Geography Class 38

10th December, 2023 at 9:00 AM

[9:18 AM] Brief Recap

[9:27 AM] RIVERS OF PENINSULAR INDIA:

The East Flowing Rivers:

- **Subarnarekha River:** (originates through Chota Nagpur Plateau and flows through Jharkhand and flows along the border of Odisha and WB)
- Originates in Jharkhand
- Known for Gold placer deposits
- **Baitarni and Brahmani Rivers:**
- Independently drains into the Bay of Bengal
- Along with Mahanadi, they form Delta in Odisha.
- Famous for **Gahirmata National Park** - Mass nesting (Arribada) of **Olive Ridley** turtles
- **Mahanadi River:** (forms delta in Odisha)
- Originating from Dandakaranaya plains of Chhattisgarh
- Dam - **Hirakud Dam**, the largest earthen Dam. (The reservoir of Hirakud was recently declared a Ramsar Site).
  - i.e. it have materials of earth like stones, mud etc. and this is too much large like we can make a 8m wide road from Kashmir to Kanyakumari.
- **Vamsdhara River:**
- Disputed river, interstate river, between Andhra Pradesh and Odisha
- **Godavari River:** (flows through Maharashtra, Telangana and AP and called as Dakshin Ganga because it is the largest river of Peninsular region)
- Originates from Triambakeshwar Nashik,
- Aka **Dakshin Ganga**
- Godavari doesn't have many right bank tributary
- Right Bank tributary - **Manjra** (which flows through Karnataka)
- Left Bank tributaries - Wainganga, Penganga, Wardha (these three merge in **Pranhita** which joins Godavari), Indravati (Naigra of India, **Chitrakoot Waterfalls**), Sabari

name of river after joining all three rivers.

come from Odisha then Chattisgarh and joins in Telangana.

largest waterfall present in Canada.

- **Krishna River:**
- Originates from Mahabaleshwar in Maharashtra
- Left Bank Tributaries - Bhima, Musi (flows through Hyderabad)
- Right Bank Tributaries - Koyna (Known for reservoir-induced seismicity), Ghataprabha, **Malaprabha** (known for Vesara Temple Architecture, Badami, Aihole, Pattadakal), Tungabharda (joins Krishna in Andhra Pradesh, Vijayanagar Empire, Hampi),
- Krishna River is the natural border between Telangana and Andhra Pradesh
- **Penneru River:**
- Originates from Nandi hills, it flows through Andhra Pradesh cuts Nalamala hills, and enters the Bay of Bengal
- Forms a deep and wide Canyon known as the Grand Canyon of India - **Gandikota Canyon**
- **Palar River:**
- It also originated from Nandi hills
- **Cauvery/Kaveri River:**
- Originates from Talakavery in Brahmagiri Hills in Coorg Hills
- Delta of Cauvery is known as Point Calimere
- Left Bank Tributaries - Harangi, Hemwati, Arkavati, Shimsha
- Right Bank Tributraries - Kabini, Bhawani, Amravati
- **Vaighai River:**
- From the western ghats flows through the southern part of Tamil Nadu and drains in the Gulf of Mannar near Rameshwaram
- Flows through **Madurai**, **Sangam** happened on its Bank

originates from Maharashtra and due to a dam on it, it is known for reservoir-induced seismicity.

(these are two rivers Tunga and Bhadra which joins and forms Tungabhadra which joins Krishna in AP)

(most disputed river of India bw Karnataka and Tamil Nadu)

it is imp. and comes from Kerala and joins Kaveri in Karnataka.

[10:01 AM] The West Flowing Rivers:

- **Luni River:**
- Flowing through Rajasthan Drains into the Rann of Kutch (**inland drainage**)
- **Sabarmati River:**
- Flows through Gandhinagar
- **Mahi River:**
- Originates from Vindhyas
- Crosses the tropic of cancer twice
- Drains into the Gulf of Khambat
- **Narmada River:**
- Originates from Amarkantak
- **Tapi River:**
- Orginates from Betul Plateau
- **Mahadai/Mandovi River:**
- Disputed between Karnataka and Goa
- In Karnataka it is known as Mahadai and in Goa it is known as Mandovi
- Famous for **Doodhsagar** waterfalls
- **Sharavati River:**
- Karnataka is famous for **India's highest waterfall Jog Falls**
- **Kerala:**
- Periyar river: known for Mullaperiyar Dam (located inside Kerala but operated by Tamil Nadu)
- Pamba river: flows near to Sabarimala Temple

[10:17 AM] CLIMATE OF INDIA: Imp. w.r.t. to mains

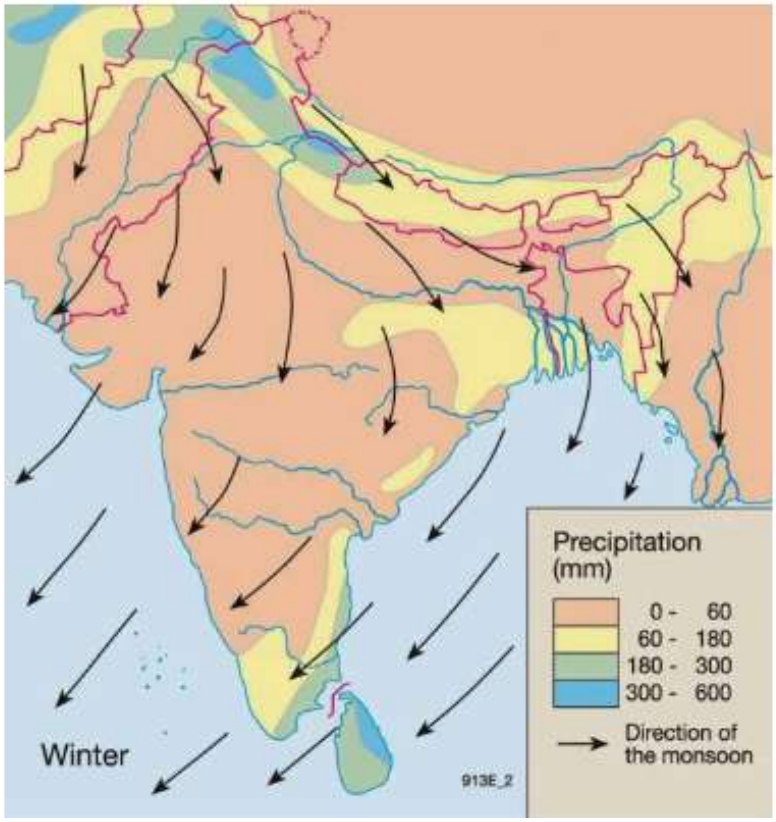
- **Factors Affecting India's Climate:**
- India's climate is classified as **Tropical Monsoon Climate**,
- The

  following factors

  influence the climatic conditions of India:

1. **The latitudinal Extent** - of nearly 30 degrees causes climatic conditions to vary from tropical to sub-tropical across different parts.
2. **Location -** near to Indian Ocean results in moderating effect of the water body.
3. **The presence of the Himalayas** - protects India from the cold and dry winds of central Asia during winters.
4. **Monsoon Winds -** are the most dominant factor due to which it is called a monsoon climate.
5. **Topographical features** - such as the **Western Ghats** being perpendicular to the monsoon winds causing heavy rain along the west and **rainshadow along the east**. **Aravalis being parallel to Monsoon winds** causes less rainfall in Rajasthan.
6. **Jet Streams -** the sub-tropical westerly jet stream, tropical easterly jet stream, and Somali jet streams impact both summer as well winter weather conditions.
7. **Cyclones -** the coastal states along the East Coast are largely impacted by tropical cyclones
8. **El-Nino, La-Nina, MJO, and IOD -** causes variations in Indian rainfall

[10:57 AM] ORIGIN AND MECHANISM OF MONSOON:

- The word Monsoon is derived from the Arabic word **"Mausam"** which means season.
- **Classical Theory:**
- It explains the phenomenon of Monsoons as **large-scale land and sea breezes** because of the reversal of temperature and pressure conditions in the northern plains from summer to winter.
- During summers, high temperature and low pressure attracts winds from the Arabian Sea,
- During winters, low temperature and high pressure causes winds to move from land towards the sea
- **Modern Theory:**
- ***Winter Conditions (November to February):***
- 

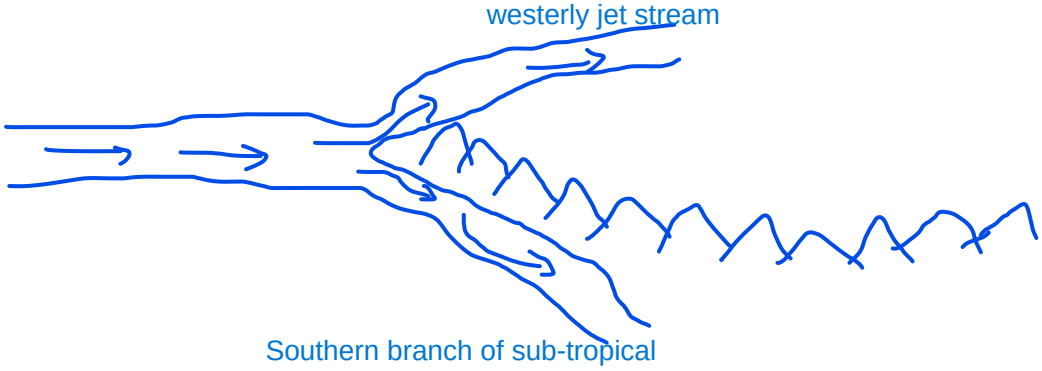
- The northern plains are experiencing low temperature, and high pressure conditions **causing surface divergence**.
- The sky is clear, the air is dry and cold.
- The **sub-tropical westerly jet stream** is strong and well-established.
- It is bifurcated into two parts towards the North and South of the Tibetan plateau.
- The southern branch is stronger and is **established along the Northern Ganga Plains**.
- This intensifies **surface anti-cyclonic circulations** leading to clear and dry sky weather.
- This results in winds blowing from land to sea from the northeast direction called **NE Monsoon winds**.
- These NE winds after crossing the Bay of Bengal, pick up the moisture and cause **precipitation along the Coromandel Coast**.
- ***Spring Conditions (February to May):***
- With the temperature rise, the weather is hot and dry.
- The sub-tropical westerly jet stream begins to weaken and the **southern branch eventually moves entirely to the north** beyond the Tibetan Plateau.
- The temperature continues to rise and the pressure drops.
- This **results in convection and precipitation** in some regions called **pre-monsoon showers**, eg. mango showers of Kerala, Cherry blossom of Karnataka, Kal Baisakhi, Norwester, or Bardoli Cherra in Jharkhand, Odisha, West Bengal, and Assam.
- It is helpful for rice, jute, and tea cultivation.

because it is along 30degree latitude and in winter temperature between Hadley and Ferrel cell is much enough.

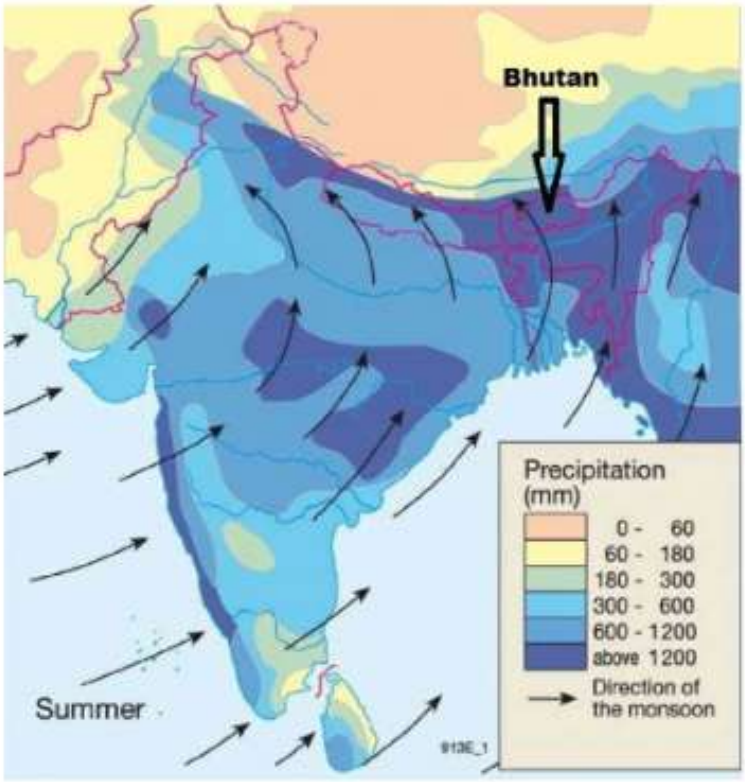
bz of mountains

this is because in summer Hadley cell shifts to north and therefore ITCZ also shifts to north.

an at this time we experience loo in western part.



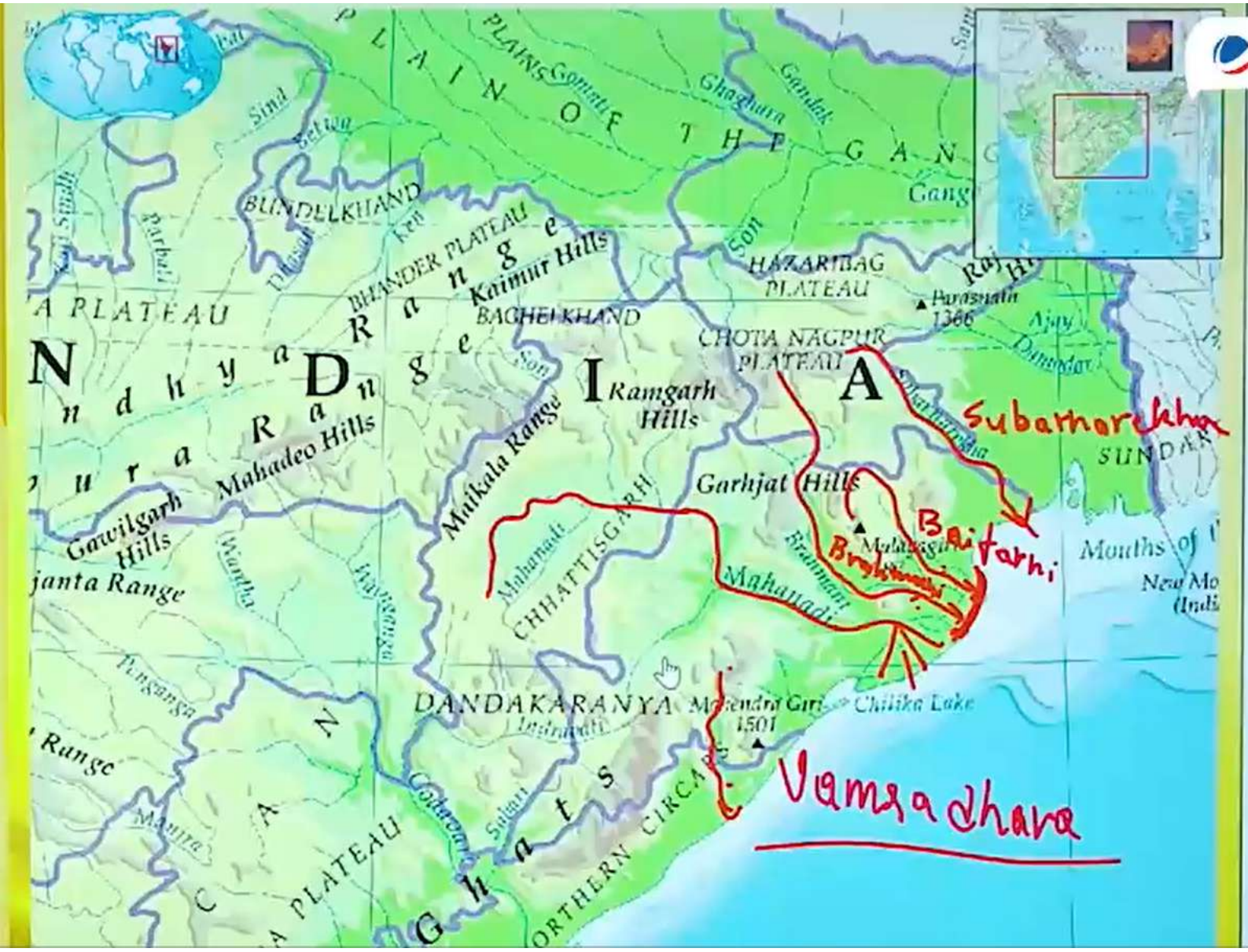
- ***[10:45 AM] Summer Conditions (May to August):***

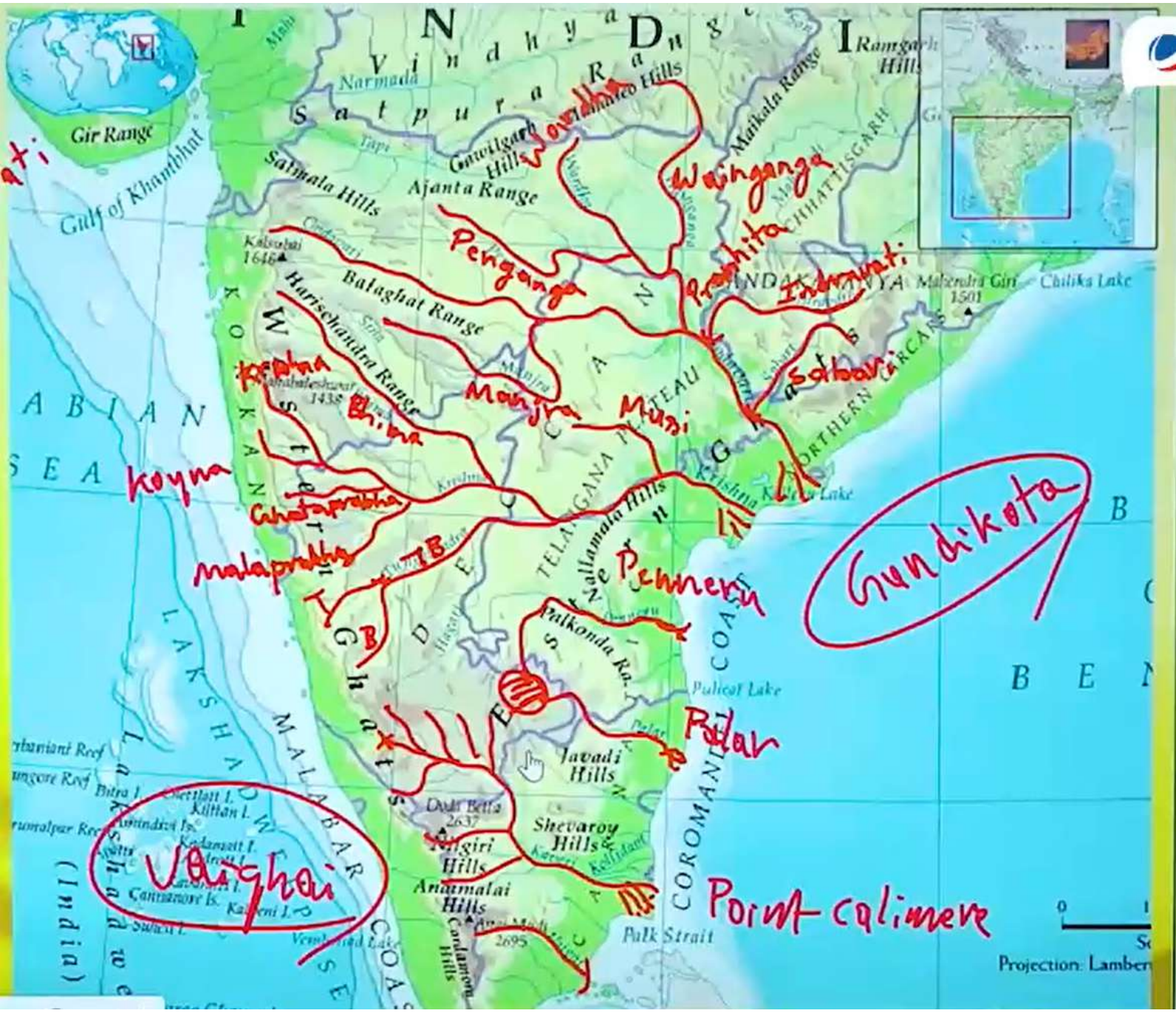


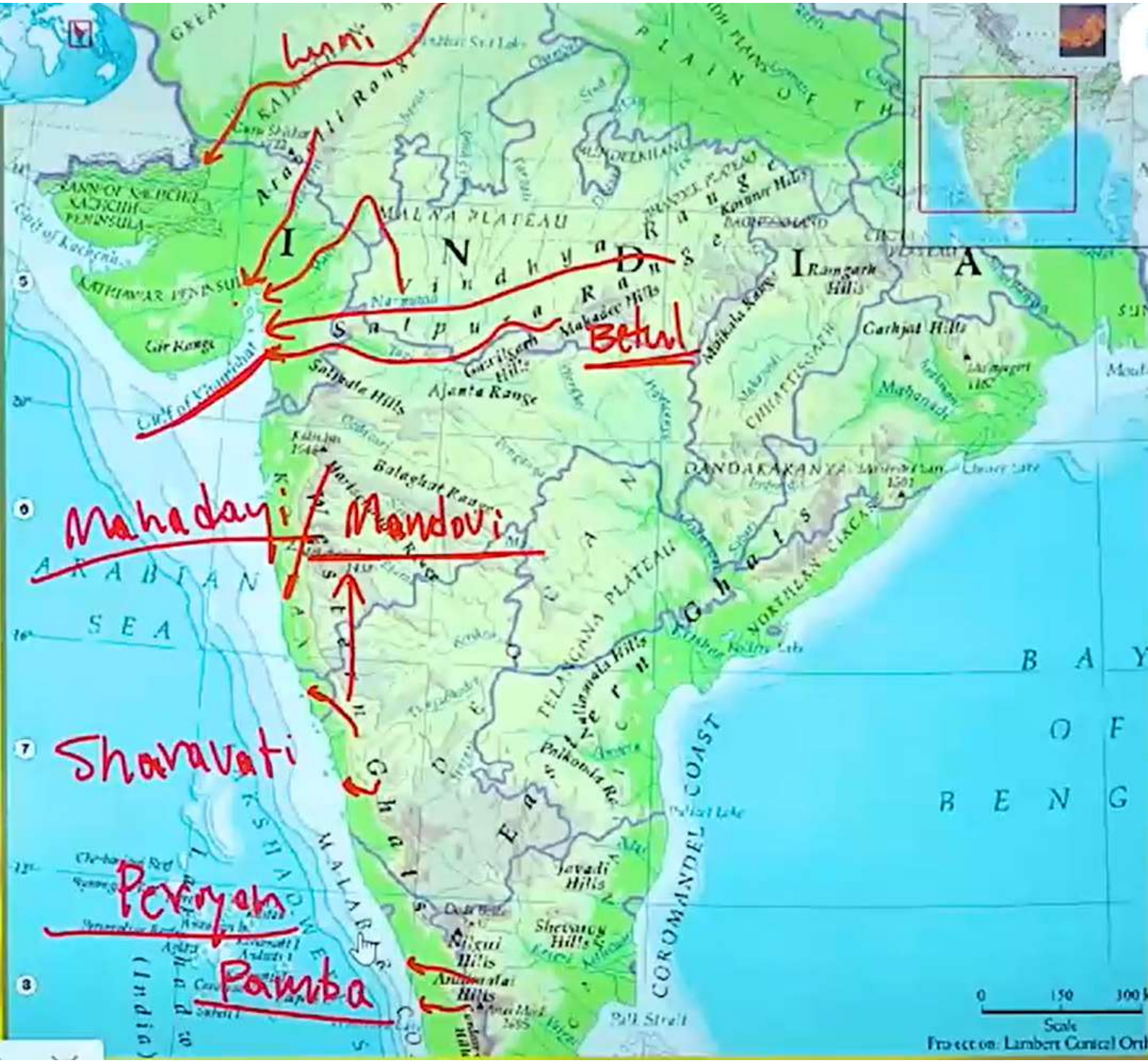
- Complete development of **low-pressure cells** over the desert and northern plains.
- ITCZ shifts completely towards the north of the equator and is lying over the northern plains as the **monsoon trough**.
- This attracts the **southern trade winds** towards the north of the equator, which after **crossing the equator turns right** under the influence of the **Coriolis Force** and flows as **Southwest monsoon winds**.

- **Temperature stratification of air** does not allow upliftment of air on a large scale preventing major storms.
- The **tropical easterly jet stream** is a low-level jet stream developed only in summers over South Asia and Africa. It causes the change of divergence to convergence on the surface.
- In addition to this, **monsoon depressions** in the Bay of Bengal also help in triggering large-scale convection.
- This results in the **bursting of the monsoon** which is the sudden onset of moisture-laden winds associated with **violent thunder and lightning**.
- These monsoon winds gradually get distributed throughout India resulting in monsoon rainfall.
- In some regions, a **break in monsoon** appears due to **local stability** conditions and also **due to the winds blowing parallel** to the topography.
- **Somali jet stream** along the coast of Somalia strengthens high pressure at Madagascar. This Highe pressure cell causes the faster flow of winds toward India
- ***Autumn (September - October):***
- The **ITCZ started to move back gradually** towards the south. This also brings back the maximum extent up to which southwest winds blow.
- The southwest winds slowly get replaced by the northeast trade winds.
- The **subtropical jet stream starts to reappear** to the south of the Tibetan plateau creating dry conditions.
- The High temperature with dry conditions in October along the northern plains is called as **"October Heat"**.

NEXT CLASS TOPICS - CHARACTERISTICS OF MONSOON, DISTRIBUTION, WESTERN DISTRUBANCES, ETC.


PLAINS OF THE GANGA
Ghaghara
Gandak
Gomati
Sind
Betwa
BUNDELKHAND
Ken
Dhasan
Parbati
BHANDER PLATEAU
Kaimur Hills
BAGHELKHAND
Son
HAZARIBAG PLATEAU
Parasnath 1366
CHOTA NAGPUR PLATEAU
Ajay
Damodar
Subarnarekha
SUNDER
Ramgarh Hills
Mahadeo Hills
Maikala Range
Garhjat Hills
Gawilgarh Hills
Wardha
Mahanadi
CHHATTISGARH
Brahmani
Baitarni
Mouths of
Mahanadi
DANDAKARANYA
Indravati
Mahendra Giri 1501
Chilika Lake
Vamsadhara
Range
Maurra
Godavari
Sabari
Ghats
PLATEAU
NORTHERN CIRCARS


Gir Range
Gulf of Khambhat
Vindhya Range
Satpura Range
Narmada
Tapi
Gawilgarh Hills
Maikala Range
Ramgarh Hills
Salpala Hills
Ajanta Range
Kalsubai 1646
Harischandra Range
Balaghat Range
Mahabaleshwar 1438
Malaprabha
Ghataprabha
Krishna
Tungabhadra
Kaveri
Godavari
Penganga
Wainganga
Indravati
Sabari
Manjira
Musi
Nallamala Hills
Palkonda Ra.
Javadi Hills
Shevaroy Hills
Nilgiri Hills
Anaimalai Hills
Cardamom Hills
Anai Mudi 2695
Doddabetta 2637
Malaprabha
Malabar Coast
Coromandel Coast
Laccadive Islands
Arabian Sea
Bay of Bengal
Pulicat Lake
Vembanad Lake
Palk Strait
Malendra Giri 1501
Chilika Lake
Projection: Lambert


Luni
Betwa
Mahadayi / Mandovi
Sharavati
Periyar
Pamba
ARABIAN SEA
BAY OF BENGAL
INDIAN PLATEAU
Vindhyan Range
Satpura Range
Aravalli Range
Western Ghats
Eastern Ghats
CHHATTISGARH PLAIN
DANDAKARANYA
COROMANDEL COAST
Gulf of Khambhat
Gulf of Kachchh
KATHIAWAR PENSULA
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Garhjat Hills
Mahanadi
Telangana Plateau
Javadi Hills
Shevaroy Hills
Palk Strait
Scale
Projection: Lambert Conical Orth