# New Study Reveals Sun's Magnetic Field Originates Closer to Surface Than Previously Thought



A new study has provided insights into the origins of the Sun's magnetic field, suggesting it is generated much closer to the surface than previously believed. Historically, scientists thought the magnetic field originated approximately 130,000 miles beneath the Sun’s surface. However, recent modeling indicates it's produced around 20,000 miles below the surface.

This discovery, published in "Nature," could improve predictions of solar storms, which can disrupt satellites, power grids, and communications. The research modeled the Sun's magnetic field using advanced simulations of the ionized gas (plasma) flows within the Sun’s surface layers. These models showed that surface-level plasma flows were sufficient to generate magnetic fields.

Assistant Professor Daniel Lecoanet of Northwestern University emphasized the importance of understanding the Sun's magnetic field for forecasting solar activity, such as solar flares that impact Earth. Keaton Burns, a research scientist at MIT, noted the potential controversy of this new view but highlighted its closer alignment with observed solar phenomena compared to the older, deeper-origin models. This work represents a significant step in resolving one of physics' long-standing questions since Galileo’s observations in the early 1600s.