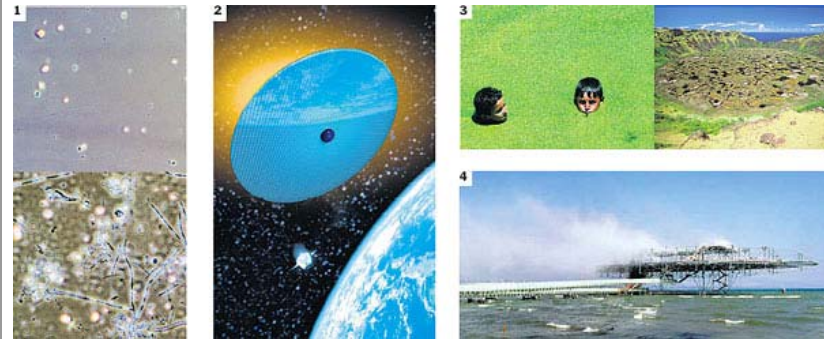


THE ENERGY CHALLENGE | EXOTIC VISIONS

How to Cool a Planet (Maybe)



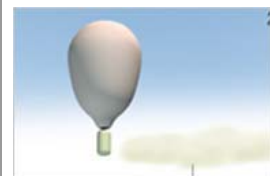
Photos: 1. Dr. Kenneth Coale/Moss Landing Marine Laboratories; 2. Victor Habbick Visions/Photo Researchers; 3. Left, Rina Castelnovo for The New York Times; right, David Nunuk/Photo Researchers; 4. Diller & Scofidio

PROBLEMS AND EXPERIMENTS 1 Before-and-after images of plankton in an experiment that increased iron in the Pacific. 2 A large mirror that would shield Earth from the Sun. 3 A reservoir in a Palestinian village that is now covered with algae, potentially capturing carbon dioxide from the atmosphere, and a crater lake caused by a volcanic eruption. 4 An example of cloud production, the Blur Building by the architects Elizabeth Diller and Ricardo Scofidio, at the Swiss Expo in 2002.

By WILLIAM J. BROAD
Published: June 27, 2006

In the past few decades, a handful of scientists have come up with big, futuristic ways to fight [global warming](#): Build sunshades in orbit to cool the planet. Tinker with clouds to make them reflect more sunlight back into space. Trick oceans into soaking up more heat-trapping greenhouse gases.

Multimedia



Graphic: Science Fiction? Maybe Not

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The plans and proposed studies are part of a controversial field known as [geoengineering](#), which means rearranging the earth's environment on a large scale to suit human needs and promote habitability. Dr. Cicerone, an atmospheric chemist, will detail his arguments

Their proposals were relegated to the fringes of climate science. Few journals would publish them. Few government agencies would pay for feasibility studies. Environmentalists and mainstream scientists said the focus should be on reducing greenhouse gases and preventing global warming in the first place.

But now, in a major reversal, some of the world's most prominent scientists say the proposals deserve a serious look because of growing concerns about global warming.

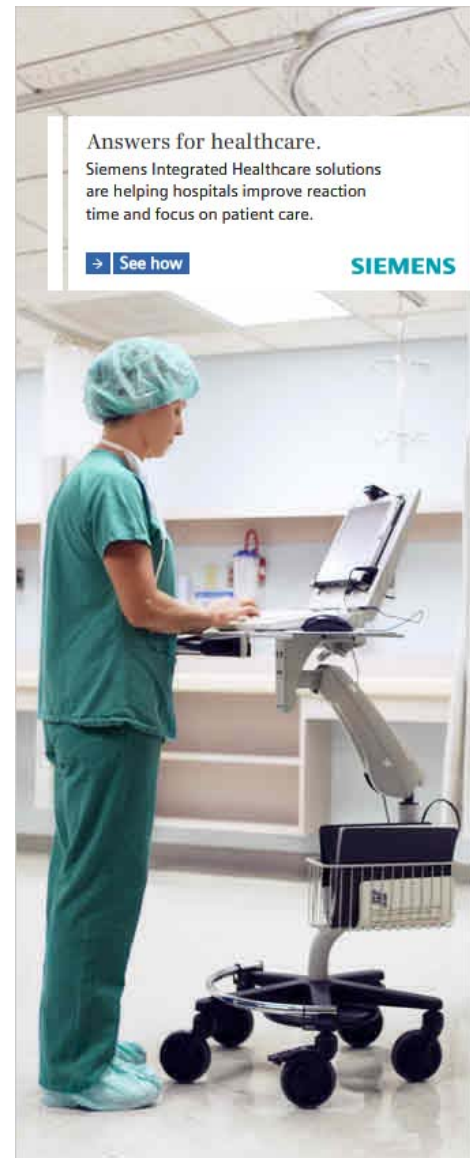
Worried about a potential planetary crisis, these leaders are calling on governments and scientific groups to study exotic ways to reduce global warming, seeing them as possible fallback positions if the planet eventually needs a dose of emergency cooling.

"We should treat these ideas like any other research and get into the mind-set of taking them seriously," said Ralph J. Cicerone, president of the [National Academy of Sciences](#) in Washington.

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