



# ***VOLCANOES***

*Geography fa-2 activity by Krishna raj and group*



# Topics Today

- ✓ What are volcanoes
- ✓ Why does a volcano erupt
- ✓ Movement of plates
- ✓ Types of volcanoes
- ✓ Volcanic eruption
- ✓ Volcanoes in India
- ✓ Barren island
- ✓ Beratang
- ✓ Narcondam
- ✓ Deccan traps
- ✓ 10 most dangerous volcanoes on earth

# What is a volcano

A volcano is a opening through which the magma erupts or comes out. Magma is a semi liquid substance which is extremely hot . The earth has three main layers crust, on which we live and is the thinnest layer; mantle the second innermost or the middle layer which is under high pressure is full of magma and the third or the innermost layer which is made up of iron and ferrous and acts as an magnet controlling gravity called core. inside the earth the continuous movement of magma is taking place.

# Why does a volcano erupt

## ?

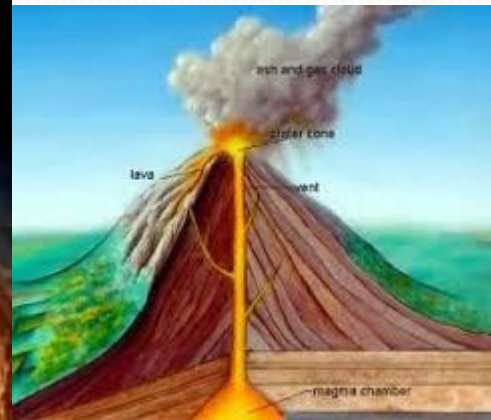
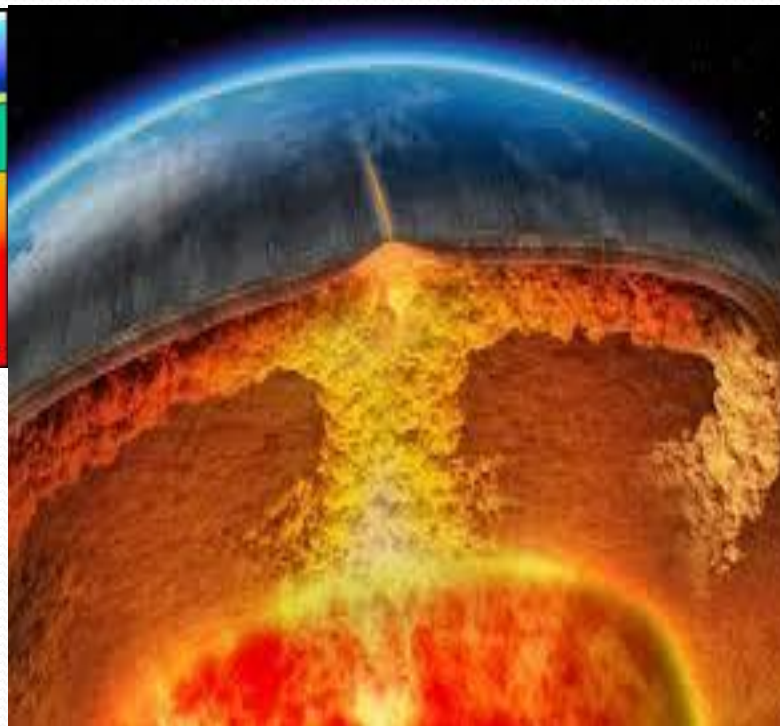
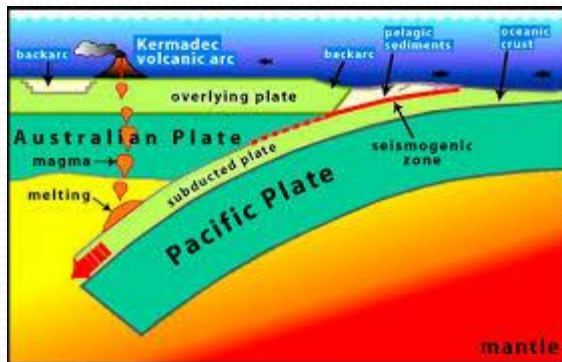
- There is mainly only one reason why volcanoes erupt

As mentioned earlier that the middle layer of earth consists of a semi liquid called magma, and just above it is the crust so we can say that crust is floating on the magma but if we see the world map we will see that there are pieces of land and between them is water those big masses of land are called plates there about 50 of them out of which 7 are very big which we know as the 7 continents these 7 plates are continuously moving or floating when these plates move in different directions a minor gap is formed between them called vent through which magma comes out as lava in a great force



# ***Movement of plates***

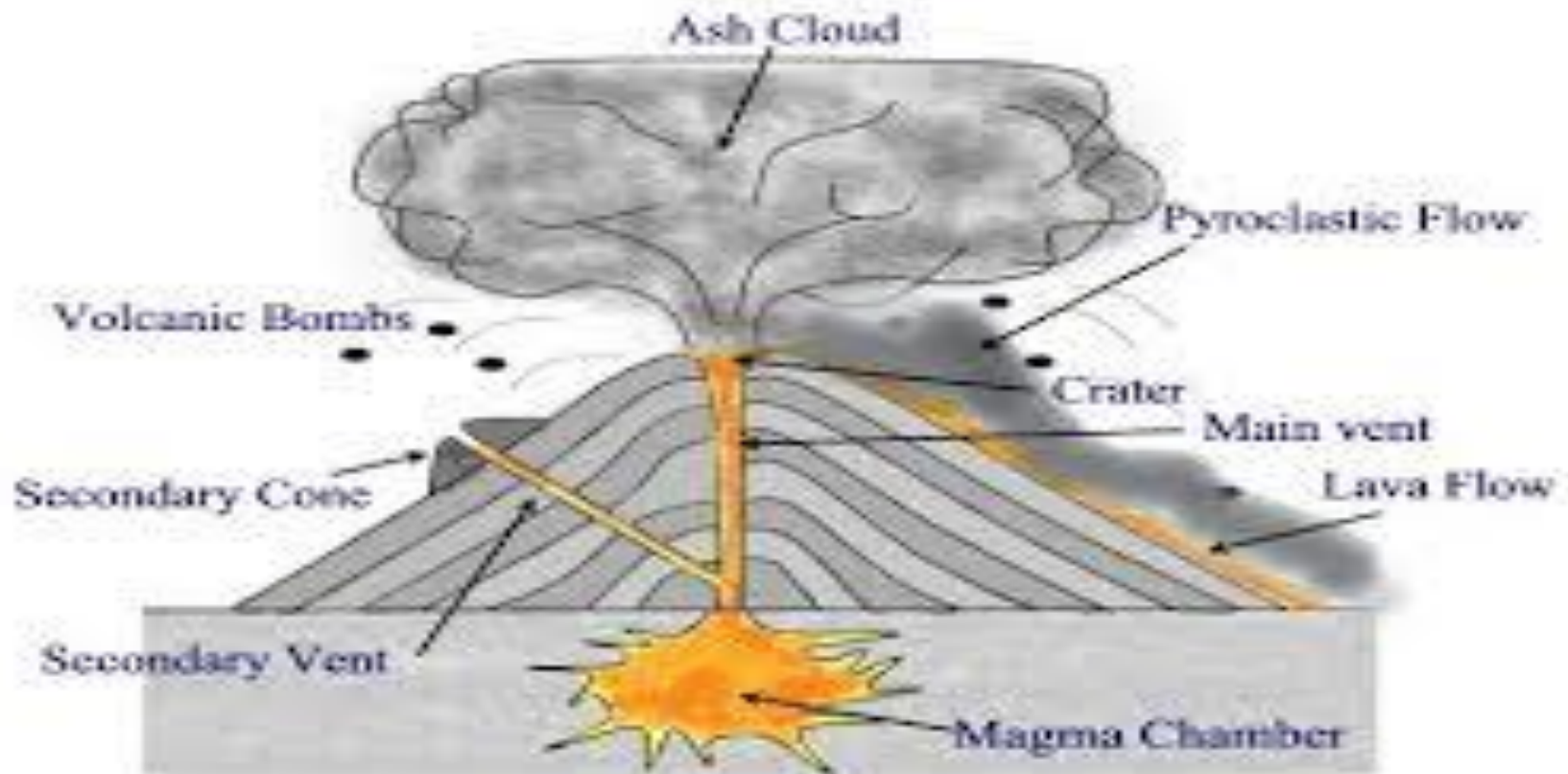
- Now why does this happen, this happens because inside our earth there is great pressure and when there is a gap this pressure breaks and again there is a great change in the atmosphere so it solidifies suddenly forming igneous rocks.***



# ***Types of volcanoes***

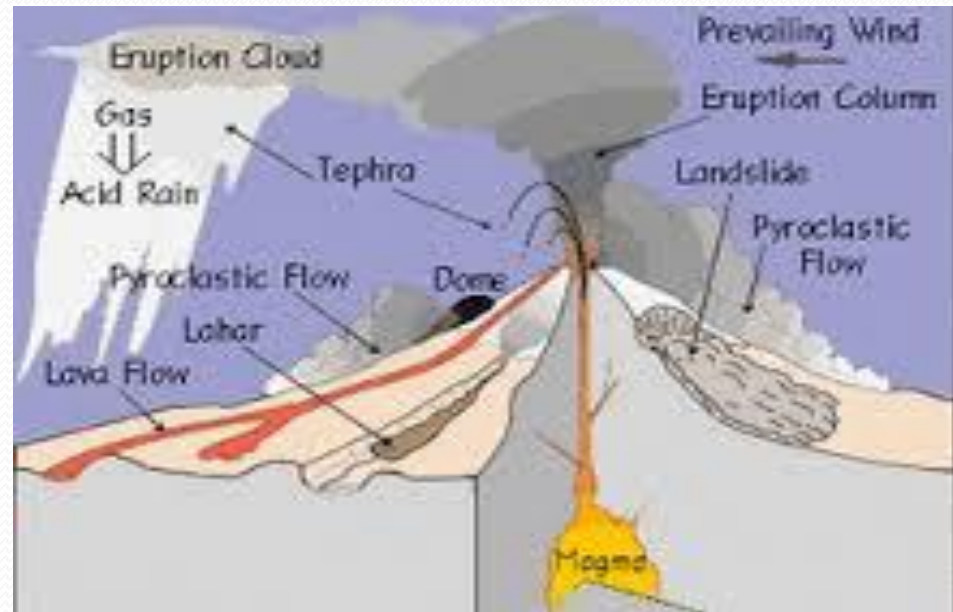
- *There are mainly three types of volcanoes they are active dormant and extinct. when an volcano is erupting we call it an active volcano and when it does not erupt we call it a dormant volcano it is also known as a sleeping volcano it has the tendency to erupt at any time without any notice but when a volcano does not erupt for 10,000 years it is called an extinct volcano.in India barren island is the only active volcano it is located in Andaman and Nicobar islands we may know more about it in other slides*

When the high pressure magma erupts in liquid form it suddenly solidifies due to the change in temperature along with it many harmful gases are also released. Volcanoes do nothing except harming the environment through their gases



**Main Features of a Volcano**

- As seen here ,  
The opening the  
Opening through  
Which magma  
Comes out is called



Vent the depression which forms on the top is called crater there are also secondary vents which get created due to pressure there are 3 also volcanic bombs which come along.



# ***Volcanic eruption***

- When a volcano erupts it sends gases lava lava bombs etc .many people think that there is a mountain through which magma comes out but that is not true the plates move gap creates and the magma comes out when it comes out it deposits and cools down in the shape of a mountain



# ***Volcanoes in India***

- If we consider India there are only a few volcanoes present we may know more about them in the further slides

# ***Barren island- the only active volcano in India***

- Barren island is the only active volcano in India and is located in Andaman&Nicobar islands in the Indian ocean it first erupted in 1787 Since then, the volcano has erupted more than ten times, with the most recent one which started in September 2010 and continued through January 2011.it is erupting now also.
- After the first recorded eruption in 1787, further eruptions were recorded in 1789, 1795, 1803–04, and 1852. After nearly one and half century of dormancy, the island had another eruption in 1991 that lasted six months and caused considerable damage. Its height is 354mts

# **Baratang volcano-India**

Baratang, less commonly known as Baratang islands are also located in Andaman and Nicobar islands. It is known as the only mud volcano in India. Actually Baratang is a place in which there is a mud volcano. A mud volcano is a volcano made by the depositions of mud. It erupted in 2003 after that some minor eruption took place. It can be classified as a dormant volcano. It first erupted in 1983.



# Narcondam island

- *Narcondam island also has a mud volcano inside it. It is known as a dormant volcano its last eruption was in a very old period about in between 11000-present period this period is known as Holocene period unknown. It is also in Andaman islands along not much information about it*





# Deccan traps

- They are located in the the Deccan plateau of western India they are very very large and extend from Mumbai to mahabaleshwar.there last eruption was very very large time ago and had a very large eruption. Now they are known as extinct volcanoes



## Where do volcanoes happen?

- ...

Most volcanoes are formed on land, but there are some volcanoes that are on the ocean floor. Some of these volcanoes emerge from the water because they are very high.



## Why does a volcano erupt?

A volcano erupts when magma and gases find a way to escape, so they burst to the surface through a vent. An eruption can be quite gentle or very violent.

# Volcanic Eruptions

- Non explosive Eruptions



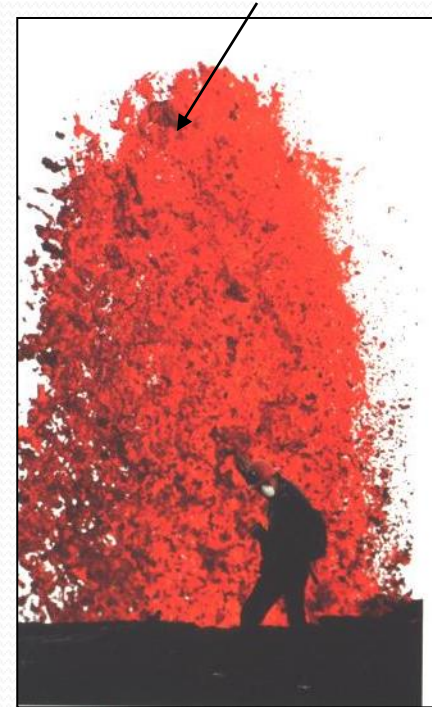
- Explosive Eruptions



*Lava flow*



*Lava fountain*



What is *Lava*?

-magma that flows onto  
the Earth's surface

# Craters, Calderas, and Lava Plateau

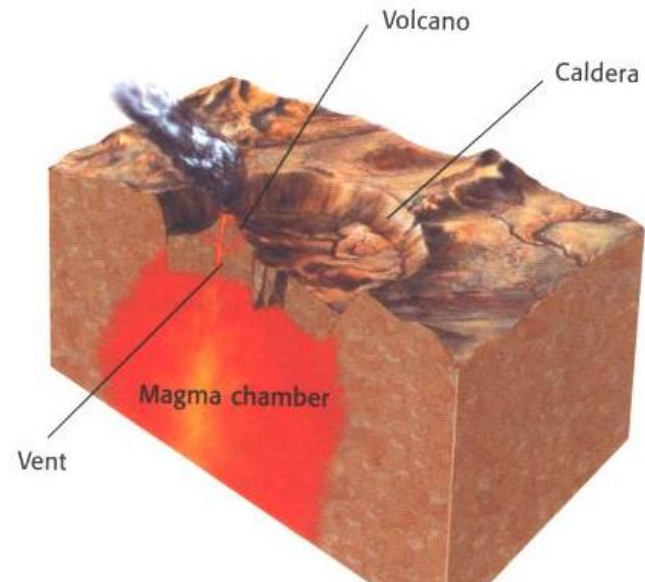
## Crater

- From explosions of material out of the vent and the collapse of material back into vent



## Caldera

- Much larger depression that forms when magma chamber empties and its roof collapses



## Lava Plateau

- Forms when lava erupts from long cracks, or fissures, and spreads out evenly (thousands of km)



# What Erupts from a Volcano?

## Pyroclastic material

- **Rock** fragments created by **EXPLOSIVE** eruptions
  - magma explodes from volcano and solidifies in the air
  - existing rock is shattered by powerful eruptions



Volcanic blocks



Volcanic bombs

Lapilli



Volcanic ash



# How do volcanoes affect the Earth?

## Flows and Fallouts

- hot ash can flow really quickly
  - Knock down buildings
  - Dam rivers (flooding/drought)
  - Kill crops and livestock



## Climatic Changes

- Ash & Gases can block sunlight
  - Drop average global temperature noticeably

## Did you know?

Mount Kilauea, in Hawaii, is the most active volcano on Earth because it has been erupting since 1983!



Pumice stone, which comes from volcanoes, is very light because it contains lot of tiny bubbles. If there are enough bubbles, then pumice stone can float on water!

The word, 'volcano' comes from the name Vulcan, who was the Roman god of fire.

# Top 7 most dangerous active volcanoes

- **Yellowstone-America,**

The Yellowstone Caldera is the volcanic caldera and supervolcano located in Yellowstone National Park in the United States, The caldera and most of the park are located in the northwest corner of Wyoming. The major features of the caldera measure about 34 by 45 miles (55 by 72 km).[3] First came the Huckleberry Ridge eruption 2.1 million years ago, which created the Island Park Caldera and the Huckleberry Ridge Tuff. Next came the Mesa Falls eruption 1.3 million years ago, which created the Henry's Fork Caldera and the Mesa Falls Tuff. Finally came the Lava Creek eruption 640,000 years ago, which created the Yellowstone Caldera and the Lava Creek Tuff Volcanism at Yellowstone The calderas lie over a hotspot where light, hot, molten rock from the mantle rises toward the surface.. The hotspot appears to move across terrain in the east-northeast direction, but in fact the hotspot is much deeper than terrain and remains stationary while the North American Plate moves west-southwest over it.[4]





## 2. Mt. Vesuvius, Italy





# Mount visuvies

- **Mount Vesuvius** in the Gulf of Naples Italy, about 9 km (5.6 mi) east of Naples and a short distance from the shore. It is one of several volcanoes which form the Campanian volcanic arc. Vesuvius consists of a large cone partially encircled by the steep rim of a summit caldera caused by the collapse of an earlier and originally much higher structure.
- Mount Vesuvius is best known for its eruption in AD 79 that led to the burying and destruction of the Roman cities of Pompeii and Herculaneum. That eruption ejected a cloud of stones, ash and fumes to a height of 33 km (20.5 mi), spewing molten rock and pulverized pumice at the rate of 1.5 million tons per second, ultimately releasing a hundred thousand times the thermal energy released by the Hiroshima bombing.<sup>[1]</sup> An estimated 16,000 people died due to hydrothermal pyroclastic flows. The only surviving eyewitness account of the event consists of two letters by Pliny the Younger to the historian Tacitus

## 5. Galeras, Colombia



Galeras (Urcunina among the 16th-century indigenous people) is in the Colombian department of Cauca. Its summit rises 4,276 metres (14,029 ft) above sea level. It has erupted frequently since the Spanish conquest, with its first historical eruption being recorded on December 7, 1580. A 1993 eruption killed nine people, including six scientists who had descended into the volcano's crater to sample gases. It is currently the most active volcano in Colombia. Galeras has been an active volcano for at least a million years, with andesite as the dominant product.[4] Two major caldera-forming eruptions have occurred, the first about 560,000 years ago in an eruption which expelled about 15 cubic kilometres (3.6 cu mi) of material. The second some time between 40,000 and 150,000 years ago, in a smaller but still sizable eruption of 2 cubic kilometres (0.48 cu mi) of material. Subsequently, part of the caldera wall has collapsed, possibly due to instabilities caused by hydrothermal activity, and later eruptions have built up a smaller cone inside the now horseshoe-shaped caldera.

# Mt. Nyiragongo, Democratic Republic of Congo



Mount Nyiragongo is an active volcano with an elevation of 3470m. It is located inside Virunga National Park, in the Democratic Republic of the Congo, about 20 km (12 mi) north of the town of Goma and Lake Kivu and just west of the border with Rwanda. The main crater is about two kilometres wide and usually contains a lava lake. The crater presently has two distinct cooled lava benches within the crater walls - one at about 3,175 metres (10,417 ft) and a lower one at about 2,975 m (9,760 ft). Nyiragongo's lava lake has at times been the most voluminous known lava lake in recent history. The depth of the lava lake varies considerably. Nyiragongo and nearby Nyamuragira are together responsible for 40% of Africa's historical volcanic eruptions.

# Ulawun, Papua New Guinea



Ulawun is a basaltic and andesitic stratovolcano situated on the island of New Britain, Papua New Guinea, about 130 km southwest of Rabaul. It is the highest mountain in the Bismarck Archipelago at 2,334 metres (7,657 ft), and one of the most active volcanoes in Papua New Guinea. The first recorded eruption of Ulawun was by William Dampier in 1700; there have been 22 recorded eruptions since the 18th century. Several thousand people live near the volcano



# Taal Volcano, Philippines



Taal Volcano is a complex volcano located on the island of Luzon in the Philippines. The volcano had several violent eruptions in the past causing loss of life in the island and the populated areas surrounding the lake, with the death toll estimated at around 5,000 to 6,000. All of these eruptions are concentrated on Volcano Island, an island near the middle of Taal Lake. The lake partially fills Taal Caldera, which was formed by prehistoric eruptions between 140,000 and 5,380 BP. Viewed from Tagaytay Ridge, Taal Volcano and Lake presents one of the most picturesque and attractive views in the Philippines. It is located about 50 km (31 mi) south of the capital of the country, the city of Manila



# Mauna Loa, Hawaii



Mauna Loa has probably been erupting for at least 700,000 years & The volcano's magma comes from the Hawaii hotspot, which has been responsible for the creation of the Hawaiian island chain over tens of millions of years.

# Summary

- ✓ *So we learned that there are 3 types of volcanoes .active/dormant and extinct*
- ✓ *The volcanoes erupt because of the movement of plates*
- ✓ *there are only 4 volcanoes in india*
- ✓ *Barren island is the only active volcano in india*
- ✓ *Narcondam,baratang and Deccan traps etc. are others*
- ✓ *Yellow stone is the most dangerous volcano*
- ✓ *Where do volcanoes happen?*
- ✓ *Why does a volcano erupt?*
- ✓ *Volcanic Eruptions*
- ✓ *What is Lava?*
- ✓ *What Erupts from a Volcano?*
- ✓ *Pyroclastic material*
- ✓ *How do volcanoes affect the Earth?*
- ✓ *Flows and Fallouts*
- ✓ *Climatic Changes*



*Thank you!*