

Dialogue on Persistent Jet Contrails & Experimental Weather Modification

25 November 2006

Wayne Hall: *As another person involved in "chemtrail" activism firstly let me say that I have been impressed by your achievement so far.*

Rosalind Peterson: Thank you very much!

Please note that the word "chemtrails" is not part of my vocabulary any longer and I seldom use the word. Our elected officials are all being told by the United States Air Force (<http://californiaskywatch.com/subtext/Air%20Force%20-%20Chaffs%20and%20Flares.pdf>), NOAA, and NASA (just to name a few entities-also include most universities), that "chemtrails" are a "hoax", an Internet Hoax", or part of a "conspiracy theory". The United States Air Force has investigated this word and declared that "chemtrails" are a "hoax". Senator Feinstein of California likes to have letters from the Air Force sent to constituents letting them know about this hoax (See NBC 4 TV Paul Moyer's News Report, <http://www.nbc4.tv/news/9155725/detail.html> dated: May 23, 2006).

Therefore, those that use the word "chemtrail" when contacting their elected representatives receive no response, are totally ignored, or they receive U.S. Air Force form letters regarding this "hoax". And since our elected officials can't be connected with "conspiracy theories" and "Internet Hoax theories" our voice has not been heard. The only way to be heard is to use the NASA vocabulary on this subject - see NASA October 2005 Newsletter. I think you will find this helpful. Note the references made to man-made clouds, impacts on natural resources, persistent jet contrail pictures, climate change, and how man-made clouds exacerbate global warming.

http://asd-www.larc.nasa.gov/GLOBE/Count/Oct2005/ConEdNews_p1.pdf

http://asd-www.larc.nasa.gov/GLOBE/Count/Oct2005/ConEdNews_p8.pdf

WH: *It seems that you are one of the main forces behind the KNBC news spot "Toxic Sky".*

TELEVISION NEWS ALERT EXPERIMENTAL WEATHER MODIFICATION (INCLUDES A SEGMENT ON MENDOCINO COUNTY, CA)

Watch: "Toxic Sky?" Part I – May 23, 2006 & Part II – November 16, 2006
<http://www.nbc4.tv/news/9155725/detail.html>

NBC4 TV – Los Angeles, California News Program
There is a WEB report for both of these programs.

RP: I was not one of the main forces working on this television project. The credit goes to the Los Angeles Newspaper (The Alpenhorn News), and the people who were objecting to the yellow particulate matter and human illnesses that were caused by this yellow substance. NBCTV4 in Burbank, California, heard about me from several other individuals who knew about our demonstration on March 23, 2006, in Los Angeles, against an experimental weather modification U.S. Senate Bill 517. Subsequently, they interviewed me regarding this Senate Bill and about the persistent jet contrails which are being observed on a worldwide basis, not just in the United States.

I want to get out the truth about what is happening with current weather modification experimentation, (US Senate Bill 517), the adverse impacts on agriculture, micro-climates, water supplies, rainfall, and our environment from these experiments. I am also concerned about the impacts of atmospheric heating and testing programs like the ones described in the NASA TMA (trimethylaluminum) experiments (see NASA website or the article in the Dallas Morning New on June 23, 2003), and the ones described in the CRRES Press Kit 1990. (<http://www.flyaria.com/document/html/mission/crres/cr.htm>).

On November 18, 2006, I filed a formal complaint with the California State Department of Health, Drinking Water Division (Sacramento, California), in regard to alleged drinking water chemical contamination from these atmospheric heating and testing programs. Part of this complaint is provided below for your information.

SUBJECT: Formal Complaint about the unusual drinking water contaminant spikes throughout the State of California between 1984 and 2006.

- 1) Formal Complaint about the State of California, Drinking Water Division, not researching and graphing unusual contaminant spike patterns throughout the State of California, allegedly not taking action to find out the reason for those spikes, and for the alleged failure to notify the public immediately that there were unusual contaminant spikes being found in drinking water supplies. In order to protect the public why isn't the State Department of Health looking for trends across the entire state to determine what is causing unusual statewide contaminant spikes?**
- 2) Formal Complaint that the California State Department of Health allegedly did not notify the general public about these contaminant findings when found in raw water supplies and wells, when many people have private wells and could be exposed to these contaminants along with animals used in food production or on food crops when unprocessed water is provided by some wells and/or water districts to consumers (Example: Some Water Districts supply raw, untreated, irrigation water to agricultural customers).**
- 3) Formal Complaint that the California State Department of Health is allegedly not notified about County, State, Private, military, university or federal atmospheric testing programs and experimental chemical based weather modification programs that use drinking water contaminants as part of their testing procedures. (Note: Weather modification programs (and future chemical atmospheric geoengineering programs), that use chemical water or**

air contaminants may use ground based dispersion, small airplanes, or large jets for specialized programs. Shouldn't the State Department of Health be notified of said testing? (The State of California, for example, regulates diesel and automobile emissions and yet does not regulate jet fuel emissions, see attachment to this complaint-EPA 1999 Report that also contaminates our air and water supplies. Why?)

- 4) Formal Complaint that the California State Department of Health allegedly does not require that the various agencies (private companies, the military, county, state, university, or federal) using chemical air or water contaminants in our atmosphere inform the State of California in advance of said programs or experiments so that public health can be protected in California. The Health Department should be warning the public about possible air and water contamination from said testing programs and the synergistic impacts of these contaminants when mixed with known contaminants.
- 5) Formal complaint that alleged geoengineering of our atmosphere using air and water contaminants (toxic chemicals), to combat global warming and for other military or government programs may be currently in the experimentation stages at this time or used in the near future. It is alleged that the potential of these water contaminants to adversely impact public health will be beyond the capability of the State Department of Health to protect the public when this agency is not notified of these programs or the chemicals used in these programs in advance of experimentation projects. (The recent proposal to release sulfur into the atmosphere to combat global warming in geoengineering projects is just one example. The use of barium and aluminum in atmospheric projects are documented as an attached exhibit to this complaint.)

WH: I would be interested in knowing how you see the strategy from this point onward.

RP: This is a long subject due to so many government and university projects. I will be happy to share with anyone the government documents (all public record documents) on this subject - the first part is education.

WH: Have you worked out an orientation to the recent intervention by Paul Crutzen? Do you agree with the information in this article?

http://www.enouranois.gr/english/sygrafeisenglish/wayne/Responding_to_Paul_Crutzen.htm

RP: I will make comments below on this article as I have taken some time to read some of the summaries of his proposal. I do not agree that placing drinking water contaminants in our atmosphere is acceptable at this time due to the number of contaminants already contaminating into our air and water supplies. It is believed that placing sulfur into our atmosphere can cause air pollution problems and combine with other contaminants synergistically to form more toxic compounds that will negatively impact our drinking water supplies and soils.

<http://news.nationalgeographic.com/news/2006/08/060804-global-warming.html> Page #1-
National Geographic News August 4, 2006 Extreme Global Warming Fix Proposed: "Fill the
Skies With Sulfur"

http://news.nationalgeographic.com/news/2006/08/060804-global-warming_2.html Page #2-
National Geographic News August 4, 2006 by: Kate Ravilious Extreme Global Warming
Fix Proposed: "Fill the Skies With Sulfur"

The question is: Why is the EPA requiring almost all sulfur to be taken out of diesel fuel by the end of 2006, because sulfur pollutes the air...and now there is serious consideration being given to this proposal which will contaminate our air?

RESPONDING TO PAUL CRUTZEN

***(The proposal referred to is presented in Paul Crutzen's "Albedo Enhancement by Stratospheric Sulphur Injections: A Contribution to Resolve a Policy Dilemma")
Editorial Comments***

Professor Paul Crutzen, won a Nobel Prize in 1995 for his work on the hole in the ozone layer.

Rosalind Peterson:

I am not familiar with Paul Crutzen's prior research. However, if you check the increasing UV radiation readings across the United States you will note the readings are, at times, staying in the high to extreme area - I can't believe the ozone hole is getting smaller. New Zealand also has extreme UV radiation readings as well. A check of the historic UV readings and those since 1987, are quite interesting and somewhat alarming.

Editorial Comments (from an Editorial in Pittsburgh Tribune Review, August 7th 2006)

Editorial: Mr. Crutzen has dreamed up an "escape route" from global warming that only Al Gore could love. (Peterson: Gore has a problem-his book has no table of contents or bibliography and practically not one word about the studies he references for his statistics - this will cost him credibility. In addition, he totally leaves out atmospheric heating and testing programs, and the military HAARP. program in Alaska which, I believe, just doubled in size and/or capability in 2005.) Crutzen, a researcher at the Max Planck Institute for Chemistry in Germany, is so "grossly disappointed" by man's seeming indifference to the junk science that blames humans for the Earth's temperature changes that he proposes to artificially cool the global climate.

Peterson: We humans are responsible for our impact on earth. There is no doubt about it...especially when you realize the impact of military war experiments, nuclear testing, experimental weather modification, dams, changing the direction of rivers and streams, atmospheric heating and testing programs, the capability of the HAARP

program, the negative impact of jet fuel emission which exacerbate air and water pollution and their negative impact on our ozone layer, and the negative impact of persistent jet contrails that exacerbate global warming according to NASA, etc.

Editorial: He hopes to release particles of sulphur into the upper atmosphere -- using high-altitude balloons or heavy artillery shells -- to reflect sunlight and heat back into space, according to The Independent in the U.K.

Peterson: This project is an unmitigated disaster. And we must inform our elected officials and try and stop some of these questionable projects. There are plans to use airplanes for this purpose as well, which could place heavy loads of materials in to our atmosphere. There are some articles on my website about this process...and sulfur will impact tree and animal life as we know it along with increasing the acidity of our oceans.

If you stop sunlight from reaching the earth this will disrupt photosynthesis and other processes that are required for all plant life on earth...the jets are already leaving plumes that exacerbate global warming while producing man-made clouds (according to NASA) that dim or block sunlight from reaching the earth. Global dimming is a problem which scientists have been investigating in recent years that also add to reduced sunlight reaching the earth. (Rickets which is a bone problem caused by lack of Vitamin D, especially in children, is on the rise in the United States. Studies also indicate that direct sunlight increases corn crop production while cloud cover reduces corn crop production.)

There is no doubt that his proposal might work. We still don't understand the synergistic impacts of all of the programs now underway and those that will be added in the future. In a recent meeting (November 20, 2006-Department of Global Ecology-Stanford University), several geoengineering proposals were made public. And the consensus of those proposing these geoengineering plans was that particle and chemical experimentation should begin immediately.

Those participating in this meeting at Stanford failed to discuss global dimming or the negative impact of persistent jet contrails that turn into man-made cirrus and other cloud formations. Their lack of insight into this problem is noteworthy because their various geoengineering programs, should they experiment on earth's atmosphere, take all of this data into account. It is quite possible that man-made particle or chemical clouds put up into our atmosphere may reduce too much sunlight if they don't take these other issues into account.

In addition, geoengineering schemes are not clearly understood nor are there impacts on earth. And if we state that it is time to experiment and multiple worldwide experiments are put into place no one can foresee the negative or synergistic effects all of these programs will produce. Since man is already experimenting on our atmosphere causing a multitude of problems would it not be better to turn our technology and engineering capabilities into find the solutions to our pollution problems here on earth. It should be noted that Sir Richard Branson of Virgin Airlines is going to spend over \$3 Billion dollars in improving jet fuel emissions to make it less

polluting. Isn't this the direction our top scientists in every field should be working on at this time?

Editorial: That geo-engineering would increase the reflectance ("albedo") of the Earth, which should cause an overall cooling effect, he says.

Peterson: When you take Al Gore's simplistic proposals and combine them with the current thinking in geoengineering schemes...that we can all continue to pollute if we just change a few light bulbs, etc., while we go on about our lives...and you implement no rules and regulations that will curb pollution from industry...for the United States or other countries around the world...approve no legislation to have higher automobile fuel efficiency...and work out no international agreements to cut pollution...the geoengineering of our atmosphere may cool the planet for a time but it won't work in the long term due to our not decreasing pollution on earth.

Gore does not discuss these issues and those who are planning to geoengineer our atmosphere are only looking at the technological fix with an eye toward fixing the rest at some later date when they are retired from their positions and someone else is left "holding the bag". And Crutzen is apparently only looking at a technological fix as well. And what happens if their geoengineering experiments don't work?

Many think that the adding of atmospheric chemicals is the answer...then we all can go on as usual...no pain...no sacrifice. Then we have the "caps and trades" and carbon sequestering ideas. Sequestration is now having problems according to some articles in that it is destroying the areas in which it is being stored...and "caps and trades" the money making market scheme promoted by some environmental groups, the Bush Administration, Senator McCain, and Senators Lieberman and Clinton, that will allow polluters to buy credits and keep on polluting at the same or greater rates...these aren't solutions.

We have no idea what impact the use of geoengineering particles and chemicals in our atmosphere will do to our environment. But we have to stop adding them and begin to reduce pollutants here on earth. Sunlight is beneficial to all life and our own health in many ways...and when reduced can impact crop production, etc. If we add a geoengineering plan the problem is that we are not taking into account unintended consequences.

Weather modification is also playing a role at this time. Over 50 weather modification programs are (NOAA documents) currently being used in the western United States. The modification programs all rely on chemicals to change our weather...most of which are water contaminants.

Our ability to change the weather and modify it...with the thought that fresh water is becoming more polluted and scarce...is a scheme by the military to control other governments (see californiaskywatch.com for more information and actual documents "Owing the Weather in 2020"). If we control your weather then we can make you do what we want. In addition, weather modification is a plan to benefit some to the detriment of others. Who will be the beneficiaries of these weather modification plans

and who will suffer detrimental consequences. Agricultural crop production and the micro-climates that they depend upon will be the first casualties of all of these experiments. And if we disrupt crop production we are talking about our food supply.

Editorial: The controversial proposal supposedly is being taken seriously by scientists because Crutzen has a proven track record in atmospheric research. And, after all, he did receive a Nobel Prize...

Peterson: Some of our scientists like the technological fix. A reading on the subject of "Geoengineering" might be of interest to everyone.

Editorial: And if that doesn't work, he believes giant reflecting mirrors in space, or laying reflecting film in deserts, or floating white plastic islands in the ocean mimicking the reflective effect of sea ice might work.

Peterson: He doesn't know the exact consequences of his actions...and we have the equipment in to put up huge jet supersonic tankers loaded with various types of particles and chemicals or place space mirrors and all of these other schemes...and once in place or up in the atmosphere we can't stop the process if it has unintended negative consequences. I do believe that we are testing these theories right now with man-made barium and aluminium clouds and other military experiments. We also have no idea what experiments are being conducted by other countries or if they would approve of us using them as part of our experiments.

Editorial: Which brings us to this question: If global warming is part of this orb's natural cycle, what global havoc might Professor Crutzen's proposals wreak?

Peterson: Check the EPA studies on the impact of sulfuric acid on tree health and human health. I don't believe that he knows exactly what the consequences will be considering all of the atmospheric heating and testing programs now underway and any geoengineering plans currently being used in other countries.

Since no one wants to admit that we are changing the weather with the proliferation of jet contrails (except NASA and the 1999 EPA Report on Jet Fuel Emissions), and that jets are destroying the ozone layer we have a serious problem. And when we, the public, aren't informed about the atmospheric heating and testing programs and their impacts on our atmosphere...and when no one will talk about HAARP. and their experiments that maybe causing increased global warming along with other negative impacts...we have more problems...and what about moral and ethical questions or human health impacts?

(Editorial in Pittsburgh Tribune Review, August 7th 2006)

Wayne Hall: "What global havoc might Professor Crutzen's proposals wreak?" A confused question from an anthropogenic climate change "skeptic".

There is another question that could equally well be asked: what would be the effect of acknowledgement that proposals like those made by Professor Crutzen are not just proposals?

What if geoengineering programmes similar to those he has advocated have actually been implemented on some scale?

Rosalind Peterson: I believe that they have been under partial experimentation and implementation since at least since 1987. This is why tree health across the United States is in decline in my opinion. One cannot believe that all of these scientists have been studying and writing papers on geoengineering since the 1980s and have not performed one atmospheric experiment.

Take a look at our skies...why did Senator Murkowski from Alaska complain at a Senate Hearing (to the EPA nominee Levitt), about the white haze in Alaska. She had been asking for a long time and receiving no answers to her questions...did she ever receive an answer? We have the same persistent white haze here almost all the time which leaves our skies whitish in color instead of crystal clear deep blue. What is this white haze and how much does it cut down on sunlight reaching the earth? And now are skies are filled with persistent jet contrails and man-made clouds. Where are Professor Crutzen's studies on these subjects? Are these not from man-made experiments on our atmosphere that are already negatively impacting our climate, crop production, and human health?

WH: What if the "policy dilemma" he sees arising out of the fact that sulphate particles, soot and other forms of man-made and natural air pollution partially counteract global warming from greenhouse gases - means that governments - or one government, on behalf of other governments - have/has already decided to go ahead and fight one form of pollution (carbon dioxide) with another (sulphur dioxide)?

RP: On a global scale I already believe that the experiments are underway. There are so many government documents that talk about these experiments...Trimethyl Aluminum (TMA) atmospheric testing by NASA is another example of using toxic chemicals in atmospheric testing programs.

SH Salter, School of Engineering and Electronics, University of Edinburgh, spoke and presented a paper at Stanford University on November 20, 2006. His proposal is to build an ocean "spray vessel" by using seawater water to increase cloud albedo by spraying ocean water into the air to make water droplet form around salt particles. What the paper fails to note is that these man-made clouds may move over land and drop salt water on our soils damaging them for future crop production. What we have is another scheme in a paper that does not consider the negative consequences of taking action. We have no idea what these machines, with the volume of water being driven into the skies might have on marine life or soils.

WH: There is nothing new about such ideas. As far back as 1992 the National Academy of Science's report "*Policy Implications of Greenhouse Warming*" was saying that "the most effective global warming mitigation would be spraying of reflective aerosol compounds into the atmosphere by utilizing commercial, military and private aircraft". The NAS Report argued that "aircraft could be used to maintain a cloud of dust in the atmosphere to reflect sunlight." It reckoned that "emissions of 1 percent of the fuel mass of the commercial aviation fleet as

particulates... would change the planetary albedo sufficiently to neutralize the effects of an equivalent doubling of CO2.”

RP: I believe this testing is underway. Use of jets that leave persistent jet contrails is one part of this program...and one that no one at any scientific level admits is happening to our atmosphere. They refer to persistent jet contrails only as a conspiracy theory or hoax. This then prevents these engineers and scientists from looking up to see this process and investigate for themselves. And maybe they don't want to know because it might make their geoengineering programs (with all the time and money expended on research), not viable in the future.

WH: If it were to be acknowledged that measures of such desperation are part of our contemporary reality, one result would surely be a total evaporation of public sympathy for the arguments of the “skeptics”. They would either have to start demanding that the outrageous and unjustifiable geoengineering practices be stopped, or they would be forced to concede that their categorization of global warming as a “non-problem” had been mistaken.

RP: We have to educate ourselves and others and take a different message to the people around the world. We have to stress that their health problems...started to accelerate around 1987, when these programs began to be tested - including H.A.A.R.P. - and ask for investigations of these programs...no one wants to talk about them. I imagine that they have been classified under National Security and therefore some of our elected officials can't talk about them for that reason.

Our democracy is being undermined every day by the classification of documents and programs as classified or secret. If our government, in most cases, were to let the public know about these plans they would object because they would be able to see the flaws of these plans and know that other solutions would be better suited to our problems. However, the classification has caused our elected officials not to be able to represent the people because few are given the classified information. If they receive the information they really can't object or make it public and if they are not one of the “chosen” to receive this information they are kept in the dark like the rest of the public. Neither the “chosen” or those “not chosen” are in a position to represent the best interests of the citizens they represent. The ultimate “Catch-22” with the public unrepresented.

WH: But it does not seem likely that we are going to see any such cornering of the skeptics. James Hansen, on behalf of mainstream climate science, has confessed that “we are not doing as well as we could in the global warming debate...We have failed to use the opportunity to help teach the public about how science research works. ... We often appear to the public to be advocates of fixed adversarial positions. Of course, we can try to blame this on the media and the politicians, with their proclivities to focus on antagonistic extremes. But that doesn't really help.”

RP: The Bush Administration not only has almost stopped Hansen from speaking but is tying the hands of those that want to speak out and putting in political hacks to replace them whenever possible. The EPA, Environmental Protection Libraries, are being closed and important documents about chemicals and other issues are being

boxed up as I write, probably in order to destroy them, and surely to make the information we have paid for at taxpayer expense, unavailable for future usage. The EPA rules and regulations are not being enforced while the EPA is currently being asked to promote the “caps and trade money making market schemes” instead. Scientists are being harassed until they leave to be replaced by corporate hacks. All of us should speak up to protect the EPA. Al Gore is not fighting to save the EPA nor are most of the environmental groups. I wonder why? Have they all been bought off for a price?

WH: This is the advice of a scientist advocating not more but less politics.

RP: The blame here is that the American public and the press are buying into the Administration policies and promoting them in most cases. Investigative journalism here is almost dead...not quite...but almost. Many are fearful for their jobs, being spied upon, and retaliation. I don't know how much longer the people of the United States will have what modicum of public voice we have left.

WH: On the other hand British Government scientific advisor Sir David King has described the climate change debate as a “pseudo-debate”. He asks: “Why does the debate on climate change continue to be reported?” “Part of the answer,” he says “is in the nature of the media itself, which likes to present two sides of a story.”

RP: The second side of the story...that everything is normal... is voiced by very few people. However, government and corporate \$\$\$ are pushing this because they see it as \$\$\$ in their pockets. It is about greed in the end. And one way to keep the debate alive is to present a debate and not the scientific research and facts. If we keep the debate alive then we can keep polluting and keep spending and funding geoengineering and other schemes.

WH: The media does NOT present the two sides of the geoengineering story. In media discourse one side of the geoengineering debate is never reported, or is reported only to be ridiculed. It is the side that consists of “conspiracy theorists”, who must on no account ever be taken seriously.

RP: If you ask most Americans about geoengineering or atmospheric heating and testing programs you will find most people have no idea what our government is doing. No one talks about it in any form-knowledge is miniscule if the word is even used.

It was admitted in the Stanford University meeting that scientists had agreed to keep the word and the proposals about geoengineering secret and they did so for many years. Why did they want this secret? Would the public realize that these schemes were not of value and that their highly paid technical expertise, time, and energy could be better spent on technology and engineering to reduce pollution here on earth? I listen to Congressional Hearings and I can't remember in the last few years the word geoengineering ever being used. And yet hundreds of scientists are working on these schemes and ways to fund and implement more of them in the future. What will be the consequences of these actions?

WH: There is an either/or relationship between climate change “skeptics” and geoengineering “conspiracy theorists”. Scientific debate on climate change can have either one or the other as the interlocutor, as the “other viewpoint”. It cannot have both.

RP: I haven't come across the word Geoengineering being linked to a "conspiracy theory" until you referenced it above in your comment. Geoengineering is real and the projects proposed and more to be implemented are real.

WH: Paul Crutzen says in his “Albedo Enhancement” article that a large-scale climate modification programme of the kind he proposes could not be implemented without prior establishment of trust between scientists and the general public.

RP: Scientists are only interested in their experiments and the money this brings in for their experiments. There is not much trust between the scientists these days and the public. Scientists are in quest of knowledge without ethics. The new temple they reside under is prestige, greed and money. Those that speak out against these policies are denied money, position, and are ruined by attacks from the corporations and government who want to pursue these policies.

U.C. Irving Professor Benford, on November 20, 2006, left a handout that talks about one geoengineering experiment to save the Arctic. He is an advocate, I believe, of starting geoengineering experiments in our atmosphere immediately. He has no idea if his proposal will work but wants to begin the experiments. And he wants the public to: “...live inside the experiment...” while admitting that “...We very probably do not even know all the major influence we will find...” Benford goes on to state: “Since few people live there (in the Arctic) any side effects would be minimal...There could be other side effects on the vastly large global scale, and we would have to monitor the entire process very carefully...”

Professor Benford goes on to state: “The main thrust of all this is to carefully use our ability to attack warming at its roots – incoming sunlight now, carbon dioxide later...Humanity needs to get used to the idea of acting in this wholly new fashion, assuming our role as true stewards of the Earth...” (Who has decided that geoengineers with their schemes have earned the right to be stewards of the earth? And why is incoming sunlight the problem and not carbon dioxide and other greenhouse gases we are producing. Benford should be addressing the carbon dioxide first and using technology to reduce our emissions rather than disruption of sunlight photosynthesis, a process which is need for all plants to grow and produce crops.)

Professor Benford then quotes an economist Robert Samuelson out of context: “The trouble with the global warming debate is that it has become a moral crusade when it’s really an engineering problem. The inconvenient truth is that if we don’t solve the engineering problem, we’re helpless.” Actually Samuelson is right because the engineering problem is not about geoengineering our atmosphere by adding more chemicals and particles to reduce life-giving sunlight, but engineering solutions to current pollution problems.

WH: This implies either an expectation of future success in persuading “skeptics” of the soundness of his “solution” (to a problem they do not recognize), or it means something rather vague: that he is a scientist who believes in the necessity of working with, rather than against, the public.

RP: Money and greed has become the scientific ‘god’. Corporations and government funding of universities projects, etc., have made it almost impossible for independent research...and the Bush Administration is putting corporate people in places to rewrite scientific information. Crutzen and other geoengineers want the public to believe that they are the true stewards of the earth and that their solutions are the only viable solutions...they speak about the easy fixes, “low tech” fixes...the cheap fixes...temporary fixes...we don’t know the results but we will study the results and hope for the best...and while we are doing these projects we will deal with the acidification of the ocean later...carbon dioxide emissions later...what is polluting on the ground will now take a backseat both in funding and technology funding while geoengineers hope for a quick, temporary fix that may or may not work.

WH: And in this connection it should be acknowledged that he does quite clearly state in his article that “the very best would be if emissions of the greenhouse gases could be reduced so much that the stratospheric sulphur release experiment would not need to take place.” He deplores the fact that attempts to reduce greenhouse emissions have been unsuccessful. He cites statistics indicating that while stabilization of CO2 would require a 60-80% reduction in anthropogenic CO2 emissions, such emissions from 2000 to 2002 actually increased by 2%.

RP: If you look at jet fuel emissions, possibly rich fuels and/or new fuels being burned to create persistent jet contrails (changes from JP-4 to JP-8 with additives in the late 1980s and early 1990s), and the use of chemicals in our atmosphere for testing purposes then you would understand that much of the pollution we are seeing is being introduced into our atmosphere for testing purposes. Yes, man is polluting at unprecedented rates with increasing industrialization and population increases. However, we need to begin to reduce those pollutants and stop the atmospheric testing programs as well...as know what impact that they are having on us...the truth can be see in the health of our trees and the human population.

If you look at the dramatic rise in water pollution from barium, aluminum and other heavy metals, etc...the story is there for all to see. If you look at the dramatic increase in many respiratory and other related health problems...the story begins in earnest about 1987. If you look at the rise in Asthma you will find dramatic increases since 1987. Even if you look at Al Gore chart on global warming...look at the dramatic increase in global warming since 1987...you will find that is when we started up the HAARP project and many of the atmospheric heating and testing programs across the United States and other countries.

And when you look at persistent jet contrails...1987 or thereabouts is when they began to be seen across the U.S. and elsewhere on a huge scale...It is all there...but the geoengineers only want the \$ diverted to their experiments in our atmosphere without public debate and without using their expertise to solve the actual problems here on Earth. Al Gore provided them with an emergency...and the geoengineers are now ready

to step in and to promote their experiments on a massive scale...and they are looking for the taxpayer funding and legislation for these projects to move forward quickly. Professor Benford summed up the geoengineers thoughts: "...Public discussion could run in parallel, giving a sense that this momentous issue is being freely aired..." while the consequences and negative impacts of their geoengineering experiments are ignored or hidden from public view.

When Crutzen wonders why the public is not engaged in this issue to reduce emissions it is because we have not been educated about these serious problems and asked to be part of the solution. Also we are being told that the solutions can be artificial and we won't have to be uncomfortable...life will go on as usual because those in power will take care of us and geoengineer our atmosphere.

WH: "Anthropogenically enhanced sulphate particle concentrations cool the planet, offsetting an uncertain fraction of the anthropogenic increase in greenhouse gas warming. But this fortunate coincidence is 'bought' at a substantial price. According to World Health Organization figures, the pollution particles lead to more than 500,000 premature deaths worldwide." "Through acid precipitation and deposition, sulphates also cause various kinds of ecological damage."

RP: This is quite true and this is why adding more chemicals to our atmosphere is not the answer. And as we add more chemicals, and increase jet traffic which is impacting our climate and polluting our air at enormous rates, we are not considering the synergistic effects.

WH: Crutzen bases his case for the sulphate-spraying programme on the argument that "if sizeable reductions in greenhouse gas emissions will not happen and temperatures rise rapidly, then climate engineering such as represented here is the only option available to rapidly reduce temperature rises and counteract other climatic effects."

Peterson: There are other options that will mean that the public has to sacrifice around the world. We can all do this...and we can use our technology to reduce industrial pollution. This is a scare tactic to stampede the public and our elected officials into voting for the funding for these experiments.

WH: This could be interpreted as a warning that if society cannot free itself from the mentality that has led to the failure he describes, Crutzen can see no alternative to proceeding with implementation of his programme.

RP: Crutzen knows that the public will have to be pushed into conserving and that corporations will fight every inch of the way because profits and greed drive them...not the public good. Therefore, he is taking the easy way out by saying that we can fix all this easily with our technological know-how. He therefore is able to make statements without the corporations attacking him. And the public then thinks, a notion that Al Gore is fostering, that we can make small changes and go on living as before...while we die from the air pollution created by these "fixes". Human health and the health of our earth does not count...and why aren't these "geoengineers" working on solutions to our pollution on the ground, at the source?

The feasibility of “trust”:

WH: How possible is it for one who believes aerosol-seeding programmes to be not just drawing-board recommendations but a well-entrenched planetary-scale reality, to “trust” a scientist who conforms to the official line of denying any such possibility? Or in any case ignoring it.

RP: Follow the money trail...greed...funding for programs, etc. It is all there. And his statements put him in a position of not being attacked by corporate or special government interests...because they are also experimenting on our planet.

WH: To start with, in replying to this, it may be worth speculating on the possible reasons for the more or less unanimous support given by scientists, including the most immediately implicated scientists, to the official story... One of the relevant considerations is legality, the basic parameters for which were laid down a decade ago by, among others, Dan Bodansky:

“Climate engineering proposals, including those aimed at screening out sunlight by injecting aerosols into the atmosphere to create cloud condensation nuclei and hence more clouds, by injecting dust into the stratosphere to screen out sunlight, by launching reflective balloons into the stratosphere, or by space mirrors or screens to act as a constant shield from the sun, possess such problematic features as the fact that this activity is intentional (and thus attracts greater scrutiny), has global Eeffects, involves high uncertainties (with an indeterminate risk of something going wrong), and non-uniform effects (winners and losers result). These features of geoengineering raise several governance issues. The fact that geoengineering is an intentional activity with global effects raises the issue of who should decide whether to proceed.

RP: Yes, that is the question. And if these experiments impact our crop production, pollute our air and water...should they proceed? Photosynthesis is being reduced by global dimming as we speak from a wide variety of experiments. Jets that leave persistent contrails impact the amount of sunlight reaching the earth and exacerbate global warming...how is this impacting crop production and the rise in rickets?

The other issue is what other countries are now experimenting in this area? Will they want to suffer our atmospheric geoengineering when it may not benefit them? Will they agree to letting our geoengineering scientists use water and air contaminating chemicals in the atmosphere that will negatively impact public health and their environment? And will they want to live “inside our grand scale experiments”? According to the November 27, 2006, report over \$29 Billion has been spent by the U.S. on climate science and technology. And you mean to tell me that we haven’t with all this money available conducted any atmospheric testing experiments?

Bodansky (quoted by WH): Should all countries be able to participate in decision making since all will be affected and there will be both positive and negative impacts? Also, how should liability and compensation for damages be addressed?

RP: The United States, various government agencies, and universities are now working with other governments on these programs. It is the people that don't know about them and this is why we have to educate ourselves about these programs and also to educate others so that we may be able to put the brakes on these programs. The people are not being told about these programs...and when they finally are told...it will be that our benevolent government is doing these things for our own good...thus, they will have the perfect "emergency" justification...and this is why some atmospheric testing is ongoing now without most people knowing what is happening.

The persistent jet contrails are just one part of this program. Many are invisible to us like the GWEN TOWERS and HAARP. The public doesn't know about these programs on any great scale. And our government likes to keep us in the "conspiracy theory" mode to deflect any type of investigation or even questions. Whenever our elected officials here don't want to talk about a subject they say two words: "conspiracy theory"...End of discussion. However, we are fighting back with government documents on a larger scale so that they have to face what the documents really tell us about these programs and the lack of public oversight or knowledge.

Bodansky (quoted by WH): Schemes to inject dust or release balloons into the atmosphere are the most problematic of the geoengineering proposals in terms of existing international law because the atmosphere above a country, including the stratosphere, is part of its air space. Nations have claimed this area and acted on their claims (e.g., by shooting down aircraft).

RP: These programs use particles and chemicals that can be introduced into our atmosphere from satellites, rockets, huge jet airplanes, smaller planes, balloons, and ground based chemical releases. There are so many possibilities that it would be hard to know what country was doing what experiment. Just look at the ongoing programs right now as prime examples of ongoing programs that the public is not made aware of at this time.

Bodansky (quoted by WH): Geoengineering proposals involving the atmosphere thus could be viewed as an infringement and incursion on national territory.

RP: This is true...and this may be a violation of some international agreements. This is why the secrets and why the negative impacts are kept secret along with the results of these programs.

Bodansky (quoted by WH): Although existing international legal norms are generally permissive, they are unlikely to be a reliable guide to how the international community will react if geoengineering schemes are seriously proposed. Instead, there is likely to be a great deal of resistance. Absent some crisis, there will probably be a drive for the regulation of these activities, and perhaps for their prohibition, because it is very difficult to discern what the inadvertent consequences of such proposals might be.

RP: There will be no resistance because we the people will not be informed until our governments declare a "crisis" and stampede us in this direction. That is why we need to hold this discussion now before we are stampeded into these programs.

Bodansky (quoted by WH): The ultimate obstacles to geoengineering may not be technical or economic, but political.

RP: It is political...also corporations will make a lot of money supplying chemicals and jets for this purpose. And universities and those studying all of this will get \$ Billions. It is a lot more than political...it is about \$\$\$ and schemes just like the ongoing heating and testing programs in our atmosphere. It is about the arrogance that leads to these type of experiments.

In a 1997 Reasonline Magazine Article Professor Benford asks the following question: "...Instead of cutting gases, could we intervene to mitigate or offset the warming they may cause?" And this is the problem with the geoengineering fix...will it work...and, if it does, we don't have to bother anyone by cutting greenhouse gases...and we can all profit by "cap and trade money market schemes" which allows polluters to buy market credits and pollute more and hope that are experimental geoengineering schemes don't backfire.

WH: If the ultimate obstacles to geoengineering activity are political, however indefensible or defensible the stance might otherwise be, it is quite logical for a scientist persuaded of the necessity of geoengineering to wait for the relevant political obstacles to be removed by politicians rather than pre-emptively meddled with by scientists. Crutzen's whole approach in his article can be seen as a way of giving a nudge to politicians, to solve, belatedly – IN ONE WAY OR ANOTHER – the scientific problem he outlines. (Note by WH: However, since writing this text we have been informed directly by Professor Crutzen that he is "too busy" to participate in a debate including Rosalind Peterson and an audience of interested members of the public, or to ask another scientist to do so on his behalf, or on behalf of his project. His motives for publicizing his proposal in the way he did in mid-2006 thus become inscrutable.)

RP: Declare a "crisis" and then proceed whether the public knows about these programs and negative impacts or not...the painless cure in which we can allow pollution to continue with no disruption of our lives.

WH: But who are the politicians that can solve the problem?

RP: They are what the media calls "unelectable". And with their media support base corporations will fund political campaigns (along with the lobbyists) that will fight for more corporate profits and fewer regulations. They will attack anyone or any government that stands in their way. Greed and profit is the bottom line...there is no empathy for others, no ethics or morality involved at this point in time.

The role of Edward Teller:

WH: Though acknowledging in his paper his scientific debt to researchers at the Lawrence Livermore laboratory - "so far the only ones who have modeled the stratospheric albedo modification scheme"

RP: I don't know if this is true...the military is involved and many universities - along with a myriad of government agencies like NOAA, DOD, NASA, DOE (Department of Energy).

WH Crutzen does not appear similarly to recognize, and may not even have thought very much about, how deeply the politics of his stratospheric geoengineering proposal were similarly influenced by Livermore, and above all by the late Edward Teller, for many years its director.

RP: I think he knows...he reads the articles and publications...and is aware of patents.

WH: Teller sets his own distinctive political seal on the stratospheric particulate seeding project in his popular article "Sunscreen for Planet Earth".

RP: Teller article outlines these thoughts very well...and the geoengineers are the ones who will implement this program.

Teller (quoted by WH): "Society's emissions of carbon dioxide may or may not turn out to have something significant to do with global warming--the jury is still out.

RP: I don't think so...climate change is real. And man-made climate change is all around us. The industrialization of China and India are having tremendous impacts along with the U.S. not curbing our energy use...high mileage vehicles are still shunned, and the polluters that were curbed in the early days of the EPA by regulations are now having those regulations reversed allowing for increasing air and water pollution in the United States.

Teller (quoted by WH): As a scientist, I must stand silent on this issue until it's resolved scientifically."

RP (addressing the late Dr. Teller): This is your choice. However, take a look at the health of the trees around you...take a look at the rise in health problems or look at the pollution in our drinking water supplies...you may be surprised...and take a good look at the impacts of HAARP and our atmospheric heating and testing programs. After this review - especially with regarding to micro-climate changes which impact crop production...then see where you stand.

Teller (quoted by WH): As a citizen, however, I can tell you that I'm entertained by the high political theater that the nation's politicians have engaged in over the last few months. It's wonderful to think that the world is so very wealthy that a single nation--America--can consider spending \$100 billion or so each year to address a problem that may not exist—"

RP: HAARP and atmospheric heating and testing programs are worldwide...not just in the U.S. Yes, we...the American Government...is credit card borrowing to fund all of these programs and many military programs. With unlimited funding and greed there is no end of the things that individuals can dream up and test on the people...without any oversight.

WH: Teller here situates himself unequivocally among the “skeptics”. This makes him very different from Crutzen. But not content with categorizing climate change as a possible non-problem, Teller also puts himself forward as the man to solve the non-problem.

RP: When Edward Teller was alive I don't believe that he was a skeptic...he advocated many programs along the technological line that were not always the best. He was interested only in the science and scientific theories about different subjects. It is hard to believe that he was a skeptic. I think that other scientists during his time were more skeptical of some proposed ideas and issues.

Teller (quoted by WH): “Contemporary technology offers considerably more realistic options for addressing any global warming effect than politicians and environmental activists are considering. Some of these may be far less burdensome than even a system of market-allocated emissions permits (i.e. Kyoto , W.H.). One particularly attractive approach involves diminishing slightly – by about 1 percent – the amount of sunlight reaching the earth’s surface in order to counteract any warming effect of greenhouse gases.”

RP: Check the increases in Global Dimming since 1987. Interesting facts here. We are already, I believe, undertaking many experiments.

Teller (quoted by WH): “As the National Academy of Sciences commented a few years ago in a landmark report: ‘Perhaps one of the surprises of this analysis is the relatively low costs at which some of the geoengineering options might be implemented.’ ...But for some reason, this option isn’t as fashionable as all-out war on fossil fuels and the people who use them.

RP: Sacrifice is hard and will be resisted. It is politically easier to have a technological fix than the impact industry and society with standards for reducing pollutants. Thus Gore uses the light bulb theory and doesn't address the "heavy" issues. Without good American leadership to change it will make worldwide change almost impossible.

Teller (quoted by WH): If the politics of global warming require that ‘something must be done’ while we still don’t know whether anything really needs to be done--let alone what exactly--let us play to our uniquely American strengths in innovation and technology to offset any global warming by the least costly means possible. While scientists continue research into any global climatic effects of greenhouse gases, we ought to study ways to offset any possible ill effects.

RP: It is probably more simple than one thinks...the \$\$ should go to those who will solve the problem by reducing the pollutants here on earth. Technology \$\$\$ could be going into so many areas to help industry and the people reduce their polluting habits...we could stop producing some products that are throw-away and begin to start reusing items. Planned obsolescence can be replaced with products that will last a long time...like light bulbs, etc. We know that the technology exists to have light bulbs that never burn out...but we have introduced a throw-away society and now can't get rid of the trash and junk that is overwhelming us and the polluting of our atmosphere to make it.

Teller (quoted by WH): Injecting sunlight-scattering particles into the stratosphere appears to be a promising approach. Why not do that?"

RP: Sulfur is highly polluting and will impact our trees and human health. Do we need to compromise human health and crop production in order to save ourselves from pollution which could be reduced as in the 1970s in the United States by regulation of pollutants? Here in California we are taking almost all of the sulfur out of diesel fuel due to health effects. And now we propose to put sulfur into our atmosphere? This doesn't make good sense.

WH: Teller even injects into the very subtitle of his piece the same trickiness that pervades the text as a whole: *"GLOBAL WARMING IS TOO SERIOUS TO BE LEFT TO THE POLITICIANS. HEREWITH A SCIENTIFIC SOLUTION TO THE PROBLEM. (IF THERE IS A PROBLEM, THAT IS.)"*

RP: Politicians are supposed to represent the public. If we leave this to corporations and scientists influenced by corporations then we are lost. Thus, the public needs to be educated and take control of this process and what programs will be implemented.

WH: We see that Teller is not merely one of the pioneers of the stratospheric seeding idea ridiculed by one of his fellow contrarians at the beginning of this article...

RP: No, there was an earlier scientist who first thought of this theory and expounded upon it...

WH: He is quite possibly also the architect of the whole conflict scenario that we still see being enacted before us in 2006, three years after Teller's death. But for which his – in American party-political terms – opponent Paul Crutzen has now been maneuvered into the position where he, and by extension presumably Al Gore, must be the stool pigeons...

RP: I disagree...this process is driven by our government and their agencies and by corporations who are interested in their bottom line. It is driven by our military and other government agencies along with corporations who benefit from these programs. Scientists are funded in this direction for a variety of reasons one of which is military control of space for warfare and also for control of weather to control other nations and their actions. Greed and profit, worldwide control of water and weather by a few, like oil, is one new goal.

There is little funding for technology that would reduce pollution. The funding goes only to these experimental programs because corporations will benefit. And scientists mostly follow the money trails to enhance their careers and prestige.

WH: This certainly represents progress over the heyday of the superpower arms race between the US and the USSR, in which Teller was, again, a leading protagonist. In the nuclear warfare psychodramas of those days it was Republican politicians such as Richard Nixon, Caspar Weinberger, Ronald Reagan, not liberal democratic figures that were cast as the madmen, or accomplices of madmen.

Admittedly, the inversion may well not be something deliberately planned. It may be just a side-effect of decisions to make weather and climate the business of military-oriented institutions such as the Lawrence Livermore Laboratory, with the resulting extension into what were once civilian domains of the habits of secrecy and deception characteristic of military research, and above all of nuclear weapons development. Doubtless the conception of legality as an “optional extra” that we have suggested as an explanation for scientists’ apparent evasiveness over geoengineering reflects an expansion of such military assumptions and behaviour.

RP: Probably...

WH: But the imposition of politically paralyzing contradiction is a Teller trademark, seen before at virtually every stage of his career, and certainly in the period of the Star Wars (Strategic Defense Initiative) anti-missile shield campaigning immediately preceding the collapse of the Soviet Union. The double-bind that Teller had devised at that time was presented to the then Soviet leader Mikhail Gorbachev by Ronald Reagan at the 1986 Reykjavik Summit. It took the form of an unexpected willingness to consider an agreement between the United States and the Soviet Union on total nuclear disarmament of the two superpowers. Support, in other words, for Gorbachev’s stated objective of bringing about universal nuclear disarmament by the year 2000. The only precondition attached to an American agreement on total abolition of the United States’ nuclear arsenal was that Gorbachev should, in return, accept the legitimacy of the United States’ Star Wars anti-missile shield.

RP: We are still working on this one in a huge way with unlimited funding by the Bush Administration to our detriment. The war industry and those investing in war are making lots of money and they lobby extensively for more money and contracts. Many of these atmospheric programs are being conducted to pave the way for anti-missile shields and other use of space for warfare.

WH: Gorbachev’s response was that if nuclear missiles were to be abolished there could be no justification for supporting a programme whose purpose was to shoot them down. But for the international political establishment and its media this meant that it was the conservatism of the Soviets that had prevented an epoch-making political breakthrough at Reykjavik. Teller was one of the few members, possibly the only member, of the American power elite with whom Gorbachev never agreed to shake hands.

RP: What is there to discuss?

WH: What common basis is there for discussion, between climate scientists of goodwill and “civil society”? If – as it seems – there are no grounds for expectation that any scientist of importance is going to acknowledge that spraying of massive amounts of sulphate or some other form of poisonous aerosol into the atmosphere is anything more than a hypothetical future possibility, an “insurance policy”, to quote NAS president Ralph J. Cicerone, “if the world one day faces a crisis of overheating, with repercussion like melting icecaps, droughts, famines, rising sea levels and coastal flooding,” what demands can be made of climate scientists that might help to inspire the “trust” that Paul Crutzen says he wants to see?

RP: I don't trust anyone what wants to geoengineer our planet with atmospheric chemicals or particles. This process will negatively, I believe, impact all of us around the world...whether agreed to or not...and the implications on our environment and human health are enormous. How can one trust the geoengineers who want to keep their programs secret? And the scientists are already trying to gain public support for their experiments.

WH: One measure that might help be would be a demonstration by climate scientists that they are capable of standing up to the 'skeptics: refusing to debate them on the media for example... (unless perhaps the 'skeptics in question are of the sincere - and politically clueless - type that are also protesting about "chemtrails"...)'

RP: Persistent jet contrails are only the tip of this iceberg and the protests aren't necessarily clueless...just locked into a vocabulary that doesn't allow them to move forward with the public debate).

WH: Another step that might lead in the direction of "trust" would be by our raising the demand that questioning whether climate change is connected to human activity should be made illegal.

RP: Experimental Weather Modification and Atmospheric heating and testing programs should be investigated and brought to public attention. None of this should be made legal until such time as we have an informed public and public debate on these subjects which will impact us for generations.

WH: This would be against freedom of speech, just as it is against freedom of speech to compromise scientists and subject them to regimes of quasi-military secrecy so that they feel unable to admit what they are doing, and/or what is being done, and so that they are reduced to sending out smoke-signals to "the politicians". Our challenge to freedom of speech would be HONEST and OPEN. It would not be a sly, tricky, below-the-belt Edward-Teller type threat of the kind that is actually in force... A legal ban on "climate change contrarianism" would at least level the playing field... A muzzling capacity would be extended to both sides, not just to the contrarians... The weapon of litigation would be as available for us to use against them as it is available now to the contrarians (and any other interested party) to employ against any geoengineering advocate tempted to throw in his lot with the "conspiracy theorists" and admit that, yes, geoengineering is not hypothetical. We, and our friends, are doing it, and proposing it! Sue us!

RP: The energy crisis is allowing the nuclear power advocates another chance to build highly polluting, dangerous, nuclear power plants again. Just look at the amount of energy and pollution needed to dig and process the fuel for these plants. We can't handle the waste now...and if this industry has it way our problems with pollution will multiply and the world will become more dangerous as this technology moves to more and more countries that are unstable. We live in a world in which negotiations and diplomacy have all but broken down completely...and where other countries, afraid of American power, are now on the road to equal our military and nuclear bomb might in every capacity...China being the most dangerous...especially if they unite with Russia and a few other countries.

Anti-aviation campaigners

WH: One possible focus for discussion between civil society and climate scientists would be the current campaign launched by the European Union and some ecological groups (e.g. Friends of the Earth) against the environmental cost of aircraft emissions.

RP: I wasn't aware that Friends of the Earth ever came out against aircraft emissions - where and when? Do you have the documents?

WH: This campaign has included some very militant sounding assertions, for example by Friends of the Earth International vice-chair Tony Juniper, who has said: "Aviation is a rogue sector and its environmental impact is out of control. Climate change is the most urgent challenge facing humanity and yet aviation policy is doing the exact opposite of what is needed."

RP: They certainly aren't making the case in public here in the United States as far as I know.

WH: Certainly readers of the NAS report on "Policy Implications of Greenhouse Warming" will agree that if "spraying of reflective aerosol compounds into the atmosphere by utilizing commercial, military and private aircraft" has actually been implemented as "the most effective global warming mitigation", then it may be more than justified to describe aviation as a "rogue sector". But this is not what Juniper, and other anti-aviation campaigners, mean. What they mean is in a way the precise opposite. It has to do not with the use of aircraft emissions to mitigate global warming. It has to do with the role of aircraft emissions as net contributors to global warming. Anti-aviation campaigners are worried about aircraft as producers of greenhouse gases. They want to see aviation being included in the European Union's emissions trading scheme. They want to abolish tax exemptions on aviation fuel so as to put an end to the current unfair advantages of air travel over other more ecologically sustainable forms of transport such as railways.

RP: Al Gore is not promoting high-speed rail and rail transportation in the United States other than in one sentence. I have read his book and can't remember this subject being addressed or jet airplane emissions either.

WH: The argumentation of anti-aviation campaigners nowhere intersects with, interacts with, or shows any consciousness of, the argumentation of geoengineering advocates.

RP: This is because the public knows next to nothing about this subject - especially those who are opposing persistent jet contrails. Education is a slow process. And I have never been an anti-aviation campaigner. I have been on a campaign to make jets less polluting and to fly at altitudes that don't produce jet contrails that persist and exacerbate global warming and produce man-made clouds. It is reducing their impact on our ozone layer.

WH: Geoengineering advocates and anti-aviation campaigners argue past each other, ignoring each other.

RP: There is no argument going on in the United States on this subject that I know of...we have raised cleaner emissions recently...but most have no idea what geoengineering is...the ignorance on this subject in the United States by the general public is monumental.

WH: And most importantly, they base their arguments on diametrically opposite conclusions about the effects of aircraft emissions.

RP: There is no argument or discussion here. It is a case of reducing jet fuel emissions.

WH: Geoengineering advocates posit a net cooling effect; anti-aviation campaigners a net warming effect of aircraft "contrails" on the earth's atmosphere... In both cases these conclusions correspond to the needs of political agendas.

RP: No they don't, since this is not a general public discussion. You can say they negate each other but then you have the problem with the rest of earth's polluting status. If geoengineering programs and persistent jet contrails and emissions only negate other each then geoengineering is not a solution. However, this discussion fails to note that both geoengineering particulates and chemicals and jet fuel emissions are highly toxic and polluting in themselves and add to the overall earth pollution of our atmosphere. The public needs to know about these problems. And we don't have any idea what the long-term effect of a myriad of geoengineering programs might do to our environment.

WH: Almost everything published in the mainstream media on the environmental effects of air travel is framed in a disingenuous tone that arouses suspicion.

RP: There isn't any discussion here in the United States that I am aware of at this time. The issues may be raised but they do not appear in the media except recently when Virgin Airlines' Sir Richard Branson brought up the topic on the Weather Channel in the past week.

WH: Which of the two sides of the non-debate between geoengineering advocates and anti-air-travel campaigners is guiltier of distorting scientific fact.

RP: This is a red-herring debate and the two are not linked except as they relate to increasing air pollution.

WH: If anything the anti-aircraft campaigners seem more guilty, despite the fact that – or perhaps because of the fact that – their political objectives seem less unobjectionable, and even praiseworthy...

RP: I disagree with the discussion at this point. No one is advocating that there shouldn't be air travel. I am advocating in my discussions that we limit unnecessary air travel on "spare the air days", that we fly at heights that don't produce persistent jet contrails, that we don't let airlines burn fuel at rich levels...so that they pollute more and leave persistent jet contrails, that we put the least polluting fuel in jets, rockets and other experimental military and civilian aircraft, and that we develop new fuels that are

less polluting and engines that are less polluting. And that we don't experiment with chemicals in our atmospheric testing until such time as there is a public discussion of the ramification of these programs.

WH: What is to one make of the following?

(Press quotation) "The CO₂ emitted from aircraft engines is not the only way that that aviation affects climate. Aircraft also affect climate through their contrails, the long trails of water vapour and ice that form in an aircraft's wake and which can persist for several hours. Contrails trap heat in the atmosphere by reflecting infrared radiation emitted from the Earth's surface.

In 1999 the Intergovernmental Panel on Climate Change calculated that contrails from the world fleet of 12,000 civil airliners contribute as much to global warming as the CO₂ their engines pour out as they burn jet fuel.

But global air traffic is growing by around 3.5 per cent per year, and many of those extra flights are long-haul, high-altitude, contrail-forming journeys. So by 2050 contrails will be having a great deal more of an impact on global warming than the CO₂ emissions from aircraft engines.

Contrails could be eliminated if aircraft reduced their altitude from about 33,000 feet to between 24,000 feet and 31,000 feet, depending on the weather.

But this would come at a price: lower altitude means denser air and higher air resistance, so planes have to burn more fuel. And this means more CO₂ emissions, which would apparently negate any benefits from eliminating contrails.

RP: Water vapor itself changes our climate and is also a greenhouse gas that is aggravating global warming. We can make engines more efficient and less polluting. Also a reduction in sunlight and impacts on photosynthesis on plants and animals from persistent jet contrails.

Press quotation (WH): But according to researchers at Imperial College, London, and the idea may work after all. "It seems counterintuitive", admits Robert Noland. But Noland and his colleagues have calculated that if planes flew low enough to leave no contrails behind, their fuel consumption would increase by only four percent, boosting CO₂ emissions."

RP: This may or may not be true...I haven't read all the research on this subject. However, we do know that less polluting jet fuel and engines are on the market and their use could be implemented immediately and/or phased in over time.

WH: Does this convoluted argumentation by anti-aviation writers...

RP: (no one that I know of is opposed to aviation per se...just to reducing emissions and persistent jet contrails)

WH: reflect anything more than political determination to oppose the geoengineering approach to climate change without ever admitting that it exists or has ever been proposed?

RP: Since so few here in the United States know what geoengineering is...and even what the word means...it is hard to argue any case. If the public is not informed then this argument does not hold water.

WH: What is the scientific status of arguments (e.g. from NASA) that cirrus cloud cover generated from aircraft emissions are responsible for increasing average surface temperatures in the United States over a twenty-year period?

RP: If you read the NASA reports in depth...they explain their research and also have the scientific data to back up their claims.

WH: Given that it is one of the key charges of the climate change “skeptics” that liberal activists in general and ecologists in particular distort science in the pursuit of unacknowledged political objectives, would not the head-on confrontational approach of “conspiracy theorists”, particularly if backed by agreed scientific facts, be a more effective response to these charges than a more “discreet” approach that relies on possible manipulation of scientific data?

RP: The Bush Administration is closing down the EPA libraries and boxing years of research on this and other subjects. This administration has orchestrated corporate individuals and politics into the process of scientific data and thus diluted many scientific reports. Your paragraph above is confusing on this issue, and the use of the words "conspiracy theorists" dilutes any arguments and implies that evidence is merely theories and not backed up by government documents.

The burden of proof

WH: As a final point for empowerment of currently excluded “conspiracy theorists”,

RP: (when you use the words "conspiracy theorists" you leave out most of us...we work in hard facts and government documents to make our case)

WH: ... it is often argued that the burden of proof for any assertion that geoengineering programmes are something more than proposals lies on those who make the claim. “Agenti incumbit probatio” (the burden of proof rests on the accuser). There is a surface plausibility to this, but on more careful consideration it should become clear that there is not any self-evident single “accuser” in these controversies. . In their way all parties are accusers. Paul Crutzen is an accuser when he implies that because of “taboos” his sulphate-seeding programme is not being given the serious consideration it deserves. His accusation enables “us” to request that he prove his programme is not being given such consideration. (What more serious consideration could there be than actual implementation?) Climate change contrarians are being accusers when they caricature the proposals of Crutzen as those of a “nutty professor”. Can they prove that Crutzen’s sulphate seeding proposals are disproportionate to the seriousness of the situation he is attempting to deal with?

RP: All items are valid arguments for public debate. However, HAARP, experimental weather modification programs, atmospheric heating and testing programs are not theories but real and being carried on with increasing funding. And what of the adverse impacts of using toxic chemicals in geoengineering schemes in our atmosphere...where

is the public debate? My belief is that we are going to be told that global warming is a crisis and that the only solution is implementing geoengineering and money market cap and trade schemes are the only answers.

Thus this leaves our politicians off the hook...no new taxes...no public sacrifices...and business as usual. All of us will pay the price eventually in costs to our food and water supplies, worsening air pollution, loss of natural resources and crop production, and human health. We and our future are expendable in the name of corporate greed and profits. The theory is that technological fixes like geoengineering will solve our problems and we can continue at the current pace of pollution...we mix in experimental weather modification and we can control other countries and a star wars weaponization of space and we are invincible and can dictate to everyone. If we have some air pollution problems we can protect a few from the consequences and let the rest of mankind suffer the consequences of our actions. And of course, we are led to believe that Americans would be protected...while we strangle in increasing air pollution, polluted water supplies, and reduced human health and other costs.

In World War II, for example, our government sold "War Bonds" in order to pay for the war. We could do the same here not only to pay for the Iraq War but to fund, in part, the technology to reduce pollution emissions here on Earth. If we changed direction and funding we could solve these pollution problems and the world could benefit from this technology.

WH: All in all the argument here is for the adoption of an offensive stance, a concerted attempt to become "the other side" of the debate, displacing the "skeptics" as interlocutors with mainstream climate science. Can we successfully do this?

RP: I am not sure what you want to do here. Mainstream climate science may be good...but the issues you have raised above are not addressed. What we have to do here is begin to have the public debate...about all of our problems...the possible solutions...and to take action that will limit pollution not only from aircraft but from ground based pollution sources.

This will take sacrifices made by all of us and a switch of technological advances from war toward developing ways to pollute less...along with alternative sources of energy. The use of chemicals is not always a solution to our problems...and we need to redirect our efforts into reducing pollution and moving the public debate into that area...and rely less on using more toxic polluting chemicals to solve climate change. And we have to address the current atmospheric heating and testing programs to determine how they are impacting our climate and our weather along with human health. This must become a public debate and all documents in these fields should be made public.
