

Media for Richard Fisher
Missing Sunspot Telecon
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It is sometimes a surprise to people, but it turns out that our Sun, the star that powers and drives our planet, actually changes in a regular way over time. It is a variable star, one that has a variation in its output of ultraviolet light, and it also changes its magnetic field in a semi-regular pattern.

Every eleven years or so there is a relative maximum of sunspots seen against the bright disk of the sun. That they exist, and that there is variation in their number, has been known for about four centuries.

During the age of space exploration, say over the last 50 years, we have become aware that besides this variation in the Sun's magnetic field, the radiative output in the far ultraviolet is also quite variable - at some wavelengths by a factor of 100 times more short wavelength UV radiation at the times of sunspot maximum. Because of the absorption of the Earth's atmosphere, this fact was unnoticed until the era of space probes - lifting detectors above the absorbing gas of the Earth's atmosphere.

The reason for this cyclic 11-year variation in sunspot number and the amount of high-energy ultraviolet radiation from the sun was a mystery to scientists. For the most part, scientific attention has been focused on sunspot maximum periods, since this is the time when more solar flares and other solar outbursts are generated.

The most recent solar minimum, 2008, has given scientific researchers new clues to the solar magnetic activity cycle. Today we are going to change our focus to a time of solar minimum, the periods when there are few, if any, spots on the sun - and look for insights to the magnetic variability and the 11-year sunspot cycle as well as the sun's UV interaction with the Earth.