

Some Lorentz Forces Acting Both in the Earth's Atmosphere and on the Earth's Surface

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Abstract: Due to the daily rotation of the Earth, both its surface and atmosphere are constantly crossed by the lines of force of the geomagnetic field. The Lorentz force arising in this case constantly acts both on the surface of the Earth and in the earth's atmosphere, distributing charges so that positive ones move upwards, and negative ones – downwards. Naturally, the action of such a Lorentz force is manifested in a number of terrestrial and atmospheric phenomena, both well known and considered not entirely clear. It is also natural to want to use this Lorentz force as a source of constantly renewed energy. To this end, it is useful to analyze some well-known terrestrial phenomena that clearly demonstrate the capabilities of this Lorentz force. It is equally useful to analyze the possible use of this Lorentz force by aliens for both UFO flights and for abducting earthlings. One way or another, a number of hard-to-explain phenomena observed when a UFO appears, gets a completely acceptable explanation if we take into account both the action of this very Lorentz force and its energy intensity. Although the interpretation of both well-studied and little-studied phenomena proposed here may seem controversial, it deserves consideration, like everything new.

Keywords: Earth, Magnetism, Renewable Energy Sources, Optical Tweezers, Levitation, Abduction

1. Introduction

With the Earth's daily rotation, its surface and atmosphere continuously intersect the lines of force of the geomagnetic field (Figure 1). Therefore, all charges that are on the surface of the Earth and in the Earth's atmosphere are under the constant influence of Lorentz forces F_L [1, 2]:

$$F_L = q [v, B] \quad (1)$$

where: q – electric charge;

v – the speed of both the earth's surface and the earth's atmosphere during the daily rotation of the Earth;

B – geomagnetic induction.

Thus, these F_L forces constantly separate positive and negative charges in both the vertical and horizontal directions. So, due to the action of the Lorentz force F_L^* , which appears due to the intersection of the horizontal lines of the geomagnetic field by the atmosphere, the upper layers of the Earth's atmosphere have a positive potential of $\sim 4 \cdot 10^5$ V relative to the Earth's surface [1 – 3]. (It should also be noted

that the nature of the force that creates and maintains this potential difference has remained unclear for a long time [3].)

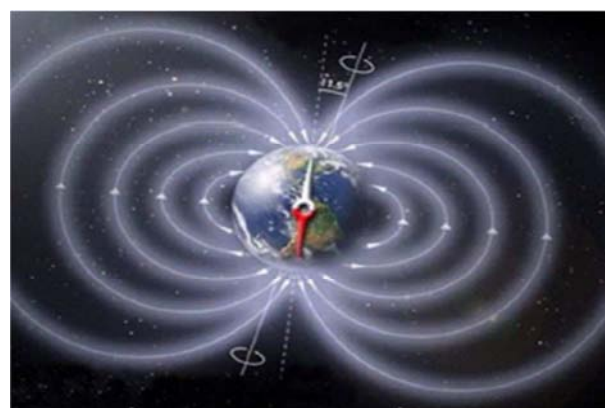


Figure 1. As the Earth has daily rotation, all objects located on its surface and in earth's atmosphere continually cross the lines of force of the geomagnetic field. The appeared Lorentz forces distribute the atmospheric and terrestrial charges [2].

The same Lorentz force F_L^* determines the characteristic

polarization of clouds (Figure 2) [2].

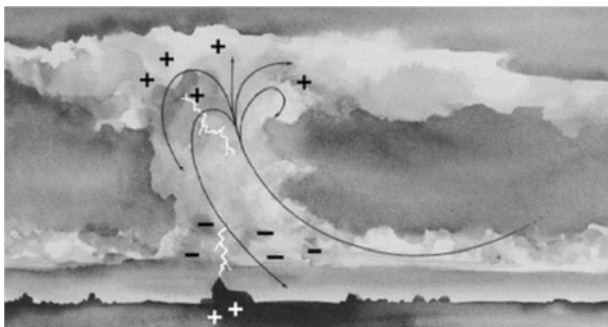


Figure 2. Polarization of clouds: the lower part of a typical cloud has a negative charge and the upper part has a positive charge [2].

Moreover, this Lorentz force F_L^* causes the appearance of celestial discharges, both directed upward, positively charged (Figure 3, above), and directed downwardly negatively charged (Figure 3, below) [2].



Figure 3. Above: these are blue jets representing ascending currents of hydrated protons. Below: these are ordinary lightnings, which are downward flows of hydrated electrons [2].

Thus, the presence of a powerful Lorentz force F_L^* , which constantly and efficiently distributes celestial charges in the vertical direction, is beyond doubt. Taking this into account, it can be assumed that this Lorentz force F_L^* has not only celestial, but also terrestrial manifestations. Here, a number of phenomena are proposed for your attention, the existence of which can be explained by the action of this force.

The possible use of the Lorentz force F_L^* by aliens is also analyzed.

2. Materials and Methods

Positively charged water was obtained in two ways:

- By passing through uncharged water of gaseous oxygen.
- By filtration of uncharged water through the silica gel.

It is known that gaseous oxygen sorbs electrons from water, and silica gel – hydroxyl ions, OH^- [4].

Negatively charged water was also obtained in two ways:

- By passing through uncharged water of gaseous hydrogen.
- By filtration of uncharged water through the activated carbon.

It is known that gaseous hydrogen is an electron donor for water, and activated carbon sorbs hydrogen ions from water, H^+ [4].

The electric potential of charged water was measured against uncharged water, as shown in Figure 4.

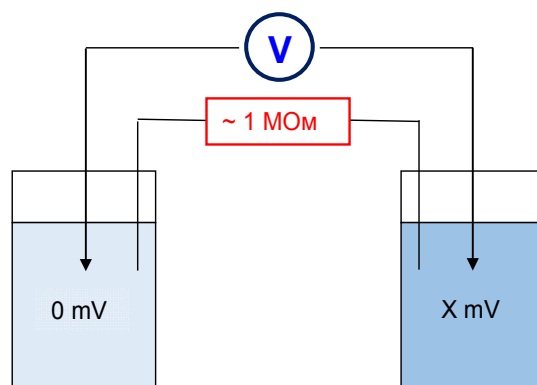


Figure 4. This is the most convenient setup for measuring the electric potential of water: on the left is a vessel with uncharged water (0 mV), on the right is a vessel with water, the potential of which is determined (X mV) from a voltmeter reading (V).

Water with the required electrical potential was obtained in two ways:

- By varying the depth of the layer of sorbent through which filtered water is discharged.
- Varying the time during which the gas passed through the uncharged water.

3. Results

3.1. Germination of Plants Watered with Oppositely Charged Waters

Considering the distributing effect of the Lorentz force F_L^* on opposite charges in the clouds (Figure 2), it was assumed that it would have a similar effect on water charges on the earth's surface. In particular, it has been assumed that this Lorentz force F_L^* is capable of lifting positively charged water into plants better than negatively charged water. When testing this assumption, it was found that the germination of plants watered with positively charged water is faster than the germination of plants watered with negatively charged water (Figures 5, 6).



Figure 5. Maize sprouting for four weeks. Top left – maize, which was watered with water with a potential of +50 mV; below – maize, which was watered with water with a potential of -50 mV.



Figure 6. Sunflower growth within two weeks. Top left – sunflower, which was watered with water with a potential of +150 mV; bottom right – sunflower, which was watered with water with a potential of -150 mV.

3.2. Sedimentation in Oppositely Charged Waters

The distributive action of the Lorentz force F_L^* on solid charged objects was also assumed. Probably, it is this action that demonstrates the fact that the sand suspension settles more slowly in positively charged water (Figure 7, left) than in negatively charged water (Figure 7, right).

The fact that starch powder does not sink in positively charged water (Figure 8, left), but sinks in negatively charged water (Figure 8, right) can also be seen as an earthly manifestation of the same Lorentz force F_L^* .

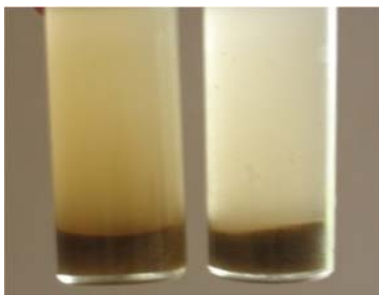


Figure 7. Sedimentation of sand in positively (left) and negatively (right) charged waters.

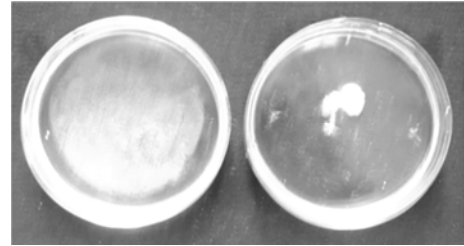


Figure 8. Left: the starch powder applied on the water surface with a potential of +250 mV forms a thin film that completely covers the water surface. Right: In the water with a potential of -200 mV, the powdered starch sinks [5].

3.3. Capacitor Charging

Given the ability of the Lorentz force F_L^* to create celestial discharges, both upward, positively charged (Figure 3, top), and downward, negatively charged (Figure 3 below) [2], it was assumed that the same ability could be used to charge ground capacitors. This assumption was verified experimentally using the proposed scheme (Figure 9).

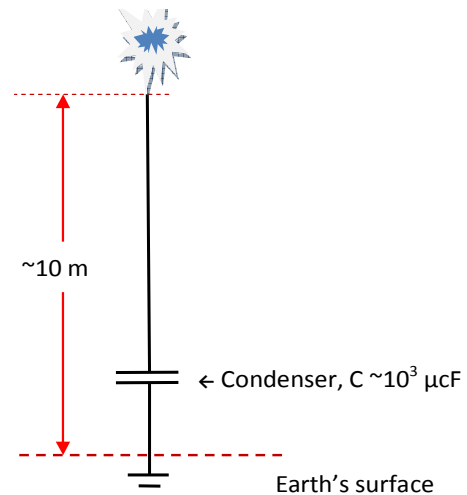


Figure 9. It is likely that the described Lorentz force F_L^* is capable of charging up to ~ 10 V a grounded capacitor via the antenna. The top plate of this capacitor receives a negative potential with respect to the bottom plate. Probably, the intensity of such charging depends on the concentration of negative air ions.

So, it was found that such a design (Figure 9) allows charging capacitors up to ~ 10 V. It was also found that the intensity of this charging depends on the weather. Thus, it decreased at high atmospheric pressure and increased at low atmospheric pressure, which is probably due to the weather dependence of the concentration of negative ions in the lower air layers [6].

4. Discussion

Based on the motivation of these experiments, the participation of the Lorentz force F_L^* in terrestrial phenomena seems to be very possible. In any case, these results provide a reason for discussion.

If we extend the distribution of charges in the clouds (Figure 2) to the first two experimental results (Figures 5, 6), then the participation of the Lorentz force F_L^* in the distribution of charged water over plants seems quite probable. This may be important, since the participation of the Lorentz force F_L^* in the rise of water in plants is not even implied by plant physiologists. To be convinced of this, let us recall the generally accepted views on the cause of the rise in water in plants. So, it is now believed that the reason for the upward movement of water in plants is similar to the reason for such movement in vertically oriented glass capillaries. Thus, it is believed that this movement is associated both with the attraction of water to the polar glass surface (adhesion) and with the surface tension of water, which tends to minimize the surface area of the air-water interface. It is also believed that the adhesion and surface tension of water causes the water to move upward until their combined lifting force is balanced by the weight of the water column, which is formed by the intermolecular forces of water (cohesion) [7].

Despite the fact that this concept prevails [7-9], its correctness raises doubts. Thus, this concept ignores the fact that both the adhesive and cohesive properties of water depend on its electric charge (potential), as well as the fact that glass attracts negative charges of water, which is manifested in adhesion negatively charged water to the glass surface [4, 10]. Thus, this concept not only cannot explain the results obtained (Figures 5, 6), but also contradicts those. For this reason, the proposed explanation looks more preferable, taking into account the distributing action of the Lorentz force F_L^* on cloud charges (Figure 2).

In any case, the results obtained (Figures 5, 6) are very useful as they allow explaining some of the phenomena. So, taking into account that rain drops acquire a positive charge when rubbed against air [4], their stimulating effect on plants becomes clear. Also, the reason for the stimulating effect on plants of those representatives of the soil microflora that release protons outside the cells [11], and therefore into the ground, become obvious. Thus, creating a proton gradient on their own cytoplasmic membranes, these representatives of the soil microflora not only stimulate the activity of their own membrane ATP synthases [11], but also enrich the soil with protons, increasing soil fertility. Be that as it may, it should be borne in mind that both of these effects exist precisely due to the Lorentz force F_L^* , as well as, in fact, the effects observed in Figures 7, 8.

Since this Lorentz force F_L^* has proven useful in explaining a number of effects, let's use it to offer a more plausible explanation for the work of Arthur Ashkin's optical tweezers [12, 13].

So, it is well known that the direction of a ray of light is determined by the Pointing vector, S :

$$S=[E, B] \quad (2)$$

where: E – electric field strength;

B –magnetic induction [14].

At the same time, it is less known that the same Pointing vector indicates the direction of motion of positive charges

moving under the action of light (Figure 10) [14].

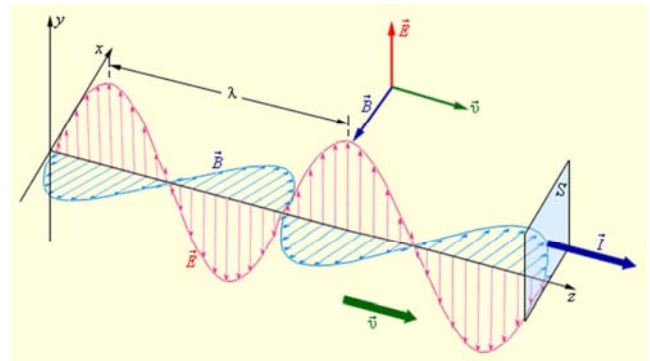


Figure 10. This is a diagram illustrating the structure of the Pointing vector. Consequently, v is the speed of positive charges that form a current I in the direction of the Pointing vector S [14].

Since this effect of the Pointing vector on positive charges is usually not taken into account, it is not surprising that the positive electrification of illuminated objects is often ignored. (In fact, the same type of positive electrification is explained in quantum physics by the photoelectric effect [15].) It is also not surprising that Mr. Ashkin, who ignored both the positive electrification of illuminated objects and the action of the Lorentz force F_L^* , was forced to show considerable ingenuity in explaining the operation of the optical tweezers, i.e. – the ability of laser beams to "lift" small objects [12, 13].

All this additionally confirms the productivity of knowledge about the Lorentz force F_L^* , at least for scientists. Let's test this productivity against a phenomenon whose possible existence remains controversial. It is about levitation of people, brightly lit by rays emanating from UFOs (Figure 11), which is considered fundamentally impossible.



Figure 11. Alien abduction: strong light can cause a strong positive electrification of a person, and the described Lorentz force F_L^* can cause a person who is positively electrified to levitate. Essentially, the aliens use the same optical tweezers with which Arthur Ashkin suggested manipulating small objects [12, 13].

To begin with, let us recall that, naturally – with the help of Mr. Ashkin, we were convinced that the described Lorentz force F_L^* can lift strongly illuminated objects. Since we have already made sure, naturally – with the help of Mr. Ashkin, that the described Lorentz force F_L^* can lift strongly illuminated objects, the possibility of using the same method of raising earthlings by aliens (levitation) looks quite reliable. In any case, the people who were abducted linked their levitation to the powerful light

emanating from the UFO (Figure 11). Thus, knowledge of this Lorentz force F_L^* makes it possible to make realistic a phenomenon that many consider to be fantastic.

Let us now recall that the Lorentz force F_L^{**} , arising from the interaction of horizontally moving objects, including air, river and sea currents, with the vertical lines of the geomagnetic field, also has similar capabilities. Thus, it was previously shown [16, 17] that this Lorentz force F_L^{**} makes a significant contribution to the formation of tornadoes and (anomalous) phenomena occurring in the Sargasso Sea.

Thus, both described Lorentz forces (F_L^* and F_L^{**}) have shown their own vitality and, which is no less important, their energy intensity. It is clear that the desire to use this energy capacity is quite justified. To satisfy this desire, let's first find out how aliens use these Lorentz forces in UFO flights. (This may be relevant given that the Pentagon recently confirmed the existence of a UFO.)

Let's first get acquainted with the description of the principle of operation of the UFO engine that crashed in the German Alps in 1939: "The engine of his... produced electrons and positrons. The positrons are attracted to the top of the sphere and created the levitation" [18]. Agree, since this description does not take into account the interaction of positively charged UFOs with the environment, the question of their levitation remains unclear. Everything changes dramatically if we add to this description the knowledge of the Lorentz force F_L^* , under the influence of which positive charges move upwards, in any case, in terrestrial conditions. However, this description required attention to the positive electrification of flying objects.

The Montgolfier brothers and Viktor Schauberger were probably the first to consider the positive electrification of flying objects as a factor increasing their lift; in any case, Viktor Schauberger tried to purposefully preserve the positive charge of the flying disc he designed (Figure 12) [19].

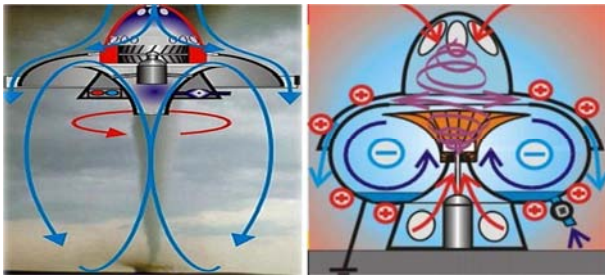


Figure 12. Here are the diagrams illustrating the device and the principle of operation of the flying disc Schauberger. Left: blue arrows show air circulation, due to which the disk lift force arises. Right: According to Schauberger, positive disc electrization creates additional lift [19]. Almost certainly, the same principle creates the Frisbee lift.

Since all this can be at least interesting, let's analyze the process of the appearance of the lift of UFOs, which usually rotate (of course, based on eyewitness accounts). First, let's make sure that objects that rotate horizontally in terrestrial conditions are electrified. Such electrization is the result of the interaction of rotating objects with the vertical component of the geomagnetic field.

So, objects rotating counterclockwise in the horizontal

plane in the northern hemisphere are under the influence of the Lorentz force F_L^{**} , which moves positive charges to the center of such objects (Figure 13), and negative charges from their centers.

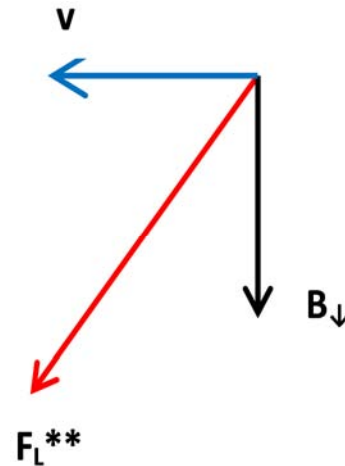


Figure 13. The Lorentz force F_L^{**} (red arrow) moves positive charges to the center of the object, which rotates counterclockwise in a horizontal plane in the northern hemisphere of the Earth. This force arises due to the interaction of a moving object, the speed of which is equal to v , with the horizontal component of the geomagnetic field B_{\downarrow} , which is directed downward [16].

It was shown previously that this type of rotation can create significant positive electrization and, therefore, powerful lifting force is confirmed by the lifting ability of the tornado. So, you can see that the part of the tornado that causes the rise (levitation) of captured objects rotates counterclockwise (Figure 14, above) [16].

This suggests that such levitation is due to the positive electrization of objects captured by counterclockwise rotating air flows, namely, the Lorentz force F_L^* [16].

You can also see (Figure 14) that lightnings, which are downward-directed flows of negative charges, form the outer parts of the tornado. Thus, the same Lorentz force F_L^{**} (Figure 13) directs negative charges to the periphery of the tornado. It is clear that these peripheral negative charges move down under the action of the Lorentz force F_L^* [16, 17].

To be consistent, we will discuss additionally the electrification of objects that also rotate horizontally in the northern hemisphere, but clockwise. Obviously, they are also affected by the Lorentz force F_L^{**} , which in this case moves positive charges to the periphery of these objects, and negative charges to their center (Figure 15), – it is clear that objects rotating in this way will be negatively charged.

Taking all this into account, we can assume that the often observed rotation of UFOs (naturally, based on eyewitness accounts) is one of the ways to electrify them and, therefore, to control their lift, at least in terrestrial conditions. Thus, the aliens showed that the desire to use the energy of both described Lorentz forces (F_L^* and F_L^{**}) is quite feasible. Flying insects, whose bodies receive a positive charge before takeoff [20], also confirm the fulfillment of this desire. Perhaps the positive electrification of other flying objects, including balloons and airplanes (Figure 16) [21-23],

confirms the same.

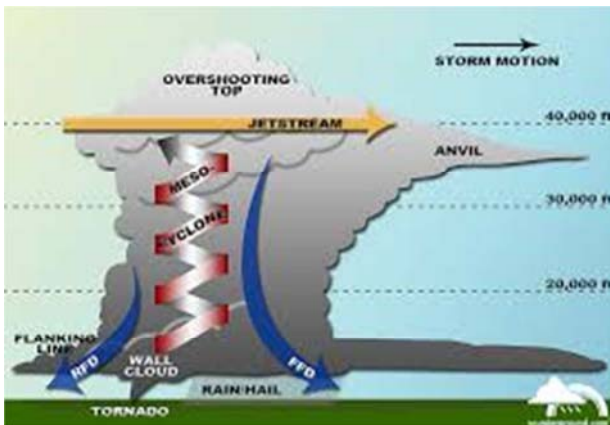


Figure 14. Above: this is a diagram illustrating both the structure of the tornado and the process of its formation: the tornado is formed from a cloud located below the horizontal air flow. Below: A typical tornado has an upward flow of positively charged air that rotates counter clockwise (when viewed from above) and is surrounded by lightning, which is a downward flow of negative charges [16].

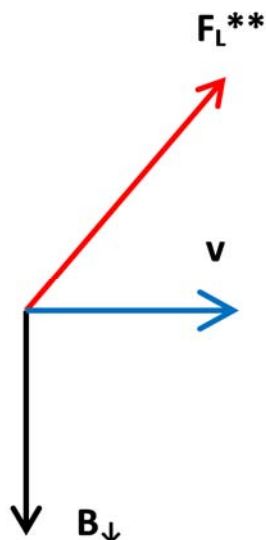


Figure 15. Lorentz force F_L^{**} (red arrow) removes positive charges from the center of the object, which rotates clockwise in a horizontal plane in the northern hemisphere of the Earth. This force arises due to the interaction of such an object, whose velocity is v , with the horizontal component of the geomagnetic field B_{\downarrow} , which is directed downward [17].

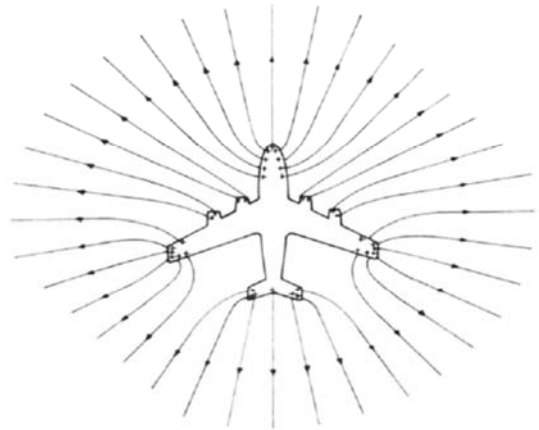


Figure 16. The nose, wings and tail of a flying airplane are positively charged [21].

Apparently, the positive electrification of a number of objects can be the result of the skin effect [24]. This may be due to the fact that electrons of conductors with electric currents, especially high-frequency ones, can be carried away from their surfaces downward by the Lorentz force F_L^* . Thus, conductors with high-frequency currents can quickly acquire a positive charge and, accordingly, the ability to levitate (naturally, under the action of the same Lorentz force F_L^*), as in one of the Hutchison effects. In particular, the skin effect can create additional positive electrification of intensely illuminated objects, in particular those that are manipulated with optical tweezers. This suggests that the optical tweezers are based on the Hutchison effect, at least in part. Naturally, the same considerations suggest that high-frequency electric currents can also be induced by beams emanating from UFOs (Figure 11).

Let's stop dreaming and get back to reality. So, based on the declared considerations, the participation of the Lorentz force F_L^* in sedimentation and flotation (Figures 7, 8) seems to be quite probable. This may be important for colloidal chemists who are unaware of the existence of the Lorentz force F_L^* and, naturally, do not imply its possible participation in both sedimentation and flotation [25].

If we recognize the existence of the Lorentz force F_L^* , then the possibility of charging capacitors using its energy (Figure 9) seems to be quite real. While this kind of charging is weather dependent, it can be promising in rainy regions.

5. Conclusion

Quite terrestrial permanently acting Lorentz forces are the causes of numerous phenomena occurring both on the surface and in the atmosphere of the Earth. Lack of attention to these Lorentz forces gives rise to incorrect scientific theories that unsuccessfully try to explain the nature of the phenomena that occur both on the surface and in the atmosphere of the Earth. Thus, this inattention impedes scientific development. Moreover, this inattention is the enduring cause of the phenomena classified as "mysterious".

Thus, these Lorentz forces are of not only scientific but

also practical interest.

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