ACCORDING TO THE CAUSES OF THE EARTHQUAKE TYPES

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Annotatsion: This article is devoted to the topic of earthquakes and their causes. The article provides information on the hypocenter, epicenter, the epicenter of an earthquake, earthquake strength, seismic scale and the most common seismic scales in the world, as well as seismic and seismic regions, types of earthquakes and tsunamis.

Key words: earthquake, hypocenter, epicenter, the epicenter of an earthquake, earthquake strength, breakdown earthquakes, volcanic earthquakes, tectonic earthquakes, tsunami , man-made earthquake.

Subterranean tremors and vibrations that occur as a result of a sudden shift, fracture, or shock in the earth's crust or the upper part of the mantle and spread far in the form of wave-like vibrations are called earthquakes [1].

The center of an earthquake on the globe, that is, the center of an earthquake, is called a hypocenter. The projection of this hypocenter on the Earth's surface is called the epicenter. The greater the distance between the epicenter and the hypocenter, the greater the area it spreads, and vice versa, if the distance between them is small, the area of earthquake propagation is also small [2].

An earthquake source is the volume of rock that is prone to instantaneous failure.

Earthquake strength is the level of ground shaking felt at all points of the earth's surface affected by the earthquake [3].

Since the 16th and 17th centuries, various methods have been used to measure the strength of an earthquake. Until now, more than 50 seismic scales have been proposed by many scientists. The most common of them are 3, which are as follows:
*The first is the 12-point Mercalli-Kankani-Zieberg scale adopted by the International Seismic Association in 1917 and is still used in several European countries.
*The second one is the 12 MM scale, which was improved in 1931 by US researchers Wood and Newmanler Mercalli scale.
*Thirdly, at the Institute of Earth Physics in Russia, Prof. It is a 10-point scale developed by S.V. Medvegov.

In 1964, as a result of revision of the existing seismic scales with scientists from

other countries, the International Seismic Scale for determining the intensity of the earthquake was developed.

This scale was recommended to be used in the department of seismology and seismic-resistant construction at the 1964 UNESCO International Meeting in Paris[4].

For several hundred years, data shows that earthquakes occur frequently in certain seismic zones of our planet. Seismic zones mainly correspond to geosynclinal regions. Most of the earthquakes that destroy the Earth's surface relief occur in the Pyrenees, Alps, Apennines, Carpathians, Balkans, Caucasus mountains and the mountainous regions of Central Asia, the Hindu Kush, the Himalayas, and the Pacific Rim. There are also areas where earthquakes do not occur. Such areas are called aseismic countries and they include the German and Polish lowlands, the Russian Plain, Finland, the Kola Peninsula, Canada, and Brazil.

The main part. Earthquakes are inextricably linked with the stages of the earth's formation and development. Earthquakes have occurred and are still occurring due to the movement of lithosphere plates. Earthquakes are common at junctions of lithospheric plates.

According to the cause of the earthquake, it is divided into the following groups:

1. Mountain falls, landslides, earthquakes;
2. Volcanic earthquakes;
3. T ectonic earthquakes;
4. Man-made earthquakes.

Shaking earthquakes. An example of this is the 1911 earthquake in the Pamir Mountains. As a result of the collapse of a huge mountain massif near the village of Usoy, the Murgob river was blocked and Sarez lake was formed. The village of Usoi is under this lake.

Volcanic earthquakes. Earthquakes also occur as a result of the movement of unextinguished volcanoes. Such an earthquake is characteristic only of volcanic regions. In the countries where the volcano is moving, the strength of the earthquake does not exceed 5-6 points (except for some). For example, these include the islands around the Pacific Ocean, the Kamchatka Peninsula, the Kuril Islands, and Hokkaido.

Due to the high temperature in the deep part of the earth, the gas and steam released from the magma erupts from the ground with a terrible force, and a strong earthquake occurs. If such earthquakes are far from inhabited areas, the difference is small, if they are close to them, they cause great damage.

Tectonic earthquakes. Earthquakes are caused by the impact of energy that changes the layers of the earth and creates mountains. As a result of the tectonic

process, the layers of the earth's crust are folded, compressed, cracked, broken and a new relief is formed.[5]

Tectonic earthquakes are common and account for about 90% of all earthquakes on Earth. Tectonic earthquakes cause great damage to the national economy.

Marine earthquakes and tsunamis. There are also strong earthquakes at the bottom of the sea and ocean. Underwater earthquakes are called tsunamis. Tsunami means wave in Japanese.

The most terrible consequence of a tsunami is the strong long waves that form in the water mass above the epicenter and move through the ocean towards the coast. Due to the fact that these waves hit the bottom of the beach and break, its strength increases dramatically. Such waves spread throughout the Pacific Ocean and can hit the coast and travel backwards.

In 1896, such a tsunami, which occurred on the east coast of Honshu Island (Japan), reached the American coast through the Hawaiian Islands in the middle of the Pacific Ocean, and then moved back to New Zealand and Australia. The height of tsunami waves reached 20 meters.[6]

Tsunamis are caused not only by tectonic, but also by volcanic earthquakes. For example, in 1883, when the volcanoes of Krakatau and Kilauea on the Hawaiian Islands erupted, huge tsunamis were generated.

Man-made earthquakes. Such earthquakes are related to human activity. One of the reasons for this event is the increase in seismic activity. A 7-point earthquake occurred in the city of Oroville, where the highest dam and reservoir in the USA was built.

Certain seismic activity can also be caused by the extraction of oil and gas fields and the injection of water into boreholes. It is assumed that these processes caused a strong earthquake near the city of Grozny in 1976 and in Gazli in 1976 and 1984.

Determining the causes of earthquakes is mainly carried out in scientific research institutes. Currently, there are many special seismic stations where scientific research is being carried out.

In short, an earthquake is an underground shock and vibration that occurs as a result of a sudden shift, fracture, or collapse in the earth's crust or the upper part of the mantle and spreads far in the form of wave-like vibrations. Seismic scales are used for measurement. There are many types of seismic scales, mainly 3 types are used today.[7]

Earthquakes occur mostly in geosynclinal regions.

Earthquakes are divided into 4 groups according to the causes of their occurrence.

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