

Our Greatest Threat: The Heat War

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Alaska and Aspen have much in common: natural beauty, biological diversity, snow capped mountains, tourism, and tremendous skiing opportunities. Unfortunately, these attributes are threatened by global warming.

Because Alaska is on the front line of the Heat War, Alaska is truly the leading harbinger of global climate change. Unless there is action soon, Alaska's, and then Aspen's, environment could become some of global warming's most significant victims

Alaskans have recently witnessed melting glaciers; buckling roads; insect-plagued forests; changes in the distribution of Arctic animals; —all consequences of an Arctic warming trend that climatologists have been quietly documenting for several decades.

From 1966 to 1995, Alaska's mean annual temperature has risen by 5.4° F, and the mean winter temperature by 8° F.

A recent report released by the Bush Administration agrees. "There can no longer be any doubt that major changes have occurred in recent decades in the region, with visible and measurable consequences," reads the *U.S. Climate Action Report 2002*, which was prepared by the Environmental Protection Agency (EPA) and submitted to the United Nations in May.

A computer model of global climate change used by the Intergovernmental Panel on Climate Change (IPCC) indicates that global warming will come first, and with greatest effect, in the Arctic. That prediction is consistent with recent observations—the temperature increase seen in Alaska over the last three decades is four times the average global increase.

When things get worse in the Arctic, the models suggest, it adversely affects the whole planet. Under normal circumstances, some of the solar radiation absorbed in temperate and tropical latitudes is carried on wind and ocean currents toward the poles, then radiated back into the atmosphere. Any change in either the globe's heat source or its heat escape valve—the polar ice caps—will have serious consequences for the world's climate.

In addition, the cold ground beneath the Arctic tundra and boreal forest store a substantial portion of the world's carbon in the form of dead organic matter. When the ground warms, decomposition of this organic matter increases, releasing carbon dioxide and methane—an even more powerful greenhouse gas—into the atmosphere. There's already evidence that, since sometime in the 1980s, the North Slope tundra has been emitting more carbon dioxide than it takes up.

The IPCC model predicts that, if emissions of carbon dioxide and other greenhouse gases continue at high levels, Arctic temperatures could increase a further 9° F over the next century.

Some of the most striking evidence yet of northern climate change came this July when researchers from the University of Alaska Fairbanks Geophysical Institute reported in the journal *Science* that Alaska's glaciers are thinning faster and faster. At the rate of thinning from the mid-1990s to the present, Alaskan glacial melt is responsible for a .27 millimeter annual rise in global sea level—currently the second most important cause of rising sea level.

Ice is disappearing from the northern seas, as well. In 2001, satellite pictures show, the Bering Sea remained ice-free all winter for the first time ever recorded, and Navy scientists say that Arctic summer ice could disappear entirely by the year 2050.

Inland, the melting of permafrost is causing roads to buckle, telephone poles to tilt, and houses to collapse, and has threatened the trans-Alaska pipeline. Meanwhile, four million acres of hybrid white and Sitka spruce are dead or dying on the Kenai Peninsula, victims of a spruce bark beetle infestation that has been ongoing since around 1990. It's the largest single area of tree death caused by insects in the history of North America. Many scientists now agree that Alaska's warming climate played a role in creating the outbreak.

The solutions to protect Alaska's and Colorado's ecosystems from the effects of the Heat War require local, national, and global strategies. In other words, fighting the Heat War is aided by action in every corner of the globe, but especially in our nation where 25% of all greenhouse gases are generated.

Accordingly, the legislation to improve car and truck emissions standards recently enacted in California was of critical importance. Around the country, people are also taking action now. Six New England states and five eastern Canadian provinces have forged an agreement to reduce greenhouse gas emissions by over 70%. The Seattle City Council ratified a measure adopting the Kyoto Protocol. Corporations, hospitals, universities, churches, and even individual households are taking steps to reduce their output of greenhouse gases.

In the end, because Alaska's wild landscapes are being clearly and graphically affected by global climate change, the last frontier may inspire future significant actions to stop global warming. This will benefit everyone, especially those fortunate enough to call Aspen and Colorado their home.