



# Natural Disasters are Not All Natural

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## **Author's contribution**

*The sole author designed, analysed, interpreted and prepared the manuscript.*

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## **ABSTRACT**

For a half century, the military has been developing technologies to turn climate and extreme environmental phenomena into weapons.

This study is a literature review, which was conducted with the following objectives: 1/ to expose the known powerful military technologies of climate and environmental modification; 2/ to emphasize that many extreme environmental events observed in recent years coincide with the effects that these military technologies are able to generate; 3/ to analyze the conclusions of the Intergovernmental Panel on Climate Change (IPCC) on the origins of the increase in natural disasters.

The literature used comes from official sources: peer-reviewed scientific articles (except one); patents; intergovernmental organizations; military documents; policy documents; university documents; national newspapers; news agencies; writings by respected scientists in their fields.

Results of the literature review reveal that HAARP (High-frequency Active Auroral Research Program), the most powerful ionospheric heater in operation, is able to influence climate. High-power electromagnetic pulses in the earth's crust, produced by a mobile magneto-hydrodynamic generator, is a technique developed since the 1970s to trigger earthquakes. Directed energy weapons, a real technology, can ignite destructive fires at range. For several years, official documents report effects on health and the environment similar in all aspects to those that would be detected if solar geoengineering by stratospheric aerosol injection, a climate-altering technique, was used. Due to numerous biases and a lack of objectivity, the IPCC's arguments on the causes of the growth in extreme environmental phenomena (heat and cold waves, storms, hurricanes, tornadoes,

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droughts, floods, wildfires, air pollution, etc.) are flawed. The solar hypothesis isn't appropriate either, given its low activity for several years.

In conclusion, the use of military climatic and environmental modification technologies appears to be the most relevant explanation to understand the increase in natural disasters over the last 20 years.

*Keywords: Air pollution; drought; electromagnetic waves; earthquake; extreme weather; HAARP; solar geoengineering; wildfires.*

## 1. INTRODUCTION

At least 50 countries are already using weather-modifying technology. China uses this method on almost 50% of its territory [1,2]. The most widely used technology is cloud-seeding, which aims to enhance precipitation [3,4,5]. Rather than using traditional cloud seeding, which raises significant health and environmental safety concerns due to byproduct fallout, the United Arab Emirates employs drones, designed to target certain clouds, that produce electrical discharges via concentrated lasers to forcibly pool water droplets in the air, thus triggering desired rainfall [6].

But it's the military who are most interested in weather modification techniques, with objectives much more ambitious than simply making it rain. In 1957, Lyndon B. Johnson stated: "From space one could control the earth's weather, cause drought and floods, change the tides and raise the levels of the sea, make temperate climates frigid". Since the 1970s, through a climate control program called Climate Dynamics, the Pentagon studied how the United States could melt ice caps, generate destructive storms, and use "key environmental instabilities" to unleash huge amounts of energy. They had discovered how the United States, acting secretly from space, could inflict bad weather on the Soviet Union. In the Soviet Union, engineers were able to reverse the course of the Pechora River, which flows through the Arctic, to create inland seas, which would alter the global climate [7].

The first meteorological manipulation for military purposes was the well-known Operation Pop-Eye (cloud seeding) carried out during the Vietnam War, whose aim was to prolong the monsoon. The rain was of acid quality and the ecological risks were totally unknown [8]. As a result of this military operation, the UN established, in 1976, the Environmental Modification Convention (ENMOD). However, this convention is not sufficiently precise and offers the opportunity to

circumvent and adapt almost everything that is written. For example, the convention allows for the research and development of climate weapons or the use of such techniques against a non-signatory state [9,10]. Note that France is not a signatory state.

In the United States, since at least 1959, the government has funded research on weather modification [11], whose objective remains mainly military [12,13,14]. Among the technologies needed to ensure US security, a study requested by the US Air Force in 1994, entitled "Spacecast 2020", considered weather modification as a weapon [15]. In 2001, a bill, which was rejected, was presented to the US Congress to ban space-based weapons, including meteorological and tectonic weapons [16].

Fifty years ago, Gordon J. F. MacDonald (geologist, geophysicist and member of President Johnson's Science Advisory Committee), heavily involved in weather modification work, predicted a new war strategy in a chapter ("How to Wreck the Environment") in a book entitled "Unless Peace Comes" written in 1968. The author explains that future conflicts will be linked to the manipulation of the environment. These wars will be secret because storms, floods, droughts, earthquakes and tidal waves are unusual, but not unexpected, and will be able to continue for years in total discretion [17]. In 2012, The British newspaper "The Guardian" published a letter from a former aerospace and defense executive advisor, who explained that weather was weaponized by at least four countries: "... US, Russia, China and Israel possess the technology and organisation to regularly alter weather and geologic events for various military and black operations, which are tied to secondary objectives, including demographic, energy and agricultural resource management... Warfare now includes the technological ability to induce, enhance or direct cyclonic events, earthquakes, draught and flooding, including the use of polymerised

aerosol viral agents and radioactive particulates carried through global weather systems...” [18].

Scientific publications, numerous official documents and observations show that military climate modification techniques may have been in use for over 20 years [12,13].

What technologies could be used to generate extreme meteorological, climatic and environmental phenomena (heat and cold waves, air pollution, storms, hurricanes, tornadoes, droughts, floods, wildfires, strong earthquakes, etc.) ?

Electromagnetic radiations seem to be the common point in most research into climate and environmental weapons [12,13]. The first part of the article is focused on directed beams of high-power electromagnetic waves. The second part is devoted to solar geoengineering by stratospheric aerosol injection (SAI), and its association with electromagnetic waves. The third part completes the previous two and reconsiders the authoritative version of the causes leading to the increase in extreme climatic and environmental phenomena.

## 2. HIGH-POWER ELECTROMAGNETIC WAVES

The Earth's ionosphere (~60-1000 km above sea level) is composed of dense plasma, which exhibits complex variations with altitude, geographic location, and solar activity level [19]. The ionosphere plays a major role in the performance of civil and military communication systems. Longer wavelength radio signals reflect from the ionosphere. Shorter wavelength radio signals pass through the ionosphere but are affected by it, via processes such as absorption and scintillation [20].

### 2.1 Directed energy in ionosphere

#### 2.1.1 Ionospheric heater

An ionospheric heater (IH) sends high frequency (HF) waves at high power in the ionosphere to disturb it and observe the effects. The most known is HAARP (High-frequency Active Auroral Research Program) (Figs. 2, 4). Officially, the axes of research of HAARP are: Plasma physics, radio science, mesosphere-thermosphere diagnostics, space weather, arctic maritime domain awareness, magnetosphere-radiation belt, sub-auroral physics, plasma duct

generation, ELF propagation, detection of cavities in the Earth, over-the-horizon radar, citizen science and amateur radio, trends in ionospheric and atmospheric conditions, including trends in global change. Between 1990 and 2014, HAARP was a military program. Since 2015, responsibility for HAARP facilities and equipment has been transferred from the University of Alaska Fairbanks (UAF), but the land is still owned by the US Air Force [21].

HAARP operates between 2.7 and 10 megahertz (MHz) with a peak power (PP) of 3.6 megawatts (MW) [21]. Because HAARP employs a phased array antenna, energy can be concentrated along variable directions, producing an effective radiated power (ERP) in the few gigawatts (GW) range (at least up to 5.1 GW). Heating with higher frequencies results in an increase in ERP and allows to focus the pump power on a smaller point in the ionosphere, which again increases the heating efficiency [22,23,24].

In the world there are other IHs: Russia (SURA) operates between 4.5 to 9.3 MHz with a PP of 750 kilowatts (750 kW) and an ERP of 190 MW; Norway (EISCAT), 3.85 to 8 MHz, PP of 1.2 MW and ERP of 1.2 GW; Peru (JRO), 50 MHz with a PP of 6 MW (Figs. 1, 4) [25]. IHs can propagate their HF beams over very long distances, for example from Norway to Antarctica [26].

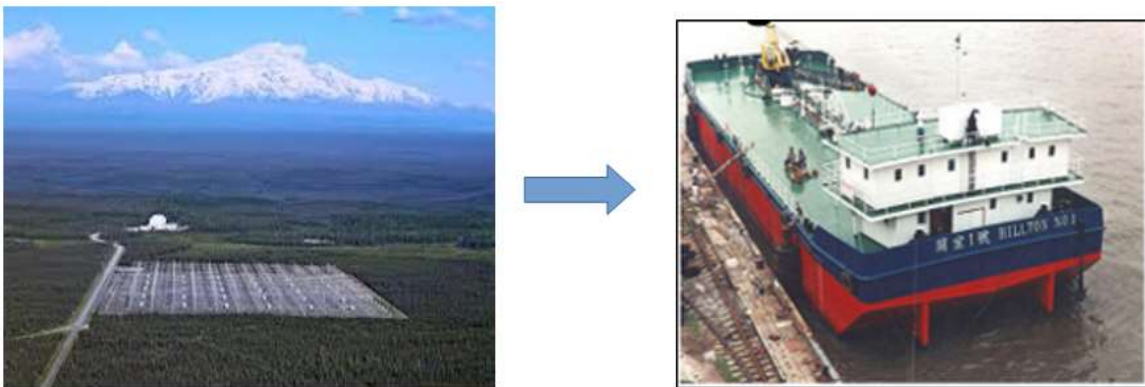
Scientists are also working on the construction of mobile IHs (on the barge of a ship) with the same technical capabilities as HAARP (Fig. 2). These studies are supported by the Air Force Office of Scientific Research [27,28,29,30].

#### 2.1.1.1 Ionospheric heater effects on weather

The experiments produced by HAARP generated unprecedented disturbances in the ionosphere [22]. Although the UAF states that HAARP cannot alter meteorology, B. Eastlund, whose applications initiated the development of HAARP [31,32,33], asserts that HAARP's capabilities are adequate to generate weather control [34]. According to a university report, written in 1998, the whole truth about HAARP would not officially be disclosed. This technology can lead to dangerous imbalances for the environment and people [35]. The 1999 European Parliament report states that HAARP created holes in the ionosphere and can be used as a directed energy weapon to induce climate disruption and manipulate global weather patterns [36,12].



**Fig. 1. JRO (Peru) [25]**



**Fig. 2. Research for the development of a mobile IH operating with the same technology as HAARP (left) but on a surface 20 times smaller [28]**

When the ionosphere was heated by an IH (SURA (Russia)), a decrease (up to 20%) in the intensity of the ozone emission spectrum (mesosphere: 60 km) was measured [37]. Eastlund's patent allows the production of artificial ionized regions from sea level to around 80 km [34]. Since the heating altitude can be stratospheric, the ozone layer located at this level can be altered.

Atmospheric gravity waves, which appear during vertical movements of air parcels, can have a powerful impact on the behavior of extreme weather events (rain and temperature extremes, hurricanes, tornadoes, tsunamis) [38]. Studies have shown that a powerful radio emission from HAARP or SURA generates atmospheric gravity and acoustic waves in the ionosphere [37,39,40,41,42]. Internal gravity waves

generated by ionospheric heating, including in the upper atmosphere, propagating down to mesospheric heights, change the temperature of the mesosphere [37]. Eastlund specified in his patent that generation of heated air regions by powerful IH enables to deposit energy in the air of tropospheric regions that can generate atmospheric acoustic waves or atmospheric gravity waves to modify the steering winds for meteorological modification purposes. It is also possible to influence the distribution of electrical charges in mesocyclones [34].

In addition to modifying wind patterns (as in another patent [31]), the technology developed by the Eastlund's patent [32] enables modification of the atmospheric molecular composition, as well as increasing the concentration of one or more molecules in an

atmospheric region (e.g. ozone, nitrogen, etc.).

It is important to note that two patents relating to HAARP technology are classified as a directed energy weapon [32] and a device or method for influencing weather conditions [34]. Therefore, in accordance with the European Parliament's 1999 report [36,12], an IH such as HAARP has the capacity to be used to modify the climate.

### **2.1.2 Other apparatus sending electromagnetic beams into the ionosphere**

Numerous powerful military very low frequency (VLF) transmitters (Figs. 3, 4) induce significant disturbances and heating of the ionosphere, which can extend laterally for several thousand kilometers [43,44].

Among all the instruments that send electromagnetic waves into the ionosphere to study it, there are:

- Incoherent scatter radar (ISR), designed to probe the ionosphere in order to understand density, temperature and movement speed of the plasma. They must be built with sufficiently large power (megawatts) and apertures (usually hundreds of square meters) (Fig. 4) [19,46].

- Some high-powered military radars (Fig. 4) [45].

- Super Dual Auroral Radar Network (SuperDARN). An international network of ~40 low-power HF radars, operate between 8 and 22 MHz, located throughout the northern and southern hemispheres [47].

- Nerc MST Radar Facility (UK), Chung-Li VHF radar (China), EAR (Japan) [47].

The large number of radio transmitters emit waves of different wavelengths into the ionosphere, to which satellites must be added, contributing to environmental, weather and climate changes [37,48] (See also section 3.2). Note that individually, these devices don't behave exactly like IHs, but it's their quantity that inevitably induces environmental disturbance.

## **2.2 Links between Earthquakes and Electromagnetic Waves**

### **2.2.1 Earthquakes triggered by electromagnetic impulses**

Tectonic weapon has been a military objective since the Second World War. In 1944, an English scientist created an earthquake bomb [49]. Later, Soviet programs worked on triggering earthquakes by electromagnetic impulses [50].



**Fig. 3. Australia, powerful VLF transmitter (North West Cape (NWC) transmitter: Naval Communication Station Harold E. Holt) [45]**



**Fig. 4. \* IH; ♦ Some ISR; ■ Some military radar. (Realized from references [21,25,45,46]).**

In the 1970s, Russian scientists discovered that electromagnetic impacts on rocks and faults in the Earth crust in the stress-strain state could trigger earthquakes. Originally, this method was studied with the aim of triggering small earthquakes to release tectonic stresses in order to prevent destructive earthquakes. Russian scientists therefore developed a mobile magneto-hydrodynamic (MHD) generator (Pamir-1), able to generate a lot of energy in a very short time and convert it into electricity. This system was perfected in the years that followed. Thus, using a pulsed MHD-generator (Pamir-1, Pamir-2) or a more economical electric-pulsed system (ERGU-600-2), a ground electric dipole with electrode spacing of 3 to 4.2 km, current pulses injected into the Earth's crust, creating strong local earthquake activation after 2 to 7 days and continuing for several days (depending on the apparatus used). Electromagnetic pulses accelerate the release of energy stored in the medium during tectonic processes, in the form of relatively weak earthquakes. The authors point out that earthquakes depend not only on triggers, but also on the nature and geological properties of the region. Consequently, in a metastable seismic zone, low-power electromagnetic pulses may be enough to trigger a cascade of small tremors, leading to a disastrous earthquake [51,52,53,54].

In 1995, a high-power MHD generator, Pamir-3U (PP ~15 MW), was constructed by the Institute of High Temperatures of the Russian Academy of Sciences and delivered to the U.S. Air Force. It is a self-contained portable power system that can

be transported to various operational locations and for possible use with advanced weapons applications (Fig. 5) [55,56].

## 2.2.2 Could an IH such as HAARP trigger an earthquake?

### 2.2.2.1 Parameters measured before and during an earthquake

Before the very strong earthquake in Japan on March 11, 2011, significant variations in the total electron content (TEC) of the ionosphere were observed [58,59], as well as a warming of the atmosphere above the epicenter [58]. These anomalies have been identified as short-term precursors associated with some of the most destructive recent earthquakes. Some authors argue that radon release from the earth's crust would act through a series of events to induce heat and atmospheric conductivity [58,60]. Other authors stipulate that TEC anomalies are triggered and managed by a large-scale electric field [61,62].

The occurrence of disturbances (increases) in the ultra-low frequency (ULF), extremely low frequency (ELF), VLF wave ranges has also been observed prior to strong earthquakes [63,64,65,66].

Literature shows that an earthquake generates microwaves and that microwaves can contribute to the triggering of an earthquake (depending on the energy state of the earthquake focus). Indeed, the earthquake focus is a permanent



**Fig. 5. Pamir-3U MHD system [56,57]**

generator of microwaves, but it is also a microwave receiver. This leads to a self-triggering mechanism due to the microwaves generated by the earthquake focus itself. Microwaves stimulate the rock, causing its dislocation, which in turn generates microwaves. The rocks therefore appear to be penetrable by microwaves [67].

#### *2.2.2.2 Ionospheric disturbance can trigger an earthquake*

A magnetic storm caused by a solar flare can also trigger a release of energy stored in the Earth. Solar electromagnetic flares disrupt the conductivity of the lower ionosphere, also generating geomagnetic field disturbances. Absorption of ionizing solar radiation will induce variations of telluric current density in seismogenic faults, which may lead to an earthquake if the affected area is in a metastable stress-strain state. This change in current density in the Earth's crust is comparable to the variations induced by artificial electromagnetic injections [51]. In addition, the strong correlation between solar activity (solar wind) and major earthquakes, resulting from the modulation of proton density and thus the electrical potential between the ionosphere and the Earth, is likely to be the cause of the luminous phenomena visible before, or accompanying, a large earthquake [68].

Thus, the scientific literature not only shows that earthquakes influence certain parameters of the

ionosphere, but also that ionospheric disturbances can have an impact on the lithosphere.

#### *2.2.2.3 What is HAARP able to do ?*

It should be pointed out that, among HAARP's objectives, military reports show that the generation of low-frequency radio waves is also used for tomography of the earth, i.e. detection and imaging of underground structures [69,70]. HAARP could therefore first identify metastable zones in seismic areas.

We have previously seen that an IH such as HAARP seriously disrupts the ionosphere [22]. Moreover, it can create irregularities of the ionospheric TEC (such as enhancement) by heating localized regions of the ionosphere [23,34,71].

The generation of ULF/ELF/VLF waves in the ionosphere by modulated heating with high-power HF waves is one of the most important objectives of an IH [21,23,72,73].

Through heating, HAARP can create artificial ionization layers, produce magnetic field disturbances, various luminous structures, airglow and artificial auroras, sometimes visible to the naked eye [74,75].

Thus, all the parameters that appear in the ionosphere and atmosphere before a strong earthquake can be generated by HAARP. Moreover, since ionospheric disturbances linked

to magnetic storms of solar origin can trigger earthquakes, and HAARP is capable of disturbing the ionosphere to the point of creating local artificial auroras - i.e. comparable to what a magnetic storm is capable of doing - it seems justified to consider the possibility that an IH like HAARP could be at the origin of at least some parameters acting in cascade to produce an earthquake. In 2011, although not published in a peer-reviewed journal, Dr. F. De Aquino (Professor of Physics at the State University of Maranhao (Brazil), Titular Researcher at the National Institute for Space Research) demonstrated that high-power ELF radiation generated by HF from an IH, such as HAARP, can cause earthquakes, cyclones, and strong localized heating [76].

In terms of microwaves, HAARP's ability to create an ionospheric mirror allows microwave beams to be used over long distances [77,78].

### **2.3 Other Electromagnetic Radiation Frequencies for Weather Control**

A patent explains how a device, which can be used as a military weapon, can produce lightning, thunder and hurricanes by means of high frequency sound waves generated by radar or other microwave or high frequency emission devices [79].

The laser allows lightning control, water vapor condensation, fog formation and dissipation, and light scattering (albedo) from high altitude clouds for radiative forcing management [80].

## **3. SOLAR GEOENGINEERING BY SAI**

### **3.1 Official Explanations are Not Consistent with Observations and Measurements**

According to the authorities, weather modification technology called solar geoengineering by stratospheric aerosol injection (introduction of tiny reflective particles into the upper atmosphere, to bounce part of the sun's light towards space) is not currently used [13]. The World Meteorological Organization (WMO), representing the only authoritative reference (International Cloud Atlas) for cloud identification, classified persistent aircraft trails as "aircraft condensation trails" to designate them as new

clouds: Cirrus homogenitus [13], Cirrocumulus stratiformis homomutatus [81].

Although the majority of scientific literature agrees with this cloud classification, it specifies that these aircraft trails cause deleterious effects on health, the environment, the quality of the air and act strongly on the climate by warming it up much more than by CO<sub>2</sub> [13,82,83]. Moreover, the combustion of alternative aviation fuels generates small non-volatile particles, promotes the formation of contrails and widespread cirrus clouds [84].

Numerous clues lead to the conclusion that solar geoengineering by SAI has been in use for a long time. For several years, scientific articles and official documents report effects on health and the environment (no more blue skies, diseases, pollution, ozone depletion, quality and quantity of solar radiation, drought, electrical properties of atmosphere, etc.) similar in all aspects to those that would be detected if solar geoengineering by SAI was used (Fig. 6) [13].

Scientific publications that do not acknowledge the existence of the use of solar geoengineering by SAI nevertheless shows that persistent aircraft trails are composed of many metal particles [13]. Using solar spectrometry irradiance measurements, a study showed that these persistent aircraft trails are not ice crystal condensation trails, but chemical trails [85]. Documents linking these persistent trails to chemical spray weather modification technology show that the content appears to be particularly concentrated in aluminum (Al), barium (Ba), nanoparticles and sulfur [13]. Neither Al and Ba, nor nanoparticles are monitored in international air pollution analyses [86].

### **3.2 SAI Effects and Their Coupling with Electromagnetic Waves**

A 1996 military report showed that electromagnetic technology requires chemical spraying to manipulate weather, added to the use of nanotechnology to create artificial meteorology around 2025 (e.g. smart clouds composed of microscopic computer particles), so that deliberate actions can be taken for natural weather phenomena [78]. This was corroborated in 2009 by a U.S. Air Force report, stated that around 2030, with the help of nanotechnology, the US military will be able to create (not just modify) weather (storms, fog, clouds, etc..) in a defined area [87].



As SAI damage the ozone layer [13,88], which has been corroborated by a sulfate geoengineering model [89], solar radiation becomes poor quality and very aggressive, so much so that ultraviolet (UV) radiation in the form of UV-C, in the range 250-300 nm, has been measured at the Earth's surface [90]. SAI increase the local warming of the atmosphere through heat transfer caused by the particles [10], and increase the electrical conductivity of the atmosphere due to the metal particles [13]. Eastlund's discoveries [32] allow a technology like HAARP to alter solar absorption patterns by constructing one or more plumes of atmospheric particles which will act as a lens or focusing device. Moreover, by using diverging field lines, and with the availability of sufficient energy transmitted by an IH, particles of different sizes with desired characteristics

such as tackiness, reflectivity, absorptivity, etc., can be transported for specific purposes or effects (e.g. concentrating large amounts of sunlight on specific parts of the earth) [32]. In relation to this subject, a study demonstrated that the physical properties of suspended atmospheric microparticles (which increases global air pollution, affects health as well as local weather and climate by scattering and absorbing solar radiation) are significantly changed under the continuous action of electromagnetic radiation. Particle number increases, particle morphology is distorted with increasing electromagnetic action time, microparticle motion characteristics are affected, particle trajectory is modified and electromagnetic field promotes particle agglomeration in the direction corresponding to the magnetic field force [91].



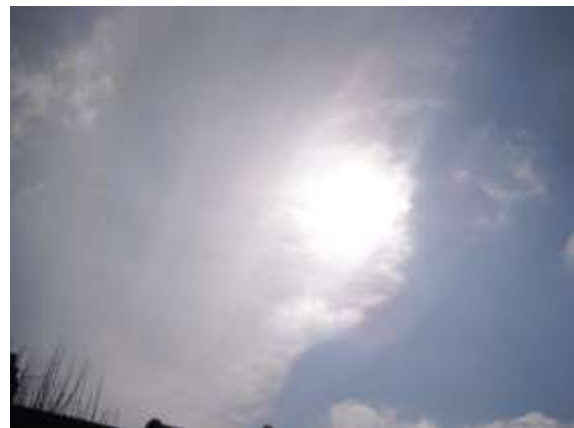
a



b



c



d

**Fig. 6. The photographs were taken by the author himself, located in France, with a Nikon Coolpix L16 camera. a) : Near Toulouse city (south) Sept 5, 2021, 16h37 ; b; c; d) Near Lille city (north), Aug 12, 2021, 14h58; April 11, 2022, 13h40; April 22, 2023, 15h53. Persistent aircraft trails are mostly directed towards the sun and spread out, leaving a veiled sky, gradually becoming white**

Consequently, an IH, such as HAARP, and solar geoengineering by SAI can act in symbiosis to optimize their respective actions on climate. That's why, in the military weather control roadmap, atmospheric spraying of chemicals (mainly metallic) is timed to coincide with the launch of HAARP (in the 90s) [13].

In addition, atmospheric particles are constantly stimulated by the frequencies of other devices sending electromagnetic beams into the ionosphere (section 2.1.2). For example, over-the-horizon radars (OTHs) are military radars that continuously transmit HF waves (between 3 and 30 MHz) over thousands of kilometers [45]. Consequently, these actions also have an influence on the weather and climate.

### 3.3 Funding, Patents, Similar Technology

Spy agencies (CIA and others), very interested in geoengineering, fund climate research with the aim of finding a weather weapon [92,93]. Note that Bill Gates is also among the powerful financial backers of this technology [94].

Among the dozens of patents explaining numerous weather modification techniques, several concern solar geoengineering by SAI, describing, among other things, certain components used and spreading methods [13,95,96,97].

Although not part of geoengineering, there is a similar and equally polluting method. Indeed, spreading Sahara sand is another technology to modify the scattering of sunlight in the upper atmosphere [98]. This could explain the episodes (or some of them) in recent years of sand dust fallout from the Sahara in France and Spain, dimming the sky and causing air pollution [99].

### 3.4 Wildfires

According to the United Nations Environment Programme, there is a link between climate change and uncontrollable and extreme wildfires [100]. However, the sulfur and aluminum nanoparticles in SAI increase the risk, through dryness, of wildfires [13,101]. Aluminum nanoparticles are also well known for their pyrophoric capacity and the high energy they emit during combustion [102], thus amplifying the risk and severity of wildfires. In addition, geoengineering simulations showed that SAI

induces drought [103], leading to an increase in the frequency of extreme fires in some regions [104].

It would seem that 50% of forest fires in the western United States are caused by lightning [80], but it has also been reported (in section 2.3) that some directed energy technologies are able to trigger and control lightning [79,80]. A military document explains that directed energy weapons (DEWs), composed for example of lasers, radio frequency devices, high power microwave, millimeter wave and particle beam technology, can ignite destructive fires, at range. Moreover, as it is difficult to locate the source of the directed energy, DEWs are often used in special or covert operations. Authors of this report assert that the world has reached a "tipping point" in which directed energy is now essential to successful military operations [105]. DEWs using specific military devices (aircraft, ship, combat vehicle, etc.) are not science fiction [106]. Note that forest fires are part of the environmental weapons implemented by the US military [107].

## 4. CAUSES OF THE INCREASE IN NATURAL DISASTERS OVER THE PAST 20 YEARS

In 2006, Dr. D. Deming (geologist and geophysicist) testified before the US Senate committee on the Environmental and Public Works that the media are overwhelmingly biased on the issue of global warming, trying to link every natural disaster to global warming. This constitutes significant disinformation for the public on climate and environmental issues [108].

Intergovernmental Panel on Climate Change (IPCC) explains in its reports that since the 1850-1900 period, the climate has been increasingly disrupted (in particular warmed) by a powerful anthropogenic factor, greenhouse gases, whose main representative is CO<sub>2</sub> emitted by the combustion of fossil fuels. This global warming would increase extreme weather, climate and environmental events (heat and cold waves, storms, hurricanes, tornadoes, droughts, floods, wildfires, air pollution (worsened by heatwaves and wildfires) etc.) [109]. For some scientists and media, climate change could also trigger earthquakes, tsunamis and volcanic eruptions [110].

However, the IPCC's international authority on climate policy has been achieved by suppressing

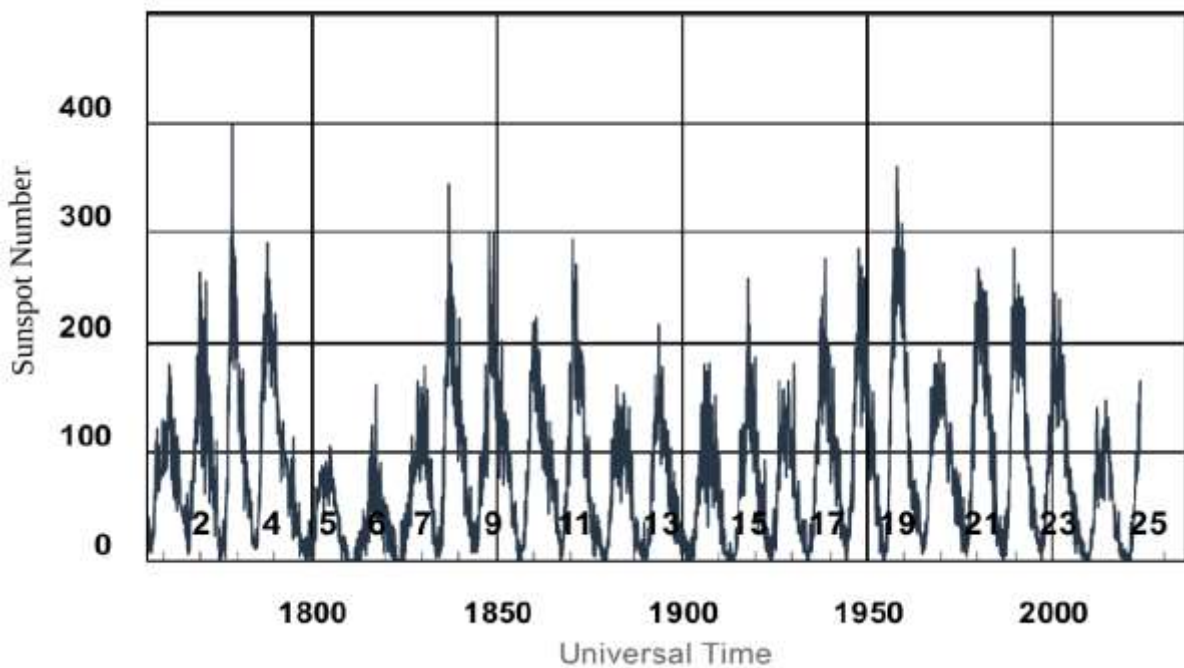
dissenting views on any issues where there is still scientific disagreement [111]. Numerous publications show that the IPCC's climate models fail to take account of natural multidecadal, secular and millennial climate cycles, overestimate global warming (urbanization bias) and, in many cases, are not validated by observed climate [111,112,113,114,115,116,117,118,119,120,121]. In addition, IPCC reports on current climate causes (CO<sub>2</sub> as the culprit of climate change) are strongly contested by thousands of scientists [122,123,124,125,126,127,128].

Thus, the official explanations for the increase in the number and intensity of extreme events are unsatisfactory. A hypothesis would be solar activity. However, although there are many solar cycles (Schwabe cycle (Schwabe 11-year sunspot cycle), Hale cycle (22-years), Gleissberg cycle (~85 years), Jose cycle (~178 years), Suess-de Vries cycle (~208 years), Eddy cycle (~1000 years), and Bray-Hallstatt cycle (~2300 years)), whose interactions are complex [129], and which can superimpose on and influence natural terrestrial oscillations [113,130,131,132], the Schwabe cycle shows weak solar activity

since cycle 24 (2008 to 2019) (Fig. 7), and this low activity will continue until ~2050 [133,134,129]. Consequently, the rise in frequency and intensity of at least some extreme environmental events in recent years cannot be attributed to an increase in solar activity.

For the World Economic Forum (WEF), it is necessary to unlock \$3 Trillion a year for climate and nature [136]. There are huge financial interests behind climate policy, as well as the progressive implementation of energy control laws [137], and taxing carbon as part of the global governance plan outlined by the WEF [138].

Given that the IPCC's argument on the increase in extreme events in recent years lacks a significant degree of objectivity, and that global climate management generates enormous financial stakes, it would seem that the most plausible explanation for the rise in extreme events (at least some of them) over the last 20 years is not natural, but rather due to the use of military climate and environmental modification technologies.



**Fig. 7. Sunspot cycles according to years. monthly values. produced from: space weather prediction center [135]**

## 5. CONCLUSION

Throughout this article, we have seen that the scientific literature reveals that meteorological, climatic and environmental manipulation techniques have been studied for over half a century. The strongest of these technologies have always been intended for military use, i.e. as weapons able to create the illusion of a natural event. Numerous clues indicate that these climate and environmental weapons have been in use for several years. Some of these technologies are totally denied by the authorities and the media, while others are used under scientific justifications. However, many governments are aware of the existence and/or use of these weapons. Since they consent to the activation of these environmental weapons, this implies not only that carbon emissions legislation is based on a climate lie, but also that these governments are partly responsible for the destruction of wildlife and the death of many thousands of human beings every year.

There is an urgent need for more investigations, free of conflicts of interest, into the real causes of natural disasters.

## COMPETING INTERESTS

Author has declared that no competing interests exist.

## REFERENCES

1. UNDP (United Nations Development Programme). UNDP Signals Spotlight 2023: Insights from UNDP's Futures Network. Theme 6: Regulating the unknown; 2023. Available: <https://www.undp.org/future-development/signals-spotlight/regulating-unknown> (Accessed April 25, 2023).
2. Raczek T. Geoengineering: Reining in the weather warriors. Chatham House; 2022. Available: <https://www.chathamhouse.org/2022/02/geoengineering-reining-weather-warriors> (Accessed April 25, 2023).
3. Flossmann AI, M Manton, Abshaev A, Brintjes R, Murakami M, Prabhakaran T, Yao Z. Review of Advances in Precipitation Enhancement Research. Bull Amer Meteor Soc 2019;100:1465-80. Available: <https://doi.org/10.1175/BAMS-D-18-0160.1>
4. Munoz LMP. Seeding Change in Weather Modification Globally. WMO; 2017. Available: <https://public.wmo.int/en/resources/bulletin/seeding-change-weather-modification-globally> (Accessed April 25, 2023).
5. Abshaev MT, Abshaev AM, Aksenov AA, Fisher JV, Shchelyaev AE, Al Mandous A, et al. Results of field experiments for the creation of artificial updrafts and clouds. Atmosphere. 2023;14:136. Available: <https://doi.org/10.3390/atmos14010136>
6. Cohen A. How Dubai is using laser drones to shock rainwater out of the sky. Forbes; 2021. Available: <https://www.forbes.com/sites/arielcohen/2021/07/28/dubai-is-using-laser-drones-to-shock-rainwater-out-of-the-sky/> (Accessed April 27, 2023).
7. Ponte L. War of the Weathers. The New York Times; 1976. Available: <https://www.nytimes.com/1976/04/17/archives/war-of-the-weather.html> (Accessed March 14, 2023).
8. Hersh SM. Rainmaking is used as weapon by U.S. The New York Times; 1972. Available: <https://www.nytimes.com/1972/07/03/archives/rainmaking-is-used-as-weapon-by-us-cloudseeding-in-indochina-is.html> (Accessed April 2, 2023).
9. Mampaey L. La Convention ENMOD et le Programme HAARP : Enjeux et portée. Groupe de recherche et d'information sur la paix et la sécurité (GRIP) (The ENMOD Convention and the HAARP Program: Issues and scope. Group for Research and Information on Peace and Security (GRIP)); 2008. French. (Accessed April 2, 2023). Available: <https://www.grip.org/la-convention-enmod-et-le-programme-haarp-enjeux-et-portee/>
10. Herndon JM, Whiteside M, Baldwin I. The ENMOD Treaty and the Sanctioned Assault on Agriculture and Human and Environmental Health. Agrotechnology. 2020;9:191. DOI: 10.35248/2168-9881.20.9.191
11. New York Times. Congress Study Backs Research on Weather; 1974. Available: <https://www.nytimes.com/1974/08/29/archives/congress-study-backs-research-on-weather.html>

- (Accessed April 10, 2023).
12. Deruelle F. The different sources of electromagnetic fields: Dangers are not limited to physical health. *Electromagn Biol Med.* 2020;39:166-75.  
DOI: 10.1080/15368378.2020.1737811
  13. Deruelle F. Are persistent aircraft trails a threat to the environment and health? *Rev Environ Health* 2021;37:407-21.  
Available:<https://doi.org/10.1515/reveh-2021-0060>
  14. Senate Hearing, 93rd Congress - Weather modification: Hearings before the Subcommittee on Oceans and International Environment of the Committee on Foreign Relations, Ninety-third Congress, second session, on the need for an international agreement prohibiting the use of environmental and geophysical modification as weapons of war and briefing on department of defense weather modification activity; 1974.  
Available:<https://www.govinfo.gov/app/details/CHRG-93shrg29544O/summary> (Accessed April 10, 2023).
  15. US Air University. Spacecast 2020 — assessing US military needs in space. *Space Policy*; 11:193-202.  
Available:[https://doi.org/10.1016/0265-9646\(95\)90037-3](https://doi.org/10.1016/0265-9646(95)90037-3)
    - Volume 1. <https://apps.dtic.mil/sti/citations/ADA295142>
    - Volume 3. <https://apps.dtic.mil/sti/citations/ADA295141>
    - Volume 4. <https://apps.dtic.mil/sti/citations/ADA295146>(Accessed November 3, 2023).
  16. Space preservation Act. 2001. H.R. 2977. October 2nd, Sec 7.  
Available:<https://www.congress.gov/107/bills/hr2977/BILLS-107hr2977ih.pdf> (Accessed September 19, 2023).
  17. MacDonald GJF. Chap “How to Wreck the Environment”, pp 191-213, from Calder N’s book, “Unless Peace Comes. A Scientific Forecast of New Weapons”. Pelican Books; 1970.
  18. Andersson M. At war over geoengineering. *The Guardian*; 2012.  
Available:<https://www.theguardian.com/environment/2012/feb/09/at-war-over-geoengineering> (Accessed March 26, 2023).
  19. Yue X, Wan W, Ning B, Jin L, Ding F, Zhao B, et al. Development of the Sanya incoherent scatter radar and preliminary results. *Journal of Geophysical Research: Space Physics* 2022;127:e2022JA030451.  
Available:<https://doi.org/10.1029/2022JA030451>
  20. Robinson TR, Yeoman TK, Dhillon RS. Environmental impact of high power density microwave beams on different atmospheric layers. Radio and Space Plasma Physics Group, Department of Physics and Astronomy, University of Leicester, Leicester LE1 7RH, UK. 2004. ESA Contract number: 18156/04/NL/MV.  
Available:[https://www.esa.int/gsp/ACT/doc/ARI/ARI%20Study%20Report/ACT-RPT-NRG-ARI-04-9102-Environmental\\_impacts\\_of%20microwave\\_beams-Report.pdf](https://www.esa.int/gsp/ACT/doc/ARI/ARI%20Study%20Report/ACT-RPT-NRG-ARI-04-9102-Environmental_impacts_of%20microwave_beams-Report.pdf) (Accessed September 24, 2023).
  21. HAARP. University of Alaska Fairbanks; 2023.  
Available:<https://haarp.gi.alaska.edu/> (Accessed February 24, 2023).
  22. Bernhardt PA, Siefing CL, Briczinski SJ, McCarrick M, Michell RG. Large ionospheric disturbances produced by the HAARP HF facility. *Radio Sci* 2016;51:1081-93.  
DOI:10.1002/2015RS005883
  23. Streltsov AV, Berthelier JJ, Chernyshov AA, Frolov VL, Honary F, Kosch MJ, et al. Past, Present and Future of Active Radio Frequency Experiments in Space. *Space Sci Rev* 2018;214:118.  
Available:<https://hal-insu.archives-ouvertes.fr/insu-01916927/document>
  24. Narayan AH. A highly efficient, megawatt class constant impedance tunable power extraction circuit for mobile ionospheric heaters. University of Maryland. Thesis Defense; 2020.  
Available:<https://doi.org/10.13016/vhln-r6io>
  25. Other Ionospheric Heaters; 2023.
    - Russia (Sura): [https://en.wikipedia.org/wiki/Sura\\_Ionospheric\\_Heating\\_Facility](https://en.wikipedia.org/wiki/Sura_Ionospheric_Heating_Facility)
    - Norway (European Incoherent Scatter Scientific Association (EISCAT)): Available:<https://en.wikipedia.org/wiki/EISCAT>; <https://eiscat.se/about/sites/eiscat-tromso-site/>
    - Peru (Jicamarca Radio Observatory (JRO)): Available:[https://en.wikipedia.org/wiki/Jicamarca\\_Radio\\_Observatory](https://en.wikipedia.org/wiki/Jicamarca_Radio_Observatory)

- (Accessed April 7, 2023).
26. Koloskov A, Yampolski Y, Milikh G, Mishin E, Zalozovski A, Reznichenko A, Rietveld M, Varberg E, Vierinen J. First results of the HF heating campaign EISCAT-Ukraine on June 2020. URSI GASS, Rome, Italy; 2021.  
Available:<https://www.ursi.org/proceedings/procGA21/papers/URSIGASS2021-Fr-H01-PM3-1.pdf>  
(Accessed April 7, 2023).
  27. Beaudoin BL, Ting A, Gold S, Narayan AH, Fischer R, Karakkad JA, Nusinovich GS, Antonsen TM. Experimental studies on radio frequency sources for ionospheric heaters. *Physics of Plasmas* 2018;25:103116.  
Available:<https://doi.org/10.1063/1.5052183>
  28. Beaudoin BL Antonsen TM, Karakkad JA, Narayan AH, Nusinovich GS, Ruisard KJ. Scaled Studies on Radio Frequency Sources for Megawatt-Class Ionospheric Heaters. International Particle Accelerator Conference (9th); 2018.  
Available:<https://accelconf.web.cern.ch/ipac2018/papers/thpml055.pdf>
  29. Esser B, Mauch D, Dickens J, Mankowski J, Neuber A. Tunable, electrically small, inductively coupled antenna for transportable ionospheric heating. *Radio Science* 2018;53:496-508.  
Available:<https://doi.org/10.1002/2017RS006484>
  30. Esser B, Mankowski JJ, Dickens JC, Neuber AA. Geometry tuning of an electrically small antenna for ionospheric heating. *Radio Science* 2019;54:494-502.  
Available:<https://doi.org/10.1029/2018RS006785>
  31. Eastlund BJ, Ramo S. Method and apparatus for creating an artificial electron cyclotron heating region of plasma; 1987.  
Available:<https://patents.google.com/patent/US4712155A/en>  
(Accessed February 24, 2023).
  32. Eastlund BJ. Method and apparatus for altering a region in the earth's atmosphere, ionosphere, and/or magnetosphere; 1987.  
Available:<https://patents.google.com/patent/US4686605A/en>  
(Accessed February 24, 2023).
  33. Eastlund BJ. Method for producing a shell of relativistic particles at an altitude above the earth's surface; 1991.  
Available:<https://patents.google.com/patent/US5038664A/en>  
(Accessed February 24, 2023).
  34. Eastlund BJ. Cosmic particle ignition of artificially ionized plasma patterns in the atmosphere; 2007.  
Available:<https://patents.google.com/patent/US20070238252>  
(Accessed February 24, 2023).
  35. Mampaey L. Le programme HAARP. Science ou désastre? Groupe de recherche et d'information sur la paix et la sécurité (GRIP), Université Libre de Bruxelles (ULB). (The HAARP program. Science or disaster? Group for Research and Information on Peace and Security (GRIP), Free University of Brussels (ULB)); 1998. French.  
Available:<http://archive3.grip.org/fr/node/15?language=fr>  
(Accessed April 4, 2023).
  36. European Parliament. Report – A4-0005/1999: REPORT on the environment, security and foreign policy; 1999.  
Available:[https://www.europarl.europa.eu/doceo/document/A-4-1999-0005\\_EN.html](https://www.europarl.europa.eu/doceo/document/A-4-1999-0005_EN.html)  
(Accessed March 14, 2023).
  37. Bakhmetieva NV, Kulikov YY, Zhemyakov IN. Mesosphere ozone and the lower ionosphere under plasma disturbance by powerful high-frequency radio emission. *Atmosphere*. 2020; 11:1154.  
Available:<https://doi.org/10.3390/atmos1111154>
  38. Mann A. To improve weather and climate models, researchers are chasing atmospheric gravity waves. *Proceedings of the National Academy of Sciences*. 2019;116:19218-19221.  
Available:<https://doi.org/10.1073/pnas.1912426116>
  39. Mishin E, Sutton E, Milikh G, Galkin I, Roth C, Förster M. F2-region atmospheric gravity waves due to high-power HF heating and subauroral polarization streams. *Geophys Res Lett*. 2012;39:L11101.  
DOI: 10.1029/2012GL052004
  40. Pradipta R, Lee MC. Investigation of acoustic gravity waves created by anomalous heat sources: Experiments and theoretical analysis. *Phys Scr*. 2013; 014028.  
DOI:10.1088/0031-8949/2013/T155/014028
  41. Kulilov YY, Frolov V, Grigor'ev GI, Demkin VM, Komrakov GP, Krasilnikov AA, Ryskin VG. Response of mesospheric ozone to the heating of the lower

- ionosphere by high-power HF radio emission. *Geomagn Aeron.* 2013;53:96–103.  
Available: <https://doi.org/10.1134/S0016793213010118>
42. Pradipta R, Lee MC, Cohen JA, Watkins BJ. Generation of artificial acoustic-gravity waves and traveling ionospheric disturbances in HF heating experiments. *Earth Moon Planets* 2015;116:67-78.  
Available: <https://doi.org/10.1007/s11038-015-9461-2>
  43. Bell TF, Graf K, Inan US, Piddyachiy D, Parrot M. Demeter observations of ionospheric heating by powerful VLF transmitters. *Geophys Res Lett.* 2011;38:L11103.  
DOI: 10.1029/2011GL047503
  44. Graf KL, Spasojevic M, Marshall RA, Lehtinen NG, Foust FR, Inan US. Extended lateral heating of the nighttime ionosphere by ground-based VLF transmitters. *J Geophys Res Space Physics* 2013;118:7783-97.  
DOI: 10.1002/2013JA019337
  45. Military radar; 2023.
    - US military complex in the Marshall Islands (Advanced Research Projects Agency Long-Range Tracking and Instrumentation Radar (ALTAIR)).  
Hunt SM, Rich FJ, Ginet GP. Ionospheric Science at the Reagan Test Site. *Lincoln Laboratory Journal* 2012;19:2.  
Available: [https://www.ll.mit.edu/sites/default/files/page/doc/2018-05/19\\_2\\_6\\_Hunt.pdf](https://www.ll.mit.edu/sites/default/files/page/doc/2018-05/19_2_6_Hunt.pdf)
    - Australia (Jindalee Operational Radar Network (JORN)).  
Available: [https://en.wikipedia.org/wiki/Jindalee\\_Operational\\_Radar\\_Network](https://en.wikipedia.org/wiki/Jindalee_Operational_Radar_Network)
    - Australia (Naval Communication Station Harold E. Holt)  
Available: [https://en.wikipedia.org/wiki/Naval\\_Communication\\_Station\\_Harold\\_E.\\_Holt](https://en.wikipedia.org/wiki/Naval_Communication_Station_Harold_E._Holt)
    - Over-the-horizon radar (OTH): [https://en.wikipedia.org/wiki/Over-the-horizon\\_radar](https://en.wikipedia.org/wiki/Over-the-horizon_radar)  
(Accessed March 14, 2023).
  46. Incoherent Scatter Radar. 2023.
    - India: Advanced Indian Mesosphere-Stratosphere-Troposphere Radar (AIR).  
Available: <https://www.narl.gov.in/>
    - Japon: Shigaraki MU Observatory.  
Available: <https://www.rish.kyoto-u.ac.jp/mu/en/detail.html#outline>
  - Russia: (Irkutsk Incoherent Scatter Radar (IISR)).  
Kushnarev DS, Lebedev VP, Khakhinov VV, Evstifeev SE, Zarudnev VE. Modernization of the Irkutsk Incoherent Scatter Radar. *Solar-Terrestrial Physics* 2017;3:76-81.  
DOI: 10.12737/stp-33201708
  - Alaska and Canada (Advanced modular incoherent scatter radar (AMISR)).  
Available: <https://amisr.com/amisr/>
  - United States (Millstone Hill facility).  
Available: <https://www.haystack.mit.edu/about/haystack-telescopes-and-facilities/millstone-hill-incoherent-scatter-radar/>
  - Spitzbergen (EISCAT Svalbard Radar (ESR)). <https://eiscat.se/about/sites/eiscat-svalbard-radar/>
  - Norway (near Tromsø, EISCAT-UHF and EISCAT-VHF radars).  
Available: <https://eiscat.se/about/sites/eiscat-tromso-site/>
  - Ukraine (Institute of Ionosphere (IION)).  
Emelyanov LYa, Zhivolup TG. History of the development of IS radars and founding of the Institute of Ionosphere in Ukraine. *Hist Geo Space Sci* 2013;4:7-17.  
Available: <https://doi.org/10.5194/hgss-4-7-2013>
  - China (Qijing incoherent scatter radar (QJISR)).  
Ding Z, Wu J, Xu Z, Xu B, Dai L. The Qijing incoherent scatter radar: system description and preliminary measurements. *Earth Planets Space* 2018;70:87.  
Available: <https://doi.org/10.1186/s40623-018-0859-8>
  - China (Sanya incoherent scatter radar (SYISR)) [19]. Whigham N. A new Chinese radar facility could become a weapon hiding in plain sight. *News.com.au.* 2018.  
Available: <https://www.news.com.au/technology/science/space/a-new-chinese-radar-facility-could-become-a-weapon-hiding-in-plain-sight/news-story/acbe423f03b2e1d042723892bb080bb8>  
(Accessed April 15, 2023).
    47. Other radar. 2023.
      - SuperDARN : <https://superdarn.nssdc.ac.cn/radar/radarList>

- Nerc MST Radar Facility (UK), EAR (Japan): Available: <https://mst.nerc.ac.uk/> ; <https://www.rish.kyoto-u.ac.jp/emu/index-e.html> (Accessed March 15, 2023).
48. Levitt B, Lai H, Manville A. Effects of non-ionizing electromagnetic fields on flora and fauna, part 1. Rising ambient EMF levels in the environment. *Rev Environ Health* 2022;37:81-122. Available: <https://doi.org/10.1515/reveh-2021-0026>
49. The Tallboy Bomb – A Lancaster Delivered Earthquake. 2023. Available: <https://www.bombercommandmuseum.ca/chronicles/the-tallboy-bomb-a-lancaster-delivered-earthquake/> (Accessed July 2, 2023).
50. Levitin, C. Russian documents Set out 'tectonic weapon' research. *Nature* 1996;383:471. Available: <https://doi.org/10.1038/383471a0>
51. Zeigarnik VA, Bogomolov LM, Novikov VA. Electromagnetic earthquake triggering: field observations, laboratory experiments, and physical mechanisms - A review. *Izv, Phys Solid Earth*. 2022;58:30-58. Available: <https://doi.org/10.1134/S1069351322010104>
52. Avagimov AA, Zeigarnik VA. The analysis of the trigger action exerted by electromagnetic fields on a geological medium: Quantitative estimates of the interaction. *Izv, Phys Solid Earth* 2016;52:233-241. Available: <https://doi.org/10.1134/S1069351316010018>
53. Feldman IS, Kliuchkin VN, Novikov V, Zeigarnik VA. MHD Generator for Geophysics. Conference: First International Nobel Scientific Conf. "Innovation Electromagnetic Methods of Geophysics, 5 July, 2007. Salekhard, Russia. Available: [https://www.researchgate.net/publication/344415380\\_MHD\\_Generator\\_for\\_Geophysics](https://www.researchgate.net/publication/344415380_MHD_Generator_for_Geophysics)
54. Zeigarnik VA, Novikov VA, Avagimov AA, Tarasov NT, Bogomolov LM. Discharge of tectonic stresses in the earth crust by high-power electric pulses for earthquake hazard mitigation. 2nd International Conference on Urban Disaster Reduction; 2007. Available: [https://www.researchgate.net/publication/228425672\\_Discharge\\_of\\_Tectonic\\_Stresses\\_in\\_the\\_Earth\\_Crust\\_by\\_High-power\\_Electric\\_Pulses\\_for\\_Earthquake\\_Hazard\\_Mitigation](https://www.researchgate.net/publication/228425672_Discharge_of_Tectonic_Stresses_in_the_Earth_Crust_by_High-power_Electric_Pulses_for_Earthquake_Hazard_Mitigation)
55. Price DW, Swallom DW, Goldfarb VM, Gibbs JS, Sadovnik I, Zeigarnik VA, et al. "PAMIR-3U magnetohydrodynamic generator results," Digest of Technical Papers. Tenth IEEE International Pulsed Power Conference, Albuquerque, NM, USA, 1995;2:1383-88. DOI: 10.1109/PPC.1995.599810. Available: <https://apps.dtic.mil/sti/citations/ADA638550>
56. Swallom DW, Goldfarb VM, Gibbs JS, Sadovnik I, Zeigarnik VA, Aitov NL, et al. "Results from the Pamir-3U pulsed portable MHD power system program," IECEC 96. Proceedings of the 31st Intersociety Energy Conversion Engineering Conference, Washington, DC, USA, 1996;2:830-35. DOI: 10.1109/IECEC.1996.553805. Available: [https://www.researchgate.net/publication/3666784\\_Results\\_from\\_the\\_Pamir-3U\\_pulsed\\_portable\\_MHD\\_power\\_system\\_program](https://www.researchgate.net/publication/3666784_Results_from_the_Pamir-3U_pulsed_portable_MHD_power_system_program) ; Available: <http://www.ihed.ras.ru/mg/Pamir3U.htm#so4>
57. Cyr G, Glover PW. How to make artificial earthquakes; 2009. Available: <https://www.semanticscholar.org/paper/How-to-make-artificial-earthquakes-Cyr-Glover/ad2eaa7a81f908b0b5c3608d412fd41bca7215ae>
58. Ouzounov D, Pulinets S, Romanov A, Romanov A, Tsybulya K, Davidenko D, et al. Atmosphere-ionosphere response to the M9 Tohoku earthquake revealed by multi-instrument space-borne and ground observations: Preliminary results. *Earthq Sci* 2011;24:557-64. Available: <https://doi.org/10.1007/s11589-011-0817-z>
59. Heki K, Enomoto Y. Mw dependence of the preseismic ionospheric electron enhancements. *J Geophys Res Space Physics* 2015;120:7006-20. DOI:10.1002/2015JA021353
60. Parrot M, Tramutoli V, Liu TJY, Pulinets S, Ouzounov D, Genzano N, et al. Atmospheric and ionospheric coupling phenomena associated with large earthquakes. *Eur Phys J Spec Top* 2021;230:197-225. Available: <https://doi.org/10.1140/epjst/e2020-00251-3>



61. Kelley MC, Swartz WE, Heki K. Apparent ionospheric total electron content variations prior to major earthquakes due to electric fields created by tectonic stresses. *J Geophys Res Space Physics* 2017;122:6689-95. DOI:10.1002/2016JA023601
62. He L, Wu L, Heki K, Guo C. The Conjugated Ionospheric Anomalies Preceding the 2011 Tohoku-Oki Earthquake. *Front Earth Sci* 2022;10:850078. Available:https://doi.org/10.3389/feart.2022.850078
63. Ouyang XY, Parrot M, Bortnik J. ULF wave activity observed in the nighttime ionosphere above and some hours before strong earthquakes. *Journal of Geophysical Research: Space Physics* 2020;125:e2020JA028396. Available:https://doi.org/10.1029/2020JA028396
64. Ohta K, Izutsu J, Schekotov A, Hayakawa M. The ULF/ELF electromagnetic radiation before the 11 March 2011 Japanese earthquake. *Radio Sci* 2013;48:589-96. DOI:10.1002/rds.20064
65. Zong J, Tao D, Shen X. Possible ELF/VLF electric field disturbances detected by satellite CSES before major earthquakes. *Atmosphere* 2022;13:1394. Available:https://doi.org/10.3390/atmos13091394
66. Ouzounov D, Pulinets S, Davidenko D, Rozhnoi A, Solovieva M, Fedun V, et al. Transient effects in atmosphere and ionosphere preceding the 2015 M7.8 and M7.3 Gorkha–Nepal Earthquakes. *Frontiers in Earth Science*. 2021;9:757358. Available:https://doi.org/10.3389/feart.2021.757358
67. Buchachenko A. Self-excitation of the earthquakes. *Open Journal of Earthquake Research* 2022;11:18-30. Available:https://doi.org/10.4236/ojer.2022.111002
68. Marchitelli V, Harabaglia P, Troise C, De Natale G. On the correlation between solar activity and large earthquakes worldwide. *Sci Rep* 2020;10:11495. Available:https://doi.org/10.1038/s41598-020-67860-3
69. Stolarczyk LG. Detection and imaging of underground structures by exploiting ELF/VLF radiowaves. Defense Technical Information Center; 2000. Available:https://apps.dtic.mil/sti/citations/DA404941 (Accessed June 25, 2023).
70. Mackie RL. Imaging of underground structure using HAARP. Defense Technical Information Center; 1999. Available:https://apps.dtic.mil/sti/citations/DA398268 (Accessed June 25, 2023).
71. Tereshchenko ED, Khudukon BZ, Rietveld MT, Brekke A. Spatial structure of auroral day-time ionospheric electron density irregularities generated by a powerful HF-wave. *Annales Geophysicae* 1998;16:812-20. Available:https://hal.science/hal-00316409
72. Guo Z, Fang H, Honary F. The Generation of ULF/ELF/VLF Waves in the Ionosphere by Modulated Heating. *Universe* 2021;7:29. Available:https://doi.org/10.3390/universe7020029
73. Chen J, Yang J, Li Q, Yan Y, Hao S, Wang C, et al. ELF/VLF wave radiation experiment by modulated ionospheric heating based on multi-source observations at EISCAT. *Atmosphere* 2022;13:228. Available:https://doi.org/10.3390/atmos13020228
74. Tulegenov B, Streltsov AV, Kendall E, McCarrick MJ, Galkin IA. Artificial aurora produced by HAARP. *Journal of Geophysical Research: Space Physics*. 2019;124:3255-65. Available:https://doi.org/10.1029/2019JA026607
75. Pedersen T, Gerken E. Creation of visible artificial optical emissions in the aurora by high-power radio waves. *Nature* 2005;433:498–500. Available:https://doi.org/10.1038/nature03243
76. De Aquino F. High-power ELF radiation generated by modulated HF heating of the ionosphere can cause Earthquakes, Cyclones and localized heating. 2011. hal-01082992. Available:https://hal.science/hal-01082992
77. Pedersen T, Gustavsson B, Mishin E, Kendall E, Mills T, Carlson HC, Snyder AL. Creation of artificial ionospheric layers using high-power HF waves. *Geophys Res Lett*. 2010;37:L02106. DOI: 10.1029/2009GL041895
78. House TJ, Near Jr JB, Shields WB, Celentano RJ, Husband DM, Mercer A,

- Pugh JE. Weather as a force multiplier : owning the weather in 2025; 1996. Available:<https://apps.dtic.mil/sti/citations/ADA333462> (Accessed July 2, 2023).
79. Schulte DJ. Concept and model for utilizing high-frequency or radar or microwave producing or emitting devices to produce, effect, create or induce lightning or lightspeed or visible to naked eye electromagnetic pulse or pulses, acoustic or ultrasonic shockwaves or booms in the air, space, enclosed, or upon any object or mass, to be used solely or as part of a system, platform or device including weaponry and weather modification; 2013. Available:<https://patents.google.com/patent/US20130015260A1/en> (Accessed April 27, 2023).
80. Wolf JP. Short-pulse lasers for weather control. *Rep Prog Phys.* 2018;81:026001. Available:<https://doi.org/10.1088/1361-6633/aa8488>
81. WMO. International Cloud Atlas. Classifying clouds; 2017. Available:<https://public.wmo.int/en/WorldMetDay2017/classifying-clouds> (Accessed March 2, 2023).
82. Lee DS, Fahey DW, Skowron A, Allen MR, Burkhardt U, Chen Q, et al. The contribution of global aviation to anthropogenic climate forcing for 2000 to 2018. *Atmos Environ.* 2021;244:117834. Available:<https://doi.org/10.1016/j.atmosenv.2020.117834>
83. Wilhelm L, Gierens K, Rohs S. Weather variability induced uncertainty of contrail radiative forcing. *Aerospace.* 2021;8:332. Available:<https://doi.org/10.3390/aerospace8110332>
84. Zhang C, Chen L, Ding S, Zhou X, Chen R, Zhang X, et al. Mitigation effects of alternative aviation fuels on non-volatile particulate matter emissions from aircraft gas turbine engines: A review. *Science of The Total Environment.* 2022;820:153233. Available:<https://doi.org/10.1016/j.scitotenv.2022.153233>
85. Herndon JM, Hoisington RD, Whiteside M. Chemtrails are not contrails: radiometric evidence. *J Geog Environ Earth Sci Int.* 2020;24:22-9. Available:<https://doi.org/10.9734/jgeesi/2020/v24i230199>
86. WHO (World Health Organization). WHO global air quality guidelines: Particulate matter (PM<sub>2.5</sub> and PM<sub>10</sub>), ozone, nitrogen dioxide, sulfur dioxide and carbon monoxide; 2021. Available:<https://www.who.int/publications/i/item/9789240034228> (Accessed June 4, 2023).
87. Boger MC. Operational defenses through weather control in 2030. Air Command And Staff College Air University Maxwell Air Force Base, Alabama; 2009. Available:<https://apps.dtic.mil/sti/citations/ADA539515> (Accessed April 5, 2023).
88. Whiteside M, Herndon JM. New paradigm: Coal fly ash as the main cause of stratospheric ozone depletion. *Eur j appl sci* 2022;10:207-21. Available:<https://doi.org/10.14738/aivp.105.13208>
89. Xia L, Nowack PJ, Tilmes S, Robock A. Impacts of stratospheric sulfate geoengineering on tropospheric ozone. *Atmos Chem Phys.* 2017;17:11913-28. Available:<https://doi.org/10.5194/acp-17-11913-2017>
90. Hoisington RD, Whiteside M, Herndon JM. Unequivocal Detection of solar ultraviolet radiation 250-300 nm (UV-C) at Earth's Surface. *Eur j appl sci.* 2023;11:455-72. Available:<https://doi.org/10.14738/aivp.112.14429>
91. Han B, Ming Z, Zhao Y, Wen T, Xie M. Influence of space electromagnetic radiation on physical characteristics of atmospheric suspended micro particles. *IOP Conf. Ser.: Earth Environ Sci* 2023;1171:012063. DOI: 10.1088/1755-1315/1171/1/012063
92. Barkham B. Can the CIA weaponise the weather? *The Guardian*; 2015. Available:<https://www.theguardian.com/us-news/shortcuts/2015/feb/16/can-the-cia-weaponise-the-weather-geoengineering> (Accessed April 25, 2023).
93. Sample I. Spy agencies fund climate research in hunt for weather weapon, scientist fears. *The Guardian*; 2015. Available:<https://www.theguardian.com/environment/2015/feb/15/spy-agencies-fund-climate-research-weather-weapon-claim> (Accessed April 25, 2023).
94. Goering L. As 1.5C warming limit nears, interest in sun-dimming tech heats up. *Reuters*; 2022. Available:<https://www.reuters.com/article/climate-change-geoengineering-politics-idUKL8N2YU480>

- (Accessed April 25, 2023).
95. Goelet J. Vehicles and systems for weather modification. 2017. Available:<https://patents.google.com/patent/US20170217587A1/en> (Accessed April 19, 2023).
  96. Goelet J. Airships for weather manipulation; 2019. Available:<https://patents.google.com/patent/AU2019203461A1/en> (Accessed April 19, 2023).
  97. Jenkins RT. Production or distribution of radiative forcing agents; 2015. Available:<https://patents.google.com/patent/US8152091B2/en> (Accessed May 31, 2023).
  98. Keshner MS, Vaaler EG. Modifying sunlight scatter in the upper atmosphere; 2018. Available:<https://patents.google.com/patent/US9924640B1/en> (Accessed May 1, 2023).
  99. Sahara sand dust episodes in France an Spain (Episodes de poussières de sable du Sahara en France et en Espagne). 2022.
    - Available:<https://www.ouest-france.fr/meteo/meteo-un-nuage-de-sable-du-sahara-survole-a-nouveau-une-partie-de-la-france-c9b3fc66-c642-11ec-9d59-fb23aa78f5fe>
    - Available:<https://www.sudouest.fr/environnement/meteo/poussieres-du-sahara-en-france-la-pluie-de-sable-etait-elle-legerement-radioactive-10154197.php>
    - Available:<https://www.midilibre.fr/2022/03/25/un-nouveau-nuage-de-sable-du-sahara-se-dirige-droit-sur-loccitanie-a-quoi-sattendre-ce-samedi-10193506.php> (Accessed May 1, 2023).
  100. UN-backed report warns of rising wildfire threat. 2022. Available:<https://news.un.org/en/story/2022/02/1112502> (Accessed June 4, 2023).
  101. Herndon JM, Whiteside M. California wildfires: Role of undisclosed atmospheric manipulation and geoengineering. *J Geog Environ Earth Sci Int* 2018;17:1-18. DOI: 10.9734/JGEESI/2018/44148
  102. Sundaram DS, Yang V, Zarko VE. Combustion of nano aluminum particles (Review). *Combust Explos Shock Waves* 2015;51:173-96. Available:<https://doi.org/10.1134/S0010508215020045>
  103. Obahoundje S, Nguessan-Bi VH, Diedhiou A, Kravitz B, Moore JC. Implication of stratospheric aerosol geoengineering on compound precipitation and temperature extremes in Africa. *Sci Total Environ.* 2023;863:160806. DOI: 10.1016/j.scitotenv.2022.160806
  104. Touma D, Hurrell JW, Tye MR, Dagon K. The impact of stratospheric aerosol injection on extreme fire weather risk. *Earth's Future.* 2023;11:e2023EF003626. Available:<https://doi.org/10.1029/2023EF003626>
  105. US Air Force. Directed energy futures 2060. Air Force Research Laboratory. AFRL-2021-1152. (See page 4, 9, 15); 2021. Available:[https://www.afrl.af.mil/Portals/90/Documents/RD/Directed\\_Energy\\_Futures\\_2060\\_Final29June21\\_with\\_clearance\\_number.pdf](https://www.afrl.af.mil/Portals/90/Documents/RD/Directed_Energy_Futures_2060_Final29June21_with_clearance_number.pdf) (Accessed April 26, 2023).
  106. DEW (Directed Energy Weapon). Lockheed Martin; 2022. Available:<https://www.lockheedmartin.com/en-us/capabilities/directed-energy.html> (Accessed April 26, 2023).
  107. Chandler CC, Bentley JR. Forest fire as a military weapon. defense advanced research projects agency (DARPA) AD509724; 1970. Available:<https://apps.dtic.mil/sti/citations/AD509724> (Accessed April 13, 2023).
  108. Deming D. Climate change and the media. U.S. Senate Committee on Environment & Public Works, Hearing Statements; 2006. Available:[https://www.epw.senate.gov/public/index.cfm/hearings?Id=BFE4D91D-802A-23AD-4306-B4121BF7ECED&Statement\\_id=361256C4-11DC-4E5D-8D1D-9FEDF082D081](https://www.epw.senate.gov/public/index.cfm/hearings?Id=BFE4D91D-802A-23AD-4306-B4121BF7ECED&Statement_id=361256C4-11DC-4E5D-8D1D-9FEDF082D081) (Accessed February 14, 2023).
  109. AR6 (Sixth Assessment Report). IPCC; 2022. Available:<https://www.ipcc.ch/assessment-report/ar6/> (Accessed June 7, 2023).
  110. McGuire B. How climate change triggers earthquakes, tsunamis and volcanoes. *The Guardian*; 2016. Available:<https://www.theguardian.com/world/2016/oct/16/climate-change-triggers-earthquakes-tsunamis-volcanoes> (Accessed March 26, 2023).
  111. Connolly R, Soon W, Connolly M, Baliunas SL, Berglund J, Butler CJ, et al. How much

- has the Sun influenced Northern Hemisphere temperature trends? An ongoing debate. *Res Astron Astrophys.* 2021;21:131.  
DOI: 10.1088/1674-4527/21/6/131
112. Scafetta N. Reconstruction of the interannual to millennial scale patterns of the global surface temperature. *Atmosphere.* 2021;12:147.  
Available: <https://doi.org/10.3390/atmos12020147>
113. Scafetta N. Testing the CMIP6 GCM simulations versus surface temperature records from 1980–1990 to 2011–2021: High ECS Is Not Supported. *Climate.* 2021;9:161.  
Available: <https://doi.org/10.3390/cli9110161>
114. Omrani NE, Keenlyside N, Matthes K, Boljka L, Zanchettin D, Jungclaus JH, Lubis SW. Coupled stratosphere-troposphere-Atlantic multidecadal oscillation and its importance for near-future climate projection. *npj Clim Atmos Sci.* 2022;5:59.  
Available: <https://doi.org/10.1038/s41612-022-00275-1>
115. Scafetta N. Advanced testing of low, medium, and high ECS CMIP6 GCM simulations versus ERA5-T2m. *Geophysical Research Letters.* 2022;49:e2022GL097716.  
Available: <https://doi.org/10.1029/2022GL097716>
116. Scafetta N. CMIP6 GCM ensemble members versus global surface temperatures. *Clim Dyn* 2023;60:3091-120.  
Available: <https://doi.org/10.1007/s00382-022-06493-w>
117. Wills RCJ, Dong Y, Proistosescu C, Armour KC, Battisti DS. Systematic climate model biases in the large-scale patterns of recent sea-surface temperature and sea-level pressure change. *Geophys Res Lett* 2022;49:e2022GL100011.  
Available: <https://doi.org/10.1029/2022GL100011>
118. Latonin MM, Bashmachnikov IL, Bobylev LP, Davy R. Multi-model ensemble mean of global climate models fails to reproduce early twentieth century Arctic warming. *Polar Science* 2021;30:100677.  
Available: <https://doi.org/10.1016/j.polar.2021.100677>
119. Andreasen JR, Hogg AE, Selley HL. Change in Antarctic ice shelf area from 2009 to 2019. *The Cryosphere* 2023;17:2059-72.  
Available: <https://doi.org/10.5194/tc-17-2059-2023>
120. Scafetta N. CMIP6 GCM validation based on ECS and TCR ranking for 21st century temperature projections and risk assessment. *Atmosphere.* 2023;14:345.  
Available: <https://doi.org/10.3390/atmos14020345>
121. Soon W, Connolly R, Connolly M, Akasofu S-I, Baliunas S, Berglund J, Bianchini A, Briggs WM, Butler CJ, Cionco RG, et al. The Detection and attribution of northern hemisphere land surface warming (1850–2018) in terms of human and natural factors: Challenges of inadequate data. *Climate.* 2023;11:179.  
Available: <https://doi.org/10.3390/cli11090179>
122. Berry EX. Human CO<sub>2</sub> Emissions have little effect on atmospheric CO<sub>2</sub>. *Int j atmospheric ocean sci* 2019;3:13-26.  
DOI: 10.11648/j.ijaos.20190301.13
123. Harde H. What humans contribute to atmospheric CO<sub>2</sub>: Comparison of carbon cycle models with observations. *Earth Sciences.* 2019;8:139-59.  
DOI: 10.11648/j.earth.20190803.13
124. Koutsoyiannis D, Kundzewicz ZW. Atmospheric temperature and CO<sub>2</sub>: Hen-or-egg causality? *Sci.* 2020;2:83.  
Available: <https://doi.org/10.3390/sci2040083>
125. Gervais F. Anthropogenic CO<sub>2</sub> warming challenged by 60-year cycle. *Earth-Science Reviews* 2016;155:129-35.  
Available: <http://dx.doi.org/10.1016/j.earscirev.2016.02.005>
126. Koutsoyiannis D. Rethinking climate, climate change, and their relationship with water. *Water* 2021;13:849.  
Available: <https://doi.org/10.3390/w13060849>
127. Global warming petition project; 2007.  
Available: <http://www.petitionproject.org/> (Accessed Nov 18, 2022).
128. CLINTEL (Climate Intelligence). The World Climate Declaration: There is no climate emergency; 2022.  
Available: <https://clintel.org/>  
Available: <https://clintel.org/world-climate-declaration/> (Accessed June 2, 2023).

129. Scafetta N, Bianchini A. The planetary theory of solar activity variability: A review. *Front Astron Space Sci.* 2022;9:937930. Available: <https://doi.org/10.3389/fspas.2022.937930>
130. Lin YF, Yu JY, Wu, CR, Zheng F. The footprint of the 11-year solar cycle in Northeastern Pacific SSTs and its influence on the Central Pacific El Niño. *Geophysical Research Letters.* 2021; 48:e2020GL091369. Available: <https://doi.org/10.1029/2020GL091369>
131. Lüdecke H-J, Cina R, Dammschneider HJ, Lüning S. Decadal and multidecadal natural variability in European temperature. *J Atmos Sol Terr Phys.* 2020;205: 105294. Available: <https://doi.org/10.1016/j.jastp.2020.105294>
132. Lüdecke H, Müller-Plath G, Wallace MG, Lüning S. Decadal and multidecadal natural variability of African rainfall. *Journal of Hydrology: Regional Studies* 2021;34:100795. Available: <https://doi.org/10.1016/j.ejrh.2021.100795>
133. Courtillot V, Lopes F, Le Mouél JL. On the prediction of solar cycles. *Sol Phys* 2021;296:21. Available: <https://doi.org/10.1007/s11207-020-01760-7>
134. Yndestad H, Solheim JE. The influence of solar system oscillation on the variability of the total solar irradiance. *New Astronomy.* 2017;51:135-52. Available: <https://doi.org/10.1016/j.newast.2016.08.020>
135. SWPC (Space Weather Prediction Center). National Oceanic and Atmospheric Administration. 2023. Available: <https://www.swpc.noaa.gov/products/solar-cycle-progression> (Accessed July 8, 2023).
136. WEF. New Initiative to Help Unlock \$3 Trillion Needed a Year for Climate and Nature; 2023. Available: <https://www.weforum.org/press/2023/01/new-initiative-to-help-unlock-3-trillion-needed-a-year-for-climate-and-nature/> (Accessed January 29, 2023).
137. UNEP (United Nations Environment Program). World needs USD 8.1 trillion investment in nature by 2050 to tackle triple planetary crisis. 2021. Available: <https://www.unep.org/news-and-stories/press-release/world-needs-usd-81-trillion-investment-nature-2050-tackle-triple> (Accessed January 29, 2023).
138. WEF. 2023.
- Taxes: Taxation and Climate Action Available: <https://intelligence.weforum.org/topics/a1G0X000006Nw4FUAS/key-issues/a1G0X000006NxNzUAK>
  - Global Governance Available: <https://intelligence.weforum.org/topics/a1Gb0000000LHN2EAO> (Accessed January 29, 2023).

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