What are volcanos?

Institution

Course

Professor

Date

 **Introduction**

Volcanos are geological structures or landforms that do result from the eruption of molten rocks, gases as well as other materials found beneath the earth surface. Volcanoes are formed when those molten rocks called magma rises to the surface of the earth. They are characterized by openings, vents in the earth crust through which magma and other volcanic materials are expelled.

Volcanos are said to be part of the earth’s history for almost billion years. The historians have not been able to exactly tell the exact place where they originated or were first experienced but from the available information they are estimated to be around 4.5 billion years ago during the Hadean Eon when the earth was still in molten state so as it cooled gradually, the crust formed and the volcanic activity arose making it more localized.

The geologists have argued that the volcanic activity has occurred in many regions across the world throughout its history and it’s mostly tied to tectonic plate which is the movement of the earth’s lithospheric plate. Majority of these volcanic activities occurs along the plate boundary of the earth since that’s the place where collision s of these plates, separation and s well as sliding on each other happens

Geologists have recorded some of the significant period in the history of volcanoes which include but not limited to

The Precambrian era 4.5 billion to 541, million years ago

The volcanic activity of this era was very instrumental tit he formation of the earth’s crust which released gases which was important in creation the atmospheric

Paleozoic era

At this stage the volcanic activity played roles of ensuring that the supercontinent Pangaea and the formation and assembly of the famous volcanic mountains such as the Appalachian were successful

Mesozoic era

The era which was associated with breaking of the Pangaea resulting into formation of new ocean basins. It is also at this era that the volcanic activities did have a lot more significance such as the eruption of the famous Deccan traps in India which resulted to a total overhaul of the earth’s climate globally

Cenozoic era

Thaw forth and the last era of the volcanic and is marked by a significant increase in volcanic activities whereby a lot have been formed along the subductions zones as a result of sinking on tectonic plate beneath another one and such example are the formation of the pacific ring of fire surrounding the pacific ocean which is commonly known for the intense volcanic and seismic acuities.

For purposes of easily identifying g volcanic mountains and volcano activities from other then the scholars in geology have clearly worked smart on their bid to distinguish and have distinct characteristics which includes their natural fascinating nature such as presence of magma chamber which is an accumulation of a rock in the reservoir beneath the earth surface where the volcanic activity starts

Secondly is the vent which basically means the opening on the earth’s crust through which the magma and other gaseous materials are expelled in an activity of eruption. Vent takes different forms either in form of a central vent or fissure along the sides.

Eruptions are also unique features used to identify a volcanic activity since volcanoes are known for their effusive eruptions and eruption explosions as a result of high pressurized gases and magma which violently erupts leaving behind ash, rocks and other pyroclastic material in the atmosphere while effusive eruptions involves a steady flow of lava.

Lava is the molten rock which reaches the earth surface as a result of an eruption, lava is basically a composition of liquid rocks , crystals, volcanic glass and gases which flows differently depending on the their viscosity and the gases content in them

Cone or caldera this is simply the shape of the volcano which varies depending on the intensity of the eruption there are several types of eruptions such as the stratovolcanoes, these are also known as composite volcanoes and are tall and conical with very steep sides formed by the mixture of alternating layers of lava an the volcanic ash on the other hand are the shield volcanoes which have broad and gently sloping cone as a result of an accumulation of fluid lava while the last type caldera have a large depression which form after the volcanic eruption occurs ad the magma chamber are emptied and the ground collapses.

Volcanic gases re yet other known characteristics of volcanos, as the volcanic activity takes place there is an accumulation of gases such as carbon dioxide, water vapor, and sulfur among other that do have a very high significance in the composition of the earth’s atmospheric pressure as well as the climate change we experience every day. Volcanic malformation during the volcanic eruptions there can be landforms just beyond the caldera and they include lava fields, as clouds and pyroclastic flows, volcanic craters and lava tubes

The volcanic activities at times hold very dangerous hazards to the surrounding areas where they occur. These hazards can include pyroclastic flows, ash fall, mudflow also known as alhars and to the extreme causes volcanic avalances.th e severity and extent of these hazard depends on the volcanic eruption style and the area topography the step the area is the more damages we are likely to experience compared to a more flat area since the flow of the magma and the lava will be controlled.

For these reason these characteristics make them collectively awe-inspiring and potentially dangerous natural phenomena nevertheless the scientists do study about to better understand the earth’s process as well as get themselves better versed with ways they can easily mitigate the risks associated with the volcanic activities should they arise.

Volcanoes have both positive and negative implication and do contribute to both regional and regional economies and they include some such as the few discussed below:

Tourism activates more often than not the do attract a significant number of tourist with interest due to their natural and unique geological features. Whether dormant or active volcanoes across the world such as MT Fuji in japan, MT Kilimanjaro in Tanzania or even the Hawaii volcanoes also stimulate the economic growth of their counties through revenue generation from the local or foreign tourist visiting them. The revenue is sort from transport sector, accommodation, tour services, and even the souvenir sales.

Other significance importance of the volcanoes is that they have rich reserve of geothermal minerals which entails the utilization of heat beneath the earth’s surface in order to produce energy which is harnessed by the geothermal plants by putting into use the heat from the volcanic actives and in the end creating a renewable source of energy able to operate and run machineries and as well as maintain the environment through controlling pollution emitted from the over reliance on fossil fuels since its and eco-friendly product. Examples of countries which have been able to trap the geothermal plants includes the Philippines , Iceland and new eland who have created lot of jobs to their citizens who work in those geothermal power plants

Agricultural sectors has also reaped heavily from these activities of volcanoes because during the eruptions there are formation of very fertile soils called the volcanic soils or the ash deposit. The soils are rich in minerals, nutrients which make them suitable for agricultural activities such as the belts of Italy or the pacific ring of fire which are said to always benefit from the volcanic activities.

Mining and mineral resources are also enhanced by the activity of volcanic activity since the lava deposits some valuable minerals. They create an ore deposit which are rich in metals such as gold, silver, copper. The mining actives around the mining areas con really provide employment opportunities as well as creating a reputable source of income from the sales of the products. However it’s worth noting that despite saying that mining activity contributes positively to the rising the standards of living it’s also important to take note that these activities need to be undertaken with sobriety in order to minimize their environmental impact mostly negatively.

Finally the volcanoes do contribute mostly and to a larger extent on research and education. Volcanoes across the world do serve as the natural laboratories for scientists and researchers studying different disciplines including geography geology, volcanology atmospheric sciences at cetera. Researcher have been able to undertake a lot of studies from this activities on the importance hazards, monitoring opportunities and even making it easier for proper to understand the earth processes better. Education organization and institutions have then focused on o volcano –related studies in order to contribute to scientific advancement and attracting researchers and students from all the region.

In summary it’s worth noting that while volcanoes offer many economic opportunities they also pose risk and challenges up to a certain level. They can cause significant damage to infrastructure such as road, agriculture and even communities in an event of an eruption. The communities can be displaced therefore it is crucial to implement appropriate measures to monitor the volcanoes and assessment in order to ensure disaster preparedness to minimize negative economic associated with them.

Volcanoes are very crucial to scientist and any other person whose ambition is to understand vividly the science of the earth therefore it’s important for us to appreciate the vast spread and shortcoming with them, right from their history, examples of such mountains, characteristics and the overall significance to the economy whether positive or negative as already discussed in the extract above.

**References**

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