



drishti

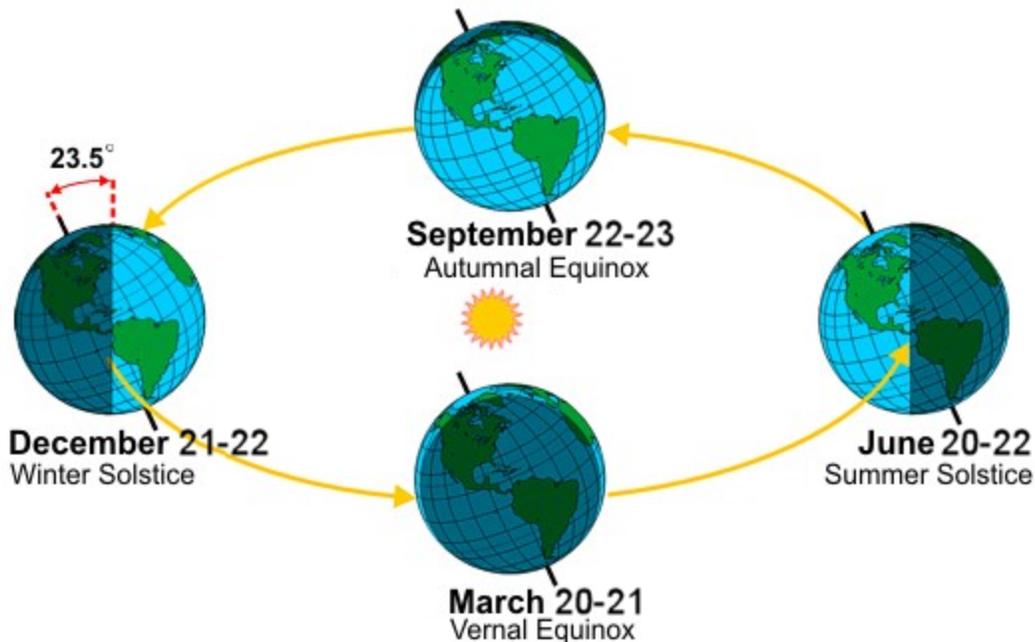
## Autumnal Equinox in Northern Hemisphere

 [drishtias.com/printpdf/autumnal-equinox-in-northern-hemisphere](https://drishtias.com/printpdf/autumnal-equinox-in-northern-hemisphere)

### Why in News

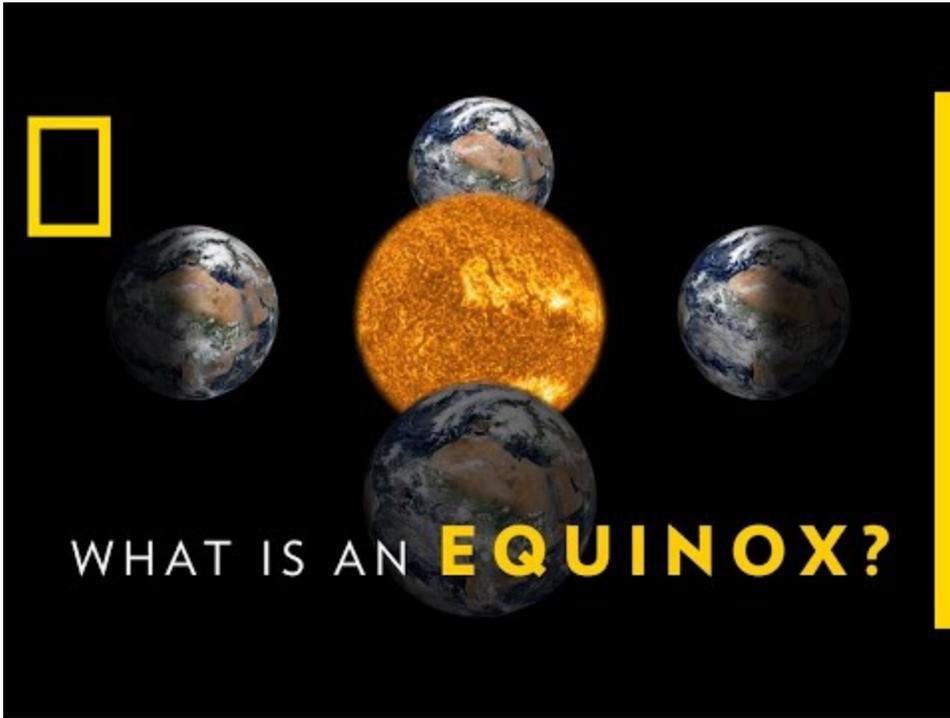
On **22<sup>nd</sup> September 2020**, the day and night was almost equal in most locations marking the **start of autumn in the Northern Hemisphere** which lasts until the **winter solstice (December 21 or 22)**.

- Similarly, the **Vernal equinox** falls around **March 21**, marking the start of spring in the **Northern Hemisphere**.
- In the **Southern Hemisphere** the seasons are **reversed (Christmas** is celebrated in **Australia and New Zealand** in the summer season).



### Key Points

- **About:**
  - The word equinox is derived from two **Latin words - aequus (equal) and nox (night)**.
  - There are only two times of the year when the Earth's axis is tilted neither toward nor away from the sun, resulting in a **nearly equal amount of daylight and darkness** at all latitudes. These events are referred to as Equinoxes.
  - The equinoxes happen in **March (about March 21)** and **September (about September 23)**. These are the days when the Sun is exactly above the Equator, which makes day and night of equal length.
  - It can be noted that the most places on Earth receive more than 12 hours of daylight on equinoxes. This is because of the **atmospheric refraction of sunlight** and **how the length of the day is defined**.
  - The equinoxes are prime time for Northern Lights – geomagnetic activities are twice more likely to take place in the spring and fall time, than in the summer or winter.
- **Varying Dates:** While the September equinox usually occurs on September 22 or 23, it can very rarely fall on September 21 or September 24.
  - This is because of the difference between how the Gregorian calendar defines a year (365 days) and the time it actually takes for **Earth to complete its orbit around the Sun (about 365 and 1/4 days)**.
  - This means that each equinox occurs about 6 hours later than the previous year's Equinox. This eventually moves the date by a day.
- **Signals Changing of Seasons:** The equinoxes along with solstices signals the changing of the seasons.
  - The seasons on Earth change because the planet is slightly tilted on its axis as it travels around the Sun. Earth's rotational axis makes an angle of **23.5° with the normal** and angle of **66.5° with the orbital plane**.
  - If Earth were not tilted, the Sun would always appear to be directly above the Equator, the amount of light a given location receives would be fixed, and there would be no seasons. There also would be no need to mark equinoxes or solstices.
- **Solstices:** The **two solstices happen in June (20 or 21) and December (21 or 22)**. These are the days when the Sun's path in the sky is the **farthest north or south from the Equator**.
  - In the **Northern Hemisphere**, the **June solstice** marks the start of summer, this is when the North Pole is tilted closest to the Sun, and the Sun's rays are directly overhead at the **Tropic of Cancer**.
  - In the **Northern Hemisphere**, the **December solstice** marks the start of winter, this is when the South Pole is tilted closest to the Sun, and the Sun's rays are directly overhead at the **Tropic of Capricorn**.



Watch Video At:

<https://youtu.be/enlih8M5DN0>