

guardian.co.uk

Obama climate adviser open to geo-engineering to tackle global warming

Alok Jha, green technology correspondent
guardian.co.uk, Wednesday 8 April 2009 22.42 BST



Mooted geo-engineering fixes for climate change include placing mirrors in space that reflect sunlight from the Earth. Photograph: Blue Line Pictures/Getty Images

The global warming situation has become so dire that **Barack Obama**'s chief scientific adviser has raised with the president the possibility of massive-scale technological fixes to alter the climate known as 'geo-engineering'.

John Holdren, who is a member of the president's cabinet, said today the drastic measures should not be "off the table" in discussions on how best to tackle climate change. While his office insisted that he was not proposing a dramatic switch in policy, Holdren said geo-engineering could not be ruled out.

"It's got to be looked at. We don't have the luxury of taking any approach off the table," Holdren said in an interview with Associated Press. He made clear these were his personal views.

The suite of mega-technological fixes includes everything from placing mirrors in space that reflect sunlight from the Earth, to fertilising the oceans with iron to encourage the growth of algae that can soak up atmospheric carbon dioxide. Another option is to seed clouds which bounce the sun's rays back into space so they do not warm the Earth's surface.

Such global-scale technological solutions to climate change may seem fantastical, but increasing numbers of scientists argue that the technologies should at least be investigated.

Holdren's comments do not mean that the US government is raising the priority of geo-engineering. A spokesman for the US Government's Office of Science and Technology Policy (OSTP) - which Holdren directs - said "the administration's primary focus is still to seek comprehensive energy legislation that can get us closer to a clean energy economy, and can create green jobs while reducing dependence on foreign oil."

Advocates of the technology have welcomed the comments. Stephen Salter, an engineer at Edinburgh University and a pioneer of techniques to seed clouds so that they reflect the Sun's rays back into space, said: "Everyone working in geo-engineering works with some reluctance: we hope it'll never be needed, but we fear it might be needed very very urgently. Holden is echoing that exactly. It's very encouraging – we've had extremely negative reactions from the UK governments."

Salter said that geo-engineering techniques were the only methods that would lower world temperatures quickly enough. Even if the world stopped emitting CO₂ tomorrow, he said, the world would continue to get hotter for several decades. "Opponents say it would take the pressure off getting the renewables developed. I've been working on renewables since 1973 and stopped because we're too late, we wasted too much time. We may have a panic very soon because of the way the Arctic ice is going."

Greenpeace chief scientist Doug Parr, however, has said: "The wider point is not the pros and cons of particular technologies, but that the scientific community is becoming so scared of our collective inability to tackle climate emissions that such outlandish schemes are being considered for serious study. We already have the technology and know-how to make dramatic cuts in global emissions - but it's not happening, and those closest to the climate science are coming near to pressing the panic button."

Holdren acknowledged that some of the potential geo-engineering solutions could have side effects, and that such actions should not be taken lightly.

Though cloud-seeding, for example, would cool the earth, it would also lead to more acidic oceans, since the amount of CO₂ in the atmosphere - and therefore the CO₂ absorbed into the seas - would keep increasing. But Holdren added: "We might get desperate enough to want to use it."

His comments seemed to go against those he made in a speech to the annual meeting of the American Association for the Advancement of Science in 2007. There, he highlighted geo-engineering's potential to help cool the atmosphere or to remove greenhouse gases, but acknowledged the methods would likely require significant investment, and also warned against expecting a single technological solution to solve energy and climate problems. "Belief in technological miracles is generally a mistake," he said.

Writing last year in a special edition of the Royal Society journal *Philosophical Transactions* that was dedicated to geo-engineering, Brian Launder of the University of Manchester and Michael Thompson of the University of Cambridge said: "While such geo-scale interventions may be risky, the time may well come when they are accepted as less risky than doing nothing. There is increasingly the sense that governments are failing to come to grips with the urgency of setting in place measures that will assuredly lead to our planet reaching a safe equilibrium."

In a series of papers, experts said that a reluctance "at virtually all levels" to address rising greenhouse gas emissions meant carbon dioxide levels in the atmosphere were on track to pass 650 parts per million, which could bring an average global temperature rise of 4C. They called for more research on geo-engineering options to cool the earth.

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peopleperson

9 Apr 2009, 10:11AM

nooo!

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pushinforty

9 Apr 2009, 10:28AM

let's hope we never get there.

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scunnered52

9 Apr 2009, 10:30AM

Re: "seed clouds so that they reflect the Sun's rays back into space"

.....but surely the Sun has nothing to do with Global Warming, for that is the stated position of the IPCC, the US government, NASA, Greenpeace, Al Gore, James Hansen, etc. All these organisation and individuals have discounted the role of the Sun in the AGW debate.

Statements like this by John Holdren simply sow confusion.

Who do we believe now?

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Virg

9 Apr 2009, 10:40AM

scunnered - you're missing the point. By blocking off the Sun, you cut down on the amount of energy that can be trapped within the Earth's atmosphere, and so the theory goes, cut down on the global temperature. The level of irradiance from the Sun hasn't changed.

As for this idea, dear God no. Smacks of Dr Strangelove.

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Worktimesurfer

9 Apr 2009, 10:42AM

to be fair, Holden never said that seed clouds so that they reflect the Sun's rays back into space Alok Jha said that, and he is a journalist not a scientist

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fabioso

9 Apr 2009, 10:46AM

The mirror in space seems like the most promising idea. Long term some space based optical system for focusing and concentrating sunlight is our most realistic chance , not only for solving our ever growing energy needs on planet earth, but also for advancing to a civilization capable of deep space travel, extra planetary colonization etc a la star trek. There is enough scientific and engineering potential on Earth to solve all our problems. In fact this potential is underutilized when you think of the fact that the majority of the human race are still mired in poverty and being educated to the level of 19th century

westerners. What we lack are politicians matching the calibre of these scientists and engineers.

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[panicnow](#)

9 Apr 2009, 11:03AM

Correction, **everyone** is willing to make sacrifices. We just lack the leadership

We need a leader who:-

Will provide a believable global strategy

Will re-assure us that others do not cheat

Will seek UN support for enforcement action when needed.

A strategy?

A global 10% year on year reduction in the extraction of ALL fossil fuels starting NOW!

UN monitoring of fossil fuel extraction

Armed force used to stop unauthorised extraction

The allocation of the fossil fuel is done by the market!

Note:

Fossil fuel exporting countries will enjoy higher prices as the supply reduces so they shouldn't be too unhappy

Non-carbon technologies will enjoy a better market

Simple!

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[Bluecloud](#)

9 Apr 2009, 11:04AM

How about putting so many satellites into orbit that the sun doesn't get a look in.

We can then wander around in the dark using the frigging GPS system, while talking ourselves into oblivion on our satellite phones.

Geo engineering my ass. The desperate will always grab at straws before they sink in the quagmire. How about really trying to reduce energy consumption instead?

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[Billhook](#)

9 Apr 2009, 11:13AM

Since we first persecuted the wolf and let the deer increase and suppress the regrowth of natural forest, we've been engaged in a slow, unwitting, geo-engineering.

We're now engaged in massive delinquent geo-engineering via greenhouse gas pollution, with so corrupt an establishment that even foreknowledge of famines on a scale to dwarf the Nazi genocide, leads only to gesture proposals by the new US leader. (i.e. back to 1990 US emissions by 2020).

To undertake remedial geo-engineering to help avoid our pollution-to-date causing feedback loops to accelerate beyond any human control, seems now essential - and there are highly positive options for this, if applied with real care and attention to ecological sustainability, such as Salter's Spray-Lofters and the modern counterpart of Terra Preta.

The central question is how to ensure that such benign options are not used merely as an excuse (aka "offsets") to continue industries' pollution.

If that issue can be resolved by a UN treaty putting a stringent, absolute and annually declining cap on global GHG output, then the remedial geo-engineering options may just make the difference to our survival.

The quality of the treaty is the critical factor.

Regards,

Billhook

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[englishhermit](#)

9 Apr 2009, 11:37AM

Bluecloud

How about really trying to reduce energy consumption instead?

How about reducing energy consumption?

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[alemaco](#)

9 Apr 2009, 11:48AM

Reminds me of the way they tried to control rabbit overpopulation on a small island south of New Zealand.

Settlers introduced rabbits as a source of food. Of course rabbits, without predators, multiplied out of control destroying much of the local vegetation. They tried to control their population by introducing feral cats. Of course the feral cats preyed on the local fauna as well, decimating it. Finally, they had to hunt down the feral cats and now the rabbit population is back to previous numbers.

Can we allow blunders of this kind on a global scale?

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[MWinMilan](#)

9 Apr 2009, 11:52AM

Does anyone else feel like they are trapped in the plot of some sci-fi film or book?

It's starting to get a bit scary.

A combination of 1984, I am Legend, The Day After Tomorrow with a little bit of Star Trek thrown in.

I hope the baby boomer generation is ashamed of themselves for the legacy they have left us. You'll all be dead while we have to live in the mess you created. Still that is probably fitting for such a selfish generation.

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Jezebel216

9 Apr 2009, 12:23PM

to fertilising the oceans with iron to encourage the growth of algae that can soak up atmospheric carbon dioxide.

They tried that experiment earlier this year - it didn't work:

<http://www.newscientist.com/article/dn16842-hungry-shimp-eat-climate-change-experiment.html>

So theoretically you could add silicate to boost diatom growth - but it starts to turn into that old song 'There was an old woman who swallowed a fly'

Geo-engineering - there are just too many Rumsfeldian unknown unknowns. Since when does technology solve one problem without creating several others?

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CheshireRed

9 Apr 2009, 12:24PM

Attempting to geo engineer (nice jargon btw) the climate of the planet is probably the single daftest, most dangerously insane thing Ive ever seen in the Guardian. Its so stupid as to be beyond normal comprehension. Hell, its even dafter than Polly Toynbees attempted defence of Jackboot Jacqui.

And all for what exactly? Lets see shall we, what exactly is the runaway climate catastrophe we face right now? Its a modest alteration in global average temperature of less than a single degree, throughout a century thats seen many other modest temperature fluctuations – both up and down, along the way. Thats it.

Were bombarded with 'its worse than we thought, 'scientists fear a 4-5 degree rise in temperatures, 'Lord Stern says were facing catastrophe, 'sea levels rises predicted and 'Johnny polar bear is f*cked this summer when in fact ALL the 'catastrophic temperature and sea level rises are locked in the predictive computer models that are consistently.....wrong.

Despite being asked a thousand times, heck, make that million, NOBODY on the AGW side of this scare has produced a single compelling piece of evidence to demonstrate the central tenet of AGW - that man-made emissions of CO2 are, as a statement of scientificly proven fact are causing a dangerous warming of Earth's atmosphere.

There isn't even demonstrable proof CO2 drives tempratures upwards, which of course is a bit of a problem, as without it the AGW thoery should be stone cold dead. Instead we face endless assumptive assertions lacking the most basic requirement of evidence, whilst continuing to ignore the reality - that our climate is changing naturally as it always does, and has nothing whatever to do with our comparably pitiful output of CO2. LEAVE IT ALONE! Earth is doing OK without our stupid hubristic intervention.

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[Bluecloud](#)

9 Apr 2009, 12:45PM

Jezebel

I liked your Rumsfeld unknowns comment. It's about right for geo-engineering.

CheshireRed

We're been over this so many times. Why do you keep repeating this guff?

BTW You could say that driving your Saab around is reverse geo engineering!

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[donhead](#)

9 Apr 2009, 12:56PM

"but surely the Sun has nothing to do with Global Warming, for that is the stated position of the IPCC, the US government, NASA, Greenpeace, Al Gore, James Hansen, etc. All these organisation and individuals have discounted the role of the Sun in the AGW debate"

Really? The IPCC etc are telling you that the heat source that warms the earth isn't the sun are they? I must have missed that memo. No wonder you are sceptical in the face of their compelling scientific evidence that man-made CO2 emissions are causing the extrordinary non-cyclical increases in global temperatures currently being seen.

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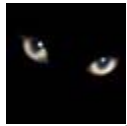
[Link](#)**Dapper**

9 Apr 2009, 1:28PM

Attempting to geo engineer (nice jargon btw) the climate of the planet is probably the single daftest, most dangerously insane thing Ive ever seen in the Guardian.

Actually, it's achievable and probably quite cheap to do. For all the dangers of geo-engineering, it's a lot safer than listening to the "greens" who say we should cut our energy consumption when the world has no intention of doing do. Their policy amounts to doing nothing and achieving nothing and we'll all be screwed as a result.

I just wish the US would get on with trying some scheme or other, probably Stephen Slaters salt water mist spray to begin with.

[Recommend? \(1\)](#)[Report abuse](#)[Clip |](#)[Link](#)**Jezebel216**

9 Apr 2009, 2:04PM

Thank you **Bluecloud**

In 2007 the Intergovernmental Panel on Climate Change dismissed geo-engineering as "*largely speculative and unproven and with the risk of unknown side-effects*".I'm with the IPCC assessment.

For all the dangers of geo-engineering, it's a lot safer than listening to the "greens" who say we should cut our energy consumption when the world has no intention of doing do. Their policy amounts to doing nothing and achieving nothing and we'll all be screwed as a result.

Dapper , 'green' policy (such as it is, there is no coherent, global green policy being enacted at the moment, which is the problem) does not amount to doing nothing. For example, we waste a huge amount of energy - policies that reduce energy wastage are the easiest ones to promote - after all, no-one wants to pay for more energy than they have to.

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**CheshireRed**

9 Apr 2009, 2:05PM

Bluecloud

09 Apr 09, 12:45pm (55 minutes ago)

CheshireRed

We're been over this so many times. Why do you keep repeating this guff?

BTW You could say that driving your Saab around is reverse geo engineering!

Hello Bluecloud.

I guess it's because of the sort of answer you just gave. Namely, no attempt at any valid answer, just a little more attacking the messenger.

You ask how many times, yet I am entitled to ask how many times must we hurtle into ill-thought through reactions to problems that aren't there? How many times must our so-called leaders (you know, the ones whose opinions and policies we question and challenge every day, unless it's the gospel religion that is AGW) consistently make hopeless, wrong and inevitably expensive decisions, all the while ignoring any dissenting voices?

They call it "assertive", "confident" and "strong leadership". Just as they did for Iraq, Afghanistan, Hillisborough, Bloody Sunday, Defending Ms Smiths expenses...

Too many more to mention, so often the heavy lumpen hand of authority is accountable for nut-job errors, yet after enquiries and cover-ups they're almost always exonerated. (Ie, let off. You know the score)

This article is actually postulating the artificial intervention of mankind to alter the worlds climate. Not on a modest local scale, but the whole planet!

It doesn't matter what good intentions lie behind this idea. The law of unintended consequence takes no prisoners and is neither biased or sympathetic to your or anyone else's cause, no matter how "worthy" you may think it to be.

In short, it's a truly ridiculous proposition, a hopelessly misguided attempt to solve a problem that is merely predicted and hasn't come to pass, may not come to pass and right now is merely a theory, a politically motivated tax raising theory.

Beyond parody, Bluecloud, whether you're an AGW believer or not. Beyond parody.

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**jigen**

9 Apr 2009, 2:24PM

It does sound dangerous doesn't it? What next? Irrigation and dam-building changing our environment?

I appreciate they will study this, I hope they will reach the conclusion it is not necessary. The law of unintended consequences could bring back a global-scale something-else-to-deal-with.

Unfortunately the idea also might play into the hands of the paranoid climate-change-deniers who see a plot at every turn. No doubt they'd view this as some attack on them personally, making it difficult for them to water their lawns or some such nonsense. Drastic times... have they been reached? Let's study the drastic measures before we think about putting them into effect.

Recommend? (3)Report abuseClip |Link**HeartLess**

9 Apr 2009, 2:37PM

CheshireRed

In short, it's a truly ridiculous proposition, a hopelessly misguided attempt to solve a problem that is merely predicted and hasn't come to pass, may not come to pass and right now is merely a theory, a politically motivated tax raising theory.

Lets be clear here, do you dispute the fact that CO₂ is a greenhouse gas?

If you don't then you will need to propose an hypotheses for a feedback mechanism that negates the increase in temperature that an increase in the concentration of CO₂ must cause. Your hypotheses having to be at least a good a fit to the observed data and temperature proxies as the current climate change theory.

As for the main article, any space based solution (mirrors etc.) will require a cost effective method of beating the gravity well.

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BigBags

9 Apr 2009, 2:56PM

CheshireRed

100% correct...have a gold star.

Bluecloud

100% wrong...go and stand in the corner. Stop trotting (or maybe more accurately, trotskying) out the usual loony left assertion that we must reduce our energy consumption. This will result in a disaster for humanity on a biblical scale. How do you propose we feed/clothe/warm ourselves if we adopt the lunatic idea of the 2Kw society to which you (probably un-knowingly) ascribe.

I trust in the ingrained human instinct for improving, going forward and upwards to a better condition. The only fly in the ointment is all you regressive left wing fools who are too lazy and useless to achieve anything without subsidy from your beloved State.

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dbaker

9 Apr 2009, 4:04PM

Here is the problem as per Professor Beddington:

http://news.bbc.co.uk/2/hi/uk_news/7951838.stm

Here is the solution to his three issues:

(human excrement + nuclear waste = hydrogen)

Here is the problem as per Professor Beddington:

http://news.bbc.co.uk/2/hi/uk_news/7951838.stm

Here is the solution to his three issues:

(human excrement + nuclear waste = hydrogen)

The USA discharges Trillions of tons of sewage annually, sufficient quantity to sustain electrical generation requirements of the USA.

Redirecting existing sewage systems to containment facilities would be a considerable infrastructure modification project.

It is the intense radiation that causes the conversion of organic material into hydrogen, therefore what some would consider the most dangerous waste because of its radiation would be the best for this utilization.

I believe the combination of clean water and clean air, will increase the life expectancy of humans.

yours sincerely

Dennis Baker

[http://www.world-nuclear-news.org/newsarticle.aspx?](http://www.world-nuclear-news.org/newsarticle.aspx?id=13046&LangType=2057&terms=hydrogen)

[id=13046&LangType=2057&terms=hydrogen](http://www.world-nuclear-news.org/newsarticle.aspx?id=13046&LangType=2057&terms=hydrogen)

eat first generate energy after

<http://www.sfgate.com/cgi-bin/article.cgi?f=/c/a/2009/04/05/MN4916RJ4C.DTL>

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CheshireRed

9 Apr 2009, 6:34PM

HeartLess

Lets be clear here, do you dispute the fact that CO2 is a greenhouse gas?

If you don't then you will need to propose an hypotheses for a feedback mechanism that negates the increase in temperature that an increase in the concentration of CO2 must cause. Your hypotheses having to be at least a good a fit to the observed data and temperature proxies as the current climate change theory.

Nobody disputes CO2 is a greenhouse gas.

However there is serious issue with the ability for CO2 to increase temperatures significantly because;

Firstly, it's effect is logarithmic, meaning the first molecules of CO2 have a great effect, but additional ones have a diminishing effect. Adding more CO2 to the atmosphere does not therefore increase temperatures.

We KNOW this is true, because if it wasn't we would have seen huge temperature incresases in the past, when CO2 was at much higher concentration levels. We didn't.

Which moves us onto the next point; Feedbacks. Without significant positive feedbacks the AGW theory cannot be sustained. (Because we've already seen much higher CO2 levels than todays, with NO corresponding temperature leaps, remember. Therefore high CO2 is not on its own a driver of temperatures)

However, if positive feedbacks exist now - as claimed for AGW, then it stands to reason that they existed before, therefore it also stands to reason we would have ALREADY seen huge positive feedbacks as predicted under the "runaway global warming" scenario. But here's the snag; we haven't.

All the observed evidence points to there being negative feedback. It must do by definition of there not being any evidence of "runaway global warming!"

So if there's no positive feedback, without which there's no "runaway global warming", then the theory of AGW dies right there and then.

It is already dead, and we are being lied to right here and now. The process of government spin and deceit is up and running, and when applied to the reputations and ego's of those involved who have staked all on this crackpot theory, AGW is now considered too significant to be allowed to fail.

Even though it's patently incorrect.

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[Hamlet4](#)

9 Apr 2009, 7:32PM

I love the irony of enviro-socialists inventing false apocalyptic disasters - and then thinking they can solve the fantasy catastrophe by pumping the atmosphere full of chemicals.

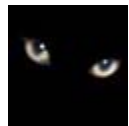
Anyone who even considers this rubbish need their heads examined.

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[Jezebel216](#)

9 Apr 2009, 8:40PM

Bluecloud

100% wrong...go and stand in the corner. Stop trotting (or maybe more accurately, trotskying) out the usual loony left assertion that we must reduce our energy consumption. How do you propose we feed/clothe/warm ourselves if we adopt the lunatic idea of the 2Kw society to which you (probably un-knowingly) ascribe.

The only fly in the ointment is all you regressive left wing fools who are too lazy and useless to achieve anything without subsidy from your beloved State.

And the namecalling has begun already - and so predictably, yawn. Of course, anyone who thinks it isn't a good idea to trash the planet has to be a loony-left regressive lazy

foolish left-wing Trotsky. How could they possibly be anything else, eh **BigBags?**
(although I think you've overdone the mention of political orientation a tad)

This will result in a disaster for humanity on a biblical scale.

It certainly will if we do nothing.

I trust in the ingrained human instinct for improving, going forward and upwards to a better condition.

I'd like to trust in that too - and improving how we look after the only planet we have is right at the top of the list.

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LucAstro

9 Apr 2009, 10:49PM

CheshireRed

What do you mean by positive feedback not important? The Arctic is melting for one. The warming of the atmosphere that has been taking place is slowed down because the it takes time to warm the ocean and that is where the heat content of our climate resides. The positive feedback are real and it is rather the negative feedback that you suggest that have remained a fancy conjecture that climate change deniers all have faith in. It is not impossible that unknown or unproven negative feedback mechanisms exist. However the majority of climate scientists have determined that positive feedbacks dominate. Just read the IPCC report (2007) and in your spare time you could read fringe science work.

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manuelelo

9 Apr 2009, 11:20PM

I find it quite frustrating that these blogs get hijacked by deniers, so that what could be an interesting, informative discussion just descends into pointless attempts to try to change the minds of these people. It just gets really boring. Wouldn't it just be better to ignore them and get on with discussing the topic at hand. And so...

I think we need to be very careful with some of these ideas, like fertilising the ocean with iron. There could well be side-effects that we don't fully understand and if it were possible to somehow control levels of CO₂ in the atmosphere this would be quite an obligation for humanity, ever fearful of tipping a very complicated system out of balance. Other ideas like seeding clouds to reflect sunlight would surely just put off the inevitable if we still continue to increase the atmospheric concentration of CO₂. Biochar sounds promising as long as it's restricted to agricultural arisings so that existing ecosystems aren't destroyed to plant crops just to be made into charcoal, as George Monbiot pointed out the other week.

I've read about an invention by Klaus Lackner that can remove CO₂ directly from the air. It seems to consist of sheets of a type of plastic mesh that binds CO₂ to it as it blows past in the breeze. The material is then rinsed with sodium carbonate to produce sodium bicarbonate and the CO₂ is then removed by electrolysis and the sodium carbonate reused. He reckons that one of these the size of a 40ft shipping container can remove 1 tonne CO₂ a day. To remove all the CO₂ humanity produces would take 80 million shipping containers, but perhaps something like this could be used in combination with reductions in GHG emissions. At present it costs \$200 dollars a tonne but could be reduced to \$30, pricey, but what cost civilisation. Can't find out the energy required to build and run such a contraption, or even exact details, but it can be operated anywhere in the world so could be powered by geothermal energy. Also the carbon still has to be sequestered somewhere.

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Nelthon

9 Apr 2009, 11:38PM

Adding more CO₂ to the atmosphere does not therefore increase temperatures.

Patently wrong, sorry.

We KNOW this is true, because if it wasn't we would have seen huge temperature increases in the past, when CO₂ was at much higher concentration levels. We didn't.

Like the [PETM](#)?

All of five seconds to disprove your claim.

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[cosmosis1](#)

9 Apr 2009, 11:42PM

cut back on energy consumption..PERIOD

geo engineering?? right..one catastrophic element will be left out of the equation and....bye bye

perhaps we can get Australia to take charge..they've done so well with their manipulation of species that they'd be perfect for the job

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[PHE1](#)

10 Apr 2009, 4:53AM

Ha ha!

Another article that I will save in my archives and bring out again for amusement in a few years time once common sense begins to rule again.

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[BigBags](#)

10 Apr 2009, 7:55AM

Jezebel216

You yawn the yawn of someone with the worlds media and most governments on your side. Have you ever considered the possibility you might be wrong. Remember the millennium bug? I started with an open mind on the subject and consider myself a committed environmentalist. But after much careful research I've found the environmental movement hi-jacked by left wingers and riddled with mis-information and lies. My point is that if we follow the path of energy reduction instead of sustainable (nuclear then fusion) replacement the worlds population cannot feed/clothe/heat itself. The planet will be fine. It's the things crawling about on it that will suffer. Not from the

0.6C temperature rise experienced between the mid 19th century and the mid 90's but from bad decisions based on lies and misinformation.

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evolutionary

10 Apr 2009, 9:53AM

There seems an appropriate parallel here to other problems in our 'culture'... the individual becomes ill due to by over consumption of unhealthy products forced on the by the massive marketing strategies of powerful corporations (ecological damage), then expensive surgery or drugs (geo engineering) are used in an attempt to to "solve" the problem, this ensures the wheels of production keep turning faster and profits rise. The actual cause of the problem, the production (and hence consumption) at any cost system itself, is not addressed.

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RedRoseAndy

10 Apr 2009, 9:59AM

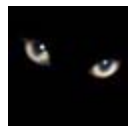
Biochar is still the simplest way of geoengineering. It has been done for over 2500 years. Princess Margaret biochared all of her land and doubled food production. The biochar was made from a glut of paper that could not all be recycled. All organic waste should be biochared now in order to sequester CO2. We must also look into sustainable biocharing of forests that could be replanted in equilateral triangles in order to maximise the crops.

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Jezebel216

10 Apr 2009, 11:53AM

You yawn the yawn of someone with the worlds media and most governments on your side. Have you ever considered the possibility you might be wrong.

BigBags if you read my posts you'll see that for decades I was a committed environmentalist, then began to doubt, was persuaded by an American friend that I was right to doubt, stayed very green in my behaviour but as far as my words, I was on your side (which according to some people made me a bigger hypocrite than if I said all the right things but did bugger all *sigh*), continued reading up on the subject (a lot) and gradually realised that I was right originally, those doubts had very little factual basis. As I said in a previous post in another thread, I would rather look a complete prat for expressing some of my former views and then changing my mind back again, than continue supporting a lie. It's not just governments and media who think that climate change is real, it's founded upon the experiments and observations of the worlds' scientists!

I

started with an open mind on the subject and consider myself a committed environmentalist. But after much careful research I've found the environmental movement hi-jacked by left wingers and riddled with mis-information and lies. See, I came to the opposite conclusion! How many thousands of scientists are involved? And they're all left-wing politicos with a huge chip on their shoulder about capitalism are they? The only conclusion I came to is that the biggest lies and the most misinformation is on the side of the skeptics. Read the scientific papers, rather than the media interpretation of them - the conclusions are always hedged with uncertainties and probabilities, and rightly so, we don't have all the information, not by a long shot. It's theoretically possible that all those thousands of scientists are wrong, but not very likely. Personally, I'd rather give the scientists the benefit of the doubt than the reactionary right wingers who are doing most of the promotion of the idea that climate change is a myth.

The planet will be fine. It's the things crawling about on it that will suffer

Now that statement I do agree with. The planet itself has survived collision with another planet (Thea), many meteorite strikes and five major extinction events. The planet will be fine. It is the biosphere that will suffer - how big with the next extinction event be?

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masmit

10 Apr 2009, 12:51PM

"There is increasingly the sense that governments are failing to come to grips with the urgency of setting in place measures that will assuredly lead to our planet reaching a safe equilibrium."

Apart from the interesting (wrt to climate) use of the word "equilibrium", would these be the same governments that will be required to implement the geo-engineering solutions?

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BigBags

10 Apr 2009, 2:07PM

Jezebel216

How many thousands of scientists are involved? And they're all left-wing politicians with a huge chip on their shoulder about capitalism are they?

No, they aren't all lefties, but the majority are. And the rest find themselves in the sinister situation that if they dissent, their funding dries up. That's why the majority of the dissenters are retired scientists. I find this more worrying than a 0.6C increase in temp between the mid 19th century and the mid 90s. Like you, I have studied the scientific papers, but unlike you, I have also studied the environment first hand. I live and work in it. It is from personal experience and the testimony from independent trusted sources that the scale of the lie was disclosed. Please don't think I base my assertions on media reports!

You are also overlooking the fact that there are thousands of scientists who disagree that we're heading for catastrophic climate change. The motivation of government is to stay in power. Nothing more nothing less. If they can get more votes by backing climate change, then that's what they'll do. The fact that I detest socialists is another matter.

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Jezebel216

10 Apr 2009, 2:46PM

BigBags

No, they aren't all lefties, but the majority are.

And this statement is based on...? A poll of the political habits and voting records of the world's climatologists and other scientists? Or what? Because I'd love to know. I've known a fair number of scientists over the years (by which I mean people who actually earn their living from science) and their political beliefs cover a whole spectrum.

You are also overlooking the fact that there are thousands of scientists who disagree that we're heading for catastrophic climate change.

Well, I never managed to find evidence of many who would own up to that disagreement in writing. There is that infamous petition, but most of the names on it are definitely not climatologists, and quite a few aren't even scientists. Name one bona fide climatologist who broadly disagrees.

The motivation of government is to stay in power. Nothing more nothing less. If they can get more votes by backing climate change, then that's what they'll do

.

I agree up to a point with your first statement - government motivation is eventually to stay in power (it may not start off like that, may have a somewhat more idealistic reason for pursuing power, but none of them like relinquishing it) . However your second statement doesn't logically follow-on from the first. From your POV, climate change is a lie, therefore by this logic, all the world's major governments are backing a lie because it makes them more likely to get public votes. However, by backing climate change, the world's major governments will have to do something to curb our greenhouse gas emissions, because no-one votes for governments who don't do what they promise to do and they have all backed climate change so the (obviously extremely left wing - by your reasoning) electorate must be expecting them to do something about it . Now here's the tricky bit - many of the solutions that governments could put in place to curb those emissions seem to be fairly to deeply unpopular with large sections of that electorate, from raising taxes on fuel to putting a cap on the carbon emissions allowed to industries to refusing to bail out heavily-polluting industries which employ a lot of people to changing planning laws and refusing residents the rights to object to having wind farms or nuclear power plants built in their backyards. A government that was **only** interested in popularity would be saying 'climate change doesn't exist, it's business as usual for us'.

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10 Apr 2009, 2:53PM

It would be far better to reduce CO2 output than to rely on geo-engineering to save us. However I do think we should carry out research into each of these geo-engineering options if for no other reason than to have a solid scientific basis for rejecting them. If in the end we do find that we have no way left to save human civilisation than to geo-engineer then we would at least have a better understanding of the risks involved. I would hope that we wouldn't choose an option that was not easily reversible.

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10 Apr 2009, 3:07PM

Jezebel216

"Well, I never managed to find evidence of many who would own up to that disagreement in writing."

And you can't see anything wrong in the fact that these scientists are scared to publish their views? Good god.

"Name one bona fide climatologist who broadly disagrees."

Off the top of my head...David Belamy. I notice you narrowed the question to "climatologist" I said scientist. A climatologist who has spent their life narrowly studying this extremely in-exact science has to rely on the status quo because any new idea is impossible to prove. The worlds largest computers have been put to work in this field and the results have been drivel. Could you please give me one impact of climate change you have personally experienced. Remember, personally experienced.

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2020science

10 Apr 2009, 4:16PM

One word: *Geoethics*

An open and frank exploration of geoengineering options is essential, but this must include broader social and ethical issues from the very start:

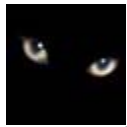
<http://2020science.org/2009/04/08/geoengineering-goes-mainstream/>

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Jezebel216

10 Apr 2009, 4:37PM

BigBags

David Bellamy, the respected botanist who 's knowledge of climate change is definitely not viewed in the same category as his botanical expertise:

<http://www.guardian.co.uk/environment/2005/may/10/environment.columnists>

And the other thousands? You did mention thousands.

The Earth's climate is so complex it requires a vast multi-disciplinary team to study it. It may not be rocket science, but that's because rocket science is one of the few scientific disciplines that aren't involved (unless indirectly, in getting geostationary satellites into orbit to take measurements). So the scientists studying climate change include atmospheric physicists, oceanographers, chemists, fluid dynamicists, ecologists, geologists, computer programmers etc. I'm quite happy for the category to be scientists, as long as they actually publish work to do with studying the climate, not dentistry.

And you can't see anything wrong in the fact that these scientists are scared to publish their views? Good god.

Can you prove that statement? I've heard this before, that climatologists are scared to publish their views. I've yet to see any evidence. Why aren't these thousands of terrified, cowering, browbeaten climatologists banding together and demanding justice? Strength in numbers.

Talking of work - I had better go and do some, before I end up browbeaten etc etc.

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BigBags

10 Apr 2009, 4:47PM

Jezebel216

You attempt to discredit david belamy by pointing me to an article by George Monboit!!!! My god, as if an article by this tooth scratching, slobbering imbecile is evidence!!!

"Can you prove that statement? I've heard this before, that climatologists are scared to publish their views. I've yet to see any evidence. Why aren't these thousands of terrified, cowering, browbeaten climatologists banding together and demanding justice? Strength in numbers."

Eh, you said it.

Still waiting for your personal experience of an impact of climate change....anyone?...No

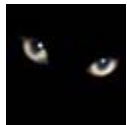
I didn't think so.

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Jezebel216

10 Apr 2009, 8:25PM

Still waiting for your personal experience of an impact of climate change....anyone?...No

I didn't think so.

Since we're talking retreating glaciers, I didn't have time to double-check what's been happening to New Zealand glaciers in very recent years because work called (and still don't), but when I was there in 2004 both Fox and Franz Josef glaciers were very obviously and undeniably in retreat.

BigBags

You attempt to discredit david belamy by pointing me to an article by George Monboit!!!! My god, as if an article by this tooth scratching, slobbering imbecile is evidence!!!

I actually did a search on RealClimate (just key in David Bellamy) - which led me back to the Guardian. I always had a great deal of respect for Dr Bellamy as a botanist. But if you think that article is unfair, check out the facts for yourself - it's very easy to. As for

personal insults, sorry, I refuse to communicate further with anyone who calls someone a slobbering imbecile.

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BigBags

10 Apr 2009, 8:38PM

Oh dear, put your dummy back in.

Since we're talking retreating glaciers, I didn't have time to double-check what's been happening to New Zealand glaciers in very recent years because work called (and still don't), but when I was there in 2004 both Fox and Franz Josef glaciers were very obviously and undeniably in retreat.

I see. So you must be quite old if you were there 1000 years ago to give yourself a meaningful comparison. Or maybe you're very old and having angst that the ice sheet that covered the UK just 10,000 years ago isn't there anymore. Glaciers grow and retreat as part of their normal behaviour. Try again.

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robertvincin

11 Apr 2009, 5:14AM

The USA concept of mechanical space units addressing climate change is at best hair brained some seeing a USA business opportunity etc.

Nature spent billions of years perfecting a balance climate. The Vostoc Ice core sampling by world's combined scientists illustrated that the Planet self adjusted to changes of volcanic eruptions advancing C4 vegetation to drink up the excess CO2e. We need to study history and accept business as usual but offset the emissions from power station steel mills by appropriate sinks. We can also embrace the Canadian technology to capture nox sox mercury 99.56% all this meets Kyoto emission trading rules verifiable and certified and actually not impact upon bottom line as one in the Bush would have us believe.

Here in PRC we will by 2012 sequester 25b tonne minimum CO2 equal to US Japan PRC

emissions and, by default reverse 200million hectares of deserts back to sustainable food production. We have certified verifiable low cost credits.

I though Obama was showing signs of leadership. The real and present danger is the workers the Bees in the Northern hemisphere are being lost at such a rate the food source is closing down. In past 3 year here in PRC I saw bees only in hives in a country orchard. PRC has commenced hand pollination. God help us all for such a task is impossible.

Nature set all the working models we can maintain business as usual but we must learn to doing better and consistently while we seeking oil fossil fuel supplies to implement stoichiometric hydrogen Brown's gas H₂O-HHO-H₂O energy. The US will do anything for fossil fuel get then to keep these brains in the back shed. Implementing Brown's Gas energy works the technology is now in-board 24 volt source. We seem to have still square pegs in round holes.

Please confirm he and his mates are locked up

robertvincin

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Somethingwrong

11 Apr 2009, 1:40PM

Hope it never happens, but most probably has already started in some way, shape... A relative may be chemtrails

Ever considered the fact it may not work and 'cooling' may result in inadequate light hours; how cold will our winters get?

Ever considered that what goes up must come down, the chemicals used in effort to control (what can't be controlled) may make its way into rain clouds, backyards.

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nefastus

11 Apr 2009, 4:17PM

BigBags: "Glaciers grow and retreat as part of their normal behaviour. Try again."

There is no evidence that the changes we are seeing globally are part of a natural cycle.
There is evidence that the changes we see are part of AGW.
If you have any evidence that the changes are part of a natural cycle, then publish the science on it.

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nefastus

11 Apr 2009, 4:54PM

BigBags:

"[Jezebel216 - Well, I never managed to find evidence of many who would own up to that disagreement in writing.]

And you can't see anything wrong in the fact that these scientists are scared to publish their views? Good god."

There would be something wrong, IF scientists were scared to publish their views.

However, the surveys show that it is those in the employ of the US government who are the ones under pressure not to publish their pro-AGW views. I fail to see why how after 8 years of Dubya's assault on science, there hasn't been a rash of scientific peer reviewed articles slating the AGW and providing evidence.

But wait, what we've come to is the core climate change denier argument: Conspiracy. There's a conspiracy amongst ALL the scientific disciplines to suppress evidence that undermines or questions AGW.

There's a conspiracy amongst ALL scientific academies of international standing to suppress evidence that undermines or questions AGW.

There's a conspiracy amongst ALL scientific journals to suppress evidence that undermines or questions AGW.

There's a conspiracy amongst ALL government agencies to suppress evidence that undermines or questions AGW.

That's a hell of a lot of people who are 'in' on the conspiracy, and they've been at it for over a century you'd have thought somebody would have blabbed by now.

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nefastus

11 Apr 2009, 5:08PM

BigBagofWind: "No, they aren't all lefties, but the majority are."

An assertion with zero evidence.

Hiowever, it does provide us with an insight into the ideological prejudice of the BigBag. And indeed of his political education - minimnal. Left wing is an out dated political concept, still used by the meeja, to continue to dumb down the noos facxs that they bagpipe into the brains of the masses.

BigBagofWind: "And the rest find themselves in the sinister situation that if they dissent, their funding dries up."

Conspiracy. Again an assertion with no evidence.

BigBagofWind: " That's why the majority of the dissenters are retired scientists."

Who are thus out of touch with current science...

BigBagofWind: "I have studied the scientific papers,"

No you haven't. If you had, then like Oreskes you'd be hard presed to find decent scientific papers that nay say AGW.

BigBagofWind: "... but unlike you, I have also studied the environment first hand. I live and work in it. "

Unlike say Astronauts, who don't live in the environment. What an utterly bizarre comment. Who eklse doesn't live in the environment, well other than Michael Jackson and Bubbles in their oxygen tent.

BigBagofWind: "It is from personal experience and the testimony from independent trusted sources that the scale of the lie was disclosed."

Funny how you're not able to show us this "evidence" but instead prefer to keep it a big secret.

BigBagofWind: "You are also overlooking the fact that there are thousands of scientists who disagree that we're heading for catastrophic climate change. "

Firstly, no there aren't, and secondly you'd have to provide evidence that *relevant* scientists dis-agree, eg climatologists. My mother worked in physics and chemistry for many years working on LCDs, she now embraces homeopathy and alternative medicine. A 'scientist' can make many mistakes outside their field of expertise. And finally, the Oregon petition and its spawn are not worth the paper they are written on. Ginger Spice indeed.

BigBagofWind: "The motivation of government is to stay in power. Nothing more nothing less. If they can get more votes by backing climate change, then that's what they'll do. "

So raising taxes and curtailing the current way of life is a vote winner ? How come the numpties in the Green party aren't running a one party state then ?

More ideological rubbish.

BigBagofWind: "The fact that I detest socialists is another matter."

Again we come back to the ideology, not the science.

Sadly, this capitalist running dog employed by the military industrial complex, also detest socialists, on an equal par to climate change deniers who refuse to accept the scientific work of the global community of scientific disciplines.

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