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Lizzie Buchen; published February 25, 2008

Image courtesy of International Space Station Imagery

INCREASE THE SPF OF EARTH'S NATURAL SUNBLOCK

How it works: Atmospheric scientists have long known that volcanic eruptions cool the local climate by releasing billions of tiny sunlight-reflecting particles. We can recreate these volcanoes (without the catastrophic consequences) by injecting sulfur particles--which happen to be the perfect size--into the atmosphere. There, they float around for a couple of years before being used up in chemical reactions and slowly returning to the surface of the earth. The quickest way to get the particles up there is releasing them out the back of a plane; a properly equipped 747 could do this today. Other options include carrying sulfur into the atmosphere via balloons and using artillery to blow them up (think giant carnival game), and shooting sulfur into the sky via a long hose--a smokestack to the stratosphere.

Pros: Fast acting, long lasting, and proven to work--all the components of a good emergency-response system. The cooling effect could be apparent in a few months, would last for up to two years, and would probably cost "only" in the low billions of dollars. What's more, it's technologically simple, making it the most practical scheme. Most supporters propose injecting sulfur only above the Artic, at least at first. This would prevent the catastrophic loss of ice in the Arctic and Greenland and minimize the impact of unintended environmental or health consequences. If it works, the program could expand to encompass the rest of the planet.

Cons: Sulfur reacts with chlorine from those pesky CFCs, so it may be bad for the ozone layer--although Paul Crutzen, who won a Nobel Prize for his research on ozone depletion, doesn't think it will be an issue. The reduced sunlight might also disrupt plants, particularly tropical plants that have adapted to high levels of sunlight, throwing the biosphere out of whack. The sulfur particles may also have an effect on cloud formation, leading to unexpected droughts. But hey, there's no such thing as a free lunch.

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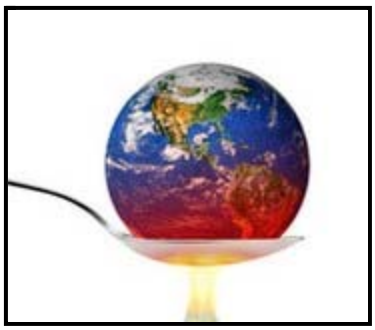

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