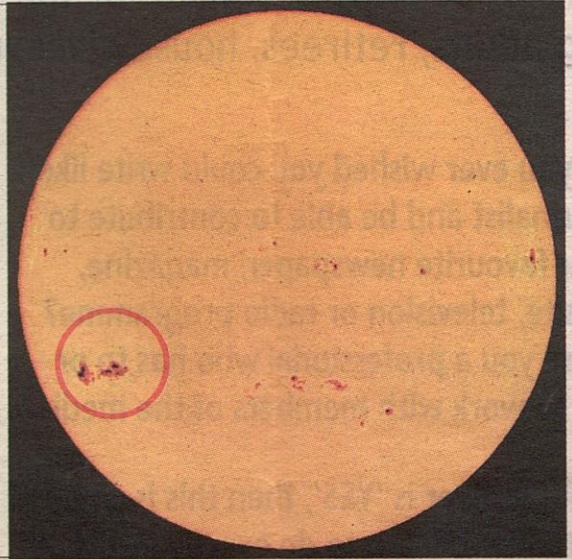


The most docile sun in a century?

Scientists are seeing the lowest levels of solar activity since 1913, when few sunspots (circled in red) were observed. This means a dip in magnetic fields. While this brings temporary benefits like lower temperatures and a more accurate global positioning system, a spike is anticipated in the coming years



THE sun has been unusually quiet lately, with fewer sunspots and weaker magnetic fields than in nearly a century.

A quiet sun is good for Earth. Global positioning systems are more accurate, satellites stay in orbit longer, even the effects of manmade global warming are marginally reduced, though just by three-tenths of a degree at most.

It's all a part of the strange but regular cycles of the sun's activity. Scientists don't know why it happens, but "for humankind it's probably a good thing," says David Hathaway, chief solar physicist at Nasa's Marshall Space Flight Centre.

This lower activity is shrinking our atmosphere a bit, too. Researchers at the University of Texas in Dallas found the Earth's upper atmospheric boundary about 125 miles lower than normal, its lowest in the history of the space age. Again, not a problem. The sun isn't bombarding the Earth with the usual amount of short-wave radiation that expands the atmosphere.

For centuries, people have been counting sunspots, which are cooler, darker areas of intense magnetic fields that form on the sun's surface. The number of sunspots in recent months has been the lowest since 1913, according to Nasa. Scientists

are looking as far back as the early 1800s for similar quiet periods. They generally last about five years. This quiet spell, which started in 2007, may follow suit.

Scientists last fall were fooled when sunspot activity briefly ramped up and experts figured the quiet cycle was over. They were wrong.

Marc Hairston, a space scientist at UT-Dallas, compared it with the stock market. Just when you think it can't sink anymore, it does.

"This is the lowest we've ever seen. We thought we'd be out of it by now, but we're not."

Generally sunspots, the easiest measurement of solar activity, follow a predictable 11-year cycle of high, then low, activity.

During the last high solar period, there were sunspots every day — sometimes hundreds of them — from January 1998 to February 2004. So far this year, there have been only 14 days with sunspots. The sun is more spot-free now than it was last year when scientists thought solar action had hit bottom.

Thomas Bogdan, director of the National Oceanic and Atmospheric Administration's Space Weather Prediction Centre said solar activity should be increasing "anytime now".

Others think this may be a replay of

1913 or the even deeper solar ditch of 200 years ago, the Dalton Minimum. The deepest ditch of all was in the 1600s.

A deep minimum probably drops global temperatures temporarily about two-tenths to three-tenths of a degree Fahrenheit, not nearly enough to make up for global warming, says Tom Woods of the University of Colorado's atmospheric and space physics lab.

Generally the heating effect from manmade greenhouse gases is 13 times greater than the variations from solar activity, said Ralph Cicerone, president of the National Academy of Sciences and an expert in atmospheric sciences.

Heavy solar radiation slows down electrons and creates radio waves that interfere with the frequencies used by GPS receivers. So, during high solar activity peaks, GPS tracking can be off by nearly a football field because of the distortion from receivers to satellites, says Bogdan.

But during solar minimums like the current one, GPS is accurate to within 30cm or so, he says.

The sun's shrinking of Earth's atmosphere reduces the physical drag on satellites and space junk, keeping both the good and the bad in orbit, Hathaway said. — AP