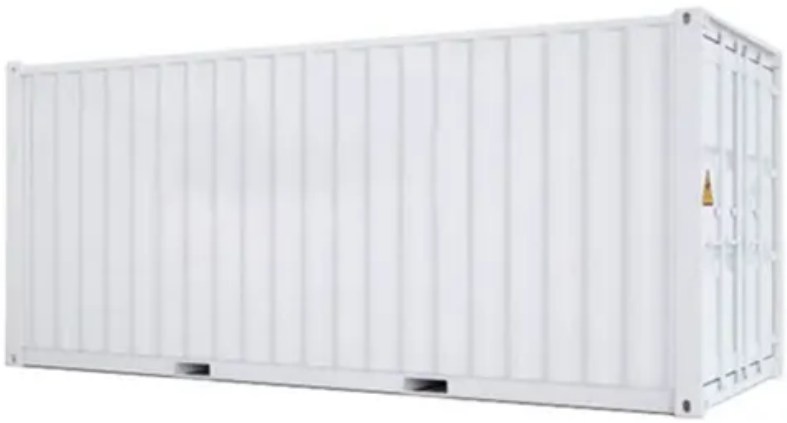
Power Solutions

Solar container in magnetic field



Overview

Earth's magnetic field generates an invisible bubble around our planet, called the magnetosphere. The magnetosphere is a bit like a magnetic shield that surrounds the planet, protecting us from many types of radiation from the Sun. Grasping what drives that magnetic system is crucial for understanding the nature of space throughout the solar system: The sun’s invisible magnetic field is responsible for everything from the solar explosions that cause space weather on Earth – such as auroras – to the interplanetary magnetic. ISRO's Aditya-L1 solar mission has revealed new details about solar storms. A recent study analyzed a major space weather event from October 2024. The turbulent region of the storm significantly compressed Earth's magnetic field. This exposed satellites in geostationary orbit to harsh conditions. Explore how the Earth magnetic field creates vital space radiation protection, shielding the atmosphere, technology, and life from solar wind, cosmic rays, and energetic particles. Pixabay, Terranaut Earth's magnetic field creates an invisible yet powerful shield that helps make Earth habitable in. The Indian Space Research Organisation (ISRO) on Saturday (January 10, 2026) said its Aditya-L1 solar mission has provided new insights into how a powerful solar storm can impact Earth’s magnetic shield. “The most severe effects occurred during the impact of the turbulent region of the solar. Earth's magnetic field generates an invisible bubble around our planet, called the magnetosphere. The magnetosphere is a bit like a magnetic shield that surrounds the planet, protecting us from many types of radiation from the Sun. The Sun releases a constant stream of electromagnetic and particle. ISRO's Aditya-L1 mission finds major breakthroughs in space weather, from magnetic field compression to atmospheric heating. Published: January 11, 2026 11:31 IST, Updated: January 11, 2026 11:31 IST ISRO announced on Saturday that its Aditya-L1 solar mission has yielded new insights into how.

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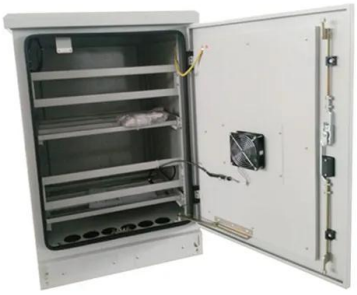
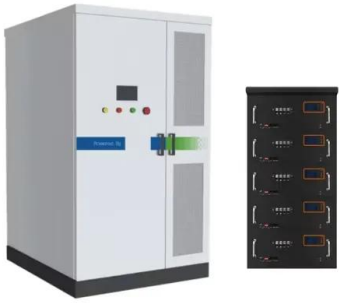


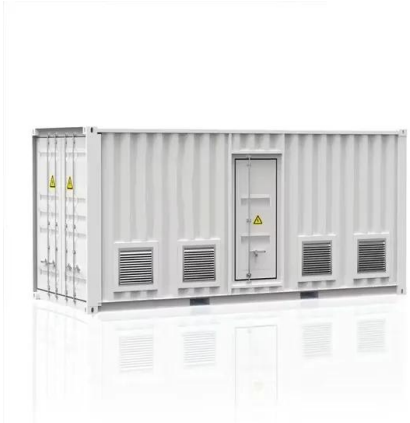
Rare solar flare reveals where gamma rays come from

Magnetic fields power the flare Stored magnetic energy can convert into particle motion during magnetic reconnection. In this process, field lines snap and rejoin, releasing stored energy. In ...

Earth Magnetic Field: The Invisible Shield Powering Earth's Space

Explore how the Earth magnetic field creates vital space radiation protection, shielding the atmosphere, technology, and life from solar wind, cosmic rays, and energetic particles.



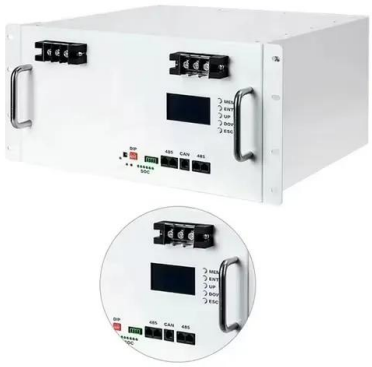


Planetary K-index , NOAA / NWS Space Weather Prediction Center

The K-index, and by extension the Planetary K-index, are used to characterize the magnitude of geomagnetic storms. Kp is an excellent indicator of disturbances in the Earth's ...

Magnetic Field

As the magnetic field lines writhe and gather, they interact with each other, creating something similar to a short circuit. This is called magnetic reconnection, which allows the magnetic field to unwind itself ...

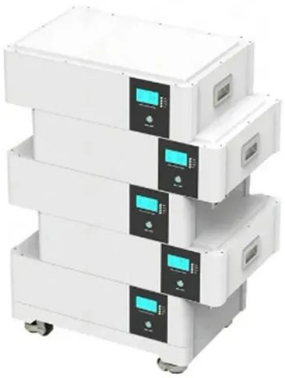


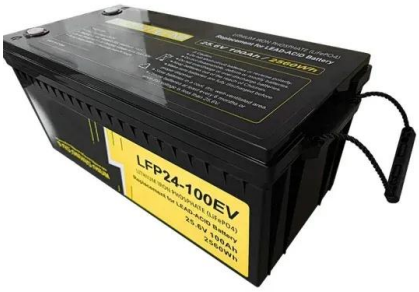
A magnetic switchback has been spotted near Earth -- for the very

? A magnetic switchback has been spotted near Earth -- for the very first time. These sudden zigzag kinks in the Sun's magnetic field were once thought to happen only millions of kilometers away in the ...

Faraday cage

Faraday cages cannot block stable or slowly varying magnetic fields, such as the Earth's magnetic field (a compass will still work inside one). To a large degree, however, they shield the interior from ...



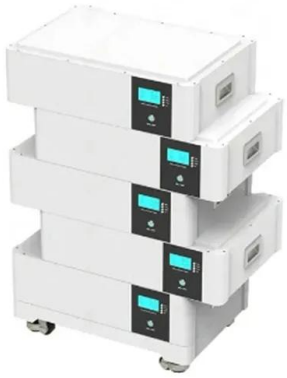


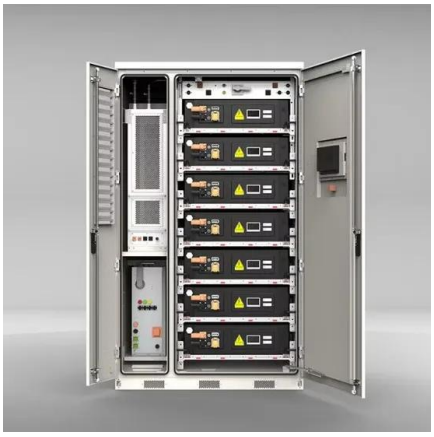
What Causes the Cycle of Solar Activity?

As the hot plasma rises, the Sun's rotation causes it to twist, which twists the toroidal field lines and converts them back into a poloidal field. This continuous conversion loop is the self ...

How do solar storms impact Earth's magnetic field?

ISRO's Aditya-L1 solar mission has revealed new details about solar storms. A recent study analyzed a major space weather event from October 2024. The turbulent region of the storm ...



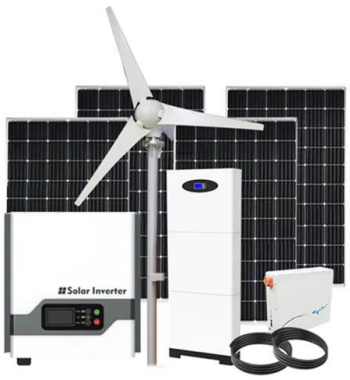


Magnetic field effect in solar stills: A critical review

The magnetic field (MF) effect has demonstrated the capability to disrupt the bonding between water molecules and salt ions in saline water, thereby enhancing the water evaporation ...

The Magnetic Sun

Now we know that there are magnetic structures. The second question is: what they are and how do we know about their shapes? The shape of it is determined by the strength of its magnetic field. ...

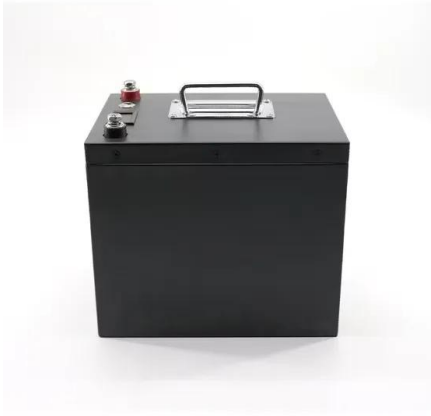


Sun news: Incoming sunspot fires an M flare

Sun news for January 14-15, 2026. Solar activity climbed to moderate levels after an M1.6 flare yesterday evening from an incoming region in the east. This view was captured by the GOES-19 ...

Northern Lights Guide 2026: When & Where to See the Aurora Borealis

Scientific guide to viewing the Aurora Borealis during Solar Cycle 25. Learn optimal timing, prime locations, and how to use real-time space weather data to maximize your chances of seeing the ...

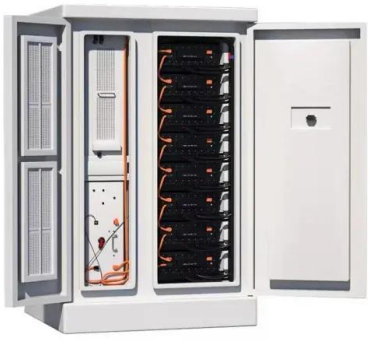


CME and coronal hole influences cause G1-G2 geomagnetic ...

A long-duration M3.3 flare erupted from just beyond the east-southeast limb at 23:14 UTC on January 11, 2026, as CME and coronal hole influences continued to disturb the solar wind ...

ISRO's Aditya-L1 finds how solar storm impact on Earth's magnetic field

How do solar storms impact Earth? ISRO's Aditya-L1 mission finds major breakthroughs in space weather, from magnetic field compression to atmospheric heating.

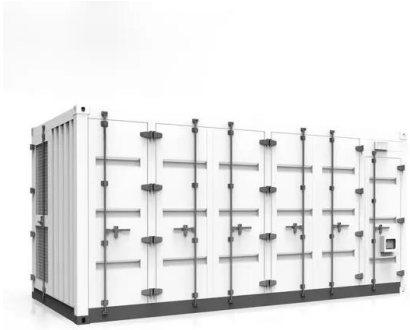


Astronomers now say the moon is eating up molecules from Earth's ...

Particles from Earth's atmosphere have been carried into space by solar wind and landing on the moon for billions of years, mixing into the lunar soil, according to a new study.

NASA: Understanding the Magnetic Sun

They combine their observations - measurements of the magnetic field strength and direction on the solar surface - with an understanding of how solar material moves and magnetism to ...



A solar region erupted for 94 straight days, should we worry?

By tying specific flares and eruptions to the geomagnetic storms that followed, scientists can better calibrate how a given solar blast translates into disturbances in Earth's magnetic field and

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