

## 8. VOLCANO

- The term Volcanism was first used by Versatter.
- A volcano is a process or an event in which lava, gases, water vapour etc. comes out on the earth's surface from the interior of earth.

### TOPOGRAPHY PRODUCED BY VOLCANO :

Vulcanicity produces varied structures, which are classified in two broad groups-

- (a) *Intrusive Topography*
- (b) *Extrusive Topography*

#### (a) Intrusive Topography (Granite Rocks)

- i) Intrusive Lava Domes
- ii) Batholiths
- iii) Laccoliths
- iv) Phacoliths
- v) Lopoliths
- vi) Sills
- vii) Dykes
- viii) Stocks

#### (b) Extrusive Topography (Basaltic Rocks)

- i) Volcanic cones
- ii) Crater
- iii) Calderas
- iv) Lava plateau or trapp
- v) Lava plains
- vi) Fumaroles
- vii) Geysers

### Other Part of Volcanoes-

#### 1. Volcanic Pipe

- The narrow pipe, through which the magma comes out on the surface, is called **Volcanic Pipe**.

#### 2. Crater

- The funnel or cup-shaped opening at the top of the volcanic cone is called as the **Crater**.

#### 3. Crater Lake

- When crater gets filled up with the rain-water, it forms as **Crater Lake**.

#### Example

- Titicaca lake in South America.

- Lonar lake in Maharashtra, lake Pushkar (Rajasthan)

#### 4. Caldera

- Caldera is formed due to subduction of the crater or expansion of the volcanic mouth or vent due to successive eruptions.
- The largest caldera in the world is 'Aera', which is in Japan. USA - Palis is also an example.
- Lake Towa is in Indonesia which is known as super caldera.

#### 5. Geyser

- It is a special type of hot spring which sprouts hot water and vapour from time to time.
- The best examples of geysers are the Old Faithful and Exelsiar at the Yellow Stone National Park, in USA.
- It is not found generally in South America & Africa.
- Grand Geyser of Iceland is also very famous.

#### 6. Fumaroles

- Fumarole means such a vent through which there is emission of gases and water vapour.
- Fumaroles impregnated with sulphur is called Solftara.

#### Example

- Numerous fumaroles are found in the 'Katmai' mountains of the USA.
- This region is known as 'A Valley of Ten thousand Smokes'.
- Koh Sultan fumarole of Iran.
- The White Island fumarole in the Bay of Plenty, New Zealand, are also very famous.

#### 9. Deccan Trapp

- The basaltic lava, which comes out of the fissure volcanoes, flows slowly and gets solidified in the form of a thick shield.
- These layers or shields are called lava plateaux or Trapp.
- The best example of Trapp is the Deccan Trapp of India.

## Types of Volcanoes (According to Activism)

### i) Active Volcanoes–

- These volcanoes constantly eject volcanic lavas, gases, ashes and fragmental materials.
- It is estimated that there are more than 500 active volcanoes in the world.

### Exmple–

- (a) Etna and Stromboli of the Mediterranean Sea are the most significant exmples of this category.
- (b) **Stromboli** is known as the **Light house of the Mediterranean.**
- (c) Other volcanoes of this category are - **Cotopaxi** of Equador (World's highest active volcano), Monalowa - Hawai Iland
- (d) **Mt Erebus** of Antarctica (the only active volcano of the continent).
- (e) The active volcano in the Barren Island of the Andaman and Nicobar Islands. India.

### ii) Dormant Volcanoes–

- These volcanoes become quiet after their eruptions for some time.
- There are no indications for future eruptions but suddenly they erupt very violently and cause enormous damage to human health and wealth.
- Imporant examples of this category are-
  - (a) Vesuvius in Italy;
  - (b) Fujiyama in Japan
  - (c) Krakatao in Indonesia.
  - (d) Dormant volcanoes in the Narcondam Island (Now believed to be active after Tsunami of December 2004) of the Andaman & Nicobar.

### iii) Dead or Extinct Volcanoes–

- These are those volcanoes which have not erupted since thousands of years.
- There is no indications of future eruption as well.
- Leading examples of this category are-
  - (a) Mt kenya in Eastern part of Africa.
  - (b) kilimanjaro in Eastern part of Africa.
  - (c) Chimborajo in Equador.
  - (d) Mount popa in Myanmar.
  - (e) Devband in Iran.
  - (f) Aconcagua in Andes mountains.
  - (g) Koh-sultan in Iran.

## WORLD DISTRIBUTION OF VOLCANOES

- The explanation of volcanic regions of the world, based on the plate tectonic theory, is the most accepted one.
- According to this theory destructive plate boundaries account for about 80% of the volcanic regions, constructive plate margins for about 15% of the volcanic regions.

### Major volcanic belts are–

#### 1. Circum-Pacific Belt–

- In this belt, volcanoes are found along the destructive plate margins. here.
- Two-third of the world's volcanoes are found in the coastal regions of the Pacific ocean, archipelagoes and oceanic islands.
- The name given to this belt is the **Fire Girdle of the Pacific.**
- This Belt also knoww as the **Fire Ring of the Pacific.**
- This belt begins form Erebus Mountain of Antarctica and runs northward through Andes and Rockies mountains of South and North Americas, respectively.

#### 2. Mid-continental belt–

- Most of the volcanoes of this belt are found along the desturctive plate margins, due to collision of Eurasina plate with African and Indian plates.
- One branch of this belt Runs along the fault zone of east Africa and the other turns southward to meet the Circum pacific belt after running through Spain, Italy, Caucasus and Himalayas.
- This belt also includes the volcanoes of the Alpine chains and the Mediterranean Sea.
- Stromboli, Vesuvius and Etna are the important volcanoes of the Mediterranean region.
- Demband and Koh sultan volcanoes of Iran and Ararat volcano of Armenia are also included in this belt.
- Mt Camerron is the only active volcano of western Africa.

#### 3. Mid-Atlantic Belt–

- Volcanoes of this belt are found along the constructive plate margins.
- When the plates diverge from each other, fissures are formed from which the Peridotite and Basaltic magma comes out.

- Due cooling and solidification of this magma, new crust is continuously formed along the fissure.
- Laves near the fissure or mid-oceanic ridge are the latest and get older as one moves away from the ridge.
- Hekla and Laki are the important volcanoes of Iceland in this belt. Other major volcanoes are Lesser Antilles, Southern Antilles, Azores, St. Helena etc.

**MAJOR VOLCANOES OF THE WORLD**

| <b>VOLCANO</b>  | <b>COUNTRY</b>    |
|-----------------|-------------------|
| Ojas del Salado | Argentina-Chile   |
| Cotopaxi        | Equador           |
| Chimborajo      | Equador           |
| Popocatapital   | Mexico            |
| Monaloe         | Hawaii Island     |
| Mt. Cameroon    | Cameroon (Africa) |
| Mt. Erebus      | Ross (Antarctica) |
| Mt. Peele       | Mortinique Island |

|              |                        |
|--------------|------------------------|
| Hekla        | Iceland                |
| Laaki        | Iceland                |
| Vesuvius     | Gulf of Naples (Italy) |
| Stromoboli   | Lipari Island (Italy)  |
| Katmia       | Alaska (USA)           |
| Mt. Rainier  | USA                    |
| Mt. Shasta   | USA                    |
| Fujiyama     | Japan                  |
| Mt. Taal     | Philippines            |
| Mt. Pinatubo | Philippines            |
| Mt. Meyon    | Philippines            |
| Demband      | Iran                   |
| KohSultan    | Iran                   |
| Mt. Popa     | Myanmar                |
| Elbrus       | Georgia                |
| Kilimanjaro  | Tanzania               |
| Mt. Kenya    | Kenya                  |
| Acucnagua    | Peru                   |