Российское академия естественных наук
Министерство образования и науки Республики Татарстан
Казанский (Приволжский) федеральный университет
Казанский государственный институт культуры
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Республики Кыргызстан
Бухарский государственный университет Республики Узбекистан
Управление образования Исполнительного комитета города Казани
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В данном сборнике предоставлены работы преподавателей, учителей и студентов по географическому, эколого-краеведческому исследованию, по раскрытию своих педагогических находок, особенностей и опыта работы по повышению качества учебно-воспитательного процесса в вузе и школе.

Материалы конференции опубликованы в том виде, в каком они представлены авторами на конференцию и адресованы научно-педагогическим работникам вузов, аспирантам, студентам, учителям и воспитателям общеобразовательных учреждений.

• исключить или хотя бы уменьшить попадание в по
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МАГНИТНЫЕ БУРИ И ИХ ВЛИЯНИЕ НА ЗДОРОВЬЕ ЧЕЛОВЕКА

Nematov A. N., Senior teacher of the Department of Ecology and Geography of Bukhara State University

Qalandarova D. D., Teacher of Department of Ecology and Geography of Bukhara State University

Rakhimova A. Q., 4th-level student of the Geography Department of Bukhara State University

Нематов А. Н., БухГУ, преподаватель кафедры Экологии и географии

Каландарова Д. Д.

Рахимова А. К., БухГУ, студентка 4-курса направления География

In recent years, the concept of "magnetic storms" has been widely used. In some mass media, in particular, on TV channels, along with weather information, short information about magnetic storms began to be given. So what exactly is this process and how does it affect us? Some people mistakenly associate headaches and high blood pressure with magnetic storms. This assumption is partially justified. The various effects of magnetic storms on the planet Earth have been widely studied, and it has been proven that they cause negative consequences for human health. It just depends on such factors as the duration, strength and frequency of these storms.

Magnetic (more precisely, geomagnetic) storms are caused by the wind caused by solar flares, when micro particles fly and affect the Earth's electromagnetic layer. We feel the consequences of this influence. Usually, such processes last 6-7 hours on average. After a flash, the Earth's electromagnetic layer returns to its normal state within 3 days.

British scientist Richard Kerrington conducted initial research on magnetic storms. In 1859, while observing solar flares, he found that geomagnetic activity increases sharply after a few hours of this process. [1]

The Chinese, Arabs, Greeks and other people have known the Earth's magnetic field since BC. They knew that some "mysterious stone" attracts a piece of iron. This stone was called Hercules stone, later Lydian stone, siderite, Magnus stone and other names. In the end, these terms were replaced by the concept of "magnet" (derived from the name of the ancient city of Magnesia in Asia Minor, which means **magnetic stone** or **magnesia stone** in Greek). China, ancient Egypt and Babylon knew that the magnetic arrow points to the south and the north, and they used it for swimming in the sea. The inventor of the compass is the Chinese. In 1600, Gilbert, an Englishman, called the Earth a great magnet and noted that it has two magnetic poles.

According to the nature of the rocks and ores scattered in the Earth's crust, magnetic anomalies are observed (for example, the Kursk magnetic anomaly). They can be observed on a local, regional and planetary scale. In addition, there are also magnetic storms. [2]

First, the characteristics of the magnet were studied by the French scientist Peter Peregin in the 13th century, he introduced the concepts of "north and south" poles into science and improved the compass. The magnetic axis is tilted by 11.5° relative to the Earth's axis of rotation. Geomagnetic poles are located where the magnetic axis crosses. Note that scientists actually believe that the north geomagnetic pole is located in the northern hemisphere, and the north magnetic pole is located in the southern hemisphere. However, without paying attention to it, magnetic poles have been named like geographical poles.

The geomagnetic field is called the **magnetosphere**, and its outer boundary is called the **magnetopause**. At a distance of 60 thousand km, the geomagnetic field encounters the magnetic field of the Sun and the solar wind (speed 400 km/sec). Due to the influence of the solar wind, the length of the side of the magnetosphere facing the Sun is 8-14 Earth radii, and the opposite, that is, the shadow side, is 16 Earth radius.

The magnetosphere contains the inner and outer radiative regions, as well as the inner and outer radiative regions of the Earth. Charged particles (protons and electrons) are trapped here. The inner radiation region is quite dense (mainly protons), its height from the equator is (3...4)*103

, and the outer one reaches 22*103 km. Particles in radiation regi
ollow complex trajectories to the North
moves from the hemisphere to the Southern Hemisphere and back again.

There are many theories about the origin of the **geomagnetic field**. According to the ferromagnetic theory, the Earth's crust, mantle, and core contain ferromagnetic substances. So, the geomagnetic field is related to Earth's magnetism, not electric currents. The non-uniform distribution of iron in the earth, the non-uniformity of the magnetic field, and the appearance of magnetic anomalies. This idea was found to be unfounded for two reasons. First, after the discovery of a magnetic field around an electric current in a wire by the Danish physicist Ereted in 1820, and by the French physicist Ampere in 1827, he discovered that the circulation of an electric current in the interior of the Earth creates a magnetic field. Secondly, it was proved that magnetic substances are located near the Earth's surface (30 km), and there is no magnetic crust. [2]

Magnetic storms are sudden changes in the Earth's magnetic field that cause the magnetic axis of the compass to shift. Magnetic storms are observed simultaneously in large areas of the Earth's surface, sometimes the entire surface of the Earth. Magnetic storms often occur at night. It usually occurs during polar showers, thunderstorms, and earthquakes, and occurs frequently during periods of increased solar activity observed every 11 years [3].

Advances in astrophysics and geophysics show that many processes occurring on Earth (atmospheric pressure, temperature, drought, intrusion of cold currents) of solar radiation and magnetic tension activities of December 1999. In the end, it has a direct effect on the terrible hurricanes in the countries of Western Europe and in the United States of America in February 2000. Electromagnetic storms and anomalous fields have a negative effect on organisms, including human health. Patients with heart, blood pressure, and bronchitis diseases will quickly notice the changes.

As for the impact of magnetic storms on human health, the human body is closely relates with natural phenomena. Man is nature, a part of the universe, a particle. All the events that happen in the universe affect the nature of the Earth, including humans. The human body contains all the elements found in nature, including iron. If we take into account that magnet is attracted to iron, the iron substance in a person automatically "comes into action" during a magnetic storm, the balance is disturbed. Instead of information, iron is determined by hemoglobin in the blood. During a magnetic storm, it has a negative effect on the blood circulation system (iron also follows the general law). As a result of circulatory system disorders, a person can have various diseases, including those with chronic diseases it has a significant effect.

People suffering from diseases of the cardiovascular system should be careful during magnetic storms. As you know, the human body contains

ny elements of Mendeleev's periodic table. Including iron. It is contain
n red blood cells (erythrocytes) and has a negative charge. According to th
law of mutual repulsion of the same charged particles in physics, free movement of blood occurs in the vein. When this iron substance is affected by a magnetic storm, the charges change. The corpuscles, which begin to pull instead of pushing each other, make it difficult for the free movement of blood in the veins. As a result, blood pressure increases. High blood pressure damages the inner wall of blood vessels. Shaped elements of blood adhere to the damaged walls and form a blood clot in the veins. The risk of complications such as heart attack and stroke increases in patients with chronic diseases, especially cardiovascular diseases, hypertension and hypertension. To prevent this, the patient is required to take blood thinners and other drugs recommended by the doctor on time, lead an active lifestyle, replace high-calorie foods with fruits and vegetables, and follow a daily routine.

In addition, this whim of nature does not leave out the nerve fibers. Nerve fibers are the main source of muscle power. Because of a magnetic storm, adrenaline and noradrenaline hormones are produced in the body. If these hormones cause symptoms such as dizziness, muscle pain, sleepiness or insomnia, mood swings, nervousness, dizziness in a healthy person, the risk of cerebral hemorrhage may increase in patients with a predisposition to illness and the elderly. [4]

In conclusion, it can be said that magnetic storms are related to the position of the Earth in the universe, the 11-year rhythmic flashes of the Sun, and any changes in the Earth's magnetic field.

When a magnetic storm is observed, the following recommendations are given to people:

- Performing physical exercises to improve blood circulation;
- Drink more liquids, mainly water, natural non-carbonated drinks as much as possible;
- Constant performance of breathing exercises;
- Do not walk for a long time in the open air, because the effect of the magnetic storm is higher in the open air;
- Follow the rules of proper and healthy eating.

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