# Climate Intervention



## A Geochemical Approach to Global Warming?



arcolo...@aol.com View profile More options Feb 4, 11:31 am

Hello, folks,

I am working on an idea to reset the earth's CO2 level back to normal. Currently, I'm seeking support from geologists and related disciplines. Here is the idea-- /Ernie Rogers

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Conclusion: We need a way to remove about 1x10^14 kg of CO2 from the (air
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Forward

**Andrew Lockley** View profile     More options Feb 4, 4:34 pm

That's a nice theory but what possible method is there to make a big hole in
the ocean crust. Even if you could drop an oil rig on the ocean floor,
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no-one could think of a way to do that. Surely it would be much harder to
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Even if you could get the rock out of the mantle, there's nothing to suggest
it would come out in an easily-reactive form. Adjusting the weathering of
existing rock - for example by promoting frost shatter - may be a more
successful approach. However, this has also been analysed and has been

considered to be impractical.

A

On 4 February 2010 19:31, <Arcolo...@aol.com> wrote:

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Forward

**Eugene I. Gordon** View profile More options Feb 4, 5:21 pm

I speculate that if we could remove 1X1014 kg of CO2 in one year or even half that amount for one year it would be extremely valuable as a scientific tool. We need a way to determine the temperature change associated with an increase in CO2. There is no doubt adding CO2 will increase global average temperature but no one knows for sure how much because there are other related parameters and some fundamental parameters like sunspots; and the net dependence of temperature on CO2 concentration is the critical issue in climate science. Feedback is another issue being debated. If that basic relationship can be determined in a scientifically acceptable manner by a credible experiment it would essentially end the debate and it would be clear what must be done. So the issue is how to do such an experiment. It must be done rapidly so that all other phenomena that impact global average surface temperature but are also sensitive to changes in global temperature do not have a chance to respond and influence. This would confirm the basic greenhouse relationship since all the other parameters that influence temperature would not have time to change and modify the temperature. Then by following the temperature changes after the CO2 level is stabilized one can determine the influence of the other parameters even if it is not clear exactly what and how much is actually changing. In the end the relationship independent of sunspot changes emerges.

-gene

From: climateintervention@googlegroups.com
[mailto:climateintervention@googlegroups.com] On Behalf Of Andrew Lockley
Sent: Thursday, February 04, 2010 7:35 PM
To: arcolo...@aol.com
Cc: climateintervention@googlegroups.com
Subject: Re: [clim] A Geochemical Approach to Global Warming?

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Stating the Problem

The world is currently using 408 quadrillion BTUs of energy per year. Eighty percent of that energy is obtained by burning fossil fuels and releasing carbon dioxide into the atmosphere. Global emissions are estimated to be 3x10^13 kg of CO2 per year. While experts tell us we should cut emissions by

80% by 2050, so far there has been no slowing, but rather further increases. The $CO_2$ level in the atmosphere continues to rise.

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Conclusion: We need a way to remove about 1x10^14 kg of $CO_2$ from the (air or ocean) every year for at least 10 years. Our lives may depend on it. It is proposed that we seek an engineering solution involving the purposeful release of basic materials (e.g., magma) into the deep ocean basins.





Forward

**arcolo...@aol.com** View profile More options Feb 4, 9:43 pm

Hello, Andrew,

Well, I can't disagree with your observations. I was hoping to get some advice somewhere on how to trigger an eruption of sufficient size. Lacking such information, I went ahead and calculated the size of eruption that would be needed to reach the desired scale of absorbing 1x10^14 kg of $CO_2$. Result: It would require triggering of hundreds of volcanoes of medium size, all discharging ultrabasic magma. OR triggering of one supervolcano.

A supervolcano is roughly one scoring a volcanic eruption index of VEI-8,

which discharges at least 1000 cubic kilometers of magma. The density of the desired magma is about 3000 kg /cu.meter. From this, the mass of magma from a supervolcano eruption is about 3x10^15 kg. I estimated the base equivalent weight of ultrabasic magma to be 100 kg (assuming 20% MgO composition). Dividing gives 3x10^13 kilogram equivalents from the eruption. That
compares to a desired amount of 5x10^12 to absorb the CO2 -- that's a pretty good match considering the process will be very inefficient.

OH, MY! I guess I didn't fully realize the magnitude of the problem! Eruption of a supervolcano, even at the bottom of the ocean, carries as much risk of annihilating us as does the atmospheric CO2.

Still, the "solution," even if totally impractical, at least has the quality of being nearly big enough to do the job. And it's a reminder that we are playing a risky game on a planetary scale.

Ernie Rogers

In a message dated 2/4/2010 5:34:47 P.M. Mountain Standard Time,

andrew.lock...@gmail.com writes:

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Forward

**Peter L Ward** View profile More options Feb 5, 2:11 pm

CO2 is second most voluminous gas erupted by volcanoes after water. The volcano Pinatubo erupted in 1991 up to 921 Mt water, 234 Mt CO2, and only 19 Mt SO2. The rate of increase in the atmospheric concentration of CO2 actually slowed temporarily after the eruption because of global cooling for three years and therefore slight cooling of the ocean. But warming resumed as did the rate of increase in CO2 helped very slightly by the newly added CO2.

Secondly, the colder the ocean, the more CO2 it can hold. If you heat the ocean via large submarine volcanic eruptions, you increase atmospheric CO2.

Peter

On Feb 4, 10:43 pm, Arcolo...@aol.com wrote:

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...

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Forward

**Mike MacCracken** View profile Translate to English More options Feb 6, 11:46 am

Aside from the triggering issue, it would be interesting to know if the formation of something like one of the Hawaiian islands or the ongoing formation of Iceland took out carbon at a rate that is near to what is being discussed. Related to removing carbon now as a result of island formation, it would be interesting to know if there might have been effects from this in the past. That is could island formation be something that should be considered an occasional factor in the carbon budget.

Mike MacCracken

On 2/5/10 12:43 AM, "Arcolo...@aol.com" <Arcolo...@aol.com> wrote:

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