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## Site Navigation

- [News](#)
- [Sports](#)
- [Business](#)
- [Politics](#)
- [Opinion](#)
- [Entertainment](#)
- [Lifestyle](#)
- [Travel](#)
- [Multimedia](#)
- [Cars](#)
- [Homes](#)
- [Jobs](#)
- [Shopping](#)

Business: [Agriculture](#) | [Autos](#) | [National](#) | [State](#) | [Real Estate](#) | [Small Business](#) | [Stocks](#) | [Taxes](#) | [Technology](#) *More in this section*

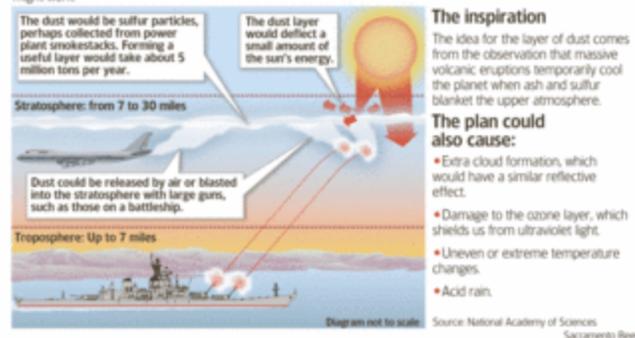
## Plan for global warming: Bite the dust

By Jim Downing - Bee Staff Writer

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### In case of emergency, cool the planet

Some well-respected scientists are saying the world should get ready to take drastic measures in the future to cool the Earth by a degree or two – such as blasting a layer of sulfur dust into the stratosphere. Here's how such a plan might work:



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Say 2080 comes around and the climate-change doomsayers have turned out to be right. Greenland is half-melted. Coastal cities are starting to flood. California's reservoirs have all but dried up.

It's time to bring out the big guns.

In a bombardment of the skies, battleship artillery blasts millions of tons of sulfur dust into the stratosphere. It deflects enough of the sun's rays to cool the planet by a few critical degrees. In a flourish worthy of Superman, the sweaty planet is saved.



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Here's the catch: This didn't come out of a comic book.

As global greenhouse gas emissions continue to rise, some of the world's most respected scientists are giving serious thought to a global warming Plan B.

They caution that such loony-sounding schemes are likely to cost hundreds of billions of dollars and would almost certainly produce unforeseen side effects. The plans should be considered last-ditch strategies, to be used only if carbon-cutting strategies fail and the planet gets dangerously hot, they say.

But, as a major United Nations report slated for release today is expected to reiterate, there's a chance those conditions will, in fact, be met.

The report, the latest from the Intergovernmental Panel on Climate Change, lays out the changes in energy production, transportation and land management the nations of the world would have to take to stop the rise of greenhouse gases in the atmosphere.

Many scientists predict the increase will drive temperatures higher in the coming decades, though by how much is a matter of debate.

Still, with out-of-control warming a distinct possibility, some scientists say it's lunacy not to think about how we might deliberately cool the Earth.

Stephen Schneider, a Stanford University climatologist, said he thinks there's a 10 percent chance that planet-cooling intervention might be warranted.

"Nobody I know would take a 10 percent risk without a hedging strategy," he said. "This is the planet we're talking about."

Last year, the sulfur dust scheme was endorsed in a scientific journal article by one of the fathers of environmental science: Paul Crutzen, one of the three Nobel Prize-winning chemists who discovered that the propellant in aerosol spray cans was destroying the Earth's protective ozone layer.

Here's how the sulfur-dust plan might work:

Each year, about 5 million tons of fine sulfur dust -- harvested, perhaps, from the smokestacks of coal-fired power plants -- would be scattered in the sky at altitudes of at least 7 miles. It could be lofted in artillery shells or by high-flying airplanes.

By deflecting the sun's energy, the dust would counter the effect of increased carbon dioxide levels -- much in the way that high-altitude ash following a big volcanic eruption temporarily cools the planet.

Because the sulfur dust would settle to the Earth in a year or two, it would have to be steadily replenished. From the ground, it would be visible as a high white haze, turning colorful at sunset.

In November, NASA convened an international group of researchers for a sort of brainstorming session on ways to cool the planet. One plan discussed would be to build a "solar shield" twice the size of Alaska between the Earth and the sun. Another would launch an armada of seagoing ships equipped to shoot a continuous cloud-forming mist high into the air. The third was the blanket of sulfur dust.

Scientists involved in the discussions, though, say a better path would be to simply reduce greenhouse gas emissions, cutting the chances of warming the planet in the first place.

Even if a giant mirror in space did actually drop the temperature a bit, high levels of carbon dioxide in the atmosphere would remain. That is expected to increase acidity in the ocean, seriously damaging coral reefs as well as the delicate shells of the tiny marine creatures that support the world's fish populations.

That effect already is being observed, Schneider said.

Major environmental groups and international climate policy bodies hesitate to raise the topic of deliberately cooling the planet. They think doing so will distract from the basic work of cutting greenhouse emissions.

"The risk is that less serious people will abuse these conversations and start claiming that we've got some tool that's been developed to shield ourselves against the effects of man-made climate change," said David Hawkins, director of the Climate Center at the Natural Resources Defense Council, a leading national environmental advocacy group.

Still, said Hawkins, who participated in the NASA meeting, it makes sense for at least a few researchers to work through the details of such proposals -- if only so as to give credible estimates of their costs and risks to political leaders.

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