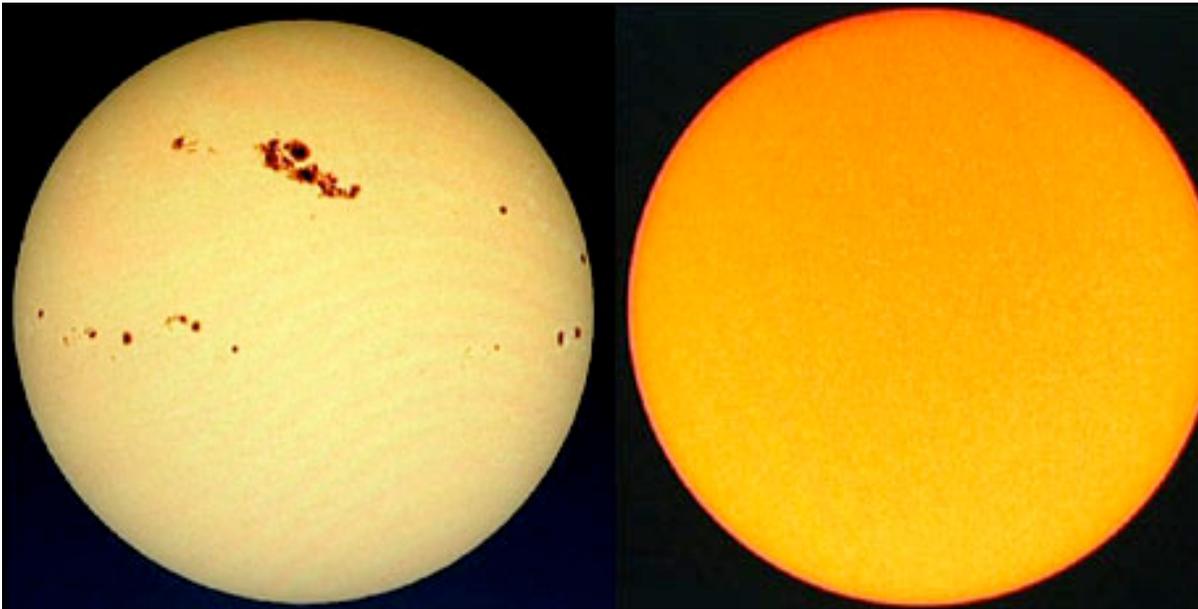


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'Quiet Sun' baffling astronomers

By Pallab Ghosh
Science correspondent, BBC News

Still Sun' baffling astronomers



The Sun is the dimmest it has been for nearly a century.

There are no sunspots, very few solar flares - and our nearest star is the quietest it has been for a very long time.

The observations are baffling astronomers, who are due to study new pictures of the Sun, taken from space, at the UK National Astronomy Meeting.

The Sun normally undergoes an 11-year cycle of activity. At its peak, it has a tumultuous boiling atmosphere that spits out flares and planet-sized chunks of super-hot gas. This is followed by a calmer period.

Last year, it was expected that it would have been hotting up after a quiet spell. But instead it hit a 50-year low in solar wind pressure, a 55-year low in radio emissions, and a 100-year low in sunspot activity.

According to Prof Louise Hara of University College London, it is unclear why this is happening or when the Sun is likely to become more active again.

"There's no sign of us coming out of it yet," she told BBC News.

"At the moment, there are scientific papers coming out suggesting that we'll be going into a normal period of activity soon.

"Others are suggesting we'll be going into another minimum period - this is a big

scientific debate at the moment."

Images from Soho taken in 2001 (left) and 2007 (right)

Sunspots could be seen by the Soho telescope in 2001 (l), but not this year (r)

In the mid-17th Century, a quiet spell - known as the Maunder Minimum - lasted 70 years, and led to a "mini ice-age".

This has resulted in some people suggesting that a similar cooling might offset the impact of climate change.

According to Prof Mike Lockwood of Southampton University, this view is too simplistic.

"I wish the Sun was coming to our aid but, unfortunately, the data shows that is not the case," he said.

Prof Lockwood was one of the first researchers to show that the Sun's activity has been gradually decreasing since 1985, yet overall global temperatures have continued to rise.

"If you look carefully at the observations, it's pretty clear that the underlying level of the Sun peaked at about 1985 and what we are seeing is a continuation of a downward trend (in solar activity) that's been going on for a couple of decades.

"If the Sun's dimming were to have a cooling effect, we'd have seen it by now."

'Middle ground'

Evidence from tree trunks and ice cores suggest that the Sun is calming down after an unusually high point in its activity.

Professor Lockwood believes that as well as the Sun's 11-year cycle, there is an underlying solar oscillation lasting hundreds of years.

He suggests that 1985 marked the "grand maximum" in this long-term cycle and the Maunder Minimum marked its low point.

"We are re-entering the middle ground after a period which has seen the Sun in its top 10% of activity," said Professor Lockwood.

"We would expect it to be more than a hundred years before we get down to the levels of the Maunder Minimum."

He added that the current slight dimming of the Sun is not going to reverse the rise in global temperatures caused by the burning of fossil fuels.

"What we are seeing is consistent with a global temperature rise, not that the Sun is coming to our aid."

Data from the Intergovernmental Panel on Climate Change (IPCC) shows global

average temperatures have risen by about 0.7C since the beginning of the 20th Century.

And the IPCC projects that the world will continue to warm, with temperatures expected to rise between 1.8C and 4C by the end of the century.

No-one knows how the centuries-long waxing and waning of the Sun works. However, astronomers now have space telescopes studying the Sun in detail.

According to Prof Richard Harrison of the Rutherford Appleton Laboratory, Oxfordshire, this current quiet period gives astronomers a unique opportunity.

"This is very exciting because as astronomers we've never seen anything like this before in our lifetimes," he said.

"We have spacecraft up there to study the Sun in phenomenal detail. With these telescopes we can study this minimum of activity in a way that we could not have done so in the past."