THE JET LAG Rx: HUMAN FLIGHT BIOHACKING

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5. ARE JET LAG, SOLAR CYCLES, AND COSMIC RADIATION SOMEHOW TIED TO HUMAN BEHAVIOR VIA WATER CHEMISTRY?

When we talk about human airplane flight let's first talk about birds because they fly naturally. So what do we have in common with them from an evolutionary perspective? Birds and eutherians made it through the last extinction event 67 million years ago because they both had a built in extra capacity of mitochondria in their cells. I spoke about this ability long ago in Cold Thermogenesis 5. The reason both of these classes of animals had them were far different but this was the reason both made it through the KT event 67 million years ago. Unlike humans, bird's do not get jet lag when they fly. Have you ever wondered why? What makes birds and us different? Jet lag is the most well known circadian mismatch in humans. This blog is going to teach a thing or two about jet lag to help you understand your health risks and how you can bio-hack your own flights to make them as safe as possible.

When a bird's wing is at its side on the ground the proteins and feathers have one position or state. But when a bird takes flight the function of those proteins and feather morphs into something that give the bird a new emergent behavior to fly. How does the bird morph their proteins and feathers so easily?

Recall that birds come from therapod dinosaurs from the KT event just like eutherian mammals did. Humans are descendants from those mammals that made it through the last extinction event on Earth. Both classes of surviving animals had extra mitochondrial capacity to guarrantee their survival through the environmental catastrophe of an asteroid hitting the Gulf of Mexico 67 million years ago. This is why these two species made it through the KT event because they had more mitochondrial capacity because of adaptions they had. Birds had this excess due to flight, That extra capacity in birds is what they use to create quanta of energy used to morph the proteins in their wings to allow for the transition from a terrestrial life to one of flight as soon as they take off. Mammals used their extra mitochondrial capacity to over come low light levels, low oxygen levels, and lower electron currents due to a lack of food to survive winter hibernation.

Humans do not have the power to morph our limbs to fly, but we have centralized our mitochondrial capacity into our neurons to allow us to figure out how to build planes that can allow many of us to fly at once anywhere we want to go. What most humans are not aware of the biologic toll they pay for that benefit. Birds pay not toll for this action. We use machines to fly mostly east to west and west to east. Aircraft wings are not made using compliant design quantum principles, therefore we need to consider things to ***bio-hack*** to lower our inherent risks of flying. Many are not aware of how dangerous an airline flight is for modern humans.

WHY FLYING ROCKS:

Curiosity to travel to far away places across time zones acts much like a PrP protein does in our brain and our immune system……it can open the door to heaven and hell. Traveling has many “heavenly” benefits :

1. It allows us to learn about other cultures.
2. Allows us to break out of our shell to see the world in a new way
3. Enjoy life like never before
4. Enjoy new way of eating and preparing foods
5. Learn a new language to extend your reach
6. Widen your business opportunities
7. Meet some fabulous new people you might settle down with
8. Admire the beauty in things you discover as you see new things……Mona Lisa, David, etc.

TRAVELING 7 HELLISH FEATURES:

Much ado has been made over possible health risks from full-body scans at the airport. Yet the radiation dose is negligible from the two types of machines now being installed at U.S. airports: the millimeter-wave scanner, with its low-energy radio waves about as harmful as a flashlight; and the backscatter X-ray machine, with X-rays so weak that they can’t penetrate and instead bounce off the body.

1. **Flying exposes you to more *high energy cosmic radiation*** because you are off the ground closer to the sun and above the protective coatings in the atmosphere. *We get into that detail later on in point 18 and 19 below. It is your biggest unknown risk.*

2. **Alteration of avionics:** Boeing also investigated several cases in the 1990s where aircraft crews reported that laptop computers or gaming devices caused autopilot disconnects, un-commanded airplane rolls or instrument display malfunctions. The aircraft manufacturer was never able to replicate the reported anomalies in lab tests. Most of these tests were not

done in the air over the same part of the Earth in which they occur. Magnetic reconnection and disconnection happens in different places as the conditions of a flight change. No two flight simulations are ever the same.

3. **Communicable Disease:** The increased risk catching a cold is high – over 100 times higher than not flying, according to a 2004 study in the Journal of Environmental Health Research. The real risk for humanity and not just the passenger – thus making this the No. 1 air travel hazard – is the potential for a pandemic. Think about what just happened with ebola being flown to the CDC from West Africa. Nearly every case of polio and measles in the United States involves air travel, with the scenario of an infected person coming to the United States and spreading the disease among adults and children who are not vaccinated for whatever reason. HIV came to the USA via a plane flight in case you are wondering in the early 1980's.

4. **Economy class syndrome:** You are packed like a Sardine in a tight space in a seat designed for a mayan not a 21 century massive human. Sitting in cramped conditions for a long time is more than an uncomfortable nuisance; it can kill you by causing blood clots to form, usually in your legs, which then can travel to your lungs and cause a pulmonary embolism. Traveler's thrombosis is nothing new. The New England Journal of Medicine reported on this back in the 1950s. Sadly, airport seating has gotten tighter and tighter as Americans have gotten larger and larger. Risk factors are many and include obesity, recent surgery, poor circulation, heart disease, middle or old age, and oral contraception or pregnancy.

Clots can form during or up to **30 days after travel** or any period of immobility, and most clots dissolve on their own. So the true incidence of DVT from air travel is not known. Only about 20 cases of traveler's thrombosis clearly from air travel leading to a pulmonary embolism are reported per year. One small study from New Zealand published in the journal The Lancet in 2003, however, found that 1 percent of travelers developed clots. With about 2 billion air travelers annually,

that extrapolates to **20 million DVT cases, likely leading to at least thousands of deaths no one is linking to this circadian mismatch.**

Your only protection is wearing loose clothing, drinking lots of water, walking around the cabin, and stretching, taking things to increase electrons to your plasma pre, intra, and post flight – or being able to afford the luxury of sleeping horizontally in first class. When you land you might consider some other tools to lower your risk. When your altitude increases into the sky you lose the benefits of gravity and grounding while raising the amount of solar and cosmic radiation in your new local environment in the aircraft. Your magnetic sense is altered when you fly.

5. It turns out that the ban on wireless devices has a lot more to do with possible interference for ground networks, rather than any danger posed to aircraft systems. The Federal Communications Commission (FCC) banned in-flight use of most cell phones and wireless devices in 1991, citing the reason of ground network interference. Interestingly enough the FCC has never studied the use of a wireless network inside a metal tube carrying over 100 persons to assess the health risks of this. Any person wishing to bio-hack this should insert a mouse into a microwave oven and put in on very low power for a short time and then look at how many mis-folded proteins they have in their bodies as a result. You might realize why these mice develop a shorter life span. No one is thinking about how WiFi use in a plan will affect human autophagy even though it is well known in medical circles that blood clots with excessive airline flights is a known risk factor. The FAA regulations have upheld the FCC decision, despite any science behind their recommendations. But some airlines allow passengers to use cell phones in “airplane mode,” which shuts off phone transmissions after you break 10,000 ft. I find this rather offensive and very much unhealthy especially if you fly more than 4 times a year.

The FCC briefly considered lifting the in-flight ban on wireless devices, but eventually decided in 2007 and re affirmed in 2014 to keep the current rules in place because there wasn't enough evidence to show whether in-flight wireless devices would cause harmful interference with ground networks.

The FCC cites a study predicting that by the year 2022, 5000 of 14,000 wi-fi-installed aircraft will have dual wifi-cellular systems[2]. The cited study also appears to claim that these 14,000 aircraft will represent a 50% global connectivity penetration. Given these assumptions, 5000 airborne access system-equipped aircraft will represent only about 18% of the global fleet. Further on in the NPRM, the FCC asserts that uncontrolled mobile devices will still be a problem: "We concur with the conclusions in published reports by European policymakers that interactions between mobile terminals onboard aircraft and terrestrial mobile networks are possible unless managed properly. Unmanaged airborne mobile devices will attempt to connect and in some cases will succeed in temporarily connecting to a terrestrial system, causing harmful interference and disruption to the system it is connected to and to surrounding systems."[3] Here you can see their are concerns that WiFi can ruin transmissions between devices that use electromagnetic signaling to function properly but none of these regulations seem to address the concerns of how these frequencies will affect the human nervous system, mitochondria, and cell membranes which also use extreme low frequency electromagnetic spectrum to communicate accurately.

5. Noise induced hearing loss.
6. Jet lag is a short term circadian disruption of VIP and melatonin levels. I spoke about the VIP link to the suprachiasmatic nucleus in the Cold Thermogenesis series. Jet lag is the major risk factor of travel when your magnetic sense is altered due to a pre existing low redox potential in

your mitochondria. It is important to note that North South routes are not as capable of giving us jet lag and this is why so many migrating birds fly south for the winter in the Northern hemisphere. This is why birds do not get jet lag. They fly using the Earth magnetic field but we fly against it. They use the magnetic flux lines of the Earth's magnetic field to guide them. Maybe humans should follow the lead of our feathered friends when we travel? ***Jet lag is worse when we travel in an eastward trajectory.*** Researchers have even found signs of *memory impairment in female flight attendants with chronic jet lag*. This patterns what we see in many patients exposed to chronic blue light exposure as well.
Perhaps the human body wasn't designed to leave Tokyo at noon on a Tuesday and arrive in Washington, D.C., 12 hours later… at noon on a Tuesday. A study published in the journal The Lancet in 2007 – a meta-analysis of more than 500 studies on aviation and health – found that consistent disruption of body rhythms from jet lag and travel fatigue can lead to cognitive decline and psychotic and mood disorders, sleep disorders, and possible heart disease and cancer. The health risk seems to mirror that of long-time nightshift, or graveyard-shift workers. Surgeons and night ICU nurses already know this because hospitals force us to do this to our detriment "as part of our duties".

7. **Cosmic Rays :** This is what alters VIP and melatonin on flights most. Take a full-body scan and multiply it a few thousand times. On most international flights, you are exposed to a not entirely insignificant dose of radiation from cosmic rays, which are energetic particles from space, mostly protons. The longer the flight – and subsequently the higher and closer you fly near the North Pole, the greater the dose. On a roundtrip flight from Washington, D.C., to Beijing, for example, you easily exceed the 100-microSievert dose you would get from a chest X-ray. Take a look at this hyperlink. There is a lot more to this story later in the blog.

People most at risk are those who fly for a living, that is, the pilots and flight attendants. Cancer rates such as that of breast cancer among flight personnel are slightly higher than in the general population. But doctors aren't sure whether the increased cancers are from cosmic rays or from the next item in this list, jet lag.

Perhaps our greatest distinction as a species is our capacity, unique among animals, to make counter-evolutionary choices. Air travel happens to one in a very long list of things we should avoid if we can. Jet lag is a stress that depletes cell membranes of DHA. This allows for our mitochondria to have an altered ratio of protons to electrons that alters signaling. Our brain and lifestyles allows us to make counter evolutionary decisions for our health. DHA determines the amount of "compliant design" we have stored in the proteins that make up ETC in mitochondria. This stored energy is found in those proteins and water around the mitochondria. The smartest of us has the most ability to deform to the hormesis of our environment naturally. Air flight is just not natural for humans and this is why you generally feel pretty horrible when you go due east.

When you chose to fly a lot you need to think carefully about what you should to combat it. Counterintuitive……..but curiosity showed me what the quantum bio-hack is for modern air travel. Jet lag destroys autophagy. The OSF #7 deals with details of the failing in autophagy.

Autophagy keeps our tissues in the metastable healthy state. Autophagy increases electron collection and assimilation in tissues. Autophagy is tied to DHA amounts in your eye and brain. If your mitochondria are able to recover from jet lag it is because you have a good redox potential or you extra mitochondrial capacity to maintain a period of "bad autophagic efficiency". Eastward air travel is one of those effects. When autophagy is poor VIP/melatonin signaling is destroyed by compliant design mechanisms. Loss of melatonin/VIP = loss of

electrons = due to loss of DHA in the cell membranes, retina, mitochondria, or organelles in your cells.
This is why jet lag often responds to melatonin. It does not mean it is ideal thing to use to combat it because it does nothing to affect alterations in VIP. It means you should realize you just lost a lot more electrons to your environment doing something you should not be doing. Autophagy is what allows us to properly harvest photons that energize electrons we capture from our environment in DHA.
For jet lag, humans would be wise to attack this circadian disease by adding power to our strength, and not behaving outside our biology. Biologic power is housed in the quanta in the electron which is powered up or down by the radiation that electron faces. In an airplane it face large amounts of various radiation that destroy destroy DHA and lower melatonin levels in the brain. This is fundamentally why flying is a hazard to your health.

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1. Drink lots of non fluoridated water, Reverse osmosis water, or spring water
2. Avoid all alcohol 3 days before during and 3 days after your trip.
3. Never sit next to a window with an open curtain. You are getting excessive UVA exposure and getting more cosmic radiation which both lead to higher Vitamin A levels in the brain, lower Vitamin D levels in the skin and brain, and much high risk of developing skin damage from the excessive UVA. You also risk high cataract exposure if you are a frequent flyer.
4. Always sit in the aisle so you can get up and move.
5. Always connect your foot to the metal framework in front of you to ground yourself to the plane.
6. Always use noise reduction ear plugs.
7. Never sit in the emergency row. It has all the avionics of the wings close to it and has higher EMF risks.

8. Wear blue blockers during flight to preserve your DHA loss in your eye and skin.
9. Always eat a large seafood meal before getting on a flight. Dose yourself with ubiquinol before during and after the flight. Try to fast during the flight and after you land. The following day eat a very large breakfast. I try to make sure it is ketogenic and DHA deep. Being ketogeneic limits lactic acid build up and the seafood omelets replenish the lost DHA. Some people use bicarbonate to limit lactic acid build up but I have not had success with it.
10. If you're heading east, aim for an evening arrival to minimize the circadian disruption. This all helps you align with the new time schedule.
11. Before your trip, ease your transition to the new time zone by moving your bedtime. The American Academy of Sleep Medicine guidelines suggest shifting your sleep schedule an hour earlier each night, starting three days before you leave on an eastbound trip. For me traveling to medical conferences this is impractical, instead I try to go to bed 15 minutes earlier each night, and get as much early-morning sunlight outside scantily clad as I can.
Natural light is the most potent tool for adjusting your body clock: natural light release cortisol to unzip collagen and allow cells in the brain to swell by altering slow and fast water flows via aquaporin 4 to wake you up naturally. Light is akin to a medication that wakes you up. It does the same thing as modafinil does to your CNS. Aquaporin 4 undergoes elastic deformation during flights and can lead to "gate issues" for water flow in the brain. Some people have used low dose calcium channel blockade drugs when it become clear calcium efflux is stimulatory to their brain causing headaches. This can lead to calcium homeostasis in a neuron to cause swelling. This leads to an inability to restore extracellular water levels to maintain water battery after neuronal and glial cell swelling in response to stimulus of light which can act to crash the system. When you generate an irregular function at the AQA4 gates you create an energy supply problem. This leads

to an irregular metabolism in neurons but specifically their mitochondrial function lowers because it swells. This leads to fluctuating demand for nutrients to maintain mitochondrial mass. When energy balance is off it leads to fluctuating ability to sense both the internal and external environment. This is why jet lag is often seen with cognitive decline and exacerbates mental illness. When autophagy is lowered we develop an altered capacity for "pro-survival/intelligent" choices. This is manifest by irregular dopamine cycling which leads to moodiness, cognitive haze, and poor decision making. This is why I also map out my jet lag plan on paper before I fly so I won't go off schedule if I feel bad when I arrive.

12. If you're headed west, expose yourself to natural light at sunset in the evening before you leave 3 days before the flight. I told this to some professional football players many years ago to offset their poor play on the west coast after they fly from the east coast of the US. They were shocked at how well it reversed their recent play as the traveled time zones. This hack can morph your body clock into thinking it's morning when it is not. Sunshine is ideal, but those sun-mimicking lights designed to counter seasonal affective disorder are a good stand-in. I have also toyed around with red light and with 380 nm light in my hacks and they have been successful in very long flights while going west.

13. If you are going eastward a 15 minute brisk walk of a few 40 yd sprints helps. If it is cold that is even better. Though its effects are much weaker than light's, exercise (especially when vigorous) has a similar influence and can make you feel more alert. Both of these hacks stimulate autophagy.

14. Swimming in cold water is one of the best hacks for long eastward trips. I also use the "Kruse hack" for jet lag going eastward by laying face down on the diving board of the pool and putting my hands and wrists in the cold water while also putting my head face down below the diving board platform before diving in. I do this because my head is then below my heart and it increases blood flow to my brain increasing CMRO2 which also stimulates autophagy. This offsets the effect of

microgravity of the flight. This also offsets the loss of gravity from the flight. Gravity is affected by two main factors – latitude and altitude. Plane flight brings both of these into play for our biology and we forget it. Low latitudes are the latitudes between the Tropic of Cancer and Capricorn. Portions of the low latitudes receive direct sunlight year round therefore there is a constant source of infrared energy to maximally form an Exclusion Zone from water. This is not true at the poles. Water is a repository for electromagnetic energy. Water absorbs energy best in the infrared range. At the poles their is far more cosmic and solar radiation present. This type of radiation carries way more energy than infrared waves. This is why temperature lowers at the poles to offset the loss of infrared heat. Cold increase electron density in water to offset the energy loss but is it enough to affect your weight or circadian biology? It actually is, but few know it.
If you were to stand on one of the two poles on Earth then you would weigh 0.5 per cent more than if you were on the equator. Remember, when you weigh more it means your are losing energy to the environment for some reason. Flying is a circadian mismatch that causes that loss of energy.

Read more: here.

This occurs for two reasons. There is more cosmic radiation getting to your mitochondria reducing proton flow in your enzyme called ATP synthetase F_o subunit. This enzyme is often considered your 5th cytochrome protein because it makes ATP in mitochondria. **At the Earth's poles the magnetic field has a lower strength than it does at the equator.** The smaller secondary effect is due to less rotation at the poles compared to the equator. Less rotation of the earth will also act to increase your weight in these areas. When flying a circumpolar route, I use meditative breathing to also use hypoxia to my advantage which stimulates electron flow in CSF and in our mitochondria's ETC.

15. One of only two times where I believe **melatonin can be used as a supplement safely is for jet lag.** Jet lag is a circadian disease resulting in significant endocrine dysfunction [9]. In the past few years, O'Neill et al. have described a highly conserved circadian mechanism that is independent of transcription. This means it excludes nucleic acid involvement. Redox biology is at the core of this ancestral clock mechanism, which can be monitored through oscillations in the oxidative state of peroxiredoxin. Read this hyperlink to learn more about peroxiredoxin. Melatonin is directly tied to the function of this clock and it is the source of jet lag production. Melatonin is a hormone normally excreted from the pineal gland during sleeping hours, can help shift your circadian clock by inducing drowsiness. For this to work you have to have a good redox potential to begin with and you can not have SIBO, leaky gut, or GERD. Many of the trials on jet lag melatonin use are mixed bag because people with leaky gut diagnosis were not excluded from the review based upon their medical history. People for get melatonin is made original from serotonin in the small bowel. 80% of serotonin is stored in the small bowel. A leaky gut put you at an even steeper risk of a more severe type of jet lag because of this reason.

A recent review of 10 studies by the Cochrane Collaboration, an independent research group, concluded that melatonin can be "remarkably effective" at reducing jet lag. The American Academy of Sleep Medicine guidelines suggest that a dose of 0.5 to 5 milligrams of melatonin taken at bedtime may help you adjust when traveling east. I have used varying doses based upon what my redox was and how long the flight was to be.

16. Use of acupuncture prior to flight and after flight to stimulate DC current to lower anesthesia threshold. This stimulates autophagy also. I always make sure my acupuncture anesthesia point, auricular points, and the liver points are utilized. [7]

17. If all else fails get yourself a massage once you arrive. It will re-zip the collagen unzipped by the release of excessive cortisol during the flight. This will recover the piezoelectric current of collagen in your body. If you use reflexology get it done on your feet and it will stimulate your sleep as well.
18. The most concerning issue is avoid taking flights in areas known to have thunderstorms or that have circumpolar routes. Thunderstorms collct massive amounts of gamma radiation and cosmic radiation with high energy photons and electrons. They also release antimatter in the form of positrons. The water in the thunderstorms becomes a repository for these high energy radiations. They act to disperse the energy. Most airlines and the FAA are fully aware of the fact that on average (i.e. far away from any thunderstorm) all of these phenomena are part of the radiation background that has been measured at such altitude over and again. But no flight is just in or out of these clouds. Most flights have to go through these clouds on ascent or descent. You do not need but a second for your cells and CNS to afflicted by this radiation because of the speeds and energy of the radiation we are talking about. *Cosmic radiation is a different kind of actor.* This plays a larger role in areas around the donut hole in the Southern hemisphere or the poles. The obscure mechanism of cosmic ray production at galactic distances is partly a result of the fact that, unlike other radiation sources, magnetic fields in our Sun, galaxy, and other galaxies **bend cosmic ray direction severely, so that they arrive randomly at their targets from all directions.** This hides any clue of the direction of their initial sources of the radiation making it difficult to sense the origin. This makes detection of this radiation risk quite difficult. The FAA, NASA, and airlines rarely address this issue with frequent fliers.

Cosmic rays can have energies of over 10^{20} eV, far higher than the 10^{12} to 10^{13} eV that terrestrial particle accelerators at

CERN can produce. Given the number of flights over the poles and thunderstorms every day, flights close to them can be quite risky. Few people know about these risks. I have seen plasma flashes myself where there is flashes of electric discharge on the wings of planes flying in these storms. These plasma flashes are called St. Elmo's fire. St. Elmo's fire is a weather phenomenon in which luminous plasma is created by a coronal discharge from a sharp or pointed object in a strong electric field in the atmosphere such as those generated by thunderstorms circumpolar flights or created by a volcanic eruption. It is a sign of electricity in the air, which can interfere with compass readings, avionics, and your biology if the energies are high. Since airlines choose to fly over the poles to save fuel many of you have been hit by these cosmic radiations unknowingly.

Moreover, the fact that the real particle trajectories have hardly been measured accurately, you have to simply wonder about their effects when you understand the physics behind it. Could it be that passengers' and crew' exposure to high energy radiation cannot be calculated as a simple function of flight time and altitude any more? This is all the FAA and airlines currently measure. They do look at pilots and staff melatonin levels as well but no one is telling frequent fliers to sample their melatonin as the airline do. In my opinion this is the key point of why these travelers at most at risk. The more you fly the more at risk you are because of the high energy radiation you could be exposed to. Airlines have no equipment and no requirements to measure such events onboard. If you do not measure it you simply cannot know your risk. Biohacking your labs offers a clue. Your response to flying is a tell too. Many people I have treated have had massive health effects from flying. That is a key sign people might have been irradiated on the flight they just took. Throw in airline competition, fuel policies, and ignorance and you can see why no one wants to talk about these issues.

19. Here is a bio-hack you probably have not even considered. **Avoid air travel during Maunder Minimum's of the solar cycle is wise**. This is where understanding magnetism becomes important. Each solar cycle is 11.11 years. Many believe **2014** is at the genesis of a severe grand Maunder minimum. **This is when the Sun's magnetic activity is extremely low and is characterized by low sunspot action.**

During maunder minimums more cosmic radiation with high energy photons energize the atmosphere. This is especially risky at the poles where the Earth's magnetic field offer little protection. Airlines fly over them constantly. Now for a small climate lesson. Excessive cosmic radiation entering the atmosphere is what allow thunderclouds to grow tremendously. They form with a quantum dance with the Earth's naturally negative charge and the negative charge of water in clouds, to discharge the high energy photons and electrons to the ground and ocean. Anyone in the path of these discharges can get massive amounts of radiation in fractions of second to cause massive health changes. Airlines have already reported more unusual customer events in 2014 then they have in the last 3 years. Many of us have heard about them on the evening news. Few however, have made this connection. **Flying at this time near the poles is especially dangerous.** The magnetic poles have shifted over 60 kilometers in the last 10 years. Normally they only move 10-15 km. So the area where the danger exists is now even larger.

During these times, water inside a cell acts differently than water in a glass at the surface. This is due to changes in its hydrogen bonding network. Since the Earth's magnetic field is weakest over the poles, it exposes the water in humans to the most cosmic radiation they will ever face. At the end of a sunspot cycle, about all you have left are magnetic fields at the solar poles on the sun. We just came out of the sunspot maximum of Cycle 24 in 2012-2014. It has been the smallest sunspot cycle in 100 years and the third in a trend

of diminishing sunspot cycles.
Most people do not understand the connection between the Earth, sun, and cosmic radiation. Cosmic radiation is high energy electromagnetic radiation that interacts with water in our atmosphere to form a lot of infra-red radiant energy. From this infrared energy clouds form. Radiant energy is also electromagnetic energy. These energies encompass a broad range of wavelengths, with each wavelength exhibiting different physical characteristics. For example, we all know visible light waves can be seen by our eyes. Infra red cannot be seen but it can be felt as heat. Microwaves are invisible, but can cook your food or blow up a star in a galaxy. Radio waves can help us communicate. Xrays can see inside our body to show doctors your skeleton. Gamma rays can sterilize the surface of planets without a magnetic field like Mars. All of these features of seem so different to our perception sense, that we easily forget that all of these waves belong to a single electromagnetic spectrum contained in our Sun.
During Maunder minimum's the Earth faces its most extreme climate events because of changes in how the electromagnetic spectrum is split by water and gases in our atmosphere. **How electromagnetic waves continue on to interact with matter depends upon the medium through which the wave must propagate**.
During Maunder minimum's we get less solar radiation affects than usual but way more cosmic radiation. With each passing season, this is why our recent weather has seemed strange and more extreme. This is why we recently experienced the recent sudden summer outbreak of the "polar vortex" phenomenon; the ongoing unprecedented winter drought in California; and summer temperatures so torrid Down Under that even play at the Australian Open was halted.

Observations from California not confabulation. Science is nothing short of amazing when you get what she is trying to tell you.

During the last grand Maunder Minimum in 1645 – 1715, sunspots basically disappeared and as documented in paintings from the era. Northern Europe suffered unusually cold winter temperatures. The Maunder Minimum coincided with the middle part of the Little Ice Age, during which Europe and North America were subjected to very cold winters in 1645-1715. In total, there have been 18 periods of sunspot minima in the last 8,000 years, and studies indicate that the sun currently spends up to a quarter of its time in these minima. **Based upon this data this new Maunder Minimum we are entering could persist until the 2080's.** This is not good news if you live in the west. I expect the drought to wreck huge havoc because the Ogallala aquifier are already close to bone dry in the midwest. *I have a hunch from my own biohacks that the atmosphere's between the Earth and sun share information and energy bidirectionally using electromagnetic fields of force.* This occurs much in the same way as your iphone can draw information from the electromagnetic spectrum above your head from the internet to your phone. Right now NASA knows the sun effects the Earth. **No one suspects that the Earth's native field may effect the sun's output.**

Air travel could be quite dangerous and life threatening during this Maunder minimum and I want you to consider it.

Globally, the Maunder Minimum's primary climate effect is cooling of the atmosphere by reducing electrons and their energies in the atmosphere. Predicting weather becomes much tougher in this case because it changes so drastically so quickly so the weather can change on a dime. This effect has been know since the time of the famous astronomer William Herschel who discovered Uranus. He actually discovered infrared light. In February 1800, Herschel was testing filters for the sun so he could observe sun spots. When using a red filter he found there was a lot of heat produced. Herschel discovered infrared radiation in sunlight by passing it through a prism and holding a thermometer just beyond the **red end** of the visible spectrum. This thermometer was meant to be a control to measure the ambient air temperature in the

room. *He was shocked when it showed a higher temperature than the visible spectrum*. Further experimentation led to Herschel's conclusion that there must be *an invisible form of light beyond the visible spectrum*.

Herschel also linked commodity prices of wheat to the solar cycle. He found they became very volatile and lead to large swings in price due to the uncertainty of the weather. In fact, Hershel wrote in 1801, "It seems probable analyzing the period between 1650 and 1713, and judging by the normal yields of wheat, that a scarcity of vegetation occurred whenever the sun appeared to be free from spots." **From this source, it seems that sunspot activity affects all living things on earth, including human beings.** Hershel went to find evidence of the link to wheat when he analyzed the data in Adam Smith's, 'Wealth of Nations'. This data was later confirmed by carbon 14 data on tree rings and in the ice core samples from the poles that modern science has found. Wood from these times were used in certain violins and were found to produce higher quality instruments that have sold for millions of dollars. Many people are unaware of how these electromagnetic effects change matter here on Earth. Violin wood is one example. The changes in us can affect our compliance in our mitochondria.
A few studies conducted by some researchers showed that there is a correlation between sunspot activity and human behavior by increasing our sensitivities to this electromagnetic radiation. One of the more famous researchers was A.L.Tchijevsky, a Russian professor. He studied the social movements of 72 countries, and noted the signs of social unrests in the histories of these countries, particularly wars, rebellions and uprises. With this, he constructed the Index of Mass Human Excitability covering the years from 500B.C. to 1922 A.D., and divided the solar cycle into four parts.

1. Minimum sunspot activity
2. Increasing sunspot activity
3. Maximum sunspot activity

4. Decreasing sunspot activity

Particularly, Tchijevsky found out that 80% of the most significant historical events on earth occurs at the period of maximum sunspot activity. Just to give some examples, the American Civil War occurred around 1858-1861, the World War I in 1916-1918, and 1967-1969 was the period of the height of the Vietnam War, the years around which sunspot activity was at its maximum. However, in times of minimal sunspot activity, he concluded that people seemed to not mind being repressed or suppressed, and willing to let things go as they come. Tchijevsky's studies provide a foundation for the effect of sunspot on human behavior. Later studies and many observers, even journalists alike, seem to give regards to sunspots when major happenings occur in the world.

ANYTHING THAT EFFECTS WATER AFFECTS LIFE BELOW IT

January 2000 to December 2009 was the warmest decade on record. Throughout the last three decades, the GISS surface temperature record shows an upward trend of about 0.2°C (0.36°F) per decade. This is especially impressive because NASA says we're at the deepest solar minimum in nearly a century. Most climatologists and NASA show the combined global temperature record, but the split figure above for the hemispheres is interesting for two reasons. First, we saw that 2009 set the record for the southern hemisphere, which is dominated by water and not land. This is where the donut hole exists and where the magnetic field is quite weak. Why is this water aspect important?

In 1991 columnist Gwynne Dyer gave a comment regarding some political news by writing, "Either the sunspots are getting bad or they are putting something in the water." The link she made of light to water chemistry was made in jest, but it is quite accurate scientifically. Gerald Pollack's work clearly has shown that electromagnetic energies build massive potential energy in water's hydrogen binding network. **Water**

becomes the main repository of this cosmic energy or it can lead to problems based upon the energies imparted.

This is why understanding the quantum level is important. This is really where real science happens. Cooperative hydrogen bonding increases the O-H bond length while causing a 20-fold greater reduction in the H····O and O····O distances. The increase in bond length has been correlated with the hydrogen bond strength and resultant O-H stretch vibrations. Thus O····O distances within water clusters are likely to be shorter than those at the periphery, in agreement with the icosahedral cluster model for water. If the hydrogen bond is *substantially bent* by cosmic radiation then it follows that the bond strength is weaker. This means there will be more water that can carry less energy to life below. This is why bonding angles have massive effects on the thermodynamic abilities in water. This is the deep science behind why the people in Australia have water that has a less favorable energy profile than we do in the Northern hemisphere. This makes flying in the Southern hemisphere a real risky deal. The main criteria to determine the strength of hydrogen bonds are their intermolecular distances. These distances are relatively inaccurately determined today by science due to technologic constraints. The more precise way to measure these things is to use wave numbers of their stretching vibrational modes and those of the donor hydrogen covalent bond. Water normally has only 10% of its bonds covalently bound. As cosmic radiation increases in the atmosphere more covalent bonds show up in water's hydrogen bonds. Remember this is the same water that is in your cells. Moreover, the bonding angles change the amount of covalent bonds reducing water's ability to carry energy to plants and animals below on Earth affecting how crops and people live. They also change water's abilities around your mitochondria. **This is how circadian mismatches are magnified in our modern world.**

The energies of cosmic radiation far exceed most

electromagnetic energies in the solar wind that reach the Earth. While extensive research has not been done to show exactly whether sunspot activity can predict heightened social activities on earth, and much research remains to be done, there is a consensus that the two factors are indeed correlated deeply. Many researchers feel that psychologically, human beings are aware and trying to find some external linkage for the explanation of why infamous events are happening.

It maybe it is not that human beings are inherently bad, but conduct several acts due to uncontrollable calcium efflux tied to the solar flares or cosmic radiation while the fly! Traffic accidents and suicides have been linked to these cycles. This links magnetic field changes to human behavior. **This implies we should expect unusually behavior on planes when these things happen during Maunder minimums.**
A final thing to consider based upon a recent NASA study has shown just how violent so-called "solar weather" can be. Past storms, like the one in March 1989 when six million people in Quebec lost power for 9 hours. Ground currents induced during the geomagnetic storm actually melted the copper windings of transformers in the power distribution system. It also had major effects on the semiconductive systems that controlled many aspects of the power grids infrastructure**. You must consider if it can do that type of equipment that use semiconduction, what can it do to humans who also use the same types of currents for regeneration of their tissues during sleep?** Sleep is the number one thing disrupted in jet lag. Dr. Robert Becker showed humans and most animals use these mechanisms in sleep and regeneration. *Jet lag is a short term loss of sleep and autophagic ability due to a loss of magnetic sense. The action occurs in the mitochondria in neurons. Low melatonin and VIP levels are the macrocosmic effect,* ***not the quantum effect of airline travel.***

Any type of stress cause a loss of DHA cell membranes

everywhere. In jet lag this happens in our neurons, gut, and mitochondria to give the effects we all observe. When you consider that our brain is wired with cells loaded with DHA which changes electrical and magnetic signals to chemical signals and uses water to transduce the energy you can see our CNS is a giant antenna for this type of energy. The trouble for industry like utilities and airlines is that the wide network of sprawling power lines and avionics act like giant antennas, picking up the currents and spreading the problem over a wider area affecting many aspects of functioning. The same is true in cells and brain when we fly. This is why jet lag really occurs. **It is a quantum scale loss of energy that happens over a small timescale.** It mimics the bigger effects we see with non native EMF that happens on longer time scales to lead to chronic modern diseases.

CITES

1. http://apps.fcc.gov/ecfs/document/view?id=7521073351
2. FCC 13-157; para. 2; p. 2.
3. FCC 13-157; para. 29; p. 13.
4. Jose Pagliery; In-flight phone calls will cost you; CNN; November 22, 2013. (http://money.cnn.com/2013/11/22/technology/cell-phone-flights/, accessed Jan. 24, 2014), the cost of a full installation for providing in-flight mobile broadband services could be "between $3 million and $4 million per plane." This presumably includes the cost of all equipment, including antennas and associated wiring, and associated FAA certification activities. However, if the intent were only to raise the noise floor to prevent cellular transmissions from interfering with onboard and terrestrial equipment, the cost per airplane would be lower, possibly much lower.
5. http://www.washingtonpost.com/national/health-science/jet-lag-is-tougher-when-traveling-east-but-precautions-can-ease-its-effects/2012/12/24/e75305f8-3a67-11e2-

b01f-5f55b193f58f_story.html
6. http://www.jneurosci.org/content/20/6/RC66.long
7.
http://onlinelibrary.wiley.com/store/10.1046/j.1365-2044.2002.02832.x/asset/j.1365-2044.2002.02832.x.pdf;jsessionid=8B989EF1D3E0082F7EDCF903BDB9ADB9.f03t04?v=1&t=hw6yv5hf&s=ed6f81e14e19b2bd9d0ccaff0a45c936959a8028
8.
http://www.healthy.net/Health/Article/Acupuncture_Anaesthesia_And_the_Physiological_Basis_of_Acupuncture/1708
9.
http://www.nature.com/nrendo/journal/vaop/ncurrent/abs/nrendo.2014.78.html
10.
http://www.space.com/23131-earth-magnetic-field-shift-explained.html
11.
http://gizmodo.com/researcher-hacks-airplanes-through-in-flight-
entertainm-1615780083?utm_campaign=socialflow_gizmodo_twitter&utm_source=gizmodo_twitter&utm_medium=socialflow
12. http://press.endocrine.org/doi/full/10.1210/jc.2013-4254 (short term effect of jet lag is a lot bigger than you think)
13.
http://www.scientificamerican.com/article/thunderclouds-make-gamma-rays-shout-out-matter/
14. http://solarscience.msfc.nasa.gov/SunspotCycle.shtml
15.
http://nextgrandminimum.wordpress.com/2014/08/07/is-it-the-sun/