Does Earth's interior rotate in the opposite direction?

- Geoscientists have discovered that since 2010, the solid state in the Earth's core has been slowing down, and is now slower than the Earth's crust, causing an apparent retreat of the inner layer.

- Misunderstanding this, many people, including traditional media, spread the wrong message on social media that the Earth's interior rotates in the opposite direction.

Front & back illusion

- Earth's crust and interior rotate from west to east.

- However, the internal rotation speed is low compared to the crustal rotation speed; Hence, the appearance of spinning backwards.

Earth's structure

- Earth is layered like an onion. The top layer is called crust.

- It contains all the continents and oceans. Underneath it is a layer called Mantle, and inside it are two layers called Liquid outer core and solid inner core.

- An inner core rich in iron and nickel is in a more or less solid state at the Earth's core.

- Geological studies say that the outer core is liquid and the inner core is solid.

Inner core

- Earth revolves around itself once every twenty-four hours.

- This is just a rough cycle speed as it is.

- It turns out that the underlying layers rotate at different speeds.

- In particular, we can estimate the internal rotation from the seismic wave propagation pattern.

- It revealed that the inner core, which had been moving slightly faster than the outer surface for 40 years, is now spinning at a slower rate.

Effects

- Earth's magnetic field is due to internal rotation, so the magnetic field amplitude may be slightly reduced due to the slightly slower rotation.

- Also, the slightly slower rotating core will somewhat limit the rotation speed of the layers above it.

- Therefore, the rotation speed of the Earth is slightly reduced and the speed at which it revolves around itself can be increased by a very minute amount of one thousandth of a second.

- But the variation in earth's rotation due to ocean-atmosphere friction is so subtle that it doesn't matter.