

VIKRANT

For CDS-1 2023 Exam

Lecture 01 Geomorphology part 01



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Topics To Be Covered

- 
1. Topic 1 Universe
 2. Topic 2 Earth
 3. Topic 3
 4. Topic 4
 5. Topic 5



Geomorphology

- Universe
- Latitude and Longitude
- Interior of the Earth
- Plate tectonism
- Geomorphic process
- Endogenic and exogenic
- Natural catastrophic events







Climatology

1. Composition of Atmosphere.
2. Structure of Atmosphere.
3. Heating of Atmosphere
4. Pressure Belts and Winds.
5. Humidity
6. Clouds and Rainfall
7. ~~Cyclones~~
8. Biomes





Oceanography

1. Importance of the Ocean
2. Water Index
3. Deep Sea Plain
4. Ocean Temperature
5. Ocean Salinity
6. Ocean Currents
7. Ocean Tides
8. Marine Resource
9. Maritime Law





Indian Geography

1. General introduction of India ✓
2. Physiography of India
3. Drainage of India
4. Climate and seasons of India
5. Vegetation of India
6. Soil of India
7. Agriculture of India
8. Minerals
9. Industries
10. Transport
11. Population ⚡





Mapping

1. Asia
2. Africa
3. Europe
4. North America
5. South America
6. Australia
7. Antarctica





Universe



- ❖ It is totality of everything. It comprises all **Energy, Physical Matter and Time.**
- ❖ From an **smallest atom to largest galaxy** are part of Universe.
- ❖ The distance in Universe is measured by **Light year.**

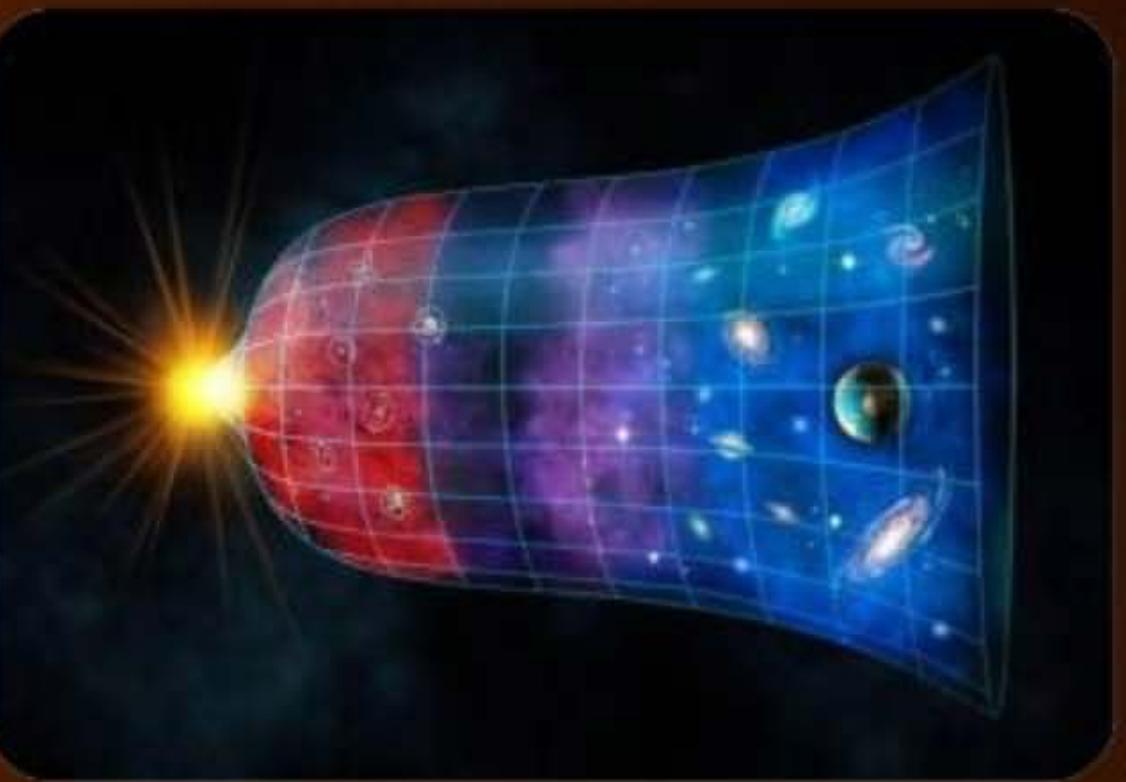




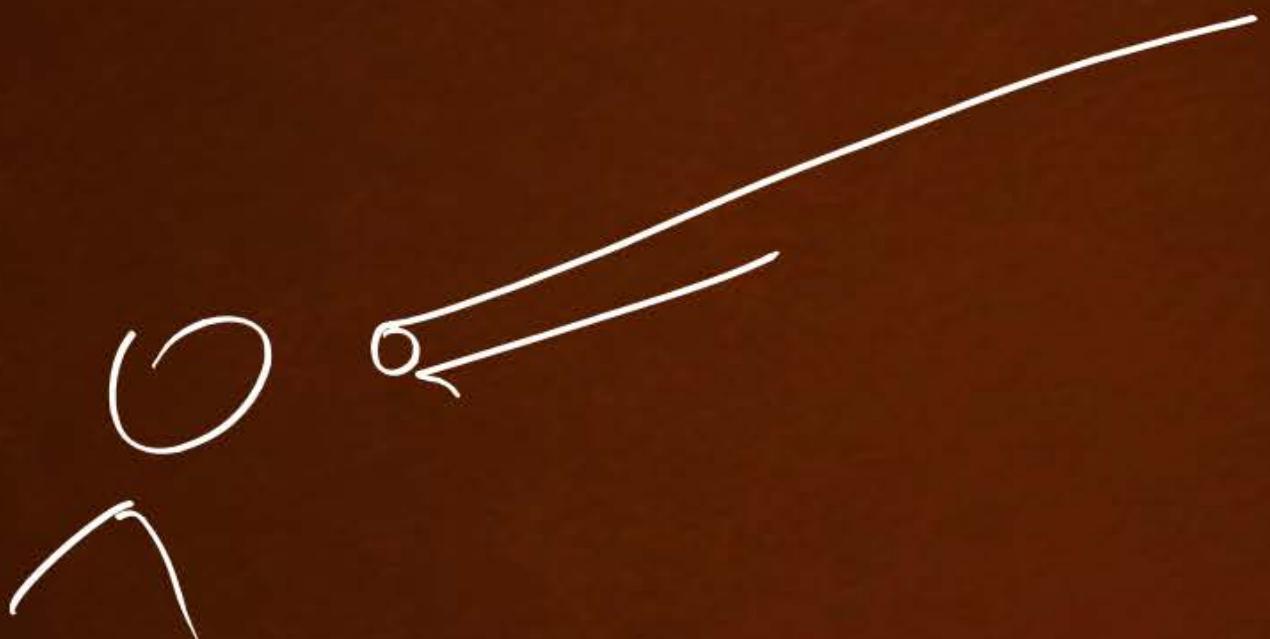
Big Bang Theory

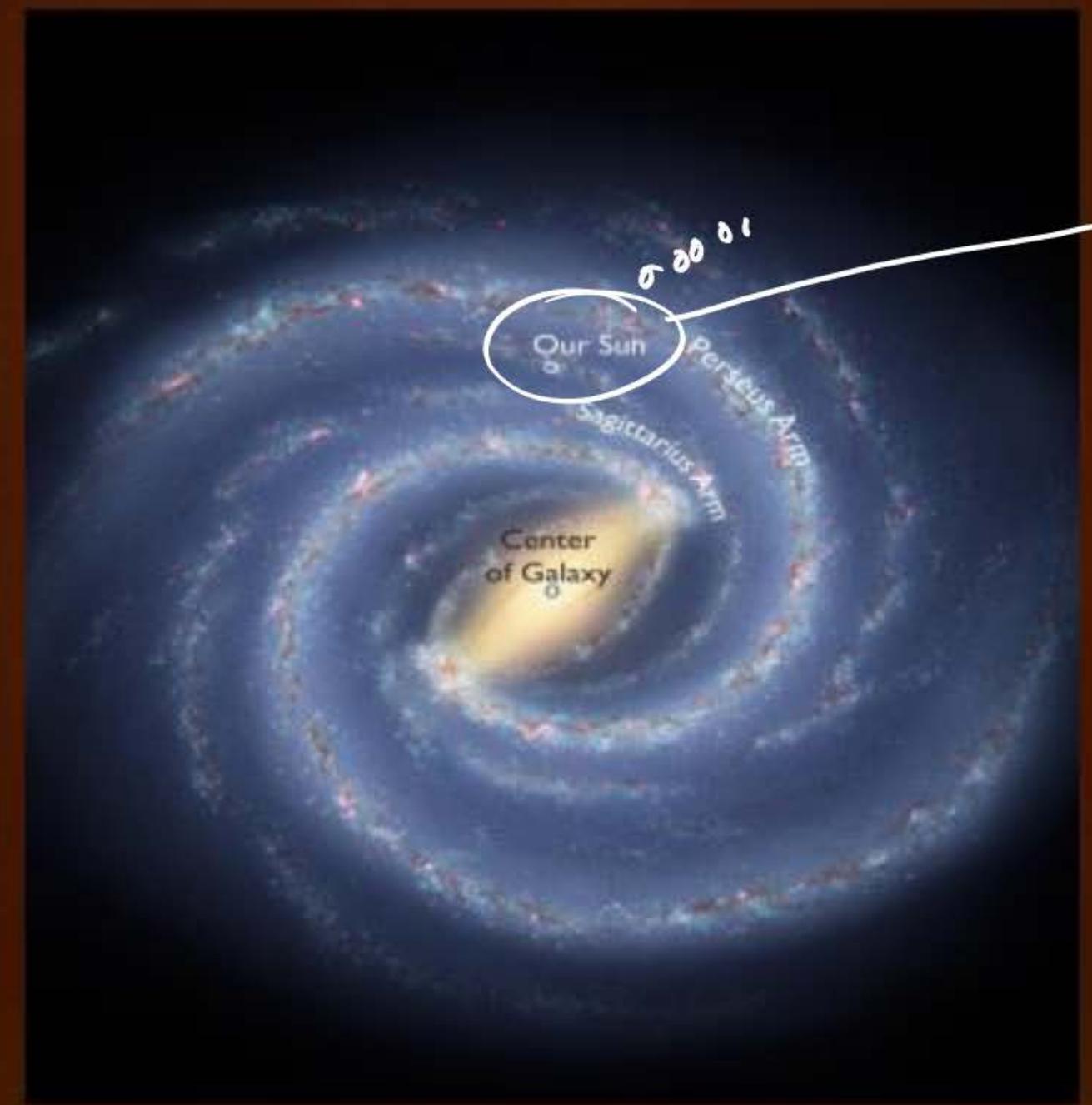
- Tiny ball explode **13.6 billion years ago.**
- The expansion remains continue till date.
- First atom was formed within **3 minutes.**
- Within **3 lakh years** from the Big Bang, temperature dropped to **4,500K (Kelvin)** and gave rise to atomic matter.
- Condensation took place stars and planets are formed.

• George Lemaître

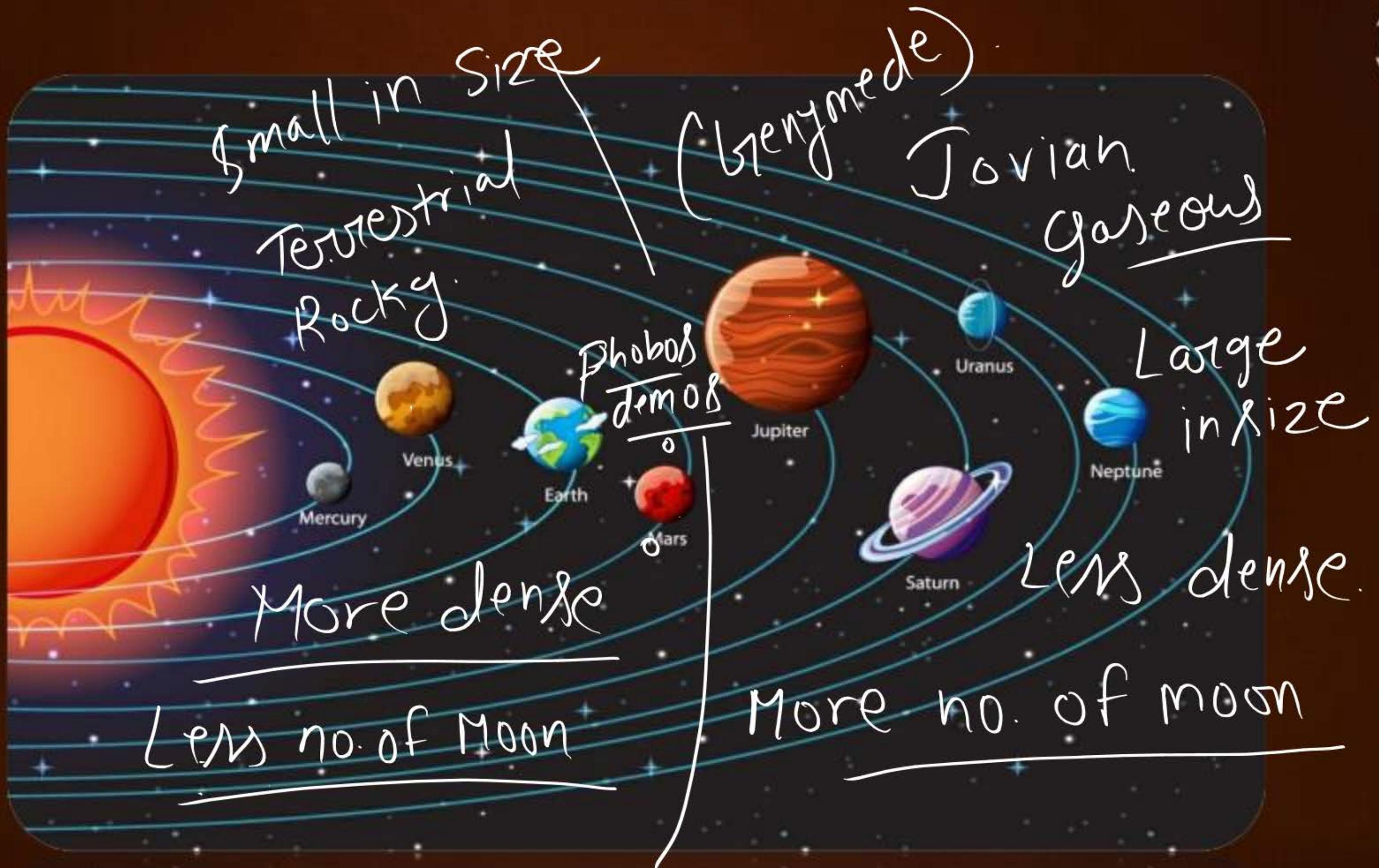


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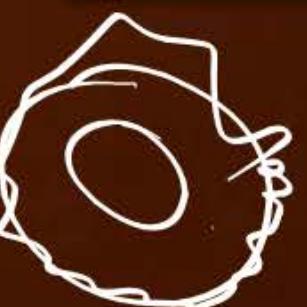
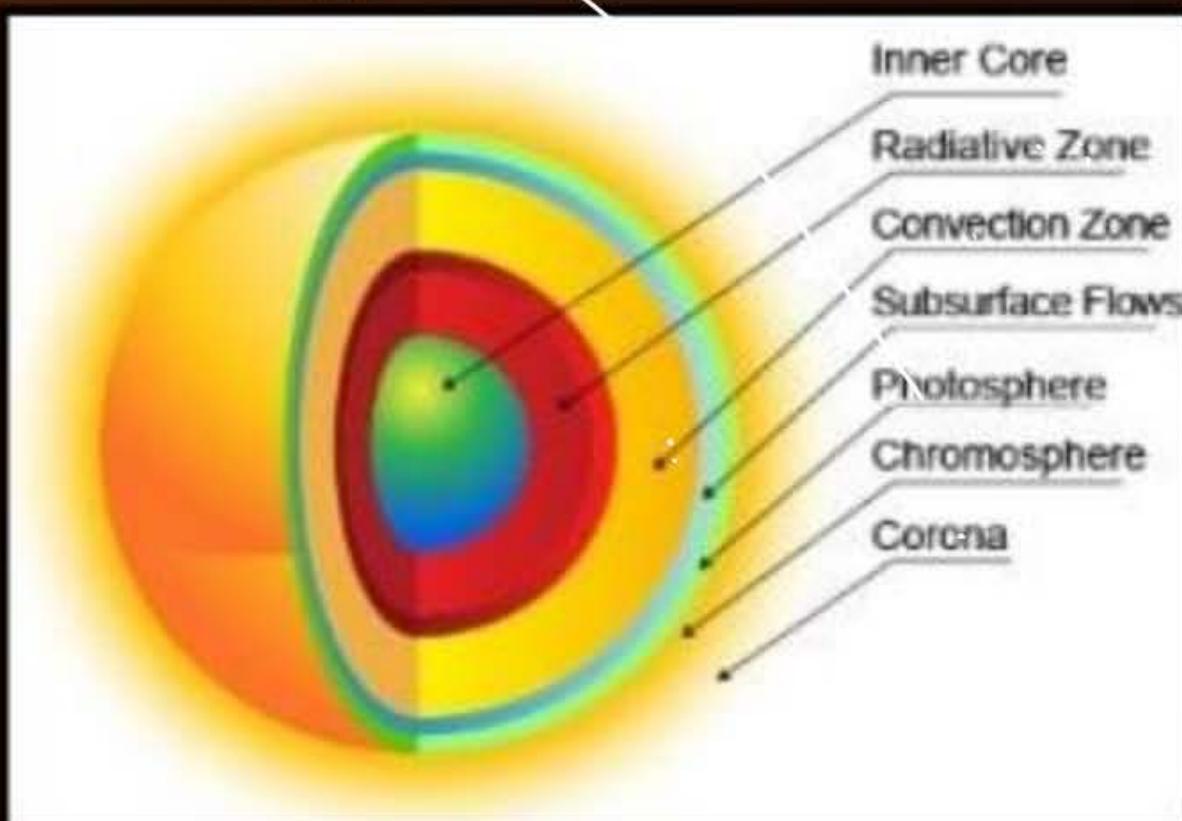
Orion
Arm

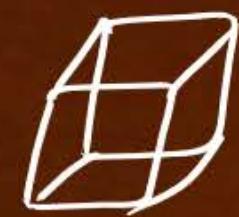




Anatomy Of Sun

- ❖ Situated in the Centre of Solar System.
- ❖ Made up of extremely hot gases. H. He. other metal
- ❖ Source of heat and light on the earth.
- ❖ Age 5 billion years approx.
- ❖ Density of centre 100 gm/cm³.
- ❖ Temperature of centre 15 million °C.

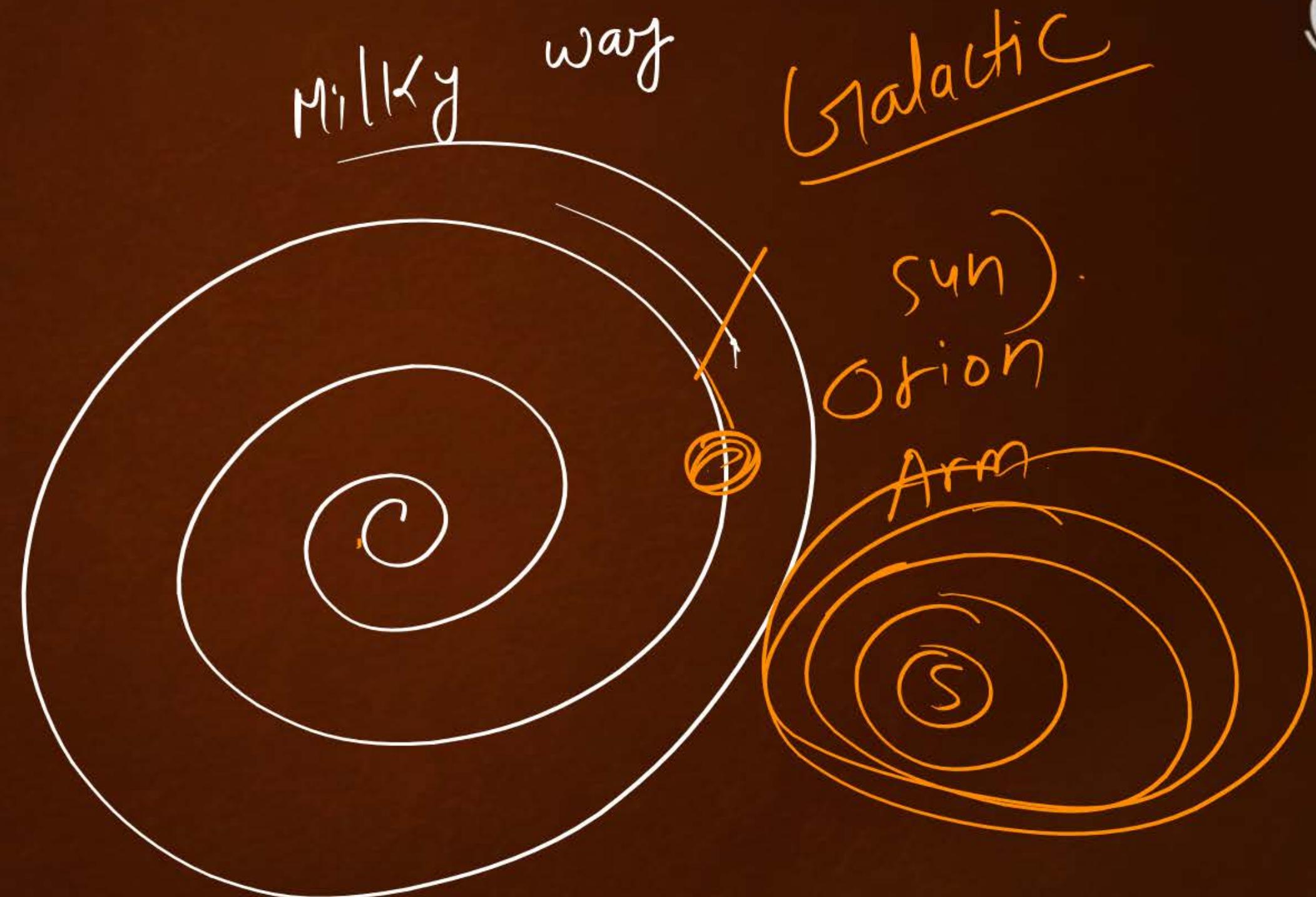




= 100 gm.

1 cm 1 cm

→ 5 gm





Plants



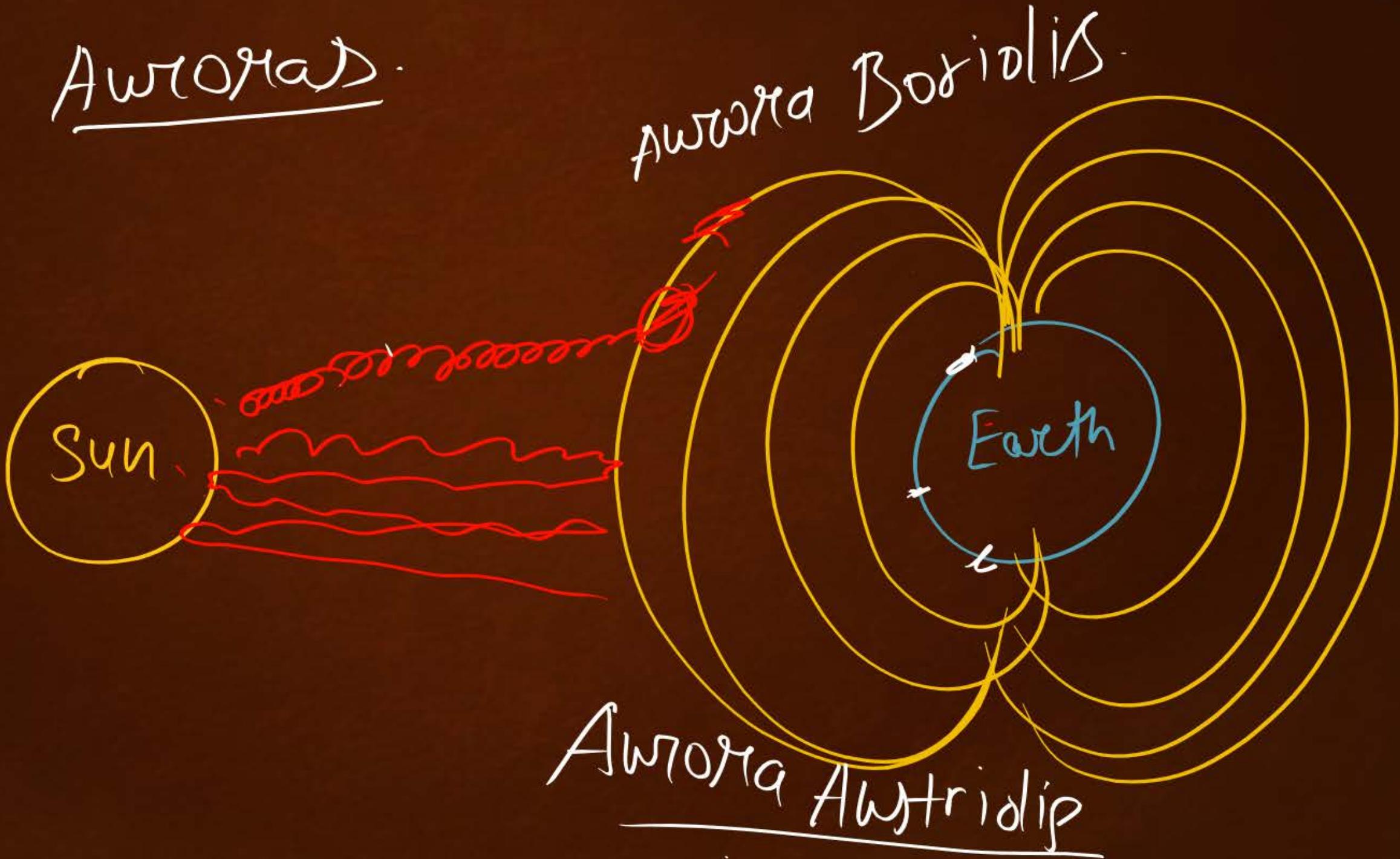
- ❖ A celestial body moving in an elliptical orbit around a star is known as a **planet**.
- ❖ There are total **8 planets** in our Solar system and one **Pluto** is a dwarf planet.
- ❖ The **planets of the Inner Circle** are called as terrestrial planet.
- ❖ The planet which are situated in out to the asteroid belt are the **Jovian planet**.
- ❖ After Pluto Kuiper belt is present.





Revolution and Rotation periods of the planets:

<u>Planet</u>	<u>P of rotation</u>	<u>P of revolution</u>
<i>Mercury</i>	59 days	<u>88 days</u>
<i>Venus</i>	243 days	255 days
<i>Earth</i>	24 hours	365 days
<i>Mars</i>	24 hours	687 days
<i>Jupiter</i>	10 hours	11.9 years
<i>Saturn</i>	11 hours	29.5 years
<i>Uranus</i>	17 hours	84 years
<i>Neptune</i>	16 hours	165 years





Latitude And Longitude



Equator



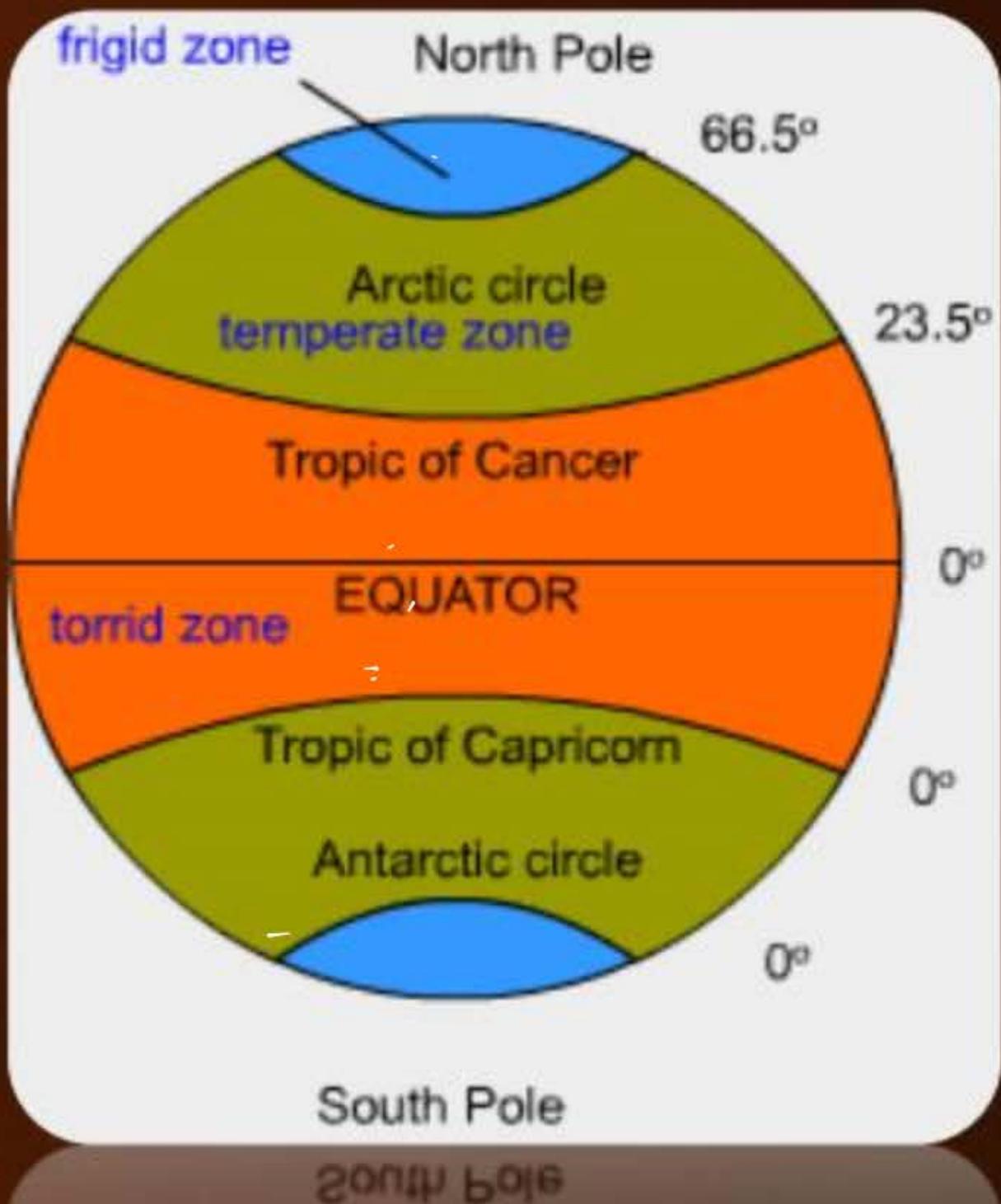
Prime Meridian





Latitude

- It can be defined as the angular distance measured from the centre of the earth to any point on the earth surface.
- There are total 181 latitudes.
- Largest latitude on earth is Equator.
- Latitude specify **climate** of any particular place.



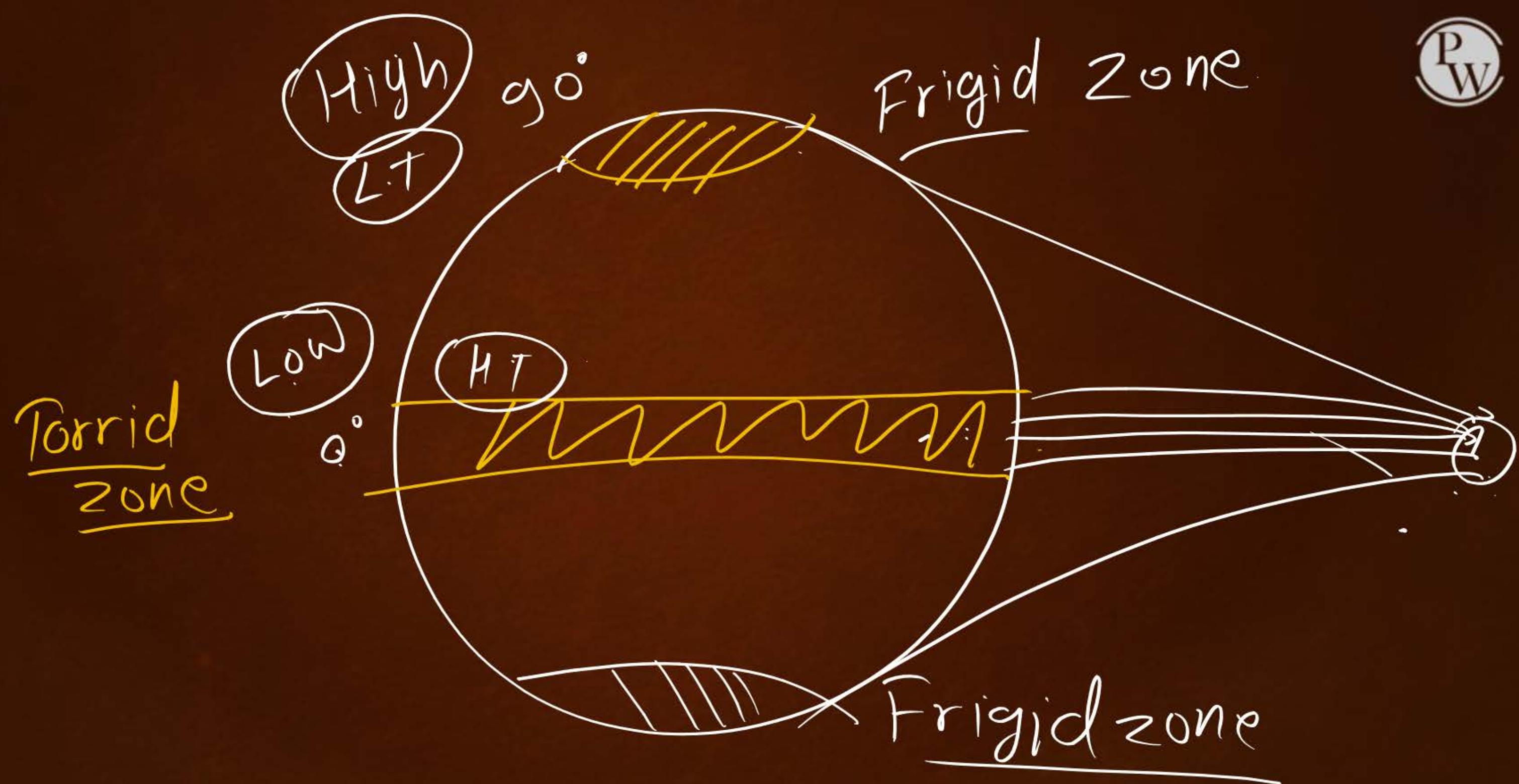
66 $^{\circ}2'$ N · Arctic circle (Frigid zone)

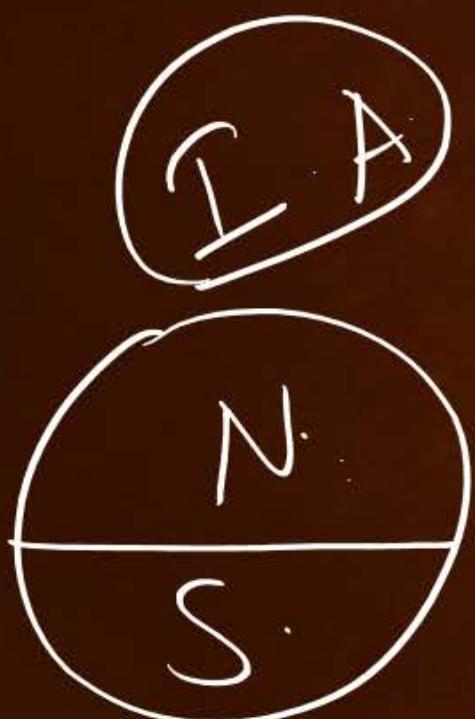
$23\frac{1}{2}^{\circ}$ N \Rightarrow Tropic of Cancer
(Torrid zone)
 0° = Equator
(Heat Surplus)

$23\frac{1}{2}^{\circ}$ S \Rightarrow Tropic of Capricorn

66 $^{\circ}2'$ S = Antarctic circle (Heat deficit)

P
W



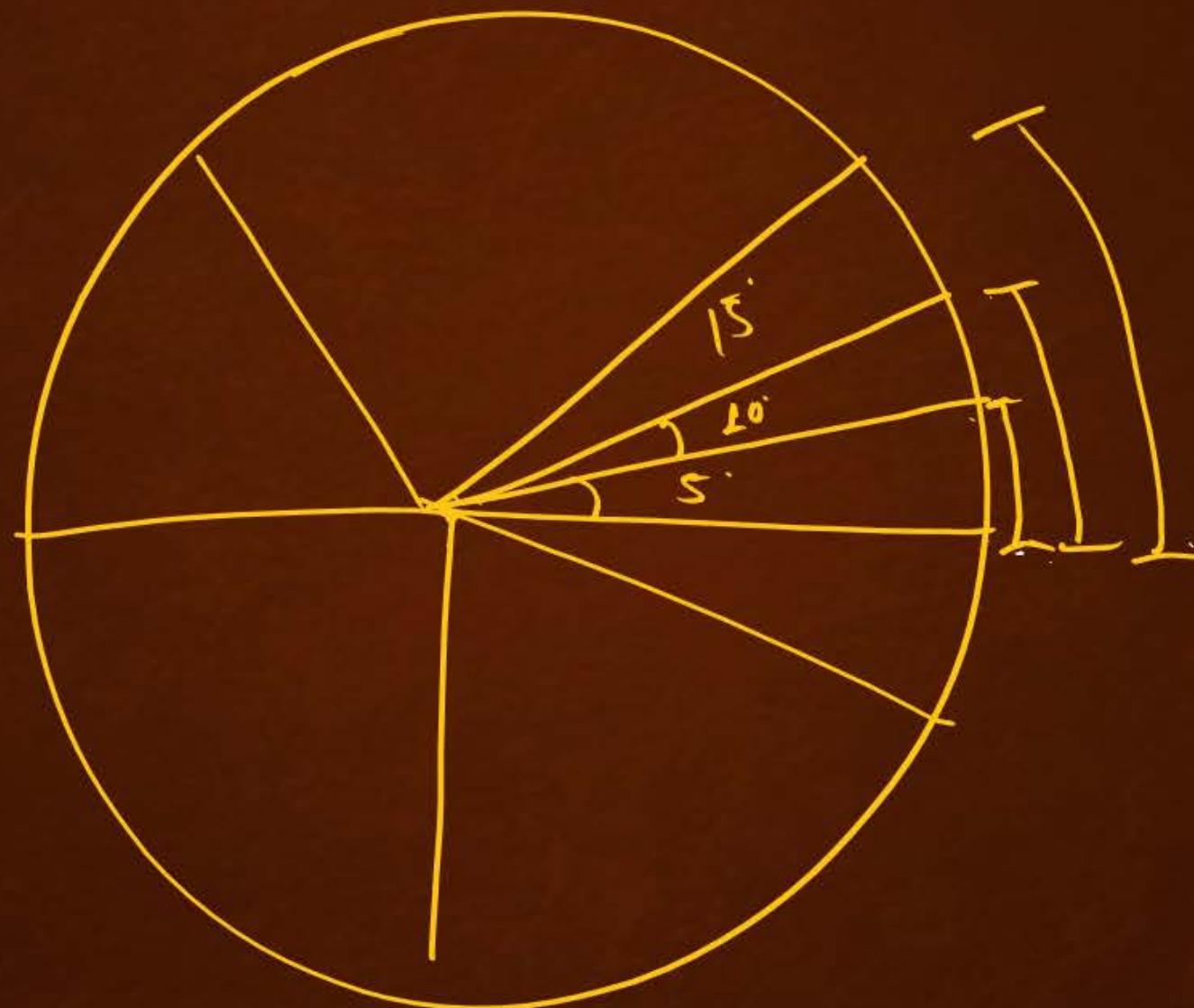


Northern Hemisphere

$$= 180^{\circ}$$

$$\underline{90^{\circ} + 90^{\circ} (1)}$$

Southern Hemisphere.



75. Which of the following statements regarding the duration of day and night is correct?

- (a) Difference is least near the Equator and progressively increases away from it
- (b) Difference is maximum at the Equator and progressively decreases away from it
- (c) Difference is least at the Tropics and progressively increases towards the Equator and Poles
- (d) Difference is maximum at the Tropics and progressively decreases towards the Equator and Poles

Africa = Sao Tome Principe, R of Congo, Demo. Republic of C,



All the Countries That Lie Along the Equator

S America

1. Colombia

2. Ecuador

3. Brazil.



Somalia
Uganda

Kenya
(Gabon)

Kiribati

Indonesia

Maldives





TROPIC OF CAPRICORN

ARCTIC OCEAN

Arctic Circle

NORTH ATLANTIC
OCEAN

23.5° N
Tropic of Cancer

D'Equator

PACIFIC OCEAN

23.5
Tropic of C

10

1

1

第10页

Antarctic Circ.

SOUTHERN ODE

Musica molt da Scau

www.brightedge.com

edubabu

ARCTIC OCEAN

Arctic Circle

23.5° N

PACIFIC OCEAN

23.5.5

AUSTRALIA

edutopia.org

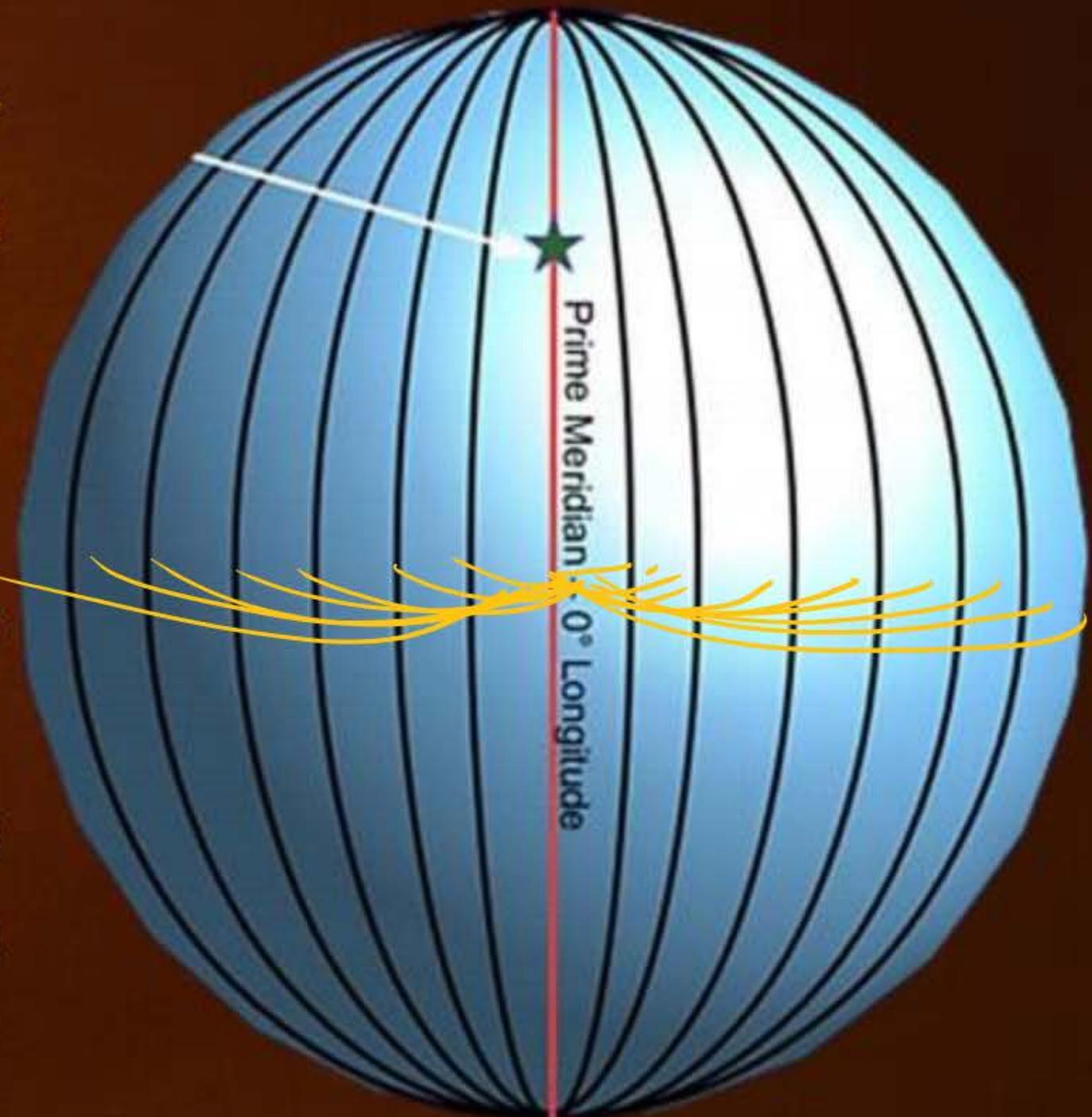


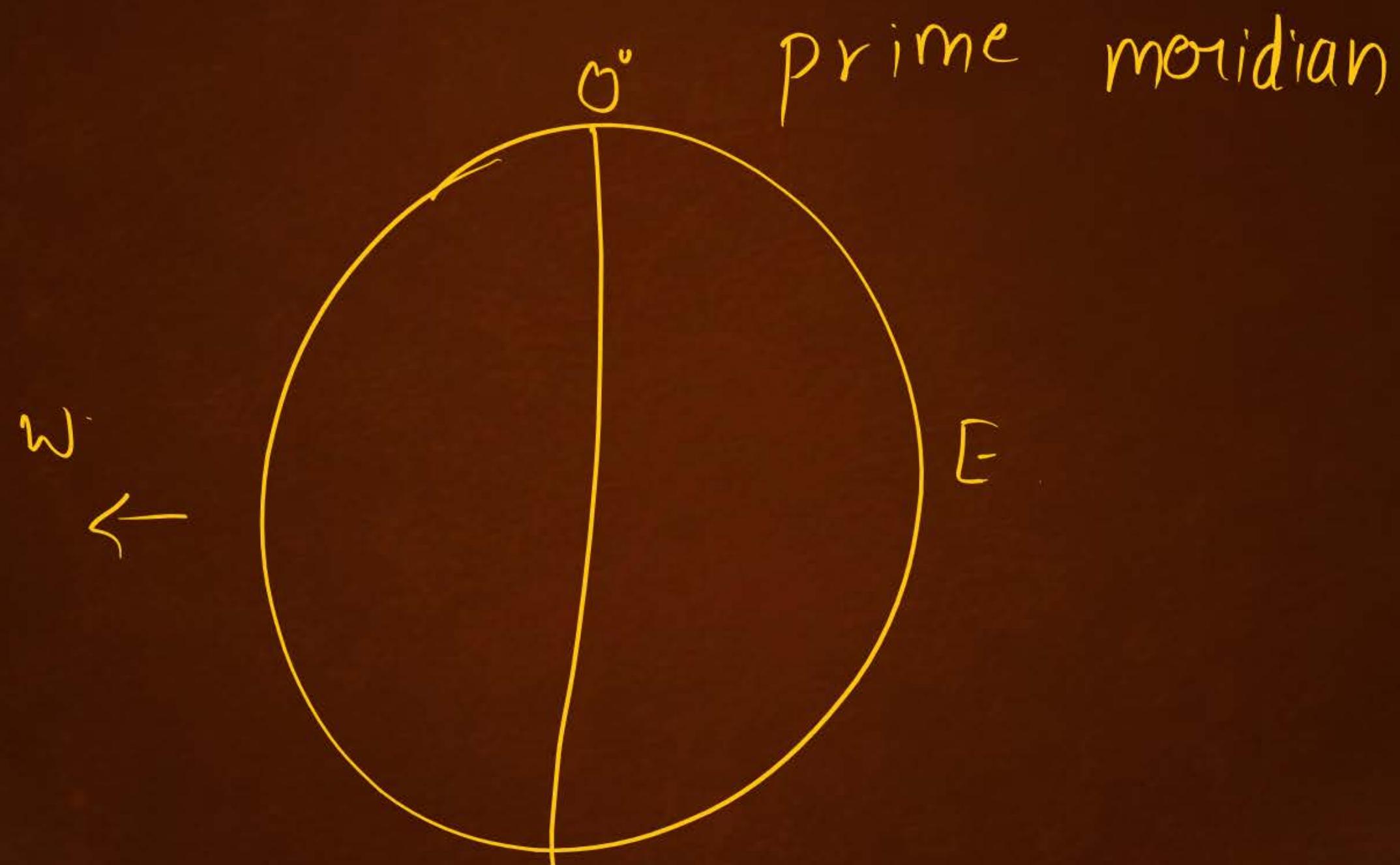
Longitude

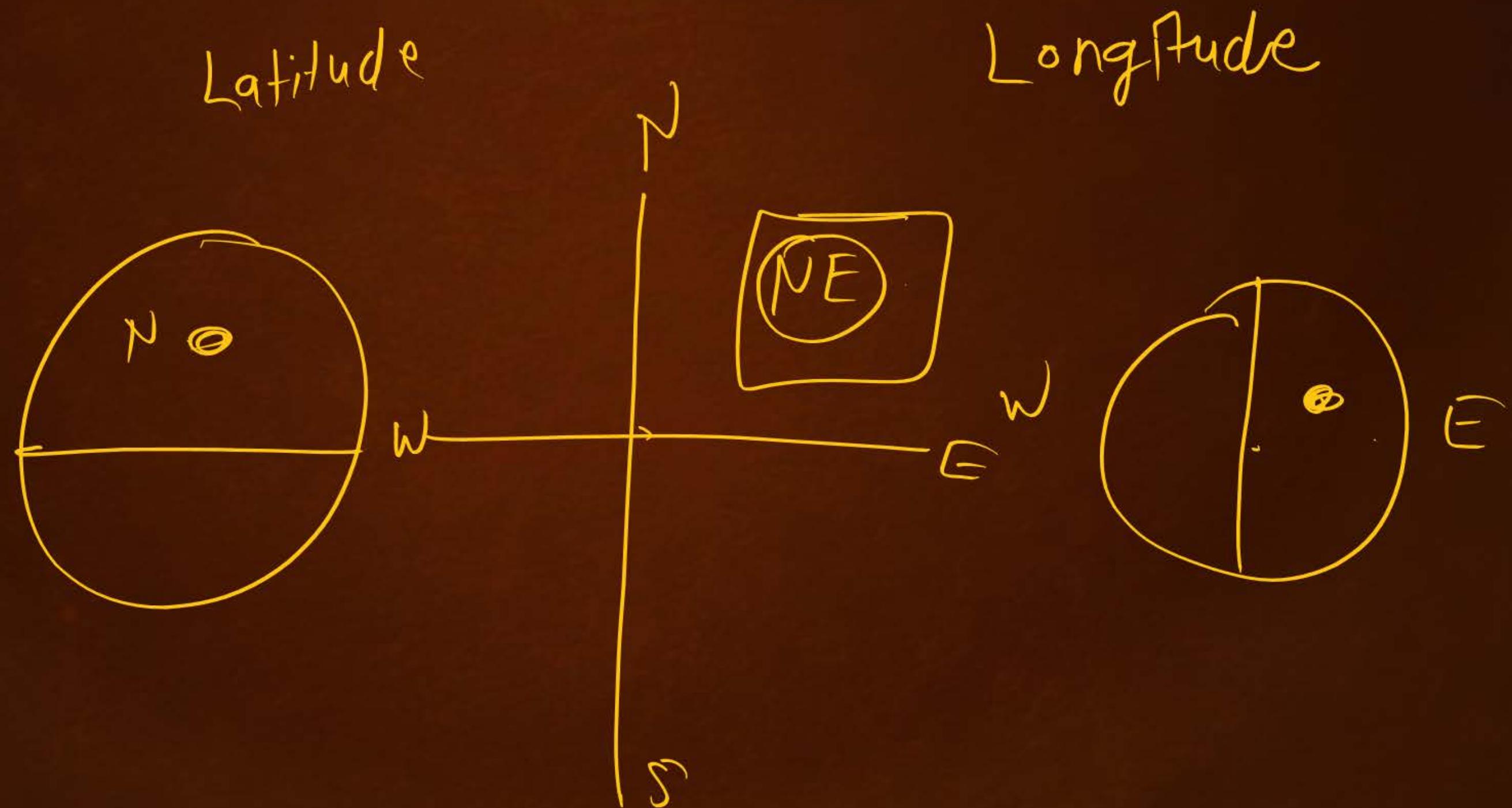


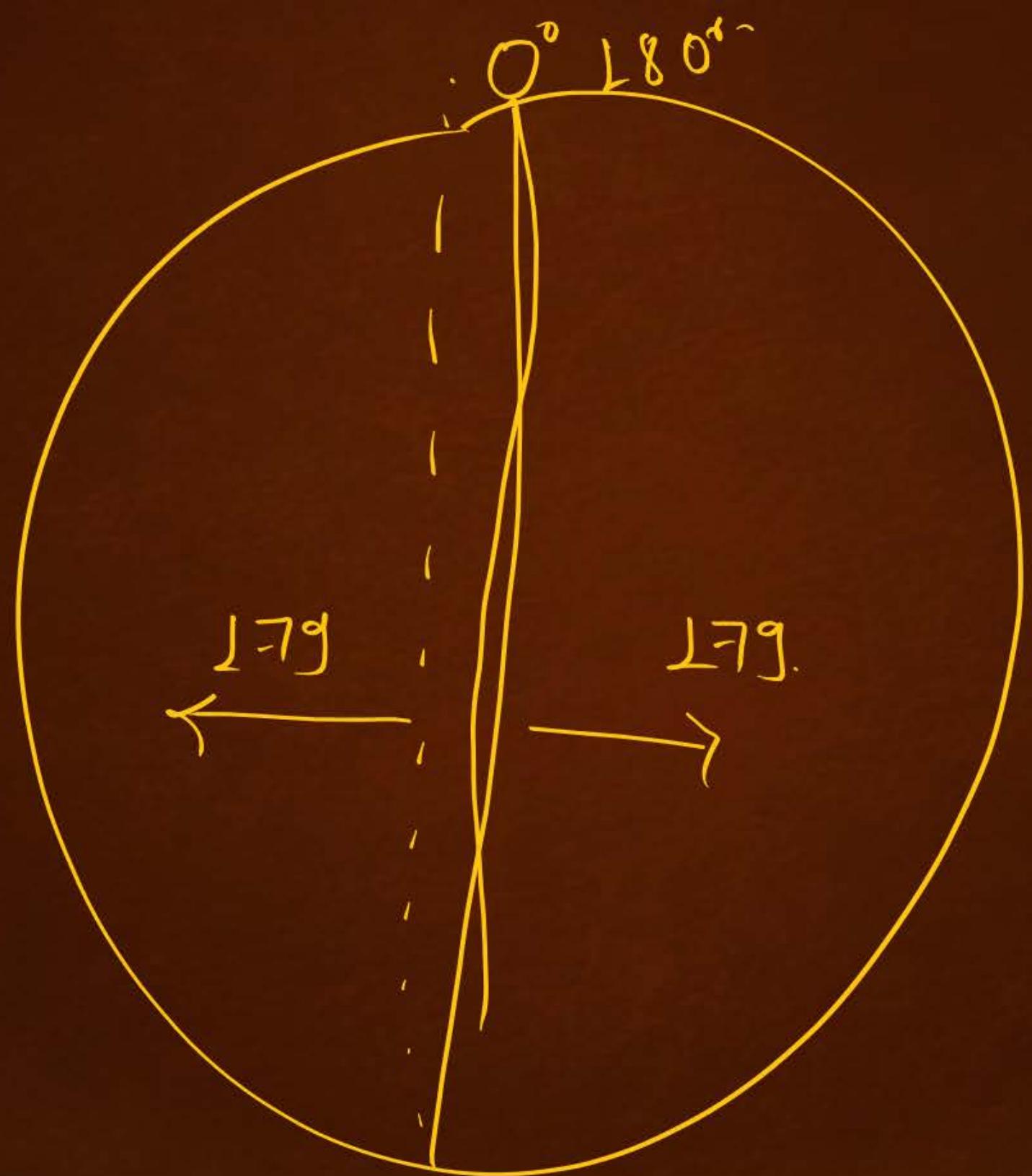
- It can be defined as the **Angular Distance** of a place east to west prime meridian.
- There are total **360 longitude**.
- All longitudes are equal.
- Longitude specify **time** of any particular place.
- The distance between two latitude is **111 km** near equator and it decrease towards pole.

of any









$$\begin{array}{c} 179 \\ 179 \\ + \end{array} \left| \begin{array}{l} \omega \\ E \\ 0^\circ \\ 180^\circ \\ 360^\circ \end{array} \right.$$

Time by longitude

$\frac{360^\circ}{24 \text{ hours}}$

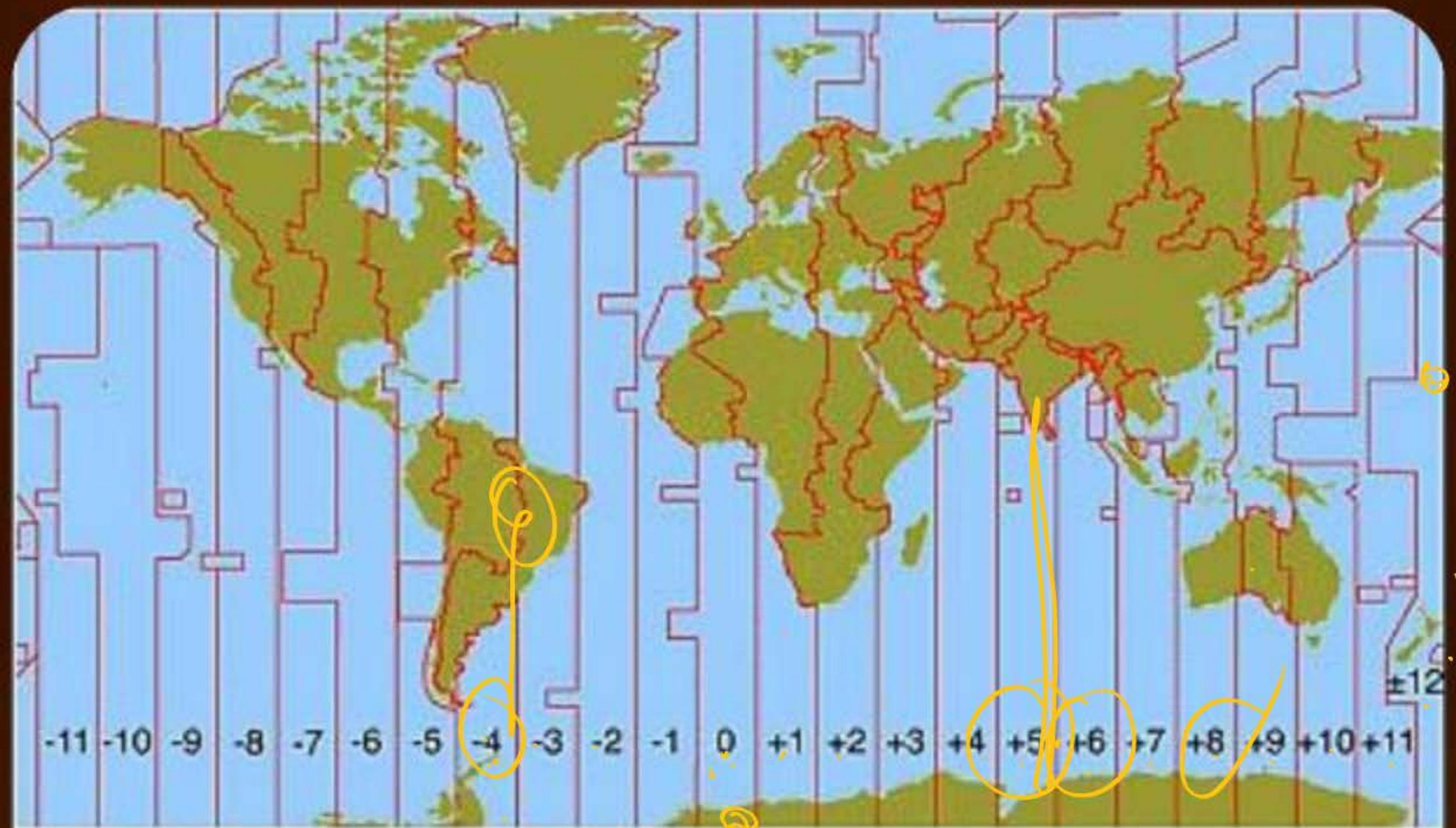
15°

1 hours =

$$\frac{360^\circ}{24}$$

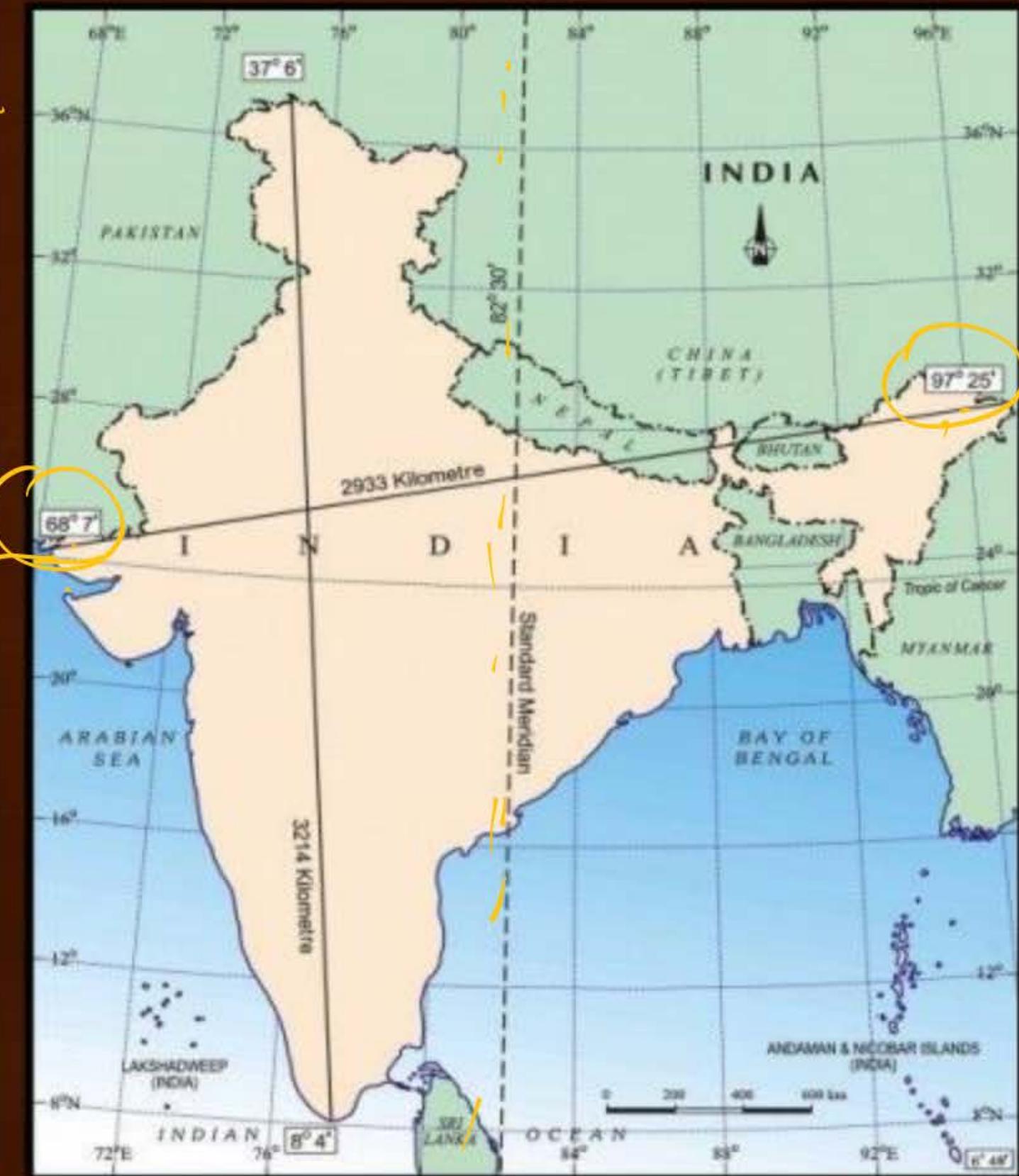
$$\underline{1 = 15^\circ}$$





Longitudinal Time Zones

Longitude Time Zones



82.5
68
97
165

+65
2

$$L = 15^\circ$$

82.5
5.30
82.5
15



4

Which one form among the following plants is largest in size?



A Earth

B Venus
C Mars
D Mercury

International date line



180°

Pacific Ocean

Zigzag shape





Formation Of Lithosphere

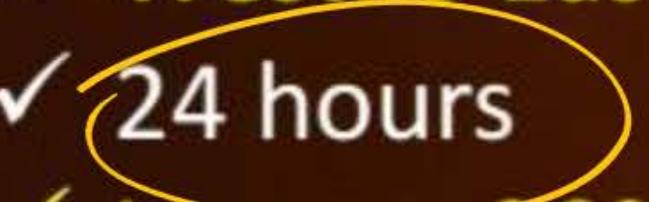


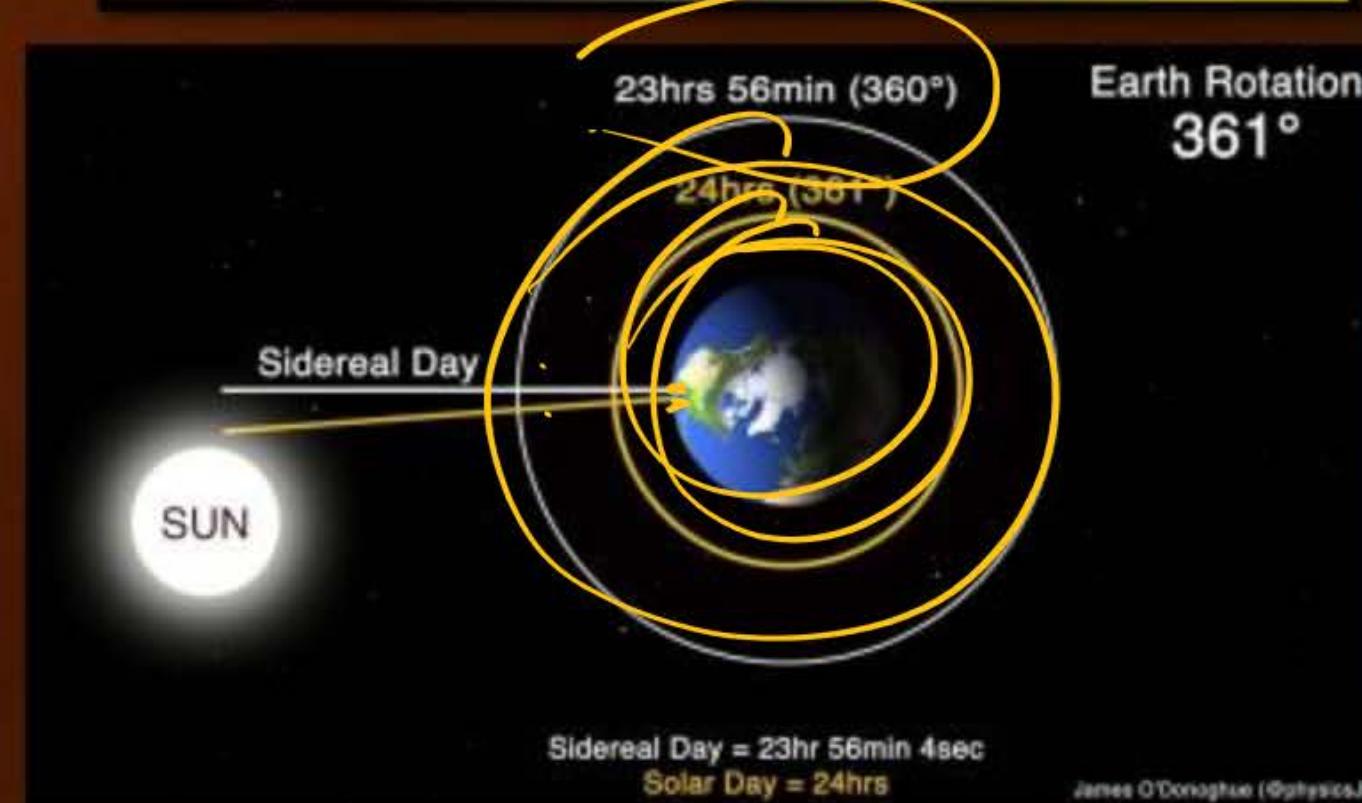
Volcanism





Rotation Of Earth

- ✓  West to East
- ✓  24 hours
- ✓ It cover 360 - degree longitudes.
- ✓ Day and night happened due to rotation.



Statement I :

Sideral day is shorter than Solar day.

Statement II :

The motion of the Earth in its orbit around the Sun is termed as revolution.

Code :

- (a) Both the statements are individually true and Statement II is the correct explanation of Statement I.
- (b) Both the statements are individually true, but Statement II is **not** the correct explanation of Statement I.
- (c) Statement I is true, but Statement II is false.
- (d) Statement I is false, but statement II is true.

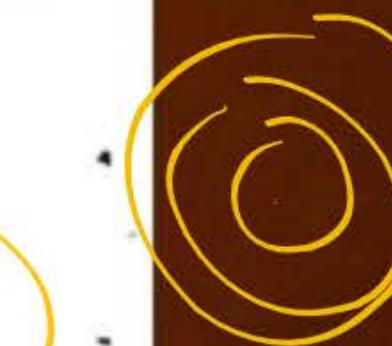
The Earth without rotational movement would result into

1. no sun-rise and sun-set.
2. no occurrence of day and night cycle.
3. only one season.

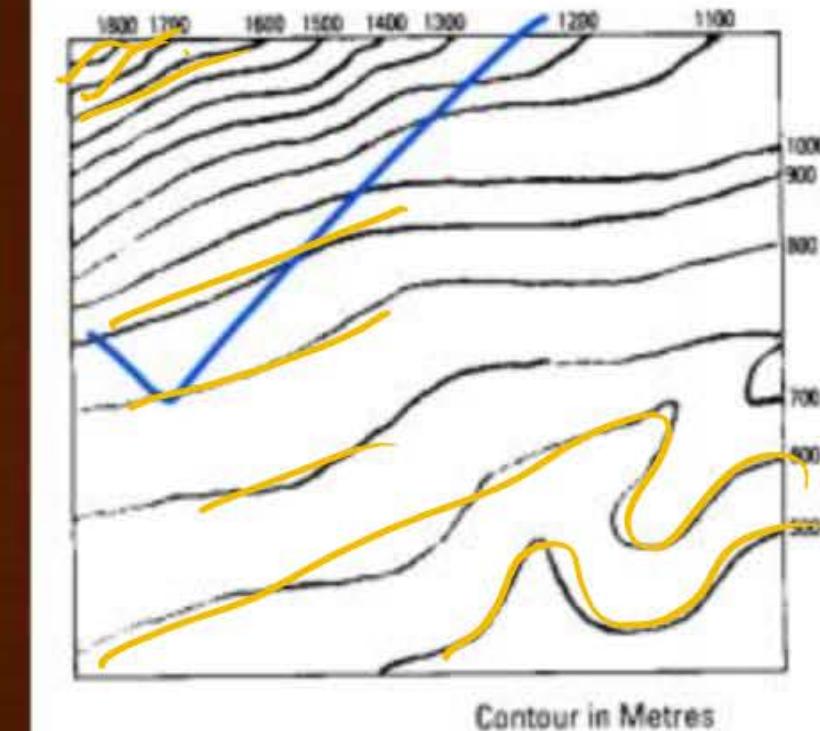
Select the correct answer using the code given below

- (a) 1 only
- (b) 1 and 2 only
- (c) 2 and 3 only
- (d) 1, 2 and 3

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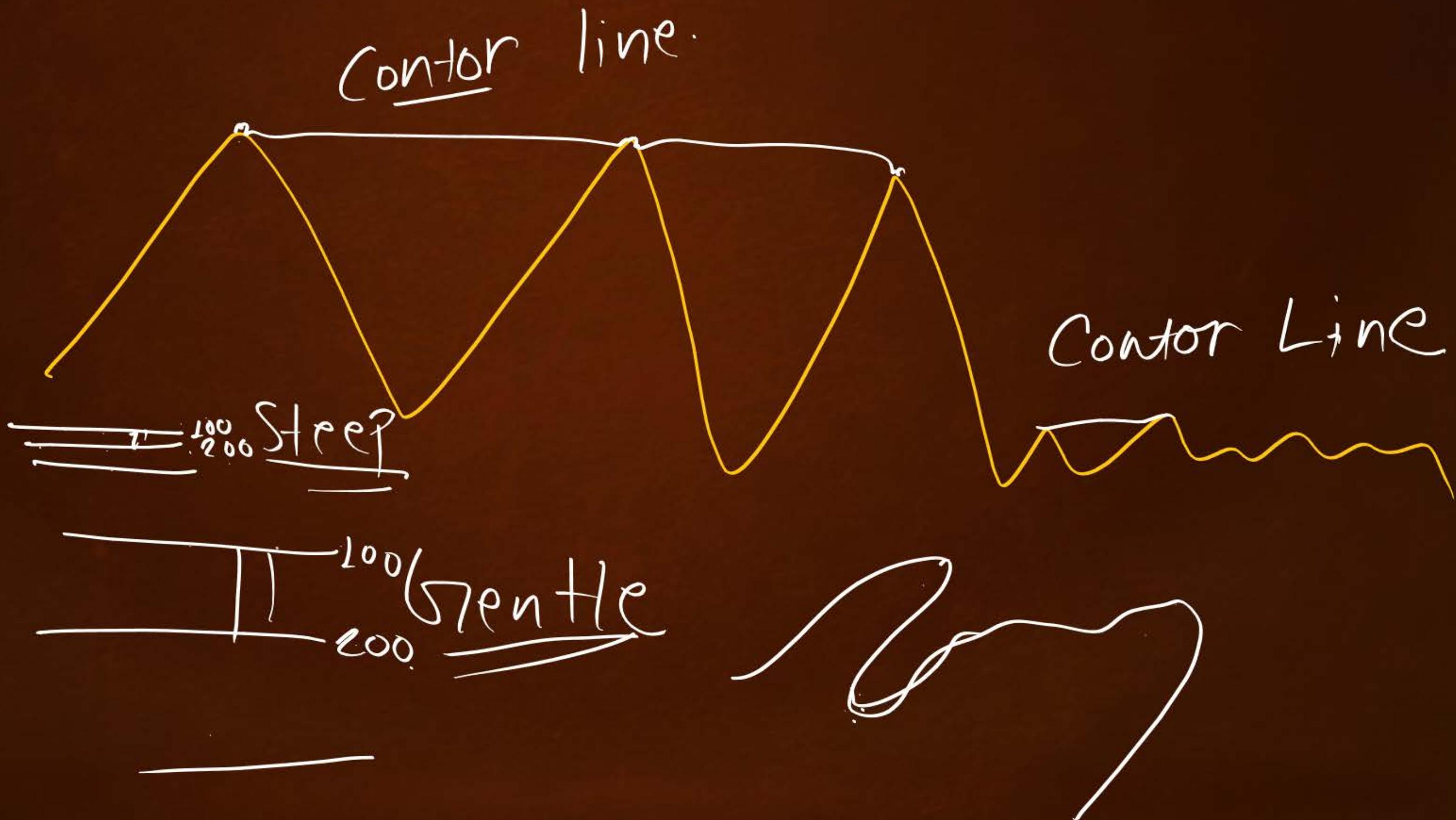
Consider the contour plot given below :



Contour in Metres

The above contours of an area indicate several relief features. Which one among the following relief features is **not** depicted here ?

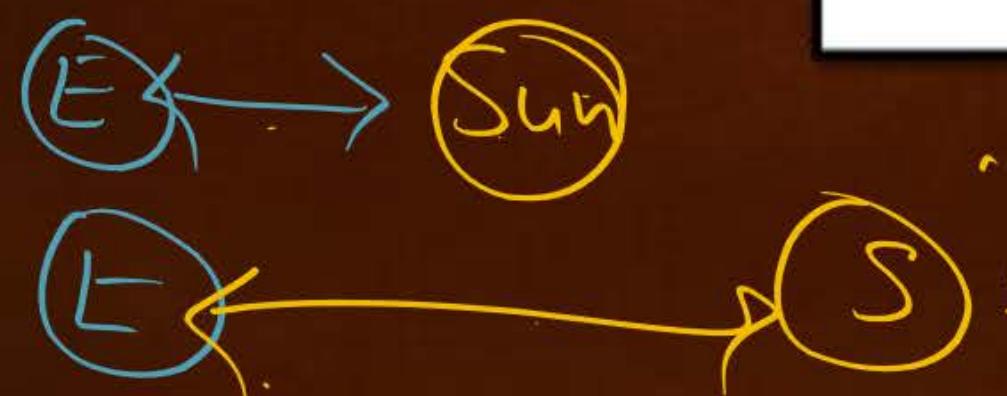
- (a) Steep slope
- (b) River valley
- (c) Conical hill
- (d) Gentle slope

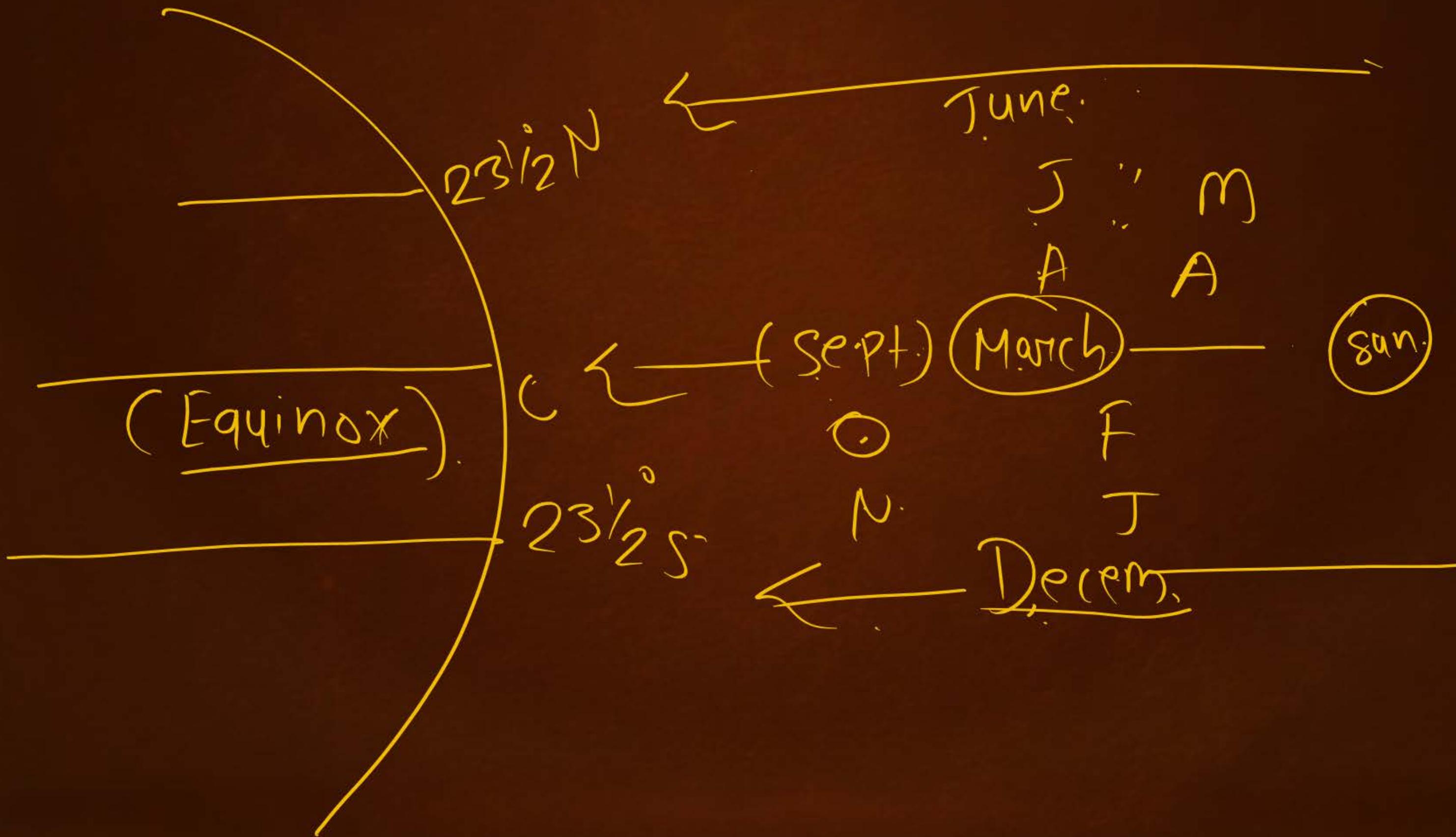




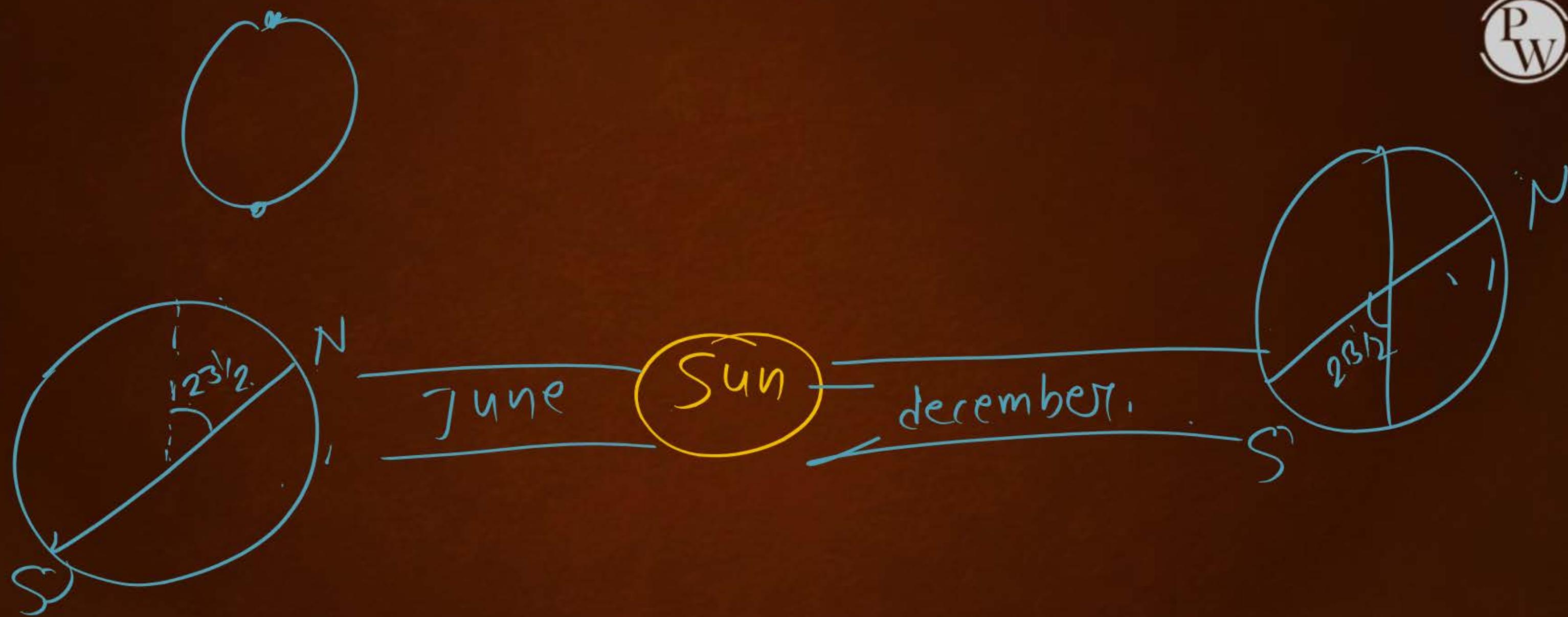
Revolution Of Earth

- Earth complete its revolution in 365 day.
- Season takes place due to earth revolution.
- Perihelion 147.9 million km
- Aphelion 152.1 million km



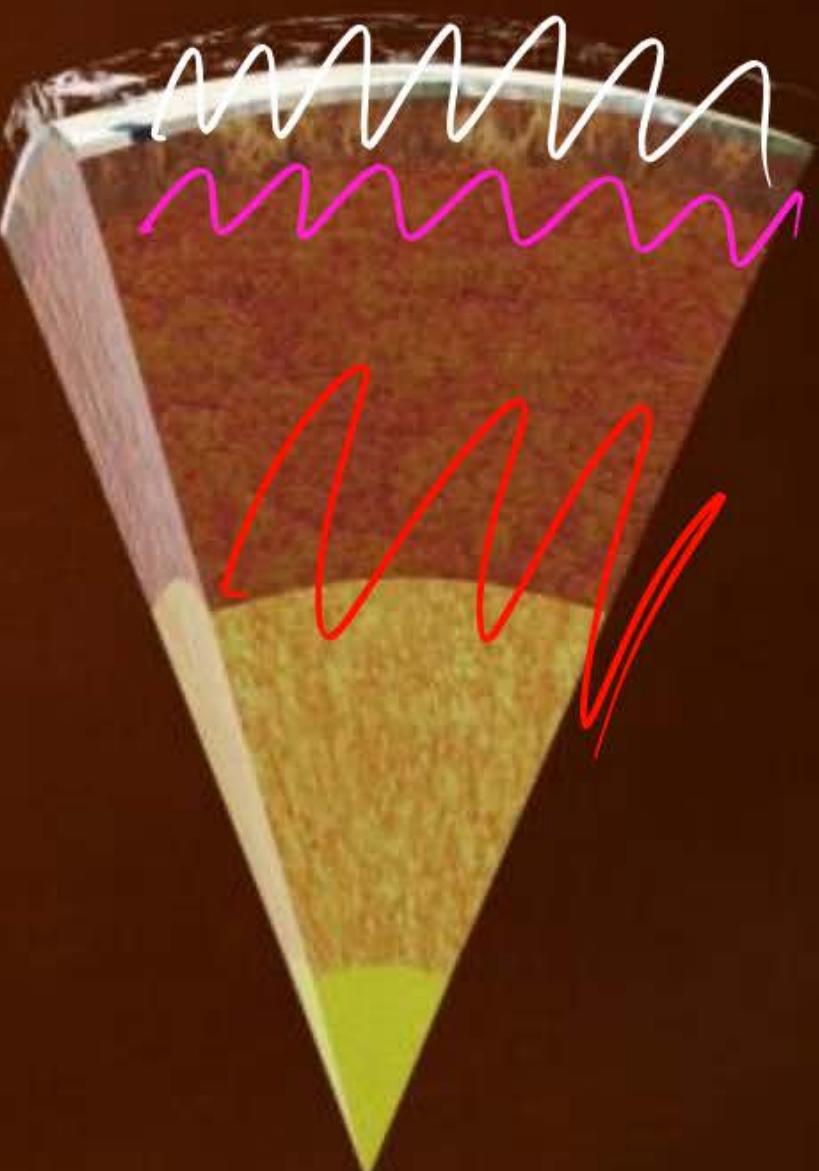


P
W





Interior Of Earth





Sources To Know About Interior Of The Earth



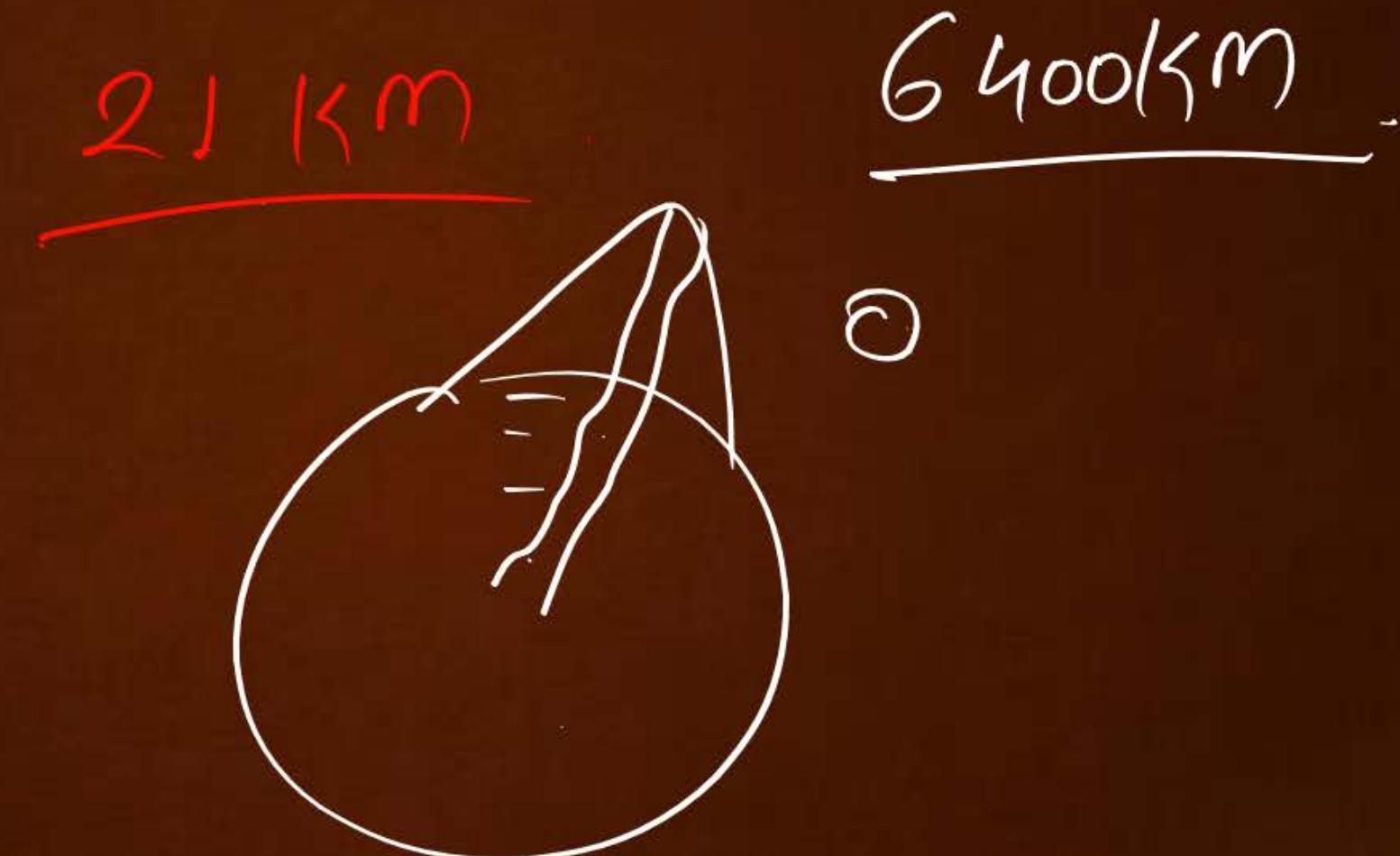
1. Direct Source

- Mining
- Volcanism

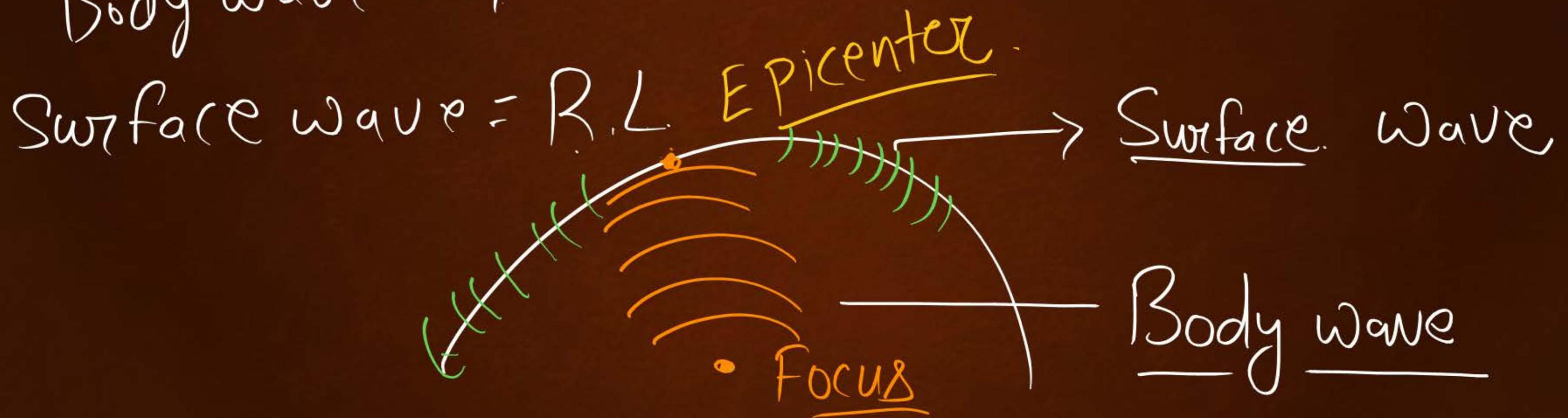


2. Indirect Source

- Seismology
- Meteorite

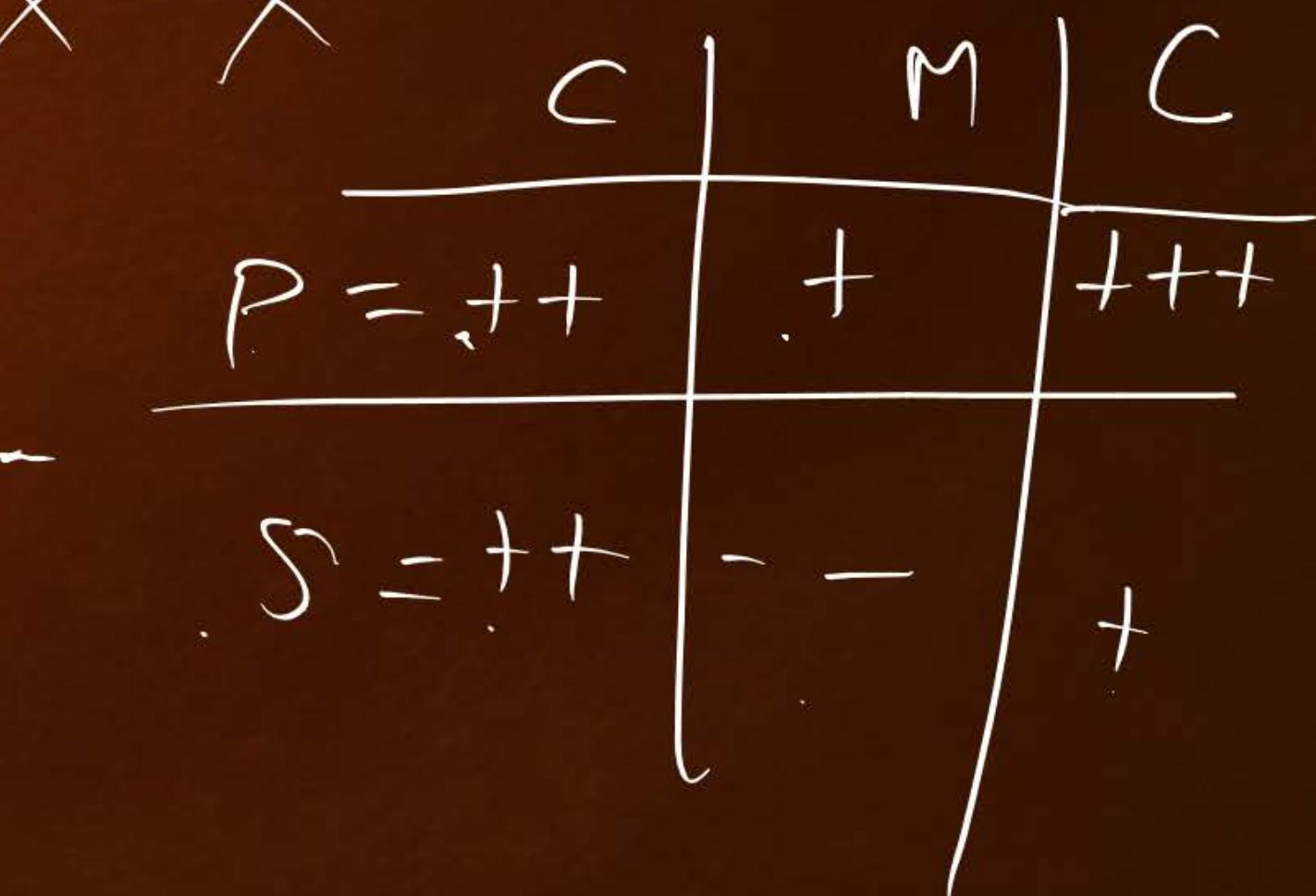


Body wave = P, S,



Primary $\omega = S \cdot L \cdot G$

Secondary $\omega = S \times X$

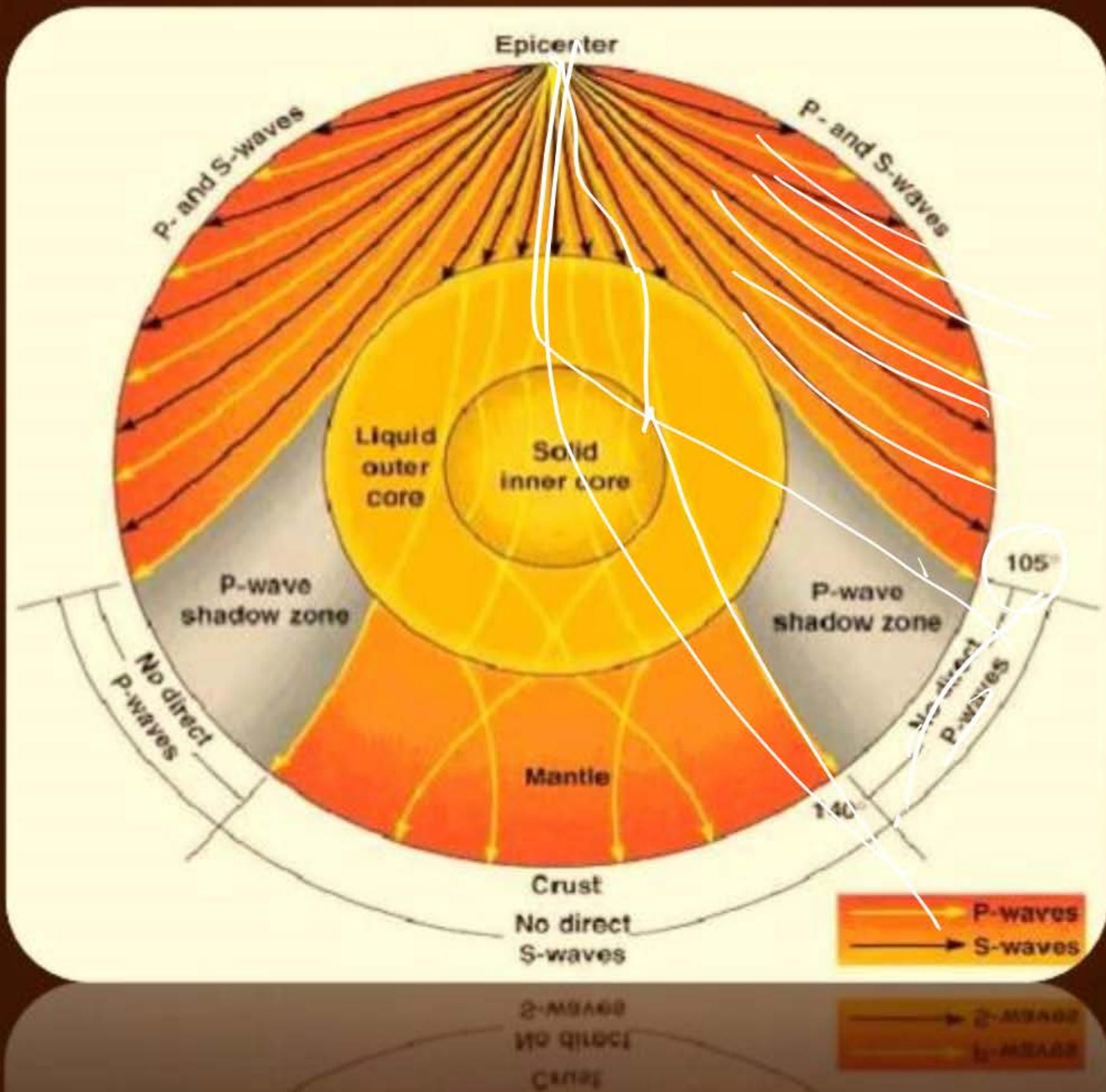


113. Which of the following is/are direct source(s) of information about the interior of the earth?

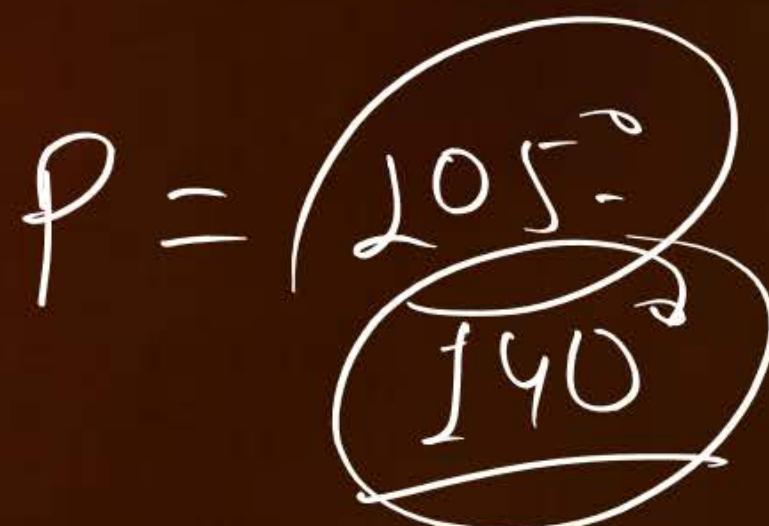
- 1. Earthquake wave
- 2. Volcano
- 3. Gravitational force
- 4. Earth magnetism

Select the correct answer using the code given below.

- (a) 1 and 2 only
- (b) 2 only
- (c) 3 and 4 only
- (d) 1, 2, 3 and 4



Black = S
Yellow = P



94. Which of the following statements relating to earthquakes is/are correct?

1. The point of origin of an earthquake is called the epicenter.
2. The lines joining the places which were affected by earthquake at the same point of time are called homoseismal lines.

Select the correct answer using the code given below.

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

X

Surface



Jai Hind •