



# Unexpected Frequency of Giant Solar Flares: Sun's Surprising Behavior

## Description

The sun has the potential to release powerful bursts of energy known as superflares more frequently than previously believed. These superflares, as observed in sun-like stars, could occur as often as once every century, bringing along particle storms that could have severe effects on Earth's electronics. The last major solar storm to hit Earth was over 150 years ago, hinting that we may be due for another, though uncertainties remain about the similarities between our sun and these other stars.

Although direct monitoring of the sun's activity began in the mid-20th century, historical records point to a significant solar event in 1859 known as the Carrington event. This massive solar flare was followed by a coronal mass ejection (CME) that impacted Earth, causing a geomagnetic storm that would have catastrophic consequences on today's technology.

Furthermore, studies of ancient tree rings and ice cores suggest that Earth has experienced intense particle showers in the past, perhaps due to massive solar outbursts. Recent surveys of sun-like stars, including 56,450 observations by Ilya Usoskin and his team, reveal that superflares are more common than previously thought, occurring once every century. These findings challenge our understanding of the sun's behavior and raise questions about the potential impact of such events on Earth.

While these discoveries provide valuable insights into stellar activity, more research is needed to understand the implications for our sun and its flaring patterns. Scientists like Mathew Owens emphasize the importance of accurately measuring rotation rates in stars to better predict their magnetic activity and flare occurrences.

## Vocabulary List:

1. **Superflares** /'su:.pər.flɛrɪz/ (noun): Powerful bursts of energy emitted by the sun or stars.
2. **Coronal** /kə'roʊ.nəl/ (adjective): Relating to the outermost part of the sun's atmosphere.
3. **Geomagnetic** /,dʒi:.oʊ.mæg'nɛt.ɪk/ (adjective): Pertaining to the magnetic field of the Earth.
4. **Catastrophic** /,kæt.ə'strɒf.ɪk/ (adjective): Involving a sudden and widespread disaster.
5. **Implications** /,ɪmplɪ'keɪʃənz/ (noun): Consequences or effects that may arise from an action or decision.
6. **Observations** /,ɒbzər'veɪʃənz/ (noun): The action or process of closely monitoring something or someone.

## Answer

### CATEGORY



1. Sci/Tech - LEVEL3

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**Author**

aimeeyoung99

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