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Review Article

Analysis of Nuclear Fusion inside Earth

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ABSTRACT

Using the falsification method to prove that the widely accepted proposition of geothermal is a false proposition, it is inferred that nuclear fusion occurs inside the earth. Then, using the quantum tunneling effect of proton and the observed continental plate drift facts, it is determined that there must be nuclear fusion inside the earth. Through the diagram of temperature of planet earth, it can be determined that the endothermic nuclear fusion reaction occurs in the core of the earth, and because the water becomes solid and cannot ionize hydrogen ions, nuclear fusion cannot occur, so as to determine that the temperature at earth's center is the freezing point of the saline solution at the center of the earth's core.

Keywords: Nuclear fusion; Hydrogeology; Deep earth; Heat source

INTRODUCTION

The core temperature is an important proposition in earth science, which will directly determine the establishment of earth model and the development direction of earth science. In 1997, Williams, et al. proposed the hypothesis of geothermal sources [1]. There are three main sources of heat in the deep earth: 1. Heat from when the planet formed and accreted, which has not yet been lost; 2. Frictional heating, caused by denser core material sinking to the center of the planet; and 3. Heat from the decay of radioactive elements. This hypothesis inferred that earth's core temperature is very high, and determined the method of measuring the core temperature. In 2013, Anzellini, et al. estimated the internal temperature of the earth's core through experiments [2]. Subsequently, an earth model was established and computer simulations were used to calculate related values, such as the 1066 A earth model [3]. However, the temperature gradient distribution near the Mohosurface in the land area calculated by this model is not continuous with the actual temperature gradient distribution of the crustal crust. Yes, this violates the law of conservation of energy. The law of conservation of energy has been repeatedly proved to be correct, so the geothermal source proposition proposed by Q. Williams is a false proposition. A heat source needs to be added in mantle-presumably from the heat released by nuclear fusion. Further through the quantum tunneling effect of proton and the plate motion observed by satellites, it can be determined that there must be nuclear fusion exists inside the earth. On the other hand, the diagram of temperature of planet earth can be used to determine the existence of endothermic nuclear fusion in the earth's core.

FALSIFICATION OF THE PROPOSITION OF THREE SOURCES OF GEOTHERMAL ENERGY

Temperature change equation of the earth's interior is [3]:

$$\int_V \rho C \frac{\partial T}{\partial x} dV + \oint_S \vec{q} \cdot \hat{n} dS - \int_V A dV = 0 \quad (1)$$

The first term of the formula is the amount of heat absorbed per unit time by a substance in V increasing its temperature, ρ is density of matter; C is the specific heat capacity of the matter. The second term of the formula is the heat flowing out of V through S per unit time; the vector n is the outer normal unit vector of S; the third term of the formula is the heat generated by the heat source, A is the heat generated per unit volume per unit time.

The high-temperature lithosphere generated at the mid-ocean ridge moves to both sides with the expansion of the ocean floor and cools to form heat flow [3]. Radioactive heat generation can be ignored. The rocks generated at the mid-ocean ridge are from the mantle, so it can be considered that the radioactive heat generation in the mantle can also be ignored.

The inner core is thought to be made of iron and nickel separated from the outer core. Thus, in the retention process, heavy substances fall and light substances rise, thus forming a kind of chemical convection [3]. It can be concluded that the process of heavy matter deposition mainly occurs in the outer

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core, and the heat generated by friction during the deposition of material toward the center mainly occurs in the outer core. The frictional energy in the mantle can also be ignored. The mantle, of course, carries heat mainly by convection.

The mantle takes into account neither the heat generated by radioactive elements nor the heat generated by friction as material is deposited towards the center of the earth. So let's say that the source of heat in the mantle is negligible. According to the geothermal three sources proposition, and according to formula (1), the heat transfer in the mantle mainly comes from the heat transfer in the core and the temperature drop of the material in the mantle. In the one-dimensional direction from the center of the earth to the surface, without considering convection, the energy transfer expression of the two approaching surfaces is approximately: $Q_2 \approx Q_1 + \rho VC\Delta T$, According to Fourier's law of heat conduction:

$$Q = -KA\frac{dT}{dr}$$

$$-K_2A_2\frac{dT}{dr} = -K_1A_1\frac{dT}{dr} + \rho VC\Delta T$$

Therefore, in the mantle where convection does not occur, two factors affecting the temperature gradient are KA and ΔT.

Based on the temperature distribution table of the earth's interior drawn by the 1066 A earth model [3]: At the earth radius of 6201 km and the surface depth of 170 km, the subterrestrial lithospheric temperature is 1480 K; At the earth radius of 6251 km and the surface depth of 120 km, the subterrestrial lithospheric temperature is 1226 K. At the earth radius of 6301 km and the surface depth of 70 km, the subterrestrial lithospheric temperature is 1035 K.

The average arithmetic of the temperature gradient for 120-170 km below ground is:

$$-\frac{\Delta T}{\Delta r} = \frac{\Delta T}{\Delta z} = \frac{1480-1226}{170-120} \approx 5.08\text{K/km}$$

The average arithmetic of the temperature gradient for 70-120 km below ground is:

$$-\frac{\Delta T}{\Delta r} = \frac{\Delta T}{\Delta z} = \frac{1226-1035}{120-70} \approx 3.82\text{K/km}$$

Field observed that the propagation velocity of seismic wave in the earth's crust and laboratory simulation of deep earth temperature and pressure environment determination of ordinary rocks such as granite and gabbro (basalt) speed range, while the mohorovicic interface under seismic wave velocity and the density of the surface is relatively rare rock (such as a blunt peridotite, peridotite, gabbro) laboratory measurements is good [4]. It can be considered that the average chemical composition of the material above the Mohosurface is similar to that of basalt, and that of the material below the Mohosurface is similar to that of olivine. Therefore, no convection occurs near the Mohosurface. If it does occur, it will lead to the exchange of basalt components and olivine components, and the Mohosurface will not exist. According to the above analysis, when there is no convection near the Mohosurface in the mantle, the change of mantle temperature gradient is related to KA and ΔT. If the change of density and specific heat capacity is ignored, and the temperature of unit object falling is regarded as a constant value.

$$\Delta Q / Q \approx \Delta V / V$$

$$\Delta Q \approx \frac{\Delta V}{V}\cdot Q = \frac{\Delta V}{V}\cdot KA\frac{\mathrm{d}T}{dr} \approx \rho VC\Delta T$$

$$-K_2A_2\frac{dT}{dr} = -K_1A_1\frac{dT}{dr}(1+\frac{\Delta V}{V})$$

Calculating at an interval of 50 km, it can be get

$$-K_1A_1\frac{dT}{dr} \approx -K_2A_2\frac{dT}{dr}(1+0.024)$$

The average temperature gradient of 70-120 km is lower than the average temperature gradient of 120-176 km. At the same time, the increase of temperature gradient is less affected by the decrease of temperature. Therefore, the change of temperature gradient in the mantle near the Mohosurface is mainly influenced greatly by KA, and the temperature gradient becomes smaller and smaller as it approaches the Mohosurface. Taking the depth as the consideration object, there is a surface ξ, and the depth of the land Mohosurface is set to be 33 km. It is found at (33, ξ), K/km, In other words, the temperature gradient on the mantle side of the Mohosurface is less than 3.82 K/km.

In the crust, assuming that the lithosphere is uniform, the thermal conductivity K of the crcthe temperature is a function of depth [3].

$$T = [q^*z + D^2A(0)(1-e^{-z/D})]/K \quad (2)$$

In this formula: $D^2A(0)(1-e^{-z/D})/K$ is due to the decay of radioactive elements caused by temperature changes.

$$\frac{dT}{dz} = \frac{q^*}{K} + \frac{1}{K}DA(0)e^{-Z/D} > \frac{q^*}{K}$$

Among them: q* is taken as the land mean surface heat flux, 33.5 mW/m^2 is taken as the mean value [3], K is taken as the thermal conductivity of the rock above the Mohosurface, and the thermal conductivity of the basalt is taken as the value of 2.18 W/(mK) at room temperature, then the temperature gradient on the side of the Moho outer surface near the crust can be obtained.

$$-\frac{\mathrm{d}T}{dr} = \frac{dT}{dz} > \frac{q^*}{K} = \frac{33.5}{2.18} = 15.37K/\text{km}$$

The internal and external temperature gradients of the Mohosurface are shown in Figure 1

Since K and A are the same at the same interface, according to Fourier's law of heat conduction: $Q = -KA\mathrm{d}T/dr$ If the temperature gradient is proportional to the input and output energy, then the average energy of heat conduction of the Mohosurface near the mantle is:

$$q_{\text{mantle}} < \frac{3.82}{15.37}\times 33.5 \approx 8.32\text{mW/m}^2$$

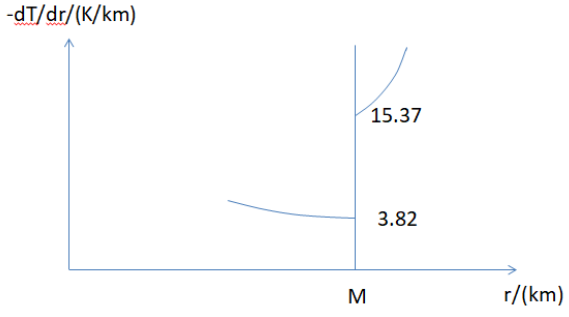

Figure 1: Schematic diagram of the temperature gradient near the Mohosurface.

The heat input from the Mohosurface near the mantle is less than 8.32 mW/m^2, and the heat output from the Mohosurface

near the crust is 33.5 mW/m^2. This conclusion is against the conservation of energy. The law of conservation of energy has been repeatedly proved to be correct, therefore, the proposition of three sources of geothermal energy is a false proposition.

In the event of a conservation of energy violation in the calculation, it is generally assumed that there is a neglected energy presence. The same can be inferred from the mantle has been not aware of a heat source, which is characterized by: 1. Not the heat of friction as radioactive elements decay and deposit material into the earth's core; 2. To rule out the energy of earth's formation and early accumulation; 3. The amount of energy released is the same as the amount of heat produced by the decay of radioactive elements (The average amount of heat from the decay of terrestrial radioactive elements reaching the earth's surface is 59.2-33.5=25.7 mW/m^2); 4. To keep the earth's core solid [2]. It can be speculated that the unknown heat source in the earth comes from nuclear fusion.

ANALYZE WHETHER NUCLEAR FUSION OCCURS IN THE EARTH FROM THE PERSPECTIVE OF QUANTUM TUNNELING

In 1929, Atkinson, et al. [5], theoretically calculated the possibility of hydrogen atoms fusing into helium at a high temperature of tens of millions of degrees. Therefore, it is generally believed that nuclear fusion can only occur when it reaches tens of millions of degrees. Because the internal temperature of the earth is only a few thousand degrees Celsius, it can be considered that there is no nuclear fusion inside the earth. On the other hand, in 1926, British astronomer Eddington believed that the energy of stars could only come from nuclear reactions, while physicists at the time believed that nuclear fusion could only occur when the temperature reached tens of billions of degrees. Later, it was explained that the nuclear fusion inside the star was achieved by the quantum tunneling effect. In the nuclear fusion chain reaction inside the sun, hydrogen ions in the form of protons play a very key factor in the nuclear fusion reaction [6-8], and there are also proton forms of hydrogen ions on the earth. As we all know, the hydrogen ion concentration index of the aqueous solution can be expressed by the pH value. Under certain conditions, the pH value is a constant. It shows that the concentration of hydrogen ions in the water is stable at a certain ratio. The hydrogen ions ionized in water can be regarded as protons, which is no different from the hydrogen ions involved in nuclear fusion reactions in the sun. Therefore, the hydrogen ions inside the earth can also undergo quantum tunneling and undergo nuclear fusion reactions with the nuclei of other elements, instead of simply judging whether there is nuclear fusion in the earth based on temperature and pressure. In other words, because there is a lot of water on the earth that ionizes hydrogen ions, nuclear fusion can occur inside the earth.

Quantum tunneling is the fundamental cause of nuclear fusion in the Sun. Hydrogen ions obtain ΔP energy from the surrounding, plus their own kinetic energy can be greater than the barrier energy. The average kinetic energy of 10 million Kelvin hydrogen ions in the sun is about 1 kev, and the potential barrier for nuclear fusion between hydrogen ions is 1.4 Mev. Hydrogen ions need to absorb ΔP=1.3 Mev from the surrounding to generate nuclear fusion. In the liquid state, water can ionize hydrogen ions. The average kinetic energy of hydrogen ions in water is less than 1 ev. If the energy of ΔP=1.4 Mev is absorbed from the surroundings, it can also cross the 1.4 Mev barrier of nuclear fusion and cause nuclear fusion. Although the difference between 1.3 Mev and 1.4 Mev is not big, whether the hydrogen ions ionized in water can absorb enough energy from the surrounding to cross the potential barrier of nuclear fusion cannot be determined theoretically, it can only be determined experimentally. The idea of the experiment is to use a certain thickness of copper foil to be equivalent to the potential barrier for the nuclear fusion reaction between hydrogen ions because the hydrogen ions can be observed in the Michelson cloud chamber. The copper foil is pasted on the container with small holes, the container is filled with water, put the container into the cloud chamber, and observe whether there are particles entering the cloud chamber, so as to judge whether the hydrogen ions in the water can obtain enough kinetic energy and generate nucleation fusion reaction.

How to determine the thickness of the copper foil to replace the 1.4 Mev barrier? The known data is that 7 Mev alpha particles have a range of 14 μm in copper. Assuming that the thickness of the copper foil is proportional to the barrier, the barrier of 2.8 μm copper foil is 1.4 Mev. It should be pointed out that the potential barrier cannot be represented by the range of hydrogen ions in the copper foil. Because hydrogen ions can undergo quantum tunneling, the range of hydrogen ions in copper is uncertain. At the same time, the uncertainty principle needs to be considered when conducting experiments.

First take the time it takes for the hydrogen ions to collide:

$dr=atdt$

$F=ma$

$F=Kq_1q_2/r^2$

Three-way union: $mr2dr=Kq_1q_2tdt$

The diameter of the water molecule is 4×10^{-10} meters, and the fusion of 1.4 Mev hydrogen ions and hydrogen ions can be calculated, that is, the time required from 4×10^{-10} meters to 10^{-15} meters is $t_0=4.4 \times 10^{-12}$ s. The speed of 1.4 Mev hydrogen ion is: $v_0=2.68 \times 10^7$ m/s. Ignore the factor that reduces the speed of hydrogen ions passing through the copper foil. The thickness of the copper foil that passes through the copper foil with a time of $t_0=4.4 \times 10^{-12}$ s is: $S_0=V_0T_0=0.105$ μm. At this time, the potential barrier of the copper foil is 0.05 Mev, which is 0.036 times of 1.4 Mev. Denoted as: $\Delta P_0\Delta t_0=0.036\Delta P\Delta t$, If the thickness of the copper foil increases, the potential barrier of the copper foil increases, the time to pass through the copper foil increases, and a rough calculation is performed, ignoring the effect of the decrease in the speed of hydrogen ions passing through the copper foil, then the minimum potential barrier between hydrogen ions and the occurrence of nuclear fusion occurs. The equivalent copper foil thickness is:

$S_1=\sqrt{1/0.036}\ S_0$=0.55 μm.

That is to say, paste a 0.55 μm copper foil on a container with small holes. The container is filled with water and placed in a Michelson cloud chamber. If particle trajectories can be observed in the cloud chamber, it means that the ionized hydrogen ions in the water can pass through the quantum tunneling effect produces nuclear fusion.

Of course, gold has better ductility, and the gold foil produced

is more flat and uniform, and the experiment effect of using gold foil instead of copper foil is better. If the pH value of the liquid in the container is reduced, such as adding acetic acid solution, the effect of the experiment is also better.

THE RELATIONSHIP BETWEEN NUCLEAR FUSION AND PLATE MOTION

The theory of relativity is a major discovery in the 20th century, the most important conclusion of which is the mass-energy equation. If nuclear fusion occurs in a certain area of the earth due to sufficient water, and part of the mass in this area is converted into heat, it can be considered that there is a point heat source inside the earth, and this point heat source transfers heat in the horizontal direction, which can solve the dynamic problem of plate motion. Analyse as below:

One-dimensional plate motion model in ideal state

A flat rock slab with a uniform length of 2l is placed horizontally. Constraints are imposed on both ends of the slab, heating is performed in the middle of the slab, and 2 Q of heat is input per unit time. It is assumed that the heat does not diffuse outward before reaching both ends, that is, the heat is all uniform It is transmitted in the rock slab, and its temperature gradient: grad(T)=dT/dX is constant.

Thermal expansion and contraction is a property of an object. When the slate is heated, thermal stress is generated inside the slate. It can be imagined that the rock slab is cut off at X, the rock slab is stretched by Δx length due to thermal expansion, and then a force F is applied to restore the rock slab to its original position. Its schematic diagram is Figure 2:

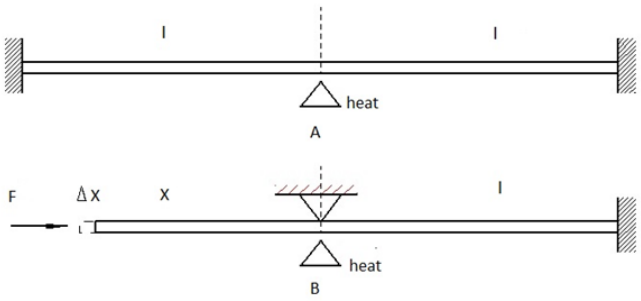

Figure 2: Schematic diagram of heating force analysis for rock slab.

The expression for the elongation of the slab is:

$$\Delta x = \alpha \Delta T X \qquad (2)$$

In the formula, αis the coefficient of linear expansion, and ΔT is the temperature difference of the rock slab of length X.

The elastic modulus of an object is expressed as:

$$E = \sigma / \varepsilon = \frac{F / A}{\Delta x / X} \qquad (3)$$

In the formula, E is the elastic modulus, σ is the internal stress of the rock slab, and ε is the deformation variable of the rock slab

Combining (2) and (3) can get:

$$\sigma = E\alpha\Delta T$$

The stress is the total stress accumulated by the rock slab with a length of X, which can be considered as the integrated stress.

For a small section of rock slab, the differential equation is:

$$d\sigma = E\alpha dT + o$$

Ignore higher-order infinitesimals:

$$d\sigma = E\alpha dT = E\alpha \frac{dT}{dx} dx = E\alpha grad(T) dx \qquad (4)$$

Fourier's law of heat conduction can be expressed as:

$$Q = -KAdT / dx \qquad (5)$$

In the formula, K is the thermal conductivity.

Combined formulas (3),(4),(5) can be obtained:

$$dF = -\frac{E\alpha}{K} Q dx$$

In the formula, dF is the thermal stress caused by thermal expansion of a small section of rock slab, and the accumulation of dF is the source of the power that causes plate movement.

Thermal stress in the vertical direction

According to formula (4), as long as there exist temperature difference inside the object, thermal stress can be generated. There is a temperature difference in the vertical direction, so it can also generate thermal stress in the vertical direction, the direction of which is opposite to the direction of gravity. If the nuclear fusion reaction in a certain area is sufficient, the heat generated is sufficient, and the thermal stress generated is large enough, it will overcome gravity to generate motion. On land there will be bulges and mountains will form. In the ocean, due to the convection of water, there is basically no temperature difference in the vertical direction, and no upward thermal stress is generated, which is mainly manifested in the horizontal movement of the plate at the bottom of the ocean.

2D plate motion analysis

Assuming that nuclear fusion occurs in the shallow O region of the mantle, the heat generated can cause plate motion. Its schematic diagram is as follows Figure 3:

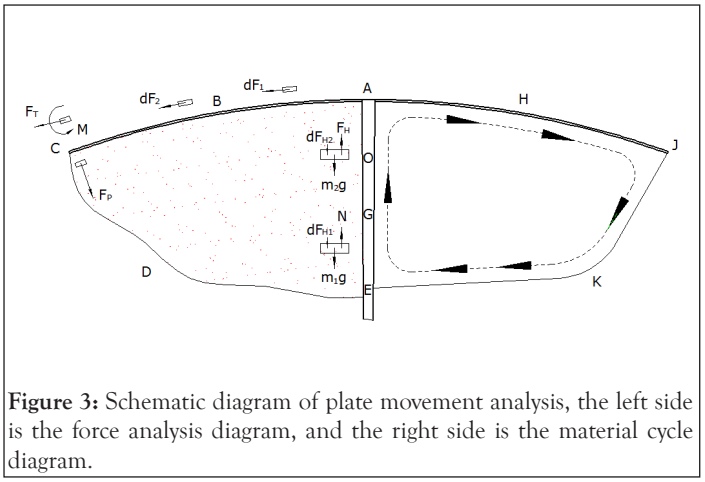

Figure 3: Schematic diagram of plate movement analysis, the left side is the force analysis diagram, and the right side is the material cycle diagram.

In the arc ABC segment in the figure, due to the normal force balance, only the tangential thermal stress can be considered. The formula is expressed as:

$$d\sigma = E\alpha f(grad(T)) dx$$

It can also be expressed as:

$$dF = -\frac{E\alpha}{K} f(Q) dx$$

In the formula, $f(grad(T))$ is a function of the tangential

component of the temperature gradient at the earth's surface, $f(Q)$ is a function of the tangential component of the transferred heat at the earth's surface.

Points A and B in the figures show the increase in tangential thermal stress. Since the earth's surface is an arc, the resultant force of thermal stress at point C is F_T plus a moment M. The moment M transmits a normal force F_P to the interior of the mantle, and this moment becomes the key factor for the circulation of solid matter in the earth.

In the vertical direction EGOA, the force of the unit object is complex and changing. To simplify the description, it can be represented by the force of the unit object in the GE segment and the force of the unit near the nuclear fusion region O. The unit object in the GE segment is subjected to gravity m_1g, support force N and thermal stress dF_1. Due to the release of a large amount of heat by nuclear fusion in the vicinity of region O, the resultant thermal stress force continues to increase, and can be greater than m_2g, that is, the force of the unit object in this region is gravity m_2g, The resultant stress F_H and thermal stress dF_2, when $F_H > m_2g$, the object will move upward. The material near the area O moves upward, resulting in the decrease of m_1g. At the same time, the force F_P derived from the moment M pushes the material, causing F_P to be transferred to the material in the EG segment, and promoting the material in the EG segment to move upward. A closed-loop flow of solid matter is ultimately formed. OAHJKEGO in the figure is a schematic diagram of the movement of matter.

There is a law in logic: A→B, then not B→not A. Without considering the nuclear fusion in the interior of the earth, the tangential thermal stress on the Earth's surface cannot be generated, the tangential force has been found is too small to push the plate motion ,the closed-loop flow of matter cannot be formed, so plate motion is impossible. If nuclear fusion is regarded as A, and plate motion is regarded as B, the description can be expressed as not A□not B, and the logical operations are: not (not B)→not (not A), that is, B→A. That is to say, if there is plate motion on the earth, there must be nuclear fusion inside the earth. If plate motion becomes an observable fact, it means that nuclear fusion must exist inside the earth.

THE LINK BETWEEN NUCLEAR FUSION AND THE TEMPERATURE OF THE EARTH

According to the Stefan-Boltzmann law, there is a simple linear relationship between the energy radiated by an object and the temperature of the surface of the object. Nuclear fusion reactions are related to energy, so nuclear fusion reactions can affect changes in the temperature of the earth's surface. This research can be given priority to nuclear fusion at the earth's core.

According to the binding energy curve [9], nuclear fusion reactions with atomic numbers smaller than iron release heat, while nuclear fusion reactions with atomic numbers larger than iron absorb heat. The surface of the core contains a large amount of iron and nickel, indicating that the nuclear fusion reaction in the core is mainly endothermic reaction. So the core is solid because of endothermic reactions that degrade the surrounding environment. In the core of the earth endothermic fusion of materials is a continuous increase in the process, the absorption of heat is also increasing, resulting in a continuous degradation of the surrounding environment. If the core's temperature drops below the freezing point temperature of saline solution at earth's center, and the temperature at this time is recorded as T_a the saline solution becomes solid and cannot ionize hydrogen ions, so the nuclear fusion reaction cannot proceed. This causes a relative increase in the number of fusion molecules that release heat, and the surface temperature begins to rise. As the fusion reaction continues, the atomic number is larger than the number of iron and nickel atoms, and the ground nuclear fusion activity becomes stronger again, which leads to the decrease of the average surface temperature. When the temperature of a larger area inside the local core drops to T_a another part of the core stops the fusion reaction due to its low temperature, resulting in a relative increase in the number of fusion reaction molecules releasing heat again, and the surface temperature begins to rise. This causes the average surface temperature to oscillate. Refer to the temperature of planet earth as shown in Figure 4 [10].

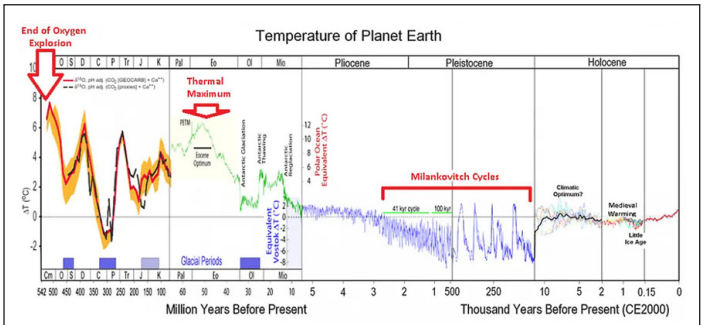

Figure 4: Diagram of temperature of planet earth.

It can be observed from Figure 2 that from 10 million years ago to the present, the earth's temperature has been continuously fluctuating slightly. This is due to the fact that the temperature at the core of the earth's core has dropped to T_a, and the nuclear fusion reaction in some areas has ceased to absorb heat, resulting in the earth's core. The total amount of heat absorbed by the fusion reaction fluctuates over time, rather than always increasing. The radius of the area where the center of the earth's core drops to the temperature Ta becomes larger and larger, and then the amplitude of the oscillation of the surface temperature over time becomes larger and larger, so the radius of the area where the center of the earth's core drops to the temperature T_a should be related to the amplitude of the surface temperature.

DISCUSSION

Due to the endothermic nuclear fusion reaction in the earth's core, the temperature of the earth's core decreases and becomes solid, so the temperature of the earth's core is lower than the maximum temperature of the mantle. The heat in the core cannot be transferred to the mantle, so there is no residual heat of the earth. The main source of geothermal heat is nuclear fusion and nuclear fission. In terms of magnitude, the mantle heat can be regarded as the total amount of geothermal heat. In August 1981, the United Nations New Energy Conference declared that the geothermal resource is 5×10^{20} calories. According to the mass-energy equation, 7.34×10^{-4} kilograms of matter per second on the earth are completely converted into energy. The sun converts 4.25×10^{9} kilograms of matter into energy per second, which is 10^{-20} compared to the total weight of the sun, is the recognized probability of nuclear fusion in the sun. Similarly, 7.34×10^{-4} kilograms is 10^{-28} compared to

the total mass of the earth, which is the probability of nuclear fusion in the earth.

Since water is essential for nuclear fusion reactions, the polymerization reaction of hydrogen ions and hydrogen atoms can also occur in the core of the earth. This reaction is an exothermic reaction. The nucleus is solid. Only under endothermic conditions, the temperature of the earth's core is reduced to a sufficiently low level that the earth's core can become solid due to the temperature.

The shortcoming of the article is that it discusses the effect of the endothermic nuclear fusion reaction of the earth's core on the surface temperature of the earth, but not the effect of the exothermic nuclear fusion reaction of the mantle on the earth's temperature. This is because of the performance of the endothermic nuclear fusion reaction of the earth's core. It is to make the earth's temperature drop. This factor is single, and the factors of the exothermic reaction that make the earth's temperature rise are various, such as solar radiation, nuclear fission exotherm, and even the total amount of water involved in the reaction. It is difficult to analyze the influence of the exothermic reaction of the mantle on the surface temperature from this perspective.

CONCLUSION

Through the falsification of the propositions of existing geothermal sources, the tunneling effect of hydrogen ions produced by water ionization, and the continental drift observed by satellites, it is concluded that there is exothermic nuclear fusion in the mantle. It is concluded that endothermic nuclear fusion occurs in the core, and draws the conclusion that the temperature of the center of the earth is the freezing point of saline solution.

CONFLICTS OF INTERESTS

Authors declare that they have no conflicts of interests.

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