

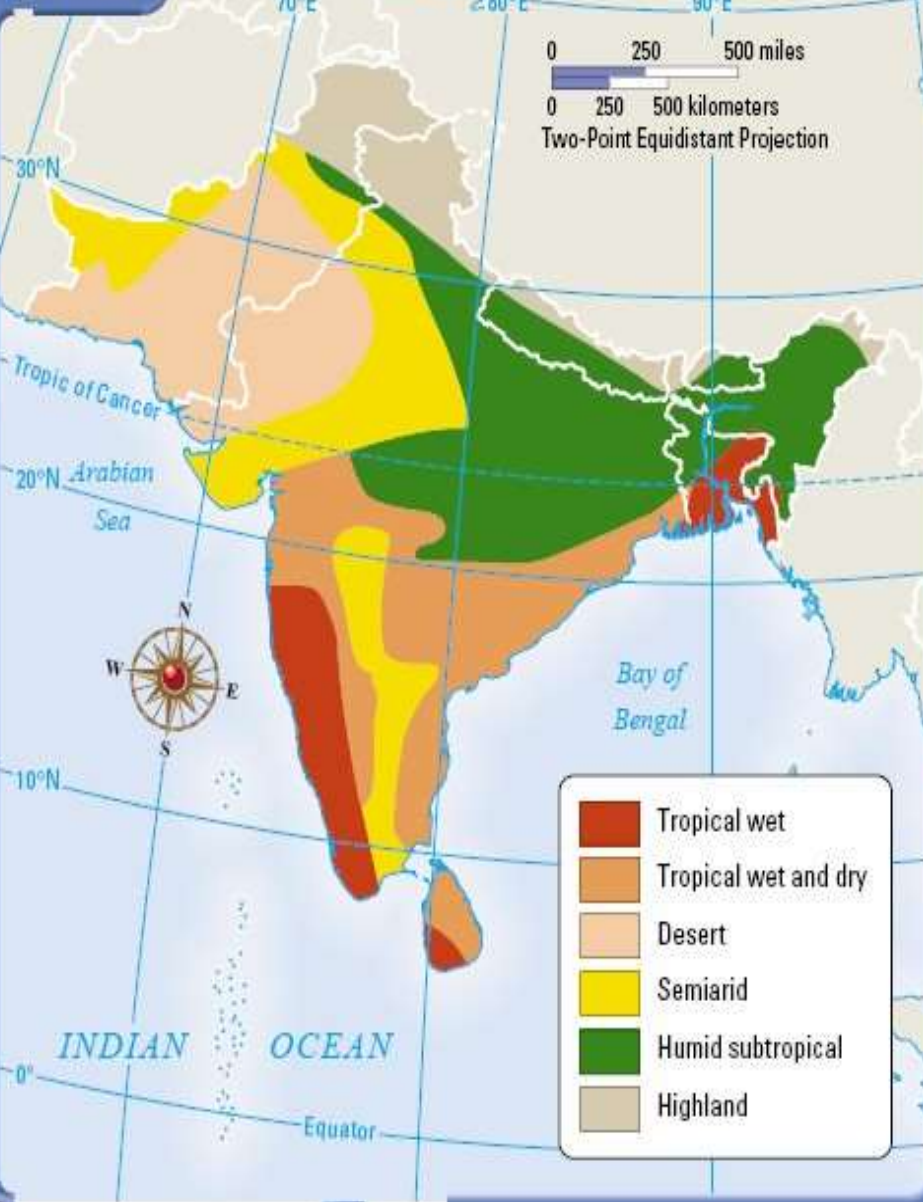
SOUTH ASIA: CLIMATE

CLIMATE

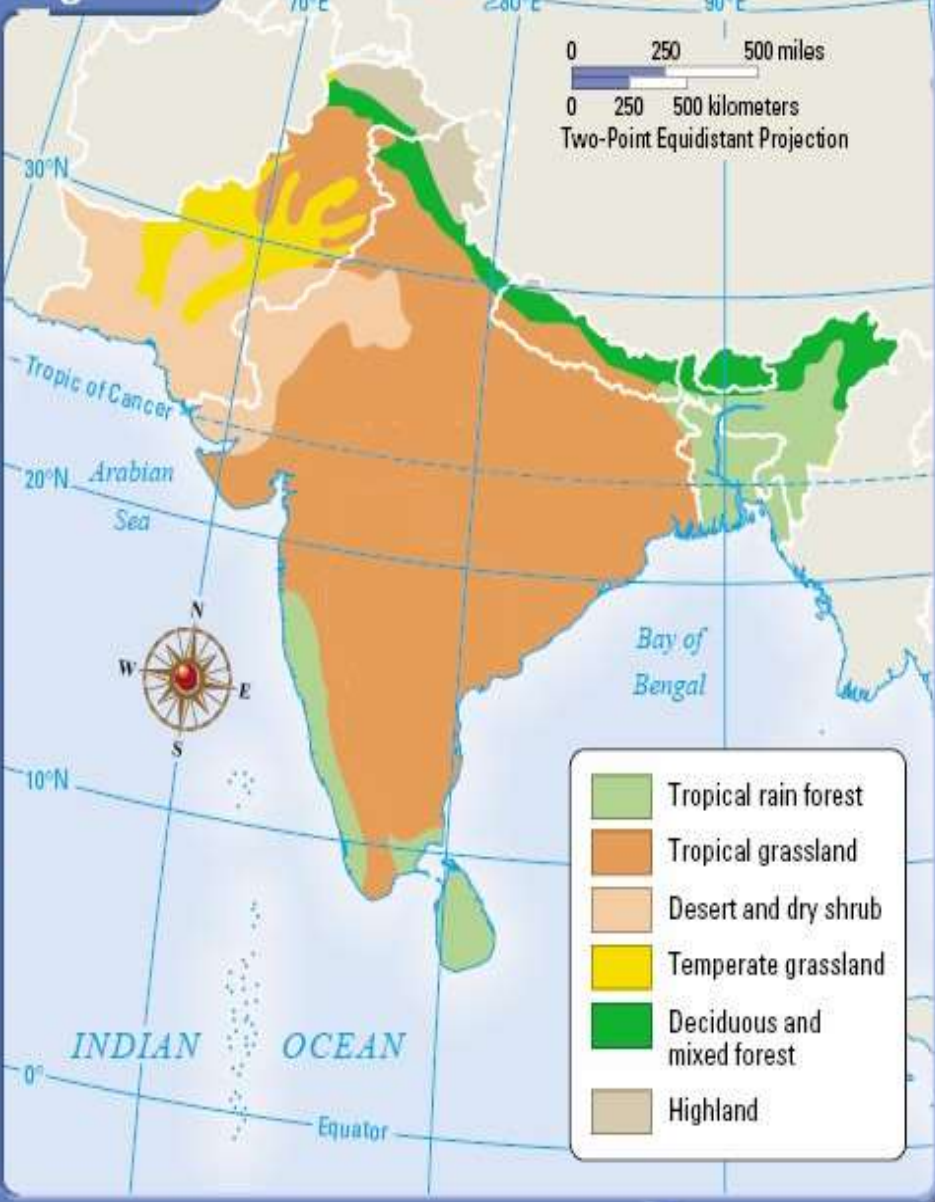
- South Asia has varied climatic conditions.
- Very hot and very cold regions as well as regions with very heavy rainfall and very scanty rainfall. A large part of south Asia has tropical monsoon climate.
- The climate has been influenced by its **position, size** and **relief features**.
- Monsoon winds are the main factors that determine the climate of this region. They also influence a large part of India. The Climate of India may be divided into four seasons-
 - 1) Winter - From December to February
 - 2) Summer - From March to May
 - 3) South-West monsoons or rainy season - June to September
 - 4) Retreating monsoons - October and November

Climate and Vegetation of South Asia

Climate



Vegetation





- The summer monsoon brings in moisture from the Indian Ocean and produces a tremendous amount of rain. The moisture from winter monsoons are largely blocked by the Himalayas.



FACTORS AFFECTING INDIAN CLIMATE

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graph TD; A[FACTORS AFFECTING INDIAN CLIMATE] --> B[RELATED TO LOCATION & RELIEF]; A --> C[RELATED TO AIR PRESSURE & WIND]; B --> B1[•Latitude]; B --> B2[•Altitude]; B --> B3[•Relief]; B --> B4[•Distance from Sea]; B --> B5[•The Himalayan Mt.]; B --> B6[•Distribution of Land & water]; C --> C1[Surface pressure & wind]; C --> C2[Upper air circulation]; C --> C3[Western cyclones];
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RELATED TO LOCATION & RELIEF

- Latitude
- Altitude
- Relief
- Distance from Sea
- The Himalayan Mt.
- Distribution of Land & water

RELATED TO AIR PRESSURE & WIND

Surface pressure & wind

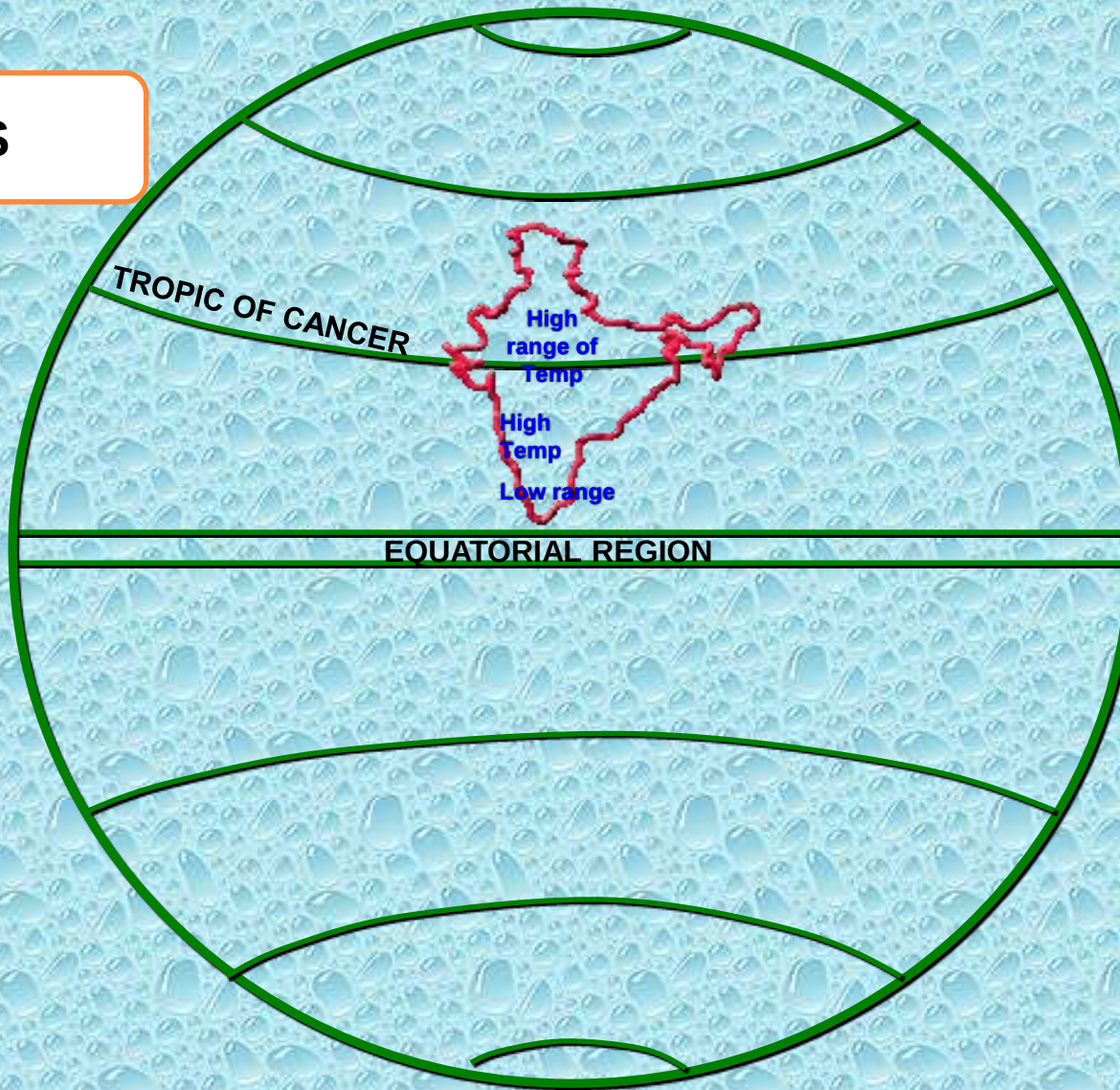
Upper air circulation

Western cyclones

LATITUDE

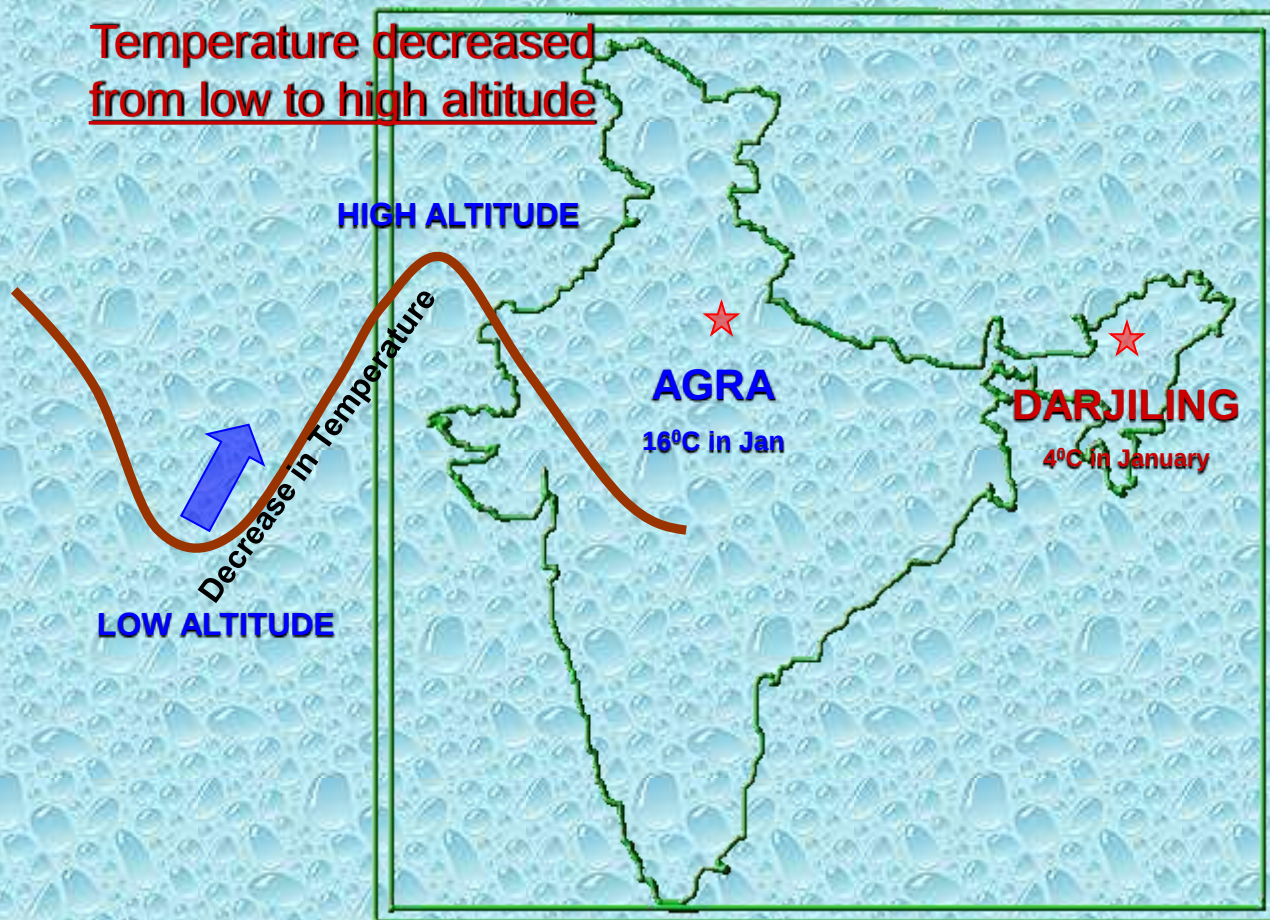
FACTORS

- Latitude
- Altitude
- Relief
- Distance from Sea
- The Himalayan Mt.
- Distribution of Land & water



ALTITUDE

FACTORS

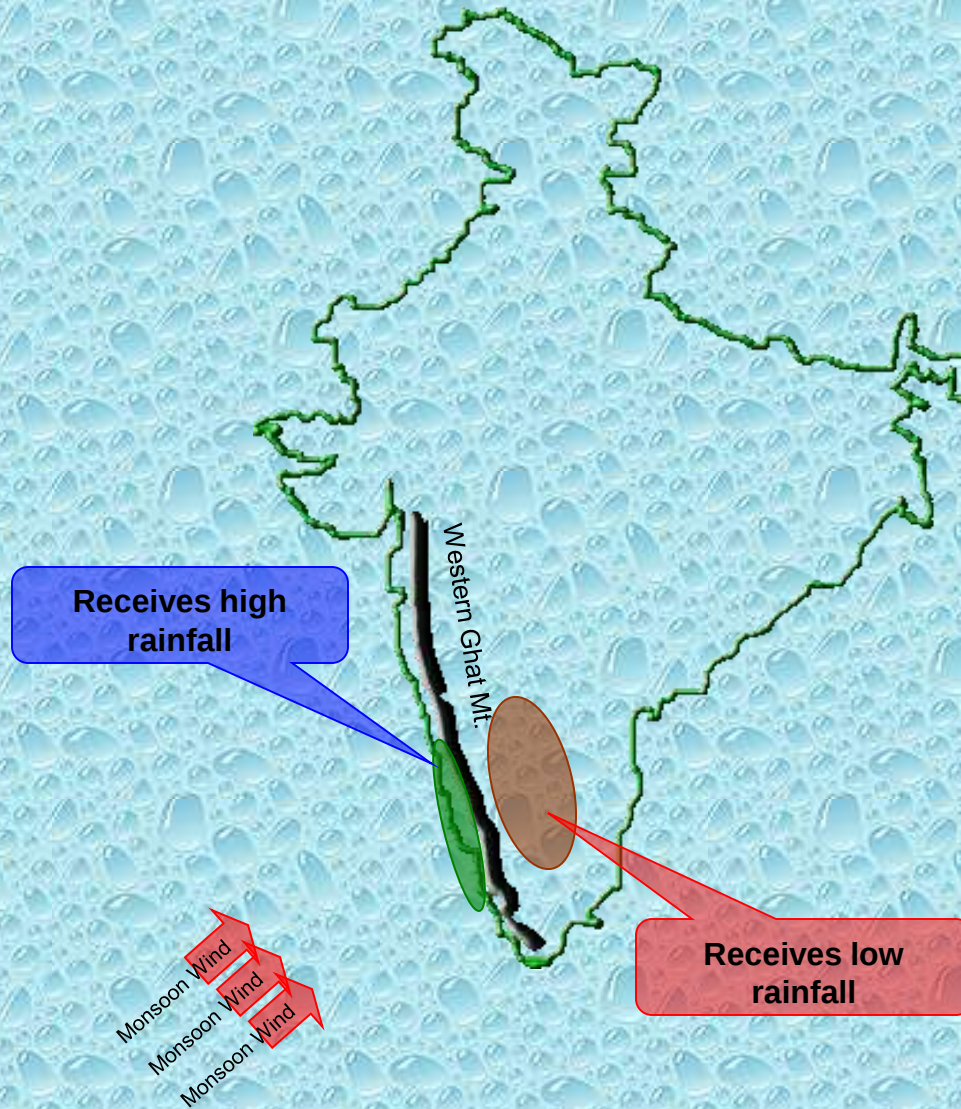


- Latitude
- Altitude
- Relief
- Distance from Sea
- The Himalayan Mt.
- Distribution of Land & water

RELIEF

FACTORS

- Latitude
- Altitude
- Relief
- Distance from Sea
- The Himalayan Mt.
- Distribution of Land & water



○ DISTANCE FROM SEA

FACTORS

- Latitude
- Altitude
- Relief
- Distance from Sea
- The Himalayan Mt.
- Distribution of Land & water



Coastal areas have equable climate where as Interior parts have extreme climate.

THE HIMALAYAS- CLIMATIC BARRIER

FACTORS

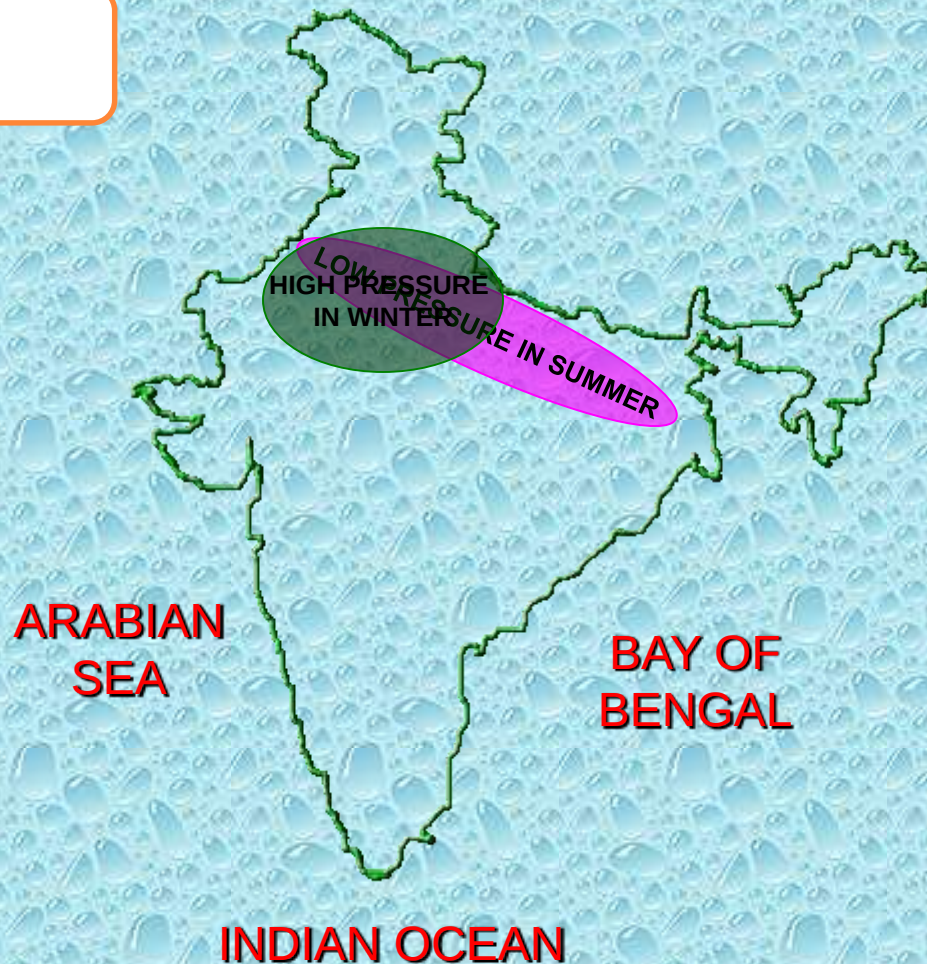
- Latitude
- Altitude
- Relief
- Distance from Sea
- The Himalayan Mt.
- Distribution of Land & water



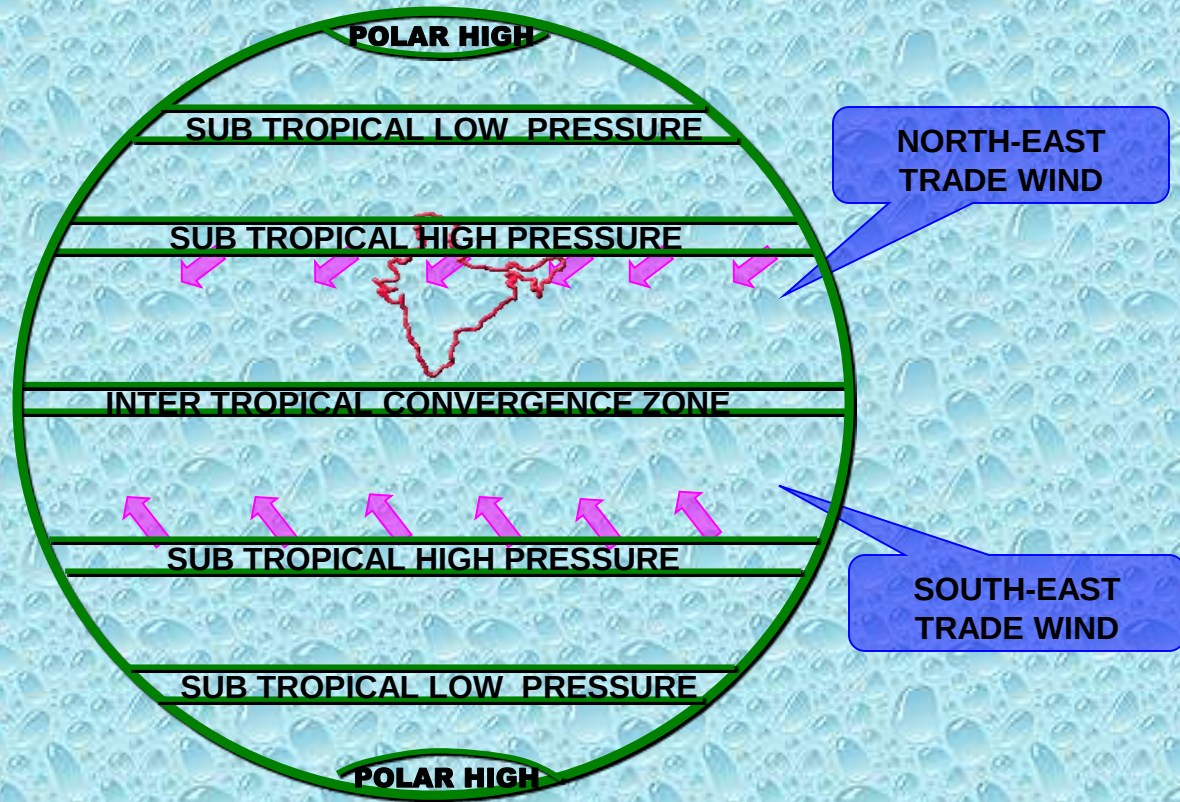
DISTRIBUTION OF LAND & WATER

FACTORS

- Latitude
- Altitude
- Relief
- Distance from Sea
- The Himalayan Mt.
- Distribution of Land & water



SURFACE WIND



JET STREAM IN WINTER



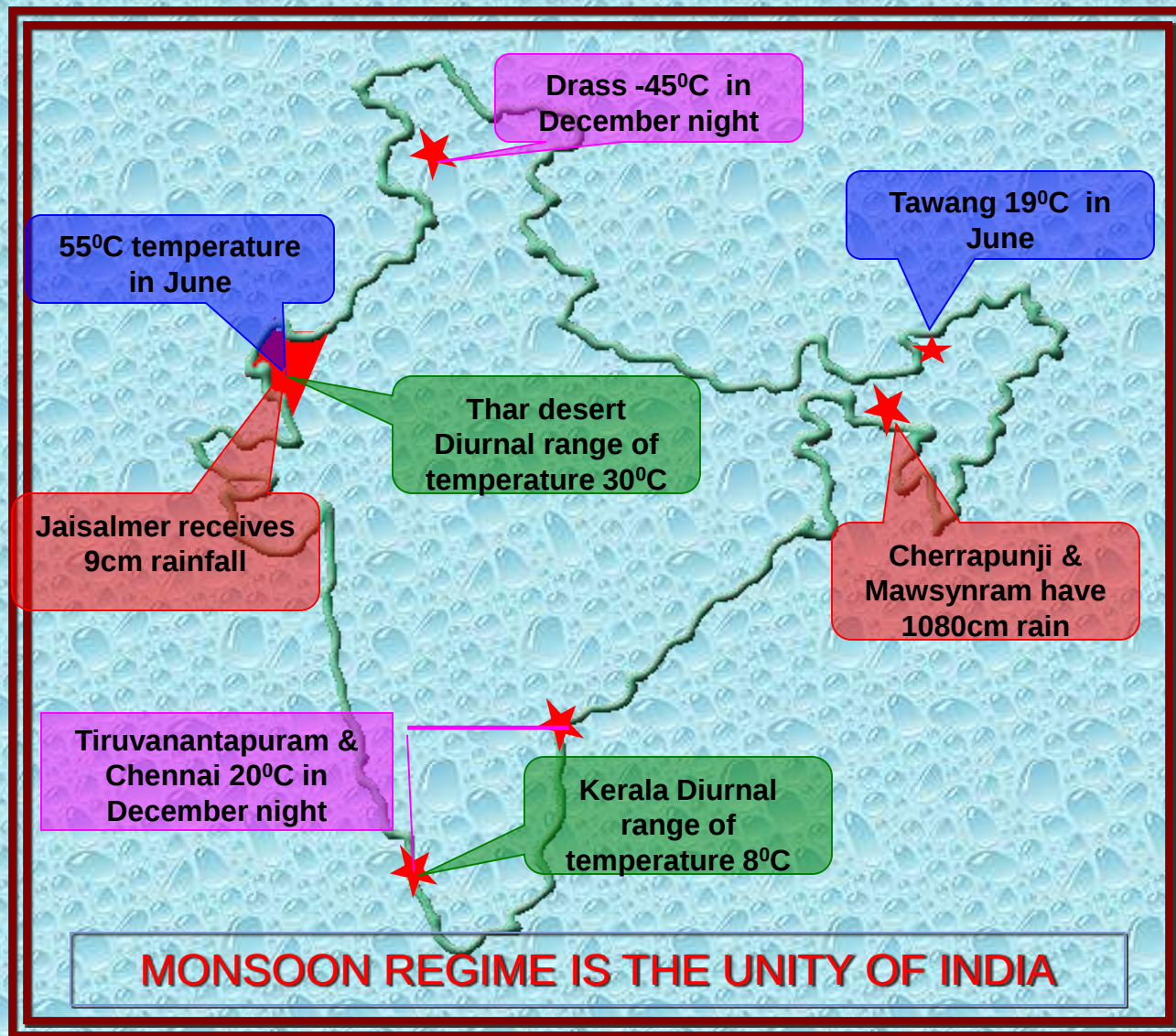
JET STREAM IN SUMMER



WESTERN DISTURBANCE

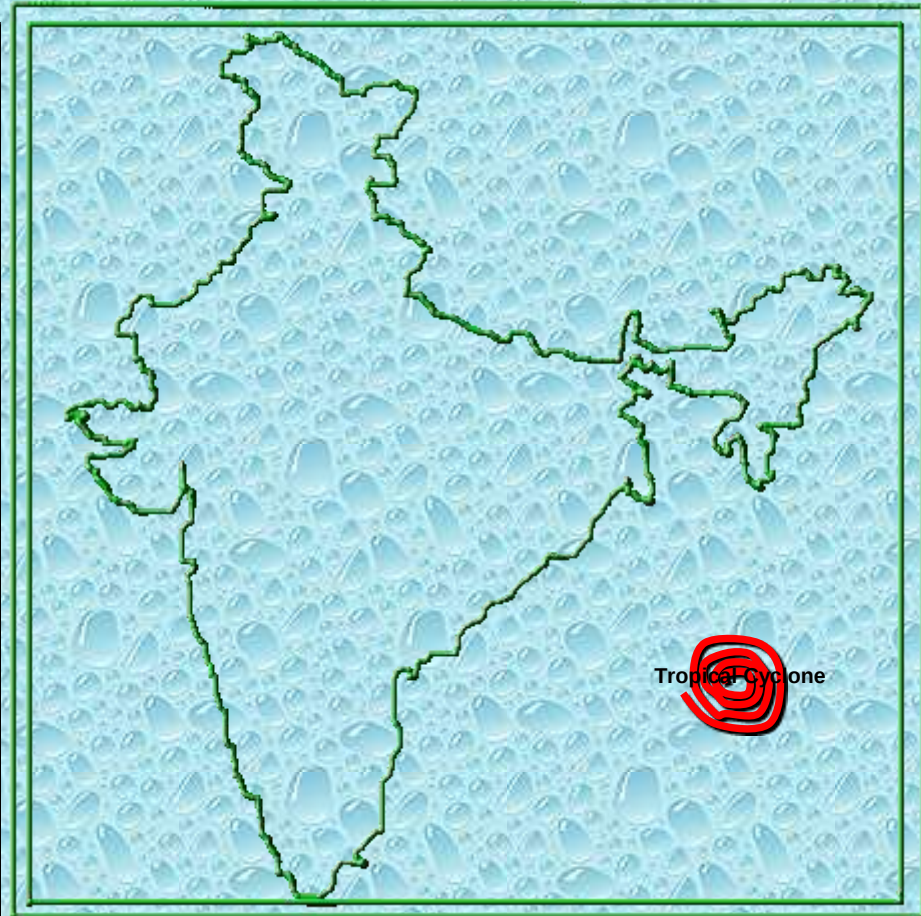


CLIMATIC DIVERSITY

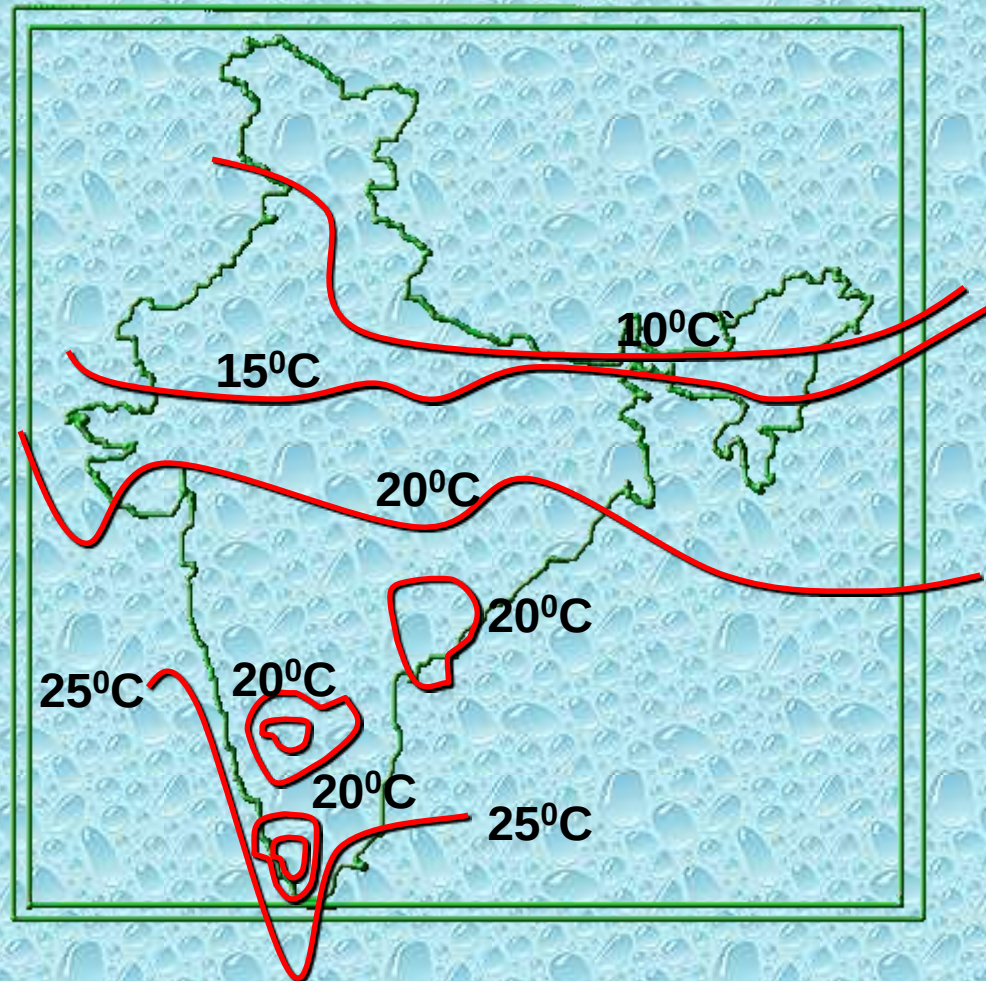


COLD WEATHER SEASON

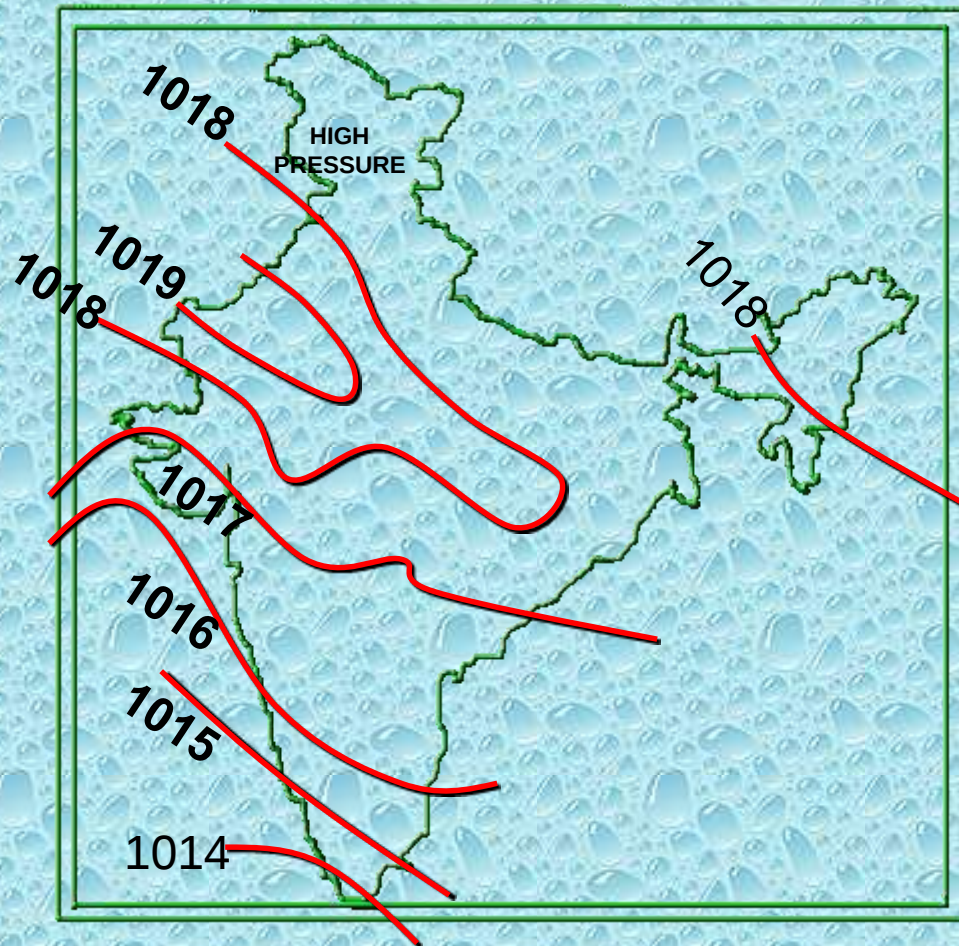
- ▶ It extends from December to February.
- ▶ Vertical sun rays shift towards southern hemisphere.
- ▶ North India experiences intense cold where as this season is not well defined in south India.
- ▶ Light wind blow makes this season pleasant in south India.
- ▶ Occasional tropical cyclone visit eastern coast in this season.



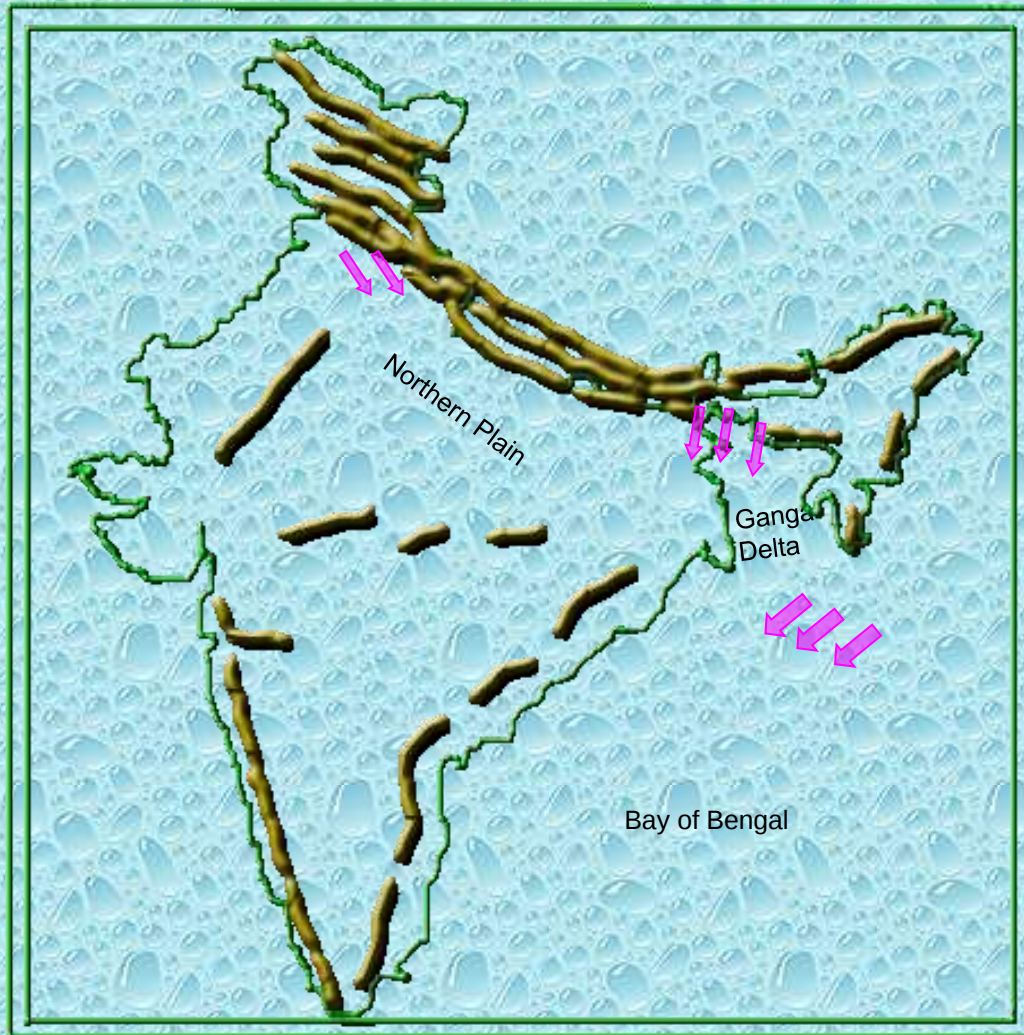
TEMPERATURE- JANUARY



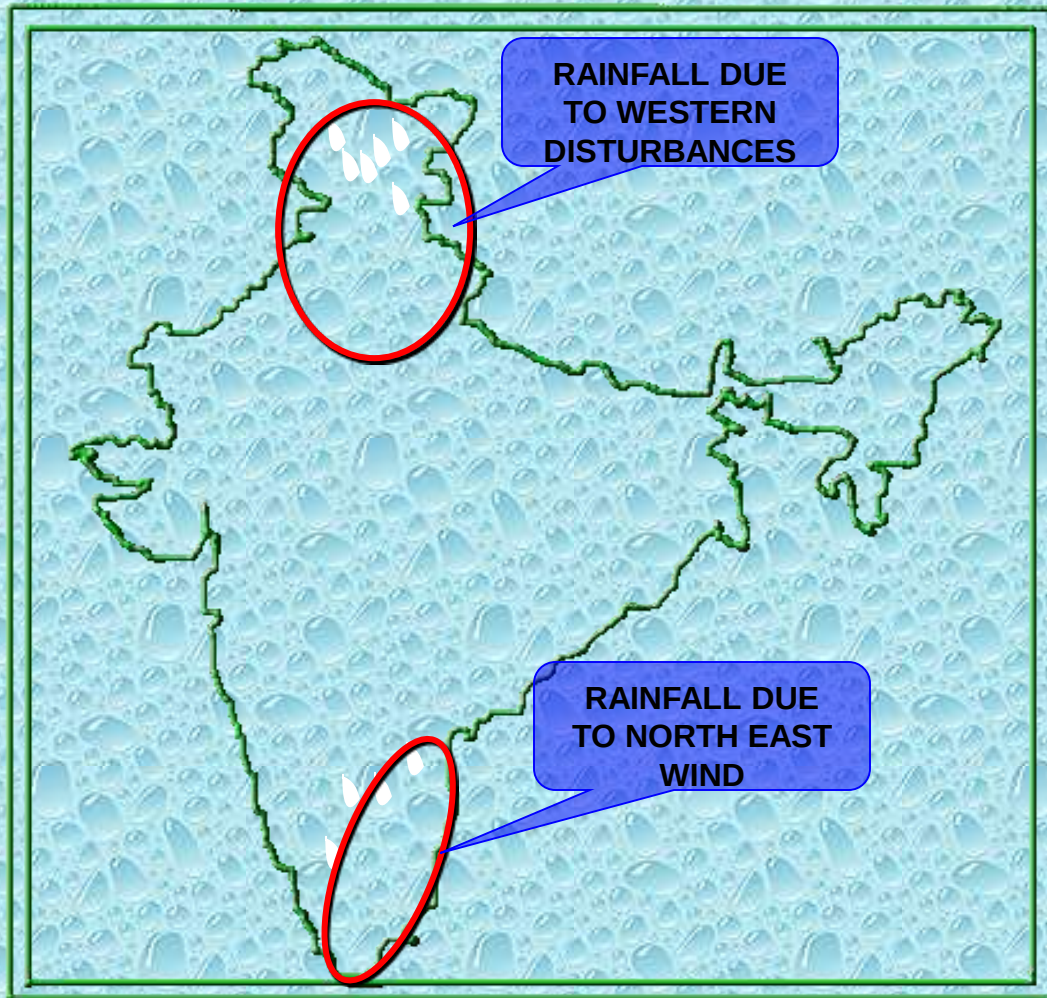
PRESSURE- JANUARY



WIND DIRECTION- WINTER

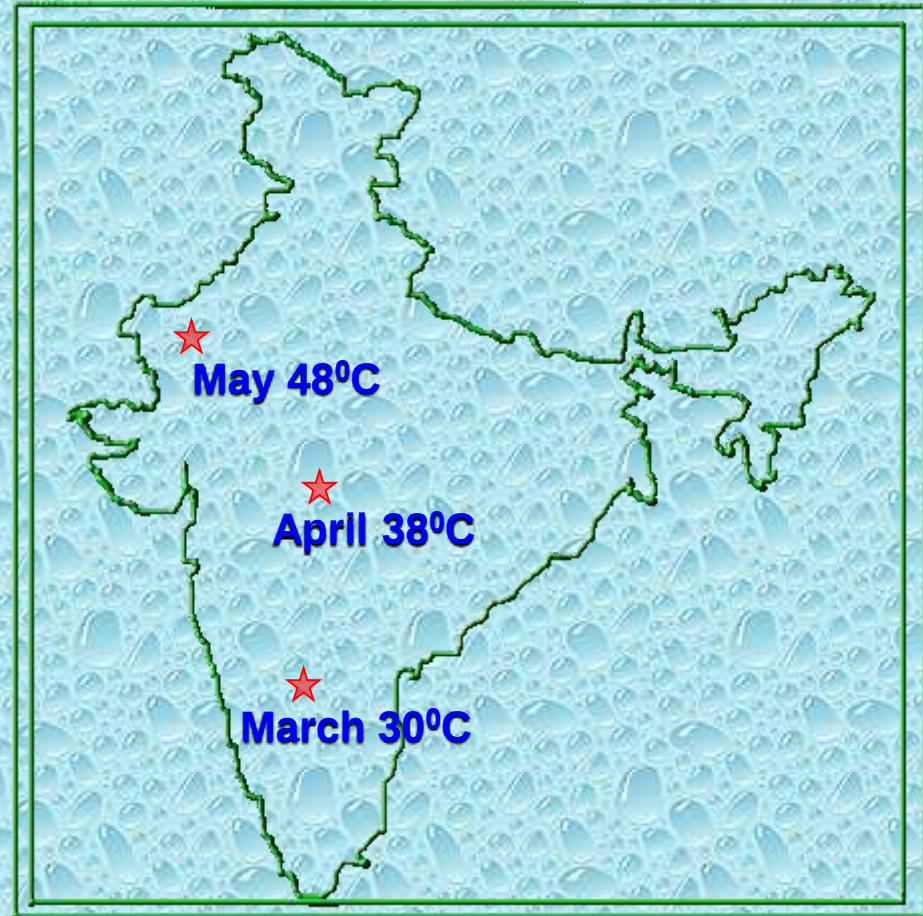


WINTER RAINFALL

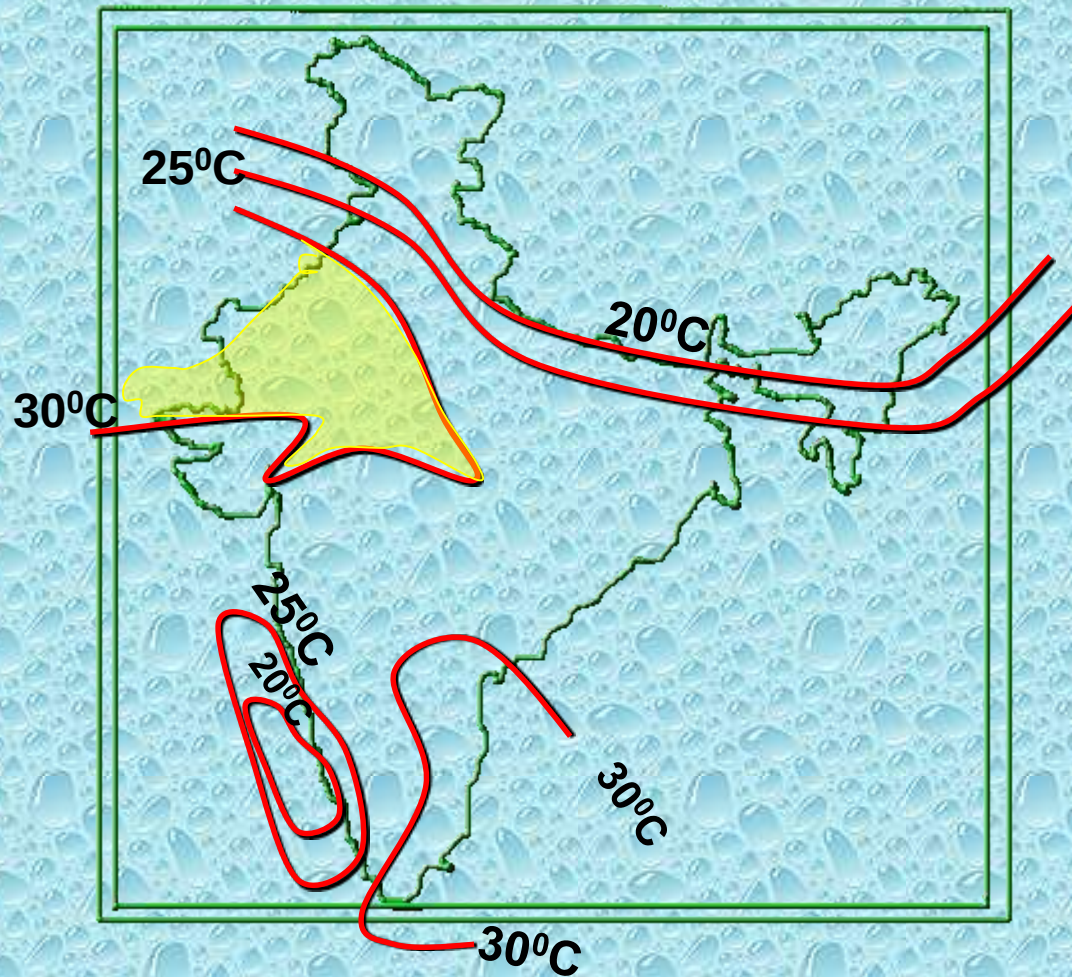


HOT WEATHER SEASON

- ▶ It extends from March to May.
- ▶ Vertical sun rays shift towards Northern hemisphere.
- ▶ Temperature rises gradually from south to north.
- ▶ Highest Temperature experiences in Karnataka in March, Madhya Pradesh in April and Rajasthan in May.



TEMPERATURE- JULY

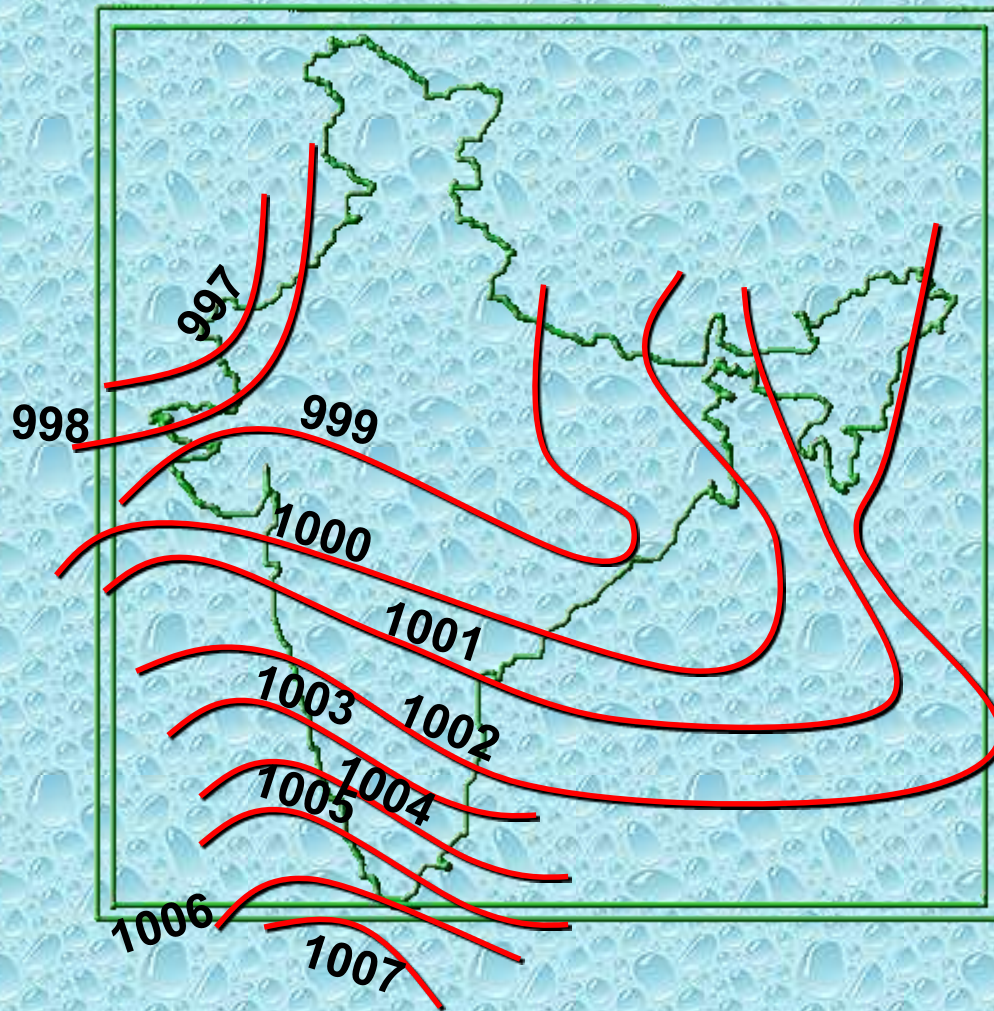


MORE DIVERSITIES.....

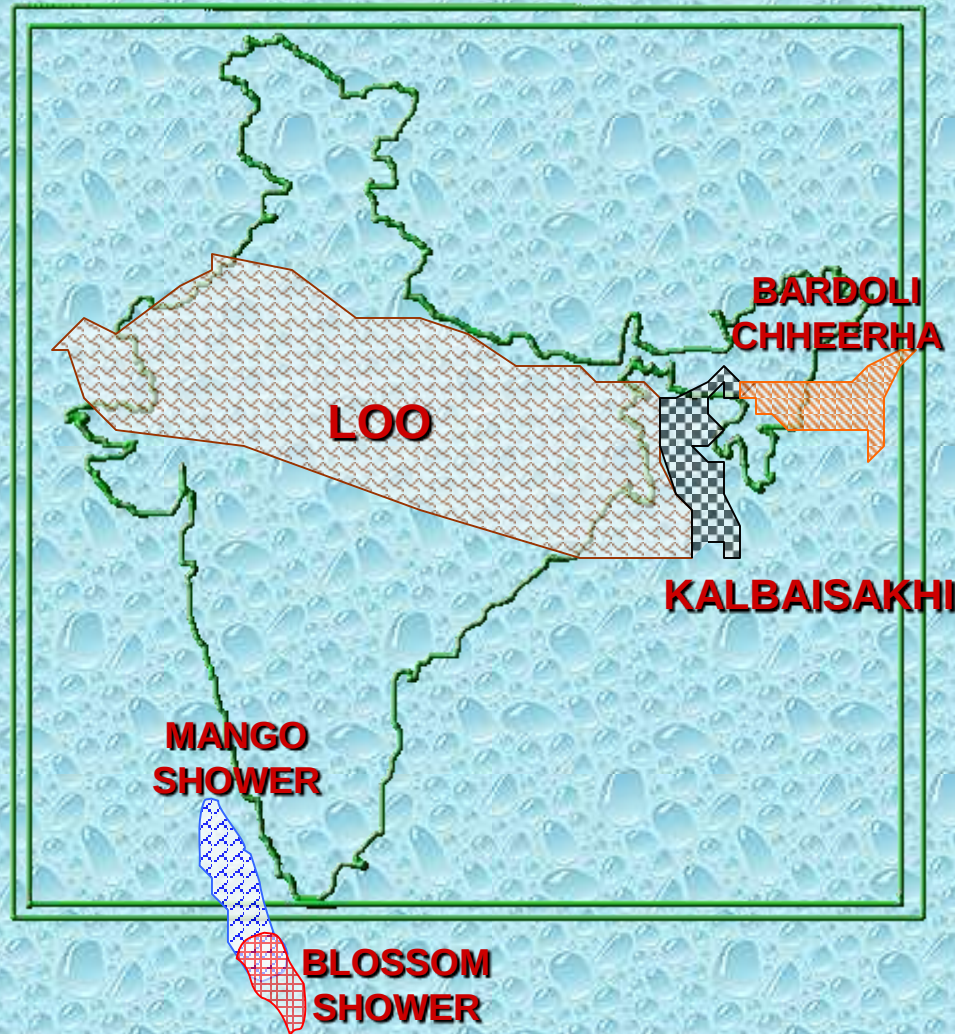
- ✓ Churu (Rajasthan) records a 50°C or more on a June day.
- ✓ It is 19°C in Tawang (Arunachal Pradesh) on the same day.
- ✓ Most parts of India receives rainfall during June to September.
- ✓ Tamilnadu coast remains dry during these months.
- ✓ Tura of Meghalaya receives rainfall in a single day is equal to the total rainfall of Ten years in Jaisalmer of Rajasthan.
- ✓ Very low rainfall in North west Himalayas and western Rajasthan which is equal to 10cm per year.
- ✓ Snow fall over the Himalayas.
- ✓ Only rainfall over rest of India.

MONSOON REGIME IS THE UNITY OF INDIA

PRESSURE- JULY

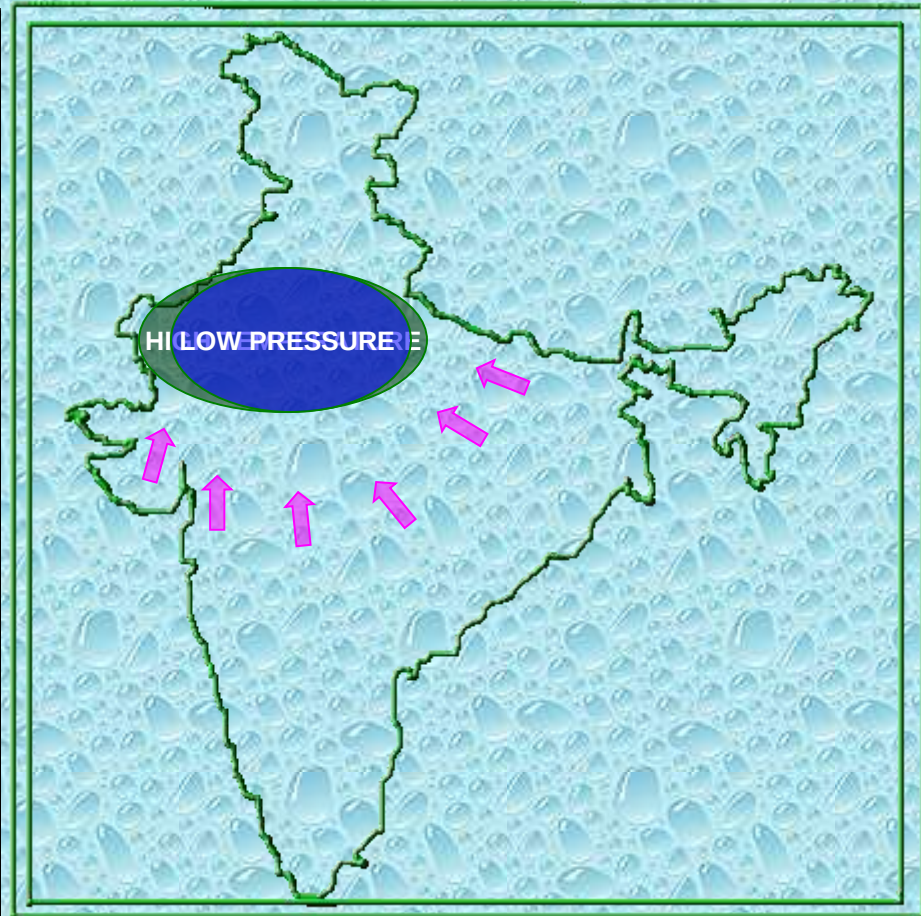


STORMS IN HOT WEATHER SEASON

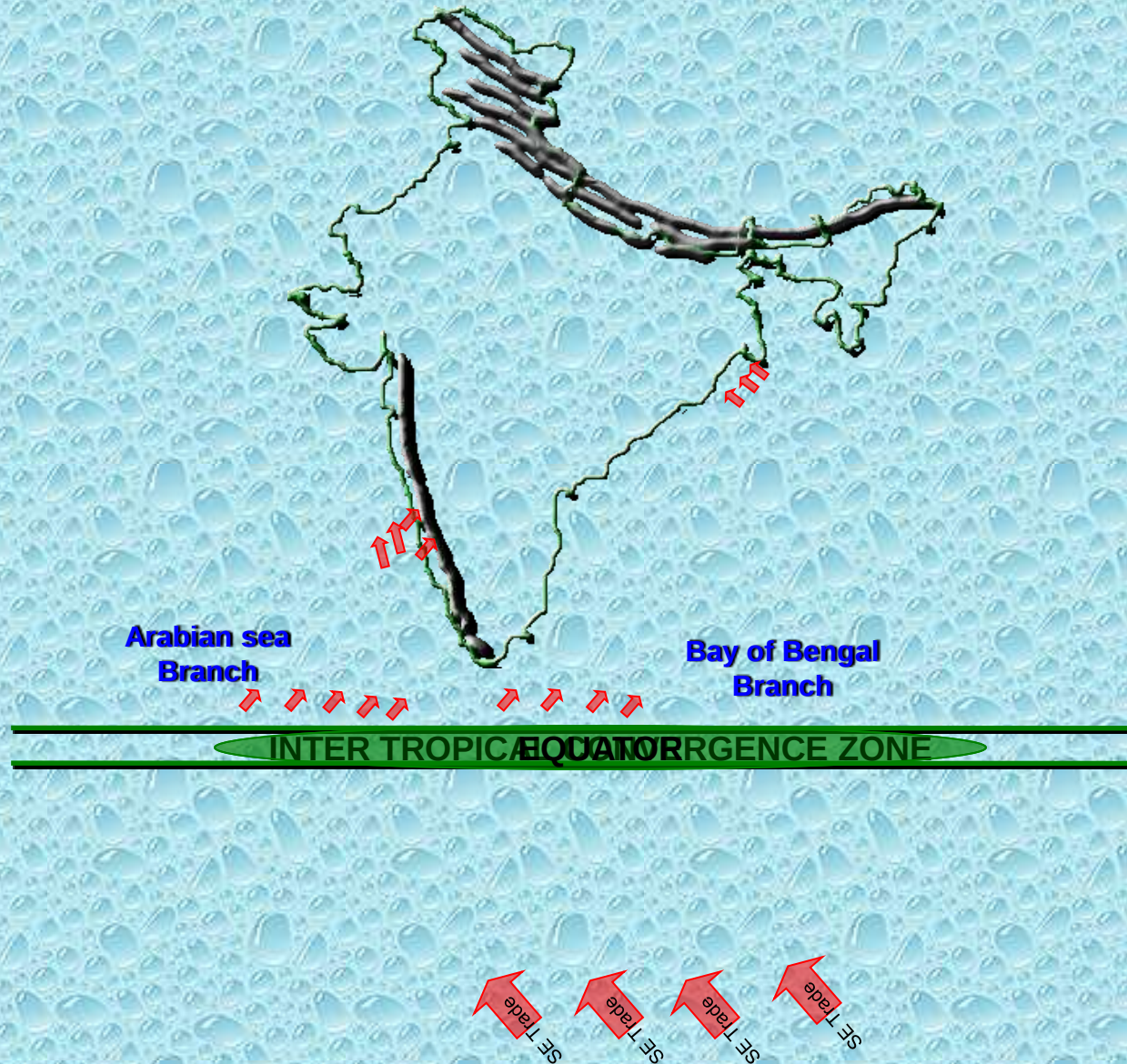


SOUTH WEST MONSOON SEASON

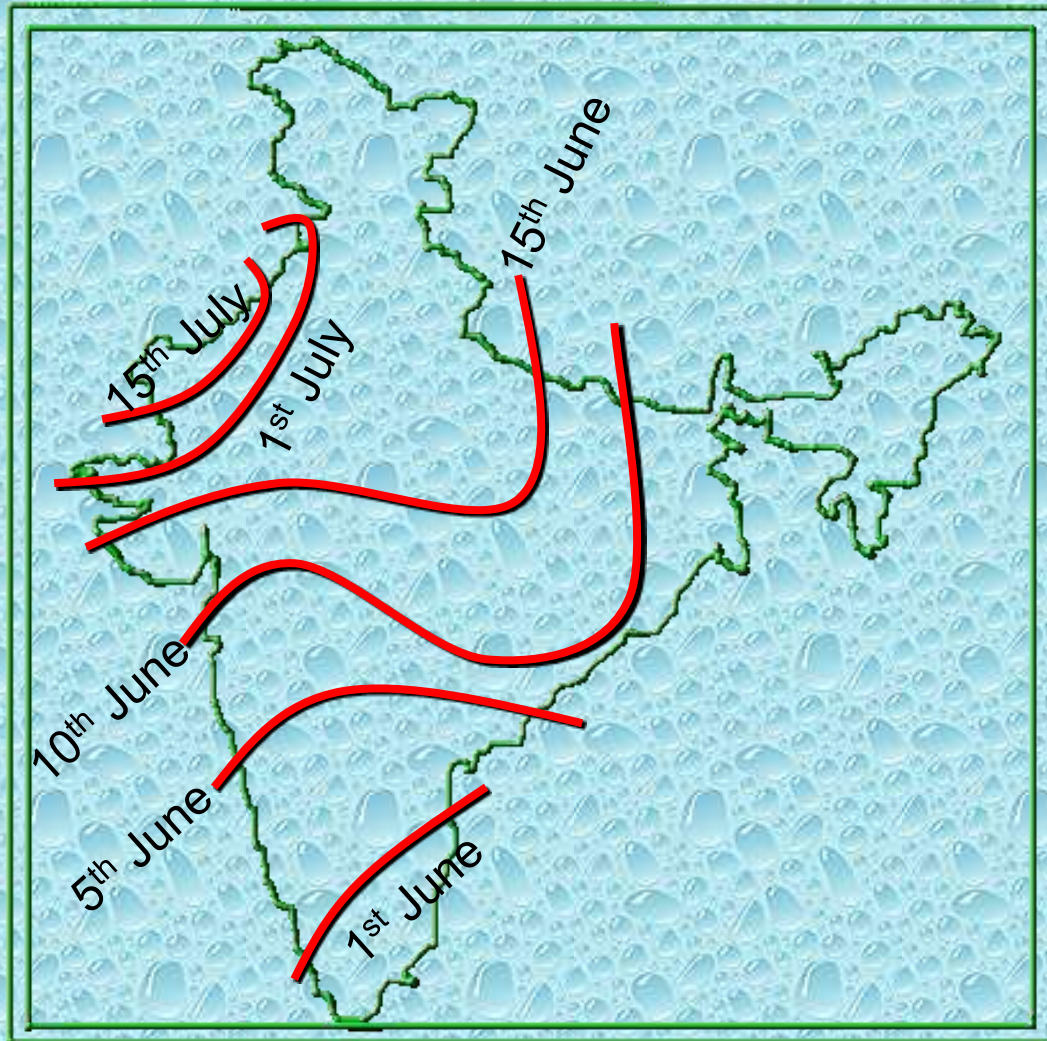
- ▶ It extends from June to September.
- ▶ Intense heating in north west India creates low pressure region.
- ▶ Low pressure attracts the wind from the surrounding region.
- ▶ After having rains for a few days sometime monsoon fails to occur for one or more weeks is known as break in the monsoon.



MONSOON WIND



ONSET OF SW MONSOON

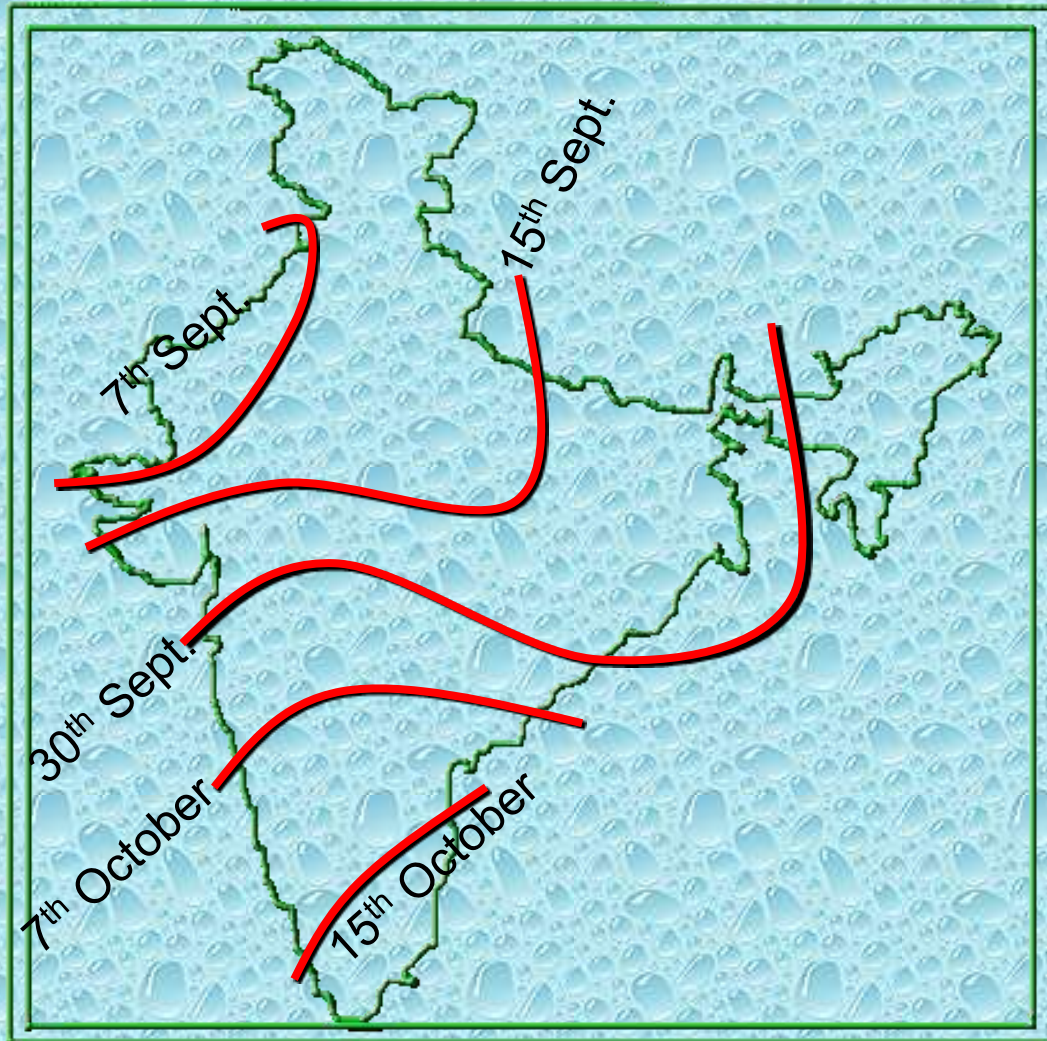


RETREATING MONSOON SEASON

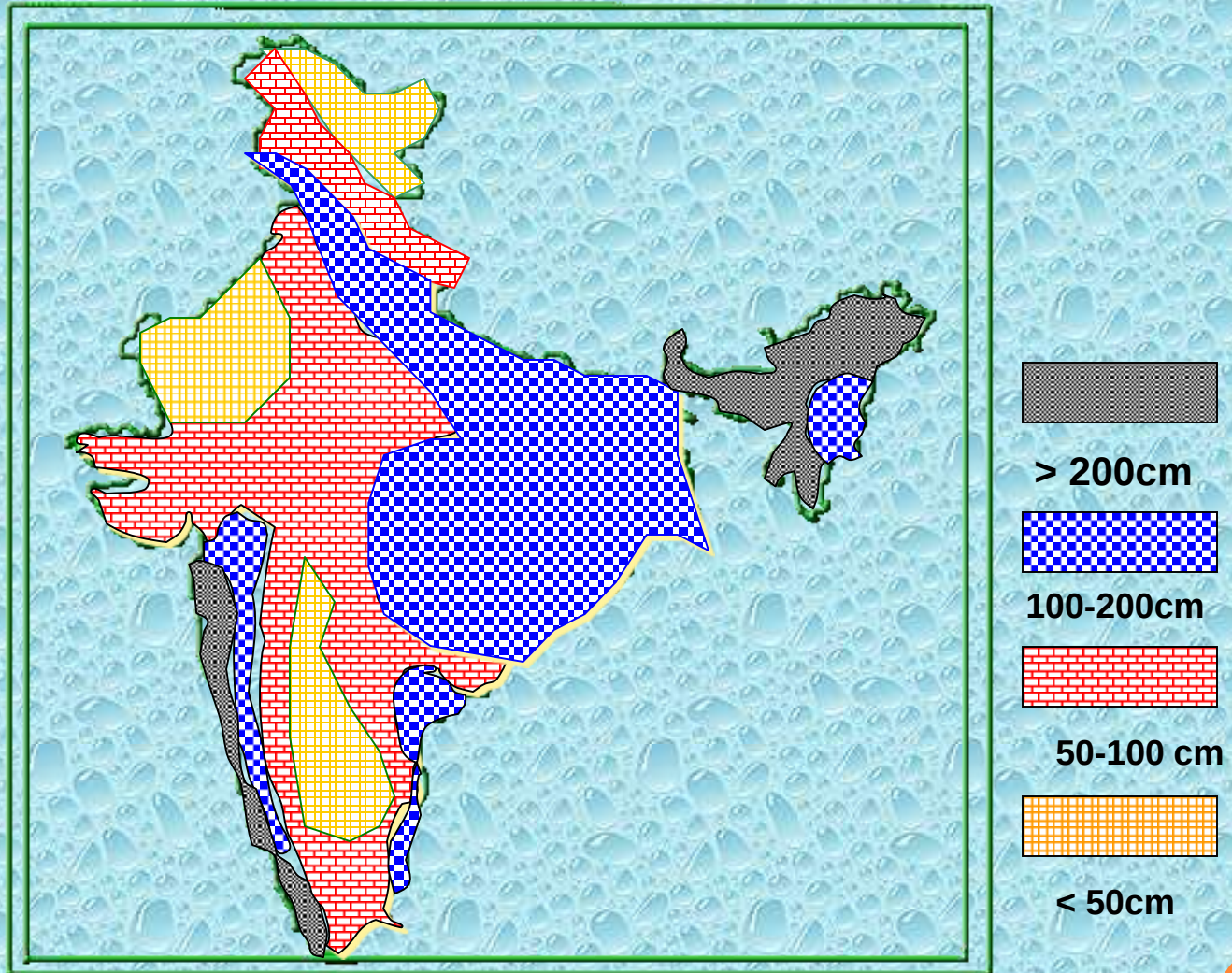
- ▶ It extends from October to November
- ▶ Vertical sun rays start shifting towards Northern hemisphere.
- ▶ Low pressure region shift from northern parts of India towards south.
- ▶ Owing to the conditions of high temperature and humidity, the weather becomes rather oppressive. This is commonly known as the 'October heat'



WITHDRAWAL OF MONSOON

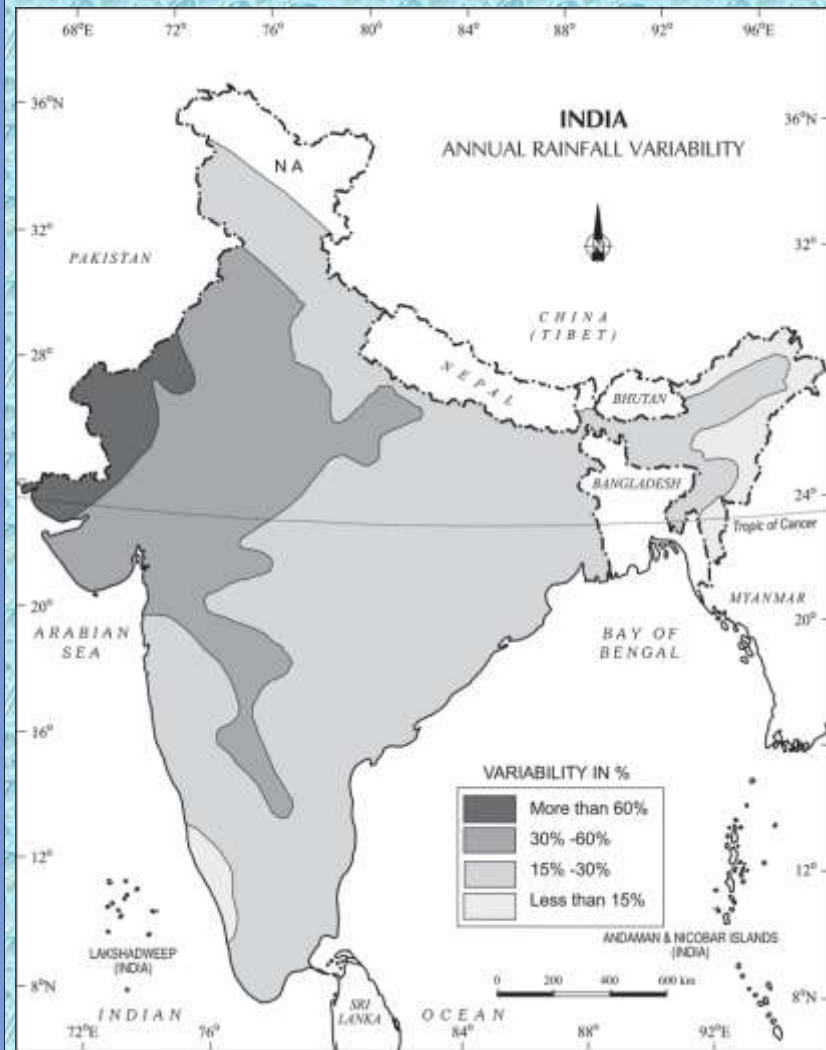


DISTRIBUTION OF RAINFALL



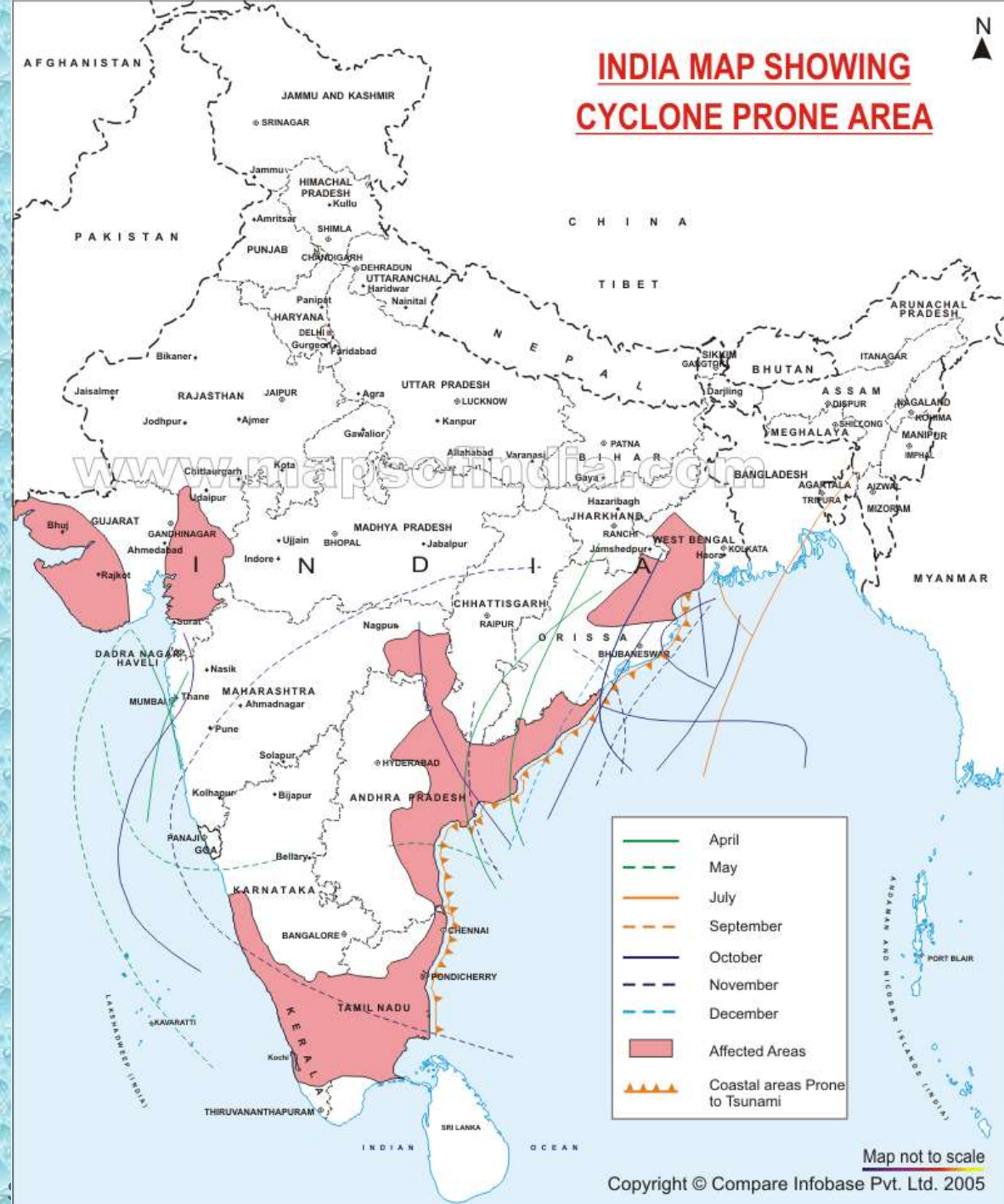
VARIABILITY OF RAINFALL

- ▶ The variability of rainfall is computed with the help of the following formula:
$$C.V. = \frac{\text{Standard Deviation}}{\text{Mean}} \times 100$$
- ▶ Variability of less than 25% exist in Western coasts, Western Ghats, northeastern peninsula, eastern plain of the Ganga, northern India, Uttaranchal, SW J & K & HP.
- ▶ Variability of more then 50% found in Western Rajasthan, J & K and interior parts of Deccan.
- ▶ Region with high rainfall has less variability.



Cyclones

- Cyclones are hurricanes that happen in this area. They can cause a great deal of damage.

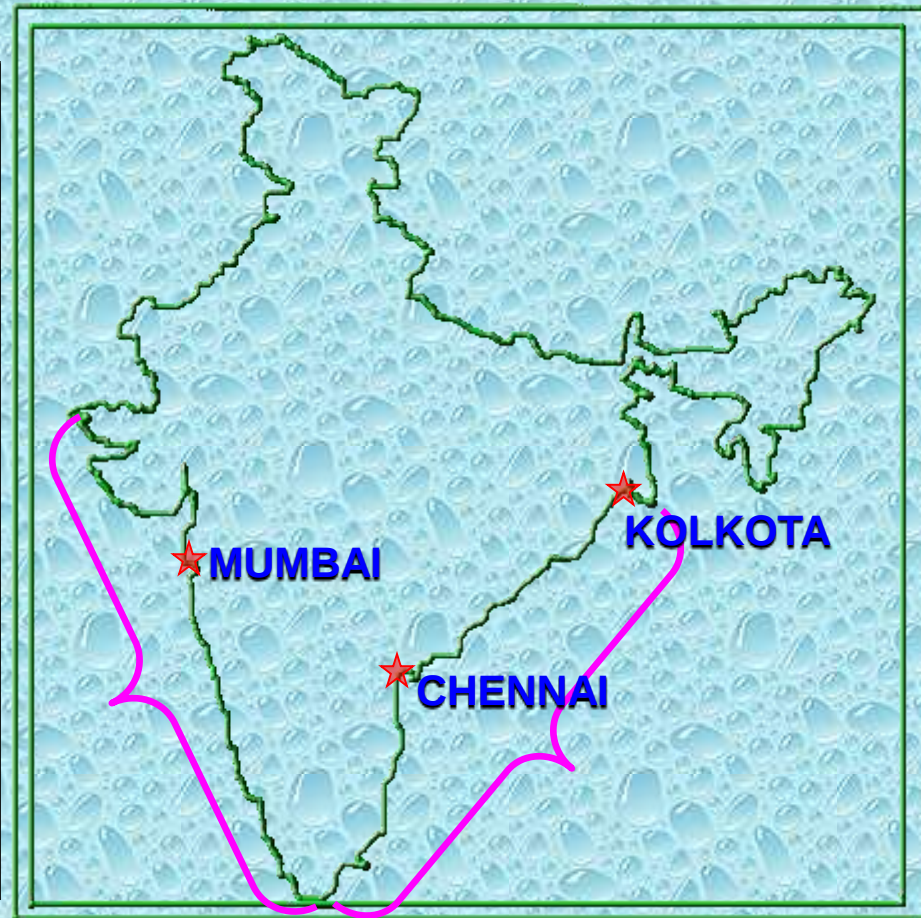


SOME INTERESTING FACTS

- ▶ Temperature increased by 0.6°C in 20th century.
- ▶ Eleven out of twelve hottest years are within 1995 to 2006.
- ▶ Annual rate of increase of CO_2 is 1.9ppm after 1995.
- ▶ Concentration of methane increased from 700ppb in 1750 to 1745ppb at present and Nitrous Oxide from 270ppb to 314ppb where as CFC increased from zero to 533ppb.
- ▶ Rising of temperature to 3°C will lead to melting of all ice on earth surface and sea level rise upto 15 feet.
- ▶ Existence of large cities like Venis, Bangkok, Sanghai, Kolkota and Dhaka will be in danger.

CLIMATE CHANGE & INDIA

- ▶ India has long coast line and rise of sea level will submerge large area.
- ▶ A population of 7.1 million living in coastal areas will be affected.
- ▶ Production of crops like wheat, rice etc will decrease.
- ▶ The natural disasters like cyclone, floods and drought will increase in frequency as well as intensity.



WHAT CAN BE DONE???

- ▶ Switch off the light, fan, TV and other energy using gadgets when they are not in use.
- ▶ Do not use those equipments that pollute or consume more energy.
- ▶ create public awareness.
- ▶ use renewable energy resources like solar, wind, biomass etc.
- ▶ International conferences like Earth Summit, 1992, Kyoto protocol, Copenhagen summit, 2009 are some steps to bring consensus for crusade against Climate Change.

TEST YOUR KNOWLEDGE

- 1. Name the factors affecting climate of India .**
- 2. Why the south western part of peninsular India receives high rainfall?**
- 3. Name the important green house gases.**
- 4. How altitude affects climate?**
- 5. How distance from sea affect climate?**
- 6. What is meant by mango shower?**
- 7. What is meant by Inter Tropical Convergence Zone?**

- **Mango showers** are the pre-monsoon showers in the Indian states of Karnataka and Kerala that help in the ripening of mangoes. Also known as April rains or Summer showers, they are a result of thunderstorms over the Bay of Bengal. These summer rains normally come in the second half of the month of April, though the arrival is difficult to predict. The showers prevent the mangoes from dropping prematurely from trees and are crucial for the mango cultivators of South india.

TEST YOUR KNOWLEDGE

1. Name the factors affecting climate of India .

Answer

2. What is meant by El-nino?

Answer

3. Why the south western part of peninsular India receives high rainfall?

Answer

4. Name the important green house gases.

Answer

5. How altitude affects climate?

Answer

6. How distance from sea affect climate?

Answer

7. What is meant by mango shower?

Answer

8. What is meant by Inter Tropical Convergence Zone?

Answer



THANK YOU