



Chapter-4

Climate

①. What is climate?

- Climate - Average Weather Conditions of a place for a long period (30-35 years).
- Weather - Day-to-day atmospheric conditions (temperature, humidity, rainfall, wind).

Difference : Climate vs Weather

<u>Basis</u>	<u>Weather</u>	<u>Climate</u>
<u>Duration</u>	Short duration	Long duration
<u>Distance</u>	Short distance	Long distance
<u>Concept</u>	Narrow concept	Wider concept
<u>Formation/Influence</u>	Depend on climate	Revolution of earth
<u>Example</u>	Temperature of cities	Seasons

②. Factors Affecting India's climate-

(i) Latitude-

- Tropic of Cancer ($23^{\circ}30'N$) divides India into two Halves :

(i) Tropical climate - South India

(ii) Subtropical climate - North India

- So, some regions are very hot while others remain cold.

(ii) Altitude-

- Temperature decreases with height.
- Himalayas prevent cold winds from central Asia.

(iii) Pressure and winds-

Major controls-

- Pressure Belts.
- Winds (Monsoon winds, trade winds, western disturbances)
- Jet streams.

③. Important climatic controls in India-

(a) The Monsoon-

- Seasonal reversal of winds.
- Southeast Monsoon (Advancing monsoon) - [June - Sept]
- Rain Bearing Winds.
- Northeast Monsoon (Retreating monsoon) - [Oct - Nov]
- Winds shift back to Northeast.

(b) Jet streams-

- Fast flowing winds in upper Atmosphere.
- Westerly Jet streams influences western disturbances in winter.

(c) Western Disturbance-

- Winds from Mediterranean region.
- Cause winter rainfall in North India & snowfall in Himalayas.

(4) Seasons in India-

India has six seasons (as per Indian Meteorological department)

(1) The Cold Weather season (Winter) - December to February

- Cool, dry conditions.
- Clear skies
- Low temperature, low humidity.
- Western disturbances bring winter rain.

②. The Hot weather season (Summer) - March to May.

- Temperature rises sharply.
- Loo (Hot dry winds) in North India.
- Local thunderstorms:
 - Kalbaisakhi in Bengal.
 - Mango showers in Kerala & Karnataka.

③. Advancing Monsoon (Rainy Season) - June to September

- Low pressure develops over NW India.
- SW Monsoon winds bring heavy rainfall.
- Causes 75% of India's Annual rainfall.

④. Retreating / Transition Season - October to November

- Monsoon withdraws.
- Temperature decreases.
- Cyclones in Bay of Bengal affect eastern coast.

⑤ & ⑥. Other traditional seasons:

- Pre-winter (Hemant)
- Spring (Vasant)

⑤. Distribution of Rainfall in India-

High Rainfall Areas-

- Western ghats
- North east states (Meghalaya, Assam).
- Coastal Kerala

Low Rainfall Areas:

- Rajasthan (Thar desert)
- Leh & Ladakh
- Gujarat & Haryana (parts)

⑥. Monsoon Mechanism (How Monsoon works).

- ①. Differential Heating of land and sea.
- ②. Shift of ITCZ (Inter Tropical Convergence Zone)
- ③. High pressure to low pressure Movement of winds.
- ④. Tibetan plateau gets intensely heated
- ⑤. Change in wind direction by coriolis force.
- ⑥. Jet streams help in onset of Monsoon.

⑦. Climatic Regions of India-

Tropical Monsoon climate

→ Varies from region to region due to relief distance from sea, Altitude

⑧. Importance of Monsoon-

- Essential for Agriculture (60% farming depends on rain)
- Affects food production & Economy.
- Recharges groundwater.
- Controls Vegetation and Biodiversity.

⑨. Monsoon as a unifying Bond -

- Monsoon is irregular But binds the whole country.
- Cultural festivals are linked to Monsoon (Onam, Pongal, Baisakhi).

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