

Global Warmth In '88 Is Found To Set a Record

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The average temperature around the world in 1988 was the highest since reliable records began nearly a century ago, British scientists reported today.

Scientists from the British Meteorological Office and the University of East Anglia's Climatic Research Unit said that last year's temperature results continued a pattern of record high temperatures throughout the 1980's that was reported last year.

Dr. Phil Jones, a climatologist at East Anglia, said global temperatures rose on average about one degree Fahrenheit since the beginning of the century. He said the six warmest years on record were, in order, 1988, 1987, 1983, 1981, 1980 and 1986. Theory of Warming Climate

The researchers said the new findings were consistent with a theory that a buildup of heat-trapping pollutants in the atmosphere is warming the earth, much as the glass of a greenhouse traps heat. But the scientists added that last year's warm temperatures appeared to have been linked, at least in part, to natural fluctuations.

Last week, scientists from the United States Commerce Department's National Oceanic and Atmospheric Administration said that a study of temperature readings for the contiguous 48 states over the last century showed there had been no significant change in average temperature over that period.

Dr. Jones said in a telephone interview today that his own results for the 48 states agreed with those findings. But he said there was no inconsistency between the apparent stable trend in the United States and the rise in global temperature because the 48 states cover a very small fraction of the earth's surface and there are bound to be regional variations in climate.

The British temperature readings, taken at thousands of international monitoring stations on land and aboard ships, are similar but not identical to those taken by Dr. James E. Hansen, director of the National Aeronautic and Space Administration's Institute for Space Studies in Manhattan. Dr. Hansen said today that he had not yet finished his analyses but that he expected his results to show that the 1988 average temperature would be a record or very close to it. Too Early to Tell

David Parker, a principal scientific officer of the British Meteorological Office, said the recent temperature increases were "consistent with the greenhouse effect caused by the rise in the level of carbon dioxide and other man-made gases in the atmosphere." But he said "the earth's temperature fluctuates considerably due to natural causes and no unambiguous connection can yet be made" to the greenhouse effect.

Mr. Parker said the high average temperature in 1988 was partly a result of a shift in ocean current associated with El Nino, a periodic warming of Pacific Ocean waters off the coast of South America. Cyclical changes in ocean currents and atmospheric pressure in

the tropical Pacific are believed to have worldwide effects on weather. But Mr. Parker said in a telephone interview that this natural fluctuation could not account for all of the "extreme warmth of 1988." Forecast for 1989

Dr. Jones said because the Nino warming of the eastern Pacific ended in the spring of 1988 and was replaced with a cooling ocean flow, the average global temperature will probably decline in 1989 and 1990. But he said he believed a warming trend was likely to resume after 1990 because of the greenhouse effect.

There is broad consensus among climatologists that the buildup of industrial gases that traps radiation from the sun in the atmosphere will cause the temperature of the earth to rise. Computer models project that the increase will be 3 to 8 degrees Fahrenheit within the next century.

Dr. Hansen and some other scientists believe high temperatures of recent years indicate the greenhouse effect is already occurring. Other scientists say it is too early to attribute recent temperature readings to anything but normal climate fluctuations.

But there is wide agreement that effects of the warming trend, including changes in the earth's cloud cover and the oceans' chemistry, will probably create as yet unpredictable shifts in the earth's climate.

Dr. Hansen noted that carbon dioxide in the atmosphere had risen from 280 parts per million in pre-industrial days to 350 parts per million now as a result of human activity. Other industrial pollutants that promote warming have also increased significantly in the atmosphere.

The British readings showed that the average global temperature in 1988 was 0.612 degrees Fahrenheit higher than the long-term average for the period 1950 through 1979, which is a base for comparing global temperatures. The average worldwide temperature for that 30-year period is roughly 59 degrees Fahrenheit, the British researchers said.

The 1988 average temperature was 0.018 degrees higher than the average for 1987, the previous high year.

The British scientists said their results were adjusted to eliminate effects of urbanization on temperature. They also said their temperature figures agreed with findings of scientists in the Soviet Union.

The warming trend is expected to cause major changes in the earth's climate patterns and disrupt agriculture. It is also expected to cause sea levels to rise significantly as a result of thermal warming of the oceans and melting of glaciers, causing the inundation of coastal areas.

An international scientific and diplomatic effort is under way to obtain better information about expected changes and to plan possible responses.

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