# Class-9
# Sub-Gegraphy
# Chapter-15
# Humidity
# Part- II

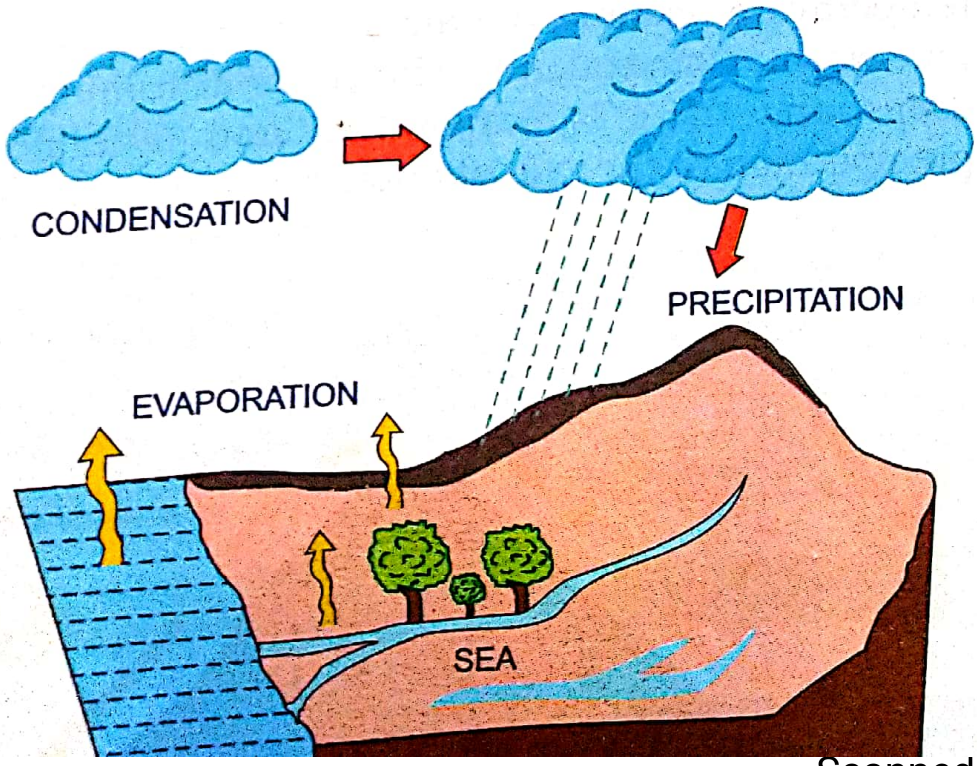
## PRECIPITATION

The process by which products of condensation, *viz* water droplets, ice crystals, sleet, etc., fall to ground is known as *precipitation*. Rainfall, snowfall, drizzle, sleet and hail are the chief forms of precipitation. Precipitation takes place only when tiny particles of water join together to form large sized particles which become too heavy to remain in suspension in the clouds.

1. ***Rain:*** It is the most common form of precipitation. Raindrops of smaller size and less intensity are known as drizzle.
2. ***Snow:*** Water droplets which rise higher and freeze on account of drop in temperature. Snowfall usually occurs in winter in cold climates or on high mountains.
3. ***Hail:*** Sometimes, vertical air currents may push water droplets or ice particles higher. They form into solid ice and fall as hail. Hailstones cause great damage to crops.

### Types of Rainfall

Deposition of moisture from the atmosphere on the earth's surface is called precipitation. One of the forms of precipitation is rainfall. The three types of cooling of air produce three different



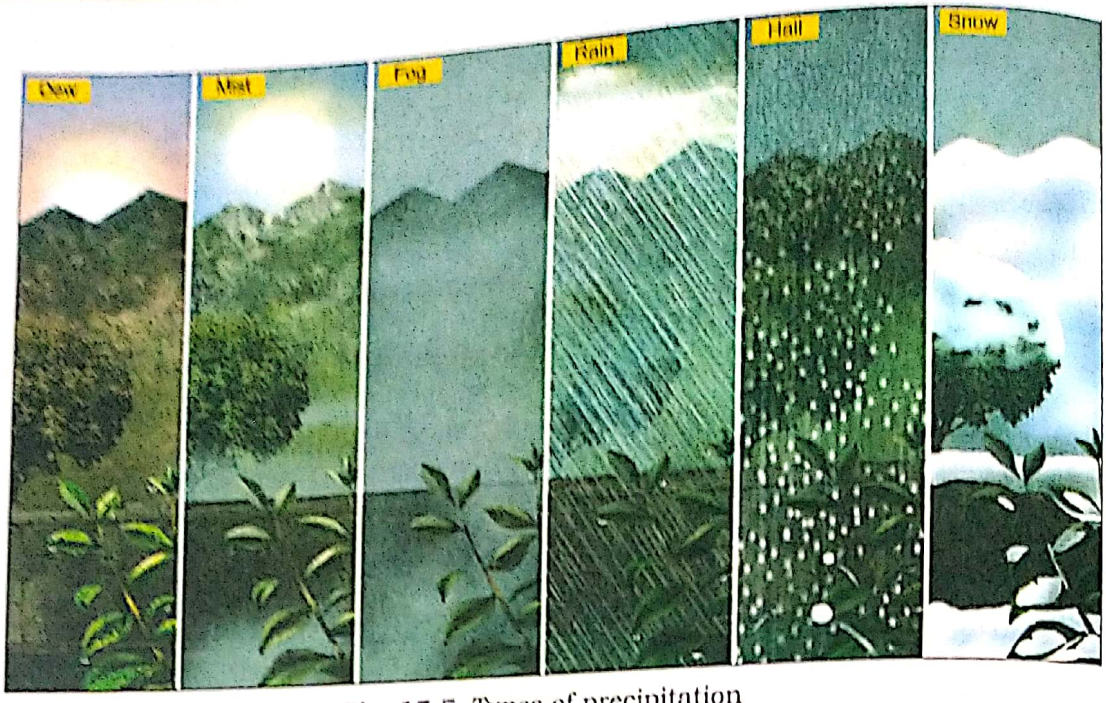



Fig. 15.5. Types of precipitation

types of rainfall known as *Convectional Rainfall, Orographic Rainfall* and *Cyclonic Rainfall.*

### 1. Relief Rainfall

Relief Rainfall is also known as *Orographic Rainfall.* It occurs from the cooling of warm moist air which ascends above the mountain barrier lying in the direction of the prevailing winds. The presence of mountains causes humid air to rise. The sudden ascent causes cooling of air, leading to condensation and precipitation. Since it is caused by the relief of the land, it is called *relief rain.* On descending the leeward slope, a decrease in altitude increases both the pressure and the temperature, leading the air to get compressed and warm. Consequently, the relative humidity drops and there is evaporation and little no precipitation in the rain shadow area.

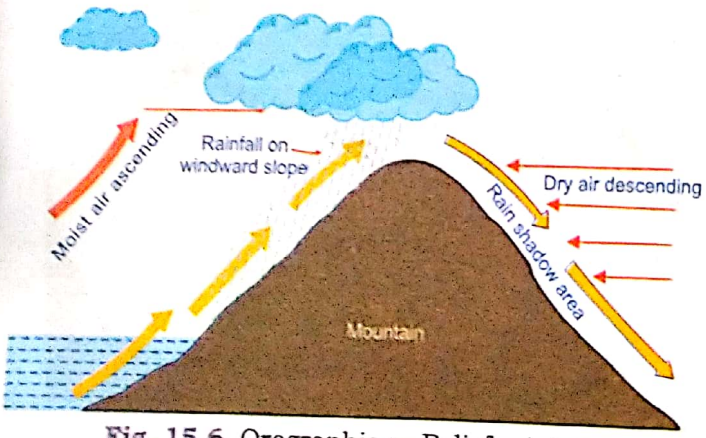



Fig. 15.6. Orographic or Relief rainfall

For example, the monsoon winds, while ascending the Western Ghats cause heavy rainfall on the windward side. In the North-East, the Himalayan barrier makes the winds to shed their moisture on the windward side on the slopes facing south.

Similarly, other regions receiving orographic rainfall include Eastern Brazil, East China, South Eastern United States. Orographic rainfall is especially heavy in the hot and humid areas bounded by tropical oceans. In all these regions, there are regions of heavy rainfall (200 cm and above), moderate rainfall (100-200 cm) and very low rainfall (less than 25 cm).

### 2. Convectional Rainfall

There is Convectional Rainfall in the Equatorial regions. The high temperature leads to the rapid heating of air. Such heated air rises in convectional currents, leading to development of clouds at about 10 km height. Ascending currents of hot and humid air causes condensation of the clouds, resulting in heavy rainfall. This type of rainfall occurs in the afternoon at about 4 O'clock and is known as '4 O'clock Shower.'

Such rainfall is also accompanied by thunder and lightning. Convectional rainfall occurs daily in the Equatorial regions. They receive an annual rainfall of more than 200 cm.

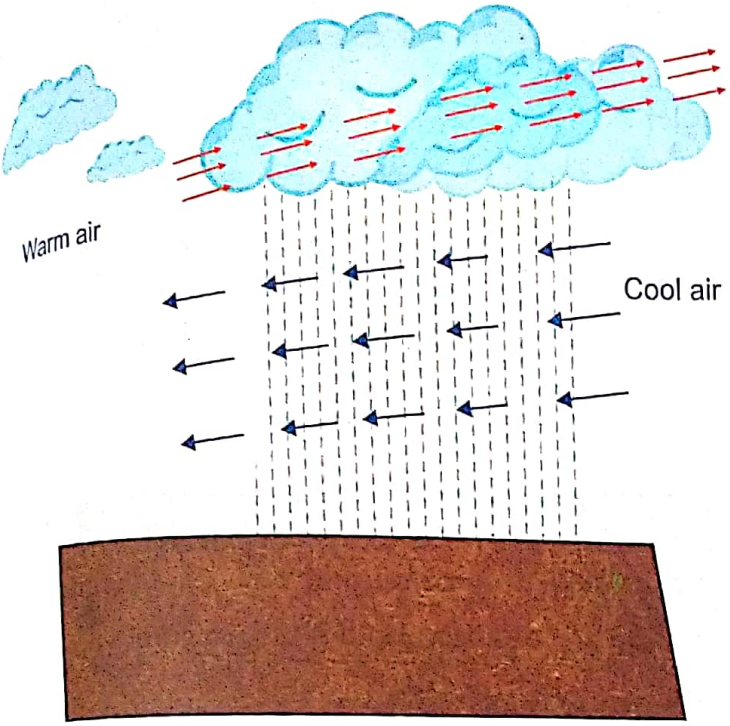



**Fig. 15.7.** Cyclonic or frontal rainfall

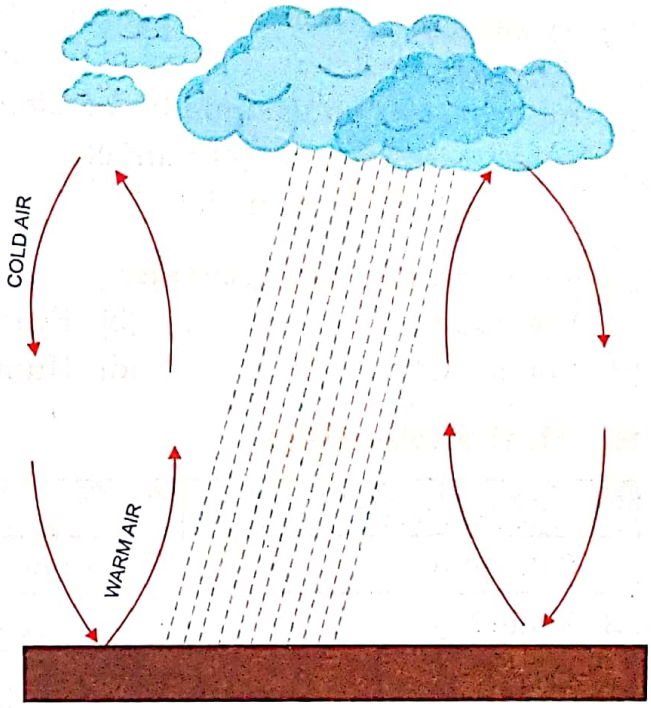



**Fig. 15.8.** Convectional rainfall

### 3. Cyclonic or Frontal Rainfall

This type of rainfall is due to cyclones (in Tropical Latitudes) and depressions (in Temperate Latitudes or the mid-latitudes), irrespective of relief or convection. It is caused by convergence (meeting) of two different air masses with different temperatures and other physical properties. When warm and cold air masses confront each other, the warmer (lighter) air generally climbs above the colder (heavier) air. The boundary zones of these air masses are called the *fronts*. The rising air is cooled while undergoing a frontal lift. This causes precipitation. Such precipitation or rainfall is called *Cyclonic or Frontal Rainfall* and it is very heavy in tropical cyclones. It lasts for only a few hours. In temperate depressions, such as those of Western Europe, the rainfall is much lighter though it lasts for several days. There, it falls in the form of a continuous drizzle.