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With \$4.5M of Pocket Change, Bill Gates Funds Geoengineering Research



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If climate-watchers found no solutions in December's failed [Climate Change Summit](#) in Copenhagen, then they might be heartened by the fact that billionaire philanthropist Bill Gates thinks there needs to be a greater focus on researching technologies that can slow global warming.

ScienceInsider reports that the Microsoft founder had provided at least \$4.5 million of his own money to be distributed [over 3 years for the study of methods](#) that could alter the stratosphere to reflect solar energy, techniques to filter carbon dioxide directly from the atmosphere, and brighten ocean clouds [[ScienceInsider](#)].

These and other geoengineering techniques have been hotly debated in the scientific world, with some critics arguing that tinkering with Earth's natural systems could do more harm than good.

Methods that divert some incoming solar energy, like spraying reflective aerosols into the stratosphere or making clouds more reflective, have been deemed potentially effective but also risky; the abrupt halt of a large-scale project would result in sudden, extreme warming. On the other hand, techniques that reduce the amount of carbon dioxide already in the atmosphere are [considered less risky](#), but they're currently too expensive to implement widely.

Some of Gates' money has been granted to [Ken Caldeira](#) of the Carnegie Institution for Science in Palo Alto, California and physicist [David Keith](#) of the University of Calgary in Canada—two of Gates' informal energy and climate advisers for many years. They have also advised Gates on dispensing the money, some of which has already been granted to [Armand Neukermans](#), an inventor based in Silicon Valley who is working with colleagues to design spray systems for the marine clouds, and students and scientists working for Keith and Caldeira. Funding has also helped support scientific meetings in geoengineering in Cambridge, Massachusetts, and Edinburgh, Scotland, and aeronautics research related to altering the stratosphere [[ScienceInsider](#)]. Caldeira clarified that Gates' money had not funded any field experiments; he also noted that some of the funding goes to more general research on climate change.

Gates' funding is in line with his [recent essay on climate policy](#) in which he called for radical innovations in electricity generation and transportation. "If the goal is to get the transportation and electrical sectors down to zero emissions you clearly need innovation that leads to entirely new approaches to generating power," Gates wrote. "While it is all well and good to insulate houses and turn off lights, to really solve this problem we need to spend more time on accelerating innovation" [[Wired.com](#)].

This is not the first time that Gates has shown an interest in geoengineering research. He is an investor in a Seattle, Washington-area firm called Intellectual Ventures that is investigating techniques to geoengineer the stratosphere. Gates worked with them to apply for a patent in 2008 to [sap hurricanes of their strength](#) by mixing warm surface water and with cold, deep ocean water.

While Gates' \$4.5 million contribution to climate change research is significant, it does pale in comparison to his other philanthropic efforts. [Endorsing vaccines as the world's most cost-effective public health measure](#), [Bill and Melinda Gates](#) said Friday that their [foundation](#) would more than double its spending on them over the next decade, to at least \$10 billion [[The New York Times](#)].

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January 29th, 2010 3:42 PM Tags: [Bill Gates](#), [climate change](#), [geoengineering](#), [global warming](#), [green technology](#) by [Smriti Rao](#) in [Environment](#), [Technology](#) | 16 comments | [RSS feed](#) | [Trackback >](#)

16 Responses to "With \$4.5M of Pocket Change, Bill Gates Funds Geoengineering Research"

1. 1. *NewEnglandBob* Says:
[January 29th, 2010 at 4:47 pm](#)

Gates is the most admired man on the planet in my eyes. His philanthropy IS making a difference and he watches carefully on the effectiveness of his funds

2. 2. *Spironis* Says:
[January 29th, 2010 at 6:57 pm](#)

1) Don't remove sulfur from commercial jet fuel. Sulfur oxides are then directly injected into the stratosphere to form reflective sulfuric acid aerosols. Cheaper fuel, too – just the way it used to be when things worked.

2) No (2) is necessary.

3) *we need to spend more time on accelerating innovation* See (1).

3. 3. *Mike* Says:
[January 29th, 2010 at 8:43 pm](#)

Combat pollution with pollution...sounds great. Megatons of soot, chemicals and smog so we can have endless supplies of cheap goods packed into Wal-Marts and malls, convenience stores and fast food restaurants across our nation and globe (cheaper old school jet fuel too). We are arrogant enough to think we can shape and control it all, cause it and fix it – now maybe at the same time. Dump out some soots and gas that will equalize the negative effects in a smoggy, yellow, dim haze.

4. 4. *JMW* Says:
[January 30th, 2010 at 6:43 am](#)

I'm extremely concerned about the idea of geoengineering. We can't sufficiently model the climate to predict anything with any degree of confidence more than a couple of years ahead. And we're now going to try to monkey with this extremely complicated set of interlocking processes?

It would be too easy, in my mind, to settle on one – or a few – geoengineering techniques, try them timidly, and when nothing happens, ramp up to higher levels of engineering. And then find that the climate shifts abruptly, rapidly and far more drastically than we thought it might.

To my mind, the best means of geoengineering would be to launch a satellite that would have a solar powered ion drive, and have it take up position between Earth and Sun about 50 million miles inside Earth's orbit. The satellite would have long projecting spines, from which would extend rotatable rods covered in solar cells.

We could rotate the rods to cut off between 0% and 1% of the sun's radiation striking the earth. We could directly control how much solar energy we are absorbing, and could easily reverse any changes we might make.

This strikes me as safer than dumping millions of tons of chemicals into the atmosphere, which to my way of thinking would be virtually impossible to remove if we found out we'd made a mistake.

5. 5. *Mitch Gingras* Says:
[January 30th, 2010 at 7:38 am](#)

In essence, Bill is following the right track. We are required to decentralise the electric power grid on a world-wide basis. People will need to move away from the electrical artery systems that supply the basic life-blood for our cozy existence. Once we have achieved that step, populations can live comfortably away from the manufacturing centers(cities). Cities are a blight to this planet and is clearly demonstrated in front of the eyes of our astronauts. Cities cause us to generate the greatest portion of climate-altering conditions. And cities is what we need to move away from.

6. 6. *Jay Fox* Says:
[January 30th, 2010 at 2:35 pm](#)

Just curious: How hard is it really to harvest all this carbon out of the atmosphere? Sure, it goes up there pretty easily, but how hard is it to collect? The reason I ask is this: There is a lot of it, and all the while we are thinking up imaginative ways to use carbon, as in carbon nanotubes, nanosheets, etc.

Is it not possible to harvest carbon from the atmosphere and successfully use it as a natural resource? If it is used to make batteries, carbon fiber frames and panels, etc., would it not then be sequestered? What exactly is required to break the carbon-oxygen bond to yield pure carbon?

Seems to me that we are wasting time and energy trying to mitigate all that carbon. We should be thinking of ways to remove and use it. Is it really that hard?

7. 7. *Wendy* Says:
[January 30th, 2010 at 4:21 pm](#)

“some critics arguing that tinkering with Earth's natural systems could do more harm than good.”

Lil late to be worrying about that....

8. 8. *Forest Park sucks* Says:
[January 30th, 2010 at 11:47 pm](#)

They have already been using jet fuel to cloud up the atmosphere. There hasn't been a blue sky since 911. Before long the haze will cover the whole planet.

Jay- good ideas, but collection and storage of CO2 is too expensive and impractical for now. Maybe Gates can spread around his monopoly money to catch carbon and have another monopoly!

9. 9. *Mike S* Says:

[January 31st, 2010 at 6:05 am](#)

The Gates Foundation has industry insiders from corp's like Monsanto who act as consultants, and they make some very bad decisions. I would not trust Gates to do the right thing, ever, without very close public scrutiny.

10. 10. *JJ* Says:

[January 31st, 2010 at 9:16 am](#)

I support Bill Gates and his philanthropy. However, the most simple, safe, and effective way to combat CO2....plant more trees. Geo-engineering is just a bad idea. How arrogant do humans have to be before they realize they can't control the Earth, literally?

11. 11. *J Reynolds* Says:

[January 31st, 2010 at 6:36 pm](#)

Thanks for this. Geoengineering is moving fast, and more public dialog is needed. Hopefully Gates does not envision himself as a rogue savior.

I post – mainly links to articles – on geoengineering on Twitter @geoengpolicy

12. 12. *Matt T* Says:

[February 1st, 2010 at 3:08 pm](#)

Mike S: Why would we subject Bill Gates to “public scrutiny”? It's his money, he can do what he wants with it. He is funding research, not experiments; the public's trust is not a requisite.

13. 13. *Dave* Says:

[February 1st, 2010 at 4:28 pm](#)

I think we just need to slowly reverse our carbon footprint. The Earth can handle a certain amount of pollution, we just don't know what that certain amount is. We breath O2, exhale CO2, trees use CO2, and make O2. We've just tipped the balance, and have thrown in some new gases to the mix. It's just a matter of finding balance. What would really help is cutting back on the worlds population, but, that's not easily done.

14. 14. *Dane W.* Says:

[March 16th, 2010 at 10:36 pm](#)

Geoengineering is not a proposal, but a lethal reality. For any that want to get up to speed on the latest scientific data, check “geoengineeringwatch.org”

15. 15. *noah* Says:

[June 22nd, 2010 at 8:08 pm](#)

Why are all the bees dying? Why do we have aluminum levels 100x EPA accepted levels? Why should they be allowed to reflect our solar energy (and pollute) without consulting us? Lets start building and deploying mirrors on our rooftops, shining light back into space. It's insanity creating more greenhouse gasses for a temporary reduction in temperature – like running up a global credit card!

16. 16. *Rosana Cuppernell* Says:

[May 24th, 2011 at 7:31 pm](#)

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