



# Aditya-L1

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**Context:** ISRO's Aditya-L1 Joins Global Effort in Landmark Solar Storm Study.

## Key Findings

### Magnetic Reconnection:

- o During the storm, **Coronal Mass Ejections (CMEs)** collided in space.
- o The CMEs compressed each other, causing **magnetic field lines inside one CME to snap and reconnect** in new configurations.

### Impact:

- o Sudden reversal of magnetic field strengthened the storm.
- o Particle acceleration occurred due to increased energy, confirming the **magnetic reconnection** phenomenon.

## About Aditya-L1

**Nature:** India's **first space-based solar observatory mission**.

**Launch:** September 2023 via **PSLV-C57**.

**Orbit:** Halo orbit around **Lagrangian Point 1 (L1)**, ~1.5 million km from Earth.

**Advantage:** Continuous, uninterrupted view of the Sun.

**Payloads:** 7 scientific instruments including:

- o Visible Emission Line Coronagraph (VELC)
- o Solar Low Energy X-ray Spectrometer (SoLEXS)
- o Plasma Analyser Package for Aditya (PAPA)

## Significance for Science

Helps **understand solar storms** and their impact on Earth's magnetosphere.

Crucial for **space weather forecasting** to protect satellites, power grids, and communication systems.

Provides insights into **magnetic reconnection**, a fundamental astrophysical process in plasma physics.