

Could our Solar System be subject to a 'superflare' explosion?

NASA / SDO Our solar system could be subject to a violent "superflare" explosion from our sun sooner rather than later, researchers warn, based on a new analysis of behavior from similar stars. Stars, including our sun, regularly emit solar flares, or strong bursts of electromagnetic radiation.

What happens during a solar eruption?

This animation shows a solar eruption that produces a solar flare, a coronal mass ejection, and a flurry of energetic particles. The particles follow the spiral shape of the solar wind's magnetic fields into interplanetary space.

Did a superflare cause a solar storm?

For instance, the Carrington Event of 1859, the strongest solar storm on record, ravaged telegraph networks across the globe. But the energy released during that flare is only one-hundredth of the energy thought to be associated with a superflare, the researchers say.

How were the 4 November 2015 solar eruptions analyzed?

We begin the analysis of the 4 November 2015 solar eruptions with an overview of the source active regions, followed by the X-ray and microwave flare observations that define the initial stages of the three events. Table 1 provides a summary of these and other associated observations.

How do solar storms affect Earth?

Solar storms can have a variety of effects on Earth and our technology. Solar storms and their related phenomena all wax and wane with the Sun's 11-year cycle of activity. Such events are more common during solar maximum (or peak of the solar cycle) but are less frequent during solar minimum (or low point of the cycle).

What caused a solar flare sparked a PCA event?

The solar flare that sparked this PCA event occurred on the far side of the sun, but protons were still funneled toward the Earth thanks to a phenomenon known as the Parker spiral. The Parker spiral refers to the shape of the sun's magnetic field as it spreads out through the solar system, influenced by the sun's rotation and the solar wind.

Collisions of bodies of the solar system have played an important role in their evolution and current observable state, but the mechanics and outcomes of those collisions ...

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Simulating solar flares on a scale the size of a banana, researchers at Caltech have parsed out the process by which these massive explosions blast potentially harmful energetic particles and X-rays into the cosmos. Corona loops are arches of plasma that protrude from the surface of the sun, aligned along magnetic field lines.

The experimental device is shown in Fig. 1. The experimental pipeline system mainly includes 5 subsystems, namely, high-energy ignition device, gas distribution device, vacuum meter, explosion pipe ...

Solar flares are the most powerful explosions in the solar system -- the biggest ones can have as much energy as a billion hydrogen bombs. A solar flare flashes on the right edge of the Sun in ...

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Collisions of bodies of the solar system have played an important role in their evolution and current observable state, but the mechanics and outcomes of those collisions are not well understood. This contribution discusses the mechanics and outcomes of those impacts, melding the existing theory, recent experiments and observations ...

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