times. It is suggested that this is due to GHG emissions during this time.

Long-term trends

Long-term trends are difficult, but not impossible, to detect, due to natural variations. Modern statistical techniques attempt to reduce the complicated signals from observed climate variations to a smaller number of simple patterns: a long-term trend and a set of fluctuations about that trend.

These statistical methods indicate that the globe has warmed by about 0.4°C since 1900.

Natural temperature fluctuations occur over 5 to 20 years. This "Wave" effect made the 1980s warmer than the normal but this oscillation suggests that it is possible that world will cool over next few years as the system "swings back" from hot 1980s. So, three hot summers does not mean global warming, nor does three cold winters mean a new ice age!

In climatic terms, there is no counterpart to the Antarctic Ozone hole. We must not expect a similar single dramatic discovery to confirm global warming! If we do, we may wait too long, when it may be too late to do anything about it.

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