Report cites continued global warming trend in 1999

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31 December 1999

The warming trend continued in the year 1999, according to a preliminary report issued by the National Oceanic and Atmospheric Administration (NOAA) earlier this month. For combined land and ocean surfaces, the average temperature for the year is expected to rank as the fifth warmest since measures began in 1880.

These data lend support to the theory that human activity is having a definite impact on the climate. Scientists predict that increased levels of carbon dioxide and other so-called greenhouse gases will cause a gradual heating of the Earth. Carbon dioxide is released primarily through the combustion of fossil fuels such as oil and coal. In the atmosphere this gas—together with water vapor and other elements—acts somewhat like a blanket, trapping heat that would otherwise radiate away from the Earth.

Human produced carbon dioxide levels have increased dramatically since the industrial revolution. They have received an added boost in the past few decades as so-called developing nations, such as China and India, increase oil consumption, while production in industrialized nations continue at high rates. A number of international conferences have discussed possible measures to limit greenhouse gas in the atmosphere, however governments have failed to implement any strong measures to counteract global warming. Such warming could have drastic effects for the world climate, including rising sea levels and increasingly severe and numerous storms, in addition to the direct consequences of high temperatures.

The NOAA is a US governmental organization responsible for collecting and analyzing global climactic information. Increasingly, one of the main tasks of the organization is to provide near-real-time data on temperature trends in order to determine the presence and extent of global warming. This information is used at UN conferences on climate change, such as that held in Kyoto, Japan in 1997. The most recent reports, published in mid-December, are based upon projected data for the end of the year, but the agency states that complete information, which will be gathered by the middle of January, is unlikely to affect the basic conclusions.

The high temperatures of 1999 are especially notable given the influence on the global climate of the tropical phenomena know as La Niña. La Niña is characterized by cooler ocean temperatures in parts of the Pacific Ocean. This anomaly resulted in below normal temperatures in western and southern South America, as well as the lowest ocean temperatures since 1994. In spite of this, global temperatures on average remained markedly high. La Niña's related phenomenon, El Niño, was partially responsible for the record high temperatures of 1998.

For the United States, with a projected average of 55.7 degrees F (approximately 13 degrees C), it has been the second warmest calendar year since 1900. The warmest year on record for the US was 1998, with an average temperature of 56.4 degrees F. In other areas of the globe, Russia experienced one of its longest heat waves of the century in June and July, with temperatures unequaled since 1895. Parts of central and western Europe experienced record heat in September. Global land temperatures for November were at record levels. In contrast, parts of Africa experienced cooler than average temperatures for the latter half of the year.

Overall, the data indicates a continuation of the warming trend of the past few decades. Over the past century, temperatures have increased at an average rate of 0.6 degrees C/century. These increases have been clustered around two periods, the first from 1910 to

1945 and the second from 1976 and continuing through 1999. The rate of growth for the latter period has been about 2 to 3 degrees C/century, which is in accord with predictions of the warming effects of accumulating greenhouse gasses.