

Change of Seasons & Climatology – SSC Notes

1. Climatology – Definition

- **Climatology:** Study of climate, weather patterns, temperature, rainfall, and seasonal changes over a long period
- **Importance:** Agriculture, planning, disaster management, water resources

2. Factors Affecting Climate

1. **Latitude** → Determines solar energy → Equator = hot, Poles = cold
2. **Altitude** → Higher altitude = cooler temperatures
3. **Distance from Sea** → Coastal areas → moderate climate, Inland → extreme climate
4. **Ocean Currents** → Warm currents → increase temperature, Cold currents → decrease temperature
5. **Wind & Pressure Systems** → Cyclones, Monsoon patterns
6. **Topography** → Mountains → Rain shadow, Plateaus → Moderate climate

3. Change of Seasons in India

India has four main seasons due to tilt of Earth & monsoon winds:

Season	Months	Characteristics	Wind / Cause
Winter	Dec–Feb	Cold, dry, fog in north	Northeasterly trade winds
Summer / Pre-monsoon	Mar–May	Hot, dry, heatwaves in north	Sun overhead Tropic of Cancer → High temp
South-West Monsoon	Jun–Sep	Heavy rainfall, humidity	Moist winds from Arabian Sea & Bay of Bengal
Post-monsoon / Retreating Monsoon	Oct–Nov	Light rain, moderate climate	North-East winds, withdrawal of monsoon

4. Monsoon – Special Features

- **Definition:** Seasonal reversal of wind direction → Brings rainfall
- **Types of Monsoon in India:**
 1. **South-West Monsoon** → June–September → Main rainy season → 75% of annual rainfall
 2. **North-East Monsoon** → October–December → Tamil Nadu, Andhra Pradesh
- **Factors Affecting Monsoon:**
 - **Himalayas** → Orographic rainfall
 - **Western Ghats** → Heavy rainfall on windward side, rain shadow region on leeward side
 - **El Niño & La Niña** → Impact rainfall intensity

5. Climatic Regions of India

Region	Climate Type	Features
Tropical Wet	Along west coast, Andaman & Nicobar	Heavy rainfall, evergreen forests
Tropical Dry	Interior Maharashtra, Rajasthan	Hot, low rainfall, scrub vegetation
Sub-tropical Humid	Northern plains	Hot summers, cold winters, moderate rainfall
Mountain / Alpine	Himalayas	Snowfall, cool summers, heavy winter precipitation
Desert	Thar desert	Hot, dry, sandstorms, low rainfall

6. Important SSC Points – Seasons & Climate

- **India** → Tropical Monsoon Climate → 4 seasons
- **Summer** → Mar–May → Hot & dry → Tropic of Cancer
- **South-West Monsoon** → Jun–Sep → Major rainfall → Arabian Sea & Bay of Bengal branches
- **Retreating Monsoon** → Oct–Nov → Light rainfall → Tamil Nadu, SE India

- **Winter → Dec–Feb → Cold → North India**
- **Factors affecting climate → Latitude, Altitude, Distance from sea, Winds, Ocean currents, Topography**

7. Uses / Importance

- **Planning agriculture → Crops & sowing time**
- **Predicting rainfall & drought**
- **Disaster management → Floods, cyclones, heatwaves**
- **Study of climate change & global warming**