Climate change and shift in earth's axis

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In news: According to new research, glacial melting due to global warming has probably been altering Earth's poles since at least the 1990s.

More information-

- The study is published in Geophysical Research Letters of the American Geophysical Union (AGU).
- The Earth's spin around the invisible axis running through the center of Earth's mass is dependent on the distribution of weight around the globe and it shifts just like a spinning top.
- The axis Earth spins around is always moving and the **way water is distributed on Earth's surface is one factor that drives the drift.**
- The study noted that the average drift speed between 1995 and 2020 increased about 17 times from the average speed between 1981 and 1995.
- Melting glaciers redistributed enough water to cause the direction of polar wander to turn and accelerate eastward during the mid-1990s.
- The researchers found that the **contributions of water loss from the polar regions is the main driver of polar drift, with contributions from water loss in nonpolar regions, causing the eastward change in polar drift.**
- While this change is not expected to affect daily life, it can change the length of the day by a few milliseconds, experts say.

- The calculations were based on satellite data from **NASA's Gravity Recovery and Climate Experiment (GRACE) mission** as well as estimates of glacier loss and

groundwater pumping going back to the 1980s.

- While ice melting is the major factor behind increased polar motion, groundwater depletion also adds to the phenomenon.

GRACE mission-

- The Gravity Recovery and Climate Experiment (GRACE) was a **joint mission of NASA and the German Aerospace Center (DLR).**
- Twin satellites took detailed measurements of Earth's gravity field anomalies from its launch in March 2002 to the end of its science mission in October 2017.
- Data from the GRACE satellites is an important tool for studying Earth's ocean, geology, and climate.
- The Gravity Recovery and Climate Experiment Follow-On (GRACE-FO) is a continuation of the mission on near-identical hardware, launched in May 2018.