

Solar activity affects fiber optic communication



Overview

While fiber optic cables themselves are largely immune to GICs, the power infrastructure that supports internet connectivity is vulnerable. Disruption to power supplies at data centers, network exchanges, and even individual homes can lead to widespread internet outages. Solar flares can disrupt internet infrastructure through several distinct mechanisms: Ionospheric Disturbances and Radio Blackouts: X-ray and Extreme Ultraviolet (EUV) radiation from solar flares can significantly enhance ionization in the Earth's ionosphere. This increased ionization can absorb. These geomagnetic disturbances are visible in polar skies as Aurora Borealis and Aurora Australis, nature's most spectacular light shows. Their beauty notwithstanding, solar storms may have equally dramatic and potentially destructive effects: they can induce extreme voltages in electric wires. Solar radiations affect the total electron content of the ionosphere that may disturb the radio-frequencies used in telecommunications. However, this vital infrastructure is not impervious to external threats.



Article Content

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A Bad Solar Storm Could Cause an "Internet Apocalypse"

A solar storm that disrupted a number of these cables around the world could cause a massive loss of connectivity by cutting countries off at the source, even while leaving local ...

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Are internet subsea cables susceptible to solar storms

With more solar storms on the horizon, Google scientists evaluated whether subsea cables are susceptible to large-scale geomagnetic disturbances.

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Large solar storms can knock out electronics and affect the power grid ...

In addition to electrical failures, communications would be disrupted on a worldwide scale. Internet service providers could go down, which in turn would take out the ability of different ...

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How do solar storms affect telecommunications and the electricity grid?

Solar storms can disrupt this transmission in several ways, both directly (by interfering with wave propagation) and indirectly (by affecting the electrical infrastructure that powers the...

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Telecom Infrastructure Faces Solar Threat

The impact can be immediate and severe, leading to communication blackouts that can last from minutes to days. Moreover, the effects of solar flares are not limited to direct disruptions. They can ...

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Could a powerful solar storm wipe out the internet?

In order to take down the internet entirely, a solar storm would need to interfere with the ultra-long fiber optic cables that stretch beneath the oceans and link continents.

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Solar Flares Threaten Tech and Communications Systems

The impact of solar flares on our communication systems is an urgent concern, and understanding these effects is essential for developing strategies to mitigate these disruptions.

Dec 06, 2025

Do Solar Flares Affect the Internet?

The vast network of subsea fiber optic cables, the backbone of global communication, presents a unique vulnerability. While the glass fiber is immune to magnetic fields, the cables contain metallic ...

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Are solar flares causing Internet problems?

While the internet relies primarily on fiber optic cables and satellite links rather than HF radio, these radio blackouts can disrupt critical backup communication systems and emergency ...

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The effect of solar radiation on Telecommunications

In the present work, we have shown that the effect of various solar activities that effects the electron densities of the ionosphere and how they affect our telecommunication system. During solar ...

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