

**06– 05 – 2024**

**News: Kodaikanal Solar Observatory**

- Recently, **Kodaikanal Solar Observatory** celebrated its 125<sup>th</sup> birth anniversary. Over the years, it has played a crucial role in advancing our understanding of solar activity and its impact on Earth's climate and space weather.

## **Solar Observatory**

- A solar observatory is a **facility or institution dedicated to observing and studying the Sun.**
- These observatories use **specialised telescopes and instruments to observe various phenomena on the Sun's surface, in its atmosphere, and in the surrounding space.**
- **Need:** The **Sun** serves as the main source of energy for life on Earth, and alterations in its surface or surrounding areas have the potential to greatly impact our Earth's atmosphere.
- **Intense solar storms and Solar flares pose significant risks to satellite operations, power grids, and navigation systems reliant on space-based technology.**

- Through solar observatories, scientists can monitor these events and predict major events that can have an impact on earth's atmosphere.

## **Kodaikanal Solar Observatory**

- The Kodaikanal Solar Observatory is a solar observatory owned and operated by the Indian Institute of Astrophysics. It was established in 1899.
- It is on the southern tip of the Palani Hills.
- The Evershed effect (apparent radial flow of gas observed in the penumbra (outer region) of sunspots on the Sun) was first detected at this observatory in January 1909.
- The establishment of the Kodaikanal Solar Observatory (KoSO) in India was motivated by the need to understand the link between solar activity and monsoons.
- The devastating Great Drought of 1875-1877 in India highlighted the potential link between solar activity and seasonal rainfall patterns.
- India, along with China, Egypt, Morocco, Ethiopia, southern Africa, Brazil, Columbia and Venezuela, suffered concurrent multi-year droughts during 1876-1878, later named the Great Drought, and an associated global famine that killed nearly 50 million.

- The Famine Commission recommended establishing a solar observatory for systematic solar observations to understand this connection.
- Charles Michie Smith, a physicist, was entrusted with finding a suitable location.
- Kodaikanal in Tamil Nadu was chosen for its clear skies, low humidity, and minimal fog.
- Madras Observatory (Chennai, 1792): In 1792, the British East India Company established the Madras Observatory, a first of its kind in this part of the world.
- Here, astronomical observations of the Sun, the Moon, bright stars and planets recorded during 1812-1825 were preserved in two large data volumes.
- It was merged with the KoSO following the reorganisation of all Indian observatories in April 1899.