

These Slides Accompany the YouTube Video Tutorial:
<https://www.youtube.com/watch?v=qJmg7qzUVGM>

NCERT Class 9 Geography

Chapter 4: Climate

Terminology

- Climate – Sum total of weather for 30 years or more
- Weather – Atmosphere at a given point of time
- Includes temp., ppt., pr., wind, humidity
- Monsoon from Arab “mausim” – seasonal reversal in wind direction
- India – Monsoon land
- Temp. from Rajasthan (50°C) to J&K (-45°C)
- Rainfall – 400 cm in Meghalaya to 10 cm in Ladakh & Raj.
- Tamil Nadu – winter rains
- Rain decrease from east to west in north plains
- Coastal area has less extreme in temperature

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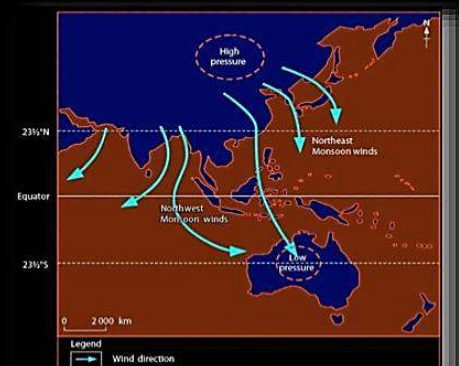
Controls of Climate

- Latitude – Temp. ↓ from equator to poles
- Altitude - Temp. ↓ with ht. (higher areas – less dense air) – hills are cooler
- Pressure & Wind – depend on latitude & altitude, influence temp & rain
- Distance from Sea – Distance increase – extreme weather - continentality
- Ocean Currents – Warm & cold current
- Relief Features – Mts. act as barrier
- Deserts on western margins of continents in subtropics: Prevailing winds are tropical easterly winds & go dry on reaching western margins.

India – Climatic Controls

- Latitude – Tropic of Cancer divides in tropics & subtropics
- Altitude – Himalayas prevent cold wind from C. Asia – mild winters
- Pressure and surface winds – NE Winds
- In South deflect right – Coriolis force
- Ferrel Law – right in NH & left in SH
- Summer – LP in interior of India
- SW Monsoon from HP to LP

NE, NW Monsoon winds



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- Upper air circulation – Jet Streams – Westerly Flow at 27° - 30° north & so called Subtropical westerly - In India – South of Himalayas (except summer)– Year Round and cause western disturbances
- In summer – move north of Himalayas
- Tropical easterly jet stream: Over peninsular India at 14° N in summers
- Western cyclonic disturbances – Occur in Winters
- Tropical Cyclones – Occur in Monsoons & in Oct-Nov as easterly flow

Monsoons

- In 20° N & S tropics
- Differential heating of water and land
- Shifting of ITCZ (NE & SE winds converge) – In summer at Ganga plain
- High Pr. East of Madagascar – 20° S
- Heating of Tibetan Plateau
- Movement of westerly jet in Himalayas & easterly in Peninsula

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Southern Oscillations

Normal

Indian Ocean
Low Pressure

Pacific Ocean
High Pressure

Reversal

Indian Ocean
High Pressure

Southern Oscillation or SO

Pacific Ocean
Low Pressure

Pr. Diff. over Tahiti (Pacific Ocean, 18°S/149°W) & Darwin, N. Australia (Indian Ocean, 12°30'S/131°E) – Intensity of Monsoon

Negative SOI: late monsoon or below average

El- Nino

- 'El Nino' Spanish implies 'child or baby Christ': Starts flowing during Christmas
- Warm Peruvian Coast, instead of cold Peruvian current, every 2 to 5 years
- Changes in pressure conditions are connected to El Nino
- Called as ENSO (El Nino Southern Oscillations)
- ↑ in sea-surface temp. & weakening trade winds
- Cause poor monsoon in India

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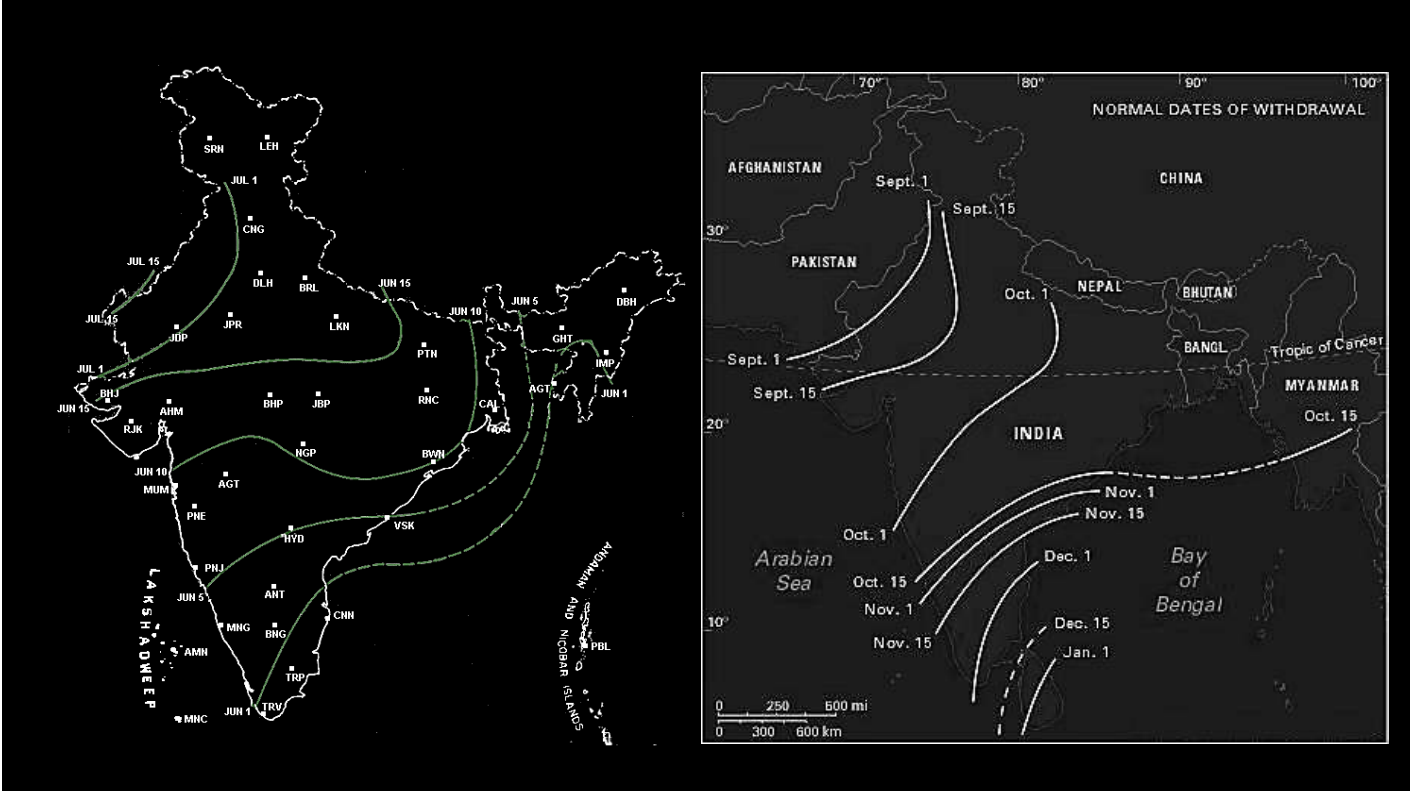
Monsoon Mechanism

- Pulsating
- 100-120 days – June to Sept
- Initially – Burst of Monsoon (after pre-monsoon showers)
- At southern tip in June
- 2 branches – Bay of Bengal (Assam in 1st week of June- deflect to west by Himalayas) & Arabian Sea (reach Mumbai by 10th June)
- Both branch merge at Ganga Plains by June end
- Retreat or withdrawal is gradual – starts in Sept in NW India
- Islands – Monsoon appear in April to May & retreat Dec to Jan

Seasons

- Cold Weather – Winter – Nov to Feb – frost & snow in North – NE winds (dry) – Winter rain in Tamil Nadu, cyclonic disturbances form N & NW – “Mahawat – winter rain” if small good for Rabi crop
- Hot Weather – March to May, heat belt shift north, high temp, LP, loo – hot, dry gusty winds, localized storms – Kal Baisakhi in Bengal
- Pre-Monsoon Showers: Kerala & Karnataka – Mango ripening – Mango showers
- Advancing Monsoon – SW monsoon – windward side of Western Ghats receive rain, maximum in NE India – Mawsynram (stalagmite & stalactite caves) – has breaks – wet & dry spells - uncertainties
- Retreating Monsoon – Transition – Clear Sky & temp. rise – October Heat (high temp & humidity in day) – Cyclonic depression in Andaman sea- affect east coast of India.

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Unifying Bond

- Himalayas – Protect north winds
- Peninsula – Moderating influence
- Rhythmic cycle of seasons
- Water to rivers
- Agriculture

Examrace