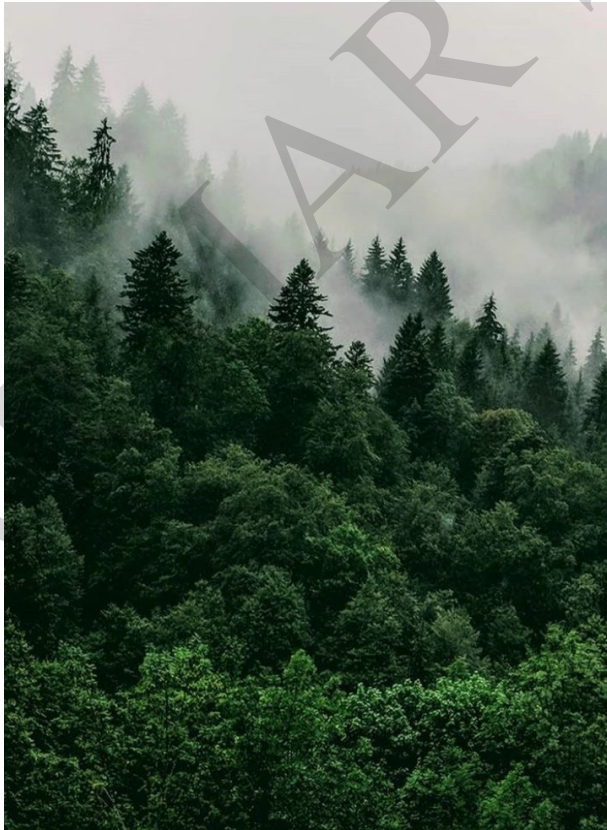# MONSOON/FORESTS

- Factors affecting climate of India
  1. Latitude
  2. Altitude
  3. Pressure and wind system
  4. Relief features
  5. Ocean Currents
  6. Distance from Sea

- Climate: the average weather in a given area over a longer period of time. Data taken of 30 years
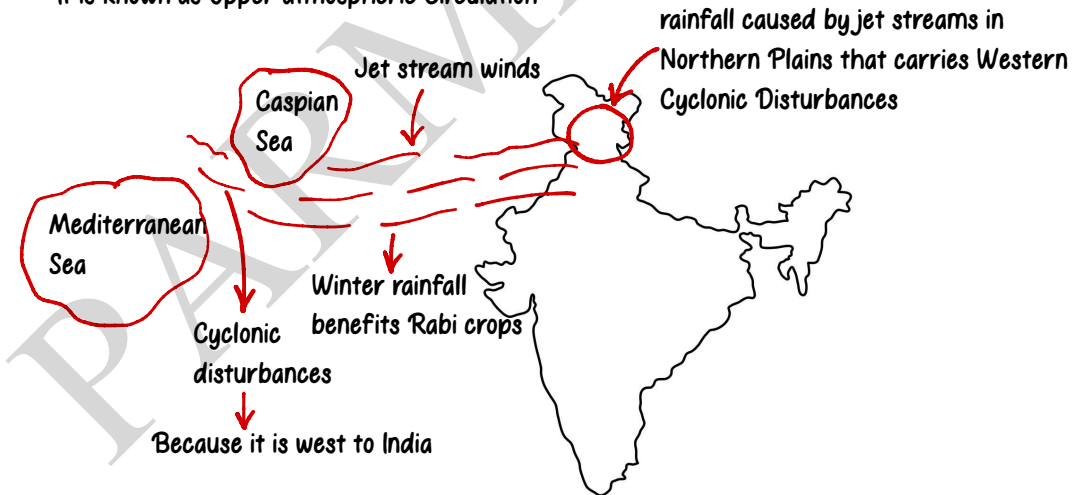
- Weather: the term refers to temporary conditions of the atmosphere, including temperature, atmospheric pressure, wind, humidity, precipitation, and cloud cover
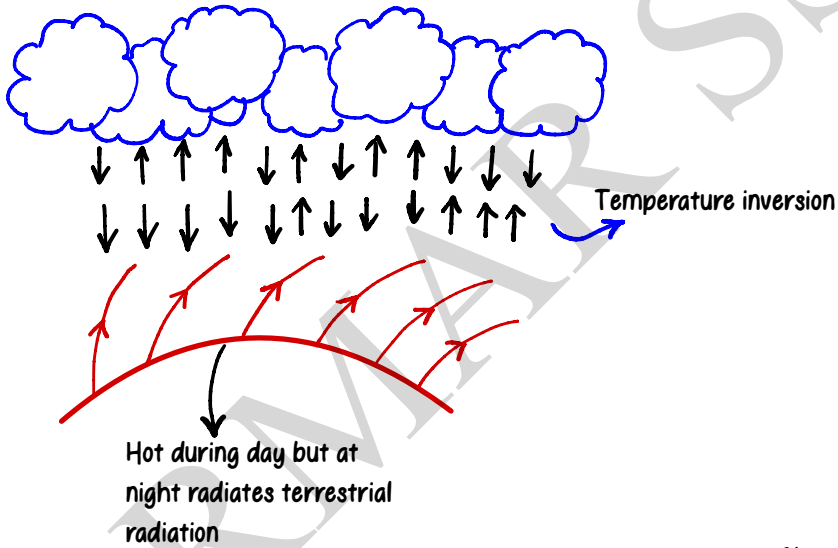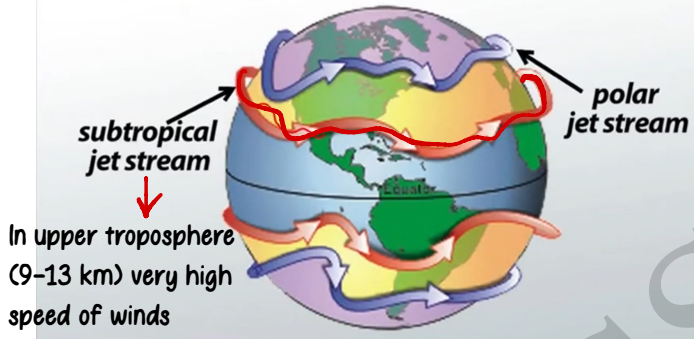
Winter Season
Chilling winds from Arctic/Central Asia affects winter season

Winter Rainfall
It is known as Upper atmospheric Circulation

Caspian Sea

Jet stream winds

Mediterranean Sea

Cyclonic disturbances

Because it is west to India

Winter rainfall benefits Rabi crops

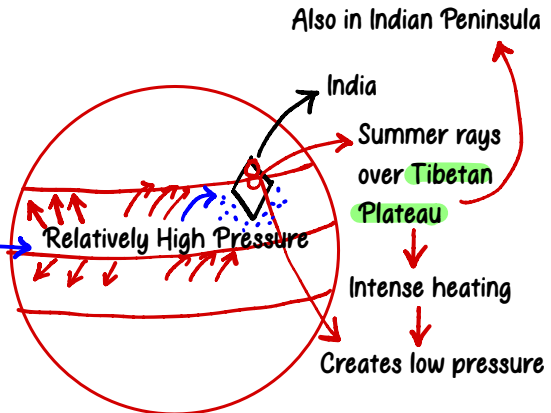rainfall caused by jet streams in Northern Plains that carries Western Cyclonic Disturbances

Inward of Western Disturbances through jet streams is marked by increase in prevailing night temperature

subtropical jet stream

polar jet stream

In upper troposphere (9–13 km) very high speed of winds

Temperature inversion
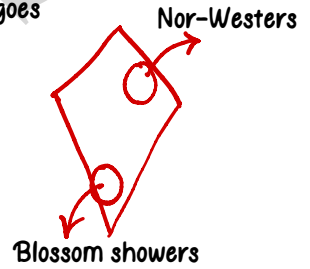
Hot during day but at night radiates terrestrial radiation

Summer Season

ITCZ now shifts in upper region

- Trade winds meet and air ascends
- During July: 20–25°N

Also in Indian Peninsula

India

Summer rays over Tibetan Plateau

Relatively High Pressure

Intense heating

Creates low pressure

Pre-Monsoon Showers

Nor-Westers

Kal Baisakhi

Calamity in the
month of
Baisakh in West
Bengal

helpful for growth of
jute, tea

Bardoli Chheerha

In Assam

Blossom Showers
Seen in Kerala/ Karnataka
Helps in growth/cultivation of
coffee

Mango Showers
Seen in Kerala
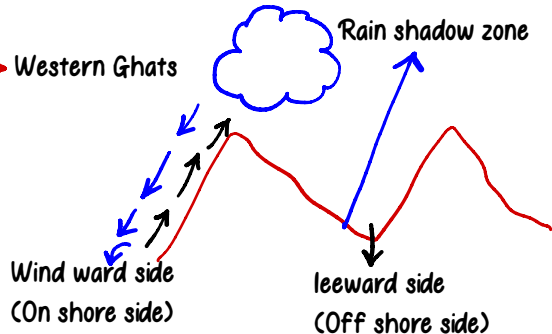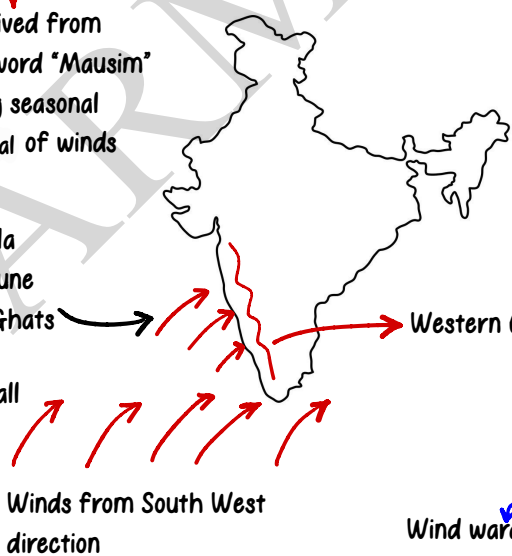Helps in early ripening of
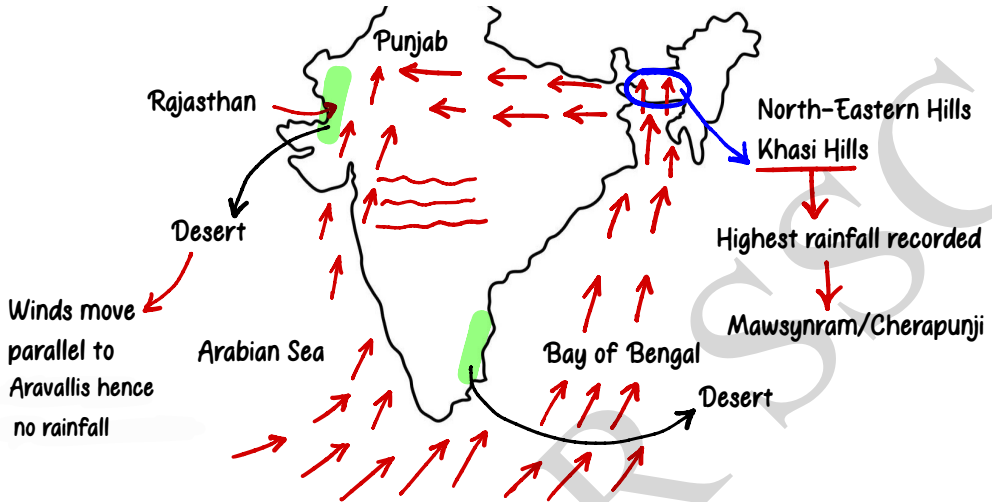mangoes

Nor-Westers

Blossom showers

● On Set of Monsoon

It is derived from
Arabic word "Mausim"
meaning seasonal
reversal of winds

Begining in Kerala
in 1st week of June
in the Western Ghats

Orographic rainfall

Western Ghats

Winds from South West
direction

Rain shadow zone

Wind ward side
(On shore side)

leeward side
(Off shore side)

Rain Bearing System

Punjab

Rajasthan

Desert

Winds move
parallel to
Aravallis hence
no rainfall

Arabian Sea

Bay of Bengal

Desert

North-Eastern Hills

Khasi Hills

Highest rainfall recorded

Mawsynram/Cherapunji

- Bay of Bengal branch and Arabian Sea branch of South West Monsoon meet at Punjab

Break in Monsoon

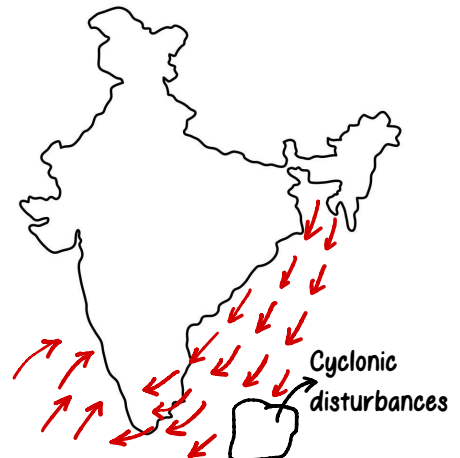Sudden decrease in rainfall after the onset of monsoon

Retreating monsoon

Also known as North-East Monsoon and it causes rainfall over Coromandel coast (Tamil Nadu/Andhra)
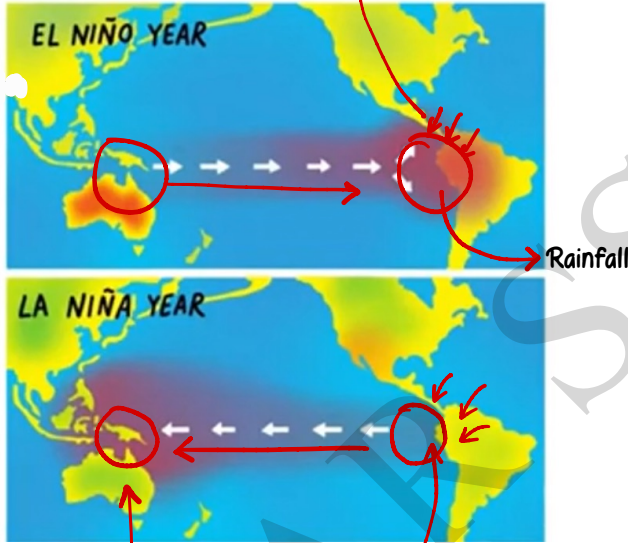
Flood in Chennai

In North India
- Clear skies
- October heat: oppressing heat

Cyclonic disturbances

Effect of El-Nino in Monsoon

- Seen in 3-7 yrs
- Adversely affects the monsoon
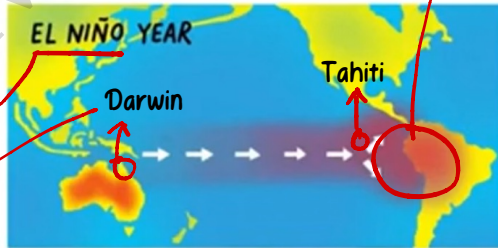
North East winds weakens thus water returns

EL NIÑO YEAR

Rainfall

LA NIÑA YEAR

Warm current

Ocean Water
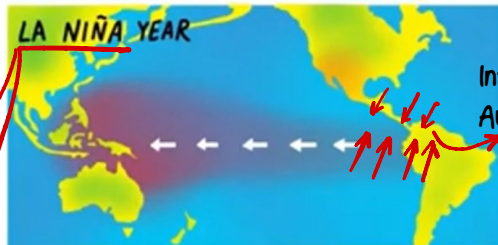
Surface water   Deep water

Meaning: Child Christ/Small boy

- They measure the pressure difference b/w Tahiti and Darwin
- If the pressure difference is negative then El Niño will happen

Meaning: Small girl
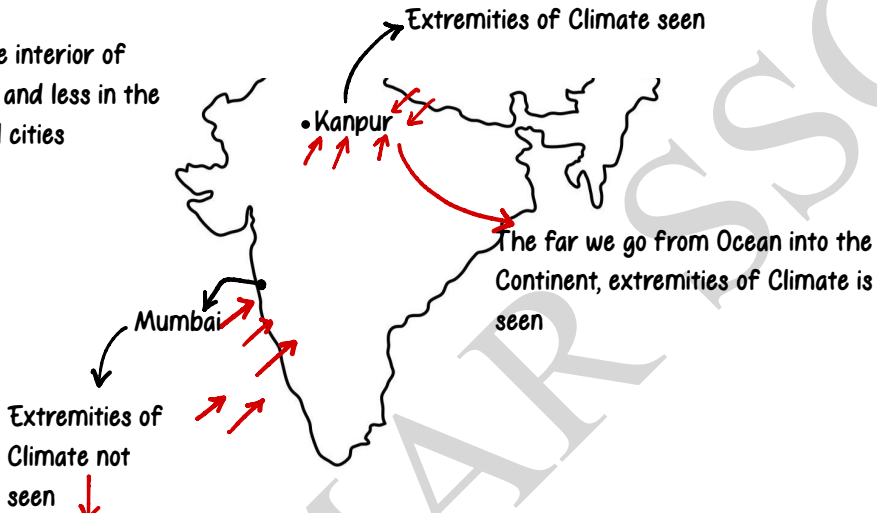
Opposite to that of El Nino

Fishing Industry won't flourish No rain in Australia and India

EL NIÑO YEAR

Darwin

Tahiti

LA NIÑA YEAR

Intense rainfall in Australia and India

Variation in Temperature/Rainfall

1. Diurnal Range of Temperature
2. Annual Range of Temperature
3. Annual Range of Rainfall

More in the interior of Continents and less in the the coastal cities

Extremities of Climate seen

● Kanpur

The far we go from Ocean into the Continent, extremities of Climate is seen

Mumbai

Extremities of Climate not seen

Because it is a coastal city.
Why?
1. Continentality effect
2. Moderating influence of Sea

Seasons and Months

Seasons	Months (According to the Indian Calendar)	Months (According to the Indian Calendar)
Vasanta	Chaitra-Vaisakha	March-April
Grishma	Jyaistha-Asadha	May-June
Varsha	Sravana-Bhadra	July-August
Sharada	Asvina-Kartika	September-October
Hemanta	Margashirsa-Pausa	November-December
Shishira	Magha-Phalguna	January-February

Forests

Eastern Himalayas

1. Evergreen Forests
- These are layered forests (shed there leaves not all together)
- They are seen in places of high temperature and high rainfall

30°C↑   200 cm↑

- In India, seen in Western side of Western Ghats, Andaman and Nicobar Islands, North-East
- Highest biodiversity seen here
- Eg: Amazon Rainforests (known as "Lungs of the World")

- Vegetation seen: Rosewood, Ebony, Mahogany, Cinchona, Aini, Epihytes
- Also known as Desert covered by forest

2. Tropical Deciduous Forest   70-150 cm: Dry Deciduous
- Rainfall: 70 cm-200 cm

150-200 cm: Moist Deciduos

- Also known as Monsoon Forests
- These are the most predominant forests in India
- They are seen in: Peninsular Plateaus, North Indian Plains
- Trees:
   Moist Deciduous: Shisham, Sagon, Sandalwood, Teak, Sal
   Dry Deciduous: Tendu, Khair, Palas

        Leaves are used to make Bidi

                                        • Guttation: Hydathodes

3. Tropical Thorn Forests
- Rainfall: less than 50 cm
- Thorns are modified form of leaves (to avoid water loss)
- Trees: Babul, Khejri, Cactus
- Special type of grass seen here: Tussocky grass
- In India: seen in Rajasthan, Punjab, Gujarat

4. Coniferous Forest
- Shape: Cone
- Seen in areas of high snowfall
- In India: seen in Upper Himalayas
- Trees:
    Softwood trees: Chir, Pine, Cedar, Deodar, Spruce

    → Gymnosperms

5. Montane Forests
- In mountain region
- Categories:
    1. North India: seen in Himalayas → Bugyal Grassland seen
    a. Upper part: Alpine/Coniferous m, eg: Rhododendron
    b. Lower part: Deciduous forests
    2. South India
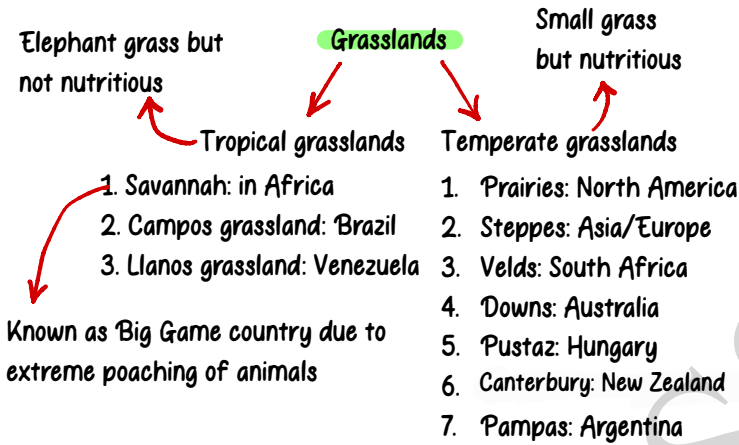   Evergreen forests seen here due to rainfall
    Sholas seen here → Grassland/Forests of Western Ghats

India State Forest Report: tells about the total Forest cover in India
- Biennial Report
- Forest Cover: 21.71%
- Tree Cover: 2.9%   → 2021 report
- Forest and Trees: 24.62%
- Highest Forest cover (area): Madhya Pradesh (1st), Arunachal Pradesh (2nd)
- Highest Forest cover (%): Mizoram (1st), Arunachal (2nd)
- Lowest Forest cover: Haryana
- Highest increase: Andhra Pradesh   • Highest decrease: Arunachal ˃ Manipur

target: 33% (India)

- National Forest Policy: 1952 → 1988
- Chipko Movement: 1978, led by Sundarlal Bahuguna
- Forest Day: 21st March
- Indian Forest Research Institute located in Dehradun, Uttarakhand

6. Mangrove Forests
- Known as Littoral/Swamp forests
- Seen in coastal areas
- More in Sundarban Deltas → Sundari Trees
- Region: West Bengal
- They are called living roots
- Trees are viviparous

Elephant grass but
not nutritious

Grasslands

Small grass
but nutritious

Tropical grasslands

1. Savannah: in Africa
2. Campos grassland: Brazil
3. Llanos grassland: Venezuela

Known as Big Game country due to
extreme poaching of animals

Temperate grasslands

1. Prairies: North America
2. Steppes: Asia/Europe
3. Velds: South Africa
4. Downs: Australia
5. Pustaz: Hungary
6. Canterbury: New Zealand
7. Pampas: Argentina

- Prairies: Known as wheat granaries of the world
- Pampas: grass seen "Alpha alpha grass" →nutrient rich grass

Shifting Cultivation

- It is known as Slash and Burn Agriculture
- Notgood for environment, causes deforestation and soil loses it's productivity

Across the world known by different names:

1. Indonesia: Ladang
2. Mexico: Milpa
3. Sri Lanka: Chena
4. Vietnam: Ray
5. Brazil: Roca
6. Venezuela: Konuko

Across the India

1. Jhum: North East
2. Kumari: Western Ghats
3. Pama Dabi/Bringa: Odisha
4. Penda/Podu: Andhra Pradesh
5. Dipa: Chhattisgarh (Bastar district)
6. Waltre: Rajasthan
7. Kuruwa: Jharkhand
8. Bewar/Dahiya: Madhya Pradesh