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Greenhouse Effect

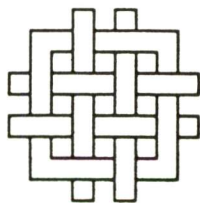


"The threat that does not lessen, but grows stronger, is the one posed by the gradual warming of the earth's atmosphere—a climatological phenomenon known as the greenhouse effect.

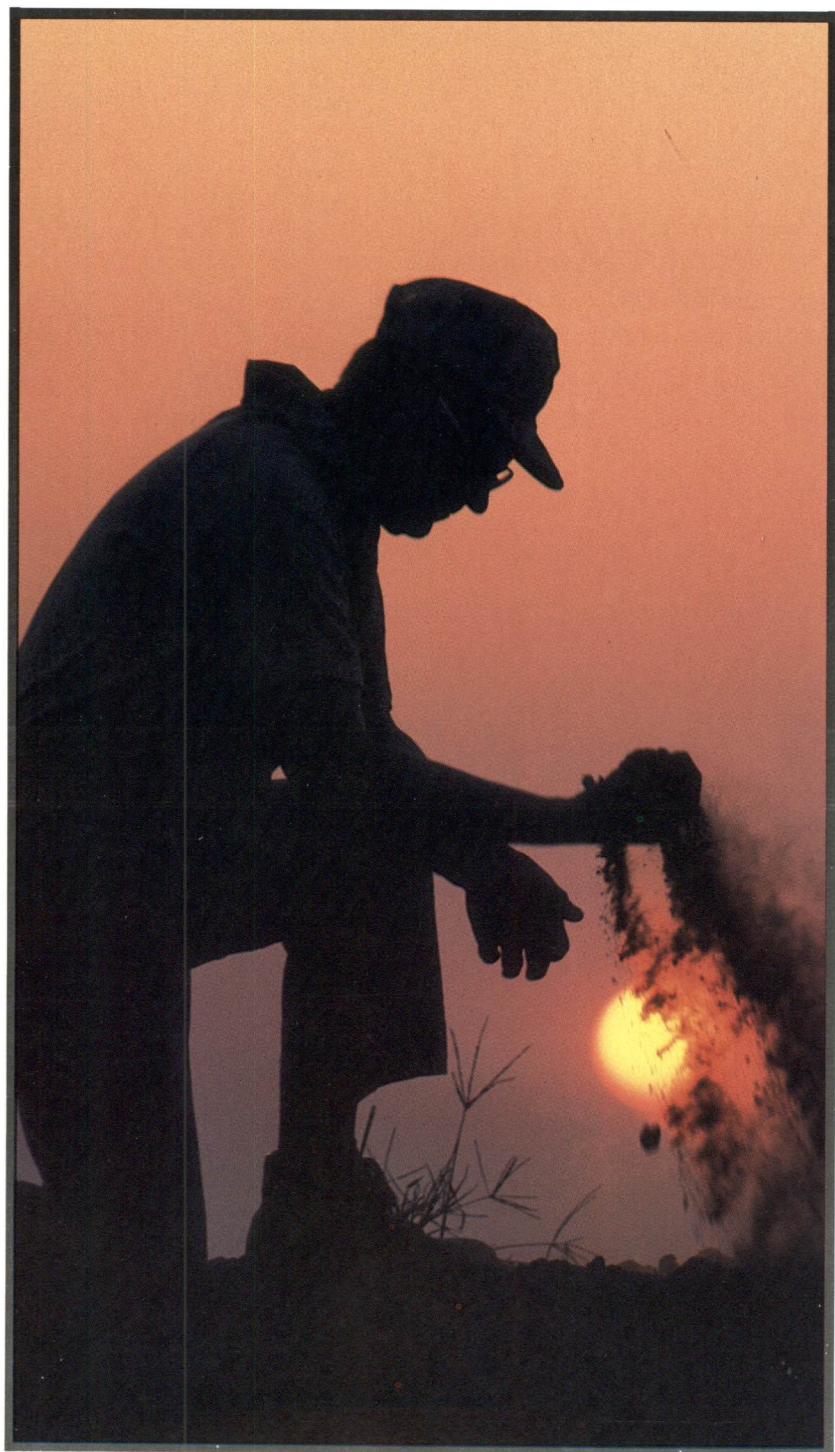
"Scientists now warn that early in the 21st century—within the lifetimes of most people now alive—temperatures will rise sufficiently to trigger devastating effects. . .

"[Solutions] will require international cooperation of a kind never before undertaken or achieved. They also require a degree of political leadership that has rarely been displayed—except in time of national peril."

—Editorial, *The Boston Globe*,
August 10, 1988



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What is the greenhouse effect?

The idea of a greenhouse is a positive, nurturing one for plants and flowers: a warm, controlled environment in which they can grow and thrive, despite the wind, cold, and snow outside the glass that protects them.

The same holds true for the earth. Without the natural greenhouse effect, our planet would be ice-covered and lifeless. But humanity is turning a beneficial phenomenon into a life-threatening one. As pollution builds up in the atmosphere, the natural greenhouse effect is being vastly altered, which could ultimately overheat the planet and disrupt its natural cycles.

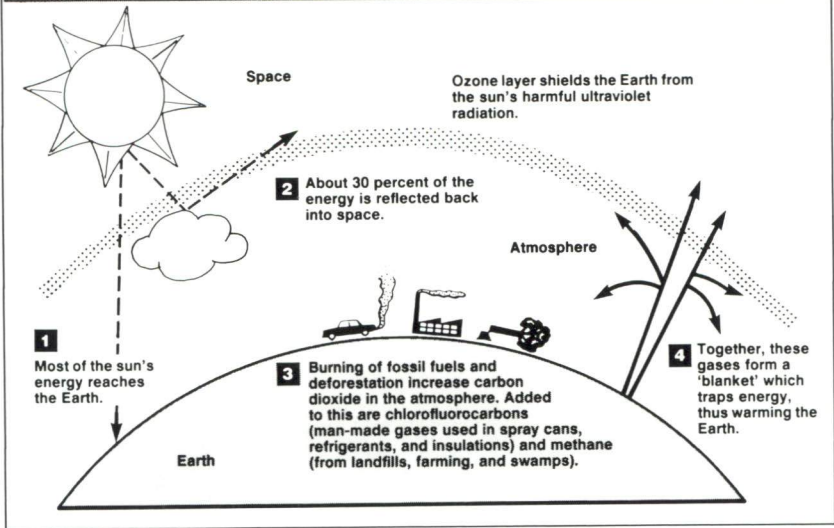
The main pollutant responsible for this global warming is carbon dioxide, which results from burning fossil fuels such as coal, oil and natural gas. It also comes from the destruction of forests, which release carbon dioxide into the atmosphere when they are burned or cut down. Other "greenhouse gases" which contribute to global warming are chlorofluorocarbons (which also destroy the protective ozone layer in the upper atmosphere), methane (natural gas), nitrous oxide, and ozone in the lower atmosphere.

A warmer world

As they build up in the atmosphere, these gases should cause the earth's temperature to rise, with the largest increases likely to be at high latitudes. As a result, regional climate and rainfall patterns are expected to change; sea levels will rise as glaciers melt, and as warmer oceans expand; drought could become more frequent; and agriculture may be severely disrupted.

If we do nothing to slow the greenhouse effect, the earth could be committed to a warming of 8° Fahrenheit in 40 years, and sea levels could rise a foot or more. In 100 years, temperatures could be as much as 15 degrees (F) hotter, and sea levels could be from 2 to 6 feet higher.

How the 'greenhouse effect' works



To appreciate the severity of the pollution causing the greenhouse effect, consider these facts:

- An average new American car driven 10,000 miles per year will release approximately its own weight—between one and two tons—in carbon as carbon dioxide into the atmosphere.
- CFCs not only destroy the earth's ozone layer, but they also contribute 15 percent of the global warming from greenhouse gases.
- After almost 100 years of pollution, there are already enough greenhouse gases in the atmosphere that could lead to a temperature increase of 2 to 5 degrees (F) within a few decades.

About six billion tons of carbon dioxide are spewed into the atmosphere each year, accounting for about half of the greenhouse warming. Electric utilities account for 33 percent of carbon dioxide emissions in the United States; transportation—cars, buses, trucks—accounts for 31 percent; industry accounts for 24 percent; and residential buildings account for the remainder.

The United States is the largest single contributor to worldwide carbon dioxide emissions, representing 26 percent of the world's emissions; the Soviet Union is second with 21 percent, followed by western Europe with 17 percent, and China with 11 percent.

How could the earth change?

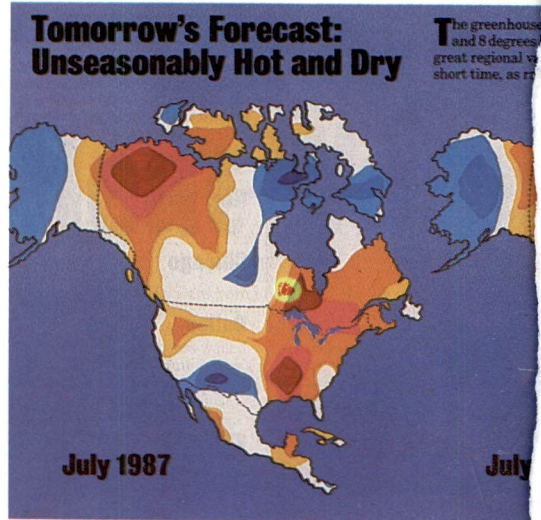
If the greenhouse effect isn't slowed down, and the worst predictions materialize, our world will soon be different from anything humans have ever experienced. It could possibly become warmer than when dinosaurs lived on earth.

In less than 50 years, some cities such as Denver, Omaha, and Washington could have close to three full months of temperatures over 90 degrees. Heat waves and droughts could become commonplace, increasing the chances of crop failures, increased air pollution, severe forest fires, and human suffering. Weather patterns could become unpredictable, as would extreme weather events such as cold snaps and monsoons; hurricanes could become much stronger and more frequent.

As sea level rises, flooding could spill into coastal living areas, beaches, wetlands, and estuaries. Low-lying coastal areas in the United States such as Louisiana and Florida, and other countries such as Egypt and Bangladesh could become inundated by rising ocean waters.

The cost of either moving the inhabitants of these areas or building barriers against the sea would probably be prohibitive—\$1.5 billion alone to protect a mid-sized city such as Charleston, South Carolina, for example.

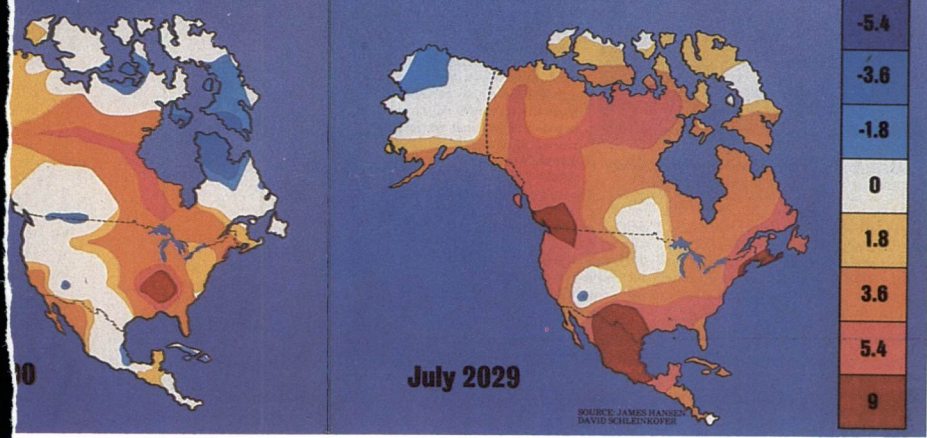
If climate zones shift, existing national parks and protected areas would no longer preserve the habitat for plants, fish and wildlife for which they were established. Few forests, for example, could move rapidly enough to keep up with anticipated temperature



ct is expected to warm the earth between 3
enheit over the next 50 years. There will be
ns. Some spots may even get colder for a
weather patterns run contrary to the

general warming trends. But the number of hot spots will
increase, especially in the interior of the United States and other
continents. The rich farmland in the Midwest may suffer while
Canada's breadbasket enjoys more bountiful harvests.

Temperature
Increases
IN DEGREES
FAHRENHEIT



changes, with devastating consequences for the people and species that depend upon them.

Migration patterns of birds would change as climate shifts; marine life would be disrupted by warmer ocean temperatures. If hotter temperatures become more common and prolonged, air pollution would increase, as would heat-stroke and deaths.

Because of increased temperatures and more frequent drought, regions such as the American grain belt could become much drier and warmer during the critical growing season. Climates suitable for farming could shift, sometimes to regions of the world where soils are not suitable for agriculture. Water shortages would make irrigation difficult and expensive. Deserts and grasslands would be expected to spread as forests shrink.

A vicious cycle of energy needs could be set in motion. If the weather becomes hotter, more people will want air conditioning; more electricity will be needed. But producing more electricity with fossil fuels will generate more carbon dioxide emissions—which will add to the already escalating greenhouse effect.

“We have unwittingly begun a massive experiment with the system of this planet itself,” said British Prime Minister Margaret Thatcher. “Protecting this balance of nature is therefore one of the great challenges of the late Twentieth Century.”

How can you help slow the greenhouse effect?

Greenhouse warming is the most serious and threatening environmental problem of this century and the next—but it can be slowed and eventually stopped. Although most measures to do this need national and international action, there are also things you, as an individual, can do. Some of these are:

- Be energy-efficient. Purchase appliances such as refrigerators, air conditioners, hot water heaters, furnaces and stoves that have low “Energy Use” ratings on the tags that all new appliances have. Replace standard light bulbs with special available lighting which requires less energy and produces less heat, thereby reducing air conditioning costs. Since these measures will use less energy, they will also cut your energy bills.

- Drive a fuel-efficient car. When you buy your next car, make high mileage-per-gallon a major factor in your decision. Tell your car dealer that’s the kind of car you want.

- Plant a tree—lots if you can. Shade trees which drop their leaves in winter, planted around a house, cut down on energy consumption. They also absorb carbon dioxide and prevent it from going to the atmosphere.

- Avoid using products made with harmful chlorofluorocarbons (CFCs). Although these were banned from spraycan uses in 1978, you may still see, but should not use, products which contain them, such as aerosols used to clean electronic parts. When your home or car air conditioner is serviced, request that the CFC refrigerant be drained into a closed container, then cleaned and recycled—rather than being released into the air.

Drive less—take a bus

- Drive less. Use public transportation such as buses, trains, and subways. Cutting down on the pollution that causes the greenhouse effect also cuts your gasoline bills. Walking or bicycling benefits your health by exercising—and your environment by not polluting.



Solar power provides hot water and heat for this home in Shenandoah, Georgia.

- Spread the word. Share your knowledge and concern about the greenhouse effect with others: schedule programs, workshops, talks and meetings with your local schools, churches, synagogues, community clubs, unions, and offices.

- Conserve energy. Many power plants create energy by burning coal, oil or gas, which emit greenhouse gases to the atmosphere. Individual energy conservation measures include turning off unneeded lights, using appropriate thermostat settings by avoiding excess cooling in summer and heating in winter, using ceiling fans, installing storm windows and insulation, and insulating water heaters. There are many other ways to save energy—and they also save you money on fuel bills. Most utilities have programs and brochures about ways to save energy—ask your utility companies for copies.

- Express your concerns about the greenhouse effect to your elected officials. Several broad energy policies will help slow the growth of the greenhouse effect: improved energy efficiency (using less energy to provide the same services), moving away from the use of fossil fuels to provide energy, and developing greenhouse-free energy sources such as solar and wind power. International cooperation will be needed to enact such important measures as a ban on all harmful chlorofluorocarbons, reduction in fossil fuel use, a halt to the destruction of tropical forests, and a concerted reforestation effort—which will all slow global warming.

These organizations can help

These public interest, non-profit organizations work with individuals who are concerned about the greenhouse effect. You may contact them for more information and suggestions, issue updates, newsletters, speakers, seminars, and membership programs.

Center for Environmental
Information
33 South Washington Street
Rochester, NY 14608

Climate Institute
316 Pennsylvania Avenue, SE
Suite 403
Washington, D.C. 20003

Environmental Defense Fund
1616 P St., NW, Suite 150
Washington, D.C. 20036

Environmental Policy Institute
218 D St., SE
Washington, D.C. 20003

Friends of the Earth
530 7th St., SE
Washington, D.C. 20003

National Audubon Society
801 Pennsylvania Avenue, SE,
#301
Washington, D.C. 20003

National Wildlife Federation
1400 16th St., NW
Washington, D.C. 20036

Natural Resources Defense Council
1350 New York Avenue, NW
Washington, D.C. 20005

Renew America
1001 Connecticut Avenue, NW
Suite 719
Washington, D.C. 20036

The Sierra Club
330 Pennsylvania Avenue, SE
Washington, D.C. 20003

The Wilderness Society
1400 I St., NW
Washington, D.C. 20005

World Resources Institute
1709 New York Avenue, NW
Washington, D.C. 20006

World Wildlife Fund/
The Conservation Foundation
1250 24th Street, NW
Washington, D.C. 20037

Zero Population Growth
1400 16th Street, NW,
Suite 320
Washington, D.C. 20036

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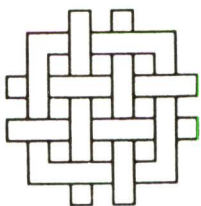
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