

# The Earth has recorded its shortest day since the 1960s

August 5, 2022

**In news**– On July 26 2022, the day ended 1.50 milliseconds earlier, with the Earth almost breaking the record it set on June 29 2022.

## **More information-**

- On June 29, the Earth completed one full spin a day in 1.59 milliseconds less than its routine 24 hours.
- **It was the shortest day recorded since the 1960s**, when scientists first began to use the precise atomic clocks to measure the Earth's rotational speed.
- It's been happening fairly often these days – in recent years, the Earth has been spinning ever so slightly faster.
- **On July 26, the day ended 1.50 milliseconds earlier, with the Earth almost breaking the record it set on June 29.**
- And in the year 2020 the **Earth clocked 28 of its shortest recorded days. July 19 was the shortest of these short days of 2020**, ending 1.47 milliseconds sooner.
- **A millisecond is one-thousandth of a second.** For perspective, the average blink of an eye lasts a tenth of a second, that is, for 100 milliseconds.
- While the Earth has been completing its rotations faster in recent years, when looked at over a much longer period of time, our planet is actually spinning slower.
- **Every century, the Earth takes a few milliseconds longer to complete one rotation** – and on average, days are actually getting longer.
- So, 1.4 billion years ago, a day would have ended in less than 19 hours.

## Factors responsible for days getting shorter-

- Scientists aren't entirely sure. They say that something has changed, and changed in a way we haven't seen since the beginning of precise radio astronomy in the 1970s.
- They hypothesized that **climate change-induced surface variations**, which impact the way that the Earth spins, could be a reason. These surface variations include melting ice sheets in Greenland and Antarctica, as well as changes in ocean circulation.
- **Among the many processes that affect the speed of the Earth are movements in the planet's inner molten core, seismic activity**, wind speed, and shifting atmospheric gases.
- Activities that push mass towards the centre of the Earth will hasten the planet's rotation, while anything that pushes mass outwards will slow down the spin.
- Some experts suggest that the shortened length of the day could be related to the **'Chandler wobble', a phenomenon that refers to the small deviation in the movement of Earth's geographical poles.**
- According to the Sternberg Astronomical Institute of Lomonosov Moscow State University, **this wobble has recently diminished and could be the reason behind shorter days.**
- The normal amplitude of the Chandler wobble is about three to four metres at Earth's surface, but from 2017 to 2020 it disappeared.
- **According to NASA, "the spinning Earth is affected by many factors**, including changes in the way the winds blow or currents in the ocean. **Some of these factors can act to speed the planet up, while others literally drag it down."**

What can happen if the Earth continues to spin faster on a sustained basis?

- To ensure that the time on clocks matches the speed of the Earth's rotation, **a system of leap seconds has been used since the 1970s.**
- They involve one-second adjustments to **Coordinated Universal Time (UTC)**, the time **standard used to synchronize clocks around the world.**
- Due to the long-term slowing in the planet's spin, **27 leap seconds have been added to UTC.**
- However, if the Earth continues to spin faster and days subsequently become shorter, scientists may have to introduce the **first ever 'negative leap second,'** which involves a subtraction of a second from clocks.