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[Abstract]

## **Geomagnetic storms and historical vulnerabilities: A solar perspective on World War II events**

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**Abstract:** The influence of solar activity on Earth extends beyond modern technological systems, with potential implications for historical events. This study explores the possible connection between solar storms and unexplained terrestrial incidents that occurred during World War II (1938–1941). By compiling over 50 documented cases—including industrial explosions, communication failures, and infrastructure disruptions—from newspapers, wartime reports, and institutional archives, we examine whether geomagnetic disturbances could have played a role in events traditionally attributed to sabotage or accidents.

Statistical and geographical analyses of magnetometer data and space weather indices reveal striking temporal correlations between intense solar storms and several unexplained incidents, such as widespread power failures and accidental detonations. Notably, the geomagnetic storm of November 1940 coincided with multiple industrial accidents across Europe and Asia, while the September 1941 storm aligned with

a large-scale explosion in Kansas City that affected over 400,000 people.

These findings suggest that geomagnetically induced currents and associated space weather phenomena may have inadvertently triggered or exacerbated sensitive terrestrial failures during this critical period. Beyond offering a new lens on historical events, this research underscores the broader significance of solar–terrestrial interactions for both past and present, highlighting the need for interdisciplinary approaches that integrate heliophysics, history, and societal resilience to space weather.

**Keywords:** Solar activity, Geomagnetic storms, Space weather, World War II, Technological disruptions.

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