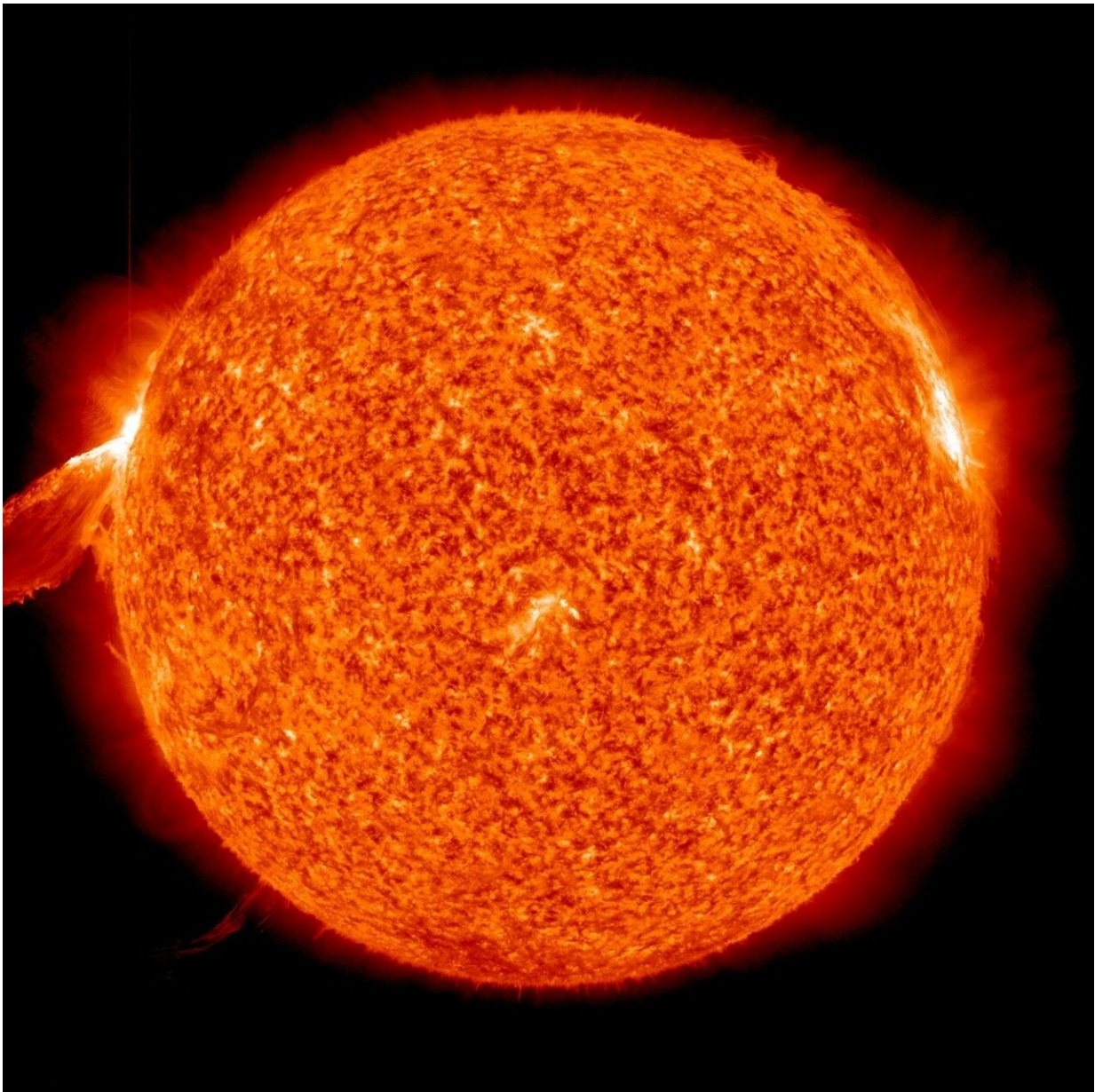


Space storms could cause chaos without forecast developments

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Credit: Pixabay/CC0 Public Domain

The world is unprepared for the next big storm from outer space, an overwhelming majority of scientists agree.

Nine in ten space weather experts said that without accurate forecasting of space weather, Earth would suffer serious damage to its infrastructure. Of the 144 scientists surveyed on the dangers of [geomagnetic storms](#), just over half said current forecasting capabilities were not good enough to prevent space weather wreaking havoc back home.

Carried out by the University of Reading and Apollo Academic Surveys, [the study](#) indicates that 90% of respondents think a major space storm would cause damage to satellites and lead to widespread communication issues. Four in five scientists would expect [power outages](#) as a result of a large disturbance from space.

Dr. Luke Barnard, a University of Reading space weather expert who co-created the survey, said, "Space storms could seriously impact our technology-based way of life. Electricity blackouts could last from a matter of hours up to a number of days. Getting around in cars and planes would be very difficult if GPS struggles due to faulty satellites and some radio communications fail.

"The overwhelming majority of space weather experts think we are not adequately prepared to avoid the impacts of the worst solar storms. Scientists generally agree that we need to get more observations of the sun and space to help understand and forecast space weather, and to improve the computer models we use to forecast it. Developments in space weather forecasting would enable people to plan better and avoid

the most serious impacts of solar storms."

Survey results

Geomagnetic storms occur when particles and a magnetic field from the sun—which are known as the [solar wind](#)—come into contact with the Earth's own [magnetic field](#). These storms are responsible for creating the intense Northern Lights, but they can also damage technologies on the ground—such as power grids—and in space.

The space weather experts surveyed were asked a range of questions about the risks posed by geomagnetic storms. View the full set of results [here](#).

- 51% believe that the magnitude of future geomagnetic storms could surpass even the largest storms recorded in the past two centuries, including the historic 1859 Carrington Event.
- Opinions on when the unplanned regional power outages caused by space weather might occur next varied, but experts thought there was a 33% chance unplanned regional power outages would occur within the next 10 years.
- Approximately 40% of participants expressed doubts about the current accuracy of space weather forecasts.

Blank check

When asked how \$1 billion could be best used to enhance space-weather forecasting, a significant number of the experts surveyed proposed the deployment of constellations of small satellites near the sun.

These satellites would provide direct measurements of the solar wind

before its arrival at Earth, enabling more accurate predictions and proactive actions.

Others said funding should be invested in [ground-based telescopes](#) for 24-hour [space weather](#) monitoring and the creation of more research and data analysis jobs and projects.

Provided by University of Reading

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