THE ORIGIN OF THE EARTH

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Abstract: -

This study focused on the origin of the earth. It is also aimed at discussion the shape of the earth and the size of the earth. Moreover, the study attempted to examine the causes of the earth movement, the theories explaining the formation of the continents as well as the structure of the earth. In this paper the descriptive analysis was employed in data collection presented. On the same occasion, the primary and secondary are the major sources that were used in data collection procedure. Also, the qualitative and quantitative methods were employed in the study. Nevertheless, the figures and tables were also presented in the paper.

Keywords*: the origin, of the earth.*

1. INTRODUCTION

The history of earth concerns the development of planet earth from its formation to the present day. Nearly all branches of natural science have contributed to understanding of the main events of earth's past, characterized by constant geological change and biological evolution. Earth formed around 4-54 billion years ago approximately one-third the age of the universe, by accretion from the solar nebula. Much of the earth was molten because of frequent collisions with other bodies which led to extreme volcanism (Humerfelt, Sigurd. 2010).

The earth is the third planet from sun in the solar system and the only astronomical object known to harbor and support life. About 29.2% of Earth's surface is land consisting of continents and island. The remaining 70.8% is covered with water, mostly by ocean, seas, gulf and other salt-water bodies, but also by likes, rivers and other freshwater, which together constitute the hydrosphere. Much of earth Polar Regions are covered on ice. Earth's outer layer is divided into several rigid tectonic plates migrate across the surface over many millions of years, while its interior remains active with a solid iron inner core, a liquid outer core that generate Earth's magnetic field and convective mantle that drives plate tectonic (Working group, 2010). It rotates on its own axis while at the same time revolving around the sun on its own path known as an orbit. On either side of the earth, but occupying their own orbits, are the planets Venus and Mars (Kenya literature Bureau, 2010).

The earth is about 140.66 million kilometers (93 million miles) from the sun. Since the earth is the only known planet that supports human, animal and plant life. As a result, earth than any other planet in the universe. Many scientists believe that the earth could have been formed approximately 46000 million years ago. A lot mass of gases was thrown off the sun. These gases cooled to form a liquid (www.kenyaliteraturebureau.com).
The heavier materials collected at the center to form a core of heavy liquid metal. Around this core collected less and less heavy materials to form the mantle and the crust. As the cooling continued, the outer part of the earth hardened faster to form the crust (Kenya literature Bureau, 2010).

2. STATEMENT OF THE PROBLEM

The study aiming at examining the origin the origin the earth. It is also focusing on the size of the earth, and shape of the earth. Moreover, the paper involves determining the causes of the earth movements, beside the theories that explaining the formation of the continents as well as structure of the earth. This study is conducted to answer the following questions:
2.1. What the origin of the origin?
2.2. Discuss the size of the earth?
2.3. Examine the shape of the earth?
2.4. Identify the causes of the earth movements?
2.5. Explain the theories that explaining the formation of the continents?
3.6. Explore the structure of the earth?

3. OBJECTIVES OF THE STUDY

The objectives of the study are:
3.1. To discuss the origin of the earth.
3.2. To examine the size of the earth.
3.3. To explain the shape of the earth.
3.4. To determine the causes of the earth movements.
3.5. To identify the theories that explaining the formation of the continents.
3.6. To explore the structure of the earth.

4. MATERIALS

The materials used in this study involve internet as well as text book, beside questionnaire.

5. METHODS

Methods of the study involved**:**

5.1. Primary Data Collection

This study used a personal interview method for the purposes of data collection. Data was collected from all eligible people who are usually eligible after giving them a brief description of the purposes and procedures of the study and ensuring that they had properly understood, before beginning of an interview.

5.2. Secondary Data Collection

The methods of secondary data collection are vary and include: information from references, public records, organizational records, census data, previous studies and surveys.

5.3. Ethical Considerations

This study used a primary data analysis of survey. In order to protect the anonymity and confidentiality of the information regarding respondents, names and house numbers were not identified in the Questionnaire and in the data set. Permission

to carry out the study was obtained from the various scholars in the public universities, department of geographies in the country.

5.4. Data Analysis Methods

In analysis of data sets, descriptive statistical method was employed for the purpose of obtaining the information required for the study. Also the data were displayed by using percentages distribution Tables. The qualitative and quantities methods were employed in the study.

6. DISCUSSION AND RESULTS

6.1. Discuss the size of the earth?

The circumference or boundary of the earth is about 40.000 kilometers. This circumference reduces from the equator to the poles. This is because the earth is not shaped like a perfect sphere. The diameter of the earth at the equator is longer than the polar diameter. The dimensions of the earth are as follows:

6.1.1. Equatorial diameter: 12762 km.
6.1.2. Polar diameter: 12722 km.
6.1.3. Equatorial circumference: 40085 km.
6.1.4. Polar circumference: 39955 km

The surface area of the earth is approximately ($510.1x10^{6)}$ square kilometer.

6.2. Examine the shape of the earth?

In the past it was believed that the earth was flat. Some scientists such as Galileo Galilei and Ferdinand Magellan set out to prove that the earth was round. The venture was very much resisted by the people who believed that the proved beyond doubt that the earth is spherical, although it is not a perfect sphere. It is slightly flattened at the poles. Such a sphere with two slightly flattened ends is known as a geoid or oblate spheroid. The slightly flattened poles are as a result of the rotation of the earth on its own axis. This movement has also caused the bulge at the equator. One of the suggestions put forward to explain the spherical shape is that the center of the earth has a very powerful gravitational force. This force affects all parts of the earth pulling everything toward the center. This also explains why things over the earth's surface don't fall off. It is because they are constantly being pulled towards the center of the earth. This force that exists in the center of the earthy is known as the force of gravity. The first scientist to discover and prove this gravitational pull by the earth was Isaac Newton. The earth is flattened at the poles. This is because the earth rotates on its own axis to make a complete turn in 24 hours. As it rotates, the poles simply rotate on this axis but do not cover any distance. On the other hand, the area farther away from the poles, for example, the equatorial area, covers a long distance and thus rotates faster. This is because the equatorial region requires more speed to complete the rotation at the same time with the pole. The greatest speed at the equatorial area and circular shape of the earth causes of a flinging force known as the centrifugal force. The poles are constantly being pulled towards each other by a force centrifugal force. The centrifugal causes the bulge at the equator and causes the flattening at the poles.

6.3. Determine the causes of the earth movements?

The causes of the earth movements are:

6.3.1. Movement of magma within the Earth's crust

The movement of magma with force pushing crustal rocks horizontally or vertically. When magma moves from its reservoir, it results into sudden or slow earth movements where the crust of the earth has shifted.

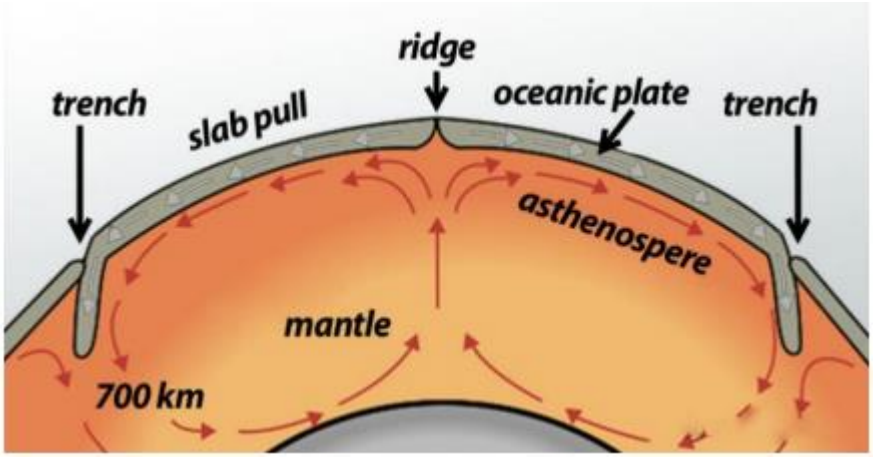
6.3.2. Gravitational Force

When the gravitational force of the earth pulls crustal rocks into the empty spaces left after magma escapes from the reservoir, earth movement take place.

6.3.3. Convectional Currents within Mantle

When convectional currents in the magma found within the mantle drag crustal rocks by friction. Horizontal currents cause horizontal movements and vertical currents cause vertical movements.

Figure 6.1: Convectional Currents within the Earth's mantle.



6.3.4. Isostatic Adjustment

This is the rising of continental plates to upset. The state of balance between continental crusts made up of silica and aluminum. While, oceanic crust is made up of silica and magnesium layers. The state of balance between the layers can be distributed by melting of continental sheets and the erosion on continents. The reduced weigh on land causes continental mass rise, while ocean masses sink.

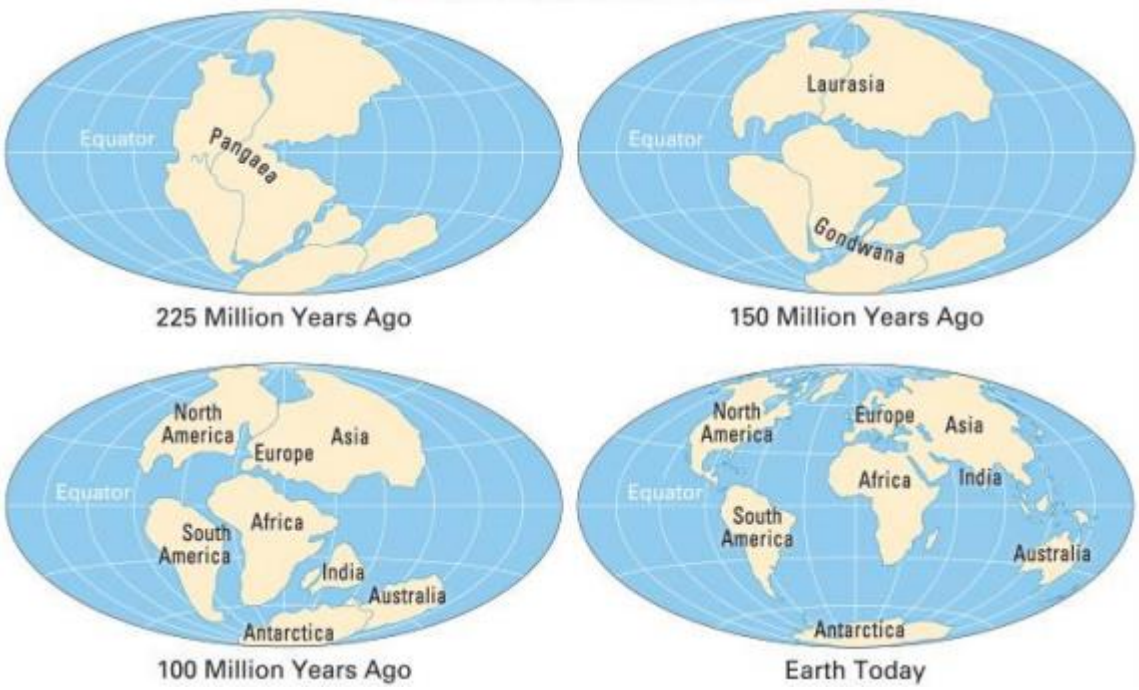
6.4. Identify the theories explaining the formation of the continents?

The theories that explaining the formation of the continents involve the following:

6.4.1. The Continental Drift theory

The theory was presented by Alfred Wegener in 1912. The theory explained how continents drift position on earth's surface. The theory states that the earth was a single SIALIC land mass **Pangea**. It was surrounded by a huge ocean known as Panthalassa whose floor was a mass of Sima. Pangea broken into two parts called **Laurasia** (Northern Hemisphere) which lay above the equator, and **Gondwanaland** (Southern Hemisphere) which lay around South Pole. These two bodies were separated by a narrow ocean known as Tethys (the present Mediterranean Sea). Again, Laurasia broken into the **Laurentian shield** and **Fennoscandia** (Europe, Asia and North America) and this part moved northwards to their present positions. Moreover, Gondwanaland broken into Africa, Australia, South America, Antarctica and the India subcontinent. Africa and India subcontinents there after drifted northwards.

Figure 6.2: show continental drift of plates.



6.4.2. Plate Tectonic Theory

Plate tectonic theory is an improvement of the continental drift theory. This theory suggested that the earth crust is a series of semi- rigid blocks called tectonic plates. These plates are separated from one another by distinct boundaries. The theory stated that the earth's outer layer is fragmented into plates that are in constant motion. The movement's rate has been determined to be approximately 5.10cm per year (2.6 inches per year) depending on location of the plates.

7. Comment about the structure of the earth?

The structure of the earth is divided into four major components. These are:

7.1. The inner core

The inner core is at the center of the earth, and is the hottest part of the earth. It is solid, made of iron and nickel, with temperatures of 5.500˚.c and with massive heat energy the inner core is described as the engine room of the earth.

7.2. The outer core

The outer core is the layer surrounding the inner core. The layer is a liquid and made up of iron and nickel. Extremely hot with temperature similar to the inner core.

7.3. The mantle

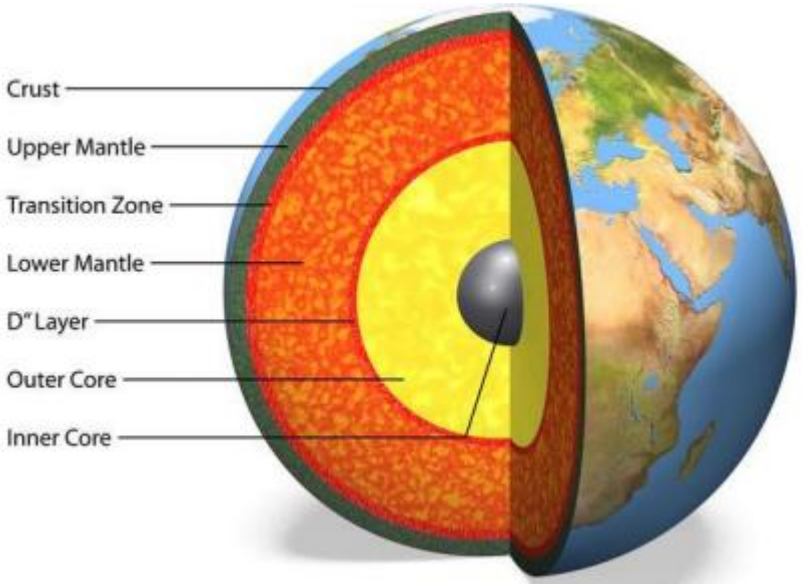
The mantle is the widest section of the earth. It has a thickness of 2.900km. The layer of the mantle is made up of semi-molten rock known as magma. The supper parts of the mantle is hard and below of the rock soft.

7.4. The crust/Lithosphere

The crust is the outer layer of the earth. The layer is thin layer between 0-60 km. it is the solid rock layer upon which human live. The mantle layer is further divided into continental crust which carries land, and oceanic crust which carries water.

Earth layer has a unique chemical composition physical state, and can impact life on Earth's surface. Movement in mantle is caused by variations in heat from the core, cause the plates to shift, which can cause earthquakes and volcanic eruptions. These natural hazards then change the landscape and in some cases threaten lives and property (en.m.wikipedia.org).

Figure 7.4: a cross section of the earth



8. What is the significance of the plate movements?

Table 8: showing the significances of plate movements.

Response	Number of respondents	Percentage
Formation of landscape feature which attract tourist.	40	40%
Formation of valuable minerals.	25	25%
Formation of landforms (Fold Mountains) which beatify the land.	20	20%
Formation of ocean trenches (Channels).	15	15%
Total	100	100%

The table 8: showing the significances of plate movements.

40% of respondents said that the significance involve formation of landscape feature which attract tourist. Whereas, 25% of them affirmed that the significance of the plate movements include formation of valuable minerals which consider as the source of income for most of the countries. Nevertheless, 20% of others avail that the significance is the formation of landforms (Fold Mountains) which beatify the land. On the other hand, 15% of respondents answer that important of plate movement is formation of ocean trenches (Channels).

9. CONCLUSION

In conclusion, the origin of the earth is significant to be addressed to the entire learners of the world to equip them with the knowledge of the origin of the earth. On the other hand, to explain the structure of the earth, the causes of the earth movements, identify the theories explaining the formation of the continents. It is also tried to discuss the size of the earth and describe the shape of the earth. Also its tries to examine the history of the earth as well as determination the significances of the plate movements.

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