



The Seasons: Distinct seasonal pattern is an important characteristic of monsoon type of climate. The weather conditions in India greatly change from one season to another. These changes are particularly noticeable in the interior parts of the country. The coastal areas do not experience much variation in temperature though there is variation in rainfall pattern. There are basically four seasons identified in India. These are

1. The Cold Weather Season (Winter): The cold weather season begins from mid-November and stays. February in Northern parts of India with December and January as the coldest months. The temperature decreases from South to North. For instance, the average temperature of Chennai, on the Eastern coast, is between 24°–25°C while in Northern plains, it ranges between 10°–15°C. During this season, days are warm and nights are cold. Frost occurs in the Northern plains and snow falls in the high mountainous regions of Himalayas. As the North-East trade winds blow during this period, most of the country remains dry as they blow from land towards sea. The only rain occurs in Tamil Nadu and Southern Andhra Pradesh due to these winds picking up moisture from the Bay of Bengal.

Features of Cold Weather Season: The characteristic features are:

- A feeble (weak) high pressure region develops in the Northern part of the country. Influenced by the relief, the light winds moving outwards from this area blow through the Ganga valley from the West and the North-West.
- Clear sky, low temperature and humidity, and feeble, variable winds are the characteristics of the weather during the period.
- There is an inflow of cyclonic disturbances from the West and the North-West, which have originated over the Mediterranean Sea and Western Asia. They cause winter rains over the plains and snowfall in the mountains. This winter rainfall though in small amount is locally known as Mahawat. It is useful for cultivation of the Rabi crops.
- The peninsular region has moderating effect from sea and hence, it doesn't have well-defined cold seasons. Also there is hardly any noticeable change in temperature pattern.

2. The Hot Weather Season (Summer): The hot weather season starts with the apparent movement of the sun towards the North. It leads to the Northward movement of global heat belt. The hot weather season starts in March and lasts up to the end of May.

Features of Hot Weather Season: characteristic features are:

- The temperature of the Northern part of India goes up and the atmospheric pressure comes down.
- The summer months experience rising temperature and falling air pressure. Towards the end of May, an elongated low-pressure area develops in the region extending from Thar Desert in North-West to Patna and Chotanagpur plateau in the East and South-East. This results into beginning of air circulation around this trough.
- A hot gusty and dry wind, locally known as Loo, blows during this season over the North and North-Western India and can cause even death if persons are exposed to it for a long time.
- Dust storms are very common in North India in the month of May. They bring temporary relief from the heat by lowering the temperature and may also cause light rain and cold





breeze.

- Localised thunderstorms also occur during summer, which may have high speed winds and even precipitate hail. Such thunderstorms are called Kaal Baisakhi in West Bengal. Near the end of summer, there may be pre-monsoon showers. These are called Mango Showers in Kerala and Karnataka, as they help in the early ripening of the mango fruit.

Temperature Variation During Hot Weather: The influence of the shifting of heat belt can be seen from temperature recordings taken during March to May at different latitudes. In March, the highest temperature is about 38°C, recorded in Deccan Plateau. Temperature in Gujarat and Madhya Pradesh is around 42°C in the month of April. In May, North-Western parts of the country experience temperature around 45°. Due to moderating influence of the oceans, temperature remains lower in peninsular India.

3. Advancing Monsoon (The Rainy Season): The low pressure area over the Northern plains intensifies by mid-June and attracts the trade winds. These trade winds originate over the warm tropical ocean in the Southern hemisphere. After crossing equator, these blow in the South–West direction entering peninsula as South-West monsoon. They cover the entire sub-continent except extreme North-West in just over one month. Maximum rainfall due to these winds occurs in North-Eastern India (mainly Meghalaya and Assam) and the windward side of the Western Ghats (Thiruvananthapuram to Mumbai) as these winds bring abundant moisture to the sub-continent at a velocity of 30 kmph.

Rainfall in Western Ghats and Deccan Plateau: The monsoon winds cover the country in about a month. A total change in weather is brought up in India by the inflow of the South-West monsoon in India. The windward side of the Western Ghats receives very heavy rainfall, more than 250 cm in the early season. In spite of lying in the rain shadow area, the Deccan Plateau and parts of Madhya Pradesh also receive some amount of rainfall.

Areas of Maximum and Least Rainfall: The maximum rainfall of this season is received by the North-Eastern part of the country. The highest average rainfall in the world falls at Mawsynram in the Southern ranges of the Khasi hills in Meghalaya. In the Northern plains precipitation decreases from East to West, with Western parts of Rajasthan and Northern parts of Gujarat getting the least rainfall,

Stalagmite and Stalacite Caves: The wettest place on the earth Mawsynram is also reputed for its stalagmite and stalacite caves. Stalacites are formations that hang from the ceilings of caves while stalagmites like they are emerging from the ground and stand up.

Features of Advancing Monsoon: Features of advancing monsoon are as follows:

- Wet and Dry Spells Monsoon in India does not bring continuous rainfall. It has wet and dry spells i.e. ‘breaks’ in rainfall. These breaks in monsoon are related to the movement of monsoon trough. The axis of the monsoon trough in the Northern plains keeps moving North to South and back, causing periodic breaks in rainfall. Due to this, it has wet and dry spells. The monsoon rains take place only for a few days at a time. They are interspersed as rainless intervals.

- Monsoon Trough: The trough and its axis keep on moving Northward or Southward which determines the spatial distribution of rainfall. ‘When the axis of the trough lies over the plains, the region gets good



rainfall. With the Northward movement of axis, the Himalayan region gets widespread rain which is the catchment area of various rivers. This causes devastating floods in the plains causing heavy damage to life and property.

- Tropical Depression Another phenomenon, which determines amount and duration of the monsoon, is the frequency and intensity of tropical depression which form at the head of the Bay of Bengal and cross over to mainland. These depressions follow the axis of the 'monsoon trough of low pressure'.

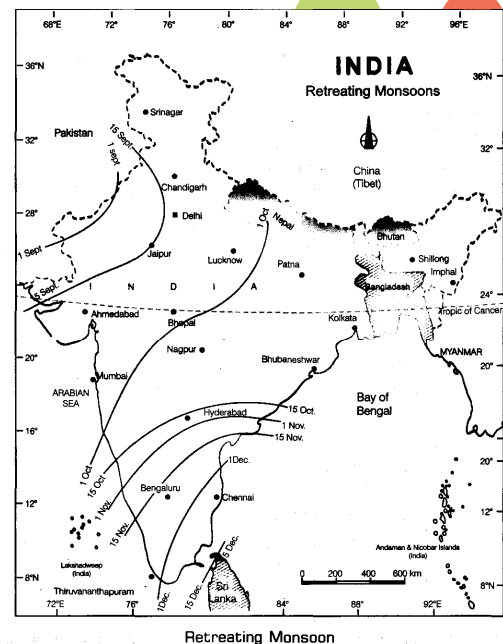
Retreating/Post Monsoon Season (The Transition Season): The sun starts shifting towards the South during October-November. During this time, the low pressure trough over the Northern plains weakens and is replaced gradually by a high pressure system. This is followed by the South-West monsoon winds. By the beginning of October, the monsoon withdraws from the Northern plains. The months of October-November form a transition period from hot rainy to dry winter conditions.

Features of Retreating Monsoon: The characteristic features of retreating monsoon are

- The period is marked by clear skies and rise in temperature.
- The day temperatures are high but nights are cool and pleasant.
- Due to the temperature still remaining high and humidity not reducing the heat is oppressive. This phenomenon is also called October heat.

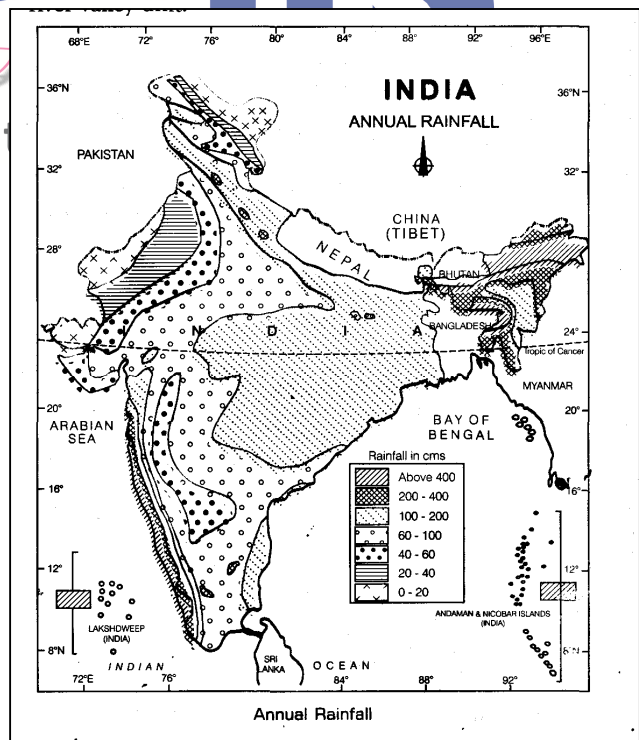
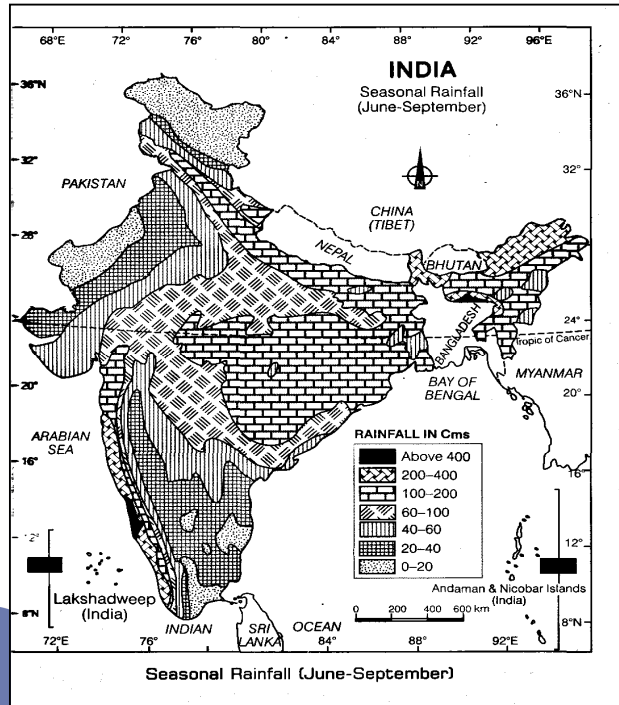
Cyclonic Depression and Tropical Cyclone: By early November, cyclonic depressions originate over the Andaman Sea. It causes tropical cyclones on the coastline from Bangladesh to Tamil Nadu as low pressure conditions get transferred to the Bay of Bengal. These cyclones generally cross the Eastern coast of India causing heavy and widespread rain. Often they cause a lot of destruction. Sometimes, these cyclones arrive at the coasts of Odisha, West Bengal and Bangladesh. These cyclones frequently strike the populated deltas of Godavari Krishna and Kaveri. The Coromandel Coast gets its monsoon rainfall mostly during October and November from the cyclones and due to the retreating monsoon picking up moisture over the Bay of Bengal.

Distribution of Rainfall: Annually, parts of Western coast and North-Eastern India receive over about 400 cm of rainfall. However, it is less than 60 cm in Western Rajasthan and adjoining parts of Gujarat, Haryana and Punjab. Rainfall is equally low in the interior of the Deccan Plateau and East of the Sahyadris. A third area of low precipitation is around Leh in Jammu and Kashmir. The rest of the country receives moderate rainfall. Snowfall is restricted to the Himalayan region. Owing to the nature of monsoons, the annual rainfall is highly variable from year to year. Variability is high in the regions of low rainfall such as parts of Rajasthan, Gujarat



and the leeward side of the Western Ghats. Due to this, the areas of high rainfall are liable to be affected by floods whereas, areas of low rainfall are drought-prone.

Monsoon as a Unifying Bond: Northern India has comparatively higher temperatures than other areas of the world at a similar latitude due to the Himalayas protecting it from the cold Central Asian winds. The peninsular plateau has moderate temperatures due to the influence of the sea on three sides. The monsoon provides a great variation despite such moderating influences. However, the monsoon unites the land like no other force, because it provides a rhythmic cycle of seasons. The vegetation, animal life and agricultural activities are all revolving around the effects of the monsoon. The life of the people, their celebration of festivals and other activities all are geared to the monsoon as India is still primarily an agricultural nation. The monsoon provides the water to set agricultural activities in motion and hence, the arrival of the monsoon is awaited eagerly. The river valleys which carry this water also unite as single river valley unit.



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