

Shrinking Moon and Lunar Faults

Prelims: *Current events national and International importance | Science and Technology*

Why in News?

A study published in *The Planetary Science Journal* (October 2026) found more than 10,000 young faults on the Moon, linked to its gradual cooling and contraction.



- **Moon's Contraction** - The Moon's radius has shrunk by about 45 metres over the past 400 million years due to internal cooling.
- **Rate of Shrinking** - The Moon is estimated to shrink by 6-11 cm per million years.
- **Lobate Scarps** - These are small, cliff-like landforms formed by compressional forces that cause the lunar crust to wrinkle and break.
- **Moonquakes** - Slippage along lunar faults can generate moonquakes, which may occur across the Moon's surface.
- **Difference from Earth** - Unlike Earth, where most seismic activity occurs near tectonic plate boundaries, the Moon has a single-plate structure, allowing faults and moonquakes to occur across its surface.
- **Scientific Mission** - NASA's Lunar Reconnaissance Orbiter Camera (LROC) provides images used to study lunar surface features and faults.
- **Mission Relevance** - Lunar faults and moonquakes are important considerations for the safety and planning of future lunar missions, including the Artemis programme.

*The giant-impact hypothesis suggests that the **Moon** formed from debris ejected following a massive collision between the early Earth and another celestial body.*

Reference

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