

What is the power of a volcano? An exploration through different perspectives



A volcano is universally acknowledged as a thing of power in the natural world. Volcanic eruptions are considered as natural hazards that pose major threats to people and property around the world. Volcanic bombs, pyroclastic flows, ash and gas clouds can all kill people when volcanoes erupt suddenly. Those are not the only hazards as there can be secondary hazards such as: lahars, glacier bursts, landslides, tsunamis and climate change.. Are volcanic eruptions only about death and destruction?

As earth's geologic architects, volcanoes have created more than 80% of the earth's surface, laying the foundation that has allowed life to thrive. Explosive eruptions of volcanoes had crafted mountains as well as craters. Although lava rivers spread into bleak landscapes, over time these stony prisons created remarkable fertile grounds and allowed civilisations to flourish. Volcanoes are essential elements in the dynamic evolution of the earth and the nature of life itself. Although considered dangerous and destructive, without volcanic activity life as we know it would not exist.

A volcano has become a metaphor to describe: cultural, economic, scientific and political explosions in human life. We could explore the power of a volcano in relation to human history, evolution, ecology, economics, architecture, literature, art, music and origin of life. The eruption of Vesuvius in AD 79 had given us a fascinating insight into the lives of people who lived nearly 2000 years ago. This had given us an excellently preserved snap shot of Roman life through; Pompeii and Herculaneum. Both sites continue to attract both popular and academic. The archaeologists and historians had uncovered fascinating finds of local politics, banking, housing, shopping, diet and economic trade in ancient Rome to social status. Owing to the preservation of these two cities we could see Roman life and society beyond the imperial court, elite interests, and high politics.

Despite the fact that volcanic eruptions produce spectacular: lava flows, ash falls and gas clouds; for geographers and geologists the overarching question is to find out when the eruption had happened. In this; radiometric dating is used to date the volcanic eruptions by the use of radioactive decay. Moreover volcanic activities inspire new technologies such as tephrochronology. Through tephrochronology, volcanic ash can not only is used to date a volcano but also to pin point to a specific volcano. The accurate eruption data could help other scientists from many different disciplines to understand how the climate and environment of Earth has been different in the past.

From the perspective of ecology, plants and animals growing on and near active volcanoes are different from those growing elsewhere. The region around Naples is famous for vines, olives, tomatoes and fruit trees grown on the volcanic soils from the many eruptions of Mount Vesuvius. Coffee production in Nicaragua is also only possible in volcanic soil around

Esteli and Jinotepe. Overtime, weathering of mineral-rich volcanic rock produces rich fertile soil which is good for growing crops and provides a valuable income for farmers. When it comes to evolution the important question to ask is whether there is a significant difference between life on volcanoes and life elsewhere. A famous piece of scientific evidence would be finding organisms that occurred only in association with volcanic activity. The microbes called thermophiles live in hot springs, where the Earth's liquid core lies close to the top of the Earth's crust. Thermophiles use a variety of energy sources that come from the Earth's core instead of photosynthesis. By way of this finding, some biologists believe that life began this way, with photosynthesis evolving later.

The power of volcano is behind the still unanswered question of the extinction of dinosaurs 66 million years ago. Many palaeontologists think that the extinction of the dinosaurs, along with many, other species of all kinds of plants and animals was due to a huge volcanic activity. Most of these catastrophic events have been discovered to coincide with massive volcanic activity. It seems certain that the magnitude of volcanic outpourings at times in the past unimaginably exceeded anything we see today, and the effect on life and its evolution can hardly be overstated.

The economic perspective in volcanic activities is twofold. Over 500 million people live near active volcanoes. There are many economic opportunities attributable to volcanoes. Volcanic areas offer a variety of tourist attractions. Yellowstone, a volcanic caldera in the USA, draws 3 million tourists a year who come to view the geysers and other geothermal activity. Iceland uses geothermal heat to supply a quarter of domestic electricity needs, as well as heat and hot water to 90% of homes. Furthermore, active volcanoes draw crowds of tourism. Nevertheless, there is a cost to volcanic activities, especially cost of rebuilding communities, economic impact from air travel disruption, loss of businesses, disruptions caused to roads, transport. Volcanic eruptions have an impact on economy, especially putting a monetary value on saving lives.

Our current way of thinking about volcanic eruptions plays into an obsession with death and destruction than accurately describing the complex ways people have experienced volcanic eruptions in different parts of the world through history. The ideas from human geography with physical geography help to open up new questions around the ways people live in volcanic landscapes and the everyday struggles they face. Volcanic ash can affect how we see colours and we can use volcanic landscapes to study about other planets.

The most engrossing fact about the power of a volcano is its power to inspire: literature, music and art. Captivating poetry inspired by volcanoes, from all kinds of periods, cultures and languages and engrossing novels is another feather in the cap, on the power of a volcano. Power of volcanoes also seen in urban architecture and the majestic grandeur of volcanoes and the destructive power of their eruptions have long made them a fascinating subject for artists.

The true power of a volcano is that it ignites exploration of its characteristics through multitude of subject matters.