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The Chemistry in Contrails

Assessing the Impact of Jet Fuel Impurities, Additives and Aerosols from Classified Military Operations on Nature

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Abstract

In order to discuss the topic of aerosol spraying one needs to distinguish between intended geo-engineering programs designed to combat climate change, the impact of lead, sulfur and halogens from fuel impurities or additives in civil and military jet propellants and the spraying of high tech aerosols for military purposes.

During the last few years there have been many reports from concerned citizens about a new type of damage occurring to plants that is different from the damage known from acid rain: Grass simply stops growing; trees drop their bark and die. It has been speculated that these damages could be caused by high values of aluminum, barium, strontium or titanium found in the chemical analysis of affected plant tissue, rain-water and soil-samples. There has been an increasing suspicion and worry among people, of a possible link between these high metal findings and the increasingly frequent occurrence of persistent contrails.

We decided to perform a chemical analysis on damaged grass (*phleum pretense)* and associated soil samples from the Oslo area in order to explore a possible link between retarded plant growth and aerosols released by airplanes. The results from this chemical analysis showed high levels of aluminum, barium, strontium and titanium in the grass, and an surplus of barium in soil exposed to rain in comparison to soil not exposed to rain, which makes it likely that the barium found in the ground partly comes from aerosols. The method of analysis does not reveal in which form these metals are present, but they might very well be present as (Ba, Sr_x)TiO_3. This is a nano-crystal that is in use as an aerosol for military purposes.

Still, the total values of barium, strontium and titanium were in a range that had to be considered as not toxic as bioavailable elements. The pivotal mechanism affecting plant growth seems to be the unique electromagnetic qualities of some of the patented aerosols, in relation to the bio-physics of plants.

Nano-crystals can be taken up by plants as whole and will remain unaltered. Embedded within the plant tissue these crystals will keep their intrinsic and electromagnetic properties. One of these nano-crystals of special concern is (Ba, Sr_x)TiO_3, which is a piezoelectric substance, sprayed to create artificial plasma layers for military purposes. As an unintended side effect, this nano-crystal is likely to cause retardation of plant growth when absorbed by plants.

There are three theoretical indications for possible damaging effects on plants:

- Plant growth may be inhibited due to interruption in cell communication. The weak intercellular UV signals, the bio-photons, may be absorbed by the (Ba, Sr_x) TiO_3 nano-particles, who absorb 90% of the light on the frequency responsible for cell division. The calculated optical range within the estimated particle density in the examined grass was in the range of DNA distance.

- Plant DNA may be irradiated by high-energy ultraviolet light released from exited barium or strontium nuclides. Nuclides can absorb gamma rays from cosmic radiation while in the clouds and enter an excited state. Irradiation is a known cause of plant DNA damage.
- The electromagnetic cell potential in plants may be disturbed and set out of balance when (Ba, Sr_x) TiO_3 nano-crystals are hit by terrestrial EMF, microwave or radar-radiation. Due to the piezoelectric properties of (Ba, Sr_x) TiO_3 such radiation induces a change in the crystal-geometry that releases free electrons. A balanced cell potential is fundamental for plant health and growth.

In addition to these possible damages done to plants single publications have been found that report on negative effects of aerosols like (Ba, Sr_x) TiO_3 on mammals and humans. Two studies show the bio-accumulation of these nano-crystals in mammals and humans that leads to a damage of the nervous system. The crystals attach to the sensory receptors and trigger them by releasing electrons and/or photons due to an external acoustic or electromagnetic impulse. A second report anecdotally showed how the presence of barium on the surface of snow was associated to weakened bio-photon activity of humans, accompanied with symptoms of non-treatable headache. Possibilities of synergistic toxicity with halogens in use as jet-fuel-additives are discussed.

From the metals contained in barium-strontium-titanate only barium has been sufficiently monitored by state authorities. The data from Germany covering the last 15 years show that the values of airborne barium-dust referred to as dry deposition went down by 95%. This is accredited to improved industrial standards and reduced industrial exhaust. There is also a significant reduction seen in other heavy metals. Pollution deposited with rain is measured through the absorption of the pollutants in grass and referred to as wet deposition. During the same period, values for wet deposition of barium have been almost doubled. For the year 2012 the data gathered from private rain samples directly reveal an average of 0.003 mg barium per liter from which one can calculate a wet deposition of 865 t of Barium on the German territory – this value is supported by the data of the state authorities for wet deposition, last published for the years 2009-2011. Being specifically bound to rain, the detected barium must be considered as originating from aerosols of unknown origin, most likely artificial, since industry and mining can be canceled out as sources.

If all of these aerosols should come from aerosol-spraying with for example ($Ba_{0.5}$, $Sr_{0.5}$) TiO_3, then this would have mounted to 2027 t piezoelectric aerosols per year raining down on Germany only. In addition, other aerosols like Al_2O_3 might be involved, so the total volume can be higher.

If only 8 % of the estimated amount of barium-strontium-titanate per territory would be absorbed by grass as whole crystals, this would in theory lead to an optical density of nano-crystals in the grass that could interrupt cell communication between DNA of neighboring cells. Such an interruption would affect plant growth.

Values from Germany as an industrialized country in the middle of the continent were compared to values collected by the State Veterinary Institute in the less populated Norway. Total values in Norway were about 4 times higher than the ones measured in the German grass samples, but it turned out that most of these metals are from natural sources. High values of barium found are mainly associated to the uptake of dust from barium-rich soils; strontium is associated to the uptake from salts from the Atlantic. The analysis does not distinguish between natural barium compounds and artificial barium-strontium-titanate nano-crystals. These results hint again to a chemical non-toxicity of barium compounds, they were of no value to detect the total amounts of nano crystals deposited in Norway.

The grass-samples we took from the Oslo area held as mentioned above considerable amounts of barium, strontium, titanium and aluminum. But also here the total values were in a range that under normal conditions had to be considered as chemically not toxic. We further compared the soil under the grass retarded in growth to soil that not has been exposed to rain for decades. This comparison indicated that about 47% of the measured barium-content had to be associated to aerosol-disposal brought down by rain. Given the theoretical mechanism of $(Ba, Sr_x)\ TiO_3$ and no other factor present, this would hint to a lethal dose of 57 mg/kg nano-crystals – which is about the optical density of 10nm-particles interrupting light-transmission even between directly neighboring cells.

We have found no published research on the effect of the various patented aerosols on plants. Equipment and infrastructure to implement geo-engineering even in large scale is already in place. We urge for proper research on the impact of these aerosols on plant growth, microorganisms, plankton, insects, and animals under controlled lab conditions. Aerosols need to be found safe for every aspect of our biosphere before they are released into nature.

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1. Introduction

The topic of geo-engineering has three aspects that need to be first differentiated and then can be seen as historically interwoven:

1. There is an official line of research that mainly evaluates options of climate engineering to combat global warming. This research processes huge amounts of money but officially projects all "practical applications" into the future. It manly conducts "experimental programs".
2. There has been an ongoing development of jet propellants and their additives by the US-air force and the NATO. The chemistry of the additives currently in use is classified information – some of the additives have been identified by civil-right-initiatives and private researchers as 1,2-dibrom ethan (EDB), perfluoroktan sulfon acid (PFOS), perfluor oktan acid (PFOA) and lead tetraethyl. These additives contain fluorine, sulfur and brome and must be regarded as an important source of the aerosols H_2SO_4, HF, $HBrO_3$ which lead to persistent contrails[1]. These additives are highly toxic contact poisons and are suspected to be responsible for multiple-chemical-sensitivity (MCS) and the gulf-war-syndrome (GWS).
3. There are military applications involving the aerosol spraying of piezoelectric nano-particles ($(Ba, Sr_x) TiO_3$) for 3D battlefield monitoring, radar-range-enhancement and advanced defense and weapon systems.

In the US borders between governmental research, military research and applications, the activities of the intelligence community and university- and company based research and applications are difficult to define. In this financially interwoven network a growing number of whistleblowers draw attention to a classified project "Cloverleaf". It is supposed to serve military-, agency- and governmental aims by spraying large amounts of aluminum and titanium based aerosols using the infrastructure of the CIA, the NSA and the US-Navy as well as civil airplanes altered for additional spraying.

Jim Phelps from the Oak Ridge laboratories in the USA, the inventor of the titanium based aerosol concept, today openly accuses the US military as well as the CIA/NSA intelligence community of an abuse of his invention, that was meant to solve jet fuel related environmental problems.

Since the 80s Phelps had researched the impact of aerosols from airplanes on nature and climate and had found out that jet fuel was responsible for the following:

1. the loss of ozone at the poles due to fluorine-compounds
2. global dimming due to persistent contrails and enhanced formation of cirrus-clouds
3. global warming, because these cirrus-clouds hold back infrared radiation from the ground and
4. growing problems with toxic fluor-aluminum compounds forming in the soils.

[1] Most of the older geo-engineering concepts base on sulfur aerosols for cloud seeding. Halogens play a similar role in the

In 1996 Phelps suggested solving 3 of these problems by adding various titanium based oxides to the jet fuel. This concept was meant to prevent the ozone loss and the forming of toxic fluor-aluminum compounds by binding the fluorine to titanium-oxyde (which forms less toxic compounds than aluminum) already in the sky, and additionally reduce global warming by seeding reflective particles, that would block even more sunlight and let through infrared from the ground. From here, the discussion enters the triangle of classified information, whistle blowing and conspiracy theories.

There have been many reports from concerned citizens about a new type of damage occurring with plants. It is different from the known damage by acid rain in the 70s, where large areas of spruce forests died in Germany. The symptoms observed back then were first the dying of the tiny roots of the trees after suffering from heavy metal poisoning, followed by a loss of the needles and the death of the tree. Now grass is reported to simply stop growing, trees to drop their bark and die. It has been speculated that these damages could be associated with the increasing occurrence of persistent contrails on one hand, and presumably linked to the high values of aluminum, barium, strontium and titanium found in chemical analysis of plants tissue, rainwater and soil-samples on the other hand.

This is what can be said to the background of this study. In the last chapter we will go a little more into details of the politics and military activities. However, what is important is the seemingly unintended side effect of nano-particles on plant growth.

During a project in Norway we were confronted with the problems of a number of farmers who in the year 2012 lost parts of the second harvest of hay. Additionally, the increased appearance of striped clouds was a cause for unease. These clouds appeared in the afternoon and eventually covered the normally blue summer sky with a milky haze at a high altitude. One of the farmers associated the drizzle falling later on such days to damage done to tomato-plants and lettuce. The farmers, who had taken chemical analysis of rain samples and the grass retarded in growth, asked for help interpreting their lab results.

Our starting point was the worry that aerosols could disturb plant growth to an extent where it affects the harvests and thus the livelihood of mankind. At the same time, we were aware that the topic of geo-engineering, also referred to as chemtrails, was controversial and caused heated discussions. From the information available it was hard to get a picture of what was actually happening. In this context we felt the need to search for consistent information, and to check the theories against scientific data. This meant in detail: to find out if high atmospheric spraying is already taking place, if yes which aerosols are in use and how big the amounts actually sprayed were. The second task would be to find out in what way these aerosols might affect plant growth to explain the damage observed.

The only anomalies showing in the results near Oslo concerned barium, strontium and titanium. Aluminum was high but within limits. These are elements discussed as parts of aerosol spraying for military purposes. The measured amounts of the elements themselves i.e. their direct oxides had to be regarded as chemically non-toxic to plants. We therefor took a closer look into the patents involving these methods to see if there could be some

overseen mechanisms affecting plant growth. It became clear that the optical and electro-physical properties of these nano-crystals could be essential in understanding how plant growth can be severely affected by some aerosols. [1]

A six-fold line of research has been undertaken to examine the possibility of a relationship between slowed plant growth and deposition of aerosols released by airplanes for military purposes and eventually for purposes of geo-engineering.

1 Going through the patents of aerosols for geo-engineering, the patents of aerosols for military purposes and the normal jet-fuel and jet-fuel additive-chemistry in order to see what substances to look for, and look for research proving their safety.
2 Review research on plant communication and growth.
3 Discussing the physical properties of aerosols regarding possible mechanisms that could damage plants.
4 Analyzing samples of grass with reduced growth and of the earth underneath to define what part of the findings could have an aerial source.
5 Reviewing official data of wet and dry deposition of heavy metals.
6 Look at the operational and political aspects of aerosol-spraying.

In the following parts we will summarize some scientific background knowledge about toxicology in general and discuss the additives used in Jet Propellant 8, the Jet fuel used by US army and NATO forces. As a second topic we will summarize some background information about bio-photon-research and the non-linear optical properties of (Ba, Sr_x) TiO_3 nano-crystals. Against this background we will discuss possible mechanisms of damage that might be done to nature by (Ba, Sr_x) TiO_3 nano-crystals. These effects will be discussed regarding plan growth, marine life and possible effects on mammals and humans. Following this theoretical part we will review the data available of barium, strontium, and titanium depositions in Germany and Norway over the period of the last 15 years and try to distinguish between industrial pollution, natural deposits and other aerosol deposits. To backup the scientific finding we will then again look at historical and political aspects to evaluate the probability of our data.

2. Direct toxicity, synergistic effects of toxic elements, subsequent damage in the ground

Actually the entire topic of toxicity is rather complex. It makes sense to regard some basic principles:

- **The level defining toxicity**

Plants and all living beings need most metals in minute amounts to be healthy. In a way, nature on the continents is still addicted to the statistic distribution of rare metals as found in sea water, where we all come from, and is trying to stabilize this statistical pattern in the chemistry of the cell water. The metals we need, can be absorbed in so called bioavailable

form, in solution as a cation, or from organic decay products as organic complexes. Up to certain levels higher amounts of metals will be tolerated by the plant or living being without any harm done. Above these levels the metals will cause damage and function as a toxin.

- **Lead and Mercury**

To this rule there are two exceptions: lead and mercury. Neither lead nor mercury are good for any living being. They are toxic already in the minutest level, cause serious damage with higher levels and are eventually lethal. The tolerance for lead varies between plants and mammals. Plants tolerate more than mammals.

- **The compound defining toxicity**

Metals can be present in nature in many forms. Due to their structure and reactivity they can react with other elements and form many different compounds. The same metal can be toxic in one compound and neutral in another compound. For example the uptake of aluminum can happen in form of 200 different known compounds, from which especially the fluorine-compounds are known to be highly toxic, while both fluorine and aluminum can appear in compounds that are less toxic than the direct combination.

- **Synergy of metals can manifold the toxic and lethal effect**

Toxicity does not always add up the way one would expect her to do. Sometimes the combination of two toxins multiplies in an extraordinary way. The following experiment shows this synergistic effect clearly: 1/20 of a lethal dose of lead (Pb^{2+}) that kills 1 of 100 mice, was combined with 1/20 of the lethal dose of mercury (Hg^{2+}) that also kills 1 of 100 mice. The combination did not kill 2 mice, but all 100 of 100 mice.[2]

- **Complex synergies caused by lack of other essential minerals**

A second type of synergistic effect occurs when there is a lack of an essential element with similar atomic structure. Strontium, which is regarded as non-toxic[3] to humans, is even given as a medicine to strengthen bones. However adding strontium can lead to bone deformation if the body suffers from a lack of calcium[4].

- **Magnitudes of released toxins – nature vs. man made**

To get a feeling for what is normal in nature and what is man made we will look at general amounts of pollution, with the example lead. There is a natural pollution by volcanoes and

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[2] Boyd E. Haley: "Mercury toxicity: Genetic susceptibility and synergistic effects", p. 537

[3] First draft Peter Watts; Paul Howe: England. Concise International Chemical Assessment Document 77: STRONTIUM AND STRONTIUM COMPOUNDS. WHO publication

[4] Lara Pizzorno: The Truth about Strontium Supplements, Side Effects, DEXA Results, Efficacy and More. Online at: http://www.algaecal.com/Blog/the-truth-about-strontium-supplements-side-effects-dexa-results-efficacy-and-more/11333 on the Jan. 3rd 2013.

bush & forest fires that amounts to 19.000 tons lead per year set free into the atmosphere. The amount of lead released by the burning of coal and fuel exceeds this natural amount by more than 100 fold. Up to the 60s these amounts were mostly blown into the atmosphere via high chimneys, without filtering units. Since then at least in the US and Europe filtering technologies have been introduced that reduce this "peak"-output by an average of 95%.

- **Direct metal pollution vs. secondary release of metals via acid rain**

If one compares the content of heavy metals and the content of sulfur and halogens in coal and oil derivatives, one finds sulfur and halogens in concentrations that are altitudes higher than the ones of the metals. Coal of bad quality can contain up to 3% sulfur, while the heavy metal content might be in the range of mg/kg.

The sulfur and the halogen compounds released by burning will connect with water droplets and result in acid rain. Since the forest decline in Germany in the 1970s the mechanisms of damage by acid rain have been thoroughly studied. The main consequence is that the acidity brings SiO_2 into solution, and thus releases metals that used to be bound to the SiO_2 into bioavailable forms. This can affect soils as well as rivers. In soils this leads to a dying of the tiny roots of trees. In rivers these released metals caused death of fish.

Looking at altitudes, this means that when sulfur and halogens are turning into acid rain they can release their molar equivalent of metals once getting into the ground. Thus the amount of metals released by acids can be altitudes higher than the amount of metals directly released by the same amount of fuel. Thus the first thing to have a look at is the quality of the jet fuel itself regarding sulfur and halogens. Among the different known fuel types especially one draws attention: Jet Propellant 8. It is the fuel used by the US air force and the NATO and also is about to enter the market for civil air traffic.

2.1. Back-engineering JP-8

The aim of the US military was to have one fuel for all purposes: to fuel the kitchen stove to cook a meal in the army camp, to run the jeep, the tank, helicopters and airplanes. It should be possible to use the same fuel no matter if the action was happening in the arctic, the desert or at altitudes of 10 000 feet. A second aim was to have a fuel that in the situation of combat would not ignite so easily when one was attacked. A third aim was to have this fuel available commercially – which reduces the internal logistics. This resulted in what is called Jet Propellant 8. The so-called JP-8 is identical with normal Jet-Fuel Jet-A1, except of 0,02% additives.

The chemical formulas of the additives used in JP-8 are classified.

However, it is possible to deduct some of its content from the information available.[5] The military turbo prop transporters run their engines on a compression of 25 bar. This

[5] Marion Hahn: Umweltkrank durch NATO-Treibstoff? Neues zu einer umstrittenen Theorie umwelt·medizin·gesellschaft

demands fuel with lead tetraethyl, as unleaded fuel would already explode at a compression of 20 bar. As a second additive leaded fuel needs dibrom or dichlor ethan[6]. Up to the early 80s lead and halogens were used in car fuel in much lower concentrations. The exhaust from cars in this period resulted in levels of lead in the air causing widespread health damages. Due to the high toxicity of lead it became forbidden to use it as an additive to fuel.

Due to this toxicity the military developed a system where higher amounts of these poisonous additives would be added in situations of high risk only: whether it was when refilling airplanes in the air or being in combat, in certain situations the fuel needed to be even less explosive[7].

It is known that during the first Iraq war the US airplanes added 25 liters of halogen based additives to the fuel at each tank filling in order to lower the flame point. Depending on the size of the plane this equaled 2-5% of the total fuel consumption. It is not known how often nor under what conditions these extra-additives are used during times of peace.

To have these additives fast and equally distributed when injected it needs a tenside that is already contained in every regular tank filling: perfluoroktan sulfonacid (PFOS) and/or perfluoroktan acid (PFOA) would be solutions to this task. PFOS and PFOA are among the most toxic chemicals known.

Both PFOS and PFOA nowadays happen to appear in nature and in the blood of humans. To convey a sense of the size of the problem I refer to the study "Survey of PFOS, PFOA and other perfluoroalkyl and polyfluoroalkyl substances" by Carsten Lassen, Allan Astrup Jensen, Alexander Potrykus, Frans Christensen, Jesper Kjølholt and Christian Nyander Jeppesen from the Danish Ministry of the Environment. Environmental Protection Agency. The paper is Part of the LOUS-review from November 27th 2012. There is a *Version for Public Consultation* available. Values of lead were measured in the soil near to US-military airports and reached up to 1 767 mg/kg. 30-40 mg/kg was the average countrywide pollution at the time of measurement.[8] Thus this back-engineering of JP-8 seems to make sense.

World production of JP-8 back in 2000 was already at 4.5 billion gallons (17 billion liters) per year. Assuming these additives were used in high dilution (0,02%), the amount burned together with JP-8 back in 2000 amounted to 3.4 million liters concentrated poisonous liquids. The measured pollution at the ground might come from burning residues as well as from the release of un-burned fuel when taking up fuel in the air, where the last pipe

| 16 | 4/2003

[6] Marion Hahn: Umweltkrank durch NATO-Treibstoff? Neues zu einer umstrittenen Theorie umwelt·medizin·gesellschaft | 16 | 4/2003

[7] Air Force Times 18.1.1999

[8] Marion Hahn: Umweltkrank durch NATO-Treibstoff? Neues zu einer umstrittenen Theorie umwelt·medizin·gesellschaft | 16 | 4/2003

filling is lost after disconnecting, or when intentionally releasing fuel from the tanks for security reasons before landing.

In addition lead and halogens are added (2-5%) in combat, eventually combat simulations or maneuvers like refilling during the flight[9]. The total amount is unknown, however this technique is increasing the output by the factor 100 to 250 when applied, depending on plane size.

The cocktail of EDB, PFOS, PFOA and lead tetraethyl is known to have synergistic poisonous effects on mammals and humans, leading to the gulf war syndrome (GWS) and multiple chemical sensitivity (MCS). These additives are also connected to the depletion of the immune system and reduced fertility.

The overall concept leaves us with the US and NATO military equipped with extra logistic to insert additives of any kind into the fuel if wanted. JP-8 is known to be conductive, which fuel normally should not be. This hints to another possible additive containing conductive nano-particles. (Ba, Sr_x) TiO_3 would be a possible candidate leading to this conductivity.

Following this "back-engineering of JP-8, there are a number of compounds released into nature by exhaust from airplanes:

1. From the burning of the fuel itself (CO_2 and NO_x forming H_2CO_3, H_3NO_4),
2. the burning of fuel impurities (mainly SO_2 forming H_2SO_4)
3. and the burning of fuel additives (forming H_2SO_4, HF, $HBrO_3$, PbO).
4. If the burning process is not fully happening we eventually will have to look at additive residues (dibrom ethan (EDB), perfluoroktan sulfonacid (PFOS), perfluoroktan acid (PFOA)).
5. The acids, H_2CO_3, H_3NO_4, H_2SO_4 and HF are of great concern as they set free secondary toxic compounds when they are absorbed in the ground, following the mechanisms referred to as acid rain.
6. The last class of toxins that eventually could be part of JP-8 are particles from intended particle spraying (Al_2O_3, (Ba, Sr_x) TiO_3).

All sulfur and halogen compounds burned with the jet fuel act as aerosols leading to persistent contrails and increasing the appearance of cirrus clouds. Due to the fact that this phenomenology is regarded as contrails in the public discussion it becomes obvious that the spraying of nano-particles for geo-engineering purposes might be hiding within theses sulfur- and halogen induced haze.

[9] Marion Hahn: Umweltkrank durch NATO-Treibstoff? Neues zu einer umstrittenen Theorie umwelt·medizin·gesellschaft | 16 | 4/2003

2.2. Understanding particle sizes

In cloud-seeding man made particles like metal-oxides in the nano- or micro-scale are brought into the atmosphere by airplanes to function as aerosols. For geo-engineering these substances are intended for spraying at an altitude of 8-10.000 meters. The understanding of what is possible especially with nano-crystals has not yet reached the general public.

To convey a sense of what actually is possible we calculated the values for the aerosol barium-strontium-titanate with a particle size of 10nm. This aerosol is already in military use but also is in discussion for civil geo-engineering to combat climate change as a separating agent to prevent aluminum-oxide-flitters to agglutinate. These nano-crystals can stay up in the air up to 18 month, where they would create clouds or haze at high altitude. 1 gram of these (Ba, Sr_x) TiO_3 nano-crystals has the amazingly large surface of 2500 square meters. It is possible to spread these nano-crystals so unbelievable thin that 1 gram can totally seal 685 square meters. 300 tons would be enough to cover a country of the size of Germany with a one particle thick layer. To bring this amount out would take only 30 flights assuming that the planes carry 10 tons each.

When it comes to the measurement of particles and the metals they contain after being released to nature one faces a few difficulties: The measurements sometimes refer to the compounds, and sometimes – especially with metals – to the basic elements detected in chemical analysis. In a chemical analysis you choose whether to have only bioavailable metals measured, which is metal elements in solution, or if you want to detect all metal present. The latter analysis does not show if the metal is in a solution, nor does it distinguish between the different compounds a metal can be a part of, and importantly – it does not identify if a detected metal is part of an nano crystal or particle. The result from a lab analysis therefore gives us a limited knowledge of the toxicity the plant, soil, microorganisms and other living beings are exposed to.

Such an analysis will to a certain degree indicate the degree of pollution, especially when comparisons can be made between exposures or over a long timespan. One cannot read possible toxic synergies directly from this type of data nor can the mechanic and optical qualities of crystals be detected.

Nano-particles may have different degrees of solubility. The particles that are non-soluble will accumulate in nature and might create a long-term problem.

2.3. Aluminum Oxide

Last time damage was observed and could be related to industrial pollution it was the damage done by acid rain. It was the sulfur and fluorine and the NO_x formed in industrial fires that had an impact on nature. Coming down as acid rain the acid agents released heavy metals in the ground by bringing SiO_2 into solution. The sulfur-content of coal can be up to 3%, this is 3-4 magnitudes higher than the amounts of heavy metals released directly

to the air from burning of fossil fuels. In the 1970ies the situation became critical when in Germany large areas of forest died. The main heavy metal released by acid rain was aluminum resp. its oxides.

In public discussions about the damage done by the fallout of aerosols from geo-engineering, aluminum is often mentioned as being harmful for plants. The aluminum-nuclides are believed to attach to the membranes of the tiny roots of the trees, block the uptake of nutrition, causing the roots to die off, just like experienced back in the 70s.

Al_2O_3 as mentioned in geo-engineering-patents forms thin flitters in the range of 10-100 micron. According to a former military researcher in the German Army a different threat by aluminum could occur if the micro-particles, which are very thin, instead of going into solution would break down to even smaller particles while deposited in the soil. These particles could then be taken up by the roots as nano-crystals and alter the acidity in the plants as well as mechanically harm the plants by blocking the capillary system.

Sometime in discussion sit is said that aluminum turns the rain acid. This is not correct. The presence of Al_2O_3 in the rain would bring the rain into the alkaline state. If rain is coming down acid this is not related to Al_2O_3. It is rather an indication of fuel impurities or additives containing sulfur and halogens.

Acid rain is rainwater with acidity below 5.5, which would be the natural acidity in equilibrium with the natural $C0_2$ content of the air. Burning fossil fuels releases SO_2 and NO_2 in the air, which form H_2S0_4 and H_2NO_3, In addition burning carbon creates extra CO_2 which forms extra H_2CO_3. All these are acid agents that can damage plants directly via fog, which attracts a lot of these gases from the air, or indirectly via the rain entering the ground. The accumulating acidity in the ground will release toxic heavy metals into solution, these can enter and destroy the small roots of the trees and thus disturb the uptake of minerals. The mechanism is a bit complex: Al_2O_3 as well as other heavy metals occur as a mineralogical unit with the SiO_2 in clays and many other minerals. The acid rain has the capacity to dissolve SiO_2 and thus release Al_2O_3 into a bioavailable form. As a result, acid rain can lead to an intoxication of plants with bioavailable aluminum. In addition the Al_{3+} can form toxic compounds with for example fluorine.

Actually, this release of Al_2O_3 is part of the self-regulation mechanism that protects the soils itself from getting too acidic by acid rain.

Direct deposition of Al_2O_3 in combination with acid rain could maybe balance the acidity, however would add to the Al_2O_3-burden at the roots. Direct deposition on soils which is too alkaline in tendency could do damage. Also, too high alkalinity of the rainwater causes damage when raining down touching the leaves[10].

There is some concern about Al_2O_3 concentration in grass when it comes to cattle. Titanie has been found being correlated to high amounts of Al_2O_3 in the cows stomachs. Values were at 6000 mg/kg in average when being lethal. However these values are far beyond

[10] From private discussions with Toril Sjekke, University of Ås, Norway.

any countrywide average of aluminum in grass, values of 200 mg/kg have been regarded to as being “high”. Thus a connection of Titanie to the occurrence to geo-engineering should be encountered as non-existent.

2.4. Chemical vs. electro-physical effects of barium-strontium-titanate

When it comes to heavy metals connected to geo-engineering, especially barium, strontium and titanium, the first logical reaction would be to say that even if considerable amounts would be sprayed today, it would still be minute compared to levels of industrial pollution in the late 1960s, early 70s, when filtering technologies were not applied in coal and oil power plants.

This might be the case as on the German territory 127 tons of Barium are deposited naturally per year, and 100 times more, 12 700 tons of barium was the estimated deposited from industrial sources in the 1960s and 70s. These are higher amounts than what one can imagined to be sprayed into the upper atmosphere.

We can’t know in advance the threshold of nature’s ability to adapt to known toxic- or other compounds. From the data available it does not look like there is a direct damage done to plants by barium, strontium and titanium as bioavailable elements in the present magnitudes. Then there is the matter of solubility. Barium-Strontium-Titanate nano-crystals are not soluble and would not be expected to become part of the bio available compounds.

What one should expect is bioaccumulation of the non-soluble crystals in the food chain, and with possible mechanical, optical or electrochemical effects.

3. Scientific background to electro-optical effects

3.1. Non-linear optics

Light is scientifically defined as a transversal electromagnetic wave. This is correct when observing continuous transmission of large amounts of photons from one random/chaotic source of light. For this type of light, science knows the possibility of polarization, when the direction of transversal wave structure is reduced onto one optical plane. Polarization occurs due to reflection or by special filters that consist of a grid of parallel lines with a distance smaller than one wavelength, so that waves that are not parallel to the grid cannot pass. Another, separate phenomenon is coherence. It occurs when the wave pattern of all photons involved are in phase. Coherence is the quality of light created by laser technologies. Polarization is order in space. Coherence is order in time.

Going back to the origins of electrodynamics, one finds that light not always was assumed as a transversal[11] wave only. Maxwell, the father of modern electrodynamics, tried to describe the transmission of light from the very basic mathematical principals known to be valid for any wave-transmitting medium. Thus he described electromagnetic waves with all three different solutions to the general wave equation, naming transversal, longitudinal and scalar wave functions. For the calculation of this complex system he used quaternions[12].

Thus light is calculated as an electromagnetic wave. “Single photons” can add to each other or delete each other in their field effect. The interference of large amounts of photons from a chaotic source results in transversal waves. The other two solutions to the general wave equation occur only at wave fronts and were dropped by mainstream science. Only a few researchers like E. T. Whittaker[13, 14] followed up the full notation. Later this side-path became a specialized field within non-linear optics[15].

With the introduction of pulsed laser technologies in the early 90s, the first experimental set-ups and applications were developed utilizing properties of longitudinal and scalar electromagnetic fields[16, 17]. Longitudinal waves occur at the wave fronts of pulsed EM-waves and laser light. The shorter the pulses, the higher the relative amount of longitudinal field-structure becomes.

Scalar waves can be produced by wave coupling[18] of two longitudinal waves, for example by two pulsed laser beams. It is possible to observe a fusion of the two beams resulting in optical annihilation, in which one wave behaves like a “master wave”, the other one as a “slave”. Annihilation does not mean the waves completely cease to exist, they just go into a

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[11] In transversal waves the motion of the particles is 90 degrees to the direction of propagation. A typical example would be waves on the surface of the ocean. In longitudinal waves the particles move in the direction of propagation. A typical example would be sound. Some media can carry both wave types. The distance of the core of an earthquake is analysed by the time difference between the arrival of the longitudinal (quick) and the transversal (slow) wave.

[12] *A Treatise on Electricity and Magnetism*, 2 Bände, Oxford 1873, 2. Auflage 1881 (Hrsg. W. D. Niven, noch mit Maxwells Änderungen in den ersten acht Kapiteln), 3. Auflage 1891 (Hrsg. J. J. Thomson).

[13] E. T. Whittaker, "On the partial differential equations of mathematical physics," Mathematische Annalen, Vol. 57, 1903, p. 333-355. 11 V.K. Ignatovich, "The remarkable capabilities of recursive relations," American Journal of Physics, 57(10), Oct. 1989, p. 873-878.

[14] E. T. Whittaker, "On an expression of the electromagnetic field due to electrons by means of two scalar potential functions," Proceedings of the London Mathematical Society, Series 2, Vol. 1, 1904, p. 367-372.

[15] Amnon Yariv, Optical Electronics, 3rd edn., Holt, Rinehart and Winston, New York, 1985. Chapter 16: "Phase Conjugate Optics -- Theory and Applications."

[16] David M. Pepper, "Nonlinear optical phase conjugation," Optical Engineering, 21(2), March/April 1982, p. 156-183. On p. 156

[17] See also David M. Pepper, "Applications of optical phase conjugation," Scientific American, 254(1), Jan. 1986, p. 74-83. See particularly the striking photographic demonstration of time reversal of disorder on p. 75.

[18] Wave coupling is a special effect in optics. Normaly longitudinal em-waves are adding to each other, are overlaying without influencing each other. If they get to similar to each other in frequncy and direction of propagation this can change. Suddenly they relate to each other, merge into one waveset whose components are not able to propagate independent from each other. This is called coupling. Wave coupling happens mostly at 0 and 180 degree, some more complex coupling phenomena also occure at 30, 60 and 90 degree. One beautiful example for wave coupling comes from accoustics. Acoustic waves are longitudinal and thus able to couple.

state that is not measurable, and they are mathematically pushing the energy content into another dimension. Scientifically one would say that a "pump wave" controls a "time reversed replica wave", which means it makes this replica wave act as if it is flowing backwards in time[19]. This was a very exciting moment for science because it was the first controlled process that involved effects of virtual time-reversal[20, 21] in electromagnetics and thus made it possible to utilize this negentropical[22] process. Negentropy is the physical process that is the basis for the ability of self-organization, especially of organisms, and thus gives understanding of the basic principles of life. This understanding can also lead to a completely new generation of energy technologies[23, 24]. One type of optical applications utilizing these physics is referred to as self-pumped phase conjugation (SPPC) applications.

Scalar fields – being a set of two coupled longitudinal waves optically annihilating each other – are the key to understanding the non-local interaction observed in quantum physics, referred to as quantum entanglement.

In this context single photon emissions can be regarded as the most "pure" longitudinal waveform consisting of one longitudinal wave front only.

3.2. Bio-photons

The concept of bio-photons dates back to the work of Alexander Gavrilovich Gurwitsch. The Russian biologist observed root-growth of neighboring onion-roots and found out that some kind of emission deriving from the tip of one root strengthened the root-growth of the neighboring root. To find out more about the quality of this emission he separated the two roots with glass of different optical properties and found out that there must be a

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[19] An example to understand the special properties of longitudinal waves: When a sound studio is set up normaly the size and form of the room generates some resonant frequencies that are comparably to loud when things are recorded. To lower the intensity of these resonant frequncies a littel absorber-box is build that has exactly the same frequency defined by its internal geometry as teh unwanted frequencies in the room. The box has a hole and is stuffed with rock wool. Now this box that is normally hung up in one of the corners starts to resonate, sends out a signal to the room, and this signal turns into a pump wave, forcing the unwanted frequencies into the state of time reversed replica waves that then directly flow into the litttle hole in the box and are there being absorbed by the rockwool. Hard to understand – but reliable in practice. And it is obvious that all this sound can not disappear in this little hole by chance quick anough to kill the slightest echo.

[20] Robert G. Sachs, The Physics of Time Reversal, University of Chicago Press, Chicago, Illinois, 1987.

[21] Carl Barus, "A curious inversion in the wave mechanism of the electromagnetic theory of light," American Journal of Science, Vol. 5, Fourth Series, May 1898, p. 343-348.

[22] Negentropy is the opposite of entropy. Entropy is the tendency in nature that things loose order; that heat equally distributes, that everything tends to the lowest possible level of energy in equilibrium to the surrounding. Negentropy is the ability to spontaniously build up order and concentrate energy. Negentropy is occuring in biology and in fluid dynamics – generally spoken in non-linear systems that show some kind of self-reference and thus are able to build up fractal order.

[23] T. E. Bearden and Walter Rosenthal, "On a testable unification of electromagnetics, general relativity, and quantum mechanics, Proceedings of the 26th Intersociety Energy Conversion Engineering Conference (IECEC '91), Aug. 4-9, 1991, Boston, Massachusetts, p. 487-492.

[24] Floyd Sweet and T. E. Bearden, "Utilizing scalar electromagnetics to tap vacuum energy," Proceedings of the 26th Intersociety Energy Conversion Engineering Conference (IECEC '91), Aug. 4-9, 1991, Boston, Massachusetts, p. 370-375.

signal in the range of 260 nm[25] (UV) emitted from the tip of one root that is triggering cell division in the other root.

For a number of years this research has been widely ignored. Later on, measurement devices for ultra week and single photon emissions were developed. The most important researcher who re-introduced the topic into science was Fritz-Albert Popp. Popp established bio-photon measurements as an indicator for the health and age of living organisms. As an example, in Germany bio-photon-measurement is today used by the health-authorities as the only possible way to detect the real age of chicken eggs. According to the measurements carried out by Popp the entire range of bio-photon-activity happens within the band of 200-800 nm[26].

In the scientific community bio-photons have been discussed mainly as a result of oxidative processes in cell-tissue. They were assumed to be random with no functional importance in biology. There was only little understanding and no interest to explore the more complex function of bio-photons. In response to this, effort has been made by the specialists to differentiate between random photons from chemical processes and light signals containing information of value to biological systems.

The breakthrough was achieved by the Indian researcher Ram P. Bajpal from the Institute of Self-Organizing Systems and Biophysics, North-Eastern Hill University, Shillong, India. Conducting experiments with germinating seeds, he clearly could link bio-photon activity to biological order[27].

Bajpal also linked this bio-photon-activity to non-linear optics and quantum physics. Citing the abstract of one of his latest publications:

> Coherence is a property of the description of the system in the classical framework in which the subunits of a system act in a cooperative manner. Coherence becomes classical if the agent causing cooperation is discernible otherwise it is quantum coherence. Both stimulated and spontaneous biophoton signals show properties that can be attributed to the cooperative actions of many photon-emitting units. But the agents responsible for the cooperative actions of units have not been discovered so far. The stimulated signal decays with non-exponential character. It is system and situation specific and sensitive to many physiological and environmental factors. Its measurable holistic parameters are strength, shape, relative strengths of spectral components, and excitation curve. The spontaneous signal is non-decaying with the probabilities of detecting various number of photons to be neither normal nor Poisson. The detected probabilities in a signal of Parmelia tinctorum match with probabilities expected in a squeezed state of photons. It is speculated that an in vivo nucleic acid molecule is an assembly of intermittent quantum patches that emit biophoton in quantum transitions. The distributions of quantum patches and their lifetimes determine the holistic

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25 Nissen, Ted M.A. M.T.: Ultra-weak Photon (Biophoton) Emissions (UPE)-Background Introduction, Copyright © September 2006 Ted Nissen, online October 23rd 20012 at http://www.anatomyfacts.com/research/photonc.htm

26 Nissen, Ted M.A. M.T.: Ultra-weak Photon (Biophoton) Emissions (UPE)-Background Introduction, Copyright © September 2006 Ted Nissen, online October 23rd 20012 at http://www.anatomyfacts.com/research/photonc.htm

27 Bajpai Ram P., Bajpai PK, Roy D.: Ultraweak photon emission in germinating seeds: a signal of biological order. J Biolumin Chemilumin. 1991 Oct-Dec;6(4):227-30.

> features of biophoton signals, so that the coherence of biophotons is merely a manifestation of the coherence of living systems.[28]

Major progress in the measurement of the visible part of bio-photon-activity was achieved by the Russian researcher Dr. Konstantin G. Korotkov [29, 30, 31, 32]. The tradition of research Korotkov based his studies on first caught wide attention with the Kirlian photography in the late 60s.

Regarding that this research started with the observation of the visible part of bio-photon activity, it is exciting how science slowly discovers the important role of the invisible part, the high amount of bi-directional, annihilated bio-photon pairs that via quantum entanglement interconnect biological systems also on long distances.

Like one would expect from quantum entanglement or in other words scalar waves, the information carried by such a wave is transmitted instantly, and is not limited by the speed of light. This effect could be proved for communication within biological systems – like with blood taken out and deposited thousands of kilometers away from the former owner. Still this blood instantly reacted on emotional stress of the body it belonged to – showing a transmission of information far beyond the speed of light.
Another fact illustrating the major role of the annihilated part of bio-photon activity is that when a being dies, in the moment of death there is a burst of bio-photons leaving the body – originating from the bio-photon activity dis-tangled at that very special moment – when cell communication is loosing its coherence.

3.3. Optical properties of nano-crystals

In the discussion about geo-engineering, (Ba, Sr_x) TiO_3 nano-crystals are often mentioned as one possible compound of the aerosol mixture.

> Barium-titanate is a dielectric ceramic used for capacitors. It is a piezoelectric material for microphones and other transducers. The spontaneous polarization of barium-titanate is about 0.15 C/m^2 at room temperature and its Curie point is 120 °C.[5] As a piezoelectric material, it was largely replaced by lead-zirconate-titanate, also known as PZT. Polycrystalline barium-titanate displays positive temperature coefficient, making it a useful material for thermistors and self-regulating electric heating systems.

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[28] Bajpai Ram P.: Quantum coherence of biophotons and living systems. Indian J Exp Biol. 2003 May;41(5):514-27.

[29] Korotkov K. Measuring Energy Fields. Proceedings of the International Conference "Vastu Panorama", Indoor, India, 2008.

[30] Korotkov K. General principles of electrophotonic analysis. Proceedings of the International Scientific Conference "MEASURING ENERGY FIELDS", Kamnik, Tunjice, 2007, pp. 87-92.

[31] Korotkov K., Williams B., Wisneski L. Biophysical Energy Transfer Mechanisms in Living Systems: The Basis of Life Processes. J of Alternative and Complementary Medicine, 2004, 10, 1, 49-57.

[32] Bascom R, Buyantseva L, Zhegmin Q, Dolina M, Korotkov K: Gas discharge visualization (GDV)-bioelectrography. Description of GDV performance under workshop conditions and principles for consideration of GDV as a possible health status measure; in Francomano CA, Jonas WB, Chez RA (eds): Proceedings: Measuring the Human Energy Field. State of the Science. Corona del Mar, CA, Samueli Institute, 2002, pp 55–66. 2003

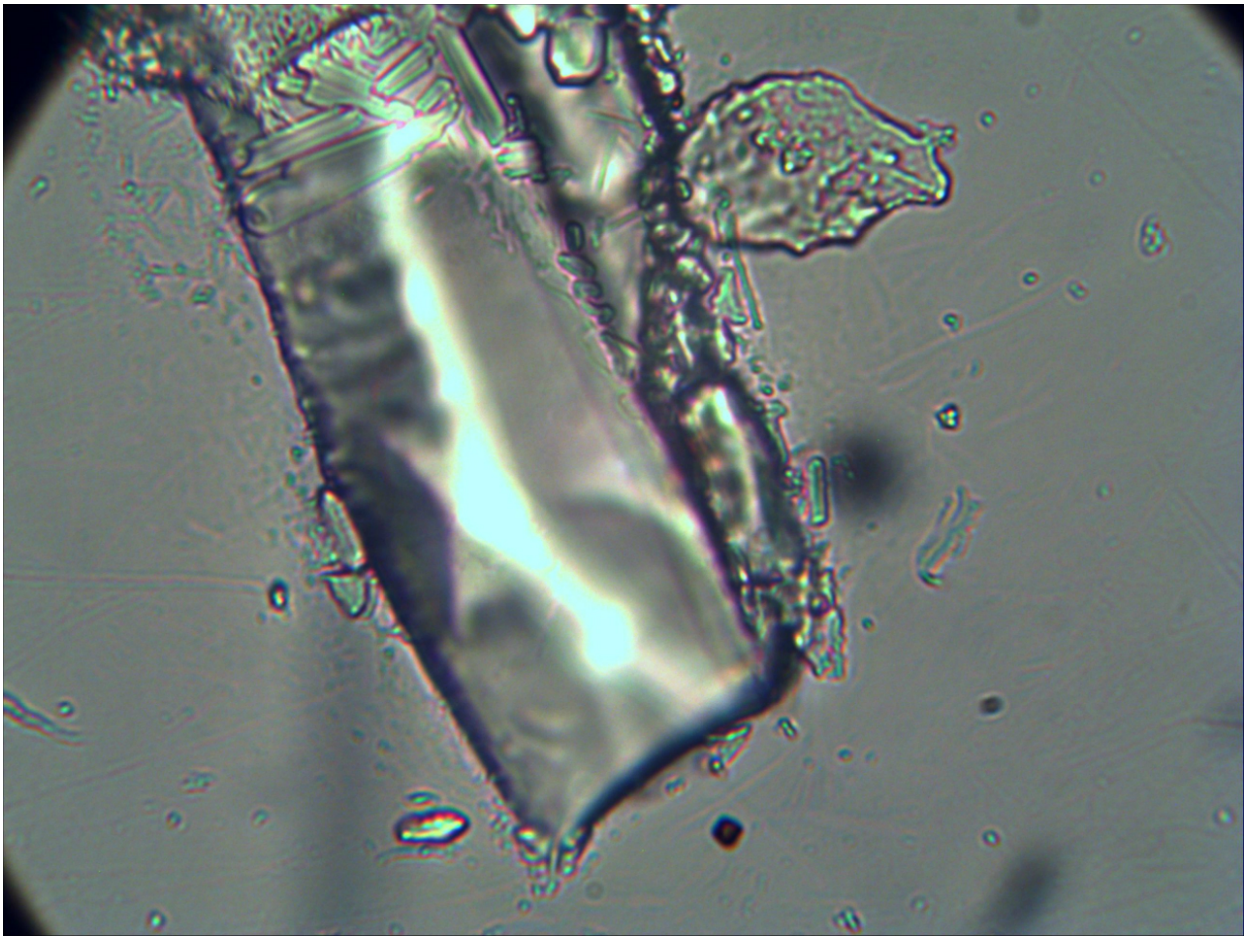
> Barium-titanate-crystals find use in nonlinear optics. The material has high beam-coupling gain, and can be operated at visible and near-infrared wavelengths. It has the highest reflectivity of the materials used for self-pumped phase conjugation (SPPC) applications. It can be used for continuous-wave four-wave mixing with milliwatt-range optical power. For photorefractive applications, barium-titanate can be doped by various other elements, e.g. iron.
>
> Thin films of barium-titanate display electrooptic modulation to frequencies over 40 GHz.
>
> The pyroelectric and ferroelectric properties of barium-titanate are used in some types of uncooled sensors for thermal cameras.
>
> High purity barium-titanate-powder is reported to be a key component of new barium-titanate capacitor energy storage systems for use in electric vehicles.[33]

Regarding the non-linear optical properties of these crystals, there are a number of interesting qualities and applications. They can "up-convert" photons, transforming input of a number of photons of a lower frequency into output of one photon of a higher frequency[34]. They can also alter the spin of photons[35].

[33] Wikipedia, online at http://en.wikipedia.org/wiki/Barium_titanate on Nov. 22nd 2012.

[34] G. Chen, T. Ohulchanskyy, A. Kachynski, H. Ågren and P.N. Prasad: Intense Visible and Near-Infrared Upconversion Photoluminescence in Colloidal LiYF(4):Er(3+) Nanocrystals under Excitation at 1490 nm. ACS NANO 5, 4981, 2011.C. Yuan, G. Chen, P.N. Prasad, T.Y. Ohulchansky, Z. Ning, H. Tian, L. Sun and H. Ågren: Use of colloidal upconversion nanocrystals to energy relay solar cell light harvesting in the near infrared region. J. Mat.Chem. 22, 16709, 2012.

[35] Jha, P. C., Rinkevicius, Z. and Ågren , H.: Spin multiplicity dependence of nonlinear optical properties. ChemPhysChem. 10, 817, 2009.



Transparent nano-crystal found in high numbers in rain water samples examined by the initiative "Sauberer Himmel". The extraordinary strong refraction hints to a crystal containing heavy cations – possibly Barium-Strontium-Titanate. Natural nano-particles tend to be rounded, sharp edges can be associated to artificial manufacturing or to exposure to high temperatures or quick temperature changes like when the particles would be run through an jet-engine.

Being distributed in a cluster of relative large distances between nano-crystals, like in aerosols or as an equally distributed pollutant in cell tissue, they can show optical qualities of second and third order[36], a quality that is connected to the ability to create holographic pictures.[37] These properties are utilized for holographic screening technologies utilizing 4 lasers turning a (Ba, Sr_x) TiO_3 nano-crystals cloud into a holographic screen[38].

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[36] Second and third order as a phenomena can easiest be explained with some pieces of modern art. Everyone has seen these pictures where every "pixel" is formed by a picture that has the everage color and brightness of the pixel it represents. The content of these little pictures would be the first order, the picture they create as a cluster of pictures would represent the second order. And so on. The term is thus associated to "information".

[37] Y. Fu, S. Hellström and H. Ågren: Nonlinear Optical Properties of Quantum Dots - Excitons in Nanostructures. J Nonlinear Optical Physics & Materials, vol.18, p.195-226, 2009. Z. Rinkevicius, J. Autschbach, A. Baev, M. Swihart, H. Ågren and P.N. Prasad: Novel Pathways for Enhancing Nonlinearity of Organics Utilizing Metal Clusters. J. Phys. Chem. A, vol. 114, pp. 7590-7594, 2010.

[38] Heid, Christy A.; Ketchel, Brian P.; Wood, Gary L. (Sensors and Electron Devices Directorate, ARL) Anderson, Richard J. (National Science Foundation); Salamo, Gregory J. (University of Arkansas):3-D Holographic Display Using Strontium Barium Niobate. Army Research Laboratory, Adelphi, MD 20783-1197, ARL-TR-1520. February 1998.

4. Optical interruption of cell communication

4.1. Effects on plants

Plants take up nano-crystals as a whole. This may happen via the roots as well as via the leaf surface. The effect is utilized for example in leaf-fertilizers like Megagreen®. There are variations depending on the plant size, but particles smaller than approx. 100nm can pass through most of the membranes.

On one side we have the concept of bio-photons as a second grade non-linear-optical system. As a result of a holographic projection of the DNA clusters this system creates the blueprint for plants, animals and humans. The non-visible part preserves order. The visible bio-photons are triggering cell division in a way that the plants repair missing cells and grow at defined areas – thus showing the main characteristics of self-organization.

On the other side we have the concept of non-linear holographic projection with (Ba, Sr_x) TiO_3 nano-crystal-clusters using coherent pulsed laser light.

Both systems work with coherent light. Both systems work with longitudinal wave-forms (pulsed laser light and single photon emissions). Both systems work at the same range of frequencies. Both project holographic blueprints of higher order via clusters.

Thus it becomes obvious that one should expect some interference when both DNA- and nano-crystal-clusters are positioned in the same place.

The properties of the nano-crystals could result in the following effects.

- Barium-strontium-titanate nano-crystals absorb UV light with wavelength shorter than approx. 250 nm, taking away 90% of the light passing the crystal[39, 40]. The absorption of signals shorter than 260 nm is likely to eliminate the mono-directional signals responsible for cell division.
- The up-conversion of absorbed photons would take two photons of a defined frequency and convert it to one of a higher frequency, resulting in disruption of cell communication and maybe cause cell damage due to the higher energy of the single resulting photon.
- The refraction would geometrically disorder bidirectional bio-photon-waves before being established.
- The disorder induced regarding the non-linear qualities of second and third order could possibly alter the entire blueprint of nature causing pseudo-genetic deformations.

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[39] VIJAYALAKSHMI, R.; RAJENDRAN, V. *(Department of Physics, Presidency College, Chennai, TamilNadu, India)*: SYNTHESIS AND CHARACTERIZATION OF CUBIC BaTiO3 NANORODS VIA FACILE HYDROTHERMAL METHOD AND THEIR OPTICAL PROPERTIES. Digest Journal of Nanomaterials and Biostructures. Vol. 5, No 2, May 2010, p. 511 – 517.

[40] Compare to entire concept - Sarney, Wendy L.; Olver, Kimberley A.; Little, John W. (Sensors and Electron Devices Directorate, ARL); Livingston, Frank E. (The Aerospace Corporation), Niesz, Kriszian; Morse, Daniel E. (Institute for Collaborative Biotechnologies, University of California, Santa Barbara): Progress in Materials Synthesis and Processing of Barium Titanium Oxyde (BaTiO3) and Barium Strontium Titanium Oxide (Ba, Srx) TiO3 Films for Uncooled Infrared (IR) Detector Applications. Army Research Laboratory, December 2011. P. 9.

To understand the quantitative relationship between this special type of opacity the nano-crystals creates and the harm done to the plants, it is useful to have a look at the optical density the particles may create in the plant. 1 kg dried organic matter equals a volume of about 3 l = 0,003 m^3 living organic matter. The average distance of plant DNA resp. cell diameter is about 0,75 mm. This means that in a plant containing 70 mg (Ba, Sr_x) TiO_3 per kg dried organic matter the optical density of the nano-particles would be high enough to even interrupt the communication of directly neighboring cells. 35 mg would disrupt at a distance of 0,125 mm, 3,5 mg would disrupt on a distance of 1,25 cm, and so forth.

4.2. Effects on plankton

Phytoplankton builds up a very high-organized biotope that mainly covers the upper layer of the oceans. Phytoplankton is the basis for all life in the oceans.

Bringing nano-crystals into the ocean by rain would lead to a distribution within the storm wave horizon, the layer that is practically identical with the layer that is reached by sunlight.

Due to their size the particles would hardly sink further down. Due to the comparable long distanced between single cells phyto-plankton-organisms this could very quickly lead to a concentration of nano-crystals that would be high enough to interrupt parts of the cell communication between single phytoplankton cells.

If in means of bio-photons the phytoplankton is reacting as one biological unit deriving the impulse for cell division from the bio-photon exchange within the biotope, the discussed nano-crystals could eventually reduce or dis-balance the production of biomass in the oceans and thereby affect the marine food resources.

5. Irradiation of plant DNA with high energy UV light

In chapter 2 we introduced the concept of bio-photons as a pattern of bi-directional waves and their (Ba, Sr_x) TiO_3 time reversed replica waves sent and received by DNA-molecules.

It is known that particles in clouds can be excited by absorbing incoming cosmic radiation and that they can later release this radiation in form of gamma quants. Especially heavy nuclei like barium and strontium can hold this excited state for quite a long time. The release of gamma quants can happen spontaneously or be triggered by an incoming photon.

The high-energy photons stored can be released by non-linear optical interaction when a bio-photon hits a nano-crystal. The excited state of the nuclides then might discharge into a time reversed replica wave precisely flowing back to the DNA. Thus it would expose it to light of same wavelength but much higher energy.

High energy UV radiation is known to be the main source for plant DNA damage. The involvement of excited nuclides into a bio-photon exchange could lead to a directed release of stored gamma quants inside the plant irradiating the DNA.

This negentropic process redirecting high amounts of energy back onto a weak triggering source actually is the main characteristic of non-linear optical systems. For full understanding I have to refer to the articles in the footnotes[41, 42, 43, 44, 45, 46, 47, 48, 49].

6. Setting the electromagnetic cell potential of plants out of balance

The immune system of all cells follows a highly defined curve of electromagnetic cell potential. Cells have defined potential differences between the core and the inner membrane surface as well as between the inner and outer cell membrane surface. Any alteration of these cell potentials weakens the "immune system" by disturbing the equilibrium of oxidant and antioxidant processes.

Barium-strontium-titanate, as a piezoelectric substance, changes its crystal geometry when exposed to external electromagnetic fields[50]. Any change in crystallographic structure is accompanied by a release/absorption of electrons.

With regards to barium-strontium-titanate used as aerosols in the atmosphere, this effect could be used to "switch" clouds "on and off" by applying electromagnetic fields as used by HAARP and ICECAT devices or other radar or microwave-radiating antenna systems. These research- and military installations have equipment with sufficient strength to alter the crystal geometry of the barium-strontium-titanate, which in turn leads to free current

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41 E. T. Whittaker, "On the partial differential equations of mathematical physics," Mathematische Annalen, Vol. 57, 1903, p. 333-355. 11 V.K. Ignatovich, "The remarkable capabilities of recursive relations," American Journal of Physics, 57(10), Oct. 1989, p. 873-878.

42 E. T. Whittaker, "On an expression of the electromagnetic field due to electrons by means of two scalar potential functions," Proceedings of the London Mathematical Society, Series 2, Vol. 1, 1904, p. 367-372.

43 T. E. Bearden and Walter Rosenthal, "On a testable unification of electromagnetics, general relativity, and quantum mechanics, Proceedings of the 26th Intersociety Energy Conversion Engineering Conference (IECEC '91), Aug. 4-9, 1991, Boston, Massachusetts, p. 487-492.

44 Floyd Sweet and T. E. Bearden, "Utilizing scalar electromagnetics to tap vacuum energy," Proceedings of the 26th Intersociety Energy Conversion Engineering Conference (IECEC '91), Aug. 4-9, 1991, Boston, Massachusetts, p. 370-375.

45 Carl Barus, "A curious inversion in the wave mechanism of the electromagnetic theory of light," American Journal of Science, Vol. 5, Fourth Series, May 1898, p. 343-348.

46 Amnon Yariv, Optical Electronics, 3rd edn., Holt, Rinehart and Winston, New York, 1985. Chapter 16: "Phase Conjugate Optics -- Theory and Applications."

47 David M. Pepper, "Nonlinear optical phase conjugation," Optical Engineering, 21(2), March/April 1982, p. 156-183. On p. 156

48 See also David M. Pepper, "Applications of optical phase conjugation," Scientific American, 254(1), Jan. 1986, p. 74-83. See particularly the striking photographic demonstration of time reversal of disorder on p. 75.

49 Robert G. Sachs, The Physics of Time Reversal, University of Chicago Press, Chicago, Illinois, 1987.

50 Wada, S.; Tsurumi, T.: Enhanced piezoelectricity of barium titanate single crystals with engineered domain configuration. British Ceramic Transactions, 2004, Vol. 103, No. 2.

that would charge the aerosol particle creating an ion. An ion will attract vapor and instantly lead to the forming of a droplet in the cloud.

The nano-crystals remain unchanged when absorbed by plants. One would therefore expect the same effect to happen when a plant is hit by low and high frequency radiation.

In other words terrestrial mobile, WIFI, microwave or radar transmission as well as the EMF-pollution by power lines and transformer stations would be expected to cause a spontaneous release of free electrons, which would alter the cell potential and thus weaken the immune-system of the plant.

7. Effects on mammals and humans

A study in North America has examined the impact of the combination of natural occurring barium, pollution by barium-rich drilling mud from the oil/gas industry and explicitly of piezoelectric nano-crystals from aerosols on mammals. In these regions of North America spraying is conducted mainly to enhance/refract radar signals for military purposes. The study could prove the connection to neuronal diseases like the chronic waste disease (CWD) and other transmissible spongiform encephalopathies (TSEs). It examined both the chemical toxicity of silver, barium and strontium which bio-concentrate in the food chain as of the more complex mechanisms connected to the nano-crystals from aerosol spraying. In the examined cases the piezoelectric properties were believed to be triggered also by acoustic pressure energy from incoming low frequency shock bursts from low flying jets, explosions, earthquakes, etc., additionally to high frequent electromagnetic fields. However, the mechanism of damage coming from excited piezoelectric crystals should be the same for plants as for mammals. Because of the precisely described biochemical processes I here render the full abstract:

> High levels of Silver (Ag), Barium (Ba) and Strontium (Sr) and low levels of copper (Cu) have been measured in the antlers, soils and pastures of the deer that are thriving in the chronic wasting disease (CWD) cluster zones in North America in relation to the areas where CWD and other transmissible spongiform encephalopathies (TSEs) have not been reported. The elevations of Ag, Ba and Sr were thought to originate from both natural geochemical and artificial pollutant sources--stemming from the common practise of aerial spraying with 'cloud seeding' Ag or Ba crystal nuclei for rain making in these drought prone areas of North America, the atmospheric spraying with Ba based aerosols for enhancing/refracting radar and radio signal communications as well as the spreading of waste Ba drilling mud from the local oil/gas well industry across pastureland. These metals have subsequently bioconcentrated up the foodchain and into the mammals who are dependent upon the local Cu deficient ecosystems. A dual eco-prerequisite theory is proposed on the aetiology of TSEs which is based upon an Ag, Ba, Sr or Mn replacement binding at the vacant Cu/Zn domains on the cellular prion protein (PrP)/sulphated proteoglycan molecules which impairs the capacities of the brain to protect itself against incoming shockbursts of sound and light energy. Ag/Ba/Sr chelation of free sulphur within the bio system inhibits the viable synthesis of the sulphur dependent proteoglycans, which results in the overall collapse of the Cu mediated conduction of electric signals along the PrP-proteoglycan signalling pathways; ultimately disrupting GABA type inhibitory currents at the synapses/end plates of the auditory/circadian regulated circuitry, as well as disrupting proteoglycan co-regulation of the growth factor signalling systems which maintain the structural integrity of the nervous system. The resulting Ag, Ba, Sr or Mn based compounds seed piezoelectric crystals which incorporate PrP and ferritin into their structure. These ferrimagnetically

ordered crystals multireplicate and choke up the PrP-proteoglycan conduits of electrical conduction throughout the CNS. The second stage of pathogenesis comes into play when the pressure energy from incoming shock bursts of low frequency acoustic waves from low fly jets, explosions, earthquakes, etc. (a key eco-characteristic of TSE cluster environments) are absorbed by the rogue 'piezoelectric' crystals, which duly convert the mechanical pressure energy into an electrical energy which accumulates in the crystal-PrP-ferritin aggregates (the fibrils) until a point of 'saturation polarization' is reached. Magnetic fields are generated on the crystal surface, which initiate chain reactions of deleterious free radical mediated spongiform neurodegeneration in surrounding tissues. Since Ag, Ba, Sr or Mn based piezoelectric crystals are heat resistant and carry a magnetic field inducing pathogenic capacity, it is proposed that these ferroelectric crystal pollutants represent the transmissible, pathogenic agents that initiate TSE.[51]

Later Purdey associated the same biological effect of piezoelectric nano-crystal also to human diseases:

This paper exposes the flaws in the conventional consensus on the origins of transmissible spongiform encephalopathies (TSEs) which decrees that the protein-only misfolded 'prion' represents the primary aetiological transmissible agent, and then reviews/presents the emerging data which indicates that environmental exposure to metal microcrystal pollutants (sourced from munitions, etc.) represents the heat resistant, transmissible nucleating agents which seed the metal-prion protein (PrP)-ferritin fibril crystals that cause TSE. Fresh analytical data is presented on the levels of metals in ecosystems which support populations affected by clusters of variant Creutzfeldt-Jacob disease (vCJD), sporadic/familial CJD, and the scrapie types of TSE that have emerged in the UK, Sicily, Sardinia, Calabria and Japan. This data further substantiates the abnormal geochemical template (e.g., elevated strontium (Sr), barium (Ba) and silver (Ag)) which was observed as a common hallmark of the TSE cluster ecosystems across North America, thereby supporting the hypothesis that these microcrystals serve as the piezoelectrion nucleators which seed the growth/multireplication of the aberrant metal-PrP-ferritin fibril features which characterise the neuropathology of the TSE diseased brain. A secondary pathogenic mechanism entails the inactivation of the sulphated proteoglycans which normally regulate the mineralisation process. This can be induced by a rogue metal mediated chelation of free sulphur, or by contamination with organo-sulphur pollutants that substitute at natural sulphur bonds, or via a mutation to the S-proteoglycan cell line; thereby enabling the aberrant overgrowth of rogue fibril crystal formations that possess a piezoelectric capacity which compromises the ability of the contaminated individual to process incoming acoustic/tactile pressure waves in the normal way. The crystals transduce incoming sonic energy into electrical energy, which, in turn, generates magnetic fields on the crystal surfaces that initiate chain reactions of free radical mediated spongiform neurodegeneration. Metal microcrystal nucleating agents provide a group of plausible aetiological candidates that explain the unique properties of the TSE causal agent - such as heat resistance, transmissibility, etc. - which the protein-only prion model fails to fulfill. This paper also discusses the possible nutritional measures that could best be adopted by populations living in high risk TSE ecosystems; as a means of preventing the successful implantation of these rogue microcrystals and their consequent hypermineralisation of the soft tissues within the CNS.[52]

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[51] M. Purdey: Elevated silver, barium and strontium in antlers, vegetation and soils sourced from CWD cluster areas: do Ag/Ba/Sr piezoelectric crystals represent the transmissible pathogenic agent in TSEs? US PubMed, US National Library of Medicine National Institutes of Health Online at: http://www.ncbi.nlm.nih.gov/pubmed/15236778?ordinalpos=1&itool=EntrezSystem2.PEntrez.Pubmed.Pubmed_ResultsPanel.Pubmed_DiscoveryPanel.Pubmed_Discovery_RA&linkpos=1&log$=relatedarticles&logdbfrom=pubmed on Dec. 16th 2012.

[52] M. Purdey: Metal microcrystal pollutants: the heat resistant, transmissible nucleating agents that initiate the pathogenesis of TSEs? US PubMed, US National Library of Medicine National Institutes of Health Online at: http://www.ncbi.nlm.nih.gov/pubmed/15908137on Dec. 16th 2012.

In 2006 Purdays hypotheses was substantiated at Auburn University.[53]

In a way, like with plants, we again look at an interference of clusters of natural and artificial electro-optically active crystals. With plants we have seen the interference of DNA and nano-crystal clusters. In mammals as well as in humans the artificial crystals take the place of the ferro apatite crystals in the central nervous system, that – as piezoelectric crystals, play a major role in the transmission of signals. The natural ferro apatite crystal then concurs with agents that open the biological system to artificial electromagnetic signals. These signals can be random, but they also could be intentionally generated by transmission stations that are under the control of the intelligence community and weapon manufacturers who offer security solutions to governments. As to this theoretical possibility to apply mind control with piezo-crystals, we should consider the fact that we all might be cluster-chipped by now, that there are technical facilities to apply microwave fields on every populated area of this world, and that this technical equipment is in the hand of people who are very much into the philosophy of control.

Following another article describing effects on humans, the bio-concentration in the food chain does not even need to reach dangerous concentrations, because the agent already does harm even if it is not located inside the body. In November 2010 after a snowy day in Aachen, a town in North-West-Germany, the healing practitioner Wolfgang Creyaufmüller[54] registered a widespread appearance of headaches among his patients. They could not be successfully treated with recipe-free painkillers like ASS, Paracetamol or Ibuprofen.

As a healing practitioner he was using bio-field-measurement with the nosode FSME as part of his diagnostics. The device is measuring bio-photon activity of the human body. All patients with the abnormal headaches showed significantly weakened bio-photon fields.

He knew that normally snow has a positive effect on bio-photon activity of humans – supporting the levels of humans and being at +8 on the scale itself. So he went out measuring the snow and found a bio-photon activity of -8 on the snow surface. As an anti-nuclear power activist he has been following up the contamination deriving from the Chernobyl accident for years. He expected some radioactive fallout, thus he decided to have chemical analysis conducted of the snow. However, the snow instead showed high levels of barium isotopes instead which could not be related to any known nuclear accident.

If the source of the barium was barium-strontium-titanate, this would prove the ability of these nano-crystals to absorb bio-photons. Also, it would show that not only plants might be affected by the interruption of bio-photon activity, but humans who apparently feed their bio-photon field with refracted (polarized) sunlight. Additionally, it would hint to the ability of nano-crystals to affect life on the continents in a way similar to the effects

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53 M. Purday: Auburn university research substantiates the hypothesis that metal microcrystal nucleators initiate the pathogenesis of TSEs. PMID 16226390 [PubMed - indexed for MEDLINE]

54 Wolfgang Creyaufmüller: Wie kommt Barium ins Regenwasser? Aachen Online at www.sauberer-himmel.de November the 17th 2012.

suspected for plankton. This could regard all biotopes, when being optically open and interconnected systems.

In general, a weakened bio-photon activity results in weakened ability of self-organization in the biological system. This touches all degenerative diseases as well as the subjective well-being.

At this point it makes sense to look back at the findings of the people who examined the connection between JP-8 and the Gulf War Syndrome regarding a possible involvement of biophotons in the pathology of the disease. One of the activists suffering himself of Multiple Chemical Sensitivity tried to experiment with PFOA and PFOS to create a homeopathic remedy. When he received the probes of the chemicals, that were packed both in glass and plastic, he was fine with PFOA, but PFOS stroke him when he removed the plastic, even without opening the glass. He turned pale, started shivering at 36 deg. room temperature and did not get back to normal for 5 hours.[55]

This indicates that there must have been some information input from the substance that was blocked by plastic, but optically transmitted through glass, which set the body into alert.

This phenomenon actually is known in medicine. Dietrich Klinghardt, who has been voted to the Physician of the Year back in 2011, developed a special system for autonomic response testing (ART), where he uses laser light and refracting plexiglas cubes as signal enhancers. The plexiglas is meant to have optical qualities that are similar to those of barium-strontium-titanate nano-crystals, just on the macroscopic scale. By positioning a poison or a remedy on these plexiglass cubes close to the patients head, Klinghardt tests if substances are setting the body into a state of stress, or lead to relaxation – something that is possible to test via ART, where the tension of arm muscles is mechanically detected. The idea is that the coherent, polarized light created by laser and cube can carry both the information of the poison and of a possible remedy into the patients cell communication, triggering the same reaction that the real chemical would trigger once it is in the body.

Against this background the possibility that barium-strontium-titanate could be a regular compound of the classified JP-8 fuel additives (which can be suspected because of the conductivity of the fuel) could explain the tremendous impact of PFOA and PFOS on the body, when the nano-crystal act as signal enhancers who transform the information of the toxins into a coherent bio-photon-like signal – just like Klinghardts plexiglas cubes, but being millions of them.

This would be a classical case of synergistic toxicity.

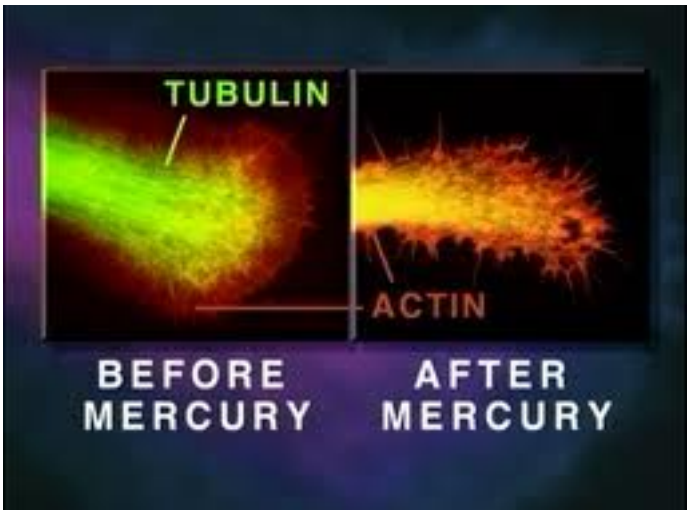
A second possibility of a synergistic toxicity could be give with mercury. It has been reported that the swine flue vaccination campaign in Scandinavia lead to a high number of cases of narcolepsy with children. Vaccines are often preserved with organic mercury

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55 Marion Hahn: Umweltkrank durch NATO-Treibstoff? Neues zu einer umstrittenen Theorie umwelt·medizin·gesellschaft | 16 | 4/2003

compounds, and if they are not, sources from the industry report that still during production process the needles delivered with the vaccines are disinfected and preserved with mercury compounds. This mercury has been suspected to have caused the many cases of Narcolepsy in Scandinavia.

Out of my own experience the narcolepsy coming with vaccines is not an “only cause” of one “effect only”. I personally have been suffering from one narcolepsy attack while driving, which was a serious situation. It felt like being crossed by a horizontally traveling magnetic shock-wave that just whips out consciousness – hitting in the middle of the day after a two minute drive – no situation one should expect to fall into dizziness. The effect lasted for maybe half a second. My youngest son has these attacks frequently, and I heard of many other cases in my close environment. In most of the cases the attack lasts for less then a second, and there is no real reason to declare a problem. Only in one case out of my personal environment these attacks lasted for minutes. At least for my son and me I can say that we have had no swine flue vaccination – however still I know that we all heave a mercury intoxication problem coming from amalgam and mandatory vaccinations given in early childhood.



The main cause of mercury intoxication is the damage done to the tubulin of the nerves. The tubulin is the skin that separates the nerve as well as the sensitive receptor cell from the surrounding tissue.

Mercury degenerates the tubulin leading to diseases like autism and ADHS, literally driving the souls out of the body with the background-pain released by the permanently triggered receptor cells.

If there is any correlation between tubulin degeneration and the likelihood of the integration of an artificial piezzo-crystal into the receptor cell like described by M. Purday, we would indeed have a second case of synergistic toxicity.

The mercury prepares the ground, the “piezzo” seeds are laid into the field and the HAARP, radar and ELF transmission could completely infiltrate the entire internal communication of the human body. There is unconfirmed information by an ANONYMOUS hacker who stole data from the HAARP facility that prove that someone within the HAARP project plans the “switching on” of a mind controlling signal for mid-2013, that is supposed to cover the entire planet.

The alternative to this “conspiracy theory” is a coincidence of poisonous hazards additionally hit by a chaotic mix of technical frequencies. Nobody can say if this is more or less likely to “turn us into an army of zombies”, to cite the words of my ANONYMOUS

source, then a mind controlling signal that might be designed to keep us abulic and desorganized.

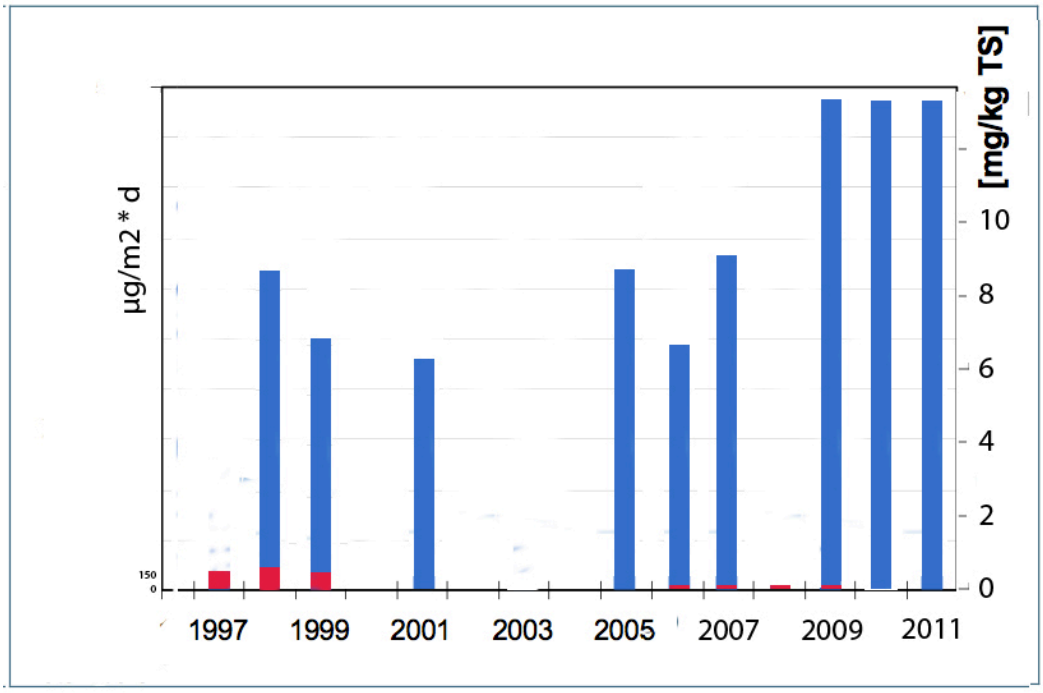
8. Atmospheric Barium-Deposition in Germany

The review of the official barium deposit measurements showed a *decrease* in dry deposition by 95% and an extrapolated *increase* of wet deposition by 100% during the last 15 years. This complete opposite development is remarkable. Dry deposition is rather associated to industrial pollution and uptake from the ground. Wet deposition is rather associated to aerosols.

During the last decades various state institutes have analyzed rainwater, dry atmospheric deposition (dust) and heavy metal content in organic matter, mainly by testing standardized grass samples grown for a period of 4 weeks to detect wet and dry atmospheric deposition of pollutants. This study refers mainly to publications of the Landesumweltamt Brandenburg and the Bayerisches Landesamt für Umwelt, two regional state authorities, and a few minor sources like ash analyses of bio-mass power-plants run on grass. These measurements are available up to the year 2011. Due to the fact that the national Bundesumweltamt today only fulfills the "UN ECE Convention on long-range transboundary pollution" and the EU law "Richtlinie 2008/50EG from May 2008" the national institutions are not monitoring barium, strontium and titanium. Therefore we made some statistics on 60 available rain samples taken by private persons analyzed in certificated labs. These samples were collected and controlled by the initiative "Sauberer Himmel e.V.".

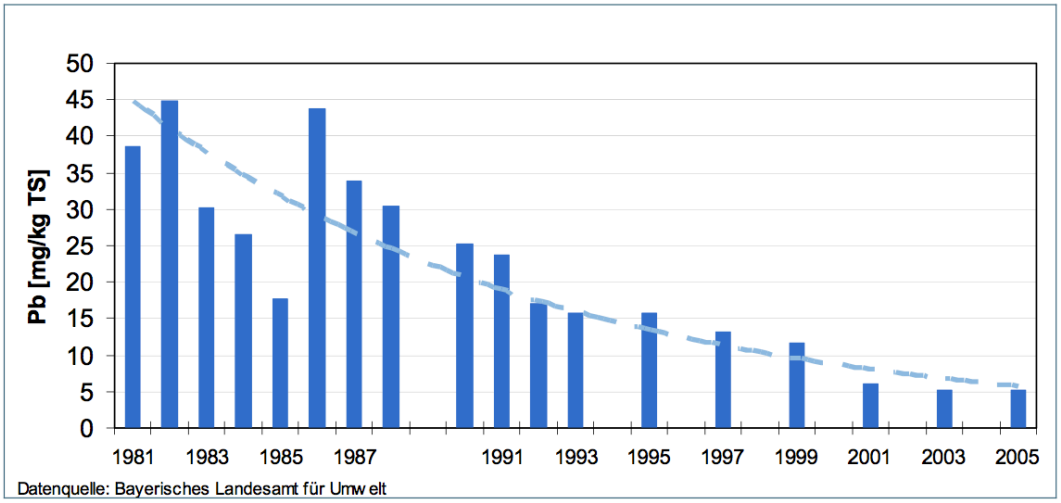
To make the different data comparable the unit "total deposit per year on the territory of Germany" was chosen. With rain samples the long year average of 750 l/m^2 was used, with grass the average harvest of 3.5 t hay per hectare and year, estimating that the growth period is about 6 month, so this multiplies the value of the 4-week-experiment the data are based on by 6. With dry deposition the values have just to be multiplied with the total territory of 357127 km^2.

The data show that – taking maximum values – about 90% of the heavy metals are deposited wet (rain samples/grass analysis), only 10% as dust. Since 1997 this dry deposition was reduced down to about 5% of the previous values. The following graph shows the values for barium and titanium in the last 16 years.



Dry (red) and wet (blue) deposition of barium measured in its real relative ratio compared via t/d on Germany. Graph by the Authors.

These findings need to be reviewed against the background of strongly reduced pollution by all other metals. The following graph shows lead as an example.



Lead in mg/kg dried grass samples (wet deposition) over the last 3 decades.

Strontium and titanium have hardly ever been measured by the official authorities thus it is difficult to relate to it. Due to the fact that the dry deposition of Barium was reduced in a similar way to most other pollutants it becomes obvious, that the wet deposition is not connected to industrial pollution or aerosols taken up from the ground. The high amounts

of Barium seem to come straight with the rain – which hints to high-altitude-aerosols as a source and thus to geo-engineering or spraying for military purposes.

The statistical evaluation of 72 rainwater samples by the author, gathered by the German "initiative for a clean sky"[56], indicates an amount of approx. 911 tons of barium falling out over Germany during the year 2012. The grass samples hint to rather 1625 t in 2011, however this amount should also contain the dry deposition as well as some barium taken up by the plants from the soil originating from mineral substrate.

To summarize and calculate: If the original source of industrial barium pollution has been reduced by 90 % during the 15 years as shown by the values for dry deposition, and the overall values went up by intermediated 100% since 2001, there is no other explanation than a new source that is explicitly connected to aerosols brought down by wet deposition. This new source then should cover 95% of the total values in the year 2012. Therefore one should assume an atmospheric deposition of 865 t originating from aerosols coming down with the rain from high altitudes. This calculation is based on the statistical evaluation of thousands of single measurements collected by the state authorities and therefore has to be regarded as accurate.

This calculation is valid for barium as an element. There is no basis for a calculation showing what percentage of this barium was deposited as barium-strontium-titanate.

Indicating (Ba, Sr_x) TiO_3 in nature is very difficult. Measurements of bioavailable barium, strontium and titanium indicate elements in solution but due to the non-solubility of (Ba, Sr_x) TiO_3 do not indicate the nano-crystals at all. An analysis of the total mineral content would correctly show Ba, Sr and Ti as single elements but still delivers no proof of the existence of the nano-crystals as a whole. It can only give a maximum possible content defined by the element with the lowest relative ratio. Optical analysis with the microscope can proof the existence of the nano-crystal within plant cell tissue but would need time-consuming statistics on thousands of single crystal measurements to make any quantitative statements.

Only the direct comparison of bioavailable and total mineral content of the same sample would deliver valid data about crystalline mineral content. Such data are not available from regular sources. The testing done by state authorities is not designed to detect nano-crystals in particular.

9. Research in Norway

During the second half of the year 2012 farmers at the east coast of Oslo Fjord in Norway have been complaining about a significant slowing down of grass-growth, which reduced the second harvest of hay.

[56] http://www.sauberer-himmel.de

Samples of grass taken by the author in the Oslo area, which significantly was being slowed down in growth rate, showed in lab analysis

Aluminum:	176 mg/kg
Barium:	49 mg/kg
Strontium:	69 mg/kg
Titanium:	28 mg/kg[57]

These values of barium, strontium and titanium point to a theoretically possible maximum of 121 mg nano-crystalline barium-strontium-titanate per kg dried organic matter – if the entire amount of titanium, the element with the lowest relative ratio, origins from nano-crystals. Varieties in the range of ($Ba_{0.6}$, $Sr_{0.4}$) TiO_3 to (Sr) TiO_3 are then in the range of possibilities.

To get a realistic estimation, we first looked at grass samples collected all over Norway by the Norwegian Veterinarian Institute. This project has yet to be published; however our samples fall within the average of their study.

The standard measurement of air pollutants in Scandinavia is done with moss of the type *hylocomium splendens*, not with grass. This makes it a bit difficult to compare data to Germany. Hylocomium splendens does not use roots for uptake of water or nutrition, so it takes up only dry and wet deposition. Large-scale investigation have been conducted in 1977, 1985 and since then every 5 years evaluating 464 locations all over Norway. From each place 5 to 10 samples from an area of 50x50meter have been taken, minimum 300 meter from main roads and houses. 42 elements including Al, Sr, Ba and Ti have been tested. [58]

Aluminum median values	1977 with	720 mg/kg,	in 2010 showing	280 mg/kg
Titanium first measured in	1995 with	43 mg/kg,	in 2010 showing	25 mg/kg
Strontium first measured in	1990 with	13 mg/kg,	in 2010 showing	15 mg/kg
Barium first measured in	1990 with	24 mg/kg,	in 2010 showing	25 mg/kg

Like in Germany we have a sharp decrease in industrial pollutants like aluminum and titanium, and a slight increase in substances associated with geo-engineering.

However these values are average values with very high local variations:

Aluminum showed in	2005	values between	58 - 12121
	2010	values between	46 - 4581
Titanium showed in	2010	values between	4 - 260
Strontium showed in	2010	values between	1,9 - 72
Barium showed in	2000	values between	4,3 - 217
	2005	values between	4,2 - 119

[57] Analysis: University of Ås, Norway.

[58] Atmosfærisk nedfall av tungmetaller i Norge – Landsomfattende undersøkelse i 2010 (TA-2859/2011)

2010 values between 4 - 325

The big differences in values of Barium and Strontium were encountered to either be the result of local strontium deposition from the Atlantic or a result from the uptake of soil from barium-rich soils. Barium and Strontium distributions were statistically not associated.

According to grass samples the total deposition of Barium in Norway is 4 times higher than in Germany. Knowing these facts it is likely that amounts of aerosols comparable to Germany could easily "hide" in these values.

Discussing the single sample taken by the authors: To determine if the values of barium were high because of the soil quality or because of atmospheric input, the authors analyzed the soil (on which the analyzed grass was growing on) and compared it to soil from the same field at a spot where it was totally covered by a barn since at least 60 years. The comparison showed that the soil not exposed to rain was higher in all measured metals except one. This seems to be logical: evaporation brings all kinds of minerals up, no rain washes them out, and no plant material has been removed which would have lowered the soils mineral content. The exception was Barium. That was measured higher outside on the open field. The input by fertilizers used was controlled and showed no barium content on the label. Titanium and Strontium were not measured in these samples.

Metal/Soil sample		**not exposed/exposed to rain**			**ratio**
Aluminum	mg/kg	25.150	22.900		1.098
Barium	mg/kg	140	155	(expected value 83)	0.903
Lead	mg/kg	29	16		1.813
Arsenium	mg/kg	4,8	2,8		1.714
Cadmium	mg/kg	0,28	0,18		1.555
Nickel	mg/kg	21	20		1.05
Palladium	mg/kg	<5	<5		

This clearly indicates that the source of the Barium is not only from the soil but also from wet atmospheric deposition. A comparison of values of the other heavy metals, lead, arsenium and cadmium, indicates that about half (0,47%) of the barium-content of the soil should be associated to wet deposition only.

Thus the estimated amount of barium-strontium-titanate is at 57 mg/kg when being lethal.

Metal/Soil sample		**not exposed/exposed to rain**	
Aluminum	mg/kg	25.150	22.900
Barium	mg/kg	140	155
Lead	mg/kg	29	16
Arsenium	mg/kg	4,8	2,8
Cadmium	mg/kg	0,28	0,18
Nickel	mg/kg	21	20
Palladium	mg/kg	<5	<5

This clearly indicates that the source of the Barium is not only from the soil but also from wet atmospheric deposition.

To illustrate the problems the farmers in Norway are facing we will show a few pictures taken in chronological order on the day we took samples. They display both the visible damage in nature as well as the typical weather anomalies.



A promising morning of a summer day. Relative short contrails as an indicator for rather dry, warm air at high altitudes.



First appearance of persistent contrails.



Spreading contrails forming white hazy skies.



Hazy sky and a completely died off birch forest 3 km from the farm.



Loan with partly retarded plant growth. On the right side normal growth rate, on the left side retarded growth.



Damaged grass, light green color, brown spots.



Damage by fungi, possibly as a result of disturbed cell potential.



Haze coming down to the surface creating a halo, about 14.30 in the afternoon, a structure that should appear with ice crystals at high altitudes but not on a summer day with temperatures of about 17 degrees Celsius near ground level.

10. Politics, infrastructure and possible military use

Trying to find out what actually is happening in the field of geo-engineering is not easy. The structure one meets is onion-like. There is an official surface that is moving big money in research but projecting practical geo-engineering mainly into the future. But even if one looks behind the scene, listens to the statements of whistleblowers and reads secret documents that were unintentionally exposed to public, there is not one coherent truth but again onion like layers to be found.

The outer onionskin looks like this: Geo-engineering was first thought of in pre WWII Germany. Most ideas were megalomaniac but rather grounded, like cutting of and drying out the Mediterranean to harvest land and set up a water power plant to supply the entire area with electricity. Some of that engineering spirit came to the US after the war. Operation *Paperclip* recruited German top researchers to serve the US-military. The targets publicly discussed were rather peaceful. Like preventing hurricanes and hale, directing rain to guarantee harvests.

In 1964 the American National Science Foundation called in a special commission on weather manipulation. However, the first practical applications turned out to be less peaceful. It was the cloud seeding conducted in North Vietnam to enhance monsoon rains and flood the jungle to cut the Vietcong off from supplies.

The first notable document relating to the form of cloud seeding discussed in this paper is the Welsbach patent in 1986. It is the first patent suggesting the spraying of aluminum oxide and metal salts to combat climate change. Since then more follow up patents have been filed that cover the entire technical process of cloud seeding by aerosol spraying from both civil and military airplanes.

In 1990 the US Government entered a phase of intensive research into Geo-Engineering with the "Global Change Research Act"[59].

In 2001, President elect George W. Bush established the (CCRI) Climate Change Research Initiative. A year later it was made public that the USGCRP or United States Global Change Research program and the CCRI both would become what is known as the (CCSP) Climate Change Science Program. Now, under the Obama Administration the legacy continues to move forward as the USGCRP, with a yearly budget of 2.7 billion dollars.[60] An insight into these programs reveals that most of it is about combating not monitoring climate change.

Another initiative is projected by the US Department of Homeland Security, which intends to set up the "Hurricane Aerosol and Microphysics Program"[61].

In 2012 US-scientists targeted "a affordable price of below 5 billion a year" to "blow a million of tons" into altitudes of 18 miles[62].

All these sources refer to man made climate change as the problem to be solved by geo-engineering. Climate change is believed to be caused mainly by CO_2.

The findings of this research are summarized in this graph:

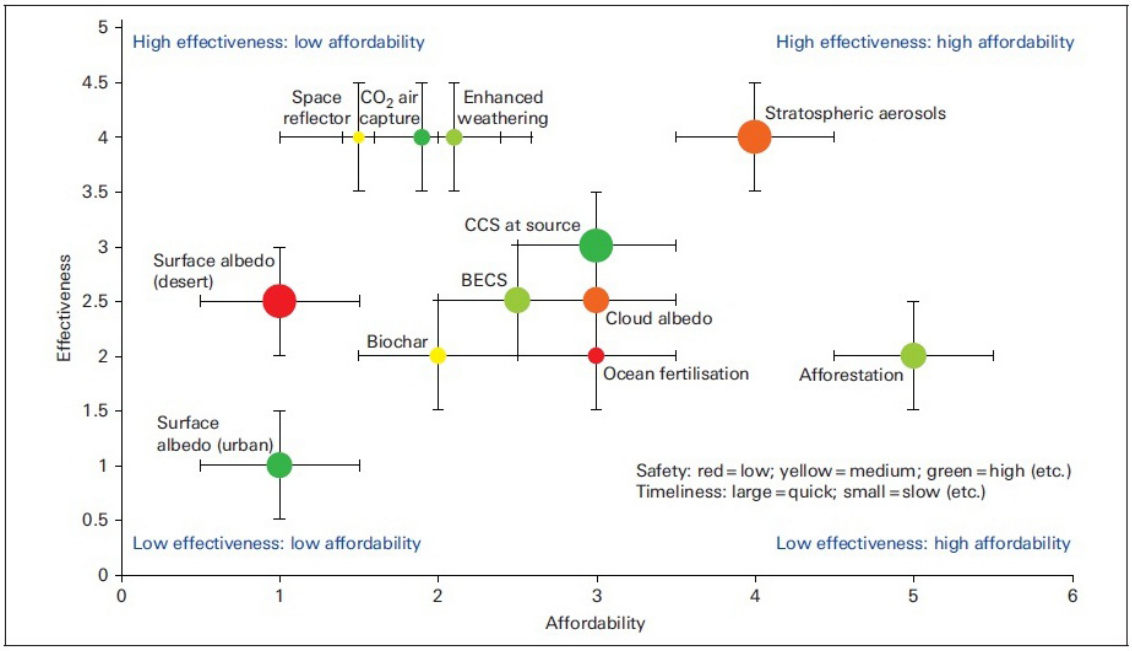
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[59] Official government website: http://www.gcrio.org/gcact1990.html

[60] Shepard Ambellas & Avalon: *The Budget Obama Didn't Want You To Know About.* the intelhub.com, March 30, 2011. Online at: http://theintelhub.com/2011/03/30/secret-presidential-chemtrail-budget-uncovered-exceeds-billions-to-spray-populations-like-roaches/ on Nov. 22nd 2012.

[61] Richard W. Spinrad to William Laska, "Response to Statement of Work: Hurricane Aerosol and Microphysics Program," US Department of Commerce, National Oceanic and Atmospheric Administration, Silver Springs, MD, July 29, 2009, http://voices.washingtonpost.com/capitalweathergang/noaa_letter_dhs_hurricane_modification.pdf

[62] Allister Doyle and David Fogarty, "'Sunshade' to Fight Climate Change Costed at $5 Billion Year," Reuters, August 31, 2012, http://in.reuters.com/article/2012/08/30/climate-sunshade-idINDEE87T0K420120830



Source unknown, for copyright issues please contact the author.

The following passage draws a vague picture of the actions projected and of the aerosols that are planned to be used:

> So far, launching reflective materials into the upper stratosphere seems to be the easiest and most cost-effective option. This could be accomplished by using high-flying aircraft, naval guns, or giant balloons. The appropriate materials could include sulfate aerosols (which would be created by releasing sulfur dioxide gas), aluminum oxide dust, or even self-levitating and self-orienting designer particles engineered to migrate to the Polar Regions and remain in place for long periods. If it can be done, concentrating sunshades over the poles would be a particularly interesting option, since those latitudes appear to be the most sensitive to global warming. Most cost estimates for such geoengineering strategies are preliminary and unreliable. However, there is general agreement that the strategies are cheap; the total expense of the most cost-effective options would amount to perhaps as little as a few billion dollars, just one percent (or less) of the cost of dramatically cutting emissions.[63]

The description of "self-levitating and self-orienting designer particles" might fit on (Ba, Sr_x) TiO_3, with its ability to be ionized and directed by microwave radiation.

This is the outer skin of the onion.

When we go to pre-climate-change-times, things still looked a bit different. Jim Phelps had been working for many years at the Oak Ridge National Laboratories researching the ozone hole and other air-pollution related problems. Global warming was already known back then. However it was not dramatizes and mainly related to fluorine- and sulfur-

[63] David G. Victor, M. Granger Morgan, Jay Apt, John Steinbruner, and Katharine Ricke: The Geoengineering Option. A Last Resort Against Global Warming? *Foreign Affairs* , March/April 2009

emissions from jet fuel. Fluorine and sulfur, creating the aggressive HF and H_2SO_4 acid in the clouds, was regarded as the main cause for acid rain. Both sulfur and fluorine compounds were regarded as a reason for increasing persistence of contrails as well as of the appearance of more high altitude cirrus clouds. These clouds were believed to hold back infrared radiation and cause global warming.
To prevent damage done by especially fluorine, that formed toxic aluminum-fluorine compounds once raining down, he suggested adding TiO_2 to the jet fuel – or spray the compounds simultaneously during the flight – to bind the fluorine to metals that form less toxic compounds.

As to the military branch of geo-engineering, there are only a few sources, mainly ex employees of various agencies.

> We can trace the beginnings of military Spraying-Operations also referred to the Project Cloverleaf right to Dr. Edward Teller, father of the hydrogen bomb and proponent of nuking inhabited coast lines to rearrange them for economic projects. Before he died in 2003, Teller was director emeritus of Lawrence Livermore National Laboratory, where plans for nuclear, biological and directed energy weapons are crafted. In 1997, Teller publicly outlined his proposal to use aircraft to scatter in the stratosphere millions of tons of electrically-conductive metallic materials, ostensibly to reduce global warming[64]. (…)
> Teller estimated that commercial aircraft could be used to spew these particles at a cost of 33 cents a pound. (…) A 1991 Hughes aircraft patent confirms that sunscreen particulate materials can be run through jet engines.[65]

A different story is told by A. C. Griffith[66], an NSA, later CIA employee who uncovered his truth on the Monday edition of the power hour, a national broadcast show. Another onionskin. Griffith served at the Ray Patterson Air force base, which he called the headquarter of US chemtrailing programs. Griffith refers to an ongoing cold war between Russia and the US utilizing scalar weapons. The worst incident of this cold war was – according to the ex US military Col. Tom Bearden, whom Griffith cites on the radio show –, the attempt of Russia to trigger an earthquake in the St. Andreas fault with the Ukraine based (so-called) Woodpecker devices (long range micro-wave transmitters), that were fed with electricity by the Chernobyl power stations. According to Griffith, the attack was staved of with the help of Israel, thus causing what is known as the Chernobyl accident. Griffith sees the US being behind other countries in the development of these weapons as well as of possible defense systems. Against this background he describes the development of chemtrail-programs as a necessary defense system developed by the CIA/NSA intelligence community. The CIA, that had been operating a major aircraft fleet for drug trade to finance their unofficial activities, must have been running out of spraying capacities and tried to involve the Navy. Admiral Jeremia Border, Chef of US-Navy Operations, refused to join into the program and officially committed suicide by shooting himself twice into the chest. Since then the navy became part of the referred Project

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64 Global Warming and Ice Ages: Prospects for Physics-Based Modulation of Global Change, Edward Teller and Lowell Wood, Hoover Institution, Stanford University, prepared for invited presentation at the International Seminar On Planetary Emergencies, Erice, Italy, August 20-23, 1997; also "The Planet Needs a Sunscreen," Wall Street Journal, 10-17-97.

65 Amy Worthington: Aerosol and Electromagnetic Weapons in the Age of Nuclear War. Global Research | June 1, 2004

66 power hour, national broadcast show, online at http://www.youtube.com/watch?v=rS3mVg7GIGI

Cloverleaf. To explain the role of aerosols Griffith referred to a paper by Matthew Daggett with the title "Atmospheric sensitivity invalidation study of the variable terrain radio parabolic equation model", describing a 3D battlefield radar monitoring system that could be operated from a ship 400 miles off the shore by using barium-salts as an reflective aerosol. Griffith also mentioned DARPA and other agencies as possibly joining in to make use of the aerosol spraying for different purposes.

Not all of what Griffith explains connects all the different elements in a logical way, even if the details can be confirmed as being valid. The 3D battlefield radar for example has no value if one is attacked with scalar applications.

On the next layer one might discover the interconnection between the civil and company-based research done with HAARP, ICECAT and similar microwave transmitting devices and aerosol spraying – assuming that this is the direction Griffith should have been pointing to.

> According to University of Ottawa Professor Michael Chossudovsky, the military's High-frequency Active Auroral Research Program (HAARP), operating in Alaska as part of the Strategic Defense Initiative, is a powerful tool for weather and climate modification[67]. Operated jointly by the U.S. Navy and Air Force, HAARP antennas bombard and heat the ionosphere, causing electromagnetic frequencies to bounce back to earth, penetrating everything living and dead[68].
> HAARP transmissions make holes in the ozone[69], creating yet another hobgoblin. HAARP inventor Bernard Eastlund described in his original patent how antenna energy can interact with plumes of atmospheric particles, used as a lens or focusing device, to modify weather[70]. HAARP is capable of triggering floods, droughts and hurricanes, much to the chagrin of both the European Parliament and the Russian Duma[71].
> HAARP also generates sweeping pulses through the ULF/ELF range[72]. In 2000, independent researchers monitored HAARP transmissions of 14 hertz. They found that when these signals were broadcast at high output levels, wind speeds topped 70 miles per hour. They watched as these same transmissions dispersed a huge weather front approaching the west coast from California to British Columbia. Although precipitation had been originally forecast, the front was seen shredding apart on satellite photos and rain did not materialize[73]. The hobgoblin drought can be an enriching and empowering tool for certain corporate and governing entities.
> HAARP is not only capable of destabilizing agricultural and ecological systems anywhere on the planet, but its effects can target select regions to affect human physical, mental and emotional responses during

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67 "Washington's New World Order Weapons Have the Ability to Trigger Climate Change," Center for Research on Globalization, Professor Michael Chossudovsky, University of Ottawa, January 2001.

68 "HAARP: Vandalism in the Sky?" Nick Begich and Jeane Manning, Nexus Magazine, December 1995.

69 Ibid.; also Castle, op. cit. Dr. Castle presents information on how HAARP punches massive holes in the open-air column ozone and how the Air Force then uses toxic chemicals to "patch" the holes it has created: Dr. Castle says: "Welsbach seeding and ozone hole remediation sciences utilize chemistries that are toxic to humans and the environment."

70 "HAARP: Vandalism in the Sky?" Begich and Manning; Researcher David Yarrow is quoted as saying that Earth's axial spin means that HAARP bursts are like a microwave knife producing a "long tear--an incision" in the multi-layer membrane of ionospheres that shield the Earth's surface from intense solar radiation.

71 U.S. HAARP Weapon Development Concerns Russian Duma, Interfax News Agency, 8-10-02.

72 HAARP Update, Elfrad Group, http://elfrad.org/2000/Haarp2.htm 6-27-00.

73 "14 Hertz Signal Suppresses Rainfall, Induces Violent Winds," 10-25-00, Newshawk Inc.; "When the Army Owns the Weather--Chemtrails and HAARP," Bob Fitrakis, 2-13-02: In this article HAARP inventor Bernard Eastlund is quoted on how HAARP can affect the weather: "Significant experiments could be performed. The HAARP antenna as it is now configured modulates the auroral electrojet to induce ELF waves and thus could have an effect on the zonal winds." Find this article with search engine at www.rense.com .

non-lethal warfare projects[74]. HAARP frequencies beamed at specific targets can generate catastrophic earthquakes, exactly like the quake last December which killed thousands of people in Iran, a nemesis nation according to the Bush administration.[75]



HAARP-Similar devices distributed around the globe.

Slowly coming to the core of it, it makes sense to have a second look to the very beginning of things. Project Paperclip was not peaceful at all. The alliance with German scientist lead to the development of nuclear weapons, chemical weapons, biological weapons, and methods of mind control. All of them were more or less secretly tested on civilians and army stuff. The most devastating development was the conversion of fluorine waste from the aluminum production into a supplement in drinking water and toothpaste in the 60s. This technique of mind control originally was developed by IG-Farben as a method to silence occupied territories, concentration camps and prisoners of war camps by poisoning the habitants with flour-compounds via the drinking water, making them will-less and dull. About the same time the industry started to distribute jet fuel with fluorine-based additives leading to global dimming and to major damage within nature by acid rains and – following the suggestions of IG Farben – to damage of a unknown extend to the people's minds.

It is interesting to know that IG Farben was financed and "inspired" by the same groups who were pushing the eugenic agenda in the US during the 30s, leading to thousands and thousands of forced sterilizations. IG Farben later created and produced Cyclon B, and there is a direct economic connection between IG Farben, DOW Chemicals and Monsanto, responsible for the production and the spraying of *Agent Orange* in Vietnam.

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74 Angels Don't Play This HAARP, Begich and Manning, op. cit.

75 Entire passage: Amy Worthington: Aerosol and Electromagnetic Weapons in the Age of Nuclear War. Global Research | June 1, 2004

It is very hard to say how far the influence of groups associated to the eugenic agenda reaches today. Both Rockefeller and Bill Gates with their empire of charities openly avow as acting in this spirit, as well as characters like Henry Kissinger who targeted the depopulation of 3rd world countries as a main interest of US-foreign policy[76].

Still, even if these elements can be found in US-politics, it is hard to say when and by whom the properties of barium-strontium-titanate or other aerosols could be intentionally abused to harm people by applying it as a weather or earthquake weapon, or as an agent for mind control.

11. Project "Cloverleaf"

When governmental, military or agency activities are classified, when people involved have to sign non-disclosure agreements and are threatened with being jailed, then normally one finds what is declared as being conspiracy theory as a natural reaction of the human mind. One has a secret, the other one wonders what it is. Simple as that. Project Cloverleaf is as highly classified as a project can be.

The public is left with no official information. There is a little whistle blowing that might contain truth, but also might contain considerable amounts of disinformation. Normally, there should be no place for this in a paper that aims to be scientific in spirit. But at this point there is no other option than to cite the whistle blowers and accept their wish to hide their identity.

Thus the following information is not citable in the scientific sense of the word and might contain disinformation.

11.1. Military purpose

In chapter 10 we could follow up the development up to the invention of the Barium-Method by Jim Phelps in the year 1996. From 1996 to 1998 there apparently were a few experimental projects conducted by the CIA. Since 1998 the entire territory of the United States is reported to have become subject to aerosol spraying. For the rest of the world there is no reliable information which country joined the program at what time. Within the NATO Cloverleaf is associated with the "Partnership for Peace". This partnership includes non-NATO-countries like Croatia, South Africa and Switzerland. China does not take part.

We could find one anonymous posting that maybe reveals the military purpose of the project, titled: Project Cloverleaf — The Science Behind it[77]

> It involves the combination of chemtrails for creating an atmosphere that will support electromagnetic

[76] NATIONAL SECURITY COUNCIL, WASHINGTON, D.C. 20506 April 24, 1974 National Security Study Memorandum 200.

[77] http://www.disclose.tv/forum/project-cloverleaf-chemtrails-and-their-purpose-t72795.html#ixzz2HmY3MiGL, online Jan. 12th, 2013.

waves, ground-based, electromagnetic field oscillators called gyrotrons, and ionospheric heaters. Particulates make directed energy weapons work better. It has to do with "steady state" and particle density for plasma beam propagation. They spray barium powders and let it photo-ionize from the ultraviolet light of the sun. Then, they make an aluminum-plasma generated by "zapping" the metal cations that are in the spray with either electromagnetics from HAARP, the gyrotron system on the ground [Ground Wave Emergency Network], or space-based lasers. The barium makes the aluminum-plasma more particulate dense. This means they can make a denser plasma than they normally could from just ionizing the atmosphere or the air.

More density [more particles] means that these particles which are colliding into each other will become more charged because there are more of them present to collide. What are they ultimately trying to do up there — is create charged-particle, plasma beam weapons.

Chemtrails are the medium – GWEN pulse radars, the various HAARPs, and space-based lasers are the method, or more simply: Chemtrails are the medium — directed energy is the method. Spray and Zap. This system appears to be in Russia, Canada, the United States, and all of Europe. Exotic weapons can be mobile, stationary, land-based, aerial, or satellite. It is an offensive and defensive system against EM attacks and missiles.

It uses ionospheric particle shells as defense mechanisms [like a bug-zapper shell]* against missiles and EM attacks. That means they spray and then pump up the spray with electromagnetics. When these shells are created using the oscillating, electromagnetic, gyrotron stations, it "excludes" and displaces the background magnetic field. These shells can be layered one above another in a canopy fashion for extra protection from missiles.

The chemtrail sprays have various elements in them like carbon which can used to absorb microwaves. Some of these sprays have metal flakes in them that make aerial craft invisible to radar. Spoofer sprays. Sprays like these can be used to create colorful, magnetized plasmas to cloak fighter jets. There are satellite weapons involved. Activists are using meters and are getting readings of microwaves, x-rays, and some other kind of emission that they are not sure of, maybe a low-intensity laser.

They are also photographing gas plasma generation due to the heating of chemtrails by electromagnetics. The technical names for vertical and horizontal plasma columns are columnar focal lenses and horizontal drift plasma antennas. Various size of gas plasma orbs are associated with this technology. These orbs can be used as transmitters and receivers because they have great, refractory and optical properties.

They also are capable of transmitting digital or analog sound. Barium, in fact, is very refractive — more refractive than glass. What does that mean? Our country has a history of experimenting on its citizens. We are talking about satellite charged-particle frequency weapons attacking a person 24 hours a day. Psychotronic weapons are considered weapons of mass destruction by the U.N.

HAARPs can create earthquakes and can also x-ray the earth to find underground military bases, gold, or oil reserves. These ionospheric heaters can also operate as an over-the-horizon or under-the-ocean communications system. This system can control the weather or create disasters.

Taken together with the aurora keyhole through-your-roof satellite surveillance system, Echelon electronic computer/phone sweeps, plasma-cloaked DOD Drug War helicopters and stealths, implants, and cameras on the street, it constitutes one, big global and space control grid. These weapons involve beams. Two beams overlapped will couple into a particle-ion beam that will bounce off of a remote target and send a holographic image back to the satellite for remote spying operations.

When you cross two strong beams, you can supposedly* create scalar energies.

These energies can be used as untraceable weapons for nuclear size explosions or for defense. These crossed-energies can be used to cause a person's physical electrical system to fail or with a lower frequency, administer a kind of remote electro-shock. Visualize touching a positive and negative electric cable to each other on top of your head. Scalar energies can be utilized in hand-held military guns and on tanks. They can dud-out electronics or cause large, electrical blackouts. Scalar energies are practically impossible to shield against. You need lead, ceramics, and a deep underground facility to not be affected by these weapons. Or, you need to be up and above the field of battle.[78]

[78] Anonymous posting, online at: http://www.disclose.tv/forum/project-cloverleaf-chemtrails-and-their-purpose-

11.2. Involvement of civil airlines

A matter that is heavily discussed is the possible involvement of civil airlines. There where two anonymous propositions to this topic. The first interesting one was a statement published on a radio show coming from someone who declared he was an airplane mechanic:

> For reasons you will understand as you read this I can not divulge my identity. I am an aircraft mechanic for a major airline. I work at one of our maintenance bases located at a large airport. I have discovered some information that I think you will find important. First I should tell you something about the "pecking order" among mechanics. It is important to my story and to the cause to which you have dedicated yourself.
> Mechanics want to work on three things. The avionics, the engines, or the flight controls. The mechanics that work on these systems are considered at the top of the "pecking order". Next come the mechanics that work on the hydraulics and air conditioning systems. Then come the ones who work on the galley and other non-essential systems. But at the very bottom of the list are the mechanics that work on the waste disposal systems. No mechanic wants to work on the pumps, tanks, and pipes that are used to store the waste from the lavatories.
> But at every airport where I have worked there are always 2 or 3 mechanics that volunteer to work on the lavatory systems. The other mechanics are happy to let them do it. Because of this you will have only 2 or 3 mechanics that work on these systems at any one airport. No one pays much attention to these guys and no mechanic socializes with another mechanic who only works on the waste systems. In fact I had never thought much about this situation until last month.
> Like most airlines we have reciprocal agreements with the other airlines that fly into this airport. If they have a problem with a plane one of our mechanics will take care of it. Likewise if one of our planes has a problem at an airport where the other airline has a maintenance base, they will fix our plane.
> One day last month I was called out from our base to work on a plane for another airline. When I got the call the dispatcher did not know what the problem was. When I got to the plane I found out that the problem was in waste disposal system. There was nothing for me to do but to crawl in and fix the problem. When I got into the bay I realized that something was not right. There were more tanks, pumps, and pipes then should have been there. At first I assumed that the system had been changed. It had been 10 years since I had worked on one. As I tried to find the problem I quickly realized the extra piping and tanks were not connected to the waste disposal system. I had just discovered this when another mechanic from my company showed up. It was one of the mechanics who usually works on these systems. I happily turned the job over to him. As I was leaving I asked him about the extra equipment. He told me to "worry about my end of the plane and let him worry about his!"
> The next day I was on the company computer to look up a wiring schematic. While I was there I decided to look up the extra equipment I had found. To my amazement the manuals did not show any of the extra equipment I had seen with my own eyes the day before. I even tied in to the manufacturer files and still found nothing. Now I was really determined to find out what that equipment did. The next week we had three of our planes in our main hanger for periodic inspection. There are mechanics crawling all over a plane during these inspections. I had just finished my shift and I decided to have a look at the waste system on one of our planes. With all the mechanics around I figured that no one would notice an extra one on the plane. Sure enough, the plane I choose had the extra equipment!
>
> I began to trace the system of pipes, pumps, and tanks. I found what appeared to be the control unit for the system. It was a standard looking avionics control box but it had no markings of any kind. I could trace the control wires from the box to the pumps and valves but there were no control circuits coming into the unit. The only wires coming into the unit was a power connection to the aircraft's

main power bus.
The system had 1 large and 2 smaller tanks. It was hard to tell in the cramped compartment but it looked like the large tank could hold 50 gallons. The tanks were connected to a fill and drain valve that passed through the fuselage just behind the drain valve for the waste system. When I had a chance to look for this connection under the plane I found it cunningly hidden behind a panel under the panel used to access the waste drain.
I began to trace the piping from the pumps. These pipes lead to a network of small pipes that ended in the trailing edges of the wings and horizontal stabilizers. If you look closely at the wings of a large airplane you will see a set of wires, about the size of your finger, extending from the trailing edge of the wing surfaces. These are the static discharge wicks. They are used to dissipate the static electric charge that builds up on a plane in flight. I discovered that the pipes from this mystery system lead to every 1 out of 3 of these static discharge wicks. These wicks had been "hollowed out" to allow whatever flows through these pipes to be discharged through these fake wicks.
It was while I was on the wing that one of the managers spotted me. He ordered me out of the hanger telling me that my shift was over and I had not been authorized any overtime.
The next couple of days were very busy and I had no time to continue my investigation. Late one afternoon, two days after my discovery, I was called to replace an engine temperature sensor on a plane due to take off in two hours. I finished the job and turned in the paperwork.
About 30 minutes later I was paged to see the General Manager. When I went in his office I found that our union rep and two others who I did not know were waiting on me. He told me that a serious problem had been discovered. He said that I was being written up and suspended for turning in false paperwork. He handed me a disciplinary form stating that I had turned in false paperwork on the engine temperature sensor I had installed a few hours before. I was floored and began to protest. I told them that this was ridiculous and that I had done this work. The union rep spoke up then and recommended that we take a look at the plane and see if we could straighten it all out. It was at this time that I asked who the other two men were. The GM told me that they were airline safety inspectors but would not give me their name.
We proceeded to the plane, which should have been in the air but was parked on our maintenance ramp. We opened the engine cowling and the union rep pulled the sensor. He checked the serial number and told everyone that it was the old instrument. We then went to the parts bay and went back into the racks. The union rep checked my report and pulled from the rack a sealed box. He opened the box and pulled out the engine temperature sensor with the serial number of the one I had installed. I was told that I was suspended for a week without pay and to leave immediately.
I sat at home the first day of my suspension wondering what the hell had happened to me. That evening I received a phone call. The voice told me "Now you know what happens to mechanics who poke around in things they shouldn't. The next time you start working on systems that are no concern of yours you will lose your job! As it is I'm feeling generous, I believe that you'll be able to go back to work soon" CLICK. Again I had to pick myself from off the floor. I made the connection that what had happened was directly connected to my tracing the mysterious piping. The next morning the General Manager called me. He said that due to my past excellent employment record that the suspension had been reduced to one day and that I should report back to work immediately. The only thing I could think of was what are they trying to hide and who are THEY!
That day at work went by as if nothing had happened. None of the other mechanics mentioned the suspension and my union rep told me not to talk about it. That night I logged onto the Internet to try to find some answers. I don't remember now how I got there but I came across your site. That's when it all came together. But the next morning at work I found a note inside my locked locker. It said, "Curiosity killed the cat. Don't be looking at Internet sites that are no concern of yours."
Well that's it. THEY are watching me.
Well you already know what they are doing. I don't know what they are spraying but I can tell you how they are doing it. I figure they are using the "honey trucks". These are the trucks that empty the waste from the lavatory waste tanks. The airports usually contract out this job and nobody goes near these trucks. Who wants to stand next a truck full of sh--. While these guys are emptying the waste tanks they are filling the tanks of the spray system. They know the planes flight path so they probably program the control unit to start spraying some amount of time after the plane reaches a certain

> altitude. The spray nozzles in the fake static wicks are so small that no one in the plane would see a thing. (Signed:) God help us all, A concerned citizen.[79]

As a response to that interview someone sent an anonymous eMail introducing himself as a director of an airline.

> I read email you received from the anon. mechanic and felt compelled to respond to it. I, too, work for an airline, though I work in upper management levels. I will not say which airline, what city I am located, nor what office I work for, for obvious reasons. I wish I could document everything I am about to relate to you, but to do so is next to impossible and would result in possible physical harm to me.
> The email from the anonymous mechanic rings true. Airline companies in America have been participating in something called **Project Cloverleaf** for a few years now. The earliest date anyone remembers being briefed on it is 1998. I was briefed on it in 1999. The few airline employees who were briefed on Project Cloverleaf were all made to undergo background checks, and before we were briefed on it we were made to sign non-disclosure agreements, which basically state that if we tell anyone what we know we could be imprisoned.
> About twenty employees in our office were briefed along with my by two officials from some government agency. They didn't tell us which one. **They told us that the government was going to pay our airline, along with others, to release special chemicals from commercial aircraft.** When asked what the chemicals were and why we were going to spray them, they told us that information was given on a need-to-know basis and we weren't cleared for it. They then went on to state that the chemicals were harmless, but the program was of such importance that it needed to be done at all costs. When we asked them why didn't they just rig military aircraft to spray these chemicals, they stated that **there weren't enough military aircraft available to release chemicals on such a large basis as needs to be done.** That's why Project Cloverleaf was initiated, to allow commercial airlines to assist in releasing these chemicals into the atmosphere. Then someone asked why all the secrecy was needed. The government reps then stated that if the general public knew that the aircraft they were flying on were releasing chemicals into the air, environmentalist groups would raise hell and demand the spraying stop. Someone asked one of the G-men then if the chemicals are harmless, why not tell the public what the chemicals are and why we are spraying them? He seemed perturbed at this question and **told us in a tone of authority that the public doesn't need to know what's going on,** but that this program is in their best interests. He also stated that we should not tell anyone, nor ask any more questions about it. With that, the briefing was over.
> All documents in our office pertaining to Project Cloverleaf are kept in locked safes. Nobody is allowed to take these documents out of the office. Very few employees are allowed access to these documents, and they remain tight-lipped about what the documents say.
> Mr. Carnicom, I am no fool. I know there's something going on. And frankly, I am scared. I feel a high level of guilt that I have been aware of this kind of operation but unable to tell anyone. It's been eating away at me, knowing that the company I work for may be poisoning the American people. I hope this letter will open some eyes to what's happening.
> Again, I wish I could give you documented information, but you have to understand why I must remain totally anonymous. Thank you.

11.3. Organizations involved

During the work of several civil right organizations that have been collecting data about aerosol spraying it turned out that the websites of these organization were frequently monitored by a number of organizations and companies. The list of these companies who

[79] Radio-INTERVIEW (Live on Coast-to-Coast radio, May 17, 2003)

could be identified by their IP addresses could reveal who is actually involved in operation cloverleaf. The list contained:

> **Lockheed Martin** (aviation/space defense contractor); **Raytheon** (Defense Contractor, visits immediately after posting HAARP implications); **Boeing Aircraft Company** (100 visits +.); **Honeywell** (U.S. Defense Contractor); **Merck** (Pharmaceutical Products and Health Research); **TRW** (U.S. Defense Contractor); **Monsanto** (Chemical, Pesticide, & Pharmaceutical products); **Allied Signal Corporation** (chemical/aerospace/energy); **Kaiser Permanente** health org.; **US Environmental Protection Agency** (refuses to investigate or accept evidence samples for analysis); **US Dept. of Treasury**; **US General Accounting Office** (investigative arm of Congress: performs audits/evaluations of Gov't activities); **US Naval Criminal Investigative Service** (worldwide org. tasked with criminal investigations & counterintelligence for Dept. of Navy; manages its security programs); **Office of Secretary of Defense** (Office of William S. Cohen, he used to work as CEO of military contractor Northrop Grumman); **FEMA** (Federal Emergency Management Agency: US emergency management program of mitigation, preparedness, response & recovery).

Looking at the activities of all these companies and agencies would be a task that would keep Interpol busy for a few years. In the frame of this study we will reduce it to only one company. The choice was not motivated by pre-knowledge, apart from the known fact that Raytheon owns the HAARP device in Alaska.

The companies history as described on their own website reads like this:

> Ninety years ago, a great American success story began: A few passionate visionaries created a high-tech venture in the shadow of a great university and developed a breakthrough product that transformed a nation.
>
> One of the earliest technology start-ups, Raytheon was established in Cambridge, Mass., home of the Massachusetts Institute of Technology, on July 7, 1922 as the American Appliance Company.
>
> The company's founders were Vannevar Bush[80], who would become dean of MIT's School of Engineering; Laurence Marshall, an engineer; and Charles G. Smith, a scientist who had done work on the electrical properties of gases.
>
> Their revolutionary innovation was the S gas rectifier tube, a device that eliminated one of the cumbersome expensive batteries that previously powered home radios.
>
> The tube transformed the radio into an affordable "must-have" appliance that could be plugged into a wall socket, turning radio into a true mass medium that brought the world into America's living rooms.
>
> Raytheon quickly moved to the forefront of innovation in the electronics industry. During World War II, Raytheon employees contributed to the war effort. They supplied 80 percent of the magnetron tubes used in U.S. and British radars and developed parts for the crucial proximity fuse in antiaircraft shells, among other equipment.
>
> After the war Raytheon began offering civilian products, the microwave being among the most famous. Raytheon engineer Percy Spencer discovered microwave cooking when, as he stood in front of an active magnetron, a candy bar in his pocket began to melt. Intrigued, he sent out for popcorn kernels – and they began to pop. With that, a new appliance was soon on its way.

80

> In the decades that followed, Raytheon employees would build on the company's reputation for technology and innovation leadership. Today it stands as a global technology leader specializing in defense, homeland security and other government markets.
>
> Raytheon met urgent production needs for magnetron tubes used by Allied forces for radar defense, and produced the Sea Going (SG) microwave surface search radar that went on U.S. Navy ships. The SG provided vital situational awareness in the major battles in the Pacific and helped eliminate the submarine menace in the Battle of the Atlantic.
>
> Raytheon Company, with 2011 sales of $25 billion and 71,000 employees worldwide, is a technology and innovation leader specializing in defense, homeland security and other government markets throughout the world. With a history of innovation spanning 90 years, Raytheon provides state-of-the-art electronics, mission systems integration and other capabilities in the areas of sensing; effects; and command, control, communications and intelligence systems, as well as a broad range of mission support services. With the hard work and dedication of tens of thousands of employees around the world, Raytheon is well-equipped to meet the needs of its customers in more than 80 countries – today, tomorrow and well into the 21st century.

Raytheon owned its own aircraft manufacturers, Hawker and Beechcraft, that were fused to Hawker Beechcraft. Hawker Beechcraft served orders like this one[81]:

> **Hawker Beechcraft receives major aircraft order from Saudi Arabia Government Agency**
>
> Hawker Beechcraft Corporation (HBC) today announced the sale and delivery of 12 aircraft to the Saudi Arabia Presidency of Meteorology and Environment (PME).
> Aircraft deliveries have taken place throughout the past year and are expected to conclude by the end of the year when the remaining two aircraft are delivered.
> "This order is an example of the strength and versatility of our broad aircraft lineup for this region," said Bill Boisture, HBC Chairman and CEO.
> "There are numerous HBC products operating in the Middle East, many in special mission roles such as that of the PME. Our aircraft offer the performance capabilities and greatest flexibility needed for the PME operations."
> The order consists of one Hawker 900XP, two Hawker 400XP, one King Air 350, two King Air B200GT and six King Air C90GTi aircraft.
> The aircraft will be used to support the various roles of the Saudi Arabia PME, which includes vital meteorological activities such as weather forecasting and modeling, and environmental issues including air quality assessment and protection.
> The new aircraft special mission instruments are being engineered and modified by Weather Modification, Inc. and the Fargo Jet Center, both located in Fargo, N.D. The maintenance service of the PME aircraft will be managed by HBC Authorized Service Center Arabian Aircraft Services Co. Ltd, also known as ARABASCO.

Taking away the verbal fog: Raytheon sold the equipment for "vital meteorological activities" manufactured by a company called "Weather Modification Inc." to the Saudi Arabia Presidency of Meteorology and Environment.

Luckily, things in Saudi Arabia are not as classified as things in the US and Europe and we don't need a clearing before we are allowed to know the full story, i.e. that

[81] United Arab Emirates: Wednesday, November 18 - 2009 at 08:32, PRESS RELEASE online Jnauary 2013 at http://www.ameinfo.com/216444.html

Hawkers undergo modification for cloud seeding missions to replenish aquifers in Saudi Arabia

Weather Modification, Inc (WMI) has taken delivery of five new Hawker Beechcraft aircraft at their facility in Fargo, US. Two King Air 200GTs, two Hawker 400XPs and one Hawker 900XP were test flown and accepted by WMI and will be used for air quality monitoring, atmospheric research and cloud seeding missions in Saudi Arabia.
With 10 WMI turboprop aircraft currently in Saudi Arabia, WMI began this mission in the winter of 2006 in an effort to replenish the region's underground aquifers and increase rainfall in the Kingdom.
"This marks a significant step of a major mission for us," says WMI president Pat Sweeney. "We'll provide the Kingdom of Saudi Arabia with the tools they need to perform the most advanced cloud seeding and atmospheric research projects in the world, with the goal of increasing rainfall in a country that needs it."
Before flying overseas to begin the mission, WMI will work with Fargo Jet Center (FJC) to modify and equip the planes with cloud seeding equipment and atmospheric research instruments. FJC is an aircraft maintenance and avionics repair station and a designated Hawker Beechcraft Service Center. As of this past year, FJC has completed more than 30 special mission aircraft conversions.
"It is a testament to our special mission team and the processes they have in place," says Sweeney. "It is certainly not an easy process, but we have an incredibly talented team retro-fitting these aircraft to make them mission-ready for projects around the world."
The aircraft modification process has already begun to make the aircraft mission-ready by April this year. Without permanent surface water, agriculture in Saudi Arabia is dependent on irrigation from pumped groundwater. Public and industrial water needs are currently met by expensive desalination plants.
According to a United Nations Environmental Program Report, the present rate of groundwater withdrawal from the region threatens the Saudi aquifers, and with increased development and population growth, groundwater contamination becomes an additional concern.
"The situation isn't dire in Saudi Arabia, but it certainly is serious and can't be ignored," adds Sweeney. "There are limits to the capacities of the desalination plants and water pipelines the country has in place."
Atmospheric water in the form of precipitation is one of the primary sources of fresh water in the world. However, a large amount of water present in clouds is never trans-formed into precipitation on the ground prompting scientists and engineers to explore augmenting water supplies through cloud seeding. The ability to enhance precipitation through cloud seeding is highly dependent on the properties of the clouds, aerosols and the atmospheric environment.
This marks the third year of research and cloud seeding operations conducted by WMI in Saudi Arabia. Officials estimate the research to take another three to five years to collect the necessary data and conduct the exploratory seeding trials.
In total, WMI will provide 12 new aircraft, including pilots and crew, which will focus on the entire country of Saudi Arabia. WMI expects all 12 to be operational by March 2010.

From May 2001 - April 2006, Raytheon Aircraft Company involved with (Defense & Space industry), made repairs and major modifications to the Hawker European Aircraft Fleet. This was based at Hawarden Airport, Chester.[82] Unfortunately it is not known what type of modification has been done. But the interest in the Aerosol topic seem to have occupied more minds at Raytheon.

[82] http://www.facebook.com/notes/martin-theforce-oftruth/raytheon-aerosols-and-haarp/439271660718?comment_id=13550230&offset=0&total_comments=12

He company developed the Raytheon's Aerosol Polarimetry Sensor, a satellite based system to monitor aerosols. Unfortunately the launching of the satellite by NASA failed march 2011.

It might be mentioned that this was the second failure of a mission to bring aerosol measurement into space. The first attempt ended with the Columbio disaster 2003, that had special aerosol cameras on board as well as the high energy laser weapons to be tested for the Israel rocket defense system.

At first sight this does not look like being interconnected. When one tries to find out who owns Raytheon one ends up with a long list of wall street investment fonds. It is not unlikely that there is a lot of Jewish money involved in these shares, which partly could explain the allied-like cooperation between Raytheon and the Israeli government, that even has bee publicly accused of cross-financing Israeli governmental duties.

On its main website Raytheon offers *"Security Solutions"* delivering "*Integrated Geospatial*[83] *Solutions"* to governments,

> For more than 30 years, Raytheon has been successfully developing solutions to support the full spectrum of geospatial operations for its global civil, defence and intelligence community customers.
>
> Scalable and Adaptive Solutions From stand-alone ground stations to comprehensive geospatial solutions for entire nations, Raytheon understands the speed at which the information technology environment evolves. Raytheon has the demonstrated experience to establish solutions with the flexibility to adapt and expand, supporting an organisation's future growth and requirements. Raytheon is committed to delivering open solutions, actively seeking out and engaging industry partners to bring together innovative technologies that support a client's evolving requirements. Raytheon's experience in managing collaborative teams and technology integration provides clients with the best possible, cost effective outcome and removes the issue of a "Black-box" solution being deployed into their organisation.
>
> Geospatial Information Superiority The Defence Geospatial Strategy 2010 outlines the mission for the Australian Defence Geo Domain as:
>
> *"To provide relevant and trusted geospatial information and services that are easily accessible, secure and fit for purpose to enable operational effectiveness for Defence and to support Government and international partners."*
>
> Raytheon supports the ADF geospatial mission through a proven record of working with government and industry partners to deliver innovative solutions and capabilities. Intelligence, When and Where you need It. Driven by this mission, Raytheon is investing in technologies to achieve geospatial information superiority.

In this context, the website states the company is explicitly "proud of a successful long term cooperation with countries from the middle east". The sense for language triggers a few alerts when reading this description from Raytheons website. And this quality of language seems to be common to all things that deal with "Integrated Geospacial intelligence solutions"; like the big annual conferences to this topic, where Raytheon is listed as one of the main sponsor, and where the lists of participant reveal the possible

[83] "Geospatial Technology, commonly known as geomatics, refers to technology used for visualization, measurement, and analysis of features or phenomena that occur on the earth."

"governmental" customers of the company – "governmental" or of "international organizations", whatever this might be.

Thinking conservative, this is about spying. This would explain the foggy language. But evaluating the patent list of technologies filed by Raytheon one also finds patent that sound like belonging to microwave[84]- and scalar weapons[85], like described by the posting in chapter 11.1., that very easily can be targeted on individuals, like the microwave weapons used in the second Iraq war that create the feeling of burning by heating the surface of the skin.

The general impression is that "project cloverleaf" conducts spraying under the flag of civil geo-engineering while it is offering weapon system to governments that are not only part of the major defense strategies but also can be used to spy on, apply mind control and eventually kill dissidents with directed energy weapons utilizing the same aerosols.

Looking at the biochemical processes discovered with humans exposed to barium-strontium-titanate, their integration of the crystals into the sensitive places of the nervous system, where triggered by external field literally every information can be inserted into the body-communication, an intentional abuse of the geo-engineering substances for advanced mind control is in the range of technical possibilities and could be regarded as the coming generation of methods that one day might be used by the intelligence community to establish total control over the population.

This thought would also explain the criminal energy set into the vaccination campaigns by people like Bill Gates (eugenic agenda) and the WHO (internationalists).

Monitoring Raytheon activities in Norway, Raytheon produced most of the radar systems for the Norwegian army, is into weather forecast and built the flight control at the main Norwegian airport in Oslo Gardermoen.

11.4. Dismounting the cover story

As the official reason for spraying – not with Saudi Arabia but with other countries – climate change is discussed as the big threat that needs to be faced. This scientific belief is an important part of the psychology driving the international geo-engineering agenda.

Among scientists it is an open secret that if one needs to apply for research funding it is very helpful to ad the phrase "under the aspect of climate change" to the title of whatever research project one wishes to conduct. This is a sad truth because much hope was invested in the announcement of the globalists to finally regard nature as something worthy.

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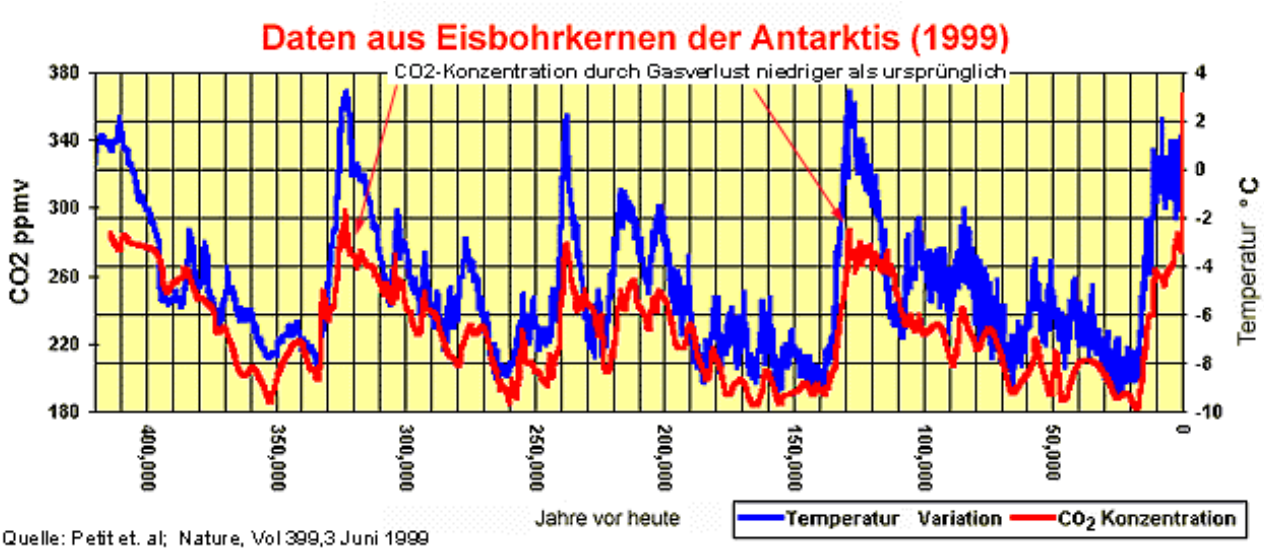
[84] U.S. Patent Number 7,498,549, U.S. Patent Number 7,490,538

[85] U.S. Patent Number 7,346,091

With the idea that the main target of the overall concept is less constructive it makes sense to look at the myth again. The research to this chapter took about two days time, and is based mainly on established data from pre-climate-change-times and some basic understanding of cybernetics.

Some thing historical to start with: In the beginning of the 19th century the French physician Jean Baptist Joseph Fourier „discovered" the „Greenhouse effect". According to this theory our earth should be a pretty cold place. The thesis of Fourier is that the sunbeams pass relatively undisturbed through the atmosphere and heat up the Earth surface, which reflects them in the infrared scale. The heat radiation doesn't reach very far, because some particular gasses absorb it and keep the heat in the atmosphere. In the laboratory the English physicist could easily find out which gases were responsible for the effects: it was carbon dioxide and water vapor. This was the state of the art as discovered in the middle of the 19th century. Later also methane was added to the list. In 1955 the Austrian chemist Hans Suess suspected that the combustion of fossil fuels could have an effect on the climate. Since 1958 the CO_2-concentration in the atmosphere is measured regularly and indeed it rises continuously. During the oil crisis in the 70s this thesis grew popular after another British researcher had formulated a similar speculation.

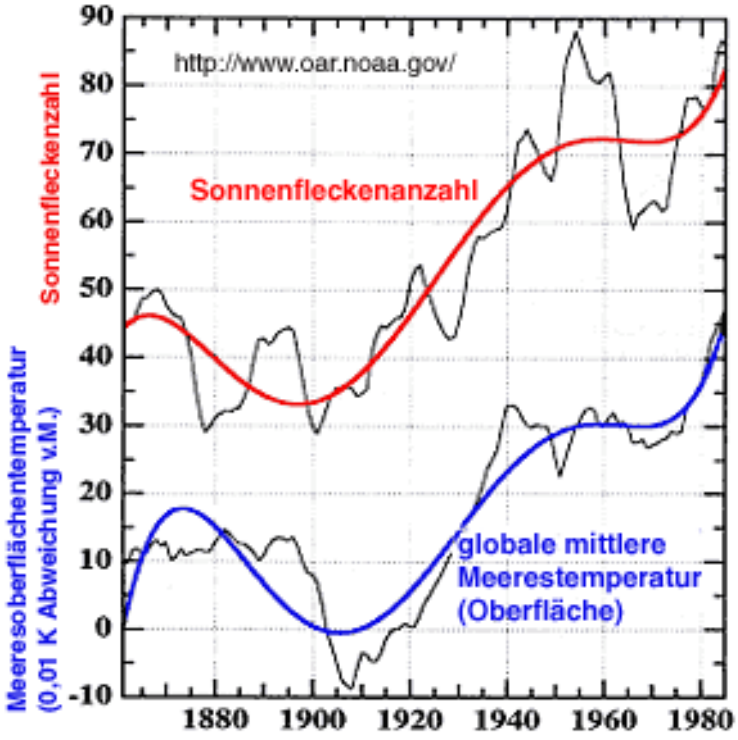
At that time Margeret Tatcher had to fight on many fronts; against the national coal mining trade unions and against the OPEC cartel. Her alternative was nuclear power. Against this background she happily welcomed any argument. At the same time the hippie movement was happy about any good reason for their call „back to nature". Against the various lobby groups that earned and still earn on the oil market neither Thatcher nor the Hippies could advance and so the environmental improvements within the oil industry were just dwelling for quarter of a century in darkness. The brake through came 2006 with Al Gore's movie: „the inconvenient truth". Ever since a true hysteria has invaded the media, so that every scenario has to over score the previous in horror. The scientific institutes celebrate research funds in excess, used to give evidence to conclusions that are already known a priori: Climate change is man made! Except of additional money making by new taxes still this doesn't entail any extensive actions.



Fortunately there are people that see in every word of the leading authorities a scam. „The inconvenient truth“ was followed by a movie worth seeing, called „The Great Climate Swindle“ which scored downloading records. Core statement: The Global temperature follows the activity of the sunspots. The increased CO_2 follows this phenomenon 500 - 800 years later as a result of the delayed warming of the oceans, which can store less CO_2 when they have a higher water temperature.

Cybernetic is the science of the complex and re-generative non-linear systems and their regulatory circuits: it is very helpful to understand the climate. The climate relies on outer influences as well as inner rhythms. The significant outer influences are the sun and the general intensity of the cosmic radiation. The sun is sometimes very active, sometimes less active. The indicator for that is the circuit of the sunspot activities. An active sun protects the earth with its ionic winds from the cosmic radiation. But also the basic maintenance of the cosmic radiation varies according to the position of the earth in the milkyway. In case of a strong radiation it comes to a strong clouding hence to the stronger ionization of the air in the higher atmosphere. It gets colder near to the ground.

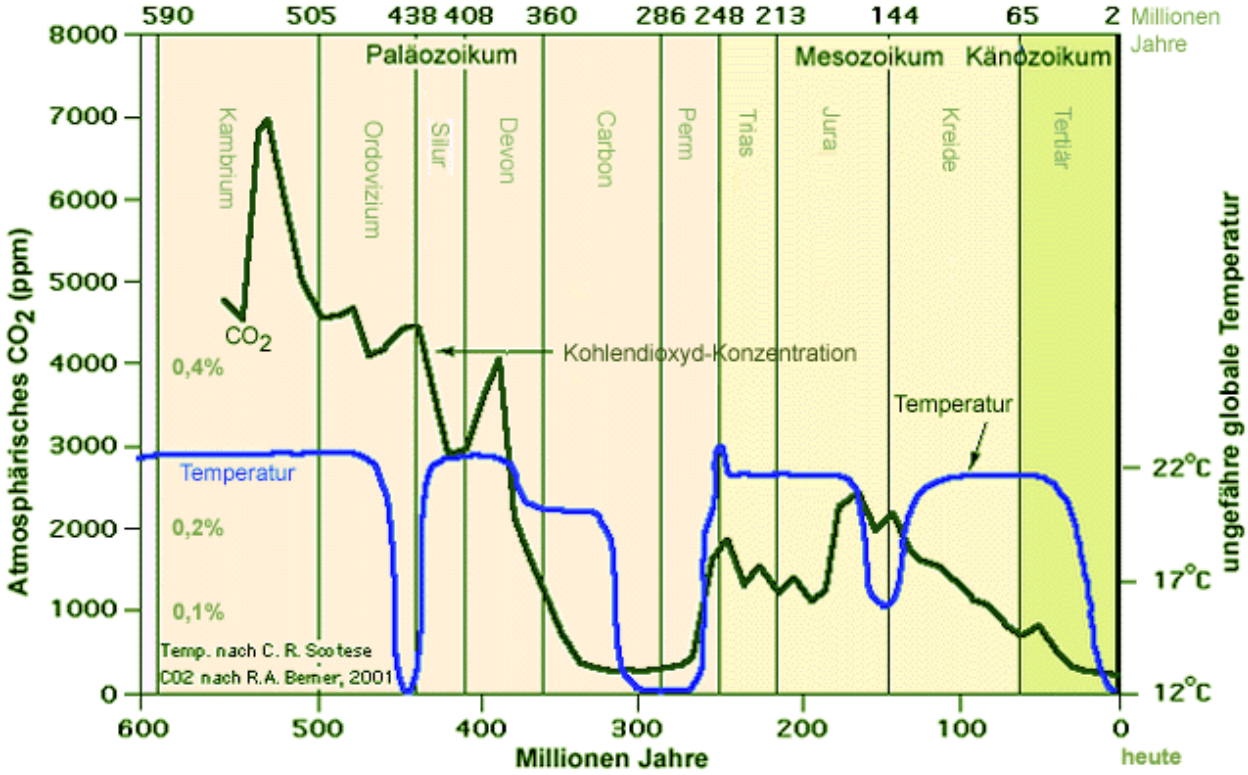
All other factors are due to inner rhythms. And there are many of them. You can group these inner rhythms in two categories: stabilizing and destabilizing rhythms. Here comes a list with the most important mechanisms:
If temperature rises, more water of the oceans evaporates, more clouding appears, more rain is falling on the continents, more cooling is taking place by evaporation, hence temperature decreases. By evaporating from soils and forests, this water can form clouds and rain a second and third time before the water is flowing back into the oceans. This is the first and most important stabilizing control circuit.



The second very important control circuit concerns Vegetation. A warmer climate favors the growth of light green plants in nature so that more light is reflected from the vegetation cover; it becomes colder. When it becomes colder then dark green plants dominates the vegetation so that more light is absorbed hence the temperature of the surface increases. This regularatory control circuit functions with a closed vegetation

cover. If this circuit is overexcited by heat then it comes to desertification with the abrupt increasing of the surface temperature.

Other regulation control circuits are destabilizing, when it gets warmer the ice is melting on the poles so that more dark rocks and more ocean surface is exposed to the sun so that it becomes even warmer.



Firstly it is evident that the stabilizing regulatory control circuits dominated the processes in the past otherwise the climate would have taken its journey to another stable point on the temperature scale long time ago. That is in the nature of each and every system: and in every self-organized and non-linear system exists a stable order. Occasionally a change in the order takes place implying the abrupt adjustment of its points of stability. During this change of order the system runs through a chaotic phase. For example the amount of stabilizing points between which the earth temperature was oscillating during its history are known: there are exactly two. The colder point lies at average temperature 12 degrees Celsius, the warmer one lies at 22 degrees. As we can see; we are now in a cold period. As we can also see in the following diagram, the concentration of CO_2 looked upon during the geological era's has barely any influence on these circles.

Still there are countless possibilities to shake the system described above, so that the stabilizing points are moved by some degrees Celsius. It is possible to pollute the atmosphere with exhaust gasses, especially carbon black, which darkens the earth: Global cooling. Nevertheless it is always about a considerably small movement of the stable point,

which is minor in comparison to the effect of the general radiation on the first rank and the sun activity on the second rank.

Indeed we can weaken the stabilizing regulatory control circuits by the cancellation of the mechanisms that it is based on. There is a real danger in this. If we cultivate monocultures with dark leaves in warm areas or we reduce the humus concentration in the soil as the industrial agriculture is doing it, then the rainwater drains away and flows back as groundwater to the oceans instead of evaporating and forming rain again, cooling and watering the earth on its way. That could possibly cause an immense heating because we interrupted the stabilizing mechanism, which allows the destabilizing regular control circuits to take over and to dominate the process. Of course we can be so stupid and let whole areas of the planet become deserts.

Let us now express the whole situation in numbers: In the rainforests nearly 100% precipitation evaporates; one part already on the leaves, the rest is absorbed by the soil, stored and through the roots send back up. In the desert as well as on the fields after 40 years of agriculture, the concentration of humus in the soil is reduced so much that up to 90% of the water drains or flows off.

The measured warming of the earth – so to speak the earth warming that concerns us – is first of all the measured surface temperature on the continents. The most significant factor in this is the water balance. So if we should take care of anything then that would be the soil and the vegetation. The second important one goes via the atmospheric tension: plants discharge atmospheric tension by discharging atmospheric and inner earth longitudinal fields into scalar fields, and this discharge and harmonization between earth and sky is essential for the generation of clouds. So – if we should take care of anything then that would be the soil and the vegetation.

The official story seems to be a cover story, to force the trade of climate certificates, to justify land robbery by companies in the third world, and to push the geo-engineering agenda forward.

Actually, there is nothing good about it – that should stop us from dropping he myth as fake.

12. Conclusion

To stop a project of the size “project cloverleaf” looks like is something very unlikely to achieve. Too many people are involved, are in duty, like the chairs they sit on, feel comfortable with their personal importance.

Admitting something went wrong while the mind was hovering around star wars, national security and other important stuff is something that needs great spirits. Actually the only way to make that miracle happen is to laugh, to step aside, to cancel or change the concept in an Alexis Sorbas like way. It is sad to be in the position to say that it really needs a

miracle to stop that train. However, who does not believe in miracles is not a realist.

Additionally, there is one good reason between the many wrong ones to get involved in aerosol spraying – the fear that the coming big 200 year cycle in sun spot activity will bring about solar flares that could destroy every transformer station on the northern hemisphere, leaving all the nuclear power stations naked, without grid, without anything to take up their electricity, possibly also without cooling if directly hit by a flare.

Artificial plasma shields would protect us from this scenario to a certain extend. Still the question remains if we should adopt our technologies to the planet we live on or if we should adopt the planet to our technologies. Personally we prefer the first solution.

Back to the biology with a summary of our findings: The optical and electric properties that make (Ba, Sr_x) TiO_3 so useful in technical applications would likely remain intact when absorbed by plants and mamals. The nano-crystal is not easily dissolvable, its small size enables it to enter into the plant through the leaves or roots as whole nano-crystals. Due to the low solubility it will accumulate in the soils and bio-accumulate in the food chain.

Russian research of the 60s has shown that plants trigger cell growth with ultra weak light emissions at 260nm. This lays within the frequency range where (Ba, Sr_x) TiO_3 is known to absorb close to 90% of all light.

The main hypothesis of this paper is that (Ba, Sr_x) TiO_3 absorbs the light emitted in plants and by doing so stops cell division. Additionally, terrestrial EMV radiation triggering the crystal could alter the cell potential and thus dis-balance the plants immune system. To verify this theory of (Ba, Sr_x) TiO_3 's inherent plant growth inhibition qualities, controlled experiments need to be performed.

Additionally the same crystals attach to the receptor cell of the nervous system of mammals creating a serial interface for either mind control or for a totally chaotic impact of technical frequencies.

Based on rain samples, an annual release of barium aerosols into the atmosphere for 2012 can be estimated to 2027 tons on German territory only. Based on chemical analysis of one single Norwegian meadow that showed all symptoms of retarded plant growth the lethal doses can be estimated to 57 g/kg dried organic matter, assuming that the described mechanism is the sole factor. Compared to this value, the total amount sprayed in Germany per year already would exceed what is needed to stop plant growth in grass by the factor 12.5. Thus deposits in the ground might already be deadly for perennial plants, which will continue to accumulate particles in their tissue in the following years – no matter if spraying will be continued or stopped.

Additionally, the miniature size of particles makes them stay in the atmosphere up to 18 months. This means that if material already is sprayed into the atmosphere, it will continue to fall down and increase levels in ground and plants for another 18 months.

Large-scale programs will have large-scale impact. We all need to live of harvest from our land and oceans.

The huge pressure on politicians and scientist to solve the global warming could easily open the way for desperate acts, like implementing programs before they are fully researched regarding their possible negative consequences. The official data from Germany indicates that large scale aerosol release is already taking place.

We have not found published experiments establishing safety of distributing patented nano-particles into our biosphere. Since nature functions as a unit, breaking one part of the 'chain' will affect the rest. Decision makers need to bear this in mind and include research on the effect on plants, microbes, insects, marine-life, birds, animals and humans.

Large-scale programs like officially projected will have even larger-scale impact. We all need to live of harvest from our land and oceans.

The possible consequences of global warming with heavy storms, floods, drought and ocean acquiring land, imply large challenges and adaptation skills. But which human being can carry the responsibility to launch programs in Godlike scale intending to cover the entire globe with a nano-shield, with a constant drop out toward the earth and oceans, without God-given all encompassing knowledge?

As we could show, it is theoretically not unlikely that (Ba, Sr_x) TiO_3 inhibits or stops plant growth when a certain concentration is reached. Should this happen in large scale, God forbid, global warming would seem like a minor problem.

As a reaction on the first draft of this paper, a person within the Council of Foreign Relations unofficially confirmed a "number of minor research programs conducted". Also, a high US-Army employee related to the publication as important information on barium-strontium-titanate as an aerosol in use. In the face of the dispute about the existence or non-existence of conducted geo-engineering we appreciate the openness of these people and thank them for the will to take our concerns into consideration.

We urge those in charge or those in a position to bring forward this information to the right persons to do so. The necessary experiments need to be done in time. We also urge those in power not to release (Ba, Sr_x) TiO_3 nano-crystal nor other nano-particles with special optical or electromagnetic qualities into the atmosphere unless safety for our livelihood is securely confirmed.

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
1		Dust deposition µg/m2 * d					Rain water	g/ha	mg/l			Small Grass culture mg/kg							
2		Barium	Titanium	Strontium			Barium	Titanium	Strontium			Barium	Titanium	Strontium					
3	1990					1990					1990		3.5						
4	1995					1995					1995		3.33						
5	1997	164	164	10		1997					1997								
6	1998	171	158	10		1998	24				1998								
7	1999	161	147	10		1999	18				1999								
8	2000					2000					2000		1.5						
9	2001					2001					2001	6							
10	2002		<			2002					2002		2.17						
11	2003		30			2003					2003		2.81						
12	2004		30			2004					2004		2.62						
13	2005	<	30			2005					2005	9	2.41						
14	2006	10	30			2006					2006	6.4	1.83						
15	2007	10	30			2007					2007	9.2	2.7						
16	2008	10	30			2008					2008								
17	2009	10	25			2009					2009	x							
18	2010	5.1	6.6			2010					2010	13							
19	2011					2011					2011	x							
20	2012					2012	0.0034				2012								
21																			
22		Deposition in Germany in t/d dust measurement					Deposition in Germany in t/d according to rain measurement					Deposition in Germany in t/d according to grass measurement							
23		Barium	Titanium	Strontium			Barium	Titanium	Strontium			Barium	Titanium	Strontium					
24	1990					1990					1990		437						
25	1995					1995					1995		416						
26	1997	59	59	4		1997					1997								
27	1998	61	56	4		1998	857				1998								
28	1999	57	52	4		1999	643				1999								
29	2000					2000					2000		187						
30	2001					2001					2001	750							
31	2002					2002					2002		271						
32	2003		11			2003					2003		351						
33	2004		11			2004					2004		327						
34	2005		11			2005					2005	1125	301						
35	2006	4	11			2006					2006	800	229						
36	2007	4	11			2007					2007	1150	337						
37	2008	4	11			2008					2008								
38	2009	4	9			2009					2009								
39	2010	2	2			2010					2010	1625							
40	2011					2011					2011								
41	2012					2012	911				2012								
42																			
43	Landesumweltamt Brandenburg: Staubniederschlag und Niederschlagsdeposition. Studien und Tagungsberichte Band 36. Studien und Tagungsberichte, Schriftenreihe des Landesumweltamtes Brandenburg ISSN 0948-0838.																		
44	Bayerisches Landesamt für Umwelt: Lufthygienischer Jahresbericht																		
45	Bayerisches Landesamt für Umwelt: 30 Jahre Immissionsökologie am Bayerischen Landesamt für Umwelt																		
46	Bayerisches Landesamt für Umwelt: Orientierungswerte für die maximale Hintergrundbelastung OmH für Metalle im ländlichen Raum.																		
47	Initiative für einen sauberen Himmel																		
48	Prof. Dr. Peter Heck, Dunja Hoffmann, Bernhard Wern: Studie zur Weiterentwicklung der energetischen Verwertung von Biomasse in Rheinland-Pfalz. Abschlussbericht des ifaS - Instituts für angewandtes Stoffstrommnanagement. Rheinlandpfalz, Ministerium für Umwelt und Forsten 2004.																		
49	LFU: Natur und Landschaft - Baden W"rtemberg. Online at: http://www.lubw.baden-wuerttemberg.de/servlet/is/41576/14_natur_landschaft.pdf?command=downloadContent&filename=14_natur_landschaft.pdf																		

Datum	Aluminiul	Barium	Strontiun	Ti	Zn	Cu	Pb	Cd	Cr	Ni	As	Sb	Fe
07/ July 2011	0.006 mg/l	0.006 mg/l				0.027 mg/l		< 0,0006	< 0,001	< 0,002	< 0,0005		0.006 mg/l
10/ July 2011	0.030 mg/l	0.000 mg/l				< 10		< 0,15	< 0,5	< 2	< 1		0.040 mg/l
17/ July 2011	0.030 mg/l	0.000 mg/l				20.000 mg/l		< 0,15	< 0,5	< 2	< 1		0.030 mg/l
13/ October 2011	0.014 mg/l	0.006 mg/l				0.006 mg/l		< 0,0005	< 0,001	< 0,001	< 0,001		< 0,01
02/ December 2011	0.010 mg/l	0.000 mg/l				< 0,0008	< 0,002	< 0,0003	< 0,0005	< 0,001	< 0,0005		0.005 mg/l
06/ December 2011	0.000 mg/l	0.000 mg/l				< 0,0008	< 0,002	< 0,0003	< 0,0005	< 0,001	< 0,0005		0.005 mg/l
17/ December 2011	0.057 mg/l	0.045 mg/l											
23/ December 2011	0.052 mg/l	0.027 mg/l											
05/ April 2012	0.000 mg/l	0.004 mg/l											
08/ April 2012	0.010 mg/l	0.021 mg/l											
10/ April 2012	0.015 mg/l	0.003 mg/l	0.003 mg/l	< 0,005	0.010 mg/l	0.002 mg/l	0.001 mg/l	< 0,0001	< 0,001	< 0,001	< 0,001	< 0,0005	< 0,01
11/ April 2012	0.005 mg/l	0.000 mg/l											
12/ April 2012	0.005 mg/l	0.001 mg/l											
13/ April 2012	0.000 mg/l	0.001 mg/l											
15/ April 2012	0.000 mg/l	0.000 mg/l											
18/ April 2012	0.150 mg/l	0.018 mg/l											
22/ April 2012	0.025 mg/l	0.001 mg/l	0.002 mg/l	< 0,005	0.006 mg/l	0.001 mg/l	< 0,0005	0.000 mg/l	< 0,001	< 0,001	< 0,001	< 0,0005	0.020 mg/l
22/ April 2012	0.015 mg/l	0.004 mg/l											
22/ April 2012	0.010 mg/l	0.000 mg/l											
22/ April 2012	0.031 mg/l	0.006 mg/l											
22/ April 2012	0.015 mg/l	0.002 mg/l											
22/ April 2012	0.010 mg/l	0.002 mg/l											
22/ April 2012	0.005 mg/l	0.000 mg/l											
23/ April 2012	0.000 mg/l	0.001 mg/l											
23/ April 2012	0.010 mg/l	0.004 mg/l											
24/ April 2012	0.000 mg/l	0.000 mg/l											
24/ April 2012	0.005 mg/l	0.000 mg/l	< 0,001	< 0,005	0.005 mg/l	< 0,001	0.001 mg/l	< 0,0001	< 0,001	< 0,001	< 0,001	< 0,0005	< 0,01
24/ April 2012	0.005 mg/l	0.000 mg/l											
24/ April 2012	0.010 mg/l	0.002 mg/l											
25/ April 2012	0.020 mg/l	0.006 mg/l											
25/ April 2012	0.010 mg/l	0.002 mg/l											
25/ April 2012	0.005 mg/l	0.002 mg/l	0.001 mg/l	< 0,005	0.007 mg/l	0.001 mg/l	0.001 mg/l	< 0,0001	< 0,001	< 0,001	< 0,001	< 0,0005	< 0,01
26/ April 2012	0.085 mg/l	0.014 mg/l	0.009 mg/l	0.005 mg/l	0.100 mg/l	0.007 mg/l	0.003 mg/l	0.000 mg/l	< 0,001	0.016 mg/l	< 0,001	< 0,0005	0.050 mg/l
29/ April 2012	0.015 mg/l	0.000 mg/l											
02/ May 2012	0.020 mg/l	0.002 mg/l	0.001 mg/l	< 0,005	0.013 mg/l	0.019 mg/l	0.001 mg/l	< 0,0001	< 0,001	< 0,001	< 0,001	< 0,0005	0.050 mg/l
02/ May 2012	0.000 mg/l	0.000 mg/l	0.003 mg/l	< 0,005	0.003 mg/l	< 0,001	< 0,0005	< 0,0001	< 0,001	< 0,001	< 0,001	< 0,0005	< 0,01
02/ May 2012	0.000 mg/l	0.001 mg/l	0.001 mg/l	< 0,005	0.008 mg/l	0.006 mg/l	< 0,0005	< 0,0001	< 0,001	< 0,001	< 0,001	< 0,0005	< 0,01

Datum	Aluminiu	Barium	Strontiun	Ti	Zn	Cu	Pb	Cd	Cr	Ni	As	Sb	Fe
05/ May 2012	0.023 mg/l	0.005 mg/l		< 0,001	0.110 mg/l	0.044 mg/l	< 0,001	< 0,0005	< 0,001	0.002 mg/l	< 0,001	< 0,001	< 0,010
06/ May 2012	0.100 mg/l	0.001 mg/l	0.001 mg/l	< 0,005	0.007 mg/l	< 0,001	0.001 mg/l	< 0,0001	< 0,001	< 0,001	< 0,001	< 0,0005	0.010 mg/l
06/ May 2012	0.020 mg/l	0.002 mg/l	0.004 mg/l	< 0,005	0.029 mg/l	0.003 mg/l	0.002 mg/l	< 0,0001	< 0,001	< 0,001	< 0,001	< 0,0005	0.040 mg/l
06/ May 2012	0.015 mg/l	0.002 mg/l											
06/ May 2012	0.018 mg/l	0.006 mg/l		< 0,001	0.028 mg/l	0.003 mg/l	< 0,001	< 0,0005	< 0,001	< 0,001	< 0,001	< 0,001	< 0,010
07/ May 2012	0.020 mg/l	0.001 mg/l											
07/ May 2012	0.015 mg/l	0.000 mg/l	< 0,001	< 0,005	0.004 mg/l	< 0,001	< 0,0005	< 0,0001	< 0,001	< 0,001	< 0,001	< 0,0005	0.020 mg/l
09/ May 2012	0.020 mg/l	0.001 mg/l	0.001 mg/l	< 0,005	0.004 mg/l	0.001 mg/l	< 0,0005	< 0,0001	< 0,001	< 0,001	< 0,001	< 0,0005	0.010 mg/l
09/ May 2012	0.000 mg/l	0.000 mg/l											
10/ May 2012	0.015 mg/l	0.001 mg/l											
12/ May 2012	0.000 mg/l	0.000 mg/l	< 0,001	< 0,005	0.002 mg/l	< 0,001	< 0,0005	< 0,0001	< 0,001	< 0,001	< 0,001	< 0,0005	< 0,01
15/ May 2012	0.010 mg/l	0.007 mg/l											
19/ May 2012	0.035 mg/l	0.001 mg/l											
24/ May 2012	0.010 mg/l	0.000 mg/l	0.002 mg/l	< 0,005	0.005 mg/l	0.001 mg/l	< 0,0005	< 0,0001	< 0,001	< 0,001	< 0,001	< 0,0005	< 0,01
03/ June 2012	0.010 mg/l	0.003 mg/l											
05/ June 2012	0.000 mg/l	0.000 mg/l	< 0,001	< 0,005	0.000 mg/l	< 0,001	< 0,0005	< 0,0001	< 0,001	< 0,001	< 0,001	< 0,0005	< 0,01
06/ June 2012	0.025 mg/l	0.002 mg/l	0.003 mg/l	< 0,005	1.300 mg/l	0.005 mg/l	0.003 mg/l	< 0,0001	< 0,001	< 0,001	< 0,001	< 0,0005	0.020 mg/l
09/ June 2012	0.000 mg/l	0.000 mg/l											
11/ June 2012	0.005 mg/l	0.001 mg/l											
12/ June 2012	0.015 mg/l	0.001 mg/l	0.002 mg/l	< 0,005	0.008 mg/l	0.013 mg/l	< 0,0005	< 0,0001	< 0,001	< 0,001	< 0,001	< 0,0005	< 0,01
14/ June 2012	0.000 mg/l	0.002 mg/l											
14/ June 2012	0.000 mg/l	0.000 mg/l											
15/ June 2012	0.005 mg/l	0.000 mg/l	< 0,001	< 0,005	0.006 mg/l	0.002 mg/l	0.001 mg/l	< 0,0001	< 0,001	< 0,001	< 0,001	< 0,0005	< 0,01
18/ June 2012	0.020 mg/l	0.011 mg/l											
24/ June 2012	0.010 mg/l	0.001 mg/l	0.001 mg/l	< 0,0005	0.007 mg/l	< 0,001	< 0,0005	< 0,0001	< 0,001	< 0,001	< 0,001	< 0,0005	0.025 mg/l
01/ July 2012	0.085 mg/l	0.004 mg/l											
15/ July 2012	0.000 mg/l	0.000 mg/l											
15/ July 2012	0.005 mg/l	0.002 mg/l	0.002 mg/l	< 0,005	0.005 mg/l	0.006 mg/l	< 0,0005	< 0,0001	< 0,001	< 0,001	< 0,001	< 0,0005	< 0,01
16/ July 2012	0.000 mg/l	0.000 mg/l											
16/ July 2012	0.075 mg/l	0.007 mg/l	0.017 mg/l	< 0,005	0.008 mg/l	0.018 mg/l	< 0,0005	< 0,0001	0.001 mg/l	< 0,001	< 0,001	< 0,0005	0.050 mg/l
12/ September 2012	0.005 mg/l	0.000 mg/l	< 0,001	< 0,005	0.003 mg/l	0.002 mg/l	< 0,0005	< 0,0001	< 0,001	< 0,001	< 0,001	< 0,0005	< 0,01
27/ September 2012	0.005 mg/l	0.001 mg/l	< 0,001	< 0,005	0.004 mg/l	< 0,001	< 0,0005	< 0,0001	< 0,001	< 0,001	< 0,001	< 0,0005	< 0,01
04/ October 2012	0.005 mg/l	0.001 mg/l											
26/ October 2012	0.020 mg/l	0.000 mg/l	< 0,001	< 0,005	< 0,005	< 0,01	< 0,0005	< 0,0001	< 0,001	< 0,001	< 0,001	< 0,0005	< 0,005
10/ November 2012	0.000 mg/l	0.001 mg/l	< 0,001	< 0,005	0.010 mg/l	< 0,001	< 0,0005	< 0,0001	< 0,001	< 0,001	< 0,001	< 0,0005	< 0,01
	0.018 mg/l	0.003 mg/l											