

“The Long Wait for Sunspot Cycle 24”

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Traditionally, solar physicists become anxious toward the end of each sunspot minimum, as they await the first sunspots of the new cycle. In 1976, Jack Eddy increased the anxiety by reminding us that the 11-year sunspot cycle, as we know it, disappeared for 70 years during 1645-1715, and that another such “Maunder Minimum” could happen at any time. Thus, when the recent sunspot minimum continued beyond its normal length, the solar community became especially anxious. We wondered, ‘What’s peculiar about this sunspot cycle?’ and ‘Is this the start of another Maunder Minimum?’ It was a long, deep minimum, not seen in 100 years, and included unusually weak polar magnetic fields, the occurrence of low-latitude coronal holes and their high-speed solar wind streams, a seemingly endless rise of cosmic-ray counts, and a corresponding decrease in the strength of the interplanetary magnetic field. In this talk, I will discuss these ‘peculiarities’ and show how they may have been caused by a temporal fluctuation in the speed of the Sun’s meridional circulation. I will also show evidence that this long sunspot minimum is now over.