

Earth Day Essay: Space program may allow climate repair/defense

Source: <http://sci.tech-archive.net/Archive/sci.space.policy/2005-04/msg00413.html>

- *From:* "Jim Oberg" <jamesoberg@xxxxxxxxxxxxxxxx>
 - *Date:* Fri, 22 Apr 2005 14:14:07 GMT
-

On the occasion of 'Earth Day', this essay of a year ago suggests some attention be paid to the possibility of deliberate climate modification to counteract damaging trends and hazards, both of human origin and far-more-dangerous natural causes. This is a controversial point of view --

Consider cosmic view of Earth Day

http://www.usatoday.com/news/opinion/editorials/2004-04-21-oberg_x.htm

USA Today, April 22, 2004

Alcestis "Cooky" Oberg and James Oberg

Earth Day will be celebrated today with traditional programs: habitat restorations and cleanups in California, tree plantings and recycling seminars in Ohio, a conservation festival in Philadelphia and concerts in Florida.

In fact, in the 34 years since Earth Day was conceived, it has become synonymous with entreaties to preserve and protect all life on Earth.

The original intent of Earth Day was for people to show how deeply concerned they were about the deterioration of the Earth's environment and natural resources, and their dedication to changing personal behavior and national economic activities in order to reverse the trend.

Yet, even if arresting environmental harm through individual effort alone were possible, it would be a mistake to focus merely on human-caused problems. Better that we also focus on developing more sophisticated technology, which will give scientists the ability through research and exploration to learn more about the solar system and, in turn, how to counteract the dangers to Earth, including natural threats.

That lesson has been vividly illustrated through recent discoveries in

Earth Day Essay: Space program may allow climate repair/defense

outer space. New revelations – most recently on Mars and out beyond Pluto – continue to enrich human understanding of the solar system and its erratic history. And that includes the understanding of our home planet, Earth, and its own past, present and – yes – future.

One example of the misplaced emphasis on solely the human role in environmental problems is climate change. Many experts believe that if humans control emissions from cars and factories, then Earth will naturally be restored to some healthy, stable balance.

But discoveries in outer space show that this "balance" is never stable, and it is not automatically healthy.

Other worlds show us the bigger, truer picture. We've seen the dusty, frozen expanses of Mars, where life may have started in large oceans and then fizzled. We've seen the baking hell–planet Venus, where oceans once rolled, too, before rising temperatures boiled them off, likely choking any life that may have formed.

The main lesson these new discoveries force us to face is that humans are not made safe by changing a few emission laws or even in enacting the Kyoto accords aimed at reducing greenhouse emissions on a global scale. Climate change and occasional climate catastrophe are the norm, not the exception, in the solar system.

That has been the pattern, not the aberration, on Earth as well and involves little–understood processes that go far beyond human activity. The geological archives of Earth are revealing that all life on this planet endured frequent catastrophes and occasional near extinctions in our 4–billion–year history – long before the appearance of humans, with their cars and factories.

So what does the planet do with this new insight? First must come wisdom. The general assumption of Earth Day, that humans and their technology are a threat to Earth's environment, is a much too narrow view. It's not sufficient simply to "do no harm." Human technology must be used and developed to gain a better understanding of how natural processes on Earth work.

In fact, space science has shown that big natural occurrences really determine the fates of planets. For example, the sun's heat varies and, thereby, changes climate cycles. Earth's history shows that the planet is under almost constant bombardment from objects falling from space – ranging from dust particles to huge asteroids – which have profoundly tested its resiliency. Earth's meandering motion through space changes the distribution of solar heating, shifting ocean currents and inducing ice ages. Tidal forces can trigger earthquakes and volcanoes, including the supervolcanoes that scientists now know have devastated Earth's climate in the past.

The nation needs to sharpen its understanding of exactly how these events affect planetary climate. This demands a broad and coordinated

Earth Day Essay: Space program may allow climate repair/defense

program involving space and earth sciences in which all discoveries and insights are gathered, freely shared and thoroughly analyzed. Second, sophisticated computer models need to be developed that can weigh all of these natural factors and their interactions – not just a few. That would help us isolate the impact of specific factors from different causes. Only then could scientists devise the best strategies to change human behavior and also actively modulate the global effects on climate change and stability.

At some point, decades from now, it may be possible to formulate methods to moderate climate change. Scientists could manipulate Earth's heat balance through space mirrors or sunshades. They could engineer Earth's atmosphere through cloud-making or chemical tuning. They could divert harmful space objects – such as planet-killing asteroids – threatening to hit Earth. The first steps now have been taken during the space age to reach for planetary wisdom and envision future interventions.

Future planetary exploration allows humans to see Earth as part of the fabric of sibling worlds in the solar system, subject to the same forces that shaped them. With this knowledge and the power that space technology promises, earthlings may see a way to achieve genuine climate stability. So while Earth Day activities aimed at local cleanups, tree plantings and conservation lectures are useful in their limited way, the perspective of the nation, indeed the world, needs to become truly planetary.

Alcestis "Cooky" Oberg is a freelance science and technology writer living in Houston. She is also a member of USA TODAY's board of contributors. James Oberg spent 22 years at NASA Mission Control in Houston.

• *Follow-Ups:*

- ◆ ***Re: Earth Day Essay: Space program may allow climate repair/defense***
 ◇ *From: Craig Fink*
 - ◆ ***Re: Earth Day Essay: Space program may allow climate repair/defense***
 ◇ *From: Pete Lynn*
 - ◆ ***Re: Earth Day Essay: Space program may allow climate repair/defense***
 ◇ *From: jonathon*
-
- Prev by Date: ***Re: Griffin: Shuttle-CEV Gap Unacceptable***
 - Next by Date: ***Re: Titan IV Canadian Drop Zone Problems***
 - Previous by thread: ***Standards are shifted for flight of shuttle***
 - Next by thread: ***Re: Earth Day Essay: Space program may allow climate repair/defense***
 - Index(es):

Earth Day Essay: Space program may allow climate repair/defense

- ◆ Date
- ◆ Thread