

A DANGEROUS EXPERIMENT



SIERRA CLUB GLOBAL WARMING AND ENERGY PROGRAM

The world's leading scientists project that during our children's lifetimes, global warming will raise the average temperature of the planet by 2.7 to 11 degrees Fahrenheit.

The Earth is only 5 to 9 degrees warmer today than it was 10,000 years ago during the last ice age. Throughout history, major shifts in temperature occurred at a rate of a few degrees over thousands of years. They were accompanied by radical ecological changes, including the extinction of many species. Manmade global warming is occurring much faster—faster, in fact, than at any time in the past 10,000 years. Unless we slow and ultimately reverse the buildup of greenhouse gases, we will have decades, not millennia, to try to adapt to radical changes in weather patterns, sea levels and serious threats to human health. Increased flooding, storms and agricultural losses could devastate our economy. Plants and animals that cannot adapt to new conditions will become extinct.

But How Much of a Difference Can a Few Degrees Make?

The human race is engaged in the largest and most dangerous experiment in history—an experiment to see what will happen to our health and the health of our planet when we change our atmosphere and our climate. This is not some deliberate scientific inquiry. It is an uncontrolled experiment on the environment of the Earth, and we're gambling our children's future on its outcome.

The results of this pollution are already significant. We have increased levels of carbon dioxide (CO₂), the primary global warming gas, in our atmosphere by 30 percent in the past 100 years. Some regions of the world have already warmed by as much as 5 degrees Fahrenheit. Physicians at Harvard University and Johns Hopkins medical schools and

other medical institutions have issued grim assessments that global warming may already be causing the spread of infectious diseases and increasing heat-wave deaths. Extreme weather events have become more common. Plants and animals around the world are shifting their ranges in an effort to escape a changing climate.

The rapid buildup of greenhouse gases in our atmosphere is the source of the problem. By burning ever increasing quantities of coal, oil and gas, we are choking our planet in a cloud of this pollution. If we don't begin to act now to curb global warming, our children will live in a world where the climate will be far less hospitable than it is today. ■

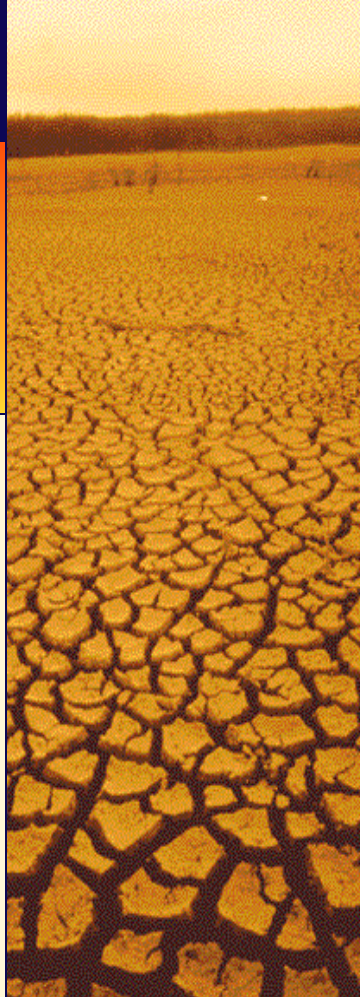
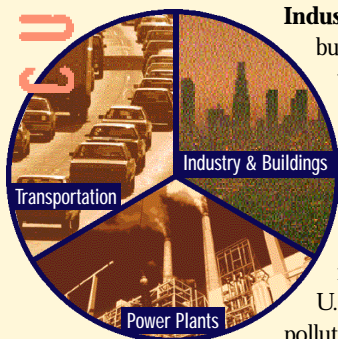
The Culprits: Global Warming Is a Pollution Problem

The United States is the world's largest global warming polluter. Below are the primary U.S. sources.

Transportation. Cars, sport-utility vehicles and other light trucks emit 20 percent of the nation's CO₂ pollution. Updated Corporate Average Fuel Economy (CAFE) standards could save 3 million barrels of oil each day when fully implemented, and new standards would cut CO₂ pollution by 600 million tons. Raising CAFE standards is the biggest single step the United States can take to curb global warming pollution.

Industry and Buildings. Energy savings can reach 30 percent or more when interactive effects of building and system components such as lighting, heating and cooling are considered. According to the U.S. Department of Energy, energy savings of this level in commercial buildings would reduce energy bills by \$75 million annually.

Power plants. Nearly 600 of the nation's power plants have been "grandfathered" from new emissions standards, exempting them from emissions caps for smog- and acid-rain-forming pollutants (NO_x and SO_x). Bringing all plants up to current standards would dramatically reduce air pollution. Additionally, there are no standards to limit the release of global warming pollution or mercury into the environment. Power plants are responsible for 36 percent of U.S. CO₂ emissions and 32 percent of all mercury emissions. Nationwide cuts in both of these pollutants are necessary to protect public health and the environment. ■



A CHILD'S VIEW



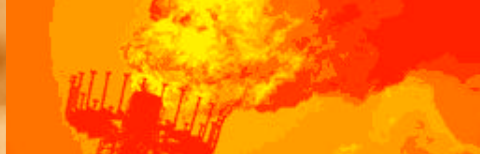
Lila, age 7



Josie, age 4



Baily, age 4



GLOBAL WARM

Millions Worldwide May Die From Heat and Disease as Global Warming Worsens

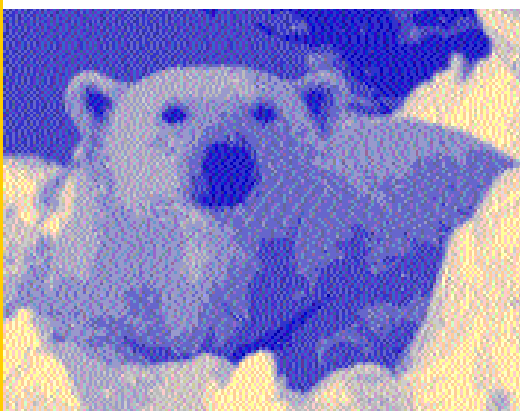
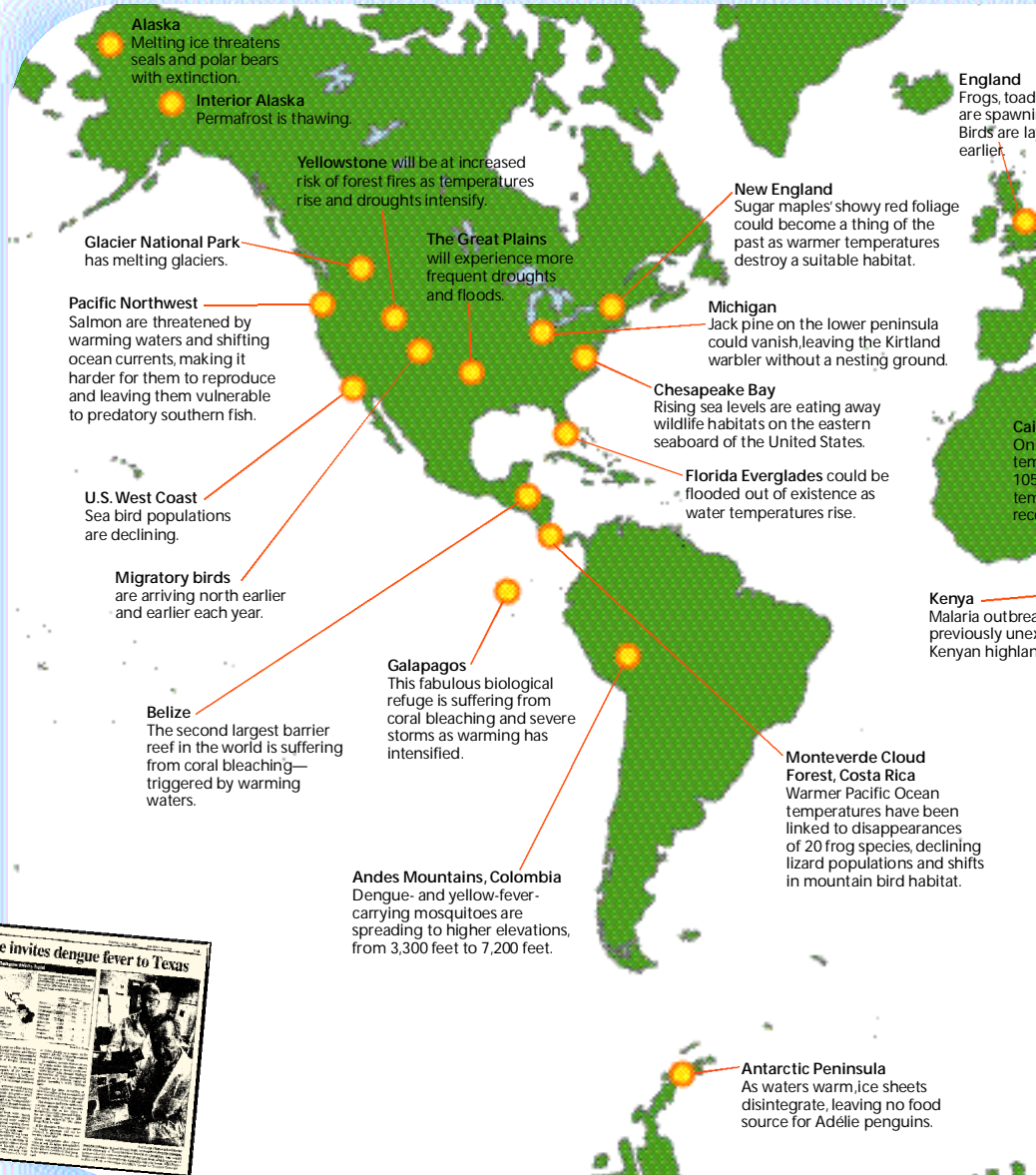
Global warming's effect on human health may be its most serious consequence.

The world's leading authority on global warming, the Intergovernmental Panel on Climate Change (IPCC), is a United Nations-sponsored organization made up of 2,500 scientists from around the world. The

IPCC projects that more frequent and more severe heat waves will be an early effect of global warming. Events

such as the deadly stretch of hot days that killed 669 people in the Midwest during the summer of 1995 and 250 in the Eastern United States in July 1999 are likely to become more common. Scientists are already finding that the number and intensity of extreme weather events are increasing.

Infectious disease is the second major threat that global warming poses to human health. As temperatures rise, disease-carrying mosquitoes and rodents move into new areas, infecting people in their wake. Scientists at the Harvard Medical School have linked recent U.S. outbreaks of dengue ("breakbone") fever, malaria, hantavirus and other diseases to climate change.



Global warming could mean millions more around the world would become infected with malaria. Since 1990, the start of the hottest decade on record, outbreaks of locally transmitted malaria have occurred in California, Florida, Georgia, Michigan, New Jersey and New York. IPCC scientists project that as warmer temperatures spread north and south from the tropics, and to higher elevations, malaria-carrying mosquitoes will spread with them. They conclude that global warm-

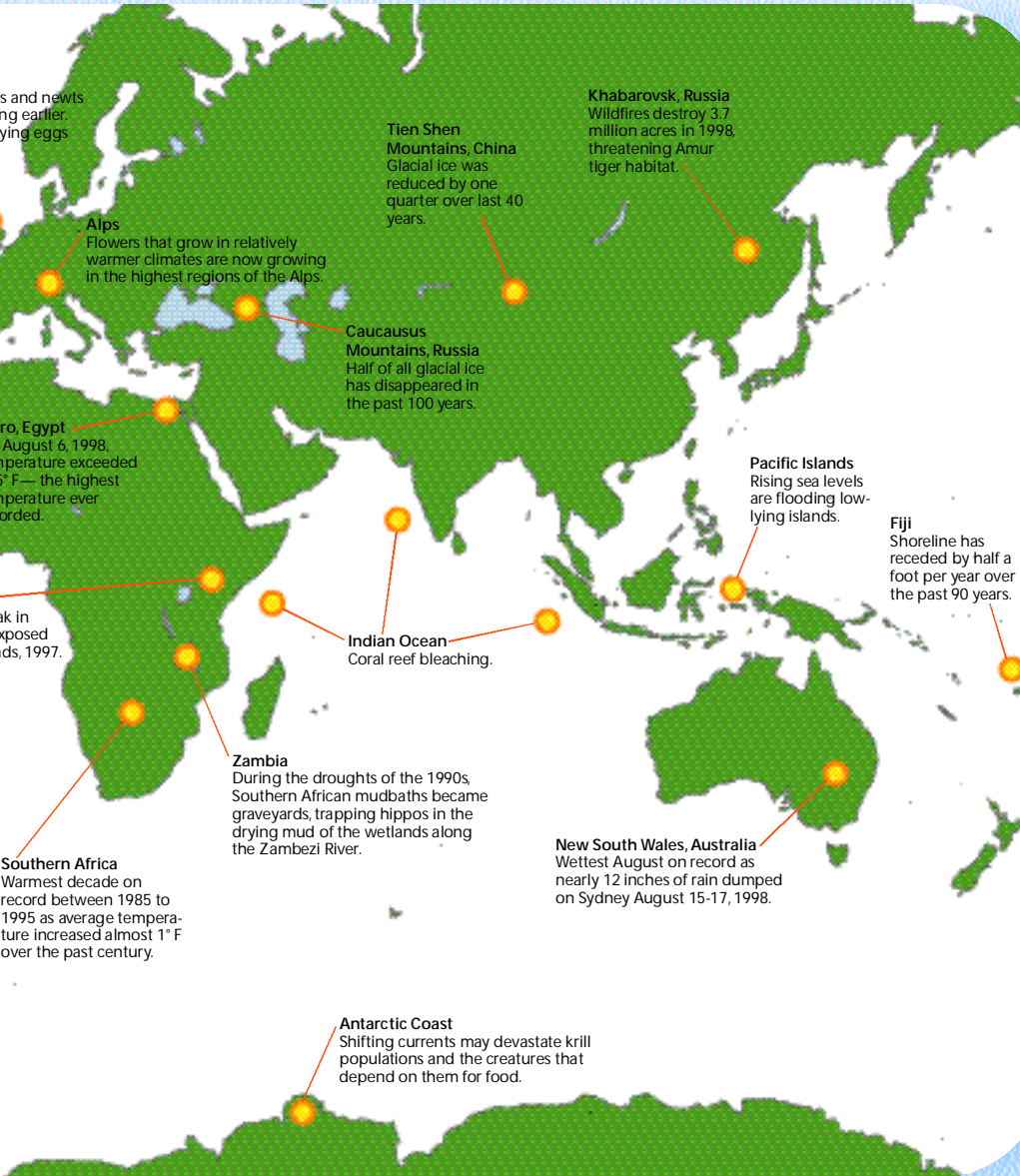
ing will likely put as much as 65 percent of the world's population at risk of infection—an increase of 20 percent.

In association with a warm winter and prolonged drought, New York City experienced a significant outbreak of West





CLIMATE IMPACTS



Scientists Confirm That Global Warming Has Begun

The IPCC has concluded by consensus that “increasing concentrations of anthropogenic greenhouse gases have contributed substantially to the observed warming over the last 50 years.”

Like the tobacco industry, the corporations that produce CO₂ pollution are seeking to deny the truth. Rather than admit that our increasing dependence on coal, oil and natural gas is altering our climate, those who produce these fuels,

along with the powerful auto industry, are spending millions of dollars in an effort to discredit the IPCC and global warming. Claiming that global warming is nothing more than an “alarmist hoax,” they have set out to buy the kind of “science” they want. Their efforts have not succeeded in fooling the American people, but some powerful lawmakers are listening to these industry-funded “climate experts.” ■



Nile virus in the summer of 1999. Seven New Yorkers died from mosquitoes infected with the virus. The infected larvae survived the mild winter temperatures and the city experienced another outbreak of the virus in 2000. Birds infected with West Nile virus have also been found in Maryland, Virginia and Washington, D.C.

When McAllen, Texas, suffered a severe outbreak of dengue fever in 1995, the Houston Chronicle’s head-

line read, “Warming climate invites dengue fever to Texas.” Epidemiologists reported that an unusually mild winter and hotter than normal summer contributed to the spread of the disease, which is carried by mosquitoes.

Outbreaks of encephalitis, another mosquito-borne illness with strong links to warmer temperatures, also appear to be on the rise. Since 1987, there have been major outbreaks in Arizona, California, Colorado, Florida, Louisiana, Mississippi and Texas. ■





EVIDENCE

Evidence Mounts

For years, powerful computers have been used to predict possible results of global warming. Grim predictions of sea level rise and the spread of infectious disease raised the issue of global warming in the minds of many Americans. Scientists now are becoming increasingly alarmed as more and more of the predictions come true.

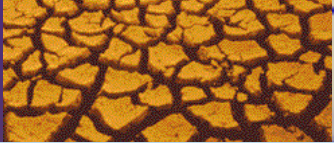
Some Events That Scientists Point to as Evidence That Global Warming Has Begun:

- Major shifts in temperature and precipitation. Some parts of the world have warmed by as much as 4.5 degrees Fahrenheit or more in the past 100 years. The average temperature of the planet has risen over 1 degree Fahrenheit.
- Shifting ranges of infectious disease and increasing cases of infection around the world. Since 1995, dengue fever has infected victims in Texas, and malaria outbreaks have occurred as far north as New York, New Jersey and Michigan.
- A sea-level rise of four to 10 inches in the past century, and the destruction of beaches and wetlands around the world. Continued warming may mean an additional rise of two feet or more and the flooding of huge portions of low-lying states, such as Florida and Louisiana.
- Melting glaciers and disappearing snow cover on five continents. Since 1995, more than 5,400 square miles, an area equal to Connecticut and Rhode Island combined, have broken off of the Antarctic ice shelves and melted.
- Drastic habitat shifts for plants and animals. Scientists have documented shifting populations and altered migration behavior as animals attempt to adapt to a changing climate. Many species that cannot adapt are in decline.
- More common and severe winter floods and summer droughts.
- More frequent and brutal storms.

Global Warming Will Worsen Heat Waves, Increasing Urban Death Rates

City	1997 climate deaths	2020 climate average deaths*	2050 climate average deaths*
Baltimore, Md.	84	89 (105%)	140 (166%)
Chicago, Ill.	191	401 (210%)	497 (260%)
Cincinnati, Ohio	14	52 (371%)	67 (481%)
Detroit, Mich.	110	163 (148%)	180 (164%)
Indianapolis, Ind.	36	56 (156%)	70 (194%)
Kansas City, Mo.	49	115 (234%)	127 (260%)
Los Angeles, Calif.	68	93 (137%)	118 (174%)
Newark, N.J.	26	122 (469%)	146 (562%)
Philadelphia, Pa.	129	214 (166%)	349 (270%)
Tampa, Fla.	28	64 (229%)	81 (288%)
St. Louis, Mo.	79	160 (200%)	185 (235%)
Dallas, Texas	36	51 (142%)	72 (199%)

* Number derived from averages from three models—United Kingdom Meteorological Model, Global Fluid Dynamics Laboratory Model and Max Planck Institute for Meteorology Model population—and metropolitan areas standardized to current levels. Lives spared due to warmer winters estimated to be negligible.



SOLUTIONS

Curbing the Global Warming Threat

The good news is that we can slow and eventually stop global warming, but we must act today. The most important step we can take to curb global warming is to improve our nation's energy efficiency. Our cars and light trucks, home appliances and power plants could be made much more efficient by simply installing the best current technology. Energy efficiency is the cleanest, safest, most economical way to begin to curb global warming.

No global warming solution will succeed unless we can control CO₂ emissions from cars.

If U.S. autos were a separate country, they would be the world's fifth largest global warming polluter, emitting more than all sources in Great Britain combined!

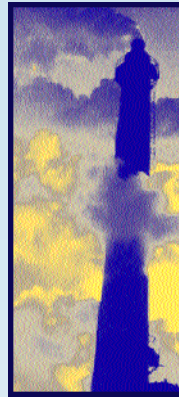


While there is no technology to remove CO₂ from our cars' exhausts, we can make them pollute less by making them more fuel efficient. By using today's best technology, car makers could dramatically increase the fuel economy of their

cars and trucks. In fact, off-the-shelf technology can change the nation's best-selling SUV, the Ford Explorer, from a 19 mpg gas-guzzler to an efficient 34 mpg vehicle. Gasoline-electric hybrid vehicles, such as the 70 mpg Honda Insight and 55 mpg Toyota Prius, can be used to obtain significant improvements in fuel economy. If we are to make any progress in slowing global warming, we must make our cars go farther on a gallon of gas.

Clean up our electrical power plants.

We also need to clean up our electrical power plants. Most electric utilities still use coal to produce electricity, spewing millions of tons of CO₂ and other pollutants into the atmosphere every year. Part of the problem could be solved by converting these plants to burn cleaner natural gas. We could do much more to save energy in our homes and office buildings. More energy-efficient lighting, heating and air conditioning could keep millions of tons of CO₂ out of our air each year.



Step up the use of clean wind and solar energy.

Harnessing the clean abundant energy of the sun and wind is critical to solving the global warming problem. Technological advances have brought the cost of electricity generated by wind down by 82 percent since 1981. Solar energy technology has made remarkable progress as new photovoltaic cells have been developed to convert even greater amounts of sunlight directly into electricity. Today the costs of wind and solar power are becoming competitive with dirty coal-fired plants.



Midwestern states in particular hold enormous potential as sources of renewable energy. Renewable sources currently make up less than 1 percent of the energy market in the United States. But states like Kansas, Nebraska, and North and South Dakota hold the potential of becoming the Saudi Arabia of wind power. ■



AMERICA MUST INVEST IN THE FUTURE

The United States has entered the 21st century relying on dirty, polluting 19th century fossil fuel technology. It is good for America's environment, economy, health and climate to use energy more efficiently, to develop clean alternative sources of electricity and to use more efficient methods of transportation. We must begin to look toward a cleaner, healthier future.



Take action

Contact your public officials and urge them to support strong efforts to reduce U.S. greenhouse gas emissions significantly below 1990 levels by the year 2008. Urge them to:

- Support the biggest single step we can take to curb global warming—raising mile per gallon (CAFE) standards for cars, SUVs and light trucks.
- Promote renewable (wind and solar) energy and fuel cell technology.
- Support improved efficiency standards for electronics and home appliances.

Call the president at (202) 456-1111, or write:

The President
The White House
1600 Pennsylvania Avenue, NW
Washington, DC 20510

To contact your congressperson or senator,
call the U.S. Capitol Switchboard at (202) 224-3121.

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