

Variation of solar cycle during the Maunder and Spoerer minima

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Poster

We report the variation of solar cycle length during the prolonged sunspot minima called the Maunder Minimum (1645-1715 AD) and the Spoerer Minimum (1415-1534 AD) deduced from the carbon-14 content of tree-rings.

Variation of the production rate of carbon-14 content reflects the state of solar wind and the interplanetary magnetic field. We have measured the carbon-14 content of annual tree-rings for the Spoerer and Maunder minima in order to clarify the characteristics of solar activity during the prolonged sunspot minima.

The results of the frequency analyses of the carbon-14 contents show that the length of the eleven-year solar cycle is lengthened by several years only during the Maunder Minimum. The eleven-year cycle during the Spoerer Minimum is almost constant and modulated only around 1460 AD and 1500 AD.

Our results suggest that the features of the eleven-year solar cycle might differ between the Maunder-type minima and the Spoerer-type minima, both of which have occurred several times in the past.