

НАУКИ ОБ ОКРУЖАЮЩЕЙ СРЕДЕ

WEATHER CONTROL BY ELECTRIZATION OF THE ATMOSPHERE

Grachev Vladimir A.

Global Ecology Center, Faculty of Global Studies, Lomonosov Moscow State University, Moscow, Russian Federation

Dominguez Mario M., Pokhmelnikh Lev A.

Soluciones Climaticas Avanzadas, Naucalpan de Juárez Area, Mexico

Abstract. the article presents some results of experimental use of electric technology of weather control (elatechnology). the technology is built on a new theory of earth, atmospheric and space electricity, from which it follows that meteorological processes largely depend on the electrical state of the atmosphere and that with a small expenditure of energy, it is possible to control the weather and climate. experimental verification of the technology was conducted in the form of commercial works and field experiments in Mexico in 1996-2010. in the course of the works, precipitation was increased in the northern and central states of Mexico; several reservoirs of the country were filled; forest fires were decreased in the northern states and on the Yucatan peninsula; the ability to eliminate smog in Mexico City and fog in the Toluca airport was demonstrated; the predicted flood in Mexico City had been avoided; some results of the weakening of hurricanes in the eastern coast of the Pacific Ocean and the Caribbean are presented.

Key words: Energy, atmosphere, electrification, precipitation, smog, forest fires, reservoirs, hurricanes, global warming.

1. INTRODUCTION

In recent decades, global climate change has acquired political significance and has become a universal passion for "global warming". Global warming is undeniably observed, but its cause, officially declared in 1997 in Kyoto, – the greenhouse effect – does not reflect reality and is not recognized by experts who remain in minority. In an in-depth scientific analysis, the accepted explanation of the global warming does not stand up to criticism and is increasingly presented as an international business on quotas of CO₂ emissions into the atmosphere, as financial speculation on the credulity of the population.

The priority of corporate and business interests manifests in many areas of the environment and energy: the cloud seeding chemical powders dispersion from aircrafts for the purpose of rain blocking or making costs to the countries impressive sums with minimum or zero effect. For 20 years it has been known about the existence of a new electrodynamic theory and promising ELAT-technology [1-3] which is able to eliminate the main cause of forest fires – drought – by creating humid flow from oceans and increasing the moisture content of forest wood to a safe level. However, the theory is still ignored, and the technology has just come into being in some countries. For the same reason, the development of a closed nuclear fuel cycle (Lockheed Martin thermonuclear reactor or LERN – transmutation of elements from the middle of the periodic table (Ni)) is hampered in the energy sector by the oil lobby. Under the pressure of short-term corporate economic benefits, the fundamental strategic problems of mankind are not solved: lack of fresh water and energy, global warming and deterioration of environment.

The science of weather management has a long history. Purposefully it began to develop in the second half of the 20th century. In [4], the opinion was expressed that a series of climate disasters began in

1960 at the same time as there appeared the CIA reports claiming that the government was already capable of managing weather for military purposes. The author concluded that reading the CIA report, it was difficult to get rid of the idea that many climate changes in recent years could well be the result of military experiments.

Lockhart Gary said [5] that, on the one hand, we can artificially influence the atmosphere with low power radiation. On the other hand, Charles Yost noted [6] that we know that Northern lights flashes affect weather conditions. If significant disturbances are observed in the ionosphere, the lower atmosphere layers subsequently change their state as well.

Two scientists from Stanford University's radiation physics laboratory, C. Chang and U.C. Iman, provide evidence of possibility of influence on the weather by means of electromagnetic radiation from the Earth [7]. They published a number of papers describing an avalanche of electrons from the magnetosphere. From their point of view, this avalanche of particles can generate secondary ionization, stimulate radiation in the X-ray range and cause significant disturbances in the lower layers of the ionosphere.

In 1974, Dr. Robert Halliwell and Gene Katsufakis of Stanford University's electromagnetism laboratories have shown that ultra-low radio waves can cause oscillations in the magnetosphere. They conducted experiments in Antarctica using a 20-kilometer antenna and an amplifier that generated signals at a frequency of 5 kilohertz, allowed them to establish that the processes in the magnetosphere are really affected by such radiation and it causes a flow of high-energy particles, an avalanche falling into the Earth's atmosphere. By turning the signal on and off, scientists could start and stop the particle flow. According to Frederic Jueneman: "The theoretical implication suggested by their work is that global

weather control can be attained by the injection of relatively small 'signals' into the Van Allen belts (radiation belts around Earth) – something like a super-transistor effect" [8].

Now we are in a situation similar to the one that happened almost a century ago, when in 1933, Einstein claimed that there were no signs that humanity could use atomic energy. At the same time, in 1932, V. I. Vernadsky wrote to I. V. Stalin about the need for extensive research in the field of radioactivity. Back in 1910, he insisted at the Academy of Sciences on the need to develop such research. In 1922, he wrote [9]: "We approach a great revolution in the life of the mankind, to which nothing experienced earlier can be compared. The time when a man will master atomic energy, a powerful source that will allow him to build up his life in accordance with his desire, is not far. It can happen within the coming years or it can happen in a century. But it is absolutely clear that it will have to happen. Will a man manage to make use of this power, to direct it to good purpose but not at self-destruction?"

2. MATERIALS AND METHODS

2.1. The New Electrodynamics Theory and Weather Control Technology

The main drawback of many years of efforts to create a technology of weather and climate control was that the experimental work was carried out by methods and technical means, the energy capabilities of which were incomparably small relatively to the total capacity of the natural channels of energy inflow into the atmosphere. And the main instability of the atmosphere was not used due to the defect of some initial theoretical assumptions. To maintain the current air temperature, the power of natural channels of energy inflow into the atmosphere is estimated equal to $P_a = 1017$ W, while the power of all electric plants on the earth is $P_e = 1012$ W.

Without these figures and a proper understanding of the functioning of thermodynamic processes in the atmosphere, all attempts of previous decades to create a weather control technology were doomed to failure.

In 1989, at the First International Congress on Geo-cosmic Relations in Amsterdam, the Soviet physicist Dr. Lev Pokhmelnikh, a graduate of Lomonosov Moscow State University, demonstrated the existence of defects in the record of the basic law of physics – Coulomb's law [1]:

$$F = \frac{1}{4\pi\epsilon_0\epsilon} Q_1 Q_2 \frac{1}{r^2}. \quad (1)$$

Attention was drawn to the inconsistency of the record with the short-range principle in interaction: 1) in the Coulomb's record, the matter present between the interacting charges is assumed to be absolutely transparent for the static field, 2) the parameters describing a particle (or body) as a source of the central field and as an object of the external field influence do not differ. After the elimination of these defects, the record of central interaction between two charges becomes as follows:

$$F = fs \frac{1}{r^2} \exp(-\rho_0 r \frac{1}{\alpha}), \quad (2)$$

where f – the characteristic of the particle as the source of the central field (unity of force);

s – effective area of interaction of a particle with an external field (unity of surface);

ρ_0 – mass density of the medium between particles;

r – distance between particles;

α – the constant of central field attenuation by the material medium (kg/m^2).

The attenuation of a field by matter is always described by an exponential dependence. Values of α are different for electron and proton central fields [10].

In differential form, the record (2) is expressed by equality:

$$\text{Div} E = -\frac{1}{4\pi\epsilon\epsilon_0} 4\pi\rho_m \left(\frac{q}{\rho} - \frac{q_0}{\rho_0} \right), \quad (3)$$

where E – the electric field strength;

q, ρ – the charge and mass densities in the divergence volume;

q_0, ρ_0 – are the charge and mass densities in the environment;

ρ_m – the mass density in the medium of field measurement.

From (3) it follows that the electrodynamic equilibrium between medium and the volume of divergence, including between medium and a body, has to be:

$$\frac{q}{\rho} = \frac{q_0}{\rho_0}, \quad (4)$$

which differs from the equilibrium condition of classical electrodynamics $q = 0$.

In 1981, an experimental verification of the consequences of two theories was carried out, and showed the feasibility of the condition (4). The new record of the Central interaction law allowed developing a new mathematical apparatus of electrodynamics and a new model of the electric state of the Earth, its atmosphere, Sun and space [10,11]. One of the consequences of the new theory in atmospheric physics is the conclusion that meteorological processes depend on the electric state of the atmosphere. Over the last century, this relationship has been assumed to be the reverse, i.e. that atmospheric electricity is generated by atmospheric processes (the so-called thunderstorm hypothesis); this assumed dependence did not allow to influence on meteorological processes by electricity.

New theory of atmospheric electricity opened the possibility of controlling meteorological processes by changing the electric state of the atmosphere with electronic currents from the ground stations. The logic of the theory and technology is as follows. A significant part of the solar radiation coming to the Earth is spent on evaporation of water from oceans. After evaporation each water molecule contains potential energy – evaporation energy in specific amount of 539 Cal/g or 0.4 eV per water molecule. In the reverse phase transition of water vapor into liquid aerosol particles, this energy is converted into heat of the atmosphere. Estimation of various channels of energy supply to the atmosphere (Table 1) shows that about half of energy warming the atmosphere is the heat of vapor condensation in a liquid aerosol [12].

Table 1

SOURCES OF ENERGY SUPPLY TO THE ATMOSPHERE	
Source of energy warming the atmosphere	Amount of energy, W/m ²
Direct absorption of solar radiation	80
Heat of vapor condensation in liquid aerosol	88
Convective heat exchange with earth	17
Total	185

There is a phenomenon that allows us to control the half of heat incoming into the atmosphere by water vapor condensation: liquid aerosol particles appear and grow only on the centers of condensation. For many decades, meteorologists believe that the only sea salt and dust of various origins are able to be the centers of condensation in the atmosphere. The non-recognition of charged particles to be centers of condensation is justified by the existence of the so-called surface tension of water, in view of which the particles of small radius allegedly have no chance of long-term existence in the Earth's atmosphere and must evaporate.

At that, one should remember that the water molecule is an electric dipole and that at small distances from the elementary charge (about 100 radii of the hydrogen atom), the electrical interaction of the water molecule with an electron or ion exceeds the kinetic energy of the thermal motion of air molecules. Thus, elementary charges can play the role of condensation centers in the atmosphere and aerosol particles must appear and grow on electrons and ions. This conclusion is confirmed experimentally [13].

According to the new theory, the main centers of vapor condensation in the aerosol in the lower atmosphere are electrons of air conductivity. The introduction of additional electrons into the atmosphere or removal of part of the electrons from the atmosphere should be accompanied by an acceleration or deceleration of the vapor condensation into the aerosol and, accordingly, an increase or decrease in the power of the condensation heat entering the atmosphere. In addition, the concentration of electrons in the atmosphere determines the process of cloud formation and, consequently, the degree of cloud cover of the atmosphere. The albedo of the Earth depends on this parameter, i.e. the total amount of solar energy entering the Earth.

The energy, required for the emission of one electron into the atmosphere from a conductive solid or liquid surface, is equal to the fractions of eV, i.e. approximately equal to the evaporation energy of one water molecule, therefore the condensation heat W_a , coming into the atmosphere during the aerosol particle formation and growing on the electron to submicron or micron size, is 10^8 - 10^{11} times bigger (in the number of water molecules in the aerosol particle) than the electron emission energy W_e :

$$W_a = (10^8 - 10^{11})W_e. \quad (5)$$

It is believed that up to micron size liquid aerosol particles are growing due to condensation. The proportion (5) is greater than that in nuclear fission reactions of heavy elements when exposed to cold neutrons (10^6 - 10^8). It follows from (5) that with 10 W of electrons emission power the energy power heating the atmosphere is equal to the power of all electric

stations on the Earth. To create noticeable effects in a global scale, for example, to raise the temperature of the entire Earth's atmosphere by 1 degree, the power of the energy inflow into the atmosphere must be: $P_1 = P_a \cdot (1/273) \approx 3.7 \cdot 10^{14}$ W.

It means that 370 ELAT-stations of the mentioned power of electron emission are able to develop such income of energy. Thus, the impact on the entire Earth's atmosphere by electricity is a solved technical problem. In addition, the ELAT-station can be performed by an order of magnitude more powerful. In this case, the required number of stations for controlling the thermodynamics of the atmosphere is reduced by the same number of times.

Stopping global warming is among the problems that can be solved by the ELAT-technology. In addition, the new theory and technology offer the opportunity to solve other acute problems of weather, climate, water and air purity, faced by countries and humanity as a whole.

2.2. ELAT-station

The main tool of the technology is an electric current generator to or from the atmosphere – ELAT-station (the technology was also named ELAT), where ELAT stands for electrizer of atmosphere [2,3]. ELAT-station consists of a DC high voltage source and an antenna – a network of thin emission wires suspended at some height above the ground. When a constant negative potential is applied to the wire relative to the ground, the electric field strength at the wire surface increases and a conduction current or a quiet corona discharge occurs between the wire and atmospheric air. Electrons are carried through the atmosphere by electric fields and non-electric processes (diffusion, convection, wind). The change in the electrical state of the atmosphere involves the earth's surface and the upper conductive layers of the atmosphere. With a positive potential on the wire, the electrons are removed from the atmospheric air. The area occupied by the antenna of the standard installation is 4 ha. The antenna can occupy a circle with a radius of 100 m with a central relatively high mast in the center and several peripheral masts in a circle, between which the emission wires are radially stretched. The antenna can also be in the form of parallel wires stretched above the ground, or even consist of a single wire [2,3].

ELAT-station works in any weather at any temperature and humidity. Power consumption does not exceed 1 kW. The radius of influence is in the range of 10-1000 km. The station's work does not have any influence on health of workers or electronic systems, because uses constant voltage and current. Figure 1 shows the elements of the ELAT-station built in China.



Figure 1 Elements of ELAT-station (Chengdu, China). Left to right: central mast – peripheral mast with insulator – high voltage equipment – room for power equipment

Since 1990 the ELAT-technology and techniques have been experimentally used for demonstration and solving important economic and environmental problems in different countries:

- Jordan (demonstration of rain creation);
- Argentina (experimental work on protection of vineyards from hail);
- Mexico (experimental work on the rain creation, prevention of forest fires, filling reservoirs, prevention of fog at the airport, protection of the coast from hurricanes, cleaning of a city from smog);
- Cuba (commercial work on rain creation, protection of the island from hurricanes);
- Israel (creation of precipitation, filling of reservoirs);
- China (cleaning of cities from smog and precipitation creation).

Below there are some of the results of the work in Mexico performed by Soluciones Climaticas Avanzadas (SCA) company.

3. RESULTS OF ELAT-TECHNOLOGY APPLICATION IN MEXICO

3.1. Increase in Precipitation

In Mexico, ELAT-technology has been applied since 1996. Figure 2 demonstrates the results of the first application of the technology in Sonora state. The work was carried out using a single installation located in the vicinity of the city of Puerto de Libertad in July 1996 and 1998. As a result, in July, the same month the work was performed, there was a doubling of precipitation compared to the monthly precipitation statistics for the last 8 years in July. For comparison, the diagram also shows monthly precipitation in June, i.e. in the month without impact.

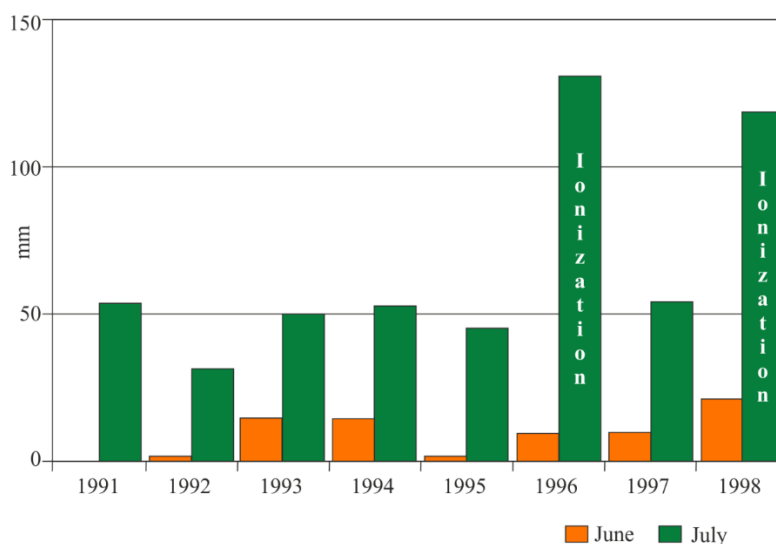


Figure 2 The amount of precipitation in June and July in different years in the state of Sonora.
Source: National Water Commission

By stimulating precipitation for a number of years, favorable conditions for agriculture were created in the states of Mexico: Sonora, Chihuahua, Coahuila, Nuevo Leon, Durango, Zacatecas and Aguascalientes. As a result, for three years in the state of Coahuila there was a multiple increase in the harvest of honey, and the cotton crop reached a record high, the number of cattle in the pastures increased in weight, the reservoirs were

filled with water, the area of forest fires significantly reduced.

Results of the work to stimulate additional precipitation in the Mexican states were estimated by statistical methods of comparison of precipitation in previous years in the neighboring states of Jalisco, Nayarit and Sinaloa (without ELAT application) (Table 2). 100% is the average amount of precipitation in previous years without ELAT application.

Table 2

DATA ON PRECIPITATION IN CERTAIN STATES OF MEXICO WITH AND WITHOUT APPLICATION OF THE ELAT-TECHNOLOGY		
States of Mexico	Years	Precipitation relative to the long-term average annual, %
With electrization of atmosphere		
Aguascalientes	2000-2004	+51
Coahuila	2000-2006	+30
Chihuahua	2000-2004	+45
Durango	2000-2004	+11
Nuevo Leon	2000-2004	+12
Puebla	2005-2006	+4
Sonora	2004-2006	+2
Zacatecas	2000-2004	+25
Mean		+23
Without electrization of atmosphere		
Jalisco	2000-2006	-1
Nayarit	2000-2006	-8
Sinaloa	2000-2006	-36
Mean		-15

Data from official sources on the filling of reservoirs in four Mexican states in the years of ELAT-technology application and without ELAT application

are presented in Figure 3. The work was carried out during the driest months of the year in Mexico (February-April).

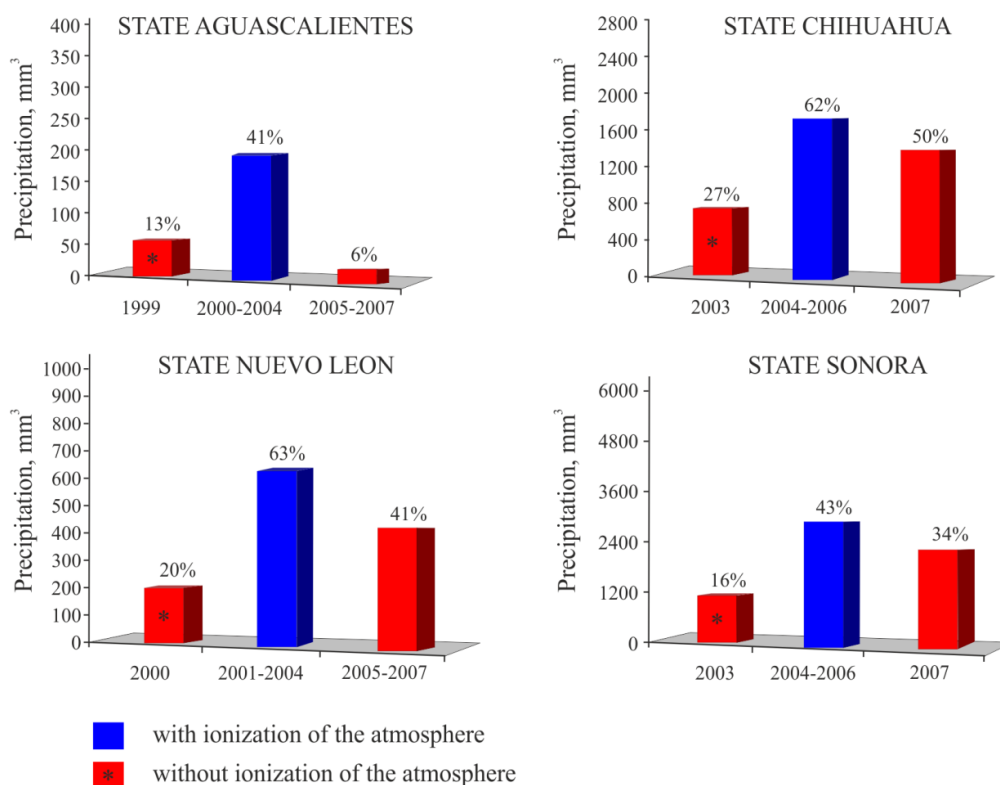


Figure 3 Filling of reservoirs in four states of Mexico in different years. Blue columns are the periods of the ELAT-technology application.

Source: National Water Commission

The ELAT-technology was used to fill the reservoir of hydroelectric power plant, Infiernillo. This work was done by prior agreement with the Federal government, so it was documented in more details. The work was performed in February-April 2008. The task was to create precipitation on the water intake area of

the Balsas River which is filling the HPP reservoir. Three ELAT-stations were used, they were located on the west coast of Mexico near the HPP. Figure 4 represents a satellite image of the effect of moisture transfer from the Pacific aquatic area to Mexico, taken in April 2008 in the frequency of water vapor.

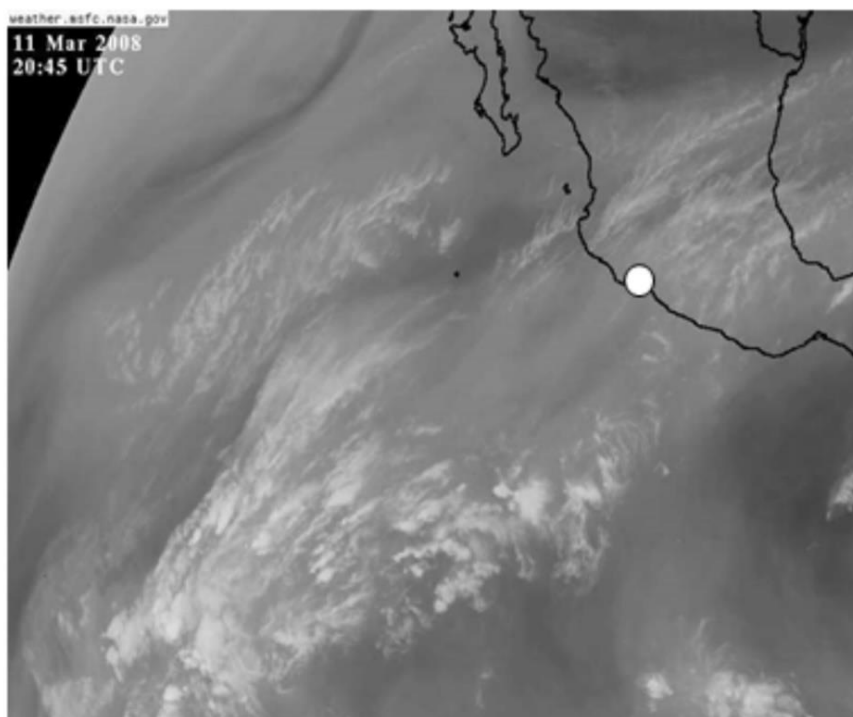


Figure 4 Transfer of moisture from the Pacific ocean to Mexico when using ELAT-technology on the Mexican coast. The location of the units is indicated by a white dot

Data on the amount of precipitation on the water intake area of the Balsas River (Central States of Mexico) for three months of the ELAT operation in

2008 and for the period in 2007 without the ELAT impact are presented in Figure 5.

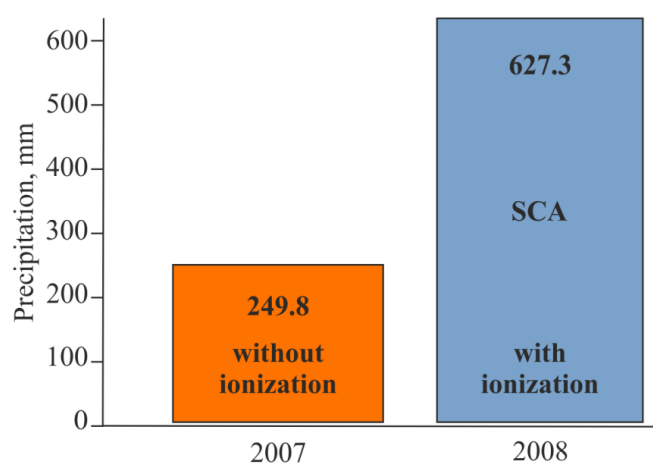


Figure 5 The total amount of precipitation on the water intake area of the Balsas River in 2007 (the year without the ELAT-technology use) and in 2008 (the year the ELAT-technology was used).

Source: Federal Electricity Commission of Mexico

According to the principle of impact on the atmosphere, the ELAT installation is a small high voltage electric line with a load in the form of active resistance of the atmosphere. From this it follows that all networks of high voltage power lines with non-zero

emission of electrons into the atmosphere should affect the atmosphere as an ELAT-station. Sometimes the effect of electric power lines on the atmosphere is very noticeable. Figure 6 presents a satellite image of clouds in the Volga and the Aral Sea regions.

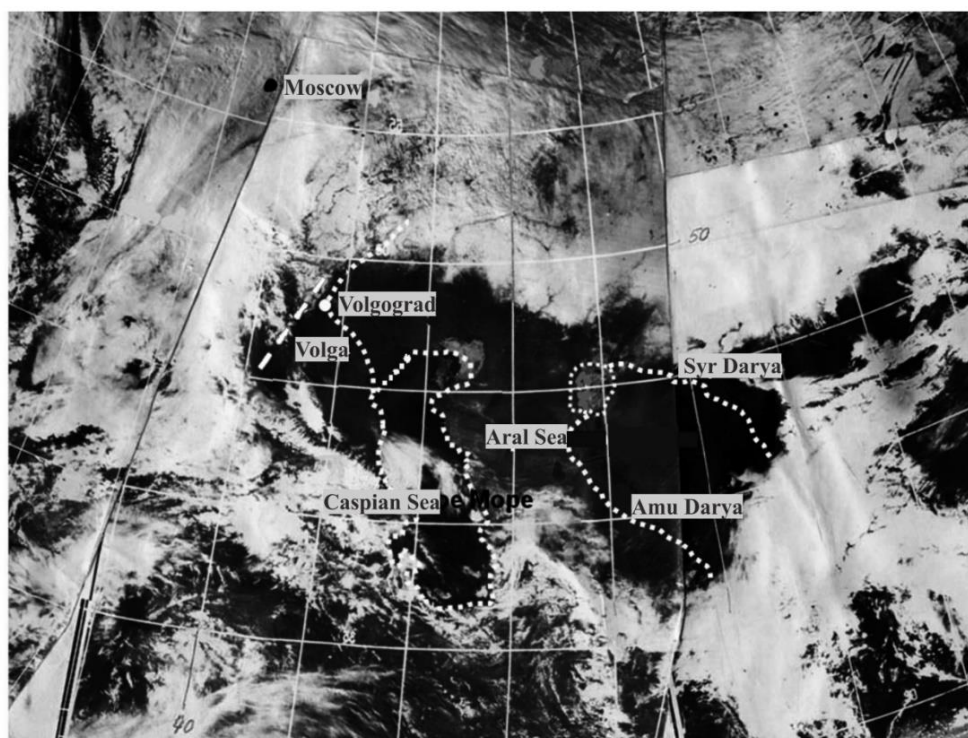


Figure 6 The scattering of cloud masses coming from the North-West by the high voltage transmission line of the Volga HPP (March 21, 1991). The direction of the power line is indicated by a dashed line

The picture shows that clouds coming from the North-West to the Aral region fail to pass the high voltage power transmission line of the Volga HPP, stretching to the South-West. In the South-East of the power line, a cloudless area $800 \times 5000 \text{ km}^2$ is formed. There is reason to believe that the long-term operation of the DC power line of the Volga HPP caused the drying of the Aral Sea. This conclusion is confirmed by the coincidence that in the year of the Volga HPP launch – in 1965 – a sharp acceleration of the Aral Sea shallowing occurred.

3.2. Prevention of Forest Fires

ELAT-technology is able to moisten forests in any area, including remote or inaccessible places. This confirms the uniqueness of the technology. Figure 7 presents the results of work on reducing the probability of forest fires on the Yucatan Peninsula by increasing the moisture content of wood. The work was performed in 2008 during the three driest months of the calendar year (February-April). For comparison, the statistical data of forest fires on the Peninsula in the same months for the previous 16 years, when the technology was not applied, are presented. Three ELAT-stations were used in the study.

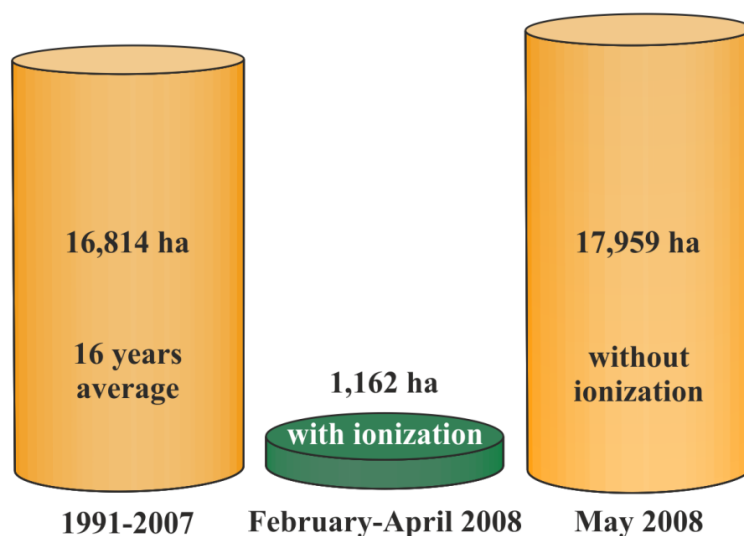


Figure 7 Areas of forest fires on the Yucatan Peninsula. Green column is the area of forest fires on the Peninsula during the period of the ELAT-technology use in February-April 2008

3.3. Protection of the coast from hurricanes

Hurricanes cause significant damage to countries exposed to this natural phenomenon. They create floods, destroy houses, roads and high voltage transmission lines, lead to numerous victims of people and animals, cause huge damage to agricultural crops.

For the period 1998-2008, SCA performed experimental application of the ELAT-technology to weaken 20 hurricanes on the Pacific coast of Mexico, the Gulf of Mexico and the Caribbean. Two examples of weakening are given below.

3.3.1 Example 1. Hurricane John, Category 2, August 31, 2006

The hurricane moved Northwest along the Pacific coast of Mexico, approaching the Peninsula of Baja

California. The impact was produced from one ELAT-station located in the southern point of the Peninsula on August 31 when the center of the hurricane was at 400 km distance. At the beginning of the station work at 16.15, the hurricane was estimated Category 2 on the Saffir-Simpson scale. The forecast of National Hurricane Center in Miami for the hurricane was continuation in the same category. One day later after the application of the ELAT-technology, the category of hurricane was reduced to a tropical storm. Figure 8 presents a satellite image of the hurricane 3 hours after the ELAT-station's 15-minute impact from the southern point of the Peninsula.

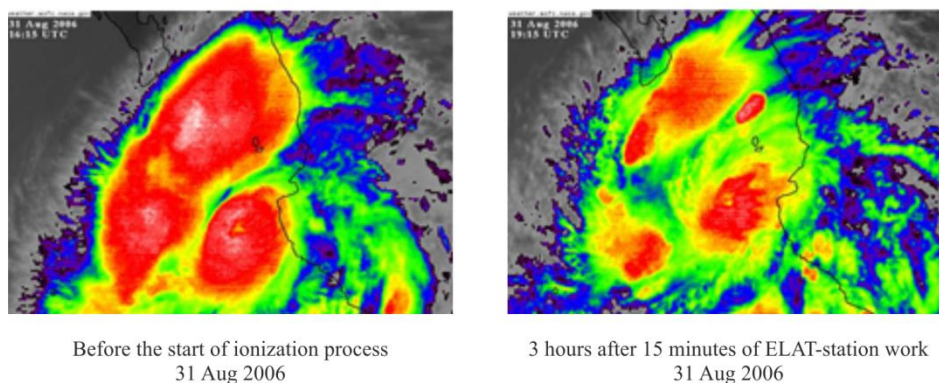


Figure 8 Satellite image of the Hurricane John, Category 2, 2006. Left – before the ELAT-technology application; right – 3 hours after 15 minutes of the ELAT-station work.

Source: Scientific Committee

3.3.2 Example 2. Hurricane Dean, Category 5, August 2007

The hurricane was approaching the Yucatan Peninsula from the East and was rated the highest category 5 hurricane. It was predicted to reach the Cancun city coast. The impact was made by two ELAT-

installations, one of which was located near Cancun, the second – 300 km to the South, in the vicinity of Mahahual. Figure 9 shows a satellite image of Hurricane Dean on August 19, 2007, two days before reaching the coast.

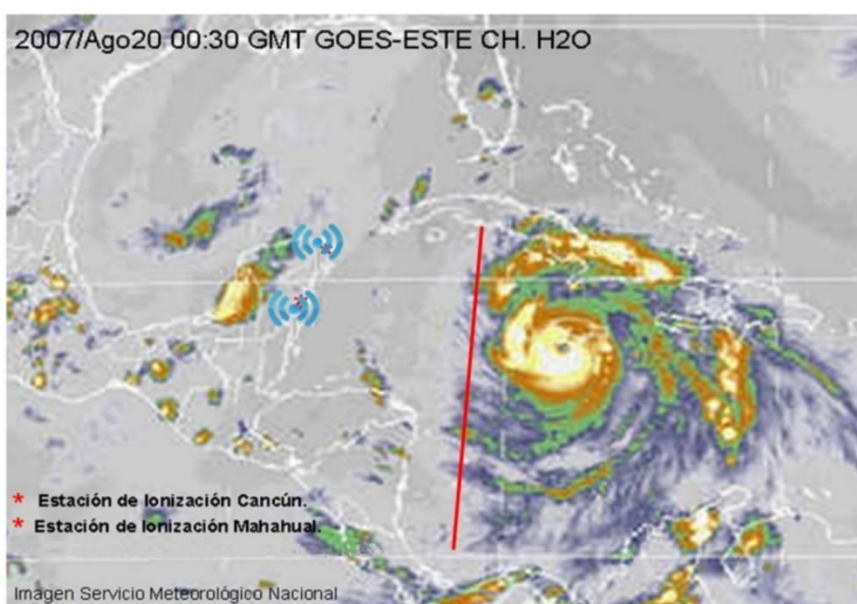


Figure 9 Hurricane Dean, Category 5, in the Caribbean, 2007. Blues icons indicate the position of two ELAT-stations on the shore of the Yucatan Peninsula.

Source: Mexico National Weather Service

Four days before the hurricane hit the coast the SCA-company announced its intention to reduce the hurricane to a safe category on the high seas. The application was officially recorded by the notary and the International Scientific Committee. The process of the Hurricane Dean weakening on the approach to the coast of the Yucatan is visible from the loss of symmetry on the West side, i.e. from the impact side.

The National Hurricanes Center in Miami predicted passage of the hurricane through Cancun.

However, the hurricane reached the coast through the Mahahual town.

The hurricane's passage over the coast was recorded by meteorological radar from Merida located in the North-Western part of the Yucatan Peninsula (Figure 10). The image shows a reduced reflectance of radar signals in the center of the hurricane, indicating a practical lack of precipitation in the area of Mahahual.

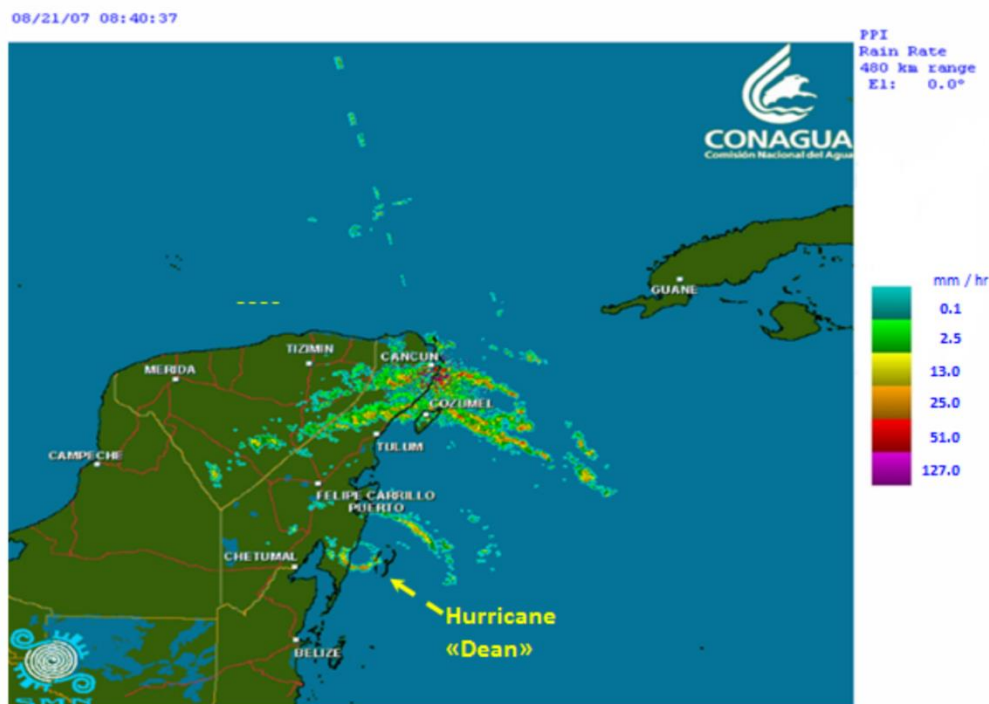


Figure 10 Hurricane Dean, Category 5, 2007. The yellow arrow indicates the hurricane with the center in the town of Mahahual as it passes over the ELAT-installation in a weakened state.

Source: Mexico National Water Commission

Coming of hurricanes Category 5 ashore is usually accompanied by the fall of hundreds of high voltage electric transmission towers. In the case of Hurricane Dean, not a single tower was damaged. As for the destruction and minor precipitation, Hurricane Dean at the first exit to the coast (Dean 1) corresponded to Category 1. After the Yucatan Peninsula, the hurricane entered the Gulf of Mexico, increased energy potential and for the second time hit the coast of Mexico in the area of Veracruz, having Category 2 (Dean 2). At that time the ELAT-stations had already been switched off.

The second coming of Hurricane Dean ashore produced much greater destruction, accompanied by flooding and loss of life.

The International Scientific Committee recognized that Hurricane Dean had been significantly weakened as it passed through the Yucatan. Table 3 shows the officially recognized destruction caused by several hurricanes in Mexico: four hits without the ELAT-stations' impact and two with the impact (Dean 1, John).

Table 3

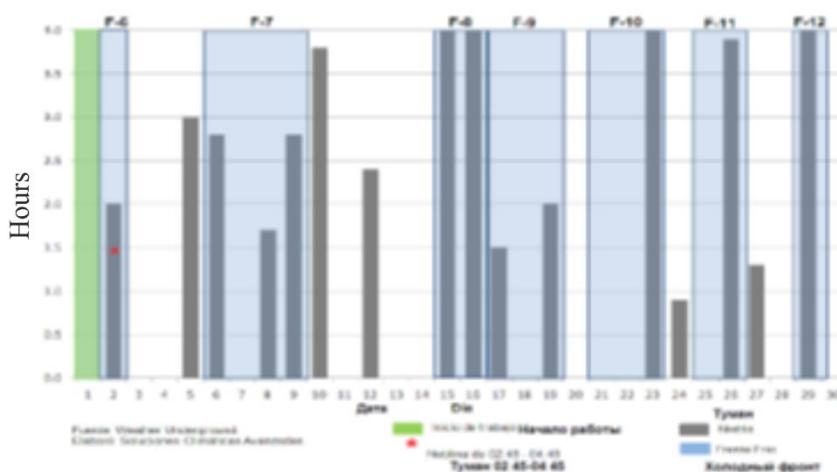
COMPARISON OF DESTRUCTION CAUSED BY HURRICANES, WITH/WITHOUT ELAT-TECHNOLOGY APPLICATION. SOURCE: FEDERAL ELECTRICITY COMMISSION OF MEXICO

Hurricane	Year	Category	ELAT-technology application	Destructed high voltage power lines, pcs	Destructed power substations, pcs	Fallen towers, pcs
Wilma	2005	5	No	12	9	253
Odile	2014	5	No	21	23	534
Lane	2006	5	No	7	3	194
Dean 2	2007	2	No	21	14	No data
Dean 1	2007	5	Yes	0	1	0
John	2006	2	Yes	0	0	0

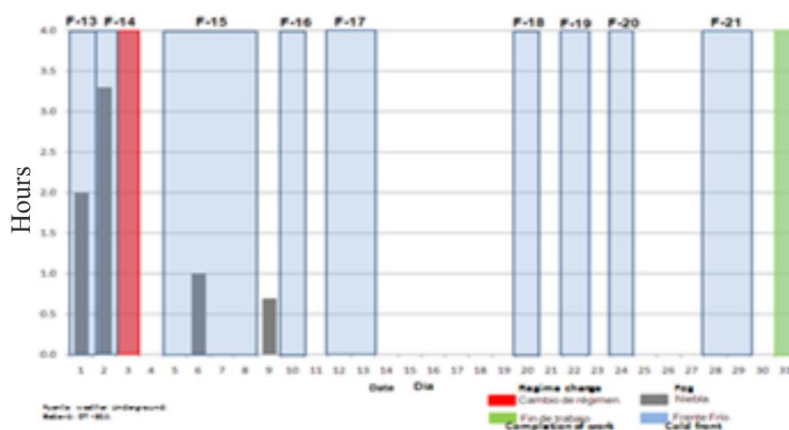
3.4. Fog Prevention

Figure 11 shows the correlation of fog occurrence at the international airport of Toluca (Mexico City) with the passage of cold fronts in November and December 2008. Statistically, these two months are most susceptible to radiation and advection fogs in morning. In 2008, demonstration work was carried out to protect the airport from morning fogs. Three ELAT-stations located in the vicinity of the airport were used.

The work began in early November (Figure 11A). During the month, the search was conducted for a suitable location of stations and mode of operation. The final position and operating mode were found by 03.12.2008. After this calendar date, the fogs in the airport stopped (Figure 11B). As a result, in December, the historical maximum of number of days without fogs was reached in the conditions of the cold fronts passage.



(A)



(B)

Figure 11 Correlation of fog occurrence with the periods of cold fronts passage at Toluca airport. The time period 05.45h–09.45h: (A) without ELAT influence (November); (B) with ELAT influence (December)

3.5. Elimination of Smog

In 1998-1999, at the suggestion of the Mexico City government, a demonstration of smog scattering was carried out in the city. The work was carried out with the participation of the National Autonomous University of Mexico (UNAM) using one ELAT-installation located in the Xochimilco city park.

The ELAT-unit operated in the following mode: two weeks on, two weeks off. The result was evaluated

according to the ozone concentration. Measurements were made by the urban network of measuring stations (RAMA). As a result, it was recorded that the average level of ozone in the city decreased by 15% (Figure 12). Calculations have shown that 4-5 ELAT-installations located in the vicinity of the city would be sufficient to reduce the level of ozone to a safe level.

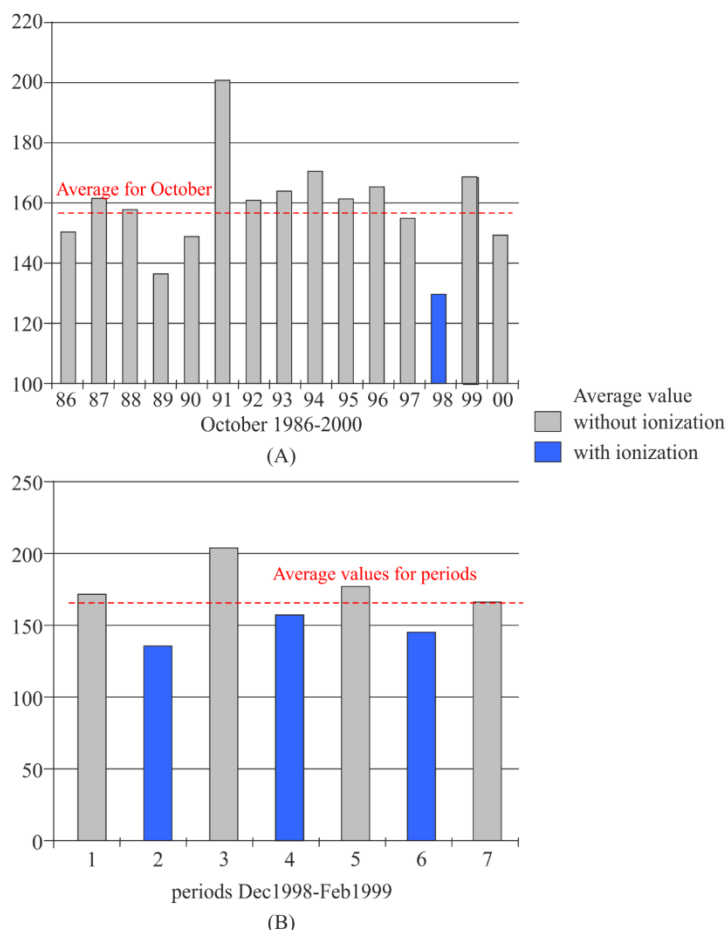


Figure 12 Ozone levels in Mexico City. (A) Average monthly ozone levels in Mexico City in October in 1986-2000. (B) The change in ozone levels during the scattering demonstration mode (December 1998-February 1999). Blue columns correspond to the periods of the ELAT-installations' operation.

Source: RAMA

3.6. Flood Prevention

In 1998, a flood prevention demonstration was held for the Mexico City government. In mid-September 1998, the weather service of Mexico City predicted long-term rainfall with thunderstorms and possibility of flooding (The city is located in a bowl of mountains).

Work on flood prevention was carried out with a single ELAT-unit located in the Xochimilco city park. Continuous operation of the installation began on October 1 and lasted for a month. During the period of operation, there was a discrepancy between the forecast and the actual precipitation in the absence of thunderstorms and flooding (Figure 13).

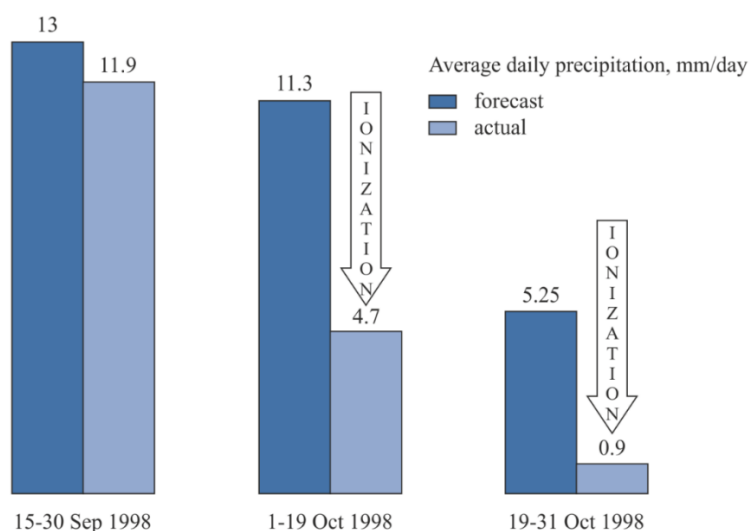


Figure 13 Predicted and actual daily precipitation in Mexico City in 1998 during the ELAT-station's operation in the Xochimilco park

4. CONCLUSION

The results of the ELAT-technology application in Mexico evidence the qualitative and quantitative validity of the theory conclusion in relation to the value of the released energy upon artificial introduction of electrons into the atmosphere or their selection from the atmosphere. The technology claims to solve environmental, energy and agricultural problems worldwide. The theory reinterprets a wide range of facts in the physics of the Earth, the Sun, the cosmos, the atom and the atomic nuclei.

The results obtained in Mexico suggest that the main cause of the observed global warming on Earth is the cumulative effect of high voltage power lines on the atmosphere. If this conclusion is confirmed, humanity will be able to move from the stage of finding the cause of global warming to the stage of solving the problem technically. The authors announce the possibility of stopping further global warming and even of weather regulation on a global, continental and regional scale.

There is reason to believe that a new way to convert renewable solar energy into electricity through improving the efficiency of hydro and wind power plants has been found.

The implementation of the project to stop global warming and of other ELAT-technology opportunities requires the support of state and international scientific and political organizations.

REFERENCES

- [1] Pokhmelnikh, L. A. Geo-cosmic electric relations in electrostatic with e-field screening by matter. In: Tomassen, G. J. M., ed.,. Proceedings of 1st International Congress on Geo-Cosmic Relations (Amsterdam, 19-22 April, 1989): Geo-cosmic relations; the earth and its macro-environment. Pudoc: Wageningen, 1990, pp. 327-335.
- [2] Pokhmelnikh, L. A. Patent RU 2060639 C1. Apparatus for generating space charge in atmosphere. Application date: 25.12.1990. Publication date: 27.05.1996. Bulletin, 15, 1996.
- [3] Pokhmelnikh, L. A. Patent RU 2034315 C1. Equipment to form space charge in atmosphere. Application date: 23.08.1991. Publication date: 30.04.1995. Bulletin, 12, 1995.
- [4] Weizsaecker, E. and Wijkman, A. Come on! Capitalism, Short-termism, Population and Destruction of the Planet. 1st ed. New York: Springer, 2018.
- [5] Lockhart, G. The Weather Companion: An Album of Meteorological History, Science, and Folklore. New York: Wiley & Sons, 1988, 240 p.
- [6] Yost, C. A. Electrical forces applied to basic weather phenomena. In: Proceedings of the International Aerospace and Ground Conference on Lightning and Static Electricity (Atlantic City, 1992). Document available through National Technical Information Service, Springfield, Virginia, 22161.
- [7] Chang, H. C. and Inan, U. S. Quasi-relativistic electron precipitation due to interactions with coherent VLF waves in the magnetosphere. Journal of Geophysical Research. Space Physics, 88(A1), 1983, p. 318-328. <https://doi.org/10.1029/JA088iA01p00318>.
- [8] Cheney, M. Tesla: man out of time. New York: Barnes and Noble, 1981, p.287.
- [9] Vernadsky, V. I. Essays and Speeches. Petrograd: NauchKhimTechIzdat, 1922.
- [10] Pokhmelnikh, L. A. Fundamental errors in physics, electric universe and weather correction by air ionization. Moscow: Maska, 2014.
- [11] Pokhmelnikh, L. A. An evolutionary model of cosmo-planetary integration of the planet Earth in the noosphere. Moscow: Federal Scientific Agroengineering Center VIM, 2018.
- [12] Budyko, M. I. Earth's atmosphere. In: Physical Encyclopedia. Moscow: Sov. Encyclopedia, 1988, p.133.
- [13] Styro, B. I. and Orlova, N. V. On the determination of sizes of aerosol particles obtained in dry dustless air at Radon decay. Atmospheric and Ocean Physics; 7(8), 1971, 917.