

Global Warming

SAN FRANCISCO (Dec. 8, 2002) - The northernmost reaches of the Earth are warming, reducing the sea ice across the Arctic Ocean, melting the ice sheet in Greenland and spreading shrubs into the Alaskan tundra, scientists said Saturday.

Taken individually, the changes only suggest the region's climate is undergoing a warming trend. Together, they provide dramatic evidence the change is real, a panel of scientists said during a meeting of the American Geophysical Union.

"If you look at all the data sets together, they do provide compelling evidence something is changing over a great area," said Larry Hinzman, of the University of Alaska, Fairbanks.

Natural variability may be behind the changes, but human activity might also be to blame, scientists said.

A new five-year research plan presented this week by scientists and government officials meeting in Washington, D.C., asserts that people clearly are agents of environmental change, though it is still unclear how much human activity contributes.

President Bush wants industry to voluntarily cut smokestack and tailpipe emissions of carbon dioxide and other heat-trapping gases that scientists believe are leading to a global rise in temperatures.

Evidence of the rise can be seen across the Arctic already, scientists said Saturday.

Greenland is experiencing a warm spell unseen since the 1930s. Satellite data show the greatest area of melt across its mammoth ice sheet in 24 years of measurements occurred this year.

Since 1979, the melt area has grown by 16 percent and is affecting higher and higher elevations.

Across the Arctic Ocean, the floating mantle of ice that covers it throughout much of the year shrank to record levels this summer, said Mark Serreze, also of the University of Colorado. In September, sea ice extent was 4 percent lower than that seen in any previous September since monitoring began in 1978.

Changes in Arctic atmospheric and marine circulation patterns are partly responsible, but depletion of the ozone layer due to pollution may also play a role, Serreze said.

On land, too, scientists note changes that suggest temperatures are rising. Shrubs are pushing farther northward, growing in areas of tundra that were void of trees as little as 50 years ago, said F. Stuart Chapin III of the University of Alaska, Fairbanks.

"The real question is, is this recent trend unusual, is this recent trend cause for concern that we are having an effect? The answer seems to be yes," Serreze said.

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