Solar Cycles

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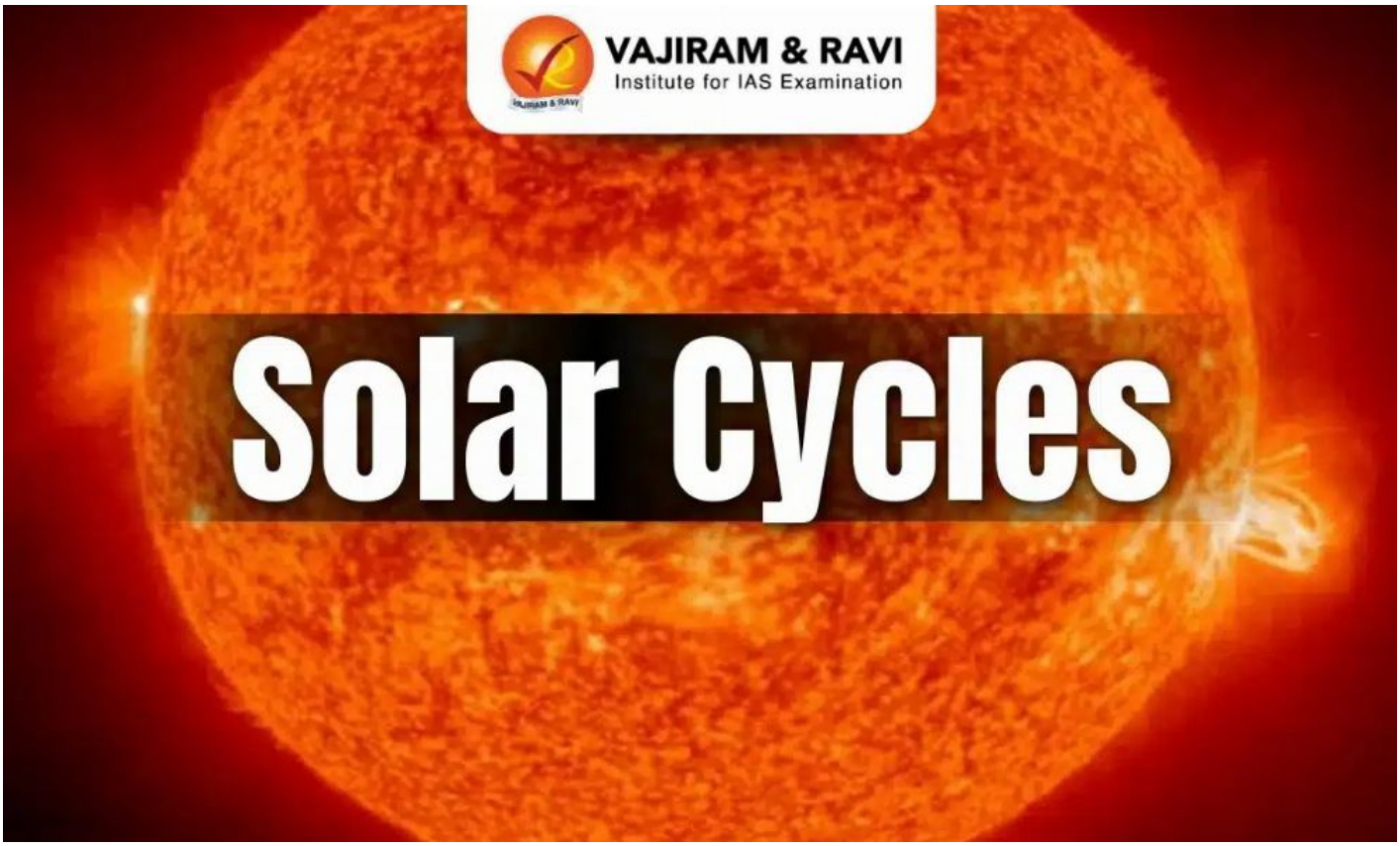

Solar Cycle Latest News

Researchers from the Indian Institute of Astrophysics (IIA) have used over 100 years of observations from the Kodaikanal solar observatory to investigate how large cellular structures known as supergranulations behave during different phases of the solar cycle.

About Solar Cycle

- It describes an **approximately 11-year cycle of solar activity** driven by the **sun's magnetic field.**
- It is indicated by the **frequency and intensity of sunspots visible** on the surface.
- Every 11 years or so, the **Sun's magnetic field completely flips.**
- This means that the Sun's north and south poles switch places. Then it takes about another 11 years for the Sun's north and south poles to flip back again.
- The solar cycle affects activity on the **surface of the Sun,** such as sunspots, which are caused by the Sun's magnetic fields.
- As the magnetic fields change, so does the amount of activity on the Sun's surface.

- It can be tracked by **counting the number of sunspots.**
- **Cycle Stages**
    - **Solar minimum:** It is the beginning of a solar cycle or when the Sun has the least sunspots.
    - Over time, solar activity—and the number of sunspots—increases.
    - **Solar maximum:** It is the middle of the solar cycle or when the Sun has the most sunspots.
    - As the cycle ends, it fades back to the solar minimum, and then a new cycle begins.
- **Impact:** The solar cycle has the **potential to impact Earth's climatic conditions** through changes in solar radiation, cosmic rays, and ozone distribution.

What is the Sun's supergranulation?

- The Sun's supergranulation **refers to a physical pattern covering the surface** of the quiet Sun with a typical **horizontal scale of approximately 30,000 km** and a **lifetime of around 1.8 d.**
- Supergranulation was **discovered by Hart** (1954) using Doppler images of the Sun.

Source: PIB
