

Evidence of Variable Earth-heat Production, Global Non-anthropogenic Climate Change, and Geoengineered Global Warming and Polar Melting

J. Marvin Herndon^{1*}

¹Transdyne Corporation, 11044 Red Rock Drive, San Diego, CA 92131, USA.

Author's contribution

The sole author designed, analyzed and interpreted and prepared the manuscript.

Article Information

DOI: 10.9734/JGEESI/2017/32220

Editor(s):

(1) Pere Serra Ruiz, Department of Geography, Universitat Autònoma de Barcelona, Spain.

Reviewers:

(1) John Abraham, University of St. Thomas School of Engineering, USA.

(2) Risper Buyaki Nyairo, University of Nairobi, Nairobi, Kenya.

(3) Antipas T. S. Massawe, University of Dar es Salaam, Tanzania.

(4) David A. E. Vares, Laurentian University, Canada.

(5) Ferenc Mark Miskolczi, Holston Lane, Hampton, VA, USA.

(6) Antero Ollila, Aalto University (Emeritus), Finland

Complete Peer review History: <http://www.sciencedomain.org/review-history/18728>

Short Communication

Received 15th February 2017
Accepted 19th April 2017
Published 21st April 2017

ABSTRACT

Climate models evaluated by the IPCC are based on the assumptions that: (1) Heat derived from the Sun is constant; (2) Heat derived from within the Earth is constant; and, (3) Anthropogenic contributions to atmospheric warming stem mainly from heat retention by CO₂ and other greenhouse gases. Geophysical evidence of variable earthquake activity and geological evidence of variable submarine volcanism presented here indicate that heat added to the oceans is variable. The increasing occurrences of earthquakes of magnitudes ≥ 6 and ≥ 7 during 1973-2015 indicate volcanic activity is increasing and therefore Earth-heat, as well as volcanic CO₂ additions, is increasing. Moreover, increased heat additions to the ocean act to decrease seawater solubility of CO₂, ultimately releasing additional CO₂ to the atmosphere. Furthermore, increasing submarine volcanic activity implies increasing ocean acidification, but data are insufficient to make quantitative estimates. The validity of IPCC evaluations and assessments depends critically upon due consideration being given to all processes that potentially affect Earth's heat balance. In addition to

*Corresponding author: E-mail: mherndon@san.rr.com;

the geological and geophysical processes discussed, the scientific community, including IPCC scientists, has turned a blind eye to ongoing tropospheric geoengineering that in recent years has been occurring on a near-daily, near-global basis. Tropospheric aerosolized particulates, evidenced as coal fly ash, inhibit rainfall, heat the atmosphere, and cause global warming. Evidence obtained from an accidental air-drop release indicates efforts to melt glacial ice and enhance global warming. By ignoring ongoing tropospheric geoengineering, IPCC assessments are compromised, as is the moral authority of the United Nations.

Keywords: Increasing rate of earthquakes; ocean acidification; submarine volcanoes; variable earth heat; variable volcanism; geoengineering; polar melting.

1. INTRODUCTION

The first report in 1990 by the United Nations Intergovernmental Panel on Climate Change (IPCC) and all subsequent reports [1] made the model-based claim that the world has been warming and that future warming seemed likely, and that the presumed cause was anthropogenic addition of carbon dioxide (CO₂) to the atmosphere, causing a “greenhouse effect.” Scientists, politicians, and citizens have been led to believe that anthropogenic fossil-fuel burning activities are the *overwhelming* cause of global warming, melting polar ice caps, warming and acidifying the oceans, and threatening our civilization and planetary biota. Over time the IPCC warnings have grown more dire. Discussions to combat anthropogenic climate change with anthropogenic “geoengineering” schemes are now common in climate science circles [2,3]. The IPCC warnings stem from climate model evaluations that are based upon the following assumptions: (1) Heat derived from the Sun is constant; (2) Heat derived from within the Earth is constant; and, (3) Anthropogenic contributions to atmospheric warming stem mainly from heat retention by CO₂ and other “greenhouse” gases. As the noted economist George E. P. Box emphasized, all models are wrong, but a few are useful [4]. To be useful models should represent correctly all of the physical phenomena that might affect their results. The purpose of this communication is to bring to the attention of the scientific community for debate and discussion anthropogenic and geophysical considerations that the IPCC did not take into account in constructing and evaluating their climate models. Abdussamatov [5,6] called into question the validity of (1) above, the assumed constancy of solar irradiance. Here I call into question the validity of (2) and (3) above.

A brief historical review may help us to understand why it is necessary from a scientific perspective to question the IPCC models: During

the first half of the 20th century, when a fundamentally new and important concept arose that challenged scientific thinking on a subject, there would be debate and discussion; efforts would be made to refute the new concept; otherwise, it would end up being cited. That standard was generally maintained in chemistry and physics, but the geological community was slow to adapt to new concepts such as continental displacement [7]. After World War II the standard of serious and extensive open debate began to be corrupted. The weight of debate shifted toward early adoption of a “consensus view” and then disallowing challenges to it. This change in the standard and mores by which scientific truth was established came about mainly as a consequence of government funding for civilian science. Funding was administrated under a flawed methodology that did not take into account human nature, permitting peers to remain anonymous [8]. Moreover, the availability of digital computers beginning in the late 1960s, led many scientists to make computational models based upon assumptions, including unproven assumptions, to discover answers to scientific questions, rather than to make new discoveries that questioned existing knowledge, and propelled it forward. One major problem of computational models is that they start with a known end result (e.g., anthropogenic-caused global warming) and then achieve that end result by selective choices of parameters – a process that mimics a self-fulfilling prophecy.

Most geoscientists are aware of the discovery of the Earth’s core by Oldham [9] and the later discovery of the inner core by Lehmann [10], but few are aware of the propagation of geophysical and geodynamical errors that resulted from systematically ignoring a challenge made nearly 38 years ago to the composition of Earth’s inner core [11]. The Earth has long been thought to resemble an ordinary chondrite meteorite. In those meteorites most of their nickel occurs

alloyed with iron metal. Because elements heavier than nickel and iron, taken together could not make a mass as large as the inner core; Birch [11] thought the inner core must consist of partially-crystallized iron-metal. Birch, however, ignored the rare, highly-reduced enstatite chondrites.

In the 1970s, while investigating enstatite chondrite meteorites, I realized that under highly-reducing conditions nickel could occur as nickel silicide. I wrote a short paper whose abstract *in toto* states: From observations of nature the suggestion is made that the inner core of the Earth consists not of nickel-iron metal, but of nickel silicide. Nobel Laureate Harold C. Urey communicated that paper to the *Proceedings of the Royal Society of London* [12] and I received a complimentary letter from Inge Lehmann, the discoverer of the inner core. But my work and the concept of Earth's nickel silicide inner core has been systematically ignored — the post-WW II premature consensus habit — by the geoscience community which endeavors in frustration to advance ca. 1940 ideas about the Earth's composition and dynamics that are based upon flawed understanding, for example, core composition and its heat generation [13]. Meanwhile, I demonstrated: (1) the inner 82% of Earth resembles an enstatite chondrite [14-16]; (2) a large part of Earth's inventory of uranium resides in Earth's core which is expected to concentrate at Earth's center, forming Earth's georeactor that can undergo self-sustaining nuclear fission chain reactions [17-21]; (3) the high $^3\text{He}/^4\text{He}$ ratios observed in basalt at hotspots such as Hawaii and Iceland have isotopic ratios expected of georeactor fission products [22]; (4) the georeactor may be the seat of the geomagnetic field, not Earth's fluid core [20,23,24]; (6) matter at the core/mantle boundary is understandable as precipitates from the fluid core [25]; and (7) the highly-reduced state of Earth's interior, like that of E4 enstatite chondrites, may result from condensation from solar matter at high temperatures and high pressures, provided condensate is isolated from gases at high temperatures [26,27]. The latter led me to propose that planetary formation progressed mainly via protoplanetary rather than planetesimal means [26,28], which does not require the assumption of whole-planet melting to explain core formation. Recognizing that mantle convection, which underpins plate tectonics theory, *is physically impossible* [25,26], I proposed a new indivisible geoscience paradigm, Whole-Earth Decompression Dynamics (WEDD),

which explains the myriad observations, previously attributed to plate tectonics, and even more without requiring physically impossible mantle convection [26,29-31]. New concepts on the origin of mountains characterized by folding [32], origin of fjords and submarine canyons [33], and origin of petroleum and natural gas deposits [34] are among the multifold consequences of WEDD. So, what is the relevance here?

During the past 38 years, the standards of scientific inquiry have changed, particularly among those who depend upon government support. Logic-based challenges to current thinking have largely been replaced by consensus conformity [8]. But science is a logical process, not a democratic process. The idea that large, complex problems are resolved by something called "scientific consensus" has the consequence of misleading not only the public, but members of the scientific community as well.

2. BASIS OF VARIABLE EARTH-HEAT PRODUCTION

Scientists began measuring the heat flowing out of continental-rock in 1939 [35,36] and assumed the heat they measured resulted from the decay of long-lived crustal radioactive elements: ^{235}U , ^{238}U , ^{232}Th , and ^{40}K . Heat flowing out of ocean-floor basalt was first measured in 1952 [37]. Subsequent ocean-floor measurements, determined far from mid ocean ridges [38], showed more heat flowing out of the ocean floor basalt than out of continental-rock [39] even though ocean-floor basalt is much lower in the abundance of natural radioactive nuclides. Nevertheless, for decades, heat flowing out of the Earth has been assumed to result from natural radioactive decay and from *assumed but unspecified* heat left over from planetesimal Earth formation some 4.5 Gya [40]. On a human time-scale the heat flowing outward from within the Earth was believed to be constant because of the extremely long half-lives of the radionuclides involved (Table 1).

The 'consensus approved' ca. 1940s concept of Earth's internal composition does not provide a basis for variable Earth-heat output. For example, Shearer and Stark [41] utilized an elaborate data-selection mechanism to show that earthquakes of magnitude ≥ 7 have not increased in recent years, remarking, "Moreover, no plausible physical mechanism predicts real changes in the underlying global rate of large events." Their lack of understanding of a

“plausible physical mechanism” is a consequence of their failure to recognize flaws in the ca. 1940s version of Earth composition and the physical impossibility of mantle convection that underlies plate tectonics.

My new geoscience paradigm, Whole-Earth Decompression Dynamics [26,29-31], allows for the possibility of variable Earth-heat as evidenced below.

Table 1. Half-lives of Earth’s major long-lived radionuclides

Long-lived Radionuclides	Half-life (years)
²³⁵ U	7.04 X 10 ⁸
²³⁸ U	4.47 X 10 ⁹
²³² Th	1.41 X 10 ¹⁰
⁴⁰ K	1.25 X 10 ⁹

3. EVIDENCE OF CURRENTLY INCREASING OCEAN HEAT ADDITIONS

Thermal structures lie beneath the volcanic islands of Hawaii and Iceland. When imaged by seismic tomography [42,43], these structures extend to the interface between Earth’s core and its lower mantle. Although the volcanic islands are situated on opposite sides of the globe, Mjelde et al. [44,45] discovered a periodicity and synchronicity in lava outpourings from Iceland and the Hawaiian Islands throughout the Cenozoic Era. Such variable submarine volcanic activity *clearly implies variable heat additions* to Earth’s oceans in the geological past.

The connection between large earthquakes and volcanic activity has long been recognized [46-48]. Consequently, variability in the occurrence of large earthquakes is directly related to variability in volcanic eruptions. As most volcanoes (~80%) are submarine [49], the preponderance of the heat added to Earth’s surface due to variable volcanic activity begins as heat added to Earth’s oceans.

Fig. 1 is a plot of the global annual number of occurrences of earthquakes of magnitude ≥ 6 and of magnitude ≥ 7 from the 1973-2015 data tabulated by the U. S. Geological Survey [50]. The data in that time frame is robust due to the extensive seismic networks operating to monitor nuclear explosions. Since 1973, both the annual number of earthquakes of magnitude ≥ 6 and magnitude ≥ 7, based upon the cited USGS

tabulation, have increased significantly worldwide, by 66% and 74%, respectively. These data contradict the assumption of constant Earth-heat production. Significantly, these data imply increases in Earth-heat production at least as recently as over the last 43 years.

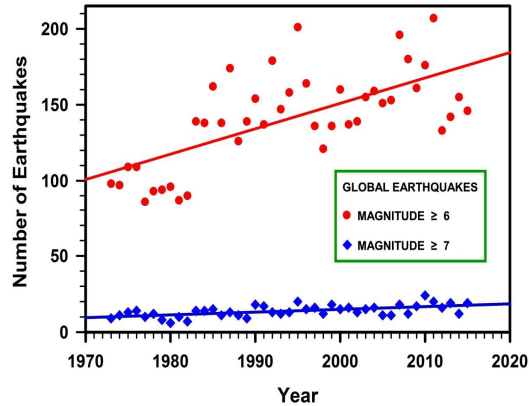


Fig. 1. The annual number of magnitude ≥ 6 and ≥ 7 earthquakes globally, taken from the U. S. Geological Survey database [50], are shown with linear regression fit lines.

Regression lines (slope, y-intercept, R²): For the ≥ 6 magnitude data set (1.672, -3193.1, 0.4495) and for the ≥ 7 magnitude data set (0.1799, -344.79, 0.3524). This figure clearly shows that there has been a dramatic increase in the annual number of global earthquakes in the indicated magnitude ranges over the time interval 1973-2015. For earthquakes of magnitude ≥ 6, the increase is 66%; for earthquakes magnitude ≥ 7, the increase is 74%

The increase in annual number of earthquakes of magnitude ≥ 6 and of magnitude ≥7 indicates that the energy driving geodynamic activity is *not constant*. Moreover, the frequent association of earthquakes with volcanic eruptions, the majority of which (~80%) are submarine, indicates that Earth heat released by volcanoes, most of it into the oceans, is also variable, and for at least the last 43 years has been increasing significantly. Heat additions to the oceans, as evidenced by increases in earthquake activity over the last 43 years, introduces complications to any climate model based on the assumption of constant, invariable heat input to the oceans.

4. FURTHER EVIDENCE OF INCREASING OCEAN HEAT INPUT

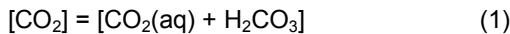
While the present work was in review, Cheng et al. [51] published improved and corrected data

from Argo submersible floats that confirms the increased ocean heat we can infer from the observed increase in the annual number of earthquakes over the last 43 years (as described above). Chen et al. found that changes in the ocean heat content were relatively small before 1980, but since 1980 ocean temperatures have increased steadily and, since 1990 they have involved deeper layers of the ocean as shown in Fig. 2.

5. GEOPHYSICAL IMPLICATIONS OF INCREASING SUBMARINE VOLCANISM

The assumption of constant heat addition to the oceans simplifies IPCC calculations but may well lead to incorrect conclusions. Even though the necessary calculations will be far more complex and require information currently not known, it is incumbent on scientists to discuss the various factors that will be involved in making such calculations.

The oceans are our planet's major reservoir for CO₂. Carbonate is a weak acid-base system existing in the ocean as dissolved carbon dioxide, carbonic acid, bicarbonate ions and their complexes [53]. In seawater, dissolved carbon dioxide, [CO₂], neglecting minor forms, is:



In thermodynamic equilibrium, atmospheric (gaseous) carbon dioxide, CO₂(g), and seawater [CO₂] are related by Henry's law:

$$CO_2(g) = K_0 [CO_2] \quad (2)$$

where K₀, the solubility coefficient, is a function of temperature and salinity.

Weiss [54] derived the following equation for K₀ from the integrated van't Hoff equation and the logarithmic Setchénov salinity dependence [55]:

$$\ln K_0 = A_1 + A_2(100/T) + A_3 \ln(T/100) + S[B_1 + B_2(T/100) + B_3(T/100)^2] \quad (3)$$

where salinity, S, is in parts per thousand, and the A's and B's are constants, listed in Table 2 for molar and gravimetric units.

Fig. 3 shows values of the CO₂ solubility coefficient, K₀, calculated with equation (3) throughout the entire range of temperatures and salinities relevant to seawater. From this figure one thing is clear: An increase in temperature,

over virtually all ocean conditions, leads to a decrease in CO₂ solubility and, concomitantly, to an increase in atmospheric CO₂.

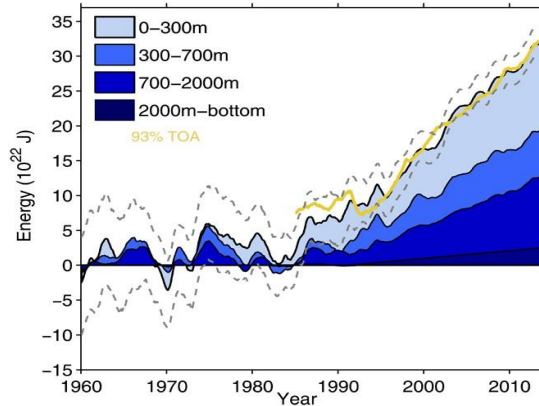


Fig. 2. Change in ocean heat content as a function of depth from Cheng et al. [51]. The TOA (top of the atmosphere) net radiation is multiplied by 0.93 to obtain the oceanic component, as 7% of the Earth energy imbalance is absorbed elsewhere. For details, see [51]. Most submarine volcanoes are associated with the mid ocean ridge systems and have average crests (tops) at depths in the range of 1000-3000 m, although some mid ocean ridge volcanoes occur at depths of 4000 m as well as at the surface in Iceland [52]

Table 2. Constants for the calculation of the solubility coefficient of CO₂ in molar and gravimetric units according to equation (2). From [54]

	Units of K ₀	
	moles/l•atm	moles/kg•atm
A ₁	0.7	4.3
A ₂	0.73	4.4
A ₃	33	190
B ₁	2.4	6.3
B ₂	11	20
B ₃	1.02	1.81

As is known from investigations of specific submarine eruptions, not only is heat released during eruption, but non-anthropogenic CO₂ is added as well to the oceans and concomitantly to the atmosphere. From the data shown in Fig. 1, the amount of volcanic CO₂ addition has been increasing over at least the last 43 years. Much of that volcanic CO₂ addition must inevitably escape to the atmosphere because volcanic heat lowers the solubility of CO₂ in seawater.

Submarine volcanoes not only currently release CO₂ in increasing amounts but other chemicals as well, such as SO₂ which in all known instances lowers the pH of surrounding seawater [56,57]. In other words variable, and currently increasing, submarine volcanism is almost certainly contributing to increasing the ocean acidification being observed worldwide.

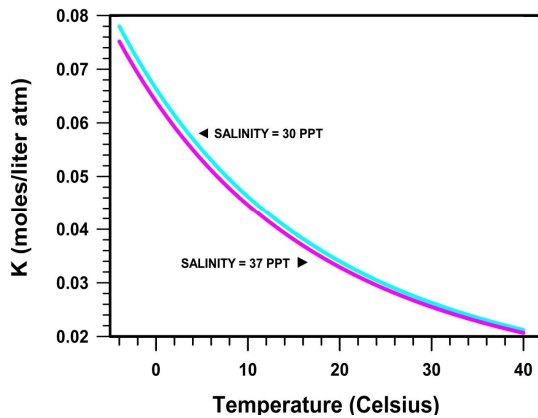


Fig. 3. The CO₂ solubility coefficient, K₀, calculated with equation (3) throughout the entire range of temperatures and salinities, bracketed by the two extreme salinities, relevant to seawater. This figure shows that an increase in temperature, over all ocean conditions, leads to a decrease in CO₂ solubility

Fig. 4 shows that the atmospheric CO₂, relative to 1973, from the often cited NOAA tabulation [58], increases at about one-third the rate of increase of magnitude ≥ 6.0 earthquakes of over the same interval.

The increase in annual number of earthquakes of magnitude ≥ 6 and magnitude ≥ 7 indicates that the driving energy sources for geodynamic activity are not constant, which is understandable from Whole-Earth Decompression Dynamics [29,30]. *The burden of proof falls on the entire scientific community concerned with understanding the multiple complexities of climate change to show that Earth's submarine volcanic variability can be legitimately ignored.* Much is unknown including reliable data on the variation of annual rates of earthquake occurrences prior to 1973, and the time delay for changes in CO₂ solubility progression through the ocean-column to manifest as CO₂ variations in the surface.

There is further supporting evidence for the variable Earth-heat hypothesis. Recently

published data by Tolstoy [59] confirm that submarine volcanism along the Southern East Pacific Rise has been variable over the last 775,000 years, with increases that appear to correlate with CO₂ increases in the Antarctic ice core data shown in Fig. 5. Variability of submarine volcanism is direct confirmatory evidence of variable heat input to seawater. Tolstoy's data call into question climate models based on the constant Earth-heat and constant-seawater temperature hypotheses. Evidence of variable submarine volcanism is evidence of variable input of volcanic CO₂ into seawater and variable heat input in seawater, and thus evidence of both seawater overall temperature variability and variable seawater solubility of CO₂.

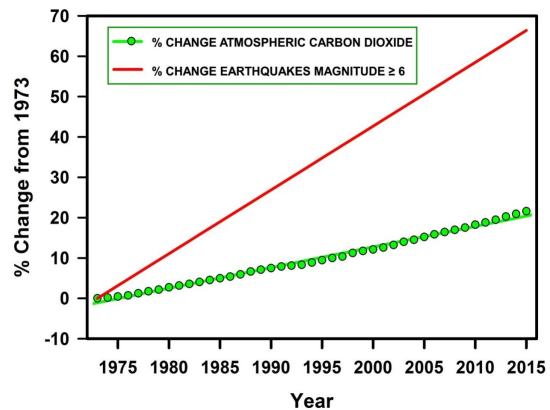


Fig. 4. Percent annual change, relative to 1973, of earthquakes, magnitude ≥6, shown by the regression line from Fig. 1, and from CO₂ values based on the model-based tabulation published by NASA Goddard Institute for Space Studies (GISS) [58]. This figure shows that earthquakes of magnitude ≥ 6 are increasing at a greater rate than atmospheric CO₂. Prior to 1973 earthquake data is insufficiently robust to be reliably compared with CO₂ data

6. COVERT GEOENGINEERING CONTRIBUTION TO GLOBAL WARMING

For computational models to be useful, they must faithfully represent the relative effects of all of the variables involved. Climate models produced by the scientific community and those utilized by the IPCC all fail to consider the effects of ongoing tropospheric geoengineering. Geoengineering is defined here as deliberate, large-scale activities aimed at modifying weather/climate systems [i.e., from the troposphere to the stratosphere to the

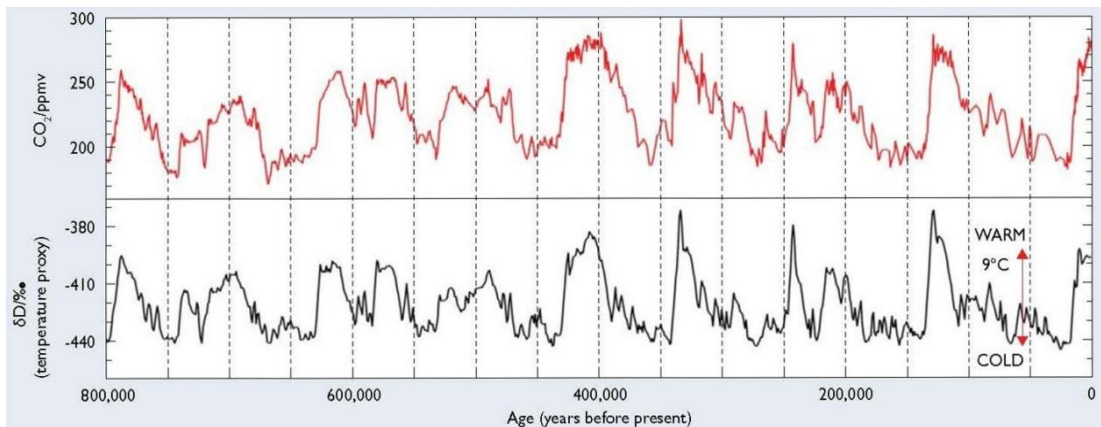


Fig. 5. Correlation between local temperature and trapped CO₂ over a time span of 800,000 years from an Antarctic ice core: Ice core data from the EPICA Dome C (Antarctica) ice core: deuterium is a proxy for local temperature; CO₂ is from the ice core air. Data from [60,61]. Reproduced with permission of the British Antarctic Survey

ionosphere — all natural systems]. Weather modification programs have been employed by many nations at least since the 1960s, that is for over half a century, typically for agricultural purposes [62].

During the Vietnam War, the U. S. military seeded clouds with chemical substances such as silver iodide or solid dry ice (frozen CO₂) to enhance rainfall to impede the movement of troops and supplies over the Ho Chi Minh Trail. Subsequent military weather modification activities focused on inhibiting rainfall [63].

The technique for inhibiting rainfall, well understood from studies of air pollution, involves distributing a chemical aerosol in the troposphere where clouds form. The emplaced particulate aerosol prevents moisture droplets from coalescing and growing sufficiently massive to fall as rain or snow. Observational evidence indicates that testing that technique began no later than the 1990s, perhaps earlier, and has been increasing in frequency and intensity since that time. During the past eight years, the aerial spraying has ramped up to a near-daily, near-global operation, which is evidenced by data posted on at least 72 anti-geoengineering websites [64]. Fig. 6 shows but a few of the many thousands of photographs taken of the tropospheric geoengineering activity.

There has not only been great secrecy involved, but governments have deceived citizens, either denying the aerial activity or falsely asserting that the observed aerial trails are simply contrails, ice

crystals formed from water vapor in jet exhaust. In 2005 the United States Air Force distributed to government agencies and published online a document entitled “Contrails Facts” [65] which blatantly denied the existence of the observed particulate trails and falsely asserted that they are contrails.

Except in very rare circumstances of very low temperatures and very high humidity, jet contrails persist only a few seconds before evaporating (subliming) into invisible H₂O gas. Fig. 7 shows three jets simultaneously flying in the same physical environment. Two show conspicuous contrails that are short because the ice crystals from water in their exhaust evaporate quickly; the third trail that stretches for a great distance across the sky is a particulate trail, not a contrail which would have been short.

Fig. 8 provides further evidence that the aerial spraying is deliberately emplaced particulate matter and not naturally forming ice-crystal contrails. In this figure two aircraft are flying in the same physical environment, producing trails across the sky when suddenly one trail abruptly ceases to form, presumably because the feed-stock was exhausted or the dispersing mechanism was turned off.

Particulate trails do not disappear quickly, but spread out, sometimes forming cirrus-like artificial clouds that further spread out to eventually form a white haze in the sky. Heavy spraying can lead to particulate-caused overcast, sometimes with a brown haze. Some examples



Fig. 6. Photographs of tropospheric aerial particulate geoengineering trails. Rows top to bottom: 1) LaCrosse, Wisconsin (USA), Courtesy of John Brinsko; 2) Bettendorf, Iowa (USA), Courtesy of Amy Fordham; 3) Sussex, UK, Courtesy of Vicky McCarthy; 4) Portland, Oregon (USA), Courtesy of Linda Pope

are shown in Fig. 9, a composite of photographs taken in San Diego, California (USA) on days without natural clouds in the sky. These behaviors are totally uncharacteristic of ice-crystal contrails which evaporate quickly and become invisible gaseous water.

Not only have government officials deceived the public, but so too have government and non-government scientists. Despite public concerns expressed by citizens throughout the world [64], scientists have turned a blind eye to the particulate trails. Even scientists who study the atmosphere pretend that no deliberately emplaced aerosols are influencing the atmosphere they study. IPCC scientists likewise ignore their existence, which has influenced the weather/climate regionally and very likely globally since the late 1990s, and possibly for much longer. Particulate matter sprayed into the troposphere mixes with the air we breathe and, as known from epidemiological studies of pollution, can cause or contribute to a host of serious ailments [66].

There is good evidence that the main particulate matter being sprayed into the troposphere worldwide is coal fly ash, the light ash from coal combustion by electric power companies that is considered to be too toxic to be allowed to exit smokestacks in Western nations [63,66-68].

In the midst of official denial and misrepresentation, one can deduce from physical effects the purposes, if not the motives, for the near-daily, near-global coal fly ash tropospheric geoengineering. Aerosolized coal fly ash retards the fall of rain, at least until clouds become so overburdened that they let go with torrential downpours and storms. Coal fly ash makes atmospheric moisture more electrically conducting, which may be useful in military electromagnetic activities [69]. Coal fly ash sprayed into the troposphere heats the atmosphere, and retards heat loss from Earth's surface thus enhancing global warming. As coal fly ash settles to the ground, its typically dark gray color absorbs sunlight and alters albedo, again enhancing global warming [66].



Fig. 7. Three aircraft flying simultaneously in the same physical environment in which contrail formation is possible in the air above Tucson, Arizona (USA) in 2011. Note that two display short contrails characteristic of rapid ice evaporation. The lengthy trail across the sky is not a contrail – otherwise it would have evaporated as quickly, and been as short, as the other two. Rather, the long trail is formed by emplaced particulate matter. Courtesy of Bornfree and Russ Tanner



Fig. 8. Two particulate spray-planes flying in the same physical environment when one spray is abruptly terminated. That behavior is wholly uncharacteristic of contrails caused by ice-crystal formation from water in engine exhaust. Photo by the author



Fig. 9. Four photographs of the sky above San Diego, California (USA) taken on days without natural clouds. The varying degrees of haze are characteristic of particulate matter emplaced by jet-aircraft, and completely uncharacteristic of contrails, ice-crystals that readily evaporate and become invisible. Photos by the author

7. EVIDENCE OF MELTING GLACIAL ICE AND ENHANCING GLOBAL WARMING

On or about February 14, 2016, an oily-ashy substance fell on seven residences and vehicles in Harrison Township, Michigan (USA). Suspecting this was an accidental release from an aircraft engaged in covert geoengineering, I obtained samples from one of the residents for analysis and advised the Michigan Department of Environmental Quality on what analyses should be conducted. As noted in the published report [70], the air-drop material consists of a mixture of particles in dark clumps that resemble plant material, including leaves, seeds and fruit skins, mixed with coal fly ash and salt.

Fig. 10 shows patterns of quasi-circular holes (referred to as ‘cryoconite holes’) that are observed worldwide on ablating glacier surfaces, and which resemble the distribution pattern of the air-drop material. Because of its dark color, natural cryoconite — windblown dust made up of rock particles, soot, and microbes — absorbs sunlight and melts its way into glacier ice. The

resemblance between cryoconite and the air-drop material led me to conclude that the artificial air-drop material is pseudo-cryoconite or proto-cryoconite, whose purpose I presume is to melt glacial ice and to enhance global warming.

Great amounts of time and money were doubtless invested in developing the pseudo- or proto-cryoconite and the technology for its covert application. That is clearly an indication of its intended wide-spread application, presumably to melt glacial ice and enhance global warming. The presumptive intent is consistent with the observed near-global, near-daily aerial spraying of particulate matter in the troposphere, which published evidence indicates is mainly coal fly ash and which has the effect of melting glacial ice and enhancing global warming.

8. QUESTIONING CLIMATE MODELS’ OBJECTIVITY AND INTENT

Fig. 11 from [71] is a representation of global temperature change and CO₂ from the U. S. National Oceanic and Atmospheric

Administration (NOAA) data and model calculations. This type of representation is well-known to IPCC climate model assessment evaluators and to climate scientists. The escalating values in recent decades of temperature and carbon dioxide are explained by

the IPCC as mainly the consequence of anthropogenic carbon-fuel burning, producing greenhouse gases that trap and retain heat that would otherwise be radiated into space. But there are reasons to call such assertions into question.

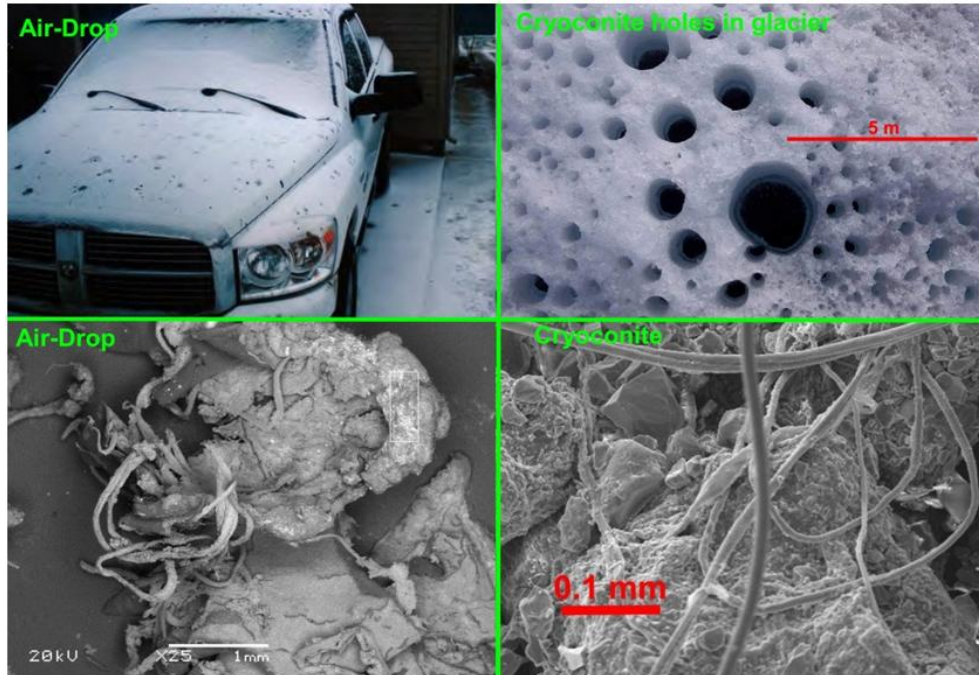


Fig. 10. Upper Left: Air-Drop Distribution; Upper Right: Cryoconite-hole Distribution in Glacier; Lower Left: Air-Drop Pseudo- or Proto-Cryoconite; Lower Right: Natural Cryoconite. Adapted from [70]

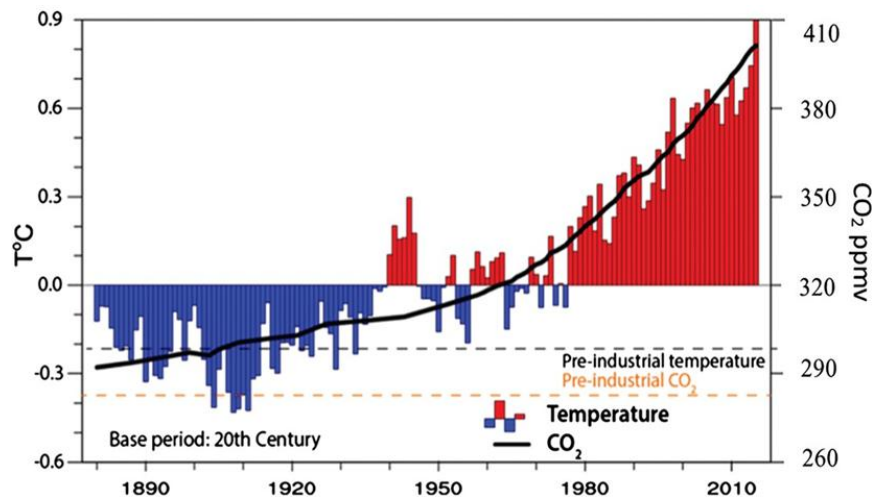


Fig. 11. Time series of annual values of global mean temperature anomalies (red and blue bars) in degrees Celsius, and carbon dioxide concentrations at Mauna Loa, both from NOAA. Data are relative to a baseline of the 20th century values. From Yan et al. [71]

Anthropogenic contributions from fossil fuel use and, notably, the increasing rate of jet aircraft use, cannot be denied, but those contributions seem significant only when Earth's own endogenous contributions and covert geoengineering contributions are ignored. Increased heat additions to the oceans from volcanic activity, judging from Fig. 2, alone are insufficient to account for the increased ocean temperatures near the surface. Within the limitations of extant data, one cannot reliably estimate the increased atmospheric contributions of volcanic CO₂ and the CO₂ released due to the increasing volcanism that heats the ocean and thus acts to reduce CO₂ solubility in the oceans. But perhaps the greatest and unaccounted for contribution to global warming is this: IPCC evaluators and scientists' climate models totally ignore the global warming caused by covert tropospheric geoengineering that has been ongoing since the 1960s and accelerating in frequency, intensity, and scope since the 1990s. Unless climate modelers take into account the decades-old tropospheric geoengineering, their assessments will remain incomplete and unreliable.

Sadly, the institutions of government have been co-opted to support the supposed anthropogenic greenhouse-gas global warming agenda. On February 4, 2017, the *Daily Mail* (UK) reported that America's National Oceanic and Atmospheric Administration (NOAA) had breached its own rules for scientific integrity when it published a sensational but flawed report, aimed at making the maximum possible impact on world leaders including Barack Obama and David Cameron at the United Nations' climate conference in Paris in 2015 [72,73]. NASA scientists and their partners at NOAA have a track record of using flawed climate data; this is just one episode in a long series, some of which were exposed by critical, independent scientists [74-78].

Many climate scientists have criticized NASA GISS (Goddard Institute for Space Studies) in recent years for routinely claiming significantly higher global temperatures than those reported by other scientists; for employing a staff that appears to see its role more as advocates than as scientists; for getting caught claiming recent years were warmer than the data indicated; and for failing to provide transparency in how they treated raw temperature data before presenting their adjusted "official" temperature reports [74-78]. After GISS generated substantial media

attention with its claim October 2008 was the warmest October in history, a number of global warming "skeptics" smelled something fishy and examined the data themselves. They soon discovered NASA and its partners at the NOAA had copied the September 2008 temperature data from Russia into the October Russian temperature dataset which would make October seem unseasonably warm [79].

9. CONCLUSIONS

The climate models evaluated by the IPCC are based on the assumptions that: (1) Heat derived from the Sun is constant; (2) Heat derived from within the Earth is constant; and, (3) Anthropogenic contributions to atmospheric warming stem mainly from heat retention by CO₂ and other greenhouse gases.

Geophysical evidence of variable earthquake activity and geological evidence of variable submarine volcanism presented here indicate that heat added to the oceans is *variable*. The increasing occurrences of earthquakes of magnitudes ≥ 6 and ≥ 7 during 1973-2015 indicate volcanic activity is increasing and therefore Earth-heat as well as volcanic CO₂ additions is increasing. Moreover, increasing heat additions to the ocean decrease seawater solubility of CO₂, ultimately releasing additional CO₂ to the atmosphere. In light of these changing geophysical processes, due consideration should be given to their potential contributions to currently observed increases in atmospheric CO₂. At least since 1973, the increased rate of large earthquakes is greater than the increased rate of atmospheric carbon dioxide additions. Furthermore, increasing submarine volcanic activity implies increasing ocean acidification, although data are insufficient to make quantitative estimates.

The validity of IPCC evaluations and assessments depends critically upon due consideration being given to *all* potential processes that materially affect Earth's heat balance. Members of the scientific community, including IPCC scientists, have nonetheless turned a blind eye to the ongoing tropospheric geoengineering that had its origins in the 1960s and which during the past eight years has been ramped up to a full operational level on a near-daily, near-global basis. Tropospheric aerosolized particulates, evidenced as coal fly ash, inhibit rainfall, heat the atmosphere, and enhance global warming. Evidence obtained

from an accidental aerial release of an engineered material indicates there is an effort to melt glacial ice and thus enhance global warming. By ignoring ongoing tropospheric geoengineering, the IPCC climate assessments as well as the moral authority of the United Nations are compromised.

There are many questions that need to be answered. As NOAA and NASA are both prime sources of data utilized in climate models and assessments, and are apparently participants in the global covert tropospheric geoengineering activity, how objective are their data? Indeed, what are the purposes of spraying a toxic substance into the air we breathe on a near-daily, near-global basis? Surely, those closely connected with the operation know that it causes global warming and polar ice melting. The air-drop pseudo- or proto-cryoconite accidental air-drop underscores the question: Do government leaders realize that the intent of these covert geoengineering efforts is to cause global warming? Or are leaders being deceived, told that the tropospheric aerosol spraying is to prevent global warming? Is it being done to get at the petroleum and other natural resources beneath polar ice? Is tropospheric geoengineering being done to cause global warming so as to provide a basis for the United Nations to take control of major elements of sovereign nations' economies? Or are more sinister motives involved? The military has researched weaponizing weather since 1947 [80], but at what cost to human and environmental health? What have leaders been told that makes them acquiesce to a program that is no less than an assault on planet Earth? Who profits from this? Why are scientists promoting the idea of future geoengineering when they know, or certainly ought to know, that tropospheric geoengineering has been ongoing nearly worldwide for decades.

For the good of humanity and the Earth's biota and environment, these questions should be answered truthfully and publically.

COMPETING INTERESTS

Author has declared that no competing interests exist.

REFERENCES

1. Available:<http://www.ipcc.ch/report/ar5/>
Accessed March 21, 2017.

2. Vaughan NE, Lenton TM. A review of climate geoengineering proposals. *Climate Change*. 2011;109:748-790.
3. Goldblatt C, Watson AW. The runaway greenhouse: Implications for future climate change, geoengineering and planetary atmospheres. *Phil. Trans. R. Soc. Lond. A* 2012;370:4197-4216.
4. Box GEP. *Empirical model-building and response surfaces*. Wiley; 1987.
5. Abdussamatov HI. The sun defines the climate. *Russian journal "Nauka i Zhizn" ("Science and Life")*. 2008;1:34-42.
6. Abdussamatov HI. Grand minimum of the total solar irradiance leads to the little ice age. *Geol. Geosci.* 2013;2:1-10.
7. Le Grand HE. *Drifting continents and shifting theories*. Cambridge University Press: Cambridge, UK; 1988.
8. Herndon JM. *Corruption of science in America*. The Dot Connector 2011. Available:<http://www.nuclearplanet.com/corruption.pdf>
Accessed March 21, 2017.
9. Oldham RD. The constitution of the interior of the earth as revealed by earthquakes. *Q. T. Geol. Soc. Lond.* 1906;62:456-476.
10. Lehmann IP. *Publ. Int. Geod. Geophys. Union, Assoc. Seismol., Ser. A, Trav. Sci.* 1936;14:87-115.
11. Birch F. The transformation of iron at high pressures, and the problem of the earth's magnetism. *Am. J. Sci.* 1940;238:192-211.
12. Herndon JM. The nickel silicide inner core of the earth. *Proc. R. Soc. Lond.* 1979;A368:495-500.
13. Hirose K, Morard G, Sinmyo R, Umemoto K, Hernlund J, Helffrich G, Labrosse S. Crystallization of silicon dioxide and compositional evolution of the earth's core. *Nature*. 2017;543:99-102.
14. Herndon JM. The chemical composition of the interior shells of the earth. *Proc. R. Soc. Lond.* 1980;A372:149-154.
15. Herndon JM. The object at the centre of the earth. *Naturwissenschaften*. 1982;69:34-37.
16. Herndon JM. Composition of the deep interior of the earth: Divergent geophysical development with fundamentally different geophysical implications. *Phys. Earth Plan. Inter.* 1998;105:1-4.
17. Herndon JM. Feasibility of a nuclear fission reactor at the center of the earth as the energy source for the geomagnetic field. *J. Geomag. Geoelectr.* 1993;45:423-437.

18. Herndon JM. Planetary and protostellar nuclear fission: Implications for planetary change, stellar ignition and dark matter. *Proc. R. Soc. Lond.* 1994;A455:453-461.
19. Herndon JM. Sub-structure of the inner core of the earth. *Proc. Nat. Acad. Sci. USA.* 1996;93:646-648.
20. Herndon JM. Terracentric nuclear fission georeactor: Background, basis, feasibility, structure, evidence and geophysical implications. *Curr. Sci.* 2014;106:528-541.
21. Hollenbach DF, Herndon JM. Deep-earth reactor: Nuclear fission, helium, and the geomagnetic field. *Proc. Nat. Acad. Sci. USA.* 2001;98:11085-11090.
22. Herndon JM. Nuclear georeactor origin of oceanic basalt $^3\text{He}/^4\text{He}$, evidence, and implications. *Proc. Nat. Acad. Sci. USA.* 2003;100:3047-3050.
23. Herndon JM. Nuclear georeactor generation of the earth's geomagnetic field. *Curr. Sci.* 2007;93:1485-1487.
24. Herndon JM. Nature of planetary matter and magnetic field generation in the solar system. *Curr. Sci.* 2009;96:1033-1039.
25. Herndon JM. Geodynamic basis of heat transport in the earth. *Curr. Sci.* 2011;101:1440-1450.
26. Herndon JM. Solar system processes underlying planetary formation, geodynamics, and the georeactor. *Earth, Moon, and Planets.* 2006;99:53-99.
27. Herndon JM, Suess HE. Can enstatite meteorites form from a nebula of solar composition? *Geochim. Cosmochim. Acta.* 1976;40:395-399.
28. Herndon JM. New indivisible planetary science paradigm. *Curr. Sci.* 2013;105:450-460.
29. Herndon JM. Whole-earth decompression dynamics. *Curr. Sci.* 2005;89:1937-1941.
30. Herndon JM. Energy for geodynamics: Mantle decompression thermal tsunami. *Curr. Sci.* 2006;90:1605-1606.
31. Herndon JM. A new basis of geoscience: Whole-earth decompression dynamics. *New Concepts in Global Tectonics.* 2013;1:81-95.
32. Herndon JM. Origin of mountains and primary initiation of submarine canyons: The consequences of earth's early formation as a jupiter-like gas giant. *Curr. Sci.* 2012;102:1370-1372.
33. Herndon JM. New concept for the origin of fjords and submarine canyons: Consequence of whole-earth decompression dynamics. *Journal of Geography, Environment and Earth Science International.* 2016;7:1-10.
34. Herndon JM. New concept on the origin of petroleum and natural gas deposits. *J Petrol Explor Prod Technol.* 2016;6:1-12.
35. Benfield AF. Terrestrial heat flow in great britain. *Proc. R. Soc. Lond.* 1939; Ser A 173:428-450.
36. Bullard EC. Heat flow in south africa. *Proc. R. Soc. Lond.* 1939;Ser. A 173:474-502.
37. Bullard E. The flow of heat through the floor of the atlantic ocean. *Proceedings of the Royal Society of London. Series A. Mathematical and Physical Sciences.* 1954;222:408-429.
38. Korenaga T, Korenaga J. Evolution of young oceanic lithosphere and the meaning of seafloor subsidence rate. *Journal of Geophysical Research: Solid Earth.* 2016;121:6315-6332.
39. Jaupart C, Mareschal JC, Iarotsky L. Radiogenic heat production in the continental crust. *Lithos.* 2016;262:398-427.
40. Kellogg LH, Hager BH, van der Hilst RD. Compositional stratification in the deep mantle. *Science.* 1999;283:1881-1884.
41. Shearer PM, Stark PB. Global risk of big earthquakes has not recently increased. *Proc. Nat. Acad. Sci. USA.* 2012;109:717-721.
42. Bijwaard H, Spakman W. Tomographic evidence for a narrow whole mantle plume below iceland. *Earth Planet. Sci. Lett.* 1999;166:121-126.
43. Nataf HC. Seismic imaging of mantle plumes. *Ann. Rev. Earth Planet. Sci.* 2000;28:391-417.
44. Mjelde R, Faleide JI. Variation of icelandic and hawaiian magmatism: Evidence for co-pulsation of mantle plumes? *Mar. Geophys. Res.* 2009;30:61-72.
45. Mjelde R, Wessel P, Müller D. Global pulsations of intraplate magmatism through the cenozoic. *Lithosphere.* 2010;2:361-376.
46. Darwin C. On the connexion of certain volcanic phenomena in south america; and on the formation of mountain chains and volcanos, as the effect of the same power by which continents are elevated. *Geol. Soc. Lond. Trans.* 1840;2:601-632.

47. Walter TR, Amelung F. Volcano-earthquake interaction at mauna loa volcano, hawaii. *J. Geophys. Res.* 2006;111.
48. Nostro C, Setein RS, Cocco M, Belardinelli ME, Marzocchi W. Two-way coupling between vesuvius eruptions and southern apennine earthquakes, italy, by elastic stress transfer. *J. Geophys. Res.* 1998;103:24487-24504.
49. Lawson C, Lazarus ME. U.S. Geological survey open file report 98-507-b; U. S. Geological Survey: Menlo Park, CA, USA; 2002.
50. <http://earthquake.usgs.gov/earthquakes/se/arch/> Accessed March 21, 2017.
51. Cheng L, Trenberth KE, Fasullo J, Boyer T, Abraham J, Zhu J. Improved estimates of ocean heat content from 1960 to 2015. *Science Advances.* 2017;3.
52. Wilson BM. *Igneous petrogenesis a global tectonic approach.* Springer: The Netherlands; 2007.
53. Al-Anezi K, Hilal N. Scale formation in desalination plants: Effect of carbon dioxide. *Desalination.* 2007;204:385-402.
54. Weiss RF. Carbon dioxide in water and seawater: The solubility of a non-ideal gas. *Mar. Chem.* 1974;2:203-215.
55. Weiss RF. The solubility of nitrogen, oxygen and argon in water and seawater. *Deep-Sea Res.* 1970;17:735.
56. Resing JA, Sansone FJ. The chemistry of lava-seawater interactions: The generation of acidity. *Geochem. Cosmochem. Acta.* 1999;63:2183-2198.
57. Santana-Casiano JM, Gonza'lez-Da'vila M, Fraile-Nuez E, de Armas D, Gonza'lez AG, Domínguez-Yanes JF, Esca'ne J. The natural ocean acidification and fertilization event caused by the submarine eruption of el hierro. *Sci. Rep.* 2013;3:1140.
58. ftp://ftp.cmdl.noaa.gov/ccg/co2/trends/co2_annmean_mlo.txt Accessed March 21, 2017.
59. Tolstoy M. Mid-ocean ridge eruptions as a climate valve. *Geophys. Res. Lett.* 2015;42:1346-1351.
60. Jouzel J, et al. Orbital and millennial antarctic climate variability over the last 800,000 years. *Sci.* 2007;317:793-796.
61. Lüthi D, et al. High-resolution carbon dioxide concentration record 650,000-800,000 years before present. *Nature.* 2008;453:379-382.
62. Brientjes RT. A review of cloud seeding experiments to enhance precipitation and some new prospects. *Bull. Am. Meteorol. Soc.* 1999;80:805-820.
63. Herndon JM. Adverse agricultural consequences of weather modification. *AGRIVITA Journal of Agricultural Science.* 2016;38:213-221.
64. <http://www.nuclearplanet.com/websites.pdf> Accessed March 21, 2017.
65. <http://www.nuclearplanet.com/USAF.pdf> Accessed April 17, 2017.
66. Herndon JM, Whiteside M. Further evidence of coal fly ash utilization in tropospheric geoengineering: Implications on human and environmental health. *J. Geog. Environ. Earth Sci. Intn.* 2017;9: 1-8.
67. Herndon JM. Aluminum poisoning of humanity and earth's biota by clandestine geoengineering activity: Implications for india. *Curr. Sci.* 2015;108:2173-2177.
68. Herndon JM. Obtaining evidence of coal fly ash content in weather modification (geoengineering) through analyses of post-aerosol spraying rainwater and solid substances. *Ind. J. Sci. Res. and Tech.* 2016;4:30-36.
69. Bertell R. *Planet earth, the latest weapon of war: A critical study into the military and the environment.* The Women's Press: London; 2000.
70. Herndon JM. An indication of intentional efforts to cause global warming and glacier melting. *J. Geography Environ. Earth Sci. Int.* 2017;9:1-11.
71. Yan XH, Boyer T, Trenberth K, Karl TR, Xie SP, Nieves V, Tung KK, Roemmich D. The global warming hiatus: Slowdown or redistribution? *Earth's Future.* 2016;4:472-482.
72. <http://www.Telegraph.Co.Uk/comment/columnists/christopherbooker/6679082/climate-change-this-is-the-worst-scientific-scandal-of-our-generation.html> Accessed March 21, 2017.
73. <http://www.Washingtontimes.Com/news/2017/feb/5/climate-change-whistleblower-alleges-noaa-manipula/>. Accessed March 21, 2017.

74. <https://www.Forbes.Com/sites/larrybell/2017/07/19/nasas-inconvenient-ruse-the-goddard-institute-for-space-studies/#2b315d0a6963>. Accessed March 21, 2017.
75. <https://climateaudit.org/2010/12/26/nasa-giss-adjusting-the-adjustments/>. Accessed March 21, 2017.
76. <http://www.cnsnews.com/news/article/barbara-hollingsworth/german-scientist-accuses-nasa-massive-alteration-temperature>. Accessed March 21, 2017.
77. <https://wattsupwiththat.Com/2013/01/18/hansens-nasa-giss-cooling-the-past-warming-the-present/>. Accessed March 21, 2017.
78. <http://www.dailymail.co.uk/news/article-2915061/nasa-climate-scientists-said-2014-warmest-year-record-38-sure-right.html>. Accessed March 21, 2017.
79. <https://wattsupwiththat.com/2008/11/10/giss-releases-october-2008-data/>. Accessed March 21, 2017.
80. Fleming JR. Fixing the sky: The checkered history of weather and climate control. Columbia University Press: New York; 2010.

© 2017 Herndon; This is an Open Access article distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0>), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

*Peer-review history:
The peer review history for this paper can be accessed here:
<http://sciencedomain.org/review-history/18728>*