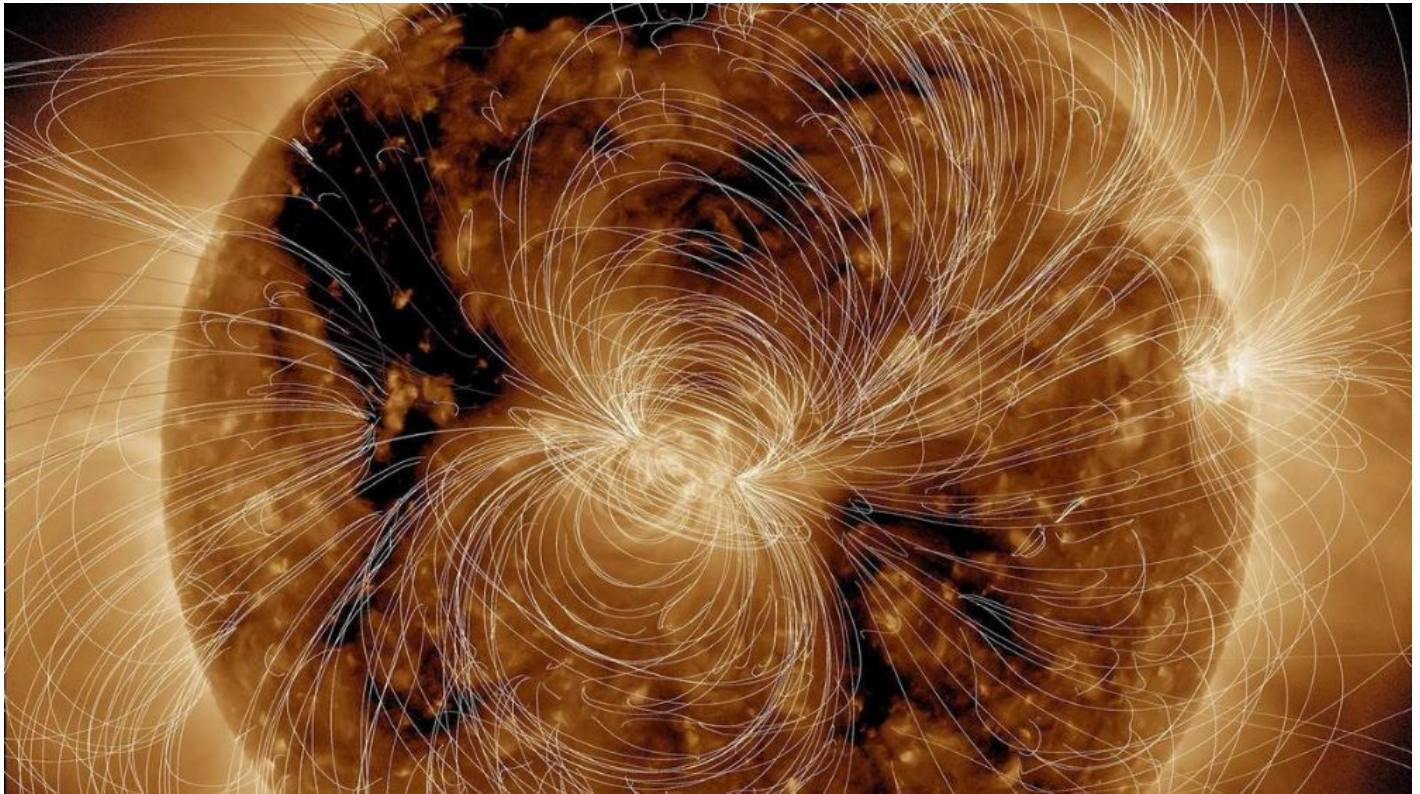


Solar Mean Magnetic Field (SMMF)

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Why in the news?

- According to the Department of Science and Technology, scientists now are one step closer to identifying the **source of the Solar Mean Magnetic Field (SMMF)**.

About Solar Mean Magnetic Field:

- It is the **mean value of the line-of-sight (LOS)** component of the solar vector magnetic field **averaged over the visible hemisphere** as well as its relationship with **Interplanetary Magnetic Field (IMF)**.
- The sun contains **the corona** (the outer shell of the sun's atmosphere), the **photosphere** (the visible surface), and the **chromosphere** (near-transparent layer, just above the photosphere) with the **magnetic field** generated by electrical currents acting as a magnetic dynamo inside the sun.
- However, so far, the studies on the SMMF have **mostly been confined to** the magnetic field measurements **at the photosphere**.
- **New Findings:**
 - Scientists in their quest to understand if and how the SMMF at chromospheric heights is related to the SMMF at photospheric heights have found a very good similarity between the two.

- The value of chromospheric SMMF is lower than the photospheric SMMF, thereby suggesting that **the primordial magnetic field inside the sun could be a source of the SMMF.**
 - They calculated and analysed the SMMF using magnetic field measurements at the chromosphere, in conjunction with that of photospheric measurements.
 - These electrical currents are generated by the flow of hot, ionised gases in the sun's convection zone.
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Q) What is Solar flare?

A solar flare is a sudden and intense eruption of energy from the Sun's surface. It is a result of the release of a large amount of magnetic energy in a relatively short period of time. Solar flares are most commonly observed in the vicinity of sunspots, which are regions of intense magnetic activity on the Sun's surface.

Source: [Scientists now one step closer to identifying the source of solar mean magnetic field: Indian Institute of Astrophysics study](#)

Source: <https://vajiramandravi.com/current-affairs/solar-mean-magnetic-field-smmf/>

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