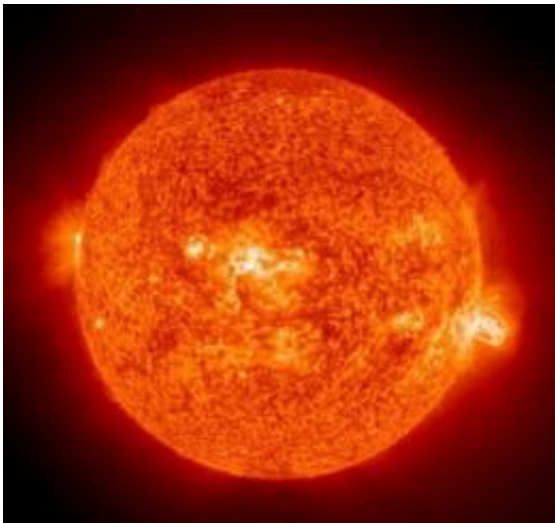


Space weather could wreak havoc in gadget-driven world

February 20 2011, by Kerry Sheridan



A NASA image of an erupting solar flare. A geomagnetic space storm sparked by a solar eruption like the one that flared toward Earth Tuesday is bound to strike again and could wreak havoc on Earth

A geomagnetic space storm sparked by a solar eruption like the one that flared toward Earth Tuesday is bound to strike again and could wreak havoc across the gadget-happy modern world, experts say.

Contemporary society is increasingly vulnerable to space weather because of our dependence on satellite systems for synchronizing computers, airline navigation, telecommunications networks and other electronic devices.

A potent solar storm could disrupt these technologies, scorch satellites, crash stock markets and cause power outages that last weeks or months, experts said Saturday at the American Association for the Advancement of Science's annual meeting.

The situation will only get more dire because the solar cycle is heading into a period of more intense activity in the coming 11 years.

"This is not a matter of if, it is simply a matter of when and how big," said National Oceanic and Atmospheric Administration administrator Jane Lubchenco.

"The last time we had a maximum in the solar cycle, about 10 years ago, the world was a very different place. Cell phones are now ubiquitous; they were certainly around (before) but we didn't rely on them for so many different things," she said.

"Many things that we take for granted today are so much more prone to the process of space weather than was the case in the last solar maximum."

The experts admitted that currently, little that can be done to predict such a storm, much less shield the world's electrical grid by doing anything other shutting off power to some of the vulnerable areas until the danger passes.

"Please don't panic," said Stephan Lechner, director of the European Commission Joint Research Center, drawing laughter from the scientists and journalists in the audience. "Overreaction will make the situation worse."

The root of the world's vulnerability in the modern age is global positioning systems, or GPS devices, that provide navigational help but

also serve as time synchronizers for computer networks and electronic equipment, he said.

"GPS helped and created a new dependency," said Lechner, noting that the technology's influence extends to aerospace and defense, digital broadcast, financial services and government agencies.

In Europe alone, there are 200 separate telecommunication operators, and "nothing is standardized," he said.

"We are far from understanding all the implications here," he said.

World governments are hurrying to work on strategies for cooperation and information sharing ahead of the next anticipated storm, though forecasters admit they are not sure when that may occur.

"Actually we cannot tell if there is going to be a big storm six months from now but we can tell when conditions are ripe for a storm to take place," said the European Space Agency's Juha-Pekka Luntama.

On Tuesday at 0156 GMT, a huge solar eruption, the strongest in about five years, sent a torrent of charged plasma particles hurtling toward the Earth at a speed of 560 miles (900 kilometers) per second.

The force of the Class X flash, the most powerful of all solar events, lit up auroras and disrupted some radio communications, but the effects were largely confined to the northern latitudes.

"Actually it turned out that we were well protected this time. The magnetic fields were aligned parallel so not much happened," said Luntama.

"In another case things might have been different."

Space storms are not new. The first major solar flare was recorded by British astronomer Richard Carrington in 1859.

Other solar geomagnetic storms have been observed in recent decades. One huge solar flare in 1972 cut off long-distance telephone communication in the midwestern state of Illinois, NASA said.

Another similar flare in 1989 "provoked geomagnetic storms that disrupted electric power transmission" and caused blackouts across the Canadian province of Quebec, the US space agency said.

A panel of NASA-assembled scientists issued a report in 2009 that said a powerful solar flare could overwhelm high-voltage transformers with electrical currents and short-circuit energy grids.

Such a catastrophic event could cost the United States alone up to two trillion dollars in repairs in the first year -- and it could take up to 10 years to fully recover, the report said.

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