

Causes of Geomagnetism

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Abstract

The purpose of this research is to research the causes of geomagnetism. For the method, the Earth's matter and the Earth's magnetic field were investigated. As a result, the Earth's equator is hot, the north and south poles are cold, the center of the Earth is hot, and the surface of the earth is cold. This temperature difference generates an electromotive force, and this electromotive force creates a magnetic field. The Earth behaves as if an electric motor and generator were combined. Therefore, an additional current flow and a magnetic field are generated to function as an electromagnet. As the Earth rotates, it functions as a generator. Therefore, geomagnetism is the sum of the Earth's permanent magnet and the electromagnet caused by the Earth's rotation. The conclusion is that geomagnetism is caused by the electromotive force of the earth's temperature difference and the electromotive force of the earth's rotation.

Keywords: Geomagnetism, Magnetic Field. Earth Electric Generator, Earth Rotation, Thermoelectric Effect, Bermuda Triangle

1. Introduction

The current geomagnetism theory is the dynamo theory [1]. Dynamo theory is the theory of rotation of the Earth's inner core. The geomagnetism theory of this research is that it is generated by the electromotive force due to the temperature difference of the Earth and the electromotive force of the Earth's rotation. The Earth generates an electromotive force due to the temperature difference, and this electromagnetic force creates a magnetic field and a rotational force that rotates the earth. As the Earth rotates, it functions as a generator. Therefore, the Earth behaves as if an electric motor and generator were combined. In other words, it works like a permanent organ. Therefore, an additional current flow and a magnetic field are generated to function as an electromagnet. Therefore, the permanent magnets and electromagnets of Earth's matter form a magnetic field to form geomagnetism.

2. Current Geomagnetic Theory

The current geomagnetism theory is the dynamo theory [1]. Dynamo theory is the theory of rotation of the Earth's inner core.

The rotation speed of the Earth's inner core is slightly slower than the rotation speed of the Earth. "Geomagnetism flowing in the west direction" required approximately 2000 years to complete one revolution of the Earth [2]. This "Geomagnetism flowing in the west direction" is still unknown. However, this author believes that this is because the rotational speed of the Earth's inner core rotates slightly slower than the Earth's rotation speed, and it takes approximately 2000 years to take one rotation slower. Therefore, it cannot be judged that "dynamo theory" is the cause of geomagnetism.

3. Causes of Geomagnetism

The exact cause of the Earth's magnetic field (Geomagnetism) is still unknown Temperature difference exists between the Earth's surface and its center, as well as between the equator and poles (Arctic and Antarctic). When an electric current caused by the Earth's temperature difference flows, the Earth's magnetic field is generated (Framing's left-hand rule). Figure 1 shows Geomagnetic daily variation (Gakioka in Japan).

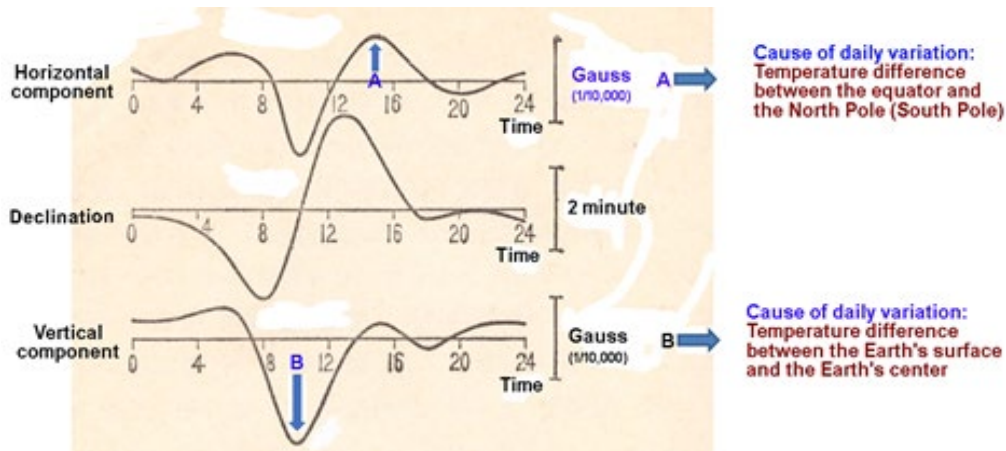
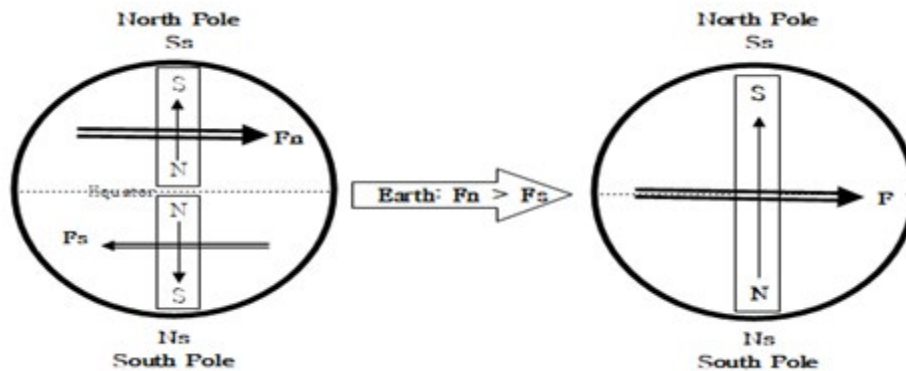


Figure 1: Geomagnetic daily variation (Gakioka in Japan)

As a result, the strength of the magnetic field is regularly changing according to the temperature change. Daily variation of geomagnetism, the maximum horizontal component appears between 14:00 and 15:00 [4], coincides with the time of the day with the highest temperature [5].

Geomagnetism is related to the temperature difference. Temperature difference generates a current, and this current is evidence of the generation of a magnetic field.

Figure 2 shows the Earth's magnetic field.



S: S(Magnet), N: N(Magnet), F_n : Force of Northern Hemisphere magnetic field, F_s : Force of Southern Hemisphere magnetic field, F : Force of magnetic field
 S_s : Sum of Earth's magnetism (S), N_s : Sum of Earth's magnetism (N)

Figure 2: Earth's magnetic field and force direction.

Electric current (I_t) flows due to the difference in [3]. Earth's temperature and the Earth's magnetic field is generated. This magnetic field creates a rotational force (Fleming's left rule, principle of electric motors). The Earth rotates due to the force of a magnetic field, and as it rotates, it functions as a continuously rotating generator (Fleming's right rule), as if a motor and generator were combined. In other words, the Earth continues to rotate like a permanent organ, generating electrical energy. When the earth rotates, it acts like a generator to generate an electromotive force, and an electric current (I_d) flows. Earth's total current (I) is $I = I_t + I_d$.

The earth rotates with the force of a magnetic field, and when the

earth rotates, it acts like a generator, and the earth continues to rotate as if an electric motor and a generator were combined.

Thus, the current I create a magnetic field. There is a temperature difference between the Earth's surface and the center, and there is also a temperature difference between the equator and the poles (north and south poles). The current generated due to the temperature difference creates a magnetic field. The Earth's magnetic field rotates the Earth. The Earth continues to operate as if it were an electric motor coupled with a generator. Earth's jet stream flows eastward. This is evidence that the force of the magnetic field rotates the jet and the Earth.

4. Cause of the Bermuda Triangle Mystery

In the Bermuda Triangle, many plane and ship disappearances occur for unknown reasons. The hypothesis known so far is "Compass variations", and the theory of methane gas eruption is known. However, in this study, the causes of "Compass variations" were studied. The Earth has a Northern Hemisphere magnetic field and a Southern Hemisphere magnetic field as shown in Figure 2 [6].

This magnetic field changes from time to time by air temperature and Earth's rotation. The temperature is different day and night, and varies according to the season. Therefore, the equatorial and Bermuda Triangle magnetic fields change frequently. That is, the equator and the Bermuda Triangle north-south location may change from time to time. Since the "Bermuda Triangle" is near the equator, the magnetic field changes frequently, so the north-south direction of the compass can change frequently.

Airplane and ship accidents occur in the Bermuda Triangle, because this area is an area where the magnetic fields of the northern and southern hemispheres meet (See Figure 1), so the direction and strength of the magnetic field change frequently, and it can be assumed that the north-south direction of the compass changes from time to time. Therefore, it must be predicted that compass errors will occur in this region.

5. Discussion

The Earth's temperature difference generates an electromotive force, which in turn creates a magnetic field. This magnetic field rotates the Earth. As the Earth rotates, the Earth acts like an electric generator. Therefore, the Earth behaves as if a motor and a generator were combined.

The Earth works like an electric generator to produce electrical energy. By adding this electrical energy, an electric current flow, and a magnetic field are created. Therefore, the electric generator current of the earth and the temperature difference current are the

causes of geomagnetism.

It is necessary to observe and study changes in the magnetic field in the Bermuda Triangle and the equator, where the magnetic fields of the Northern Hemisphere and the Southern Hemisphere meet.

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Author Contribution

The author (Dong-il Song) confirms sole responsibility for the following: study conception and design, data collection, analysis and interpretation of results, and manuscript preparation.

Competing Interest

The author declares that there is no competing interest.

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