

UPSC Civil Services Examination

UPSC Notes [GS-I]

Topic: Types of Rainfall (Geography Notes for UPSC)

Types of Rainfall

Rainfall has been classified into three main types based on the origin –

- Convective rainfall
- Orographic or relief rainfall
- Cyclonic or frontal rainfall

Convective Rainfall – Major Characteristics

- The air on getting heated becomes light and rises up in convection currents.
- As the air rises, it expands and drops the temperature and subsequently, condensation takes place and cumulus clouds are formed.
- Heavy rainfall with lightning and thunder takes place which does not last long.
- Such rain is usual in the summer or in the hotter part of the day.
- This type of rainfall generally takes place in the equatorial regions and internal parts of the continents, predominantly in the northern hemisphere.
- This rainfall is usually associated with hail and graupel.

Orographic Rainfall – Major Characteristics

- When the saturated air mass comes across a mountain, it is forced to rise.
- The rising air expands, eventually, the temperature falls, and the moisture gets condensed.
- The principal characteristic of this type of rain is that the windward slopes get more rainfall.
- After giving rain on the windward side, when these winds reach the other slope, they drop away, and their temperature increases. Then their ability to take in moisture increases and hence, these leeward slopes remain dry and rainless.
- The region situated on the leeward side is known as the rain-shadow area.

Cyclonic Rainfall – Major Characteristics

- Cyclonic activity causes cyclonic rain and it occurs along the fronts of the cyclone.
- When two masses of air of unlike density, temperature, and humidity meet then it is formed.
- The layer that separates them is known as front.
- Warm front and the cold front are the two parts of the front.

- At the warm front, the warm lighter wind increases slightly over the heavier cold air.
- As the warm air rises, it cools, and the moisture present in it condenses to form clouds
- This rain falls gradually for a few hours to a few days.

Types of Rainfall based on Intensity

The types of rainfall based on intensity can be classified as:

1. Light rain – Rate of rain varies between 0 to 2.5 millimetres
2. Moderate rain – Rate of rain varies between 2.6 millimetres to 7.6 millimetres
3. Heavy rain – Rate of rain is beyond 7.6 millimetres

