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Sole “Strategic Partner” of landmark geo-engineering conference is Australia’s “dirty coal” state of Victoria

Sponsorship of "Asilomar International Conference on Climate Intervention Technologies" is as controversial as its subject matter

March 15, 2010

Climate Progress is beginning a multipart series on what has been called the “Woodstock” of geo-engineering. This historic but controversial event will take place March 22 – 26 in Asilomar, CA. Details can be found [here](#) on the website of the conference “developer,” Dr. Margaret Leinen of the Climate Response Fund.

I have been interviewing leading experts on geo-engineering about this conference, including journalist Jeff Goodell, author of the forthcoming book, *How to Cool the Planet*.

This conference proclaims its lofty goal “to develop norms and guidelines for controlled experimentation on climate engineering or intervention techniques.” That’s one reason why, as Goodell put it to me, it “needs to be purer than pure.” It appears to fail that test in a number of respects, as we will see.

Readers know I am not the biggest fan of the geoengineering to begin with (see [articles here](#)).

The more you know about geo-engineering, the less sense it makes (see [Science: “Optimism about a geoengineered ‘easy way out’ should be tempered by examination of currently observed climate changes”](#)). The most “plausible” approach, massive aerosol injection, has potentially catastrophic impacts of its own and can’t possibly substitute for the most aggressive mitigation — see [Caldeira calls the vision of Lomborg’s Climate Consensus “a dystopic world out of a science fiction story.”](#) I will be publishing an analysis later this week on a central if not fatal flaw of aerosol injection.

For the anti-science disinformers and big fossil fuel polluters, geo-engineering is mostly just a ploy — see [British coal industry flack pushes geo-engineering “ploy” to give politicians “viable reason to do nothing” about global warming](#). For the many uninformed contrarians in the world, it’s a ticket to media controversy and publicity (see [Error-riddled ‘Superfreakonomics’: New book pushes global cooling myths, sheer illogic, and “patent nonsense”](#) and [“Superfreakonomics author Dubner is baffled that Caldeira ‘doesn’t believe geoengineering can work without cutting emissions.’](#) “)

Geo-engineering is, literally, a “smoke and mirrors solution,” though most people understand that the “mirrors” strategy is prohibitively expensive and impractical.

Let me state clearly that those participants I know personally are absolutely first rate scientists and academics, starting with the chair of the Scientific Organizing Committee [SOC], Dr. Michael MacCracken. I have known him for a long time and have the greatest respect for him and his work (see [“Video and](#)



[PPTs of “The Science of Climate Change” with Dr. Christopher Field and Dr. Michael MacCracken](#)”).

Here’s the conference’s ambitious goal:

The International Conference on Climate Intervention Technologies aims to minimize the risks associated with scientific research on climate intervention or climate geoengineering, much as the 1975 Asilomar Conference on Recombinant DNA successfully modeled safe and appropriate laboratory management methodologies. The Asilomar Conference will focus exclusively on the development of risk reduction guidelines for climate intervention experiments.

Goals of the Asilomar Conference:

1. Identify potential risks associated with climate intervention experiments
2. Propose a system to assess experiment design for potential categorical risks and suggest precautions to assure their safe conduct
3. Propose voluntary standards for climate intervention research for the international scientific community

Certainly these are laudable goals, assuming one has bought into geoengineering. Some environmental groups around the world have questioned the whole point of this conference — see the ETC Group’s [“open letter to the Climate Response Fund and the Scientific Organizing Committee,”](#) with dozens of signatory groups, which argues:

The priority at this time is not to sort out the conditions under which this experimentation might take place but, rather, whether or not the community of nations and peoples believes that geoengineering is technically, legally, socially, environmentally and economically acceptable.

I will come back to issues surrounding the Climate Response Fund [CRF] (and perhaps the ETC’s issues) in a later post.

My focus here is on the choice of [sole Strategic Partner](#), The State of Victoria, Australia.

On the one hand, Australia is the canary in the coal mine for human-caused climate change, since it is the most arid habited continent to start with — as I have discussed many times see [“Absolute must read: Australia today offers horrific glimpse of U.S. Southwest, much of planet, post-2040, if we don’t slash emissions soon](#) and also [Australian Scientists: Contrary to media reports, “our paper does not discount climate change as playing a role in this most recent drought, the ‘Big Dry’. In fact, there are indications that climate change has worsened this recent drought.”](#) So one can greatly understand their desire to explore every option to diminish impacts from greenhouse gas emissions.

On the other hand, as Wikipedia [reports](#):

Brown coal is Victoria’s leading mineral, with 66 million tonnes mined each year for electricity generation in the Latrobe Valley, Gippsland. The region is home to the world’s largest known reserves of brown coal

Brown coal, aka lignite, [“is considered the lowest rank of coal”](#):

Carbon dioxide emissions from brown coal fired plants are generally much higher than for comparable black coal plants, with [the world’s worst polluting being the brown coal fueled Hazelwood Power Station, Victoria](#). The operation of brown coal plants, particularly in combination with strip mining, can be politically contentious due to environmental concerns.

And here’s some [more news](#): “In 1992, the station was scheduled to be decommissioned by 2005 due to its excessive

carbon dioxide emissions, however, **a decision by the Victorian Government in 2005 allowed the power station to remain operational until 2031.**”

For an environmentalist perspective on brown coal and Australia, see “[Australia’s brown coal shame](#)“:

Here in Australia, we export hundreds of millions of tonnes of coal each year and now the state of Victoria wants to export even more of it....

Australians have the highest carbon impact per capita and it’s no coincidence that Victoria has the highest power generation emissions in the nation; thanks to brown coal.

So maybe Victoria was not the best choice as the sole strategic partner for this landmark geo-engineering conference.

Indeed, Goodell framed this conference as “the moment geo-engineering comes out of the closet.” He says it’s very easy to dismiss geo-engineering as “crackpot” science and if geo-engineering wants to get taken seriously, “everything needs to be purer than pure.”

Goodell’s book is a must-read if you want to understand the players in geo-engineering. He told me this conference has been played up as a “historic event” the “Woodstock of geo-engineering,” and that “**invites a high level of scrutiny.**” That’s what Climate Progress aims to deliver!

I asked him what he thought about having Victoria be the sole strategic partner for this conference. He said

I think it looks awful on two levels.

First, there has always been the concern that fossil fuel interests (and others) are promoting what he calls a “fantasy version of geo-engineering” that suggests geoengineering can replace mitigation. Thus, “To have a big coal state in Australia as a major sponsor is bad politics.” Second, “this is being played as a historic event. Why not have more strategic partners?”

He added, “This is a real test for the geo-engineering community and how seriously this is all taken.”

I asked MacCracken for his response to these concerns. He wrote:

I was not aware that brown coal is the state of Victoria’s leading mineral, nor that it was home to the world’s largest known reserves of brown coal. I have been aware that virtually all of Australia is in severe drought due to the southward shift of the storm track that brings precipitation to most of settled Australia, and that the recent rains they have had were so heavy that they led to extensive flooding. As Dr. Mark Howden of CSIRO made clear in invited guest talks at a recent USGCRP impacts assessment meeting in Chicago, changes in the traditional climate of Australia are having very severe and surprisingly early impacts. Even were the world to go to zero emissions tomorrow, there would very likely be further worsening of the increasing water resource stresses, and so it has not seemed unusual that the State of Victoria is interested in the potential for geoengineering. In pursuing this interest, they have, very much to their credit chosen to be a part of major international consideration of this issue. In addition, were the amount of carbon emissions (total or per capita basis), or the amount of carbon emissions from coal, to be the criterion for deciding what entities could support research on approaches that could complement mitigation (so both adaptation and geoengineering), that would seem to rule out some rather significant entities.

First, the SOC has been set up independent of the CRF to handle the scientific program for and

participation at the Conference. The SOC is an internationally distinguished group from a range of countries, types of institution, and interests—they are independent of each other, of the Climate Institute, and of the CRF. By our agreement (which she was instrumental in setting up to ensure independence), Dr. Leinen has not been involved in developing the program for the Conference or on decisions on to whom invitations were extended (invitations were the basis for providing first access to funds to support travel to and from the Conference and the cost of staying at Asilomar).

On the question of the sources of funding, the SOC has asked from the beginning about the funders of the Conference because it is indeed important that none have an interest in the particular outcome of the Conference. Dr. Leinen indicated to us that this was also a criterion that she had and was enforcing, including turning down an offer of funding from an entity that was specifically interested in possible carbon permit applications.

With respect to the Conference itself and the State of Victoria, there was an agreement that a number of their leading scientists would be invited to the Conference. The list of those to be invited was prepared by Dr. Graeme Pearman, an internationally leading climate change scientist from Australia. The scientists that he recommended to the SOC are all recognized experts in their field and come primarily from academic institutions in Australia, so meeting the SOC requirement.

Thus, we believe that the way in which the Conference has been set up is free of conflicts and biases relating to fossil fuel interests and the interests of particular sponsors. The SOC and CRF both have the view (and have expressed it in various ways) that geoengineering cannot be a substitute for very substantial mitigation (nor for adaptation) and that such interventions do not solve all aspects of the climate change problem (e.g., ocean acidification) and will not return the Earth to preindustrial conditions.

While it might be wished that more had been done in screening of funding, much was done, and the nexus of those interested in providing funds for moving forward with the meeting now (in that research is moving forward) and those without some potential fossil fuel interest is not necessarily large enough and accessible enough in a timely manner to avoid all possible perception problems (e.g., might not the US Government be viewed as suspect, or for that matter any government?). The scientific community has come round to thinking seriously about geoengineering only because the nations of the world have been so slow to limit greenhouse gas emissions and because the pace of climate change and associated impacts have been advancing at what appears to be faster than projected.

Many have yet to realize the limits of emissions reductions to limit climate change, especially if done as slowly and late as is being contemplated. Climate intervention is becoming recognized as possibly a way to counter-balance changes that could cause irreversible losses, initially in high latitudes and within several decades elsewhere. In my view, the key concern for the public should be the apparent failure of the international decision-making process to formally commit to the need for significant near-term reductions in greenhouse gas emissions.

The emerging impacts of climate change and the prospects that lie ahead are of enormous concern. Indeed, optics matter so that no one misinterprets the intentions of the scientific community’s focus on geoengineering—that concern is a direct product of understanding the serious trajectory of change to which society and the environment are currently committed. Ensuring that the optics surrounding geoengineering does not detract from the climate challenge before us is critically important. The Conference will discuss issues such as transparency and conflict of interest in an effort to reinforce professional norms and establish new ones where they might not exist. Our intent is to reduce the need for focusing on bad actors, or the

appearance of, bad actors, so that societal effort and discourse can stay focused on the enormous challenge that individual nations and the international community are facing.

I also asked Dr. Leinen for her response:

I would reiterate his comments and elaborate. While the State of Victoria produces substantial coal, many countries produce substantial fossil fuel for consumption and export, including some with very strong emissions reduction records. I do not believe that a key criterion for accepting government funds for climate or climate intervention research or research-related activities should be whether the nation produces fossil fuel. If this were the case all US government funding for climate research would be considered tainted. More appropriate considerations are whether the government has imposed constraints on the activity that would constrain freedom of inquiry. State of Victoria has imposed no constraints at all on the organizing committee (nor did they have any input to its selection), the agenda, or the invitees.

In addition, the State of Victoria has a strong policy on climate change and both the Premier and the Minister of Environment are committed to an aggressive program of emissions reductions. As Dr. MacCracken indicated, Victoria is experiencing changes in climate that are substantial even with current levels of CO2.

Victoria is interested in whether climate intervention techniques work and what their impacts might be. In order to answer those questions researchers will eventually have to do field experiments. Victoria has expressed to us their strong interest for determining whether climate intervention research can take place responsibly and safely. To determine whether that is possible, they provided funding in support of the conference. Our agreement stipulates their support will only be used for the development and execution of the conference. There are no funds for any other purpose.

Neither the Victorian government nor any of the scientists that they suggested be invited have been involved in the organization of the conference, the conference agenda or the selection of attendees. The State Victoria will continue to work with the Climate Response Fund after the conference to urge other interested nations and organizations to consider the recommendations of the conference in their own deliberations about climate intervention/geoengineering research.

These are important points, but I think the conference could have and should have avoided any such entire issues entirely. More in Part 2.

This entry was posted by [Joe](#) on Monday, March 15th, 2010 at 7:27 pm and is filed under [Geoengineering](#). You can follow any responses to this entry through the [RSS 2.0](#) feed. Both comments and pings are currently closed.

22 Responses to “Sole “Strategic Partner” of landmark geo-engineering conference is Australia’s “dirty coal” state of Victoria”

1. [Lou Grinzo](#) says:
[March 15, 2010 at 8:55 pm](#)

Thanks for highlighting this, Joe. I think it’s becoming increasingly clear that we will have to either take some dramatic steps to reduce our emissions or resort to one or more geoengineering approaches. We need a lot of people taking a very serious look at this issue, and soon.

I noticed that MacCracken said, “Many have yet to realize the limits of emissions reductions to limit climate change, especially if done as slowly and late as is being contemplated.” Just over a week ago I started what will likely be a series of posts about getting the US to an 80% reduction (1990 base) by 2050. The post, with a link to the Excel spreadsheet containing all my calculations, is here:

Climate change and the 80/2050 challenge (<http://www.grinzo.com/energy/index.php/2010/03/05/climate-change-and-the-802050-challenge/>)

2. *Mark Shapiro* says:

[March 15, 2010 at 9:10 pm](#)

This conference proclaims its lofty goal “to develop norms and guidelines for controlled experimentation on climate engineering or intervention techniques.”

1. It is impossible to do “controlled experimentation” on our one and only Planet Earth and it’s one and only climate system. To do a “controlled experiment” you’d need a few extra Planet Earths. We’ve plumb run out. So technically, they are proposing adding a second uncontrolled experiment on top of the uncontrolled CO2 experiment that we are conducting now.

2. They are proposing that some world government entity is going to decide how much to throttle back the amount of sunshine that everyone gets here on Planet Earth. The most fascinating part of this experiment will be to see how the coal, oil, and gas interests convince us that this second experiment is a wonderful thing, even while there is so much “doubt” about how the first experiment is going.

That will be some rhetorical feat. Stay tuned.

3. *Chris Winter* says:

[March 15, 2010 at 9:28 pm](#)

Mark,

I interpret “controlled experiments” a little differently than you. I think it means putting in place some guidelines to prevent experiments getting out of hand. Obviously, mitigation techniques must be top research priority for the foreseeable future. But we should develop some practical knowledge about geo-engineering methods against the day when mitigation might not be doing the job fast enough. We can do this on a small scale without putting our entire planet at risk.

4. *Mossy* says:

[March 15, 2010 at 9:29 pm](#)

Ironic that you should be posting about geoengineering today, Joe. While sloshing in the flooded neighborhoods and woods of the northeast today, my daydreams launched into a feeling that I was experiencing the “end-time”, and that it had actually been created by a geo-engineering experiment gone awry, with a scenario of never-ending heavy precipitation. As the rains continued to pour all day, I couldn’t shake this vision I had of the future.

We can’t afford to experiment on our only home, planet Earth.

5. *Chris Winter* says:

[March 15, 2010 at 9:32 pm](#)

On a side note: having read *Big Coal*, I have considerable respect for Jeff Goodell’s journalistic ability. I’m looking forward to reading *How to Cool the Planet*, which has been on order here at the library for weeks now.

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6. *Dicynodont* says:
[March 15, 2010 at 9:34 pm](#)

Joe,

Your insinuation that the CRF conference is tainted because it received government funding from a State that produces coal is ludicrous. One could just as easily say that your website is tainted by fossil fuel interests because it is maintained in a Country that produces coal.

I can’t wait to see your second post. Please make sure you address where the conference should have looked for funding, if not from national governments. Conferences don’t grow on trees for free.

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7. *Dicynodont* says:
[March 15, 2010 at 9:37 pm](#)

For those who are afraid of conducting experiments on our only Earth. I completely agree... unfortunately it’s much too late. CO2 emissions as they are now are a great uncontrolled experiment, and geoengineering should be considered as attempts to prevent the catastrophic negative effects from that experiment.

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8. *Leif* says:
[March 15, 2010 at 9:46 pm](#)

Iron seeding of the oceans looks to be a non-starter. New research.
<http://www.abc.net.au/science/articles/2010/03/16/2846973.htm>

[JR: Thanks for that link!]

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9. *sasparilla* says:
[March 15, 2010 at 10:32 pm](#)

It’ll be interesting to see what happens at this conference, from a “knowing who’s thinking what” perspective – which will be very valuable to know.

As several others have reiterated, the denying interests will switch over to the “easy/magic fix” (so things don’t have to change) when they don’t think they can delay action any longer and we need to be ready for that. Knowing who’s proposing what is very good to know.

Our current experiment with Geo-engineering (injecting billions of tons of CO2 into the atmosphere) is not going well.

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10. *George Ennis* says:
[March 15, 2010 at 10:44 pm](#)

ok so climate geo-engineering in terms of the international treaty obligations and enforcement mechanism’s will be easier than bringing in a cap and trade system for carbon? I think NOT!

I also assume we will have incredibly detailed climate models allowing us to make not just predictions for a given decade from the global down to the local level? These models will have to factor in of course the effects of geo-engineering. No? I think not. If people are having issues with the current models I can only imagine the problem worsening in terms of the granularity and timing of predictions.

Finally the money not available for mitigating climate change and opting instead going with geo-engineering will be a lot less than reducing our carbon emissions? I don’t think so.

11. *Lewis Cleverdon* says:

[March 15, 2010 at 10:51 pm](#)

I should be delighted to end my interest in helping to develop sustainable modes of geo-engineering - just as soon as anyone can show me a coherent case whereby the proposed pre-Copenhagen Annexe 1 cut in anthro-GHG outputs of 40% by 2020 off 1990, (accessing the track to an 80% cut by 2050), could be enough to allow the declining natural carbon sinks to reduce airborne GHG concentrations fast enough back below 300ppmv CO_{2e} to decelerate the various feedback loops that are now accelerating, before they reach the point of swamping the sinks without anthro-GHGs' assistance.

As Joe has recently remarked, the Hydrates' feedback is not even accounted in the projections that the 40% cut would give a less-than-even-chance of staying below the 2.0C threshold (UK Met office says 46%).

Those who parrot the line that only cutting emissions is good mitigation are missing the seriousness of the predicament: we are far too late to avoid the feedbacks taking over simply by cutting emissions.

To control the feedbacks, we have no option but to recover airborne GHGs massively ASAP, while also enhancing the depleted planetary albedo temporarily to buy (decades of) time for the GHG recovery program to work.

In the absence of any one of the three components : contracting GHG outputs, recovering airborne GHGs, and raising planetary albedo, I see no credible prospect of staying below 2.0C, and thus of avoiding irreversible catastrophic climate destabilization.

Had this issue been under constructive discussion for the last three years, rather than being mostly excluded under the Monbiot Fallacy that "it is reprehensible to discuss things which might be done badly, regardless of the potential benefits, and the urgency of the need, of doing them really well," the forthcoming conference in Australia might have had both less partisan sponsorship and a far more perceptive agenda.

As it is, peoples' conformism in parroting fashionable views continues to fritter away our remaining chances of avoiding a crash, while the corporatists agenda makes the running by default.

Surely it is now time to take the climate issue as seriously as it deserves ?

Regards,

Lewis

[JR: There are no known "sustainable modes of geo-engineering." I don't really consider pulling GHGs out of the air to be "geoengineering," -- it is closer to "un-geoengineering" and that is certainly not the cheapest way to reduce emissions. ironically, absent aggressive mitigation, you almost certainly rule out most if not every major form of "hard" geoengineering aka solar resource management.]

12. *Leif* says:

[March 16, 2010 at 10:49 am](#)

How about we make a law that requires ALL corporations to factor long term sustainability and survivability into their corporate decisions first and foremost and shareholder profits second. Bingo, done!

It is unconscionable that capitalism, corporations and humanity cannot pursue long term survivability with shared enthusiasm.

13. *fj2* says:

[March 16, 2010 at 11:23 am](#)

Painting in broad strokes

It seems we are in era of accelerating unstable equilibrium and by far most the effective strategy would first be to mitigate and adapt with extreme speed. When this is achieved we should then take it from there.

Geo-engineering can be very important but should be considered with equally extreme caution and by default be considered to have a very high risk with small benefit capability since we really know so little about the environment.

Sayings come to mind like

“Letting the genie out of the bottle” like the Manhattan Project

“The cure is worse than the disease” like many dam projects.

“First do no harm” like the Hippocratic Oath

Most- if-not all serious geo-engineering will require huge amounts of resarch and development and should be ongoing but, the highest priority should be to stabilize the situation as much as possible by removing anthropogenic causes of the environmental crisis along with accelerated research in understanding how the environment is working which should probably be the first stages of any geo-engineering strategy to begin with.

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14. *Lewis Cleverdon* says:
[March 16, 2010 at 10:59 pm](#)

Joe – we may differ as to whether widespread productive afforestation optimised for carbon sequestration should be termed geo-engineering, but its potential sustainability seems fairly clear. The estimates of its annual sequestration potential (as biochar, plus shelter-trees’ growth) have ranged up to 9.0GTC/yr, which could over several decades, in conjunction with radical GHG output cuts, significantly reduce airborne CO₂.

Significantly changing atmospheric chemistry by intentional acts of commission, (as opposed to by the omission of continued GHG outputs) seems to me as good a definition of geo-engineering as any. That the forestry option seeks the recovery of excess carbon, rather than the artificial enhancement of albedo, is surely a secondary consideration.

I’m not sure I follow your sentence:

“ironically, absent aggressive mitigation, you almost certainly rule out most if not every major form of “hard” geoengineering aka solar resource management.]”

Aggressive mitigation via GHG output cuts are of course pre-requisite, but even at 80% global off 1990 by 2050 they could not now allow the sinks to recover enough airborne carbon and so reverse global warming before the feedbacks have grown to the point of swamping the sinks. Thus in the absence of well focussed geo-engineering, we are already effectively committed to irreversible terminal warming. Both the several decades time lag from pollution output to climate disruption, and the large latent warming veiled by our dust and coolant pollution, further enforce this conclusion.

Yet while the forestry option (Sink Enhancement) could lower airborne CO₂ back below 300 ppmv, even a global crash program seems clearly unable to do so soon enough. Thus the most sustainable of the SRM (Albedo Enhancement) options yet tabled, namely Prof. Salter’s sea-spray lofting vessels, need very urgent investigation and field testing as a means of buying time for that carbon recovery to take effect.

Thus my contention is that the CA conference currently lacks the requisite question at the top of its agenda : “What precisely should geo-engineering techniques be intended to achieve ?”

Their use merely as offsets permitting continued GHG outputs appears to have been rejected by the organizers, but if sufficient credibility is to be gained to promote that decision in the future, there needs to be formal discussion of whether the options’ most productive role would be to counter warming in general,

or that caused by direct human efforts, or that due to acceleration of the feedbacks.

Notably, it is the feedbacks that cannot be addressed by GHG output cuts, and it is they that now require sustainable geo-engineering programs if their eventual destruction of global society is to be prevented.

Regards,

Lewis

15. *Mark* says:

[March 17, 2010 at 11:50 am](#)

Consider this recent report to be a cautionary tale providing evidence that we should proceed with extreme caution when advocating geo-engineering solutions.

<http://www.pnas.org/site/misc/current.shtml#algae>

Here are a few words from the press release.

“A design scheme to engineer microalgae blooms in the world’s oceans to reduce atmospheric CO₂ levels could contaminate the oceans with a neurotoxin, according to a study. Charles Trick and colleagues report that fertilizing the ocean with iron, a strategy proposed to boost the number of CO₂-consuming organisms living in the ocean’s surface waters, would likely favor the growth of *Pseudo nitzschia*, a genus of phytoplankton that produces a component of the neurotoxin that causes Amnesic Shellfish Poisoning. The naturally occurring toxin could potentially cause human health risks if fish that feed on the algae, such as anchovies and sardines, were consumed, and may harm marine mammals and seabirds that feed on these fishes.”

16. *Leif* says:

[March 17, 2010 at 12:24 pm](#)

Lewis, #14: Prof. Salter’s sea-spray lofting vessels?

Lets think about this a moment. One of the auxiliary effects of lofting sea spray. Significantly more evaporation of water vapor in the atmosphere. Currently the warming component of climatic disruption has increased the atmospheric water vapor capacity by ~4%. This translates into a volume of water about 1.5 times the volume of Lake Superior. Assuming that the adage of what goes up must come down, (in a closed gravitational system), then we can expect much more rain fall in the warm months and even snow in the winter. I would content that we are already seeing the effects of that current Lake Superior excess in increased snow, floods, hail, etc. events observed around the world. While increased rain fall would no doubt be advantageous in many parts of the world, it is clear that we have zero abilities to direct said participation events to needed areas and evidence suggests localized events. Not good.

17. *Lewis Cleverdon* says:

[March 18, 2010 at 12:01 am](#)

Mark -

“Consider this recent report to be a cautionary tale providing evidence that we should proceed with extreme caution when advocating geo-engineering solutions.”

This I can’t do, since it would, first, be accepting a judgement against all simply on the unproven denunciation of one. Where for instance are the casualties resulting from massive iron fertilization of the oceans by sub-sea volcanoes ? Not that I’m remotely impressed by the iron fertilization proposals.

Second, it is when selecting geo-engineering options and planning field trials for them that stringent science-based prudence is essential – proposing that I should “proceed with extreme caution when advocating geo-engineering solutions” is merely trying to hinder the free discussion of an option you find difficult.

I note that you do not challenge the proposal that, in the absence of both stringent GHG cuts and well focussed geo-engineering, we are already committed to irreversible catastrophic climate destabilization.

So do you have an alternative proposal to the use of the most sustainable of geo-engineering options ?

Regards,

Lewis

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18. *Lewis Cleverdon* says:
[March 18, 2010 at 12:14 am](#)

Leif -

it will take rather more than a moment’s thinking for you to critique the very elegant system Professor Salter proposes. In case he’s not known to you, he’s the UK’s leading scientist on wave energy, having been providing innovative research and designs, and teaching, since the ’70s. His knowledge of the issue of controlling global warming is subtle, deep and very well grounded in experience.

So your speculation that the system would result in significantly problematic extra rain is pretty wide of the mark. For a start the fleet of under 2,000 vessels are intended to focus their effects upon the oceans.

I note that like Mark you do not challenge the proposal that, in the absence of both stringent GHG cuts and well focussed geo-engineering, we are already committed to irreversible catastrophic climate destabilization.

So do you have an alternative proposal to the use of the most sustainable of geo-engineering options ?

Regards,

Lewis

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19. *Leif* says:
[March 18, 2010 at 12:25 am](#)

Lewis, #17:

Most sustainable geo-engineering options.

A. Serious conservation measures. Stop digging the hole!

B. Planting trees.

C. Bio-char production appears to be benign.

D. Force capitalism and corporations to pursue sustainability and long term survivability first and foremost and shareholder profits secondary. It is unconscionable that capitalism and corporations are at cross purposes with humanities long term survivability. Lawyers, where are you when we need you?

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20. *Leif* says:
[March 18, 2010 at 12:48 am](#)

Lewis, # 18: I admit that my expertise does not compare with either you or Pro. Salter. On the other hand my question of keeping control of excess evaporation still appears valid. Water vapor that happens in any one spot will not fall in the near vicinity but will collect as storm systems and travel the world over to

condense on mountain ranges or other normally wet areas. Evaporated water vapor also possess a significant latent heat that will add energy to storm systems. The water vapor that brings the moisture to the Pacific North West originates thru out the South Pacific and can be tracked across much of the US and Canada. Strong systems even to the East Coast.

21. [richard pauli](#) says:

[March 18, 2010 at 11:16 pm](#)

Nice report. Thanks Joe.

Methinks all this should be preceded by some serious human engineering and resolute political engineering.

22. [Rachel Smolker](#) says:

[March 19, 2010 at 5:26 am](#)

Agreed that we are beyond the point of no return – especially in light of recent revelations about hydrates... and if I had a drop of faith that any of the proposed geoengineering techs would actually work, I might be more favorably disposed. But in fact I think it is pretty clear that most of the offerings would actually only exacerbate problems and worsen the situation. For example, biochar: to have any noticeable effect on atmospheric CO2 levels, we would have to plant MILLIONS of hectares of tree plantations and burn them (lots of emissions already here) and then till the char into soils (more emissions) < assuming this does not trigger any of the known-to-occur-under-some-conditions effects, like oxidation of preexisting soil organic matter, (oops) or result in massive clouds of fine particulate soot...or..otherwise backfire. Similarly, what would the impact of reducing solar radiation? I would guess this might seriously hamper plant growth... hence carbon sequestration, not to mention food and forests. Last week an article was published in PNAS about the impact of iron fertilization, previously unsuspected: promoted growth of domoic-acid producing plankton. Domoic acid being serious neurotoxin – both for humans and marine animals participating in contaminated food chains. OOPS@! Frankly i have more faith in good old Mother Nature, given half a chance!