UPSC Civil Services Examination

UPSC Notes [GS-I]

Topic: Latitudes and Longitudes [Geography Notes for UPSC]

Latitudes and Longitudes

Latitudes

Equator

- Equator is an imaginary line running on the globe that divides it into two equal parts.
- Northern half of the earth is known as the Northern Hemisphere and Southern half is known as the Southern Hemisphere.

Parallels of latitudes

- Parallels of latitudes are parallel circles from the equator up to the poles.
- They are measured in degrees.

The equator represents the zero degrees latitude. Its distance from the equator to either of the poles is one-fourth of a circle round the earth, it will measure ¼th of 360 degrees, i.e. 90°. Thus, 90 degrees north latitude marks the North Pole and 90 degrees south latitude marks the South Pole.

Important Parallels of Latitudes

- Tropic of Cancer (23½° N) in the Northern Hemisphere
- Tropic of Capricorn (23½° S) in the Southern Hemisphere
- Arctic Circle at 66½° north of the equator
- Antarctic Circle at 66½° south of the equator

HEAT ZONES OF THE EARTH

Torrid Zone

- The mid-day sun is exactly overhead at least once a year on all latitudes in between the Tropic of Cancer and the Tropic of Capricorn. It therefore, receives the maximum heat.

Temperate Zones

- The mid-day sun never shines overhead on any latitude beyond the Tropic of Cancer and the Tropic of Capricorn. The angle of the sun's rays goes on decreasing towards the poles and the Tropic of Capricorn and the Antarctic Circle in the Southern Hemisphere. They have moderate temperatures.

Frigid Zones

- Areas lying between the Arctic Circle and the North Pole in the Northern Hemisphere and the Antarctic Circle and the South Pole in the Southern Hemisphere, are very cold. It is because here the sun does not rise much above the horizon.

Longitudes

Prime Meridian

- The meridian which passed through Greenwich, where the British Royal Observatory is located. This meridian is considered as the Prime Meridian.
- Its value is 0° longitude and from it we count 180° eastward as well as 180° westward. The Prime Meridian and 180° meridian divide the earth into two equal halves, the Eastern Hemisphere and the Western Hemisphere.

Longitude and Time

- The best means of measuring time is by the movement of the earth, the moon and the planets. The sun regularly rises and sets every day.
- When the Prime Meridian of Greenwich has the sun at the highest point in the sky, all the places along this meridian will have mid-day or noon.
- As the earth rotates from west to east, those places east of Greenwich will be ahead of Greenwich Time and those to the west will be behind it.
- It can be calculated this way- The earth rotates 360° in about 24 hours, which means 15° an hour or 1° in four minutes. Thus, when it is 12 noon at Greenwich, the time at 15° east of Greenwich will be 15 × 4 = 60 minutes, i.e., 1 hour ahead of Greenwich Time, But at 15° west of Greenwich, the time will be behind Greenwich Time by one hour.

Why do we have Standard Time?

- The local time of places which are on different meridians are bound to differ.
- In India, for instance, there will be a difference of about 1 hour and 45 minutes in the local times of Dwarka in Gujarat and Dibrugarh in Assam.
- In India, the longitude of 82½° E (82° 30'E) is treated as the standard meridian. The local time at this meridian is taken as the standard time for the whole country. It is known as the Indian Standard Time (IST).